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बेहतर भविष्य के लिए क्षमता निर्माण
Capacity Building for a Better Future

STUDY ON GLOBAL AGEING AND ADULT HEALTH
sage

World Health Organization

INDIA

Study on global AGEing and adult health (SAGE), Wave 2

WHO SAGE WAVE 2

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Capacity Building for a Better Future

International Institute for Population Sciences

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Study on global AGEing and adult health (SAGE) Wave 2

India National Report

P. Arokiasamy, T.V. Sekher, H. Lhungdim, Murali Dhar, Archana K. Roy

International Institute for Population Sciences

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Collaborating Institutions and Survey Agencies

Collaborating Institutions

International Institute for Population Sciences (IIPS)
World Health Organization (WHO)
National AIDS Research Institute (NARI)

Field Survey Agencies

TNS INDIA Pvt. Ltd. for Assam
Institute for Social and Economic Change (ISEC), Bangalore, for Karnataka
Nielsen India Pvt. Ltd. for Maharashtra
Indian Institute for Health Management Research (IIHMR), Jaipur, for Rajasthan
Research and Development Initiative (RDI), for Uttar Pradesh
Economic Information Technology (EIT), Kolkata, for West Bengal

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Foreword

People in India are undoubtedly living longer but how far they live healthier lives are not very clear. Longer lives also needs careful planning. There is clear lack of empirical evidence on matters relating to population ageing in India leading to unavoidable intuitive decision making. This report based on the second wave of the Study on Global AGEing and Adult Health (SAGE) provides critical information base on health status of elderly in India. SAGE is a global longitudinal study initiated in 2007 by the World Health Organization (WHO) in six countries- India, China, Ghana, Mexico, the Russian Federation and South Africa. SAGE collects data on adults aged 50 years and older, along with a smaller comparison sample of adults 18-49 years. SAGE wave-2 survey was conducted in 2015 in six states of India: Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal. The SAGE India Wave-2 survey covered 9116 individuals from 8152 households.

SAGE covered a wide range of topics related to older adults including their health, work history, risk factors and preventive health behaviour, major chronic conditions and health service coverage, health care utilization, social network, subjective wellbeing, and caregiving. Health status was also captured with the help of following biomarkers: anthropometry (weight, height, BMI, waist-to-hip ratio); physical tests (timed walk, handgrip strength, vision tests, blood pressure); and cognition tests (verbal fluency, immediate and delayed verbal recall, digit span).

SAGE is a comprehensive study designed to simultaneously generate data, raise awareness on the older adult's health issues, and inform public policies in the country. It provides an opportunity to examine how policies and institutions influence health care utilization and health outcomes among older adults (50 years and above).

I gratefully acknowledge the support from the World Health Organization and National Institute on Aging, USA for their financial and technical support to SAGE India study. I congratulate the SAGE team at IIPS on the successful completion of Wave 2 survey and for bringing out this comprehensive report. I am sure the findings will immensely be useful to scholars and policymakers and all those interested in enhancing the health and wellbeing of the older adults in the country.

Prof. K. S. James
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Acknowledgements

Study on Global Ageing and Adult Health (SAGE) is a collaborative project of the International Institute for Population Sciences (IIPS), Mumbai and World Health Organisation (WHO), Geneva. SAGE is a longitudinal study collecting data on adults aged 50 years and older, plus a smaller comparison sample of adults aged 18-49 years, from nationally representative samples in China, Ghana, India, Mexico, Russian Federation and South Africa. In India, SAGE was conducted in six states - Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal. SAGE Wave 2, India survey was conducted in 2015 and covered 8152 and 9116 completed households and individual interviews respectively.

First we would like to gratefully acknowledge the World Health Organization (WHO) for the financial contribution and partnering with IIPS to conduct and implement SAGE survey in India as part of multi-county ageing study. Our special thanks to Dr. Somnath Chatterji, Dr. Paul Kowal and Ms. Nirmala Naidoo.

Prof. F. Ram, Former Director of IIPS, is gratefully acknowledged for guidance and support. In addition, we would also like to express our gratitude for continuing the same support and guidance for the survey from Prof. L. Ladu Singh (Former Officiating Director) and Prof. K.S. James (Present Director) respectively. The administration of IIPS, together with the Registrar and Accounts Officer, extended all possible help in carrying out this survey. Ms. Soniya Mishra and Mr. Himanshu took the major responsibility of data analysis and preparation of this report, supported by Mr. Ashok Posture.

We would also like to express our gratitude to the survey field agencies who have coordinated the data collection activities in their respective state– TNS for Assam, Institute for Social and Economic Change (ISEC), Bangalore, for Karnataka, ORG for Maharashtra, Indian Institute for Health Management Research (IIHMR), Jaipur, for Rajasthan, Research and Development Initiative (RDI), for Uttar Pradesh, and Economic Information Technology (EIT), Kolkata, for West Bengal.

This acknowledgment cannot be complete without expressing our appreciation and recognition for the hard work put in by the field interviewers, health investigators, supervisors and state level coordinators for implementing and completing the data collection activity efficiently. We would also like to extent our heartfelt thanks to all respondents who participated in SAGE Wave 2 survey and willingly provided the required information. SAGE Wave 2, India project staff at IIPS put immense effort in survey instruments design, coordination and monitoring the field work activities, quality checks of the data at field level, timely intervention in resolving queries, engaging in data analysis and drafting the report. Their hard work and dedication is gratefully acknowledged. We hope that the findings of this survey will provide valuable insights to researchers and policymakers in India

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Executive Summary

The number of older persons—those aged 60 years or over—has increased substantially in recent years in most countries and regions, and that growth is projected to accelerate in the coming decades (WPP, 2019). According to the United Nations Population Division, older adults 60 and above will increase from 9% to 19.5% of India's total population by 2050, with a much larger elderly share of around 319 million (United Nations, 2019). Meanwhile, the proportion of the "oldest old" adults, those at least 75 years of age, has more than doubled over the past 60 years, from 0.9% of the total population in 1950 to 1.7% in 2011. By 2050 this group is projected to increase by 340% and reach almost 5.2% of the total population (United Nations, 2019).

There is an increasing need for valid and comparable data on the health and wellbeing of older adults. However, that currently lacks evidence and void in the existing data on the health and subjective wellbeing, quality of life of older adults. Health research in developing countries, including India, has historically been heavily focused on the younger population, particularly children and women of reproductive age. Longitudinal data on the health and wellbeing of older adults particularly lack in India both for formulating policy and scientific research on ageing.

The current level and pace of population ageing vary widely across geographic regions and usually within the regions as well. Ageing is determined not only by the pace of growth of the older population but also by how that pace compares to the other age groups' growth rates. Globally, the number of older persons is growing faster than the number of people in any other age group. Concurrently, with an increase in the proportion of older people, the old-age dependency ratio (population age 65+/population age 25-64) will also increase at a rapid scale in the coming years. The United Nations Population Division estimates the old-age dependency ratio to increase from the present 8.6% to 20.5% by 2050 (United Nations, 2019).

The world's developed regions have reached a more advanced stage of population ageing, and the developing world is ageing rapidly. Improvements in longevity and reduced fertility become increasingly important drivers of population ageing. These shifts over time in the relative sizes of the various age groups have increased in the population's proportion at older ages. In 2019, there were 703 million persons aged 65 years or over in the global population. Over the next three decades, the number of older persons worldwide is projected to more than double, reaching more than 1.5 billion persons in 2050. Globally, the share of the population aged 65 years or over increased from 6 per cent in 1990 to 9 per cent in 2019. That proportion is projected to rise further to 16 per cent in 2050, when it is expected that one in six people worldwide will be aged 65 years or over(United Nations, 2019).

The widespread nature of these ongoing demographic shifts present complex health, social, and economic challenges and profoundly impact elderly life.

Given the gap in evidence, the Study on Global Ageing and adult health (SAGE) survey provides the longitudinal empirical base on the health and wellbeing of older adults by providing reliable, valid and cross-nationally comparable data, examining health difference across individuals, countries and regions, and providing validated health measurement methods. It is anticipated that the SAGE results will help inform the health, social, environmental, and economic policies and programmes that affect individuals and populations' health status across different countries.

Objectives

The goals of SAGE are to (a) promote a better understanding of the effects of ageing on wellbeing; (b) examine the health status of individuals aged 50-plus as well as changes, trends and patterns that occur over time; and (c) improve the capacity of researchers to analyze the effects of social, economic, health care and policy changes on current and future health.

Primary objectives

- To obtain reliable, valid and comparable data on levels of health in a range of key domains for adult populations who are 50 years and older in nationally representative samples;
- To examine patterns and dynamics of age-related changes in health and wellbeing, using longitudinal follow-up of survey respondents as they age, and to investigate socioeconomic consequences of these health changes;
- To supplement and cross-validate self-reported measures of health and the anchoring vignette approach to improving comparability of self-reported measures, through measured performance tests for selected health domains;
- To collect data on health examinations and biomarkers to improve the reliability of data on morbidity and risk factors and monitor the effectiveness of interventions.

Sample and interview

As the focus of SAGE is older adults, a much larger sample of respondents aged 50 years and older was selected with a smaller comparative sample of respondents aged 18-49 years. SAGE's first full round of data collection included both follow-up and new respondents. The sampling design goal was to obtain a nationally representative cohort of persons aged 50 years and older, with a smaller cohort of persons aged 18 to 49 for comparison purposes. In older households, all persons aged 50+ years were invited to participate.

Standardized SAGE survey instruments were used consisting of five main parts: 1) household questionnaire; 2) individual questionnaire; 3) proxy questionnaire; 4) verbal autopsy questionnaire; and, 5) appendices including showcards. A VAQ was completed for deaths in the household over the last 24 months.

The survey instruments are based on the WHS programme, with substantial revisions and additions based on a review of other major ageing surveys, cognitive testing of a draft survey instrument, and recommendations from a group of experts. Data were collected using a standardized questionnaire (with country-specific adaptations), including self-reported and objective health measures (performance tests, anthropometry and biomarkers).

For SAGE Wave 2 in India, a cohort of 6560 respondents aged 50-plus was followed from the 2007 SAGE Wave 1. In addition to this cohort, new respondents have been recruited to meet sample size targets and to adjust for attrition and other biases inherent to longitudinal survey designs. The target sample included adults aged 18-49 years for comparative purposes.

Similar to SAGE 0 and SAGE 1, the SAGE Wave 2 (2015) India was implemented in the same six states to ensure a representative sample – Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal. The same primary sampling units (PSUs) and households covered in the 2007 SAGE wave 1 comprised the follow-up sample for SAGE Wave 2 India in 2015.

SAGE Wave 2 India included a total of 9,116 completed interviews: 1,998 interviews with persons aged 18-49 (1,165 women and 833 men) and 7,118 interviews with persons aged 50-plus (3,781 women and 3,337 men).

Face-to-face interviews were used to collect information about the physical characteristics of the dwelling/household; a household roster, including the sex, age, marital status, education, and care needs of each household member; cash and non-cash transfers into and out of the household; household income and expenditures; work history and benefits; health and health behaviours; chronic conditions; health care utilization; social networks; subjective wellbeing and quality of life; and impact of caregiving. The health status of individuals was also assessed with the help of the following biomarkers: anthropometry (weight, height, BMI, waist-to-hip ratio); physical tests (timed walk, handgrip strength, vision tests, blood pressure); and cognition tests (verbal fluency, immediate and delayed verbal recall, digit span).

Households and Social Demographic Characteristics

SAGE Wave 2 India interviewed a total of 9,116 households in the six surveyed states. Around two-thirds of these households had six or more members; some 1% of the households were single-member households, and 17% of the households were large households with 11 or more members. Men headed 90% of the households. Slightly less than three-fourth (74%) of the households were headed by persons aged 50-plus. Three-quarters (72%) of all households were from rural areas. Eighty-four percent of household heads stated that they followed the Hindu religion; 12% were Muslim, and the remaining 4% were of other religions. Only 8% of the heads belonged to scheduled tribes and 16% to scheduled castes.[1]

Of the households surveyed, 54% of them had two or more older adults (defined as adults aged 50-plus); 33% of households had a single older adult; the remaining 13% contained only younger adults (defined as adults aged 18-49).

Of the 9,116 adult respondents interviewed, over three-fourths were older adults. Among older adults, roughly one-third were aged 50-59, roughly 36% were aged 60-69, 18% were aged 70-79 and 3% were in the 80-plus age group. Age distribution did not differ much between the sexes. Approximately equal proportions of older men and women were interviewed.

Education levels differed clearly between the sexes, particularly in the older cohort. While around 27% of older men had no formal education, the equivalent proportion among older women was 68%. Around two-fifths (40%) of older men had completed at least secondary schooling, and 11% had completed college education; however, only 11% of older women had completed secondary schooling and 3 % had completed college. Among the older men, 88% were currently married and 10% were widowed; however, a substantial proportion (36%) of older women were widowed.

[1] Scheduled castes and tribes are groups recognised in the Constitution of India as historically disadvantaged.

Employment, income and expenditures

Labour force participation rates were high across the survey. Among older respondents, 67% had regularly worked – slightly higher than the 57% ever-worked rate among younger respondents. Indeed, 42% of older respondents were still working and 49% of younger respondents. Current work participation rates pointed to rise with age up to the 40-49 age group, which had the highest work participation rate of the study (54%); after this age, participation rates began to drop, from 52% in the 50-59 age bracket to a low of 11% among respondents aged 80-plus. In every age group, the work participation rate among men was much higher than that of women: for example, nearly two-thirds of older men were working, compared to one-fifth of older women.

Most older respondents (50%) had stopped working because of health problems, old age or retirement; about 28% cited a family-related reason, and 17% cited other reasons. The proportion stopping work due to health reasons increased substantially with age of respondent; unsurprisingly, most persons aged 80-plus (74%) had stopped working for this reason.

Despite the predictable overall decline in work participation among older respondents, it is interesting to note that a significant number of older adults (42%, as noted above) were still working. This figure included 27% of persons aged 70-79 and about one in nine (11%) of respondents aged 80-plus. Among the working older respondents, large proportions either were self-employed (57%) or were working in the informal sector (23%); only a small proportion worked in either the public (8%) or private (12%) sectors. Older men were most likely to be self-employed (57%), whereas the informal sector was dominated by older women (31%).

SAGE Wave 2 India also collected data on household income as part of the household questionnaire. The estimated per capita mean household income was 1,564 rupees (Rs.) per month. Age, education and gender all played a role in earning levels. The income level of male-headed households was much higher than that of female-headed households, and that of households headed by an older woman was higher than that of those headed by a younger woman.

Most of the households selected for the study received income from multiple sources. The most important source of household income was wages/salaries, which were received by less than two-thirds (62%) of households, compared to the 26% of households that received income from trade/business, which was the second-largest listed source of income. However, a large proportion of households (21%) reported receiving income from a pension. Only about 13% of households received income from unspecified sources, probably including agriculture/farm income or remittances. Gender differentials in the household structure acted as a determinant of the source of income: a relatively higher proportion of male-headed households received income from trade/business and other sources, whereas female-headed households were more likely to derive their income from pensions. Also, the age of the head of the household determined the earning level of the household.

Worryingly, most households (61%) did not find their income sufficient to take care of their needs. Interestingly, although (as noted above) male-headed households had much higher income levels than female-headed households, almost equal proportions of both types of households perceived their household incomes as adequate.

Along with data on household income, SAGE Wave 2 India also collected data on family support networks and transfers. In all, 28% of the households selected for the study received monetary assistance and 15% received non-monetary (in-kind) assistance, either from family members and the community or from the Indian Government. A smaller proportion of households provided monetary (15%) or in-kind (6%) assistance to other family or community members.

A very small (4%) proportion of households received assistance with household chores from either family or community members, and a similar proportion (4%) assisted other family or community members. A higher proportion of female-headed households received all three types of support (monetary, in-kind and assistance with chores), and a relatively lower proportion of such households provided monetary and in-kind support to others. For example, 29% of households headed by younger women received monetary support and 21% received in-kind support, compared to 28% and 18% of the households headed by younger men. The proportion of households that received monetary support and assistance with chores did not vary much with income (a 7% spread overall); non-monetary assistance, however, varied more greatly, with 15% of lowest-quintile households receiving in-kind support compared to only 8% of highest-quintile households. Only a small proportion – about 1-2% – of older respondents reported that they provided financial, emotional, health, physical or personal help during the 12 months before the survey to an adult household member.

Health behaviours

SAGE Wave 2 India collected data on five major factors that increase or reduce the risk of certain health conditions: tobacco use, alcohol consumption, intake of fruits and vegetables, physical activity levels, and environmental risk factors such as access to improved drinking water and improved sanitation facilities and the type of fuel used for cooking. The SAGE questions were based on the WHO recommendations from the STEPS guidelines for NCD surveillance. The study found that: Tobacco use among older Indians is high. The estimated prevalence of tobacco use among older respondents was 23%, dropping only slightly in younger respondents to 16%. A notably high proportion of older tobacco users (20%) consumed tobacco daily, with daily consumption among older men almost double that of older women (32.5% compared to 8.6%). Most of the older female and male tobacco users used smokeless tobacco.

Alcohol use among older Indians is low. Only about 10% of older respondents (20% of men and 2% of women) reported alcohol consumption, with the substantial majority of these only drinking infrequently. Interestingly, among older adults who drank at all, older women were more likely to be heavy drinkers (either frequent or infrequent) than older male drinkers (one half, compared to one-third).

Older Indians are found to be not eating enough fruits and vegetables. Among the older population, insufficient intake of fruits/vegetables was vehement, with 80% of older respondents eating fewer than five servings of fruits and vegetables a day. The proportion with sufficient intake of fruits/vegetables was relatively lower among older women than among older men.

Older Indians are reported to be reasonably active. Among both men and women, the proportion of persons with no physical activity in the previous seven days increased with age; however, a little less than a half (45 %) of older respondents reported no physical activity, and 21 % of older men undertook vigorous activity (compared to 10% among older women). Among the oldest respondents aged 80-plus, inactivity rose, with 66% of men and 83% of women reporting no physical activity. However, it is notable that about 15% of these oldest respondents engaged in vigorous or moderate physical activity.

Indian households' access to improved drinking water is rising, but most still lack toilet facilities and use dirty fuels. For India as a whole, 96% of households reported using improved drinking water sources, but only about 3% of households had water sources within the household premises. Nearly 82%, however, still had to spend 30 minutes or longer on each trip to fetch water. By contrast, one-third of households (35%) did not have any toilet facility, and an additional 13% were using unimproved facilities. Meanwhile, most households used dirty fuels (61% solid fuel, 0.5% kerosene) for cooking; only 39% used LPG or electricity of all the households, 86% of them do not have fire/stove covered.

Around 45% of households who cook in a room used for living or sleeping/ in a separate room used as a kitchen or a separate building used had a stove covered with a chimney or hood. Of the individual states, Maharashtra had the best figures for improved water supply (96%) and clean fuel (used by 62.2%), and Uttar Pradesh had the worst figures for toilet facilities (52% without toilet).

Health

The main objective of SAGE Wave 2 India was to obtain data on levels of health in older populations. Measurements of health included self-reported ratings on overall general health and concerning eight health domains, disability, and activities of daily living/ instrumental activities of daily living (ADLs/IADLs). Health was also assessed through anthropometric measures and more objective performance tests and biomarkers.

Perhaps unsurprisingly, self-reported health status showed a progressive deterioration with increasing age. The proportion of persons who reported their health as good declined from 76% in younger adults to 18% in the study's oldest respondents aged 80-plus; by the same token, the proportion who reported their health status as bad increased from 4% among the study's youngest respondents (aged 18-29 years) to 47% among the oldest. A little more than a third (35%) of older adults reported their health status as good, while 47% reported their health status as moderate and 18% as bad. The self-reported health status of older women was worse than older men: 68% of older women reported their current health status as moderate or bad, compared to 62% among older men.

A substantially higher proportion of older adults had difficulty in work or household activities. Forty-Eight percent of older respondents reported having at least some difficulty with work or household activities, as against 25% of younger respondents; meanwhile, 20% of older persons reported severe difficulty with work. Older women were more likely to have difficulty with work or daily activity compared to older men: 51% of older women reported some difficulty with work, compared to 45% of older men, with a further 14% of older women, against 11% of older men, reporting severe difficulty.

To better understand the determinants of health and the possible differences between perceived and true levels of health, SAGE Wave 2 India respondents were asked their situation in the past 30 days concerning eight domains of health, including mobility, self-care, pain and discomfort, cognition, interpersonal activities, sleep and energy, affect, and vision, to generate an overall health score. Health status worsened with age, as reflected in lower health scores and higher disability scores for older adults in comparison to younger adults. According to the eight health domains, mean health scores declined by 23 points between the two age cohorts (from 59.4 in the 18-49 age group to 36.6 among the 50-plus age group) and mean disability scores increased by 15 points (from 14.1 to 28.8). The increase in disability scores with increasing age was relatively higher than the decrease in health scores. Men's health status was better than that of women in both age cohorts, and disability scores were also lower.

With increasing age, there was a sharp increase in the proportion of persons experiencing deficiencies concerning their ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs).2 More than one-third of older persons (37%) had at least one ADL deficiency, and 23% had two or more ADL deficiencies. The prevalence of deficiencies in daily activities was much higher among older women than older men: about 43% and 28% of older women had at least one ADL and IADL deficiency respectively, compared to 31% and 21% of older men.

[2] Activities of daily living (ADLs) refer to daily self-care activities, typically within an individual's place of residence, and include more basic activities such as eating, bathing and toileting. Service or care-giving issues are typically triggered when a person has two or more ADL deficiencies. Instrumental activities of daily living (IADLs) include more complex activities, such as heavy or light housework, laundry, preparing meals, shopping for daily necessities, getting around outside, travelling, managing money and using a telephone.

Cognition also declined with age, both overall and in individual tests. The overall cognition score of older respondents was almost 7 points lower (54, compared to 61 points) than younger respondents' overall score. The difference was quite stark between the youngest and the oldest respondents, with a reduction in the overall cognition score from 66 for the 18-29 age group to 46.3 for respondents aged 80-plus. The scores of women were consistently lower than those of their male counterparts across age cohort and individual tests. The difference between sexes was almost the same in the older age cohort and the younger cohort, with a gap of 5 points.

Chronic conditions and treatment

SAGE Wave 2 India gathered evidence on a selected range of chronic diseases that contribute to a large portion of the burden of non-communicable diseases more widely prevalent among older adults. These included arthritis, stroke, angina, diabetes mellitus, chronic lung disease, asthma, and depression. SAGE Wave 2 India also collected data on hypertension, edentulism, injuries and preventative health measures, including cataract surgery and cancer screening.

Chronic disease prevalence was higher among older than younger respondents, with hypertension as the most prevalent chronic disease among older respondents (20%) and arthritis a close second 18%. For both conditions, the prevalence was higher among older women than among older men. No other disease had a prevalence exceeding 10% among older adults—although the prevalence was higher among older men than older women for each of the conditions except for depression.

Four conditions have a method of generating prevalence through symptom reporting: arthritis, asthma, angina and depression. The symptom-based prevalence of asthma and depression were higher by 6-10% than the self-reported prevalence among older respondents. Similarly, the symptom-based prevalence of angina was substantially higher than the prevalence of self-reported angina. For example, 1% of older respondents reported being diagnosed with depression, but prevalence was 12% when data was generated thorough symptom reporting. The symptom-based prevalence of arthritis didn't differ much from the self-reported prevalence.

SAGE Wave 2 India revealed significant levels of unmet need for medication or treatment among older and younger respondents. Among older respondents, the highest unmet need for medication or treatment was reported for depression (60%). Meanwhile, about 45% of older persons diagnosed with chronic lung disease also had an unmet need for medication or treatment, as did about a quarter of older persons diagnosed with angina, diabetes, asthma. A little less than one-third of older persons diagnosed with arthritis, stroke and hypertension had unmet need for medication or treatment. By comparison, the highest level of unmet need for medication and treatment among younger persons was reported for depression and lung disease (54% and 53%, respectively).

The morbidity prevalence and particularly the prevalence of multiple co-morbidities was higher in the older age cohort. Twenty-seven percent of older respondents reported having a single chronic health condition, while 15% had multiple morbidities. The proportion of persons with at least one condition increased from 8% in the 18-29 age group to 47% for the 80-plus group.

While injury levels due to the accident were comparatively low among SAGE Wave 2 India's older respondents, the chances of such injury leading to disability were higher. Among older respondents, only 4% had been injured in road traffic accidents in the 12 months before the survey, and another 6% had been injured in other accidents: however, about 14% of the former group, and one-fifth of the later, suffered disability as a consequence.

The proportion of respondents with edentulism or cataracts increased with age, to 35% among respondents aged 80-plus. The prevalence of cataracts was much higher for older respondents aged 70-plus, of whom more than one-third had been diagnosed with cataracts in at least one eye. A similar proportion of men and women were likely to experience both edentulism and cataracts among older persons. Older respondents from urban were more likely to report cataracts than their rural counterparts, though both were equally likely to have edentulism.

Health examinations and biomarkers

Slow walking speed may be a predictor of functioning and cognition and adverse results such as hospitalization, dependence, and mortality. Normal walking time to cover four meters increased from four seconds among younger respondents aged 18-29 years to seven seconds among older adults aged 80–plus, while rapid walking time to cover four meters increased from three seconds among young adults aged 18-29 years to five seconds among adults aged 80-plus.

High Blood pressure is a major etiologic pathway in developing chronic diseases such as heart disease (angina, heart attack and heart failure), stroke, peripheral vascular disease, eye diseases including blindness, and kidney damage. Three readings of blood pressure were taken from each respondent, with the average of the second and third readings used for analysis. About one in six young adults and one in three older adults had hypertension, either systolic or diastolic. Among older respondents, the average systolic blood pressure was 130 mmHg and diastolic blood pressure was 81 mmHg. Based on a critical limit classification of blood pressure, among older adults, the prevalence of systolic pre-hypertension was 39% and diastolic pre-hypertension was 34%. Indeed, for India as a whole, 37% of younger and 36% of older adults had either systolic and/or diastolic pre-hypertension. The prevalence of hypertension did not vary much between men and women.

Visual impairment is associated with functional limitations and lowered well-being and affects health-related quality of life through its effect on self-care and treatment-seeking behaviour. For SAGE Wave 2 India , both near and distance vision was measured for both eyes. The prevalence of low near and distance vision was high among older respondents, with 57% overall showing impairments in either near or distance vision. The problem of low near vision increased particularly noticeably with age.

The measured prevalence of two major chronic conditions, hypertension and vision acuity, compared with their self-reported prevalence to assess undiagnosed disease levels. The comparative results reveal several insights better to understand the prevalence of levels and variations in hypertension. First, age shows a strong positive gradient for those respondents who were hypertensive on measurement respective of their reporting, in all states and by sex. The prevalence of measured hypertension was relatively higher for women than men among the 50+ population. Measured hypertension was highest in Karnataka, West Bengal and Assam.

For adults aged 50-plus, the prevalence of self-reported negatives but measured positives for hypertension varied from 5-35% between the sexes and states and the prevalence of both reported and measured positive for hypertension varied in the narrow range of 3-24% among states and between sexes.

The prevalence of measured vision problems (representing categories a and b in Figure 8.7.2) increased remarkably with age among adults aged 50-plus. Between 52-83% of older adults aged 70-plus had low visual acuity on measurement. At age 50-plus, the prevalence of self-reported and measured problems with low vision varied from 16-34% between states, whereas the prevalence ranges 9-23% and 21-44% among 50+ males and females, respectively.

The results indicate the high prevalence of low visual acuity (almost 80%) among female adults aged 70-plus in comparison to their male counterparts, suggesting the need for gender sensitized eye-care intervention for the better reach and access of eye-care services among female.

Health care utilization, health system responsiveness and health financing

Health status and health care utilization measures are central indicators of the performance of the health care system. To determine the responsiveness of the Indian health care system, SAGE Wave 2 India asked respondents to assess their need for inpatient and outpatient treatment over the previous year and to assess the services they had received against the criteria of prompt attention, dignity/respect, communication, choice, confidentiality, access to support and quality of care. About four in five respondents, both younger and older, reported the need for health care during the previous 12 months. Among young adults age 18-49 years, around 21.5% had required health care before, but not during that period, and about 18% had never required any health care. Whereas among aged 50 plus, around 23 % had required health care before, but not during that period, and about 15% had never required any health care.

Among the older adults, 25% of males reported having required health care before, but not during that period is higher than its female (21%) counterpart whereas the never-needed healthcare among the females was higher than the males.

Across all age groups, a higher proportion of women than men reported the need for health care; however, the proportion of men reporting the need for health care increased with age, although this age trend was not observed among women.

Among older adults who needed health care in the past year, 15% received inpatient care, 80% received outpatient care and a small proportion (6%) had not received any care. Among respondents aged 50-plus who received inpatient care, 22% received treatment for non-communicable chronic diseases, 17% received health care for acute diseases and 61% received health care for other diseases. Women were more likely to use inpatient care for acute diseases, while men were more likely to use inpatient care for chronic diseases. Among older respondents who received outpatient care, 19% received care for chronic diseases, 42% received care for acute diseases and 39% received care for other conditions.

Health system responsiveness for those who received services was measured through questions in seven domains: access, choice, communication, confidentiality, dignity/respect, quality and prompt attention. Respondents were asked to rate their satisfaction with each domain, with an overall score generated by summing all the responses. Taking both age cohorts together, outpatient care services were more responsive than inpatient services.

Disturbingly, the study found that out-of-pocket (OOP) expenditure on health imposed a significant burden on many of the study's households. The mean household monthly OOP expenditure was Rs. 11,998, with an average of Rs. 1956 – 16% of household expenditure, or 23% of non-subsistence expenditure – spent on health, discount for health insurance and other health benefits. Perhaps unsurprisingly given these figures, 31% of households living below the poverty line had incurred catastrophic health expenditure, defined as occurring when a household's total OOP health payments equaled or exceeded 40% of the household's capacity to pay or non-subsistence spending. Furthermore, out of all households which had incurred catastrophic health expenditures, 30% had become impoverished as a consequence. Mean OOP health payments in households that had incurred catastrophic health expenditure were Rs. 4,800, compared to only Rs. 716 for households without catastrophic health payments.

A major part of total OOP expenditure on health care (58%) was spent on medications, while 24% went to outpatient care, 4% to inpatient care, and 6% to long-term care. Diagnostic tests, accounted for 9% of total OOP health expenditure whereas traditional health care and health aids each accounted for 6% and 1% of total OOP health expenditure, respectively.

SAGE Wave 2 India's results revealed drastically low levels of health insurance coverage among respondents. Most households (51%) financed their health care expenditure from current income, with 41% supplementing from their savings. About a fifth of households needed to borrow money from relatives and 14% had to sell household assets where hospitalization was required. Overall, only about 4% of households had any health insurance coverage.

Quality of life

The analysis results indicated that the reported quality of life deteriorated with increasing age. A mean score for evaluative wellbeing was generated; this decreased from 60 for younger respondents to 46 for older respondents. Quality of life was lower for women than for men, with the disparity growing with age. Wealthier respondents assessed their quality of life more positively than poorer respondents; urban respondents also scored more positively than those living in rural areas.

1. Introduction

1.1 Global ageing

Globally, an unprecedented wave of demographic changes, increasing longevity and falling fertility have resulted in a demographic dividend and led to a dramatic increase in the population of adults aged 60 and above. Population ageing continues to increase worldwide but at a different pace.

According to data from World Population Prospects: the 2019 Revision (United Nations, 2019), the world's population reached 7.7 billion by mid of 2019. Continued population growth until 2050 is almost inevitable, even if the decline of fertility accelerates. Further, the projected population growth is expecte to be 8.5 billion by 2030 (10% increase), 9.7 billion by 2050 (26%) and 10.9 billion by 2100 (41%).

These projected estimates in the population increase in the world can be attributed to the list of high-fertility countries (like Africa) and countries with already large populations. During 2019-2050, half of the world's population growth is expected to be contributed by nine countries: India, Nigeria, Pakistan, the Democratic Republic of the Congo, Ethiopia, the United Republic of Tanzania, Indonesia, Egypt and the United States of America (listed in descending order of the total population increase). By2027, it is projected that India will overtake China as the world's most populous country.

As fertility declines and life expectancy rises, the proportion of the population above a certain age increases. This phenomenon, known as population ageing, is occurring throughout the world, thus producing an increase in the median age of the population. The increase in the size and rate of growth of the older population can arise from (a) an increase in the number and proportion of older persons; (b) a decrease in the number and percentage of the younger population (conventionally aged below 15); or (c) both of these factors (Coleman, 2006).

In 2019, there were 703 million persons aged 65 years or over in the global population. Over the next three decades, the number of older persons worldwide is projected to more than double, reaching more than 1.5 billion persons in 2050. Globally, the share of the population aged 65 years or over increased from 6 per cent in 1990 to 9 per cent in 2019. That proportion is projected to rise further to 16 per cent in 2050, when it is expected that one in six people worldwide will be aged 65 years or over.

Globally, the number of people aged 80 years or over, the "oldest-old" persons, is growing even faster than the number of older persons overall. Projections indicate that in 2050 the oldest-old will number 426 million, having more than tripled in number since 2019, when there were 143 million people over age 80.

The proportion of the world's older persons who are aged 80 years or over is projected to rise from 14 percent in 2019 to more than 20 percent in 2050 (United Nations, 2019).

The developed regions of the world have reached a more advanced stage of population ageing, but the developing world is well on its way to a similar scenario. The median age, that is, the age that divides the population into two halves of equal size, is an indicator of population ageing. Globally, the median age is projected to increase from 31 to 36 years between 2019 and 2050 and 42 years in 2100 (WPP, 2019)

Several demographic indicators are used to compare trends and differentials in Ageing: the median age, ageing index, and sex ratio.

- *The median age* is the age that divides the population into two numerically equal groups, one younger and the other older than the median age. From 1950 to 2015, the median age of the world population increased from 24 to 30, and half of the world population is projected to be older than 36 years by 2050. In 2019, the median age in more developed regions were 42, more than twice the median age of 20 in less developed regions (see Table 1.1).

- *The sex ratio*—traditionally expressed as the number of men per 100 women—is a useful measure for describing the sex balance of the older population and trends therein. At the global level, there were 86 men for every 100 women aged 60 years or above in 2015, and 63 men for every 100 women, aged 80 years or over. Those ratios are projected to rise to 89 and 73, respectively, in 2050 (see Table 1.1).

Table 1.1 Selected ageing indicators, world and regions, 2019

Major areas and regions	Median age	Sex ratios (males per 100 females)		
		60+	65+	80+
World	30.5	85.5	81.5	62.5
More developed regions	41.9	77.9	74.1	56.8
Less developed regions	30.6	89.2	85.6	67.6
Least developed regions	19.9	85.2	82.4	71.9

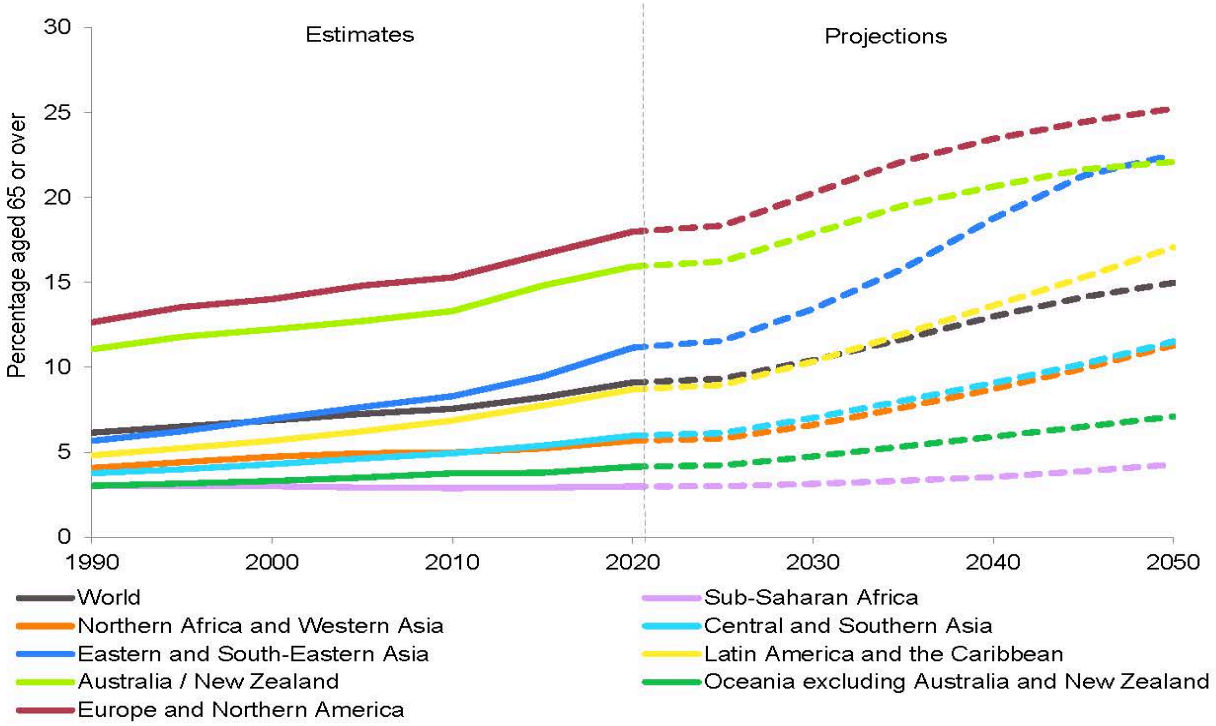
Source: United Nations, Department of Economic and Social Affairs, Population Division (2019) World Population Prospects: The 2019 Revision. New York: United Nations.

As a result of the gender gap in longevity, older women currently outnumber older men across the age range — in particular, for those aged 80 years or older. Globally in 2019, there were 81 men for every 100 women aged 65 years or older, yet only 63 men for every 100 women aged 80 years or older. With the sex difference in longevity expected to narrow in future years, in 2050 it is projected that there will be 85 men per 100 women aged 65 years or over, and 71 men per 100 women at ages 80 and above.

The sex balance of the older population is projected to remain relatively unchanged at the global level in the coming decades. Projections indicate that in 2050, women will comprise 53 percent of the world's population aged 60 years or over (WPP, 2019). The proportion of women aged 80 years or over is projected to decline to 58 percent in 2050.

The sex ratio—traditionally expressed as the number of men per 100 women—is a useful measure for describing the sex balance of the older population and trends therein.

Figure 1.1 Life expectancy at birth for both sexes combined, by region, 1990-2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019*.

Between 1990- 1995 and 2015-2020, global life expectancy at birth increased by 7.7 years (12 per cent) and is projected to increase by an additional 4.5 years (6 per cent) between 2015-2020 and 2045-2050. Sub-Saharan Africa experienced the largest increase (11.4 years), rising from 49.1 years in 1990-1995 to 60.5 years in 2015-2020, and a further gain of 7.6 years is anticipated between 2015-2020 and 2045-2050(Fig.1.1).

While life expectancy at birth has improved, the improvement in life expectancy at older ages has been even more rapid. Life expectancy at age 65 reflects the average number of additional years of life a 65-year-old person would live if subjected to the age-specific mortality risks of a given period throughout the remainder of his or her life. Globally, a person who is turning 65 years old could expect to live an additional 17 years in 2015-2020, and this number could rise to 19 years in 2045-2050. The current level of life expectancy at age 65 is highest in Australia and New Zealand, where it is expected to increase further from 21.2 years in 2015-2019 to 23.9 years in 2045-2050. By contrast, persons who reach age 65 in Oceania and sub-Saharan Africa are projected to live only an additional 14.0 and 14.2 years, respectively, in 2045-2050 (WPP, 2019).

Improvements in longevity become increasingly important drivers of population ageing. The life expectancy at birth describes the number of years a person would be expected to live if he or she were exposed throughout life to the prevailing age-specific mortality risks of a given period. Women tend to live longer than men. At the global level in 2015-2020, women's life expectancy at birth exceeded that of men by 4.8 years was 74.7 years, having risen from 46.8 years in 1950-1955. The female advantage in longevity is largest in Latin America and the Caribbean (6.5 years), Europe and Northern America (6.1 years), and Eastern and South-Eastern Asia (5.3 years). By contrast, the female advantage is smaller in Central and Southern Asia (2.7 years), Oceania (3.0 years) and sub- Saharan Africa (3.5 years)(Table 1.2.).

The female survival advantage persists at older ages. Globally in 2015-2020 women who turned age 65 were expected to live another 18 years, while men at the same age could anticipate living an additional 16 years on average. The gender gap in life expectancy at age 65 is largest in regions with high levels of life expectancy at birth, such as Eastern and South-Eastern Asia (3.4 years), Europe and Northern America (3.1 years), and Latin America and the Caribbean (2.8 years).

By contrast, the gender gap is much smaller in regions with comparatively low levels of life expectancy at birth, such as Oceania (0.6 years), Central and Southern Asia (1.1 years), and sub-Saharan Africa (1.3 years). Projections indicate that in 2050 women will constitute 54 per cent of the global population at ages 65 and above. Since the gender gap in survival rates between men and women is narrowing, the sex balance among persons aged 80 years or older will gradually become more even. The proportion of women at ages 80 years and higher is projected to decline slightly, falling from 61 per cent in 2019 to 59 per cent in 2050(WPP, 2019).

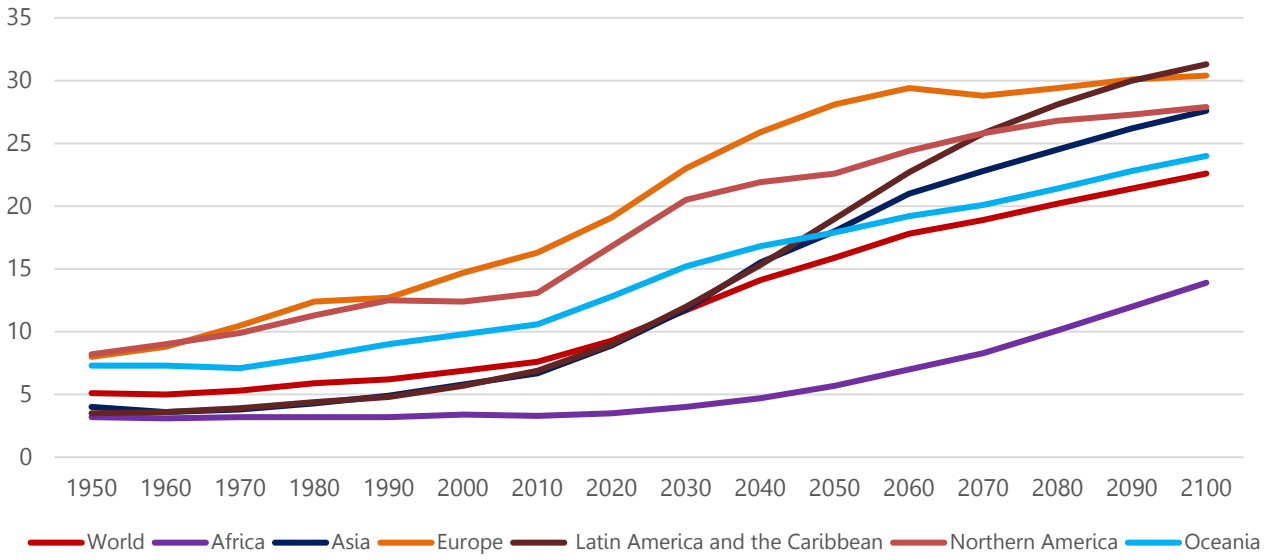
Table 1.2. Life expectancy at birth at age 65, by sex and region, 2015-2020

Region	Life Expectancy at birth(years)				Life Expectancy at age 65 years			
	Both Sexes	Female	Male	Difference between female and male	Both Sexes	Female	Male	Difference between female and male
World	72.3	74.7	69.9	4.8	17	18.3	15.6	2.7
Sub-Saharan Africa	60.5	62.3	58.8	3.5	12.8	13.4	12.1	1.3
Northern Africa and Western Asia	73.5	75.7	71.3	4.4	16	17.1	14.8	2.3
Central and Southern Asia	69.5	70.9	68.2	2.7	14.7	15.2	14.1	1.1
Eastern and South-Eastern Asia	76.3	79	73.7	5.3	17.2	18.9	15.5	3.4
Latin America and the Caribbean	75.2	78.5	72	6.5	18.2	19.5	16.7	2.8
Australia and New Zealand	83	85	81.1	3.9	21.2	22.6	19.9	2.7
Oceania excluding Australia and New Zealand	66.3	67.8	64.9	3	12.6	12.9	12.3	0.6
Europe and Northern America	78.5	81.6	75.4	6.1	19.1	20.5	17.4	3.1

Source: United Nations Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*

The current level and pace of population ageing vary widely across geographic regions and usually within regions. The number of older persons—those aged 65 years or over—has increased substantially in recent years in most countries and regions, and that growth is projected to accelerate in the coming decades (WPP, 2019). The global population of older persons aged 65 years and above is projected to double its size from 2015 to 2050.

Figure 1.2 Percentage of population in older ages (65+ aged) by region, 1950-2050



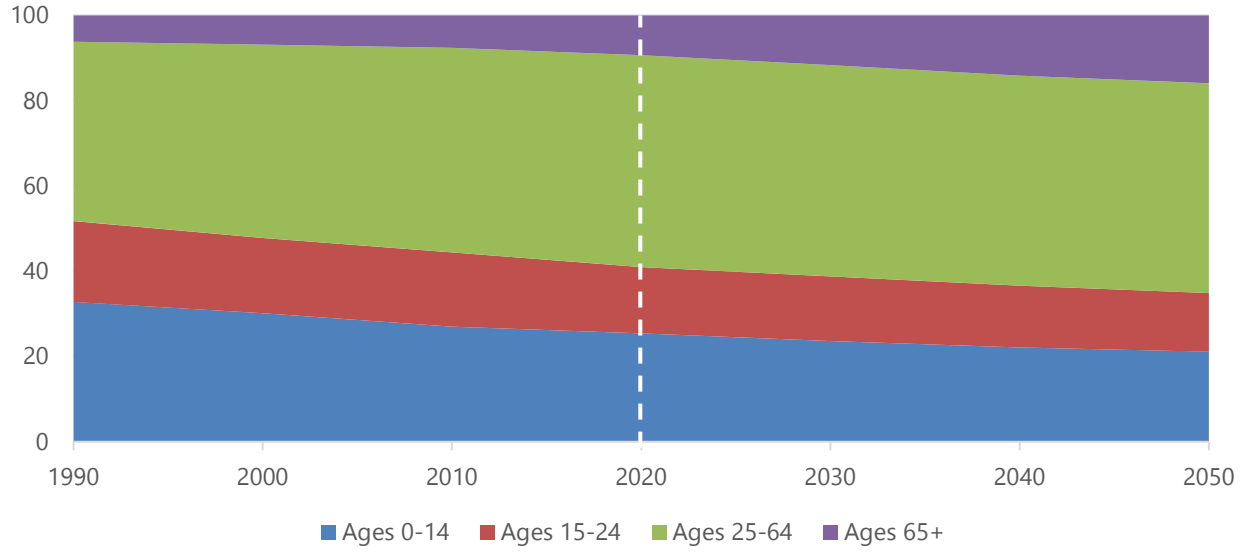
Source: United Nations (2019). World Population Prospects: The 2019 Revision.

Not only has the absolute number of older persons increased globally, but also the share of older persons in the total population has increased and is projected to continue to grow in all regions. The percentage of persons aged 65 or over worldwide has grown from 6 per cent in 1990 to 9 per cent in 2019 and is projected to increase further to 16 per cent in 2050 (figure 1.2).

According to World population prospects 2019 report: The region of Eastern and South-Eastern Asia was home to the largest share (37 per cent) of the world's older population in 2019 and is expected to remain in that position through 2050.The second largest share of older persons in 2019 lived in Europe and Northern America (28.5 per cent), but this percentage is expected to shrink to 19 per cent in 2050. The region of Central and Southern Asia hosted one sixth of the global population of older persons (17 per cent) in 2019, a figure that is projected to increase to around one fifth (21 per cent) in 2050. The regions of sub-Saharan Africa and of Northern Africa and Western Asia will likely see a further increase in the share of older persons between 2019 and 2050, rising from 5 to 7 per cent, and from 4 to 6 per cent, respectively.

Ageing is determined not only by the pace of growth of the older population but also by how that pace compares to the growth rates of the other age groups (Fig 1.3.). Globally, the number of older persons is growing faster than the number of people in any other age group. In contrast, at the global level, the numbers of children under the age of 15 and adolescents and youth aged 15-24 years will change very little. The global number of adults aged 25-64 years is growing faster than the number of children, but not as fast as the population aged 65 years or over. In 1990, the adult population at working ages (25 to 64 years)2 constituted the largest age segment of the global population (42 per cent), followed by children aged 0 to 14 years (33 per cent) (figure 1.3). Although the older population (65 years and above) comprised only 6 per cent of the total population in 1990, its share is projected to increase to 16 per cent in 2050. The share of working-age adults is also projected to increase from 42 per cent in 1990 to 49 per cent in 2050—while the share of youth (15 to 24 years) is projected to fall from 19 to 14 per cent over the same period, and that of children from 33 to 21 per cent.

Figure 1.3 Global population distribution by broad age group, 1990- 2050



Source: United Nations Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects 2019.*

These shifts over time in the relative sizes of the various age groups have resulted in increases in the proportion of the population at older ages. The proportion of older persons globally is projected to continue to increase to more than 16 percent in 2030 and over 21 percent in 2050. Thus, by the middle of the twenty-first century, around one in every five people globally will be aged 60 years or over.

1.2 Emerging health trends of population ageing

The focus of the WHO on increasing life expectancy has led to a marked growth in the older population globally, both in relative and absolute terms. This is true not only of high-income countries but also of the rest of the world. (WHO, 2012).

The pace at which the population is ageing is much faster than in the past. Abdel R. Omran first posited epidemiologic theory to explain the correlation between mortality patterns, morbidity patterns, and demographic transition (Omran 1971). According to this theory, it suggests that demographic transitions are accompanied by an epidemiologic transition in which trends in cause of death shift from acute and infectious diseases to chronic and degenerative conditions. This transition was identified in the 1990s in the Global Burden of Diseases study (Murray, 1996), which flagged a noticeable shift in the global burden of disease from infectious diseases to non-communicable diseases (NCDs) and chronic conditions.

Epidemiologic transition theories reflected how changes in the causes of mortality, from infectious disease to chronic conditions bring out changes in the longer life expectancy. According to the WHO projections, NCDs will attribute significantly to the total number of deaths in the next decades. NCD deaths are projected to increase by 15% globally between 2010 and 2020.

The greatest increases will be in Africa, the Eastern Mediterranean, and South-East Asia, where they will increase by over 20% (GBD, 2015). Postponing mortality caused by many of the diseases associated with old age, in particular, non-communicable diseases (NCDs) such as cardiovascular diseases, cancers, diabetes and respiratory diseases have significantly contributed to the progress achieved in life expectancies at older ages.

Cardiovascular diseases, which include heart diseases and stroke, accounted for the largest proportion of deaths among older persons worldwide in 2012. Apart from cardiovascular diseases, chronic obstructive pulmonary disease (COPD), lower respiratory infections, diabetes mellitus and lung cancer (including trachea and bronchus cancers) rank among the ten leading causes of death to both men and women aged 60 years or over globally. (see Table 1.3).

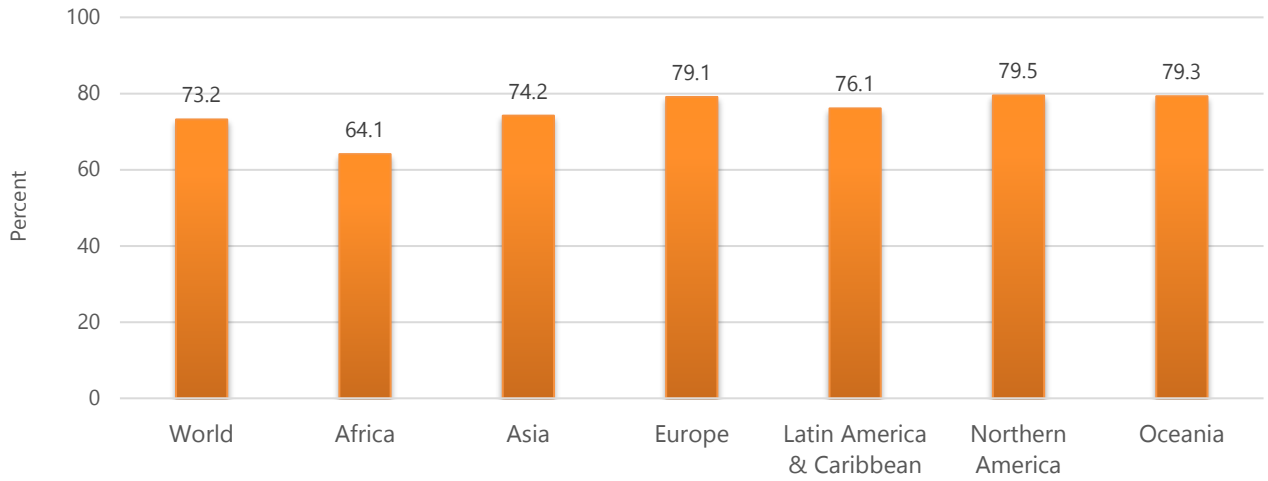
Table 1.3 Ten leading causes of death of those aged 60 years or over globally, by sex, 2012

Rank	Cause of Death (Males)	Cause of Death (Females)
1	Ischaemic heart disease	Stroke
2	Stroke	Ischaemic heart disease
3	COPD	COPD
4	Lung cancer	Lower respiratory infections
5	Lower respiratory infections	Diabetes mellitus
6	Diabetes mellitus	Hypertensive heart disease
7	Hypertensive heart disease	Alzheimer's disease
8	Stomach cancer	Lung cancer
9	Prostate cancer	Breast cancer
10	Liver cancer	Kidney diseases

Source: World Health Organization (2014). Global Health Estimates 2014 Summary Tables: Deaths by Cause, Age and Sex.2000-2012. http://www.who.int/healthinfo/global_burden_disease/en/.

Some older persons will experience a sudden and rapid decline from good health to death, while for others the decline in functioning will occur gradually over many years, and others still will experience periods of illness and disability interspersed by periods of partial or full recovery (WHO, 2019). Life expectancy at birth summarizes the average number of years a person would be expected to live if exposed throughout their lives to the age-specific mortality rates of a given period. Across the six regions defined by the WHO for statistical reporting purposes, healthy life expectancy was longest in the Northern America at 79.5 years, followed by Oceania and the Europe both at 79 years. The life expectancy was shortest in Africa at 64 years at birth(figure 1.4.).

Figure 1.4. Life expectancy at birth, by WHO region, 2019



Source: United Nations (2019). World Population Prospects: The 2019 Revision

However; health care costs may not increase appreciably with increasing age, but greater demand for long-term care is likely to generate increased expenditures (Rechel et al., 2009). In developing countries, where healthcare resources are limited, this situation requires proper management and equitable distribution of the available resources, according to need and following principles of intergenerational solidarity. Among the elder population, the high health care expenditure is attributed to the falling health among elderly, higher disability in later life, higher prevalence of chronic disease and co-morbidity among the elderly (Medhi &Mahanta, 2007). Reforming health systems to place prevention at the forefront of healthcare for the elderly has been acknowledged to be a major factor in reducing morbidity and expense.

1.3 Population ageing and economic development

Population ageing is poised to become one of the most significant social transformations of the twenty-first century, with implications for nearly all sectors of society, including labour and financial markets. The demographic shift threatens to lower labour force participation, increase health expenditures, and strain pension and health schemes. The rising prevalence of noncommunicable diseases disproportionately burdens the elderly, and whether the additional years resulting from increased longevity will be characterized by ill health is unclear and many are concerned that reduced labour force participation and savings and strains on pension and healthcare systems will slow economic growth.

In many countries, the filial piety underpinning support of older persons is beginning shift (Aboderin, 2005). Social protection programmes are effective means of supporting poorer individuals and families in lower and higher-income countries alike, and may even contribute to economic growth; however, the gaps between need and available programmes remain large in most countries.

1.4 Social aspects of population ageing

As a result of globalization and economic development, more migration is happening for better employment, educational or economic opportunities (Rajan, 2013) leaving the elderly behind to fend for themselves. This, in turn, has implications on the family dynamics where the age-old joint family system in India is undergoing through various challenges, leading to its gradual disintegration which will have a greater implication on the life of the elderly, given that the joint family has been the essence of social security for elderly care in India since antiquity. Many older adults struggle with social insecurity, vulnerability, and isolation, as well as relative economic deprivation. Major challenges thus are emerging about support for the older population, especially for older women. Older women are now considered to be the most vulnerable group in most societies (Berkman et al., 2012). Because of higher survivorship and lower propensity to remarry, older women are more likely than their male counterparts to live alone in social isolation.

Insufficient savings, lack of social security schemes and changes in the family structure has also resulted in adverse health outcomes among the elderly (Park et al., 2014). Literature shows that living arrangements such as living alone can lead to poor self-rated health, high levels of disability and poor cognitive health among the elderly population (Ranjan & Kumar, 2003). The fast pace of social change is affecting traditional caregiving mechanisms for the elderly. There is a need for an effective action plan to utilize the resources of the elderly and enhance their social status in the community.

1.5 Population ageing in India

India has experienced a dramatic demographic transition in the past few decades. It becomes the second-most populous country, entailing almost a tripling of the population over the age of 60 years (i.e., the elderly) (Government of India, 2011). This pattern is poised to continue.

The success story of increasing longevity in India is creating a new challenge: ensuring the wellbeing of an enormous number of older adults. Older people in India, particularly older women, experience multiple discrimination, including in access to jobs and health care, subjection to abuse, denial of the right to own and inherit property, and lack of basic minimum income and social security (UNFPA & HelpAge International, 2012).

In terms of the key indicators described above, and applied specifically to India:

- The *median age reported in 2019 is 28.4*; it is expected to rise to 31.7 in 2030 and 38.1 in 2050 (UN PopDiv, 2019).
- The *Old-age dependency ratio* (65+ per 15-64) for India was 8.5 ratio in 2015 and is expected to be 11.1 ratio in 2025. Old-age dependency ratio (65+ per 15-64) of India increased from 5.9 ratio in 1971 to 9.8 ratio in 2020 and is expected to increase to 17.7 by 2045 and 45.5 by 2100 (UN PopDiv, 2019).

In India, as in many East and South Asian countries, the family has traditionally served as the prime source of support for ageing adults, with sons/family responsible for caring for their parents.

However, evidence indicates that this support system has been declining due to factors such as increased urbanization and mobility.

Among the elderly, several barriers have been observed: from pathological progression (Lynch, Brown, & Taylor, 2009) to family nuclearization and dependency (Gupta & Sankar, 2002; Rajan & Prasad, 2008)

from reductions in earning potential (Selvaraj, Karan, & Madheswaran, 2010) to the salience of pre-existing inequities on the axes of gender, caste, and religion (Chatterjee & Sheoran, 2007). A thorough examination of the geriatric morbidity and Related risk factors is required to improve the delivery of health care to the elderly.

Like many developing countries, India is also undergoing a rapid demographic and epidemiological transition. This epidemiological transition is one of the factors contributing to more morbidity among the elderly in India (Arokiasamy et al., 2015). There is evidence of deterioration in the physical and mental health of the elderly population in India, especially those who belong to the vulnerable group or section of the society (Pandey, 2011). With the changing environment and modernization, the elderly are facing problems that they never faced earlier (Rajan & Prasad, 2008).

India's recent NCD morbidity and mortality increases are even more pronounced among older adults than in the general population. Among adults 70 and above, NCDs caused some 2.7 million deaths, 93% of the total (Institute for Health Metrics and Evaluation, 2014). According to World Health Organization report (2015), every year approximately 5.8 million people in India die from NCDs (heart and lung diseases, stroke, cancer and diabetes) which in other words means that one in every four Indians are at risk of dying before reaching the age of 70, because of NCD.

1.6 Ageing related programmes and policies in India

Recognizing the challenges posed by the rising ageing population, the various ministries of the Government of India, including the Ministry of Health and Family Welfare, the Ministry of Social Justice and Empowerment, and the Ministry of Rural Development, have initiated several policies and programmes for older populations.

Although the Indian government has proposed several schemes and resolutions to support an ageing population, most of these have thus far met with limited success. At the 1991 United Nations General Assembly, member countries adopted the United Nations' Principles for Older Persons, which encourages governments to incorporate the principles of independence, dignity, care, participation, and self- fulfillment of the elderly in their national policies and programs (1991). Soon after the declaration, India's Ministry of Social Justice and Empowerment implemented an Integrated Programme for Older Persons (IPOP) in 1992 (Government of India 2015). Under this program, citizens aged 60 years and older are eligible to receive basic amenities such as food, shelter, health care, and other welfare services. The scheme also provides financial assistance to nongovernmental organizations (NGOs), voluntary organizations, and Panchayat Raj (local government) institutions to maintain old-age homes, continuous- care homes, and clinics for older persons.

In 1999, the National Policy on Older Persons (NPOP) sought to assure older persons that "their concerns are a national concern and they will not live unprotected, ignored or marginalized. It aims to strengthen their legitimate place in society and help older persons to live their last phase of life with purpose, dignity and peace. The policy visualizes that the state will extend support for financial security, health care, shelter, welfare and other needs of older persons, protect against abuse and exploitation, make available opportunities for the development of their potential and provide services so that they can improve the quality of their lives. The NPOP recognizes that older persons are a resource and render useful services in the family and community.

The most recent national policy report is the National Programme for the Health Care of the Elderly (NPHCE), launched by the government of India in 2011 with the vision to provide accessible, affordable and high-quality long term dedicated services to the elderly by creating more enabling environment for a society for all ages to promote active and healthy ageing (Verma, 2013). Home-based care backed

up by a predefined referral chain, especially in rural and tribal areas, should also be incorporated in the NPHCE. Other than having a national vision, the program has a decentralized view that can make its policies demand-driven to furnish services according to regional needs, which as the morbidity problem suggests, are very diverse. Implementation of the key strategies of the Integrated Programme for Older Persons (IPOP), increasing credibility of the National Council of Senior Citizens (NCSRC) and spreading awareness about the National Policy on Older Persons (NPOP) requires sincere state efforts to sustain the strength of the country's human resource which is ageing steadily.

However, most of these schemes have not yet been implemented nationwide; many state-level governments have failed due to lack of resources and competing priorities. Moreover, in the states where these programs have been implemented, such as Himachal Pradesh, Punjab, West Bengal, Odisha, and Tamil Nadu, the utilization rate remains very low due to lack of public awareness and utilization rates of these schemes are typically below 20% of eligible individuals (Alam, James et al., 2012) with a wide gap between levels of awareness and levels of use due to factors such as corruption and difficult-to-navigate bureaucracy. Meanwhile, data from the IHDS-II suggest that only about 18% of adults 60 and up receive any sort of old-age pension and that 15% of all female widows 60 and older receive a widows' pension (Alam, James et al., 2012).

In late 2015, the World Health Organization announced the development of a Global Strategy and Action Plan on Ageing and designated 2020–2030 as the Decade of Healthy Ageing. Although still in development as a draft, the Global Strategy and Action Plan calls on all countries to "commit to fostering healthy ageing, with action plans in place to maximize functional ability that reach everyone." Its main strategic objectives include fostering healthy Ageing, aligning health systems with the needs of older populations, developing long-term care, creating "age-friendly environments," and improving measurement and evaluation. It may provide a promising framework for India to improve and maintain the lives and wellbeing of its ageing population in the years to come (WHO, 2016).

1.7 Data and policy gaps related to older adults in India

Beyond biological changes, Ageing is also associated with other life transitions such as retirement, relocation to more appropriate housing, and the death of friends and partners. Globalization, technological developments, urbanization, migration and changing gender norms are influencing the lives of older people in many ways. Focused research, new metrics and analytical methods are needed for a wide range of ageing issues that is necessary to take stock of these current and projected trends, and frame policies accordingly.

As the population age, there is an increasing need for valid and comparable data on the health and wellbeing of older adults. However, it currently lacks evidence and void in the existing data on the health and subjective wellbeing, quality of life of the older adults. Health research in developing countries, including India, has historically been heavily focused on the younger population, particularly children and women of reproductive age. Longitudinal data on the health and well being of older adults are notably lacking in India both, for formulating policy and scientific research on Ageing.

1.8 Study on global Ageing and adult health (SAGE)

To address the gap in evidence-based policy, in 2007 the Study on Global Ageing and adult health (SAGE) India was initiated by the World Health Organization (WHO) as a part of a study focusing in on six of the 70 countries that participated in the 2003 World Health Survey (WHS). The other five SAGE countries are China, Ghana, Mexico, the Russian Federation and South Africa.

The six countries were selected to give a broad representation across different regions, taking into consideration population and health characteristics. In SAGE, India, six states defined as Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal were selected following their geographic location and level of development.

SAGE Wave 2 is a longitudinal, face-to-face follow-up household survey of Wave 1 used an updated version of the same sampling frame. In addition to providing needed health and ageing data, SAGE will continue to improve methods for measuring health and wellbeing in Ageing and older adults. It is anticipated that the SAGE results will help inform the health, social, environmental and economic policies and programmes that affect the health status of individuals and populations across different countries.

1.9 SAGE goals and objectives

The goals of SAGE are to (a) promote a better understanding of the effects of Ageing on wellbeing; (b) examine the health status of individuals aged 50-plus as well as changes, trends and patterns that occur over time; and (c) improve the capacity of researchers to analyze the effects of social, economic, health care and policy changes on current and future health. SAGE will provide a baseline and longitudinal health-related data on older persons in the middle- and low-income countries. It mainly will improve the empirical evidence base on the health and wellbeing of older adults in developing countries, by providing reliable, valid and cross-nationally comparable data, examining health differences across individuals, countries and regions, and providing validated health measurement methods.

The data collection domains in SAGE include self-reported assessments of health, using anchoring vignettes for improved comparability across individuals, communities and populations; assessment of perceptions of wellbeing and quality of life; self-reported assessment of functioning, with measured performance tests on a range of different health domains; biomarkers; and the introduction of longitudinal study design to allow dynamic examination of changes in health expectations and experiences over the life course and investigation of compression of morbidity in ageing populations.

Primary objectives

- To obtain reliable, valid and comparable data on levels of health in a range of key domains for adult populations who are 50 years and older in nationally representative samples;
- To examine patterns and dynamics of age-related changes in health and wellbeing, using longitudinal follow-up of survey respondents as they age, and to investigate socioeconomic consequences of these health changes;
- To supplement and cross-validate self-reported measures of health and the anchoring vignette approach to improving comparability of self-reported measures, through measured performance tests for selected health domains;
- To collect data on health examinations and biomarkers to improve the reliability of data on morbidity and risk factors and monitor the effectiveness of interventions.

Additional objectives

- To generate a large enough cohort of older adult populations, and a comparison cohort of the younger population, to permit follow-up of intermediate outcomes, monitoring of trends, an examination of transitions and life events, and addressing relationships between determinants and health, wellbeing and health-related outcomes;

- To develop a mechanism to link survey data to surveillance data from demographic surveillance sites;
- To build linkages with other national and cross-national ageing studies;
- To improve methodologies to enhance the reliability and validity of outcomes and determinants;
- To examine how the mix and distribution of health, health care, and socioeconomic and family resources affect key outcomes, including mortality, morbidity and health care utilization;
- To provide a public-access information base to engage all stakeholders, including national policymakers and health system planners, in planning and decision-making processes about the health and wellbeing of older adults.

SAGE global coverage

As the focus of SAGE is older adults, a much larger sample of respondents aged 50 years and older was selected with a smaller comparative sample of respondents aged 18-49 years. SAGE's first full round of data collection included both follow-up and new respondents. The goal of the sampling design was to obtain a nationally representative cohort of persons aged 50 years and older, with a smaller cohort of persons aged 18 to 49 for comparison purposes. In older households, all persons aged 50+ years were invited to participate. Proxy respondents were identified for respondents who were unable to respond for themselves. Standardized SAGE survey instruments were used consisting of five main parts: 1) household questionnaire; 2) individual questionnaire; 3) proxy questionnaire; 4) verbal autopsy questionnaire; and, 5) appendices including showcards. A VAQ was completed for deaths in the household over the last 24 months.

The survey instruments are based on the WHS programme, with substantial revisions and additions based on a review of other major ageing surveys, cognitive testing of a draft survey instrument, and recommendations from a group of experts. A set of data was collected using a standardized questionnaire (with country-specific adaptations) including self-reported and objective health measures (performance tests, anthropometry and biomarkers).

For SAGE Wave 2 in India, a cohort of respondents aged 50-plus was followed from the 2007 SAGE Wave 1. In addition to this cohort, new respondents have been recruited to meet sample size targets and to adjust for attrition and other biases inherent to longitudinal survey designs. The target sample included adults aged 18-49 years for comparative purpose.

2. Methodology

2.1 SAGE Wave 2 India: coverage and scope

The Study on Global Ageing and Adult Health (SAGE 2) India survey 2015 was the third wave of the World Health Survey (WHS), conducted in 2003 by the World Health Organization. Implementation of the full SAGE Wave 2 follow-up survey was completed in India in 2015. SAGE Wave 1 (2007) is a follow-up survey of WHS/SAGE Wave 0 -2003 and SAGE WAVE 2 is a follow-up survey of SAGE WAVE 1-2007. The same PSUs and the sample households covered across the six states in the World Health Survey, India, 2003 will be the baseline sample for the SAGE.

The study design for the SAGE 2 India included samples of follow-up respondents from SAGE Wave 1 and the addition of some new respondents in the 18-49 age group. SAGE Wave-1 used two target populations: a large sample of persons aged 50 years and older, which is the focus of the study, and a smaller comparative sample of persons aged 18–49 years. In all households were classified into one of these two mutually exclusive categories: one or more persons aged 50 years and older are selected from households classified as "50+ households" and one person aged 18–49 years from a household classified as an "18–49 household". In older households, all persons aged 50 years and older (for example, spouses and siblings) were invited to participate.

SAGE Wave 2 India, maintained the same two target populations: a large sample of persons aged 50 years and older which is the focus of the study and a smaller comparative sample of persons aged 18-49 years.

The SAGE WAVE 2 India, 2015 is implemented in the six selected states of Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal that were covered in the SAGE Wave 1 India, 2007-10. Implementation of the full SAGE Wave 2 follow-up will start in 2014 in India.

The same PSUs and the sample households covered across the six states in the World Health Survey, India, 2003 will be the baseline sample for the SAGE. The selection of six states in the World Health Survey, India, 2003 was done considering their geographic location and level of development. All the states with a population of five million and above except Jammu and Kashmir were grouped into six regions as north, central, east northeast, west and south. The level of development was measured considering four indicators, infant mortality rate, female literacy rate, percentage of safe delivery and per capita income. The states were selected purposively in such a manner that one state is selected from each region as well as from each level of development category.

Sampling for the states

The households to be selected in a state were distributed among its rural and urban areas in proportion to their state populations. Sampling of PSUs was done separately for rural and urban areas.

Rural Sampling

Two-stage stratified sampling was used for the selection of households in rural areas. The villages were the primary sampling unit (PSU).

The villages in six states were categorized into three categories based on the number of households such as 1) less than 250 households 2) 250-500 households 3) Greater than 500 households. The selection of the villages was done by probability proportionate to size sampling. Twenty-five (+3) households were covered from each PSU.

Urban sampling

In the urban areas, a three-stage design was used with the selection of wards, census enumeration blocks and households in that order. All the urban wards in the state were arranged according to the size of the city/town and geographic region. The cities/towns were classified into four categories based on the 1991 census population.

Figure 2.1 Geographic distributions of PSUs across the SAGE India, PSUs sample

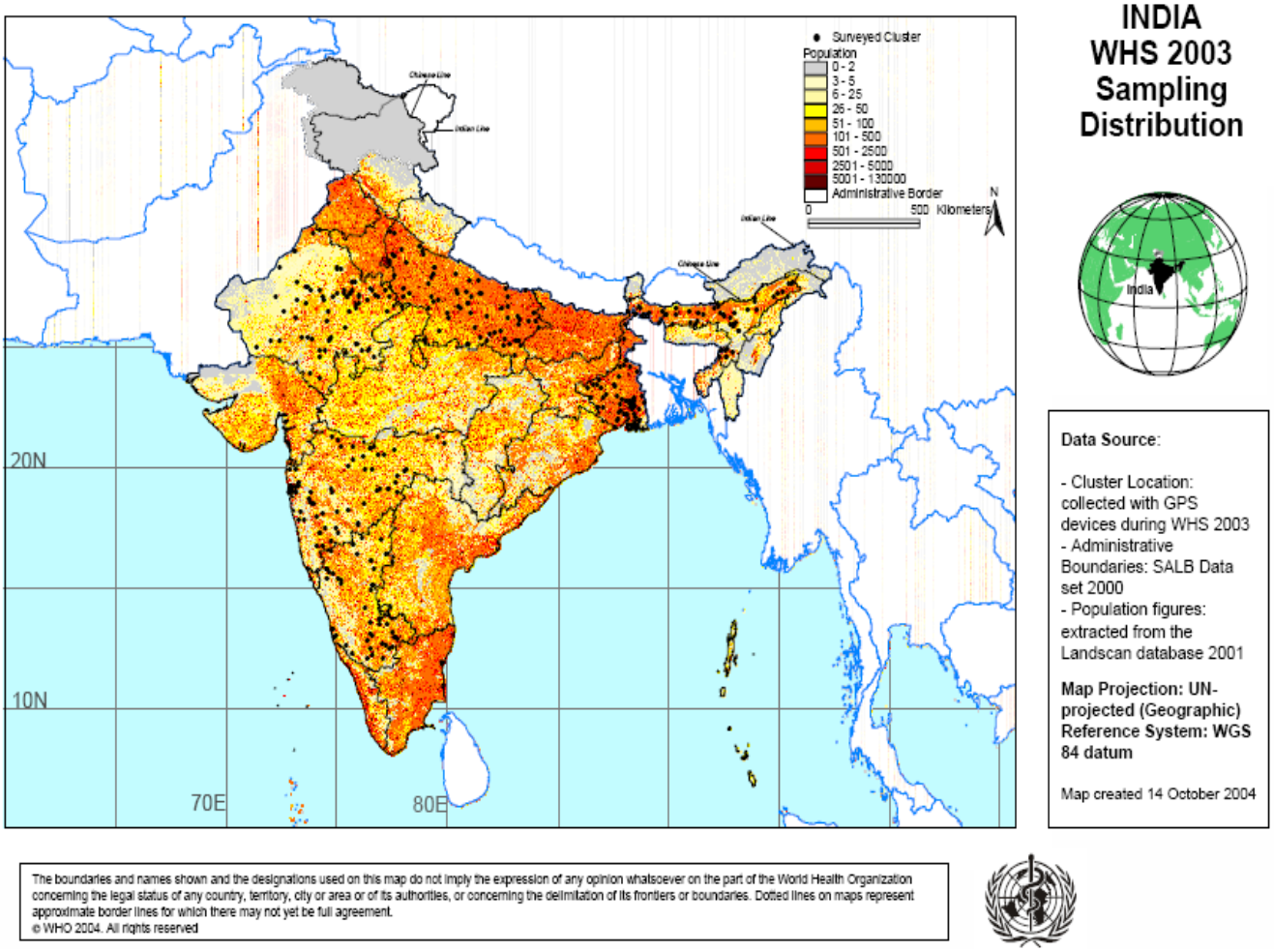


Table 2.1 Number of rural and urban PSUs and CEBs selected for SAGE Wave 2 India, 2015

State	Number of rural PSUs (village)	Number of urban CEBs	Total
Assam	37	6	43
Karnataka	34	16	50
Maharashtra	46	27	73
Rajasthan	55	14	69
Uttar Pradesh	62	11	73
West Bengal	51	16	67
Total (pooled)	**285**	**90**	**375**

Table 2.2 presents the sample size of households targeted in SAGE WAVE 2 based on SAGE WAVE1 survey and the number of households includes target sample size and additional households to take care of non-response.

Table 2.2 Number of Household and Individuals for SAGE Wave 2 India, 2015

State	Households interviewed in SAGE WAVE 1	Individual interviewed in SAGE 1	Households interviewed in SAGE 2	Individual interviewed in SAGE 2
Assam	1, 074	1,194	993	1020
Karnataka	1, 208	1,553	1041	1095
Maharashtra	1, 851	1,983	1384	1520
Rajasthan	1, 895	2,225	1535	1816
Uttar Pradesh	1, 899	2,201	1650	1862
West Bengal	1, 699	2,074	1549	1803
Total (pooled)	**9, 626**	**11,230**	**8152**	**9116**

1 Includes 9,116 fully completed interviews and partially completed interviews.

Table 2.3 State -wise Individual Sample Size for SAGE Wave 2 India, 2015

States	18-49			50+			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Assam	131	166	297	347	376	723	478	542	1020
Karnataka	78	145	223	379	493	872	457	638	1095
Maharashtra	150	194	344	556	620	1176	706	814	1520
Rajasthan	159	201	360	669	787	1456	828	988	1816
Uttar Pradesh	137	191	328	773	761	1534	910	952	1862
West Bengal	178	268	446	613	744	1356	791	1012	1803
Total	**833**	**1165**	**1998**	**3337**	**3781**	**7118**	**4170**	**4946**	**9116**

Points to note while sampling for SAGE WAVE 2 India Survey

1. The respondent of SAGE Wave 1, India were followed-up in SAGE Wave 2, India, 2015 in the following categories, considering 7 years age increase:

    a. WHO-SAGE WAVE 1 respondents aged 50+ were selected for interview for 50+ age cohort.
    b. WHO-SAGE Wave 1 respondets aged 42-49 years were selected for interviews for 50+ age.
    c. WHO-SAGE Wave 1 male respondents aged 18-41 were selected for interviews in the age cohort of 26-49 years.
    d. From 3625 female respondents aged 18-41 years, around 1000 femaled were randomly selected for interviews within age cohort of 26-49.

2. In addition, new respondents in age 18-25 (male and female) for wave 2 were selected from surplus 18-49 female households from wave 1.

3. SAGE WAVE 2 survey was conducted only in WHO-SAGE Wave-1 PSUs. If for some reason, the WHO-SAGE Wave-1 PSUs was/were not accessible /traceable, there were no replacement for those lost PSUs.

4. In all the following discussion wherever the respondent is mentioned, that is the respondent of the individual interviewed in WHO-SAGE WAVE1.

5. SAGE Wave 2, India survey was conducted only in households included in the WHO-SAGE WAVE1 survey. In WHO-SAGE WAVE 1 survey, there were more households which were sampled, the household roster was filled, and eligible respondent was selected. But the respondents could not be interviewed due to that person's non-availability or refusal or some other reason. SAGE Wave 2, India included those household also.

6. In the case of 50+ household individual interviews, all eligible 50+ person's interviews were completed, whereas from 18-49 households individual interviews, only one selected eligible person's interview was completed.

7. In SAGE Wave 2, almost 7500 respondents in the age group 50 & above were the same. The number of men respondents in the age group 18-49 were approximately the same as wave 1, which is approximately 1000 individuals. Women respondent sample were slightly higher than men respondents sample. Overall, the total targeted sample was around 9500 respondents in the age group 18 and above.

8. Please note that in the HHs where we interviewed persons age 50+, persons aged 18-49 were not interviewed. Similarly, in the HHs where we interviewed male/female aged 18-49, persons age 50+ were not interviewed.

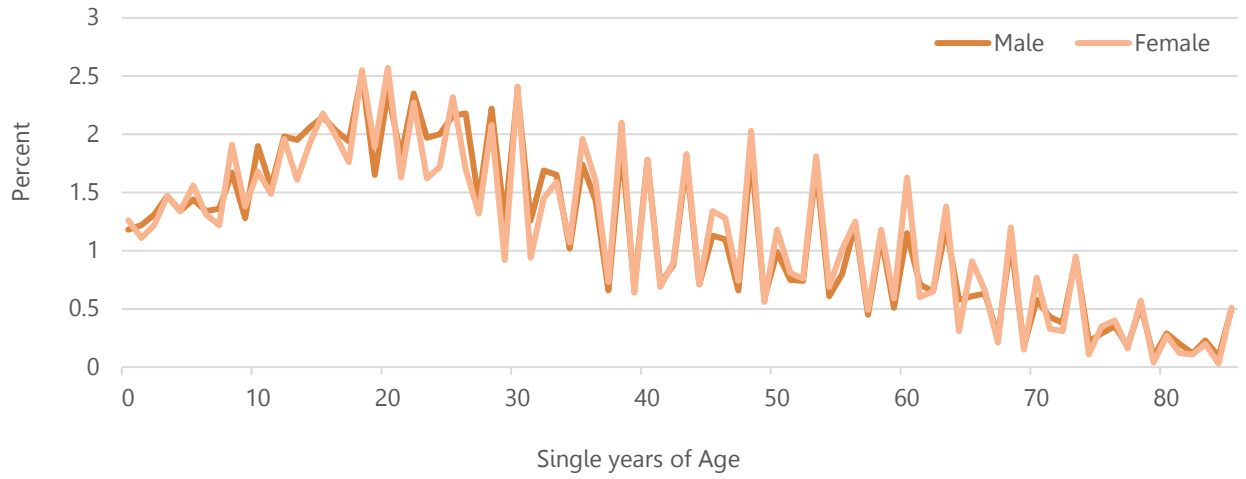
2.2 Myers' Blended Index

Age is an important study variable in demography and epidemiological studies. Misstatement of age is one example of the content error in census and surveys. Age heaping is a common phenomenon and is considered to be a measure of data quality and consistency (Pardeshi, 2010). The approximation of age manifests itself in the phenomenon of age heaping in self-reported or proxy age data.

In this report, age heaping and digit preference was calculated using Myers' Blended Index. Myers' Blended Index is a measure of age heaping that involves a comparison of expected proportions of the population at each age with the reported proportions of the population. It is calculated for ages 10 and above and shows the excess or deficit of people in ages ending in any of the 10 digits expressed as percentages, based on the assumption that the population is equally distributed among the different ages. The Index is the absolute value sum of percentage differences between the reported and expected age distribution. It ranges from 0 to 99, with 0 meaning no age heaping and 99 meaning that all ages are reported with the same terminal digit. If the Index is over 60, age heaping is very severe and the data quality is poor (Siegel, 2004).

Figure 2.2 shows Myers' Blended Index for household members in SAGE Wave 2 India. The Index is 12.6, which indicates that a minimum of 12.6% of the population reported ages with an incorrect final digit, with evidence of heaping on end digits 0 and 5.

Figure 2.2 Age heaping using Myers' Blended Index for household members in SAGE Wave 2 India, 2015



2.3 Response rate

Response rates are an indicator of survey quality and the likelihood of non-response bias. Response rates are given here for both the household questionnaire and the individual questionnaire. The household response rate was based on all households drawn into the sample as the denominator. For the individual response rate, this was based on all the persons aged 18-49 and 50-plus from the roster that should have been interviewed from the respondent's household and was used as the denominator (Table 2.4).

Table 2.4 Household and individual response and cooperation rates, SAGE Wave2 India, 2015

	Response rate
Household	94.74
Individual	77.14

Note: Response rate = % of persons who completed the interviews among all eligible persons, including those who were not successfully contacted.

From the 8152 households surveyed in the six states combined, a total of 9,116 individuals responded to the individual questionnaire, giving a response rate of 77% for the individual questionnaire.

2.4 SAGE Wave 2,India survey instruments

SAGE Wave 2, India used household, individual, and proxy questionnaires. For deaths recorded in follow-up older households, a verbal autopsy questionnaire was completed.

(a) Household questionnaires

The household questionnaire was administered to any household member aged 18-plus. Before administering the household interview, consent was sought from the respondent.

The following is a brief description of each section in the household questionnaire.

- *Section 0000:* Summary of key information for supervisors, interviewers and data entry clerks, including ID numbers, rotation codes, key dates and quality control checks.
- *Section 0100:* Sampling details necessary for calculating sampling weights.
- *Section 0200:* GPS information.
- *Section 0300:* Specific address and location information for the respondent, plus information for a backup informant in cases where the respondent could not be located.
- *Section 0350:* Record of contact with the household
- *Section 0400:* Household roster, with details about all household members, including sex, age, marital status, education and care needs.
- *Section0450:* Provided the interviewer with the correct procedure for selecting new respondents for the individual questionnaire and the consent form for the informant completing the household questionnaire.
- *Section 0500:* Physical characteristics of the dwelling/household, including ownership status, flooring and wall materials, water supply, sanitation and cooking arrangements.
- *Section 0600:* Cash and non-cash transfers into and out of the household.
- *Section 0700:* Household income and assets.
- *Section 0800:* Household health and non-health expenditures.

The household roster for follow-up respondents differed slightly from that for new households. It included questions about deaths in the household since the last interview, other reasons for departures from the household, and new members of the household since the last interview.

(b) Individual questionnaire

The individual questionnaire was administered to all adult respondents aged 50-plus in older households, or the selected adult aged 18-49 years in younger households.

Respondents were asked to sign a consent form (Appendix 3) before the administration of the individual questionnaire, even if the same person had given consent for the household questionnaire. This form also included consent for taking and storing a blood sample for analysis.

The individual questionnaire was divided into nine sections. The first section started with filter questions about memory to assess whether respondents aged 50-plus were cognitively capable of understanding and completing the survey. If a respondent was not capable of completing the questionnaire, a proxy respondent was selected, and a proxy questionnaire was administered.

The following is a brief description of each section in the individual questionnaire.

- *Section 1000:* Individual consent form and background characteristics of the respondent.
- *Section 1500*: Details of current or past work situation, including if the person was currently looking for work (unemployed).
- *Section 2000:* Overall health, abilities in day-to-day life, and nine self-rated health domains (-mobility, self-care, pain and discomfort, cognition, interpersonal activities, sleep and energy, affect, vision, and hearing). Functioning was assessed using the 12-item version of the WHO Disability Assessment Schedule WHODAS-2, complemented by an extended set of questions on indicators of functional wellbeing, in particular, the ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (see Section 6.2 for further discussion).
- *Section 2500:* Blood pressure, height, weight, waist and hip circumferences of the respondent. The respondent was also asked to complete performance tests (vision, cognition, timed walk) (See below for further discussion.)
- *Section 3000:* Selected risk factors and health behaviours, including tobacco and alcohol use, diet, food security and physical activity.
- *Section 4000:* Diagnosis, and for some condition's symptoms, of 11 health conditions (stroke, angina, arthritis, diabetes, chronic lung disease, depression, hypertension, cataracts, injuries and oral health problems). Information about treatment-seeking behaviour.
- *Section 5000:* Use of inpatient, outpatient and home-based health care over the previous five years.
- *Section 6000:* Social connections and participation in the community.
- *Section 7000:* Perceptions of quality of life and wellbeing, using the WHO Quality of Life (WHOQoL) eight-item version along with an abbreviated Day Reconstruction Method (DRM) module for characterizing daily life experience and happiness.
- *Section 8000*: Assessment of the impacts of caregiving on the respondent and their household, through questions about caregiving and losses to the household, including loss of support, physical and financial burdens of care-giving, and changes in health status as a result of care given for adult children or orphaned grandchildren/kin.
- *Section 9000*: Interviewer's observations about the respondent and impressions of the interview process.

Section 2500 details - Biomarker measurements

- **Anthropometry:** Anthropometric measurement included Weight, Height, Hip and Waist circumference. Weight and height were measured to calculate Body Mass Index (BMI) as an independent risk factor for several health outcomes. Waist and hip circumferences were measured to calculate the waist-to-hip ratio, which is an independent risk factor for cardiovascular disease and other health outcomes.

- **Physical tests:** The following tests were administered:
    - *Four-meter timed walk at a normal and rapid pace:* The respondent was allowed to use a walking aid, if necessary.
    - *Handgrip strength:* Using each hand.[1]

[1] Smedley's Hand Dynamometer, Scandidact, Oldenvej 45, 3490 Kvistgard, Denmark.

- *Blood pressure:* Readings were measured twice during the interview, using an automated recording device, both times on the right arm/wrist with the respondent seated.[2]

- **Cognition tests:** A short set of cognition tests measured concentration, attention and memory. This provided an estimate of cognitive ability and impact on health status (for example, dementia). Over time, these tests will provide a basis for examining changes in cognitive function with age.
  - *Verbal fluency:* Ability to produce as many words as possible in one minute. This test assessed the retrieval of information from semantic memory.
  - *Immediate and delayed verbal recall:* Ten words were successively presented, after which the respondent was allowed to recall as many words as possible. This was repeated three times to saturate the learning curve. After about 10 minutes, delayed recall and recognition were tested. This test assesses learning capacity, memory storage and memory retrieval.
  - *Digit span (forward and backward):* Participants were read a series of digits and asked to immediately repeat them back. In the backward test, the person must repeat the numbers in reverse order. These tests measure concentration, attention, and immediate memory.

(c) Proxy questionnaire

For respondents aged 50-plus, a short set of questions about memory preceded the main set of questions in the individual questionnaire. These questions allowed the interviewer to subjectively determine whether a respondent was cognitively and physically competent to complete the interview. If the respondent was deemed unable to provide reliable results or too ill to participate, then the proxy respondent questionnaire was used to interview a person who knew the respondent well and was able to accurately answer questions about the respondent's health and well-being on their behalf. The proxy respondent questionnaire consisted of a standardized set of screening questions for dementia and cognitive decline. The proxy respondent needed to provide specific consent for a proxy interview.

- *Section 0:* Consent form
- *Informant Questionnaire on Cognitive Decline (IQ Code):* Sixteen-item version of screening questions for dementia and cognitive decline (Cherbuin and Jorm, 2010).
- *Health state descriptions:* Captured health information in the eight health domains.
- *Chronic conditions and health care service use:* Asked about the same conditions as in the individual questionnaire.
- *Health care utilization:* Same strategy as used in the individual questionnaire.

[2] OMRON R6 Wrist Blood Pressure Monitor, HEM-6000-E, Omron Healthcare Europe, Wegelaan 67-69 2312 JD Hoofddorp, The Netherlands.

2.5 Sampling Weight

A multi-stage stratified cluster sample design was again used in SAGE Wave 2 India. Household weights for analysis at the household level and individual weights for analysis at the personal level were calculated based on the selection probability at each stage of selection.

Household weights were post-stratified by the six states and locality according to the 2006 household projections obtained from the Indian Government's Office of the Registrar General and Census Commissioner's 2006 report Population Projections for India and States 2001-2026: Report of the technical group on population projections constituted by the national commission on population. Individual weights were post-stratified by the six states, locality, sex and age-groups (18-49, 50-59, 60-69, 70+) according to the 2006 projected population estimates. The second set of household and individual weights are available which are post-stratified to weight up to the number of households and 18-plus populations respectively in the entire country. Weights are not normalized.

All analyses were carried out using these probability weights, with variance estimations to take into account the complex design implemented in STATA. Design weights were calculated considering the specific sample design. Both household and individual weights were calculated to perform analysis at the household and individual levels.

3. Household and Individual Respondent Characteristics

3.1 Household Profile

SAGE Wave 2 India (hereafter SAGE India) interviewed 9,116 households from six states; viz. Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal. There were a total of 46,255 members of these sampled households. This chapter presents a profile of the selected households and household members. The information is collected from household informants, usually from the head of the household on household members and housing characteristics. The information collected from each of the households included a roster of household members; member composition and demographic characteristics, including marital status and education; insurance coverage and care needs of all residents staying in the household for at least four months per year; housing characteristics; and the income/economic situation of the household. These basic household data play an important role in the understanding of the issues related to adult health at the micro-level, particularly of older persons.

3.1.1 Socio-demographic characteristics of the household population

The socio-demographic profile of the household populations is presented in Table 3.1.1. The population consisted of 23,802 males and 22,453 females, with a sex ratio of 106 males per 100 females. Adults of working age (15-59) accounted for 64% of the household population, while children below the age of 15 accounted for about 23% and people aged 60-plus for about 13%. A little over one-fifth of respondents (9458 persons) were in urban areas. Children made up a larger share of the population in rural (24%) than in urban (19%) areas; conversely, working-age adults and people aged 60-plus made up a larger proportion in urban areas. The population aged 60-plus has more of women in urban areas and more men than women in rural areas.

Trends: *Since 2006-07, there has been a substantial increase in the percentage of women and men aged 15-59 years and 60 and above. There has been an increase in the person who is never married and women and men who are attending school and completing higher levels of education and the gap between men and women has narrowed.*

Table 3.1.1 Percent distribution of the household population by sampled age, marital status, education, wealth quintile according to sex and residence, India (pooled), SAGE Wave 2, 2015

Background characteristics	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Age group[1]									
0-14	18.2	20.2	19.2	24.7	24.1	24.4	23.0	23.1	23.0
15-59	68.9	65.4	67.2	62.6	63.2	62.9	64.3	63.8	64.0
60+	12.9	14.4	13.6	12.7	12.8	12.7	12.8	13.2	13.0
Marital status[2]									
Never married	36.6	20.4	28.8	32.7	19.0	26.1	33.8	19.4	26.8
Currently married	60.0	63.9	61.9	63.7	67.8	65.7	62.7	66.7	64.7
Widowed	3.0	15.1	8.8	3.2	12.5	7.7	3.2	13.2	8.0
Other[3]	0.4	0.7	0.5	0.3	0.8	0.5	0.3	0.7	0.5
Education[4]									
No formal education	6.9	22.0	14.2	15.2	36.0	25.3	13.0	32.3	22.3
Less than primary	12.3	15.2	13.7	16.3	15.2	15.8	15.2	15.2	15.2
Primary school	19.7	17.6	18.7	20.3	17.8	19.1	20.2	17.7	19.0
Secondary school	20.5	16.2	18.4	19.3	14.3	16.9	19.7	14.8	17.3
High school	20.2	16.6	18.5	18.0	11.0	14.6	18.6	12.5	15.6
College and above	20.4	12.5	16.6	10.9	5.7	8.4	13.5	7.5	10.6
Wealth quintile									
Lowest	11.7	11.0	11.4	24.9	25.2	25.0	21.4	21.4	21.4
Second	12.3	10.6	11.5	21.2	21.4	21.3	18.8	18.6	18.7
Middle	16.1	18.1	17.1	18.6	19.1	18.8	18.0	18.8	18.4
Fourth	26.3	26.2	26.3	19.1	18.7	18.9	21.0	20.7	20.9
Highest	33.5	34.1	33.8	16.3	15.6	15.9	20.8	20.5	20.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (total)	**4834**	**4624**	**9458**	**18968**	**17829**	**36797**	**23802**	**22453**	**46255**
Number (aged 7-plus)	**4450**	**4244**	**8694**	**17140**	**16130**	**33270**	**21589**	**20372**	**41961**
Number (aged 15-plus)	**3920**	**3758**	**7678**	**14399**	**13659**	**28058**	**18319**	**17417**	**35736**

[1] Age and sex distribution are calculated for the total population (all ages).

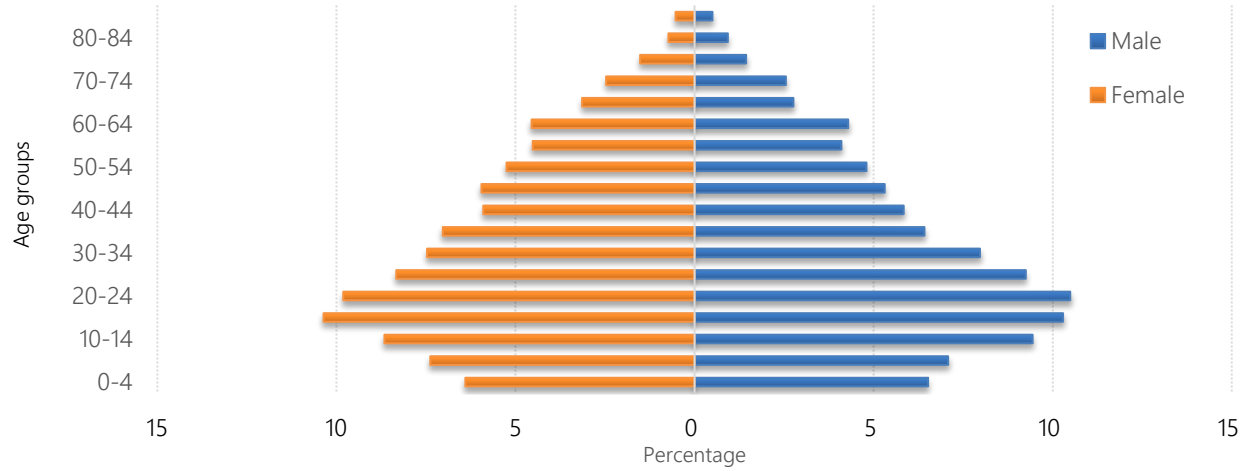
[2] Marital status is calculated for the population aged 15-plus.

[3] Includes divorced, separated or cohabiting.

[4] Education is collected for the population aged six and above.

Figure 3.1 presents graphically the household population as a population pyramid, which resembles a country in the early stages of demographic transition. The proportion of young people is still quite prominent.

Figure 3.1 Population pyramid of the sampled household population of six states (Pooled), SAGE Wave 2, 2015



Data on marital status collected for persons aged 15-plus indicate that one-quarter of this adult population had never been married, two-thirds were currently married, and widows/widowers and others constituted the remaining nearly 9%. Urban areas have a larger proportion of both men and women who had never been married; this reflects the fact that people tend to get married at younger ages in rural areas.

Data on education was also collected for the population aged 7-plus, which is the age of formal entry into school. More than one-quarter of the household population (22%) had no formal education; slightly more than half (52%) with less than a high school education; and 26% with education at the high school level or above.

Wide differences in education levels were observed between different places of residence and by sex. In rural areas, 25% of the population had no formal education, compared to 14% in urban areas. Meanwhile, in rural areas, 23% had an education at the high school level or above, compared to 35% in urban areas. Females in both urban and rural areas were more likely to be without formal education and less likely to have a high school or college education than their male counterparts. For instance, 36% of females in rural areas had no formal education, compared to 15% of rural males, and only 17% had a high school education or above, compared to 29% among rural males.

Distribution of households by wealth quintile shows a relatively higher proportion of poor people in rural areas and of wealthier people in urban areas. About half the rural population belonged to the first and second (lowest) wealth quintiles, compared to 23% of the urban population. Similarly, 60% of the urban population, but only 35% of the rural population, were in the fourth and fifth (highest) quintiles.

3.1.2 State differentials

The demographic and socioeconomic profile of the household population is presented at the state level in Table 3.1.2, and then separately for urban (Table 3.1.3) and rural (Table 3.1.4) areas.

The states selected for SAGE India vary widely socioeconomically and demographically. The size of the children's population ranged from 19% of the population in West Bengal to 28% in Uttar Pradesh. The working population ranged from 60% in Uttar Pradesh to nearly 70% in Assam. Adults aged 60-plus accounted for 13% or more of the population in Karnataka, Maharashtra and West Bengal (Table 3.1.2).

All the states, except Karnataka, have more men than women. Rajasthan has the highest sex ratio, with 109 males for every 100 females. Sex ratios were higher in rural than urban areas except for Assam, Rajasthan and West Bengal.

In all the five states, less than one-half of the population had never been married. Uttar Pradesh has the highest proportion of never-married persons (49%) and the lowest proportion of currently married (46%). Urban areas of every state were observed to have more never-married people and fewer married people than rural areas.

The proportion of males with no formal education was the lowest in Maharashtra (9%), whereas the proportion of females with no formal education was observed to be the lowest in Assam (22%). The highest proportion with no education at all was in Rajasthan for both males and females (17% and 45% respectively). Karnataka has the highest proportion of males and females with a high school education or above – 43% of males and 30% of females. In all the six states, the educational attainment of females was significantly lower than that of the males. Overall, the proportion of females with no formal education was higher than males by 19 percentage points; in Rajasthan and Uttar Pradesh, the difference was 28 and 22 percentage points respectively.

To understand the economic status of the households, wealth quintiles were created by dividing the population into five groups based on their economic status. As the wealth quintiles were constructed with the pooled data, the number of households in each quintile is kept roughly equal. Among the six states, Uttar Pradesh has the worst economic conditions, with the largest proportion (33%) of households in the lowest wealth quintile, while Assam has the lowest proportion (13%) in the highest wealth quintile. At the other extreme, Maharashtra has only 11% of its population in the lowest quintile and about 50% in the two highest quintiles combined. Looking specifically at rural areas, the pattern was much the same; however, comparing urban areas, the population of Uttar Pradesh emerged the worst and Rajasthan was notably the best.

Table 3.1.2 Percent distribution of household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	19.5	20.0	18.8	25.0	27.8	19.0	23.0
15-59	69.7	65.6	66.7	64.1	59.6	67.7	64.0
60+	10.8	14.5	14.6	11.0	12.6	13.3	13.0
Sex[1]							
Male	52.0	49.8	51.2	52.1	52.0	51.0	51.5
Female	48.1	50.2	48.8	47.9	48.0	49.0	48.5
Marital status[2]							
Never married	47.3	40.4	38.8	42.7	49.1	38.4	43.5
Currently married	45.9	51.0	54.3	51.7	45.5	53.6	49.9
Widowed	6.5	8.1	6.6	5.4	5.2	7.1	6.2
Other[3]	0.3	0.5	0.4	0.2	0.3	0.9	0.4
Education[4]							
Male							
No formal education	12.2	16.6	8.7	17.0	13.3	12.2	13.0
Less than primary	16.8	13.4	14.6	12.6	15.1	18.9	15.2
Primary school	31.1	14.2	22.1	18.4	18.2	23.5	20.2
Secondary school	22.3	12.5	22.4	21.9	18.3	21.2	19.7
High school	10.5	27.3	18.7	18.3	19.4	13.8	18.6
College and above	7.1	16.1	13.5	11.9	15.7	10.3	13.5
Female							
No formal education	22.0	34.1	24.8	44.9	35.0	27.5	32.3
Less than primary	17.2	10.9	17.0	11.8	15.9	16.9	15.2
Primary school	30.4	13.9	21.9	15.8	13.7	21.0	17.7
Secondary school	18.8	11.1	17.3	13.6	12.8	18.3	14.8
High school	7.7	20.5	13.0	8.4	12.9	10.3	12.5
College and above	3.9	9.6	5.9	5.6	9.8	6.1	7.5
Wealth quintile							
Lowest	22.8	11.0	10.9	19.7	32.8	16.8	21.4
Second	25.9	19.5	18.1	16.2	17.7	20.7	18.7
Middle	22.9	26.8	20.7	10.6	11.2	31.1	18.4
Fourth	15.7	25.2	25.7	22.3	18.9	17.0	20.9
Highest	12.7	17.6	24.6	31.1	19.4	14.5	20.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (total)	**4,975**	**5,425**	**7,120**	**10,030**	**11,076**	**7,637**	**46,263**
Number (aged 7-plus)	**4,643**	**4,928**	**6,589**	**9,005**	**9,812**	**6,992**	**41,969**
Number (aged 15-plus)	**4,010**	**4,294**	**5,797**	**7,495**	**7,982**	**6,162**	**35,740**

[1] Age and sex distribution are calculated for the total population (all ages).

[2] Marital status is calculated for the population aged 15-plus.

[3] Includes divorced, separated or cohabiting.

[4] Education is collected for the population aged six and above.

Table 3.1.3 Percent distribution of urban household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	14.8	17.3	18.1	21.1	24.1	14.4	19.2
15-59	72.1	68.6	68.1	69.3	63.0	68.8	67.2
60+	13.1	14.0	13.8	9.7	12.9	16.8	13.6
Sex[1]							
Male	52.9	49.9	50.3	53.8	51.6	51.5	51.2
Female	47.1	50.1	49.7	46.2	48.4	48.5	48.8
Marital status[2]							
Never married	43.8	41.7	39.5	43.7	50.0	35.1	42.3
Currently married	47.9	49.9	53.5	50.1	43.3	55.1	50.1
Widowed	8.1	7.8	6.9	6.0	6.5	8.5	7.1
Other[3]	0.3	0.5	0.1	0.3	0.2	1.4	0.4
Education[4]							
Male							
No formal education	5.6	9.9	3.2	8.9	10.8	4.4	6.9
Less than primary	7.6	12.0	11.6	9.8	14.3	13.3	12.3
Primary school	34.8	13.5	20.8	12.4	24.3	18.3	19.7
Secondary school	27.1	12.2	24.2	23.8	17.1	22.6	20.5
High school	12.0	28.5	19.2	21.9	16.3	21.1	20.2
College and above	12.9	24.0	21.1	23.2	17.2	20.3	20.4
Female							
No formal education	9.3	25.7	15.4	28.4	31.4	14.5	22.0
Less than primary	12.6	9.1	17.7	13.2	19.9	10.9	15.2
Primary school	31.1	14.4	21.2	12.5	12.6	22.1	17.6
Secondary school	23.5	12.5	19.7	16.6	11.1	19.3	16.2
High school	14.1	25.4	16.4	12.4	12.5	18.0	16.6
College and above	9.5	12.9	9.6	17.0	12.5	15.1	12.5
Wealth quintile							
Lowest	5.6	11.3	5.5	13.3	22.5	4.8	11.4
Second	11.7	11.0	12.2	7.0	14.6	8.7	11.5
Middle	20.8	21.1	17.7	5.6	13.8	24.8	17.1
Fourth	25.2	28.1	25.8	20.2	28.8	25.9	26.3
Highest	36.9	28.6	38.9	53.8	20.3	36.0	33.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (total)	**687**	**1,635**	**2,203**	**1,921**	**1,391**	**1,622**	**9,459**
Number (aged 7-plus)	**654**	**1,492**	**2,036**	**1,723**	**1,262**	**1,528**	**8,695**
Number (aged 15-plus)	**592**	**1,321**	**1,820**	**1,489**	**1,069**	**1,388**	**7,679**

[1] Age and sex distribution are calculated for the total population (all ages).

[2] Marital status is calculated for the population aged 15-plus.

[3] Includes divorced, separated or cohabiting.

[4] Education is collected for the population aged six and above.

Table 3.1.4 Percent distribution of rural household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	20.2	21.5	19.3	26.1	28.7	20.7	24.4
15-59	69.3	63.8	65.7	62.7	58.8	67.2	62.9
60+	10.5	14.7	15.1	11.3	12.5	12.1	12.7
Sex[1]							
Male	51.8	49.8	51.9	51.7	52.1	50.9	51.6
Female	48.2	50.2	48.2	48.3	47.9	49.1	48.4

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Marital status[2]							
Never married	47.8	39.6	38.3	42.4	48.9	39.5	43.9
Currently married	45.7	51.6	54.8	52.2	46.0	53.1	49.8
Widowed	6.3	8.3	6.3	5.3	4.9	6.6	5.8
Other[3]	0.3	0.5	0.6	0.2	0.3	0.7	0.4
Education[4]							
Male							
No formal education	13.2	20.4	12.6	19.3	14.0	15.2	15.2
Less than primary	18.2	14.1	16.7	13.4	15.3	21.0	16.3
Primary school	30.5	14.6	23.1	20.1	16.7	25.5	20.3
Secondary school	21.5	12.7	21.1	21.3	18.5	20.6	19.3
High school	10.3	26.6	18.4	17.3	20.2	11.1	18.0
College and above	6.2	11.5	8.0	8.7	15.3	6.6	10.9
Female							
No formal education	23.8	38.9	31.5	49.2	35.9	32.5	36.0
Less than primary	17.9	11.9	16.5	11.4	14.9	19.1	15.2
Primary school	30.3	13.5	22.5	16.6	14.0	20.5	17.8
Secondary school	18.1	10.4	15.7	12.8	13.2	17.8	14.3
High school	6.8	17.6	10.6	7.3	13.0	7.4	11.0
College and above	3.1	7.7	3.4	2.6	9.1	2.7	5.7
Wealth quintile							
Lowest	25.4	10.8	14.7	21.5	35.2	21.2	25.0
Second	27.9	24.4	22.4	18.8	18.5	25.0	21.3
Middle	23.2	30.1	22.9	12.0	10.6	33.4	18.8
Fourth	14.4	23.6	25.6	22.9	16.6	13.7	18.9
Highest	9.2	11.2	14.4	24.9	19.2	6.7	15.9
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (total)	**4,288**	**3,790**	**4,917**	**8,109**	**9,685**	**6,015**	**36,804**
Number (aged 7-plus)	**3,989**	**3,436**	**4,553**	**7,282**	**8,550**	**5,464**	**33,274**
Number (aged 15-plus)	**3,418**	**2,973**	**3,977**	**6,006**	**6,913**	**4,774**	**28,061**

[1] Age and sex distribution are calculated for the total population (all ages).

[2] Marital status is calculated for the population aged 15-plus.

[3] Includes divorced, separated or cohabiting.

[4] Education is collected for the population aged six and above.

3.2 Household size

Table 3.2.1 shows the distribution of households by the size of the household. Almost one-third of households have five or fewer members, and the other two-thirds have six or more members. Just 1% were single-member households, while 19% of rural and 13% of urban areas have large households with more than 11 members. The mean household size was seven persons.

Trends: *Single-person households and households with 2-5 persons have declined and the gap between rural and urban in terms of the number of persons in the household have reduced between 2007-2015. Households having 6-10 persons and 11 or more persons have witnessed an increase from the last survey conducted. However, the mean household size has increased from 6.0 to 7.4 in the period.*

Households in urban areas were comparatively smaller than in rural areas, with a mean household size of 6.8 in urban areas and 7.7 in rural areas. Households of scheduled tribes, Hindu and Muslim were smaller than others.[1]

[1] Scheduled tribes and castes are groups recognised in the Constitution of India as historically disadvantaged.

The mean household size increased with income, as did the proportion of large households. For example, the proportion of households with 11 or more members increased from 16% in the lowest quintile to 21% in the highest.

The mean size of the highest wealth quintile households (7.9) were larger than the lowest wealth quintile households by one member. Household size did not vary with the educational attainment of the head of the household, except in the case of college-educated people: mean household size was around eight for lower levels of education, dropping to 6.4 for households with a college-educated head. Households in Rajasthan and Uttar Pradesh have on an average one more member than in the other four states.

Table 3.2.1 Percent distribution of household size by residence, caste, religion, wealth quintile, education of household heads across state and India (pooled), SAGE Wave 2, 2015

Background characteristics	Single person	2-5 persons	6-10 persons	11+ persons	Total	Mean household size
Residence						
Urban	1.1	39.8	46.1	13.1	100	6.8
Rural	0.9	31.2	49.0	19.0	100	7.7
Caste						
Scheduled tribe	1.0	31.7	50.0	17.3	100	7.4
Scheduled caste	0.6	33.9	49.6	15.9	100	7.3
Other[1]	1.0	33.7	47.6	17.6	100	7.4
Religion						
Hindu	0.8	34.0	47.7	17.5	100	7.4
Muslim	2.0	32.6	49.9	15.6	100	7.3
Other[2]	0.4	28.9	52.4	18.3	100	7.6
Wealth quintile						
Lowest	2.6	33.8	47.5	16.2	100	7.1
Second	0.6	33.2	50.6	15.6	100	7.3
Middle	0.4	38.4	47.7	13.5	100	7.0
Fourth	0.2	28.9	50.6	20.2	100	7.8
Highest	0.3	33.8	44.5	21.3	100	7.9
Education of head of household						
No formal education	2.3	30.2	48.4	19.1	100	7.5
Less than primary	0.3	37.7	50.3	11.7	100	6.9
Primary school	0.6	33.8	50.3	15.3	100	7.3
Secondary school	0.4	37.2	46.2	16.1	100	7.3
High school	0.5	36.3	44.6	18.6	100	7.4
College and above	0.3	50.8	37.6	11.4	100	6.4
State						
Assam	0.5	45.6	46.9	7.0	100	6.3
Karnataka	3.0	59.0	31.9	6.0	100	5.5
Maharashtra	1.1	41.9	47.5	9.5	100	6.5
Rajasthan	0.6	21.5	54.0	24.0	100	8.4
Uttar Pradesh	0.2	16.2	51.7	31.9	100	9.3
West Bengal	1.0	40.0	50.0	9.0	100	6.5
Total[3]	**0.9**	**33.6**	**48.2**	**17.3**	**100**	**7.4**
Number	**77**	**2,852**	**3,921**	**1,302**	**8,152**	

[1] Includes non-scheduled caste or tribe and no caste or tribe.

[2] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

[3] Includes households where information on education level of head of household was missing.

3.2.1 *Household head and main income earners*

(a) Characteristics of household heads

Table 3.2.2 presents selected characteristics of household heads. Forty-eight percent of households were headed by men and 52% of households were headed by women. Around 50% of the household heads were in the 50-69 age group, while about 24% of the households were noted to have septuagenarian heads (aged 70-plus).

Female household heads were slightly older than males. Most of the male heads (90%) were married while most of the female heads (79%) were widowed. The majority of the households with female household heads (around two-thirds) were in urban areas.

Nearly one-third (31%) of household heads were with no formal education and only about one-quarter (22%) studied beyond high school. Nine percent were college-educated. The educational attainment of female heads was especially low: 63% with no formal education and only 8% studied beyond high school. Female heads were more likely than males to be from the lowest wealth quintiles.

Table 3.2.2 Percent distribution of heads of household by selected socio-demographic characteristics and sex, India (pooled), SAGE Wave 2, 2015

Background characteristics	Male	Female	Total
Age group			
18-29	0.4	0.2	0.4
30-39	7.2	3.8	6.9
40-49	18.8	15.0	18.4
50-59	25.9	21.8	25.5
60-69	24.5	28.8	24.9
70-79	16.1	23.6	16.9
80+	7.1	7.0	7.1
Marital status			
Never married	1.2	1.4	1.2
Currently married	90.3	17.6	83.0
Widowed	8.2	79.1	15.4
Other[1]	0.2	2.0	0.4
Residence			
Urban	27.6	34.7	28.3
Rural	72.5	65.3	71.7
Caste			
Scheduled tribe	7.5	6.9	7.5
Scheduled caste	16.4	16.6	16.4
Other[2]	76.1	76.5	76.1
Religion			
Hindu	83.7	84.7	83.8
Muslim	12.3	12.5	12.4
Other[3]	4.0	2.8	3.8
Education			
No formal education	27.0	62.7	30.8
Less than primary	15.3	10.5	14.8
Primary school	18.1	12.8	17.6
Secondary school	16.2	6.5	15.2
High school	13.3	3.8	12.3
College and above	10.1	3.8	9.4
Wealth quintile			
Lowest	23.8	25.8	24.0
Second	18.8	19.4	18.9
Middle	18.7	20.5	18.9

Background characteristics	Male	Female	Total
Fourth	19.1	20.4	19.2
Highest	19.5	13.9	18.9
State			
Assam	5.9	7.1	6.0
Karnataka	10.5	22.0	11.6
Maharashtra	22.2	17.7	21.7
Rajasthan	12.2	7.1	11.7
Uttar Pradesh	31.0	24.2	30.3
West Bengal	18.2	22.0	18.6
Total	**100**	**100**	**100**
Number	**3947**	**4205**	**8152**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 3.2.3 shows the distribution of selected background characteristics by the age and sex of the head of the household. Two-thirds of the male head of the households were found to be above the age of 50. Similarly, female-headed households were more likely to be headed by women aged 50-plus. Higher proportions of female-headed households were found in Karnataka (19%) and West Bengal (12%).

The pattern of headship is more or less similar by residence, caste, religion, income and education. However, female-headed households were slightly common in urban than the rural areas, and also among scheduled tribes and those other than Hindu and Muslim. Female headship is more common in poor households than in wealthy ones: 11% of households in the lowest wealth quintile were headed by women, compared with 8% in the highest wealth quintile. Similarly, 22% of households headed by women had no formal education, only 4% of households were with college-educated heads. The mean age of the household heads increased as the wealth quintile increased, but decreased with the educational attainment of the heads.

Trends: *Household which is headed by female or male of ages 49 or younger has halved in the last decade. Households headed by 50+ male has increased substantially (from 46% to 66%) over the period. The mean age of the main income earner has increased from 2007 to 2015. Households whose main income earner is 50+ female have almost doubled over the years. However, households, where the main income earner is male of ages 49 or younger, has decreased by 11 percent points.*
The living arrangement of survey respondents have changed over the years. Households without members aged 50+ have decreased substantially over the years. However, households with two or more members aged 50 plus has increased from 31 percent to 54 percent in the period 2007-15.

Table 3.2.3 Percent distribution of household heads by age and sex according to selected characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Female 49 or younger	Female 50+	Male 49 or younger	Male 50+	Total	Mean age of household head
Residence						
Urban	1.3	11.2	21.6	66.0	100	59.0
Rural	2.2	7.1	24.6	66.2	100	59.5
Caste						
Scheduled tribe	1.1	8.3	26.8	63.8	100	58.7
Scheduled caste	2.2	8.1	23.9	65.8	100	58.7
Other[1]	2.0	8.3	23.4	66.4	100	59.2
Religion						
Hindu	2.0	8.3	23.4	66.3	100	59.1

Background characteristics	Female 49 or younger	Female 50+	Male 49 or younger	Male 50+	Total	Mean age of household head
Muslim	1.6	8.8	24.0	65.7	100	59.5
Other[2]	2.3	5.1	29.6	63.1	100	58.0
Wealth quintile						
Lowest	1.7	9.2	24.7	64.4	100	59.2
Second	1.9	8.6	27.9	61.7	100	57.6
Middle	2.7	8.3	27.3	61.7	100	57.5
Fourth	2.5	8.3	21.1	68.1	100	59.9
Highest	0.9	6.6	17.5	75.1	100	61.3
Education of head of household						
No formal education	3.7	17.8	20.0	58.5	100	59.7
Less than primary	2.1	5.5	23.3	69.1	100	58.2
Primary school	1.8	5.9	27.9	64.4	100	56.3
Secondary school	1.9	2.6	34.3	61.2	100	54.7
High school	0.7	2.6	31.7	65.0	100	55.6
College and above	0.7	3.6	24.3	71.5	100	58.2
State						
Assam	3.3	8.6	32.5	55.6	100	56.7
Karnataka	3.2	16.1	31.3	49.5	100	55.6
Maharashtra	1.1	7.2	21.9	69.9	100	59.3
Rajasthan	1.2	5.0	26.9	67.0	100	58.4
Uttar Pradesh	1.5	6.6	19.6	72.3	100	61.0
West Bengal	2.8	9.2	23.0	65.0	100	59.2
Total[3]	**1.9**	**8.3**	**23.7**	**66.1**	**100**	59.1
Number	**172**	**653**	**2,040**	**5,256**	**8,121**	

[1] *Includes non-scheduled caste or tribe and no caste or tribe.*

[2] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

[3] *Includes households where information on education level of head of household was missing.*

(b) Main income earner of households

Table 3.2.4 presents the distribution of households by type of main income earner. In most households (91%), men were the main income earners. The mean age of income earners was 49 years. People aged 50-plus constitutes 73% of household heads, but only 46% are main income earners, indicating that not all head of households (usually men) were the breadwinners.

The age and sex distribution of main income earners have been similar across urban and rural areas and among different caste groups and religions. With an increase in the economic status and education of the head of household, the share of women as the main income earner decreased and the proportion of older men as the main income earner increased. Karnataka and West Bengal, which have the highest proportion of female heads of household, also have the highest proportion of women as the main income earner.

Table 3.2.4 Percent distribution of main income earner by age and sex according to residence, caste, religion, wealth quintile and education of heads of household, India (pooled), SAGE Wave 2, 2015

Background characteristics	Female 49 or under	Female 50+	Male 49 or under	Male 50+	Total	Mean age of main income earner
Residence						
Urban	4.3	4.6	50.5	40.6	100	48.2
Rural	4.1	7.1	48.0	40.8	100	49.1
Caste						
Scheduled tribe	3.7	5.7	53.8	36.9	100	47.6
Scheduled caste	3.6	6.3	49.0	41.1	100	48.5
Other [1]	4.4	5.1	49.6	40.9	100	48.5

Background characteristics	Female 49 or under	Female 50+	Male 49 or under	Male 50+	Total	Mean age of main income earner
Religion						
Hindu	4.4	5.2	49.7	40.6	100	48.3
Muslim	3.0	6.6	48.3	42.2	100	49.7
Other [2]	4.3	2.8	56.6	36.4	100	47.2
Wealth quintile						
Lowest	5.5	9.3	47.9	37.4	100	48.5
Second	4.0	4.4	54.7	36.9	100	47.2
Middle	5.5	3.5	54.0	37.0	100	47.1
Fourth	4.0	4.5	48.3	43.2	100	49.0
Highest	2.0	4.0	44.6	49.4	100	50.5
Household head education						
No formal education	5.1	7.1	51.0	36.9	100	48.0
Less than primary	2.7	2.4	47.5	47.4	100	48.9
Primary school	2.6	4.3	47.3	45.8	100	49.6
Secondary school	2.9	2.2	47.6	47.3	100	49.7
High school	1.9	1.6	48.6	47.9	100	49.4
College and above	2.5	3.6	34.2	59.8	100	53.8
State						
Assam	4.9	4.9	52.3	38.0	100	48.0
Karnataka	4.6	6.9	56.5	32.0	100	46.1
Maharashtra	4.1	6.1	43.4	46.4	100	50.7
Rajasthan	3.8	4.5	53.3	38.4	100	47.6
Uttar Pradesh	3.2	4.4	51.2	41.2	100	48.1
West Bengal	5.8	5.5	47.9	40.7	100	48.5
Total[3]	**4.2**	**5.3**	**49.8**	**40.7**	**100**	**48.5**
Number	**368**	**396**	**3,967**	**3,128**		

[1] Includes non-scheduled caste or tribe and no caste or tribe.

[2] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

[3] Includes households where information on education level of head of household was missing.

3.3 Living arrangements

The living arrangements and family structure of respondents are presented in Table 3.3.1. Living arrangements serve to highlight family structure, availability of resources, and care and support systems, particularly for the older people in the household.

About 13% of households have no members aged 50-plus. In 33% of households, there was only one person aged 50-plus, and in the remaining 54%, there were two or more. This pattern prevailed in both urban and rural areas.

Richest households were less likely to have people aged 50-plus. In the lowest wealth quintile, 15% of households have no members in this age group and 49% of households with at least two. In contrast, in the highest wealth quintile, only 9% of households have no members aged 50-plus, and 66% of households with two or more. Households in Assam were least likely (22%) to have persons aged 50-plus, while households in Maharashtra and Uttar Pradesh were most likely to have them.

Table 3.3.1 Percent distribution of living arrangement of older persons by type of residence and wealth quintile across states, India (Pooled), SAGE Wave 2, 2015

Background characteristics	Household without member aged 50+	Household with single member aged 50+	Household with two or more members aged 50+	Total
Residence				
Urban	11.1	34.2	54.7	100
Rural	13.8	32.6	53.6	100

Background characteristics	Household without member aged 50+	Household with single member aged 50+	Household with two or more members aged 50+	Total
Wealth quintile				
Lowest	14.8	36.3	48.9	100
Second	15.1	38.6	46.3	100
Middle	15.9	34.4	49.8	100
Fourth	10.2	29.6	60.3	100
Highest	9.0	25.5	65.5	100
State				
Assam	21.7	40.5	37.8	100
Karnataka	16.3	35.1	48.6	100
Maharashtra	10.5	33.3	56.2	100
Rajasthan	15.2	28.9	55.9	100
Uttar Pradesh	9.5	30.8	59.7	100
West Bengal	15.6	35.1	49.3	100
Total	**13.1**	**33.0**	**53.9**	**100**

3.4 Individual respondents

Overall, 9,116 individual respondents were interviewed from the six selected states. Information related to behavioural issues as well as morbidity and other health aspects was collected from the individual respondents. The socioeconomic and demographic characteristics of the individual respondents aged 50-plus as well as those aged 18-49 are presented in Tables 3.4.1 and 3.4.2 respectively.

3.4.1 Age and sex of respondents

Table 3.4.1 (a & b) presents the basic characteristics of the study's older respondents who are aged 50-plus. Among these respondents, more than one-third (36%) of men were aged 50-59, 38% were aged 60-69, 20% were aged 70-79, and 6% were aged 80-plus.

The age distribution of women shows a similar pattern to men. Among the older men, 88% were currently married, 10% were widowed, and a small proportion was either never married or divorced/separated. Among older women, a substantial proportion was widowed (36%); this proportion was higher in Assam (44%) and Karnataka (41%).

Nearly three-quarters of older respondents (72% of men and 71% of women) were from rural areas. The majority of respondents were Hindu and belonged to other social groups, other than the scheduled castes or scheduled tribes. Assam has relatively more older respondents from scheduled tribes while West Bengal has more from scheduled castes. In Assam, Uttar Pradesh and West Bengal, there were relatively higher proportions of older Muslims.

The overall educational attainment among older respondents is not high for men but significantly found lower for women - 27% of men, and 68% of women with no formal education. More than one-third (40%) of older men completed at least secondary schooling and 11% completed college education. In contrast, only 11% of older women have completed secondary schooling, and a mere 3% completed college. Educational attainment is lowest in Rajasthan, where 41% of older men and 86% of older women have no formal education.

Among older men, Maharashtra has the least proportion with no formal education (20%), while Uttar Pradesh has the highest proportion of older men with secondary schooling (46%). West Bengal has the largest proportion of older women with no formal education (52%) and also has the highest proportion with college and above education (6%).

Older respondents from Rajasthan and Maharashtra were more likely to be economically better off than those from other states, and those from Assam and West Bengal more likely to be the worse off. In Karnataka, only 9% of older men and 12% of older women belonged to the lowest wealth quintile, whereas in Uttar Pradesh one in three of both older men and women were in the lowest quintile.

Table 3.4.1 (a) Percent distribution of male older respondents by selected socio-demographic characteristic, states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total Males (pooled)
Age group							
50-59	35.8	32.9	39.1	40.1	34.1	33.0	35.7
60-69	38.5	44.0	32.3	35.4	39.3	41.3	38.1
70-79	19.2	16.0	24.0	19.1	21.1	18.3	20.4
80+	6.5	7.2	4.6	5.5	5.6	7.3	5.9
Marital status							
Never married	0.6	1.1	0.3	1.6	2.9	2.7	1.8
Currently married	87.1	93.0	92.8	87.0	83.6	88.7	88.1
Widowed	12.4	5.5	6.8	11.3	13.0	8.1	9.8
Other[1]	0.0	0.4	0.2	0.2	0.5	0.5	0.0
Residence							
Urban	9.7	38.6	44.0	19.5	19.0	31.0	28.2
Rural	90.3	61.4	56.0	80.5	81.0	69.0	71.9
Caste							
Scheduled tribe	17.6	3.7	6.8	6.4	3.0	8.0	5.9
Scheduled caste	20.0	10.9	8.7	14.4	13.9	23.0	14.4
Other [2]	62.4	85.4	84.4	79.3	83.1	69.0	79.7
Religion							
Hindu	69.7	88.1	89.0	88.3	84.1	80.6	84.7
Muslim	20.3	9.7	4.3	8.3	15.1	17.3	12.0
Other [3]	9.9	2.2	6.7	3.5	0.8	2.1	3.2
First language							
Hindi	1.3	3.0	6.5	75.0	99.4	0.9	44.2
Assamese	44.5	0.0	0.0	0.0	0.0	0.0	2.3
Bengali	36.2	0.0	0.1	0.0	0.1	94.3	18.2
Marathi	0.0	6.8	90.7	0.0	0.0	0.0	20.5
Kannada	0.0	71.2	0.3	0.2	0.0	0.0	7.5
Other language[4]	18.0	19.0	2.4	24.9	0.5	4.9	7.4
Education							
No formal education	33.8	31.3	19.9	41.3	27.6	19.2	26.8
Less than primary	18.5	18.5	21.3	9.9	10.5	20.6	15.8
Primary school	20.9	12.6	20.3	14.0	15.5	20.4	17.2
Secondary school	13.5	7.1	18.9	13.1	15.0	14.7	14.7
High school	6.0	18.6	9.6	14.6	17.2	12.6	14.0
College and above	7.3	11.8	10.0	7.0	14.3	12.6	11.0
Wealth quintile							
Lowest	22.0	9.2	9.6	17.6	30.1	14.1	18.8
Second	25.9	17.7	19.7	14.7	17.2	17.9	18.1
Middle	24.3	22.6	18.9	10.9	12.1	30.5	18.3
Fourth	16.1	25.9	24.2	21.2	18.0	17.6	20.4
Highest	11.7	24.6	27.6	35.6	22.6	19.9	24.4
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**347**	**379**	**556**	**669**	**773**	**613**	**3337**

[1] Includes divorced, separated or cohabiting

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

[4] Includes English, Gujarati, Kashmiri, Konkani, Malayalam, Manipuri, Nepali, Oriya, Punjabi, Sindhi, Tamil, Telugu, Urdu and other.

Table 3.4.1 (b) Percent distribution of female older respondents by selected socio-demographic characteristic, states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total Females (pooled)
Age group							
50-59	47.2	47.3	45.9	46.3	42.4	48.4	45.6
60-69	36.7	31.0	35.5	32.5	36.7	30.7	34.1
70-79	13.8	18.3	14.5	16.4	14.8	17.6	15.8
80+	2.4	3.4	4.1	4.9	6.0	3.3	4.5
Marital status							
Never married	2.6	0.6	0.2	0.0	0.4	0.6	0.5
Currently married	52.5	56.5	64.3	65.3	68.5	57.3	62.9
Widowed	44.3	41.3	34.5	34.5	30.7	41.3	35.9
Other[1]	0.7	1.7	1.0	0.2	0.4	0.9	0.0
Residence							
Urban	16.2	36.1	41.1	18.1	22.5	31.5	28.8
Rural	83.8	64.0	58.9	81.9	77.5	68.5	71.2
Caste							
Scheduled tribe	14.6	5.2	6.8	7.9	3.7	9.5	6.7
Scheduled caste	21.5	11.9	8.3	14.3	14.6	23.2	14.9
Other [2]	64.0	82.9	84.8	77.8	81.6	67.2	78.4
Religion							
Hindu	74.1	90.0	89.7	89.6	83.8	80.2	85.3
Muslim	17.4	8.8	3.4	6.7	15.6	18.3	11.8
Other [3]	8.5	1.2	6.9	3.6	0.6	1.5	2.9
First language							
Hindi	1.0	3.3	4.5	70.2	98.8	0.8	41.1
Assamese	43.1	0.0	0.0	0.0	0.0	0.0	2.2
Bengali	38.6	0.0	0.0	0.0	0.0	94.1	19.7
Marathi	0.0	6.9	94.2	0.0	0.0	0.0	20.1
Kannada	0.0	69.8	0.1	0.0	0.0	0.0	8.4
Other language[4]	17.3	20.1	1.2	29.8	1.2	5.1	8.6
Education							
No formal education	58.3	68.9	60.7	86.3	76.3	51.6	67.9
Less than primary	13.9	10.0	13.7	3.2	8.3	16.9	10.9
Primary school	13.8	8.2	14.2	5.8	8.0	12.3	10.1
Secondary school	9.2	3.3	5.3	2.5	4.0	8.7	5.1
High school	1.7	7.1	3.8	1.6	1.9	4.9	3.4
College and above	3.1	2.4	2.4	0.7	1.6	5.7	2.6
Wealth quintile							
Lowest	22.1	11.8	13.9	20.3	33.2	16.5	21.4
Second	24.3	18.5	16.3	15.9	17.1	20.0	17.9
Middle	22.1	23.3	19.0	11.2	11.7	26.4	17.8
Fourth	17.2	25.9	28.4	21.0	18.4	17.5	21.4
Highest	14.3	20.4	22.4	31.7	19.6	19.7	21.5
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**376**	**493**	**620**	**787**	**761**	**744**	**3781**

[1] Includes divorced, separated or cohabiting

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

[4] Includes English, Gujarati, Kashmiri, Konkani, Malayalam, Manipuri, Nepali, Oriya, Punjabi, Sindhi, Tamil, Telugu, Urdu and other.

Table 3.4.2 (a & b) presents the characteristics of younger respondents, aged 18-49 years. In the SAGE India study, younger respondents constitute one-fifth of the total respondents. Females were over-represented since part of the study relates to the reproductive health of young married women.

Among younger men, 43% were in the youngest age group (18-29 years), 25% were aged 30-39 years and 32% were aged 40-49 years. Women were relatively older; more than one-third were in the 30-39 and 40-49 age groups (33% and 47% respectively). More than two-thirds of younger respondents, both men and women, were currently married; 35% of men and 14% of women were never married. Maharashtra and Karnataka have relatively more widowed women.

Nearly three-fourths of younger respondents were from rural areas, and one-fourth from urban areas. Eight percent of men and 10% of women younger respondents were from scheduled tribes, about one-fifth from scheduled castes and about three-fourths from other castes. Assam has relatively more of younger respondents from scheduled tribes, while West Bengal has more from scheduled castes. Most younger respondents (84% of men and women) were Hindu, about 12% were Muslim, and the remaining from other religions. Assam and West Bengal have relatively higher proportions of Muslim respondents in the 18-29 age group.

Less than one-fifth of younger men and 40% of younger women have no formal education. More than half (57%) of younger men completed secondary schooling and 11% completed college. Among younger women, 34% have completed secondary schooling and 5% completed college. The proportion of younger respondents with no formal education is lowest in Maharashtra (3% of men and 27% of women) and highest in Karnataka among men (25%) and in Rajasthan among women (60%). However, in the case of higher education, Karnataka has a maximum - 17% of younger men and 10% of younger women completed college.

Table 3.4.2 (a) Percent distribution of male younger respondents by selected socio-demographic characteristics and sex across states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
18-29	46.8	45.7	34.2	43.9	34.4	59.2	43.1
30-39	18.6	12.4	35.1	22.6	34.2	12.0	24.7
40-49	34.5	41.9	30.7	33.6	31.4	28.9	32.2
Marital status							
Never married	48.8	43.5	25.5	29.7	28.3	45.5	34.9
Currently married	47.2	55.6	74.0	68.5	70.6	53.6	63.9
Widowed	3.4	1.0	0.5	1.3	1.2	0.8	1.1
Other[1]	0.6	0.0	0.0	0.5	0.0	0.0	0.1
Residence							
Urban	10.2	34.9	32.9	16.1	19.5	23.3	23.3
Rural	89.8	65.1	67.1	83.9	80.5	76.7	76.7
Caste							
Scheduled tribe	18.0	4.4	5.9	15.2	3.5	9.0	8.1
Scheduled caste	16.1	24.0	14.3	16.8	20.2	29.3	20.5
Other [2]	65.9	71.6	79.8	68.0	76.3	61.7	71.4
Religion							
Hinduism	74.5	89.7	85.3	88.1	87.4	78.6	84.2
Muslim	14.9	9.0	7.3	10.9	12.6	20.4	12.8
Other [3]	10.6	1.4	7.4	1.1	0.0	0.9	3.0
First language							
Hindi	0.6	3.3	8.0	65.3	98.7	0.9	36.3
Assamee	44.3	0.0	0.0	0.0	0.0	0.0	4.0
Bengali	33.3	0.0	0.1	0.0	0.0	96.2	24.0
Marathi	0.0	3.7	89.3	0.0	0.0	0.0	19.3
Kannada	0.0	79.2	0.0	0.0	0.0	0.0	7.2
Other language[4]	21.9	13.7	2.7	34.7	1.3	2.9	9.2

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Education							
No formal education	12.3	24.8	3.7	16.6	15.8	11.9	13.0
Less than primary	13.6	4.9	14.1	9.0	4.8	15.7	10.5
Primary school	32.9	17.7	23.4	21.5	12.7	16.1	19.1
Secondary school	21.0	7.9	30.1	19.4	28.6	27.7	25.0
High school	16.2	27.5	18.6	21.7	21.0	23.1	21.2
College and above	4.0	17.4	10.0	11.7	17.0	5.5	11.2
Wealth quintile							
Lowest	29.5	9.9	17.1	18.6	33.0	11.4	20.6
Second	25.4	15.2	15.9	27.9	20.6	19.4	20.2
Middle	27.6	38.5	22.7	9.2	7.6	42.2	23.2
Fourth	9.7	24.8	22.3	24.6	12.8	13.6	17.4
Highest	7.8	11.5	22.0	19.7	26.0	13.4	18.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**131**	**78**	**150**	**159**	**137**	**178**	**833**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

[4] Includes English, Gujarati, Kashmiri, Konkani, Malayalam, Manipuri, Nepali, Oriya, Punjabi, Sindhi, Tamil, Telugu, Urdu and other languages.

Table 3.4.2 (b) Percent distribution of female younger respondents by selected socio-demographic characteristics and sex across states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
18-29	26	17.8	15.9	22.6	20.9	22.4	20.4
30-39	34.4	32	33.8	30.7	33	33.3	32.9
40-49	39.6	50.2	50.3	46.7	46	44.3	46.7
Marital status							
Never married	24.4	10.6	9.5	12.1	13.9	16.5	13.6
Currently married	69.8	80.4	80.6	83.4	81.9	73.6	78.9
Widowed	5.8	8.9	9.6	4.5	4.3	8	6.9
Other[1]	0	0	0.4	0	0	2	0.5
Residence							
Urban	20	29.4	41	24.5	19	24.8	27
Rural	80	70.6	59	75.5	81	75.2	73
Caste							
Scheduled tribe	13.8	6.9	9.4	9.7	4.9	17	10
Scheduled caste	23	17.8	12.1	20.1	21.8	27.3	20.3
Other [2]	63.3	75.3	78.5	70.2	73.3	55.7	69.7
Religion							
Hinduism	70.5	88.2	88	87.5	84.1	79.1	83.8
Muslim	18.4	10.4	4.8	10	15.2	18.3	12.7
Other [3]	11.1	1.4	7.2	2.6	0.7	2.6	3.6
First language							
Hindi	0	5.4	6.4	88.8	99.7	1.4	38.7
Assamee	40.3	0	0	0	0	0	2.9
Bengali	38.4	0	0	0	0	93.2	23
Marathi	0	6.4	90.1	0	0	0	20
Kannada	0	72	0	0	0.3	0	8.7
Other language[4]	21.4	16.3	3.6	11.2	0	5.5	6.8
Education							
No formal education	27.3	46.3	26.8	59.4	43.6	34.3	39.1
Less than primary	15.4	3.9	12.4	11.2	7.2	16.4	11
Primary school	27.1	10.9	27.8	7.4	12.3	13.3	16.1

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Secondary school	21	12.7	20.5	12.2	14.8	21	17.2
High school	6.3	16.4	9.7	8.8	14.8	9.9	11.5
College and above	2.9	9.8	2.9	1	7.4	5.1	5.1
Wealth quintile							
Lowest	19.3	11.7	6.7	15.5	37.2	20.4	20
Second	31.6	25	17.9	14.2	13.1	21.9	18.9
Middle	20.2	32.3	23.9	13.8	16.5	32.6	23.4
Fourth	10.1	23.1	29.8	24	18.4	15.7	20.9
Highest	18.9	8	21.8	32.5	14.8	9.3	16.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**166**	**145**	**194**	**201**	**191**	**268**	**1165**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

[4] *Includes English, Gujarati, Kashmiri, Konkani, Malayalam, Manipuri, Nepali, Oriya, Punjabi, Sindhi, Tamil, Telugu, Urdu and other languages.*

Almost equal proportions of the younger respondents belong to each wealth quintile. As observed in the case of households, younger respondents from Rajasthan and Maharashtra were more likely to be economically better off, and those from Assam and West Bengal more likely to be economically worse. In Karnataka, only 10% of younger male and 7% of younger female respondents in Maharashtra belong to the lowest wealth quintile, whereas in Uttar Pradesh 33% of younger men and 37% of younger women were in the lowest quintile.

4. Income, Consumption, Transfers and Retirement

The overall economic status varies in fundamental and critical ways over the life cycle. The life cycle gives rise to institutions and economic systems that facilitate the reallocation of resources from one age to another. Beyond biological changes, ageing is also associated with other life transitions such as retirement, relocation to more appropriate housing, living arrangements etc.

Demographic change has stimulated significantly the economics of ageing. To support an expanding retired population with the shrinking working population is bound to put stress on the various capital and social institutions. Population in each of the age groups facing uncertainty, but the probability of uncertainty for the older people is much larger because of their loss of work, economic dependency and decline in physical health.

Therefore, SAGE Wave 2 India (hereafter SAGE India) collected information on respondents' economic status and sector of employment. This chapter presents information on employment status and the major source of income, work history, the reason for discontinuation of work if they had worked in the past and were not currently working and occupational structure such as agriculture, professional and service workers etc. It also covers income received from a different source and its adequacy to meet their needs. Along with data on household income, SAGE India also collected data on household support networks and financial transfers, economic and in-kind transfers from households, types of care given and received.

4.1 Current working status

All respondents were classified as either currently working, or formerly worked but currently not working, or never having worked. Individual work status was defined based on jobs paid in cash or in kind, engaging in the sale of goods, having a small business, or working on the family firm or family business.

Table 4.1.1 presents state-level variation in respondents' work history, broken down by younger (aged 18-49) and older (aged 50-plus) respondents. Among the six surveyed states, Maharashtra recorded the highest proportions of individuals who had ever worked (85% among younger and 92% among older) followed by Karnataka (about 70% and 80% respectively). The proportion of currently working was found to be the highest in Maharashtra in both; younger and older age-groups. In Karnataka, the proportion of currently working is higher among the younger age-group whereas in Assam, it is higher among older age-groups.

Trends: There has been a significant increase in the percent of the respondents who have never worked in the past among the population aged 18-49 years (30.4% in 2007 and 42.7 in 2015) and 50-plus (27% in 2007 and 33.1 in 2015). This change is more pronounced among respondents belonging to Scheduled Caste and Scheduled tribes in comparison to respondents belonging to others category. Among those who have worked in the past, have also shown a decline in the percentage of people who are currently working. The percentage of women aged 18-49 years who are currently working has shown substantial increase from the last SAGE survey (2007).

At the national level, about two-thirds (67%) of older respondents had ever worked; at the time of the survey 42% were working and 25% were not working. Almost One-third (31%) of the respondents of the older population were currently working in Rajasthan, compared to 62% in Maharashtra.

Overall, 49% of younger respondents were currently working, while 9% had previously worked but stopped; the remaining 43% had never worked. The lowest proportion of younger individuals who had ever worked (40%) and who were currently working (33 %) were recorded in Uttar Pradesh.

Table 4.1.1 Percent distribution of respondents by work status, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Ever worked		Never worked	Total	Number	Ever worked		Never worked	Total	Number
	Currently working	Currently not working				Currently working	Currently not working			
Assam	49.6	3.9	46.5	100	195	47.6	15.6	36.8	100	413
Karnataka	53.6	14.9	31.5	100	175	42.3	36.2	21.5	100	586
Maharashtra	74.5	10.3	15.3	100	267	61.6	30.5	7.9	100	831
Rajasthan	39.8	10.0	50.2	100	338	31.4	30.7	37.8	100	1,269
Uttar Pradesh	33.2	6.7	60.1	100	262	37.9	19.8	42.3	100	1,142
West Bengal	46.1	7.9	46.0	100	411	35.4	19.6	45.0	100	1,241
India (pooled)	**48.5**	**8.9**	**42.7**	**100**	**1648**	**42.0**	**24.9**	**33.1**	**100**	**5,482**

Table 4.1.2 presents the work history of respondents by selected background characteristics. Work participation rates were quite high among older persons, with the majority of being engaged in agriculture and allied work (see Section 4.4). A similar pattern was visible among the study's oldest respondents: more than a quarter of respondents aged 70-79 were still working, as were 11% of those aged 80-plus. In the 50-59 age group, the current work participation rate was 52%. Work participation differed substantially among men and women: almost all (93%) of older men had ever worked and about two thirds (63%) were currently working, while only 39% of older women had ever worked and only one fifth (20%) were currently working (Table 4.1.2).

Table 4.1.2 Percent distribution of respondents by work status according to selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49						Aged 50-plus				
	Ever worked		Never worked	Total	Number		Ever worked		Never worked	Total	Number
	Currently working	Currently not working					Currently working	Currently not working			
Age group											
18-29	36.5	3.9	59.6	100	493	50-59	51.7	14.1	34.3	100	2,268
30-39	53.9	8.3	37.9	100	475	60-69	43.0	26.5	30.6	100	1,949
40-49	54.3	13.4	32.3	100	680	70-79	26.7	40.3	33.0	100	1,009
						80+	11.1	46.9	42.0	100	256
Sex											
Male	70.5	7.9	21.6	100	745		62.7	30.5	6.8	100	2,706
Female	32.6	9.6	57.9	100	903		20.4	19.0	60.6	100	2,776
Marital status											
Never married	33.9	3.9	62.2	100	376		63.1	15.3	21.7	100	60
Currently married	52.5	10.3	37.1	100	1,197		46.2	23.3	30.5	100	4,173
Widowed	60.9	12.2	26.9	100	67		25.6	31.1	43.3	100	1,215
Other[1]	59.5	7.7	32.8	100	8		54.6	21.6	23.9	100	34
Residence											
Urban	53.7	7.4	38.9	100	341		42.6	27.8	29.6	100	1146
Rural	46.7	9.4	44.0	100	1307		41.8	23.8	34.4	100	4336
Caste											
Scheduled tribe	52.1	12.6	35.3	100	161		51.3	19.9	28.8	100	408
Scheduled caste	47.5	11.5	41.0	100	351		44.6	25.3	30.2	100	903
Other[2]	48.3	7.6	44.1	100	1,136		40.7	25.2	34.1	100	4,171
Religion											
Hindu	49.0	9.1	42.0	100	1,382		42.9	25.2	31.9	100	4,607
Muslim	42.8	7.6	49.6	100	205		31.9	22.7	45.4	100	665
Other[3]	58.4	8.4	33.2	100	61		57.4	22.4	20.2	100	210
Education											
No formal education	43.8	14.4	41.9	100	456		32.1	23.7	44.2	100	2,693
Less than primary	53.7	10.3	36.0	100	195		47.8	23.9	28.3	100	721
Primary school	62.0	8.1	29.9	100	271		49.9	21.2	29.0	100	755
Secondary school	51.5	6.1	42.4	100	318		47.1	27.3	25.6	100	543
High school	35.3	5.7	59.0	100	278		56.0	27.5	16.5	100	455
College and above	48.4	3.5	48.1	100	130		55.3	33.4	11.4	100	315
Wealth quintile											
Lowest	42.3	13.4	44.3	100	319		43.1	24.7	32.2	100	1,054
Second	51.7	9.3	39.0	100	338		45.7	23.9	30.4	100	978
Middle	53.6	9.2	37.2	100	385		46.3	22.5	31.2	100	1,020
Fourth	47.7	7.3	45.0	100	308		40.5	25.6	33.8	100	1,133
Highest	46.1	4.3	49.6	100	298		36.3	26.9	36.9	100	1,297
Total	**48.5**	**8.9**	**42.7**	**100**	**1648**		**42.0**	**24.9**	**33.1**	**100**	**5482**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Among persons aged 50-plus, with the increase in the levels of education, they were less likely to report never worked. However, no such differentials were visible among young respondents (Table 4.1.2). Working status in all other education categories fluctuated in the range of 48-56% for those aged 50-plus and 44-62% for those under 50. People aged 50-plus with a college education had high rates of work participation: in the older group, only 11% of respondents with a college education had never worked.

Among younger respondents, the proportion of persons currently working increased with age, from 37% at ages 18-29 to 54% in the 40-49 age group (Figure 4.1). The lower level of work participation in younger adults reflected their involvement in education. Three fourth of the men (78%) had worked at some point, whereas only 42% of women had ever worked (Table 4.1.2). As expected, the current work participation rate for men (71%) was much higher than for women (33%) (Figure 4.2).

The proportion of persons who had ever worked, and of those who were currently working, do not show certain association with income: approximately one-third of the 50-plus respondents have never worked across the groups while among the younger group nearly half of the respondents have from both ends have never worked. Among younger respondents, the work participation rate was the highest among widowed persons, the majority of whom were widowed women who had to work to support their families in the absence of a husband. Work participation was higher in urban areas than in rural areas.

Figure 4.1 Percentage of respondents currently working by age, India (pooled), SAGE Wave 2, 2015

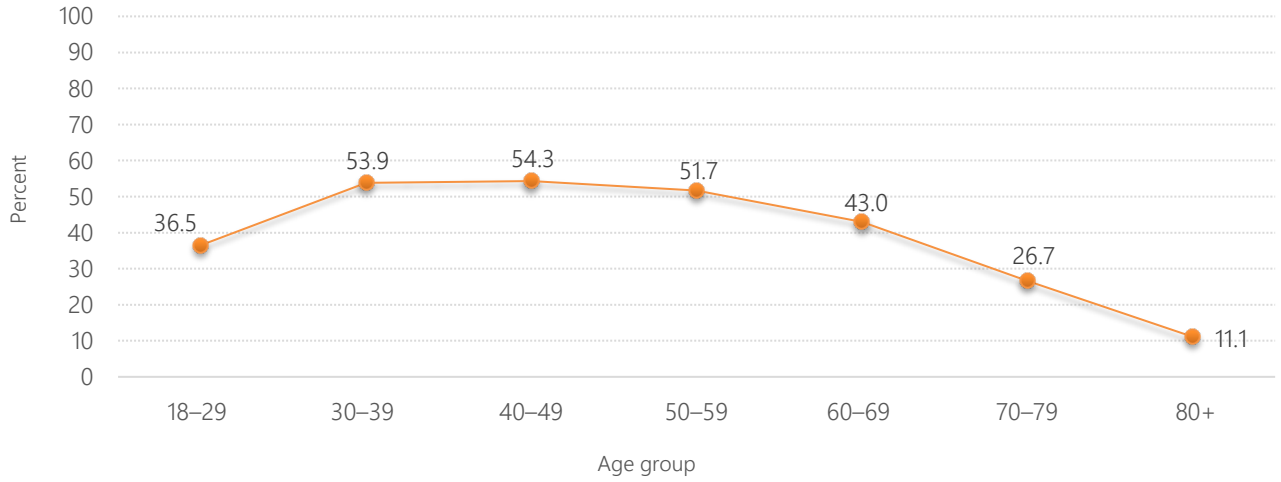
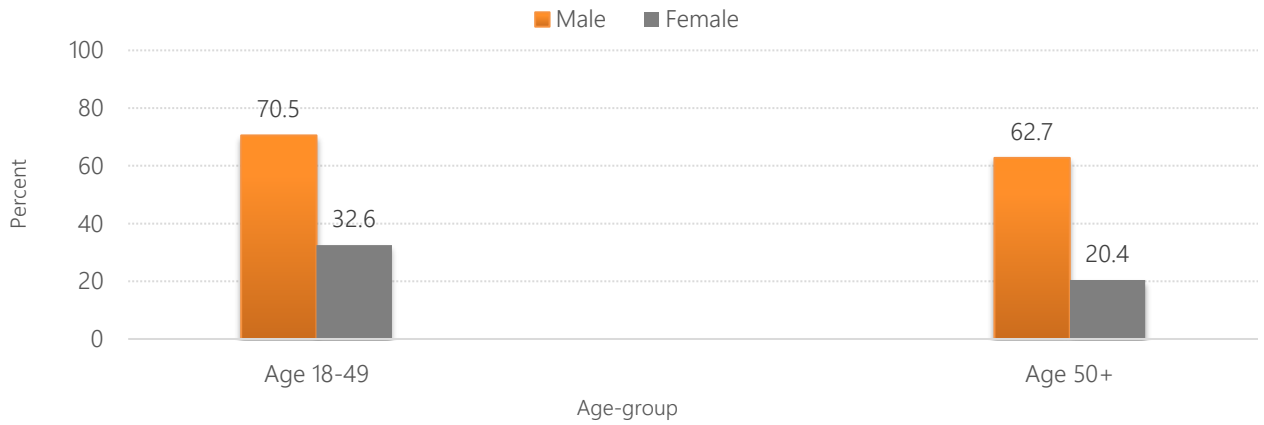


Figure 4.2 Percentage of respondents currently working by sex and age group, India (pooled), SAGE Wave 2, 2015



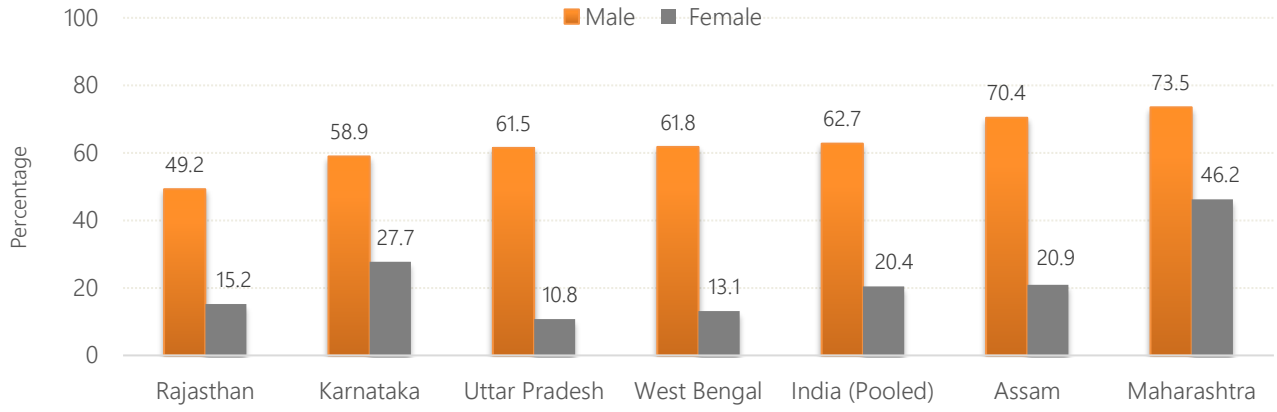
Work participation rates differed substantially among 50-plus men and women, as shown in Table 4.1.3. Almost all (93%) of older men had ever worked and about two-thirds (63%) were currently working, whereas the majority (61%) of older women had never worked and only one fifth (20%) were currently working.

The highest proportion of currently working older respondents was recorded in Maharashtra (62%) and the lowest in Rajasthan (31%) (Table 4.1.3). In every state, the proportion of older respondents currently working was much higher among men than women (Figure 4.3). Among older men the rate varied from 70% in Assam to 49% in Rajasthan; for older women, the highest proportion was recorded in Maharashtra (46%) and the lowest in Uttar Pradesh (11%).

Table 4.1.3 Percent distribution of older respondents by work status, states and India (pooled), SAGE Wave 2, 2015

State	Aged 50-plus									
	Male					Female				
	Ever worked		Never worked	Percent	Number	Ever worked		Never worked	Percent	Number
	Currently working	Currently not working				Currently working	Currently not working			
Assam	70.4	21.2	8.4	100	228	20.9	9.1	70.1	100	185
Karnataka	58.9	34.1	7.0	100	264	27.7	38.0	34.3	100	322
Maharashtra	73.5	24.5	2.0	100	435	46.2	38.2	15.6	100	396
Rajasthan	49.2	42.0	8.7	100	606	15.2	20.5	64.3	100	663
Uttar Pradesh	61.5	30.6	8.0	100	605	10.8	7.4	81.9	100	537
West Bengal	61.8	29.7	8.6	100	568	13.1	11.1	75.8	100	673
India (pooled)	**62.7**	**30.5**	**6.8**	**100**	**2,706**	**20.4**	**19.0**	**60.6**	**100**	**2,776**

Figure 4.3 Percentage of currently working respondents aged 50-plus by sex, states and India (pooled), SAGE Wave 2, 2015



As shown in Table 4.1.4, the proportion of older men currently working decreased substantially as age increased, from 82% in the 50-59 age group to 17% for those aged 80-plus. Men with college and above education had the lowest percentage of people who had never worked. The proportion currently working was slightly higher among never-married men (70%) compared to men who were married (65%) and widowed men (54%) – perhaps due to the likelihood that widowed men were older than currently married men.

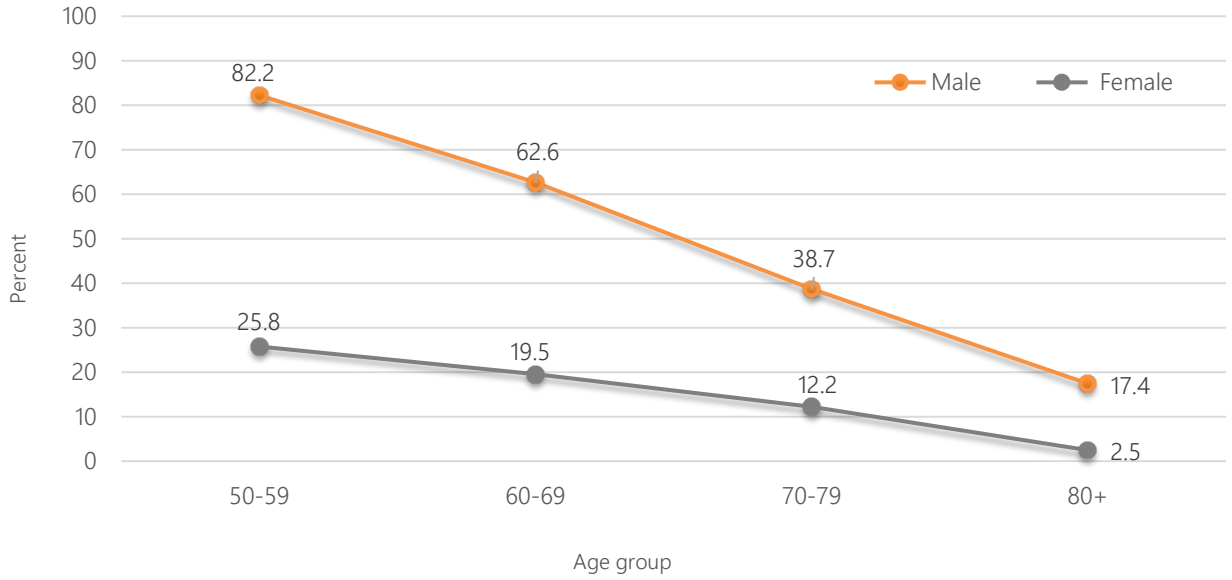
Table 4.1.4 Percent distribution of older respondents by work status according to background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus									
	Male					Female				
	Ever worked		Never worked	Total	Number	Ever worked		Never worked	Total	Number
	Currently working	Currently not working				Currently working	Currently not working			
Age group										
50-59	82.2	13.8	3.9	100	980	25.8	14.3	60.0	100	1,288
60-69	62.6	31.9	5.5	100	1,035	19.5	20.0	60.5	100	914
70-79	38.7	50.0	11.3	100	541	12.2	28.7	59.0	100	468
80+	17.4	63.9	18.7	100	150	2.5	23.5	74.1	100	106
Marital status										
Never married	70.4	18.4	11.3	100	41	36.2	4.0	59.8	100	19
Currently married	64.5	28.8	6.7	100	2,391	20.3	15.3	64.4	100	1,782
Widowed	44.5	48.1	7.4	100	263	20.0	26.2	53.8	100	952
Other[1]	75.8	24.2	0.0	100	11	42.7	20.1	37.2	100	23
Residence										
Urban	63.4	31.5	5.1	100	571	17.2	23.3	59.5	100	575
Rural	62.5	30.0	7.5	100	2,135	21.5	17.6	60.9	100	2,201
Caste										
Scheduled tribe	69.3	22.5	8.3	100	189	35.4	17.7	46.9	100	219
Scheduled caste	64.7	28.3	7.0	100	437	25.0	22.4	52.6	100	466
Other[2]	61.9	31.5	6.6	100	2,080	18.1	18.4	63.5	100	2,091
Religion										
Hindu	63.6	29.9	6.6	100	2,271	21.2	20.4	58.4	100	2,336
Muslim	56.1	35.1	8.8	100	325	7.9	10.5	81.5	100	340
Other[3]	64.6	30.4	5.0	100	110	49.1	13.1	37.8	100	100
Education										
No formal education	57.2	32.9	10.0	100	772	22.3	20.2	57.5	100	1,921
Less than primary	65.9	27.3	6.8	100	441	18.0	18.4	63.7	100	280
Primary school	67.8	25.7	6.4	100	470	18.0	13.1	68.9	100	285
Secondary school	60.1	34.1	5.8	100	398	7.9	6.7	85.4	100	145
High school	65.6	29.5	4.9	100	374	18.0	19.9	62.1	100	81
College and above	63.3	32.5	4.2	100	251	19.4	37.2	43.4	100	64
Wealth quintile										
Lowest	62.0	30.0	8.0	100	509	25.3	19.7	55.0	100	545
Second	67.6	25.2	7.3	100	457	24.2	22.6	53.1	100	521
Middle	67.4	27.1	5.5	100	520	22.9	17.5	59.6	100	500
Fourth	59.6	32.6	7.8	100	553	21.6	18.7	59.7	100	580
Highest	58.9	35.5	5.7	100	667	9.5	16.7	73.8	100	630
Total	**62.7**	**30.5**	**6.8**	**100**	**2,706**	**20.4**	**19.0**	**60.6**	**100**	**2,776**

[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Among older female respondents, the proportion who had ever worked fell from 40% in the 50-59 age group to 26% at age 80-plus (Table 4.1.4 and Figure 4.4). Similar to the men, the female current work participation rate decreased sharply with age: just over one-quarter of women were working in the 50-59 age group, falling to 12% at age 70-79 and just 3% in the 80-plus age group. The work participation rate among women varied inversely with income: the proportions who had ever worked decreased from 45% in the lowest wealth quintile to 26% in the highest. Similarly, the proportion of women currently working decreased from 25% of the lowest wealth quintile to 10% in the highest. Women who had never married had the highest proportion of current working women (36%), compared with 20% of currently married women and widows. A higher proportion of women from urban areas (22%) than rural areas (17%) reported working at the time of the survey.

Figure 4.4 Percentage of currently working respondents aged 50-plus, by sex, India (pooled), SAGE Wave 2, 2015



4.2 Reason for discontinuing work

All participants who had ever worked but were not working at the time of the survey were asked about their main reason for discontinuing work. As noted above, about 25% of older respondents had stopped working. As seen in Table 4.2.1, 27% of these older adults said they had stopped working due to health problems and a similar proportion of them were not working due to retirement, 28% cited reasons related to family, 5% were laid off or could not find a job and 14% reported other reasons, such as involvement in seasonal work or not having the economic need to work. Sixty-nine percent of older respondents in West Bengal had discontinued work due to health, old age or retirement, compared with 11% in Maharashtra. Among younger respondents, 35% and 17% had stopped work due to family-related reasons and ill health. A remarkable proportion of younger adults reported unspecified other reasons. A similar pattern of reasons for discontinuation of the work was observed in all the states except Maharashtra.

Trends: *Percent of respondents who have discontinued work due to homemaker/family-related issues, health/old age /retired and laid off/cannot find a job have increased substantially in the period 2007-15 among younger and older ages. Work discontinuation because of the home maker/family-related and being laid off/cannot find a job has doubled from the last survey, However, work discontinuation due to health/old age/retired have declined substantially. Among older respondents, work discontinuation due to home-maker/family-related issue is more pronounced among women (46.3% in 2015 and 15.3% in 2007) as compared to men (16.2% in 2015 and 7.0% in 2007).*

Table 4.2.1 Percent distribution of respondents who have discontinued work by reasons for discontinuation, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49							Aged 50-plus						
	Home-maker/ family related	Health	old age/ retired	Laid off/ cannot find job	Other	Total	Number	Home-maker/ family related	Health	old age/ retired	Laid off/ cannot find job	Other	Total	Number
Assam	27.4	16.9	0.0	21.5	34.2	100	9	22.7	6.0	57.5	4.8	8.9	100	66
Karnataka	37.1	19.4	0.0	4.4	39.0	100	22	27.1	34.4	24.4	2.1	12.1	100	202
Maharashtra	64.5	22.7	0.0	3.1	9.7	100	28	50.9	30.1	7.7	6.8	4.6	100	251
Rajasthan	23.2	14.0	0.0	13.9	49.0	100	38	24.3	27.8	28.8	4.2	14.8	100	404
Uttar Pradesh	17.8	16.2	0.0	17.0	49.1	100	21	16.0	18.6	32.6	6.9	25.9	100	225
West Bengal	27.6	11.9	0.0	16.2	44.2	100	37	14.5	27.4	41.9	2.7	13.5	100	249
India (pooled)	**34.7**	**16.9**	**0.0**	**11.2**	**38.0**	**100**	**155**	**27.5**	**26.5**	**26.9**	**4.9**	**14.2**	**100**	**1,397**

Table 4.2.2 (a & b) further breaks down responses by age bracket and sex and other characteristics. Among older respondents, the proportion of quitting work due to health reasons increased substantially with age, while the proportion of citing family reasons decreased. For instance, in the oldest age group aged 80-plus, 41% had stopped working because of health, compared with only 21% among the 50-59 age group. Almost one in three older men discontinued work due to old age/retirement, compared with one in six of their female counterparts. Among men aged 18-49, a large proportion (23%) cited health reasons for discontinuing work, and very few reported family reasons. Among younger women, the case was quite opposite: 51% gave up work for family-related reasons, and only 14% due to health problems. With increases in levels of education, the proportion of younger people who discontinued work due to family reasons rose, while those citing health reasons decreased.

Table 4.2.2 (a) Percent distribution of younger respondents by reasons of discontinuing work, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49						
	Home-maker/family related	Health	old age /retired	Laid off/cannot find job	Other	Total	Number
Age group							
18-29	7.8	4	0	27.3	60.9	100	22
30-39	23.8	8.6	0	16.6	51.1	100	42
40-49	46.4	23.9	0	4.7	25.1	100	91
Sex							
Male	7.1	22.6	0	19.7	50.6	100	61
Female	51.3	13.5	0	6	29.2	100	94
Marital status							
Never married	7	0	0	32.5	60.5	100	17
Currently married	39.4	16.2	0	9.2	35.3	100	126
Widowed	20.1	57.1	0	0	22.8	100	11
Other[1]	0	100	0	0	0	100	1
Residence							
Urban	51.5	9.2	0	1.5	37.9	100	26
Rural	30.4	18.9	0	13.7	37.1	100	129
Caste							
Scheduled tribe	12.7	9	0	28.1	50.2	100	20
Scheduled caste	21	19	0	16.9	43.1	100	42
Other[2]	45.3	17.6	0	5.1	32	100	93
Religion							
Hindu	37.2	13.2	0	12.8	36.9	100	129
Muslim	21.7	39.5	0	0	38.8	100	22

Background characteristics	Aged 18-49						
	Home-maker/family related	Health	old age /retired	Laid off/cannot find job	Other	Total	Number
Other[3]	0	55.3	0	0	44.7	100	4
Education							
No formal education	29.3	13.2	0	7	50.5	100	66
Less than primary	57.9	17.8	0	7.1	17.2	100	20
Primary school	32.5	29.6	0	14.8	23	100	26
Secondary school	25.7	21.8	0	11	41.5	100	22
High school	35.3	5	0	28.9	30.8	100	14
College and above	61.9	24.3	0	9.8	4	100	7
Wealth quintile							
Lowest	10.5	17.6	0	15.1	56.9	100	43
Second	20.9	17.5	0	11.2	50.4	100	37
Middle	53.6	20.2	0	8.5	17.8	100	34
Fourth	43.8	19.1	0	12.1	25.1	100	24
Highest	82.1	0	0	3.4	14.6	100	17
Total	**34.7**	**16.9**	**0**	**11.2**	**37.2**	**100**	**155**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 4.2.2 (b) Percent distribution of older respondents by reasons of discontinuing work, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus						
	Home-maker/family related	Health	old age/ retired	Laid off/cannot find job	Other	Total	Number
Age group							
50-59	41.2	20.5	9.4	6.9	22.1	100	326
60-69	24.3	27.5	28.4	5	14.8	100	539
70-79	25.2	25.3	36.2	3.8	9.4	100	411
80+	12.8	41.3	35.1	3.5	7.3	100	121
Sex							
Male	16.2	26.8	34.3	5.6	17.1	100	875
Female	46.3	25.9	14.5	3.9	9.3	100	522
Marital status							
Never married	0	30.8	16.8	35.9	16.6	100	8
Currently married	27	24.4	28	4.7	16	100	1,004
Widowed	30.1	31.2	24.7	4.5	9.6	100	377
Other[1]	0	74.6	10.1	15.3	0	100	8
Residence							
Urban	42.2	19.1	28.3	4.5	6	100	334
Rural	21.1	29.7	26.3	5.2	17.8	100	1,063
Caste							
Scheduled tribe	17.5	26.8	34.2	3.5	18	100	88
Scheduled caste	23.5	33.5	20.4	7.2	15.4	100	236
Other[2]	28.9	25.1	27.7	4.6	13.7	100	1,073
Religion							
Hindu	28.4	25.1	27.7	5.1	13.8	100	1,203
Muslim	17.7	41.2	20.3	5	15.8	100	148
Other[3]	37.4	13.4	27.9	0	21.3	100	46
Education							
No formal education	31	31.9	19.1	5.7	12.4	100	649
Less than primary	35.7	28.5	17	4.8	14	100	169
Primary school	23.3	33	22.9	4	16.8	100	172
Secondary school	26.6	21.3	26.9	7.3	17.8	100	156
High school	16	19	46.7	2.6	15.8	100	140

Background characteristics	Aged 50-plus						
	Home-maker/family related	Health	old age/ retired	Laid off/cannot find job	Other	Total	Number
College and above	18.9	6.1	58.7	2.6	13.7	100	111
Wealth quintile							
Lowest	25.4	31.9	16.8	6.7	19.2	100	264
Second	29.7	26.4	17	7.1	19.7	100	250
Middle	15.9	37.7	30.6	2.8	13.1	100	245
Fourth	28.7	27.1	29	3.6	11.7	100	298
Highest	34.2	14.3	37.4	4.7	9.4	100	340
Total	**27.5**	**26.5**	**26.9**	**4.9**	**14.2**	**100**	**1397**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

As patterns of work differ substantially among men and women aged 50-plus, the reasons for discontinuing work are presented separately for men and women in Tables 4.2.3 and Table 4.2.4 respectively. Among older men, the most frequently cited reasons for stopping work were related to health, old age or retirement. However, among women, the most cited reason for discontinuation of work was home-maker or family-related issues in contrast to the older men where the main reason was health/old age or retired.

Table 4.2.3 shows that discontinuing work due to family reasons was almost thrice as common among older women (46%) as among older men (16%). West Bengal reported the lowest (30%) and Maharashtra the highest (63%) proportion of women who discontinued work for this reason. Assam having the highest percentage of old men and women (60% and 56% respectively) who reported old age or retirement reasons. Assam reported the highest percentages of older men and women who had been laid off or could not find a job.

Table 4.2.3 Percent distribution of older respondents who have discontinued work by reasons of discontinuation, states and India (pooled) , SAGE Wave 2, 2015

State	Aged 50-plus												
	Male							Female					
	Home-maker/ family related	Health	old age/ retired	Laid off/ cannot find job	Other	Total	Number	Home-maker/ family related	Health	old age /retired	Laid off/ cannot find job	Other	Total	Number
Assam	19.9	8.2	59.9	3.9	8.1	100	49	30.4	0.0	56.3	7.3	6.0	100	17
Karnataka	14.6	37.9	31.3	3.7	12.5	100	83	36.9	31.6	19.0	0.8	11.8	100	119
Maharashtra	36.5	33.0	15.4	8.5	6.7	100	115	63.2	27.6	1.1	5.3	2.7	100	136
Rajasthan	17.8	24.8	35.3	4.9	17.3	100	264	36.4	33.5	16.8	3.0	10.3	100	140
Uttar Pradesh	9.3	18.9	35.6	7.8	28.3	100	186	47.6	17.2	18.5	2.3	14.4	100	39
West Bengal	7.6	33.0	46.9	0.7	11.7	100	178	30.3	14.6	30.6	7.1	17.4	100	71
India (pooled)	**16.2**	**26.8**	**34.3**	**5.6**	**17.1**	**100**	**875**	**46.3**	**25.9**	**14.5**	**3.9**	**9.3**	**100**	**522**

With increasing age, both men and women were more likely to discontinue work due to health, old age or retirement and less likely to have been laid off or to be unable to find a job. Among older women, family related issues had less impact on the discontinuation of work with an increase in age (Table 4.2.4). However, married older women were still more likely than married older men to cite family reasons for stopping work (52% compared to 18%). Among older people who are currently married, 34% of men discontinued work due to old age or retirement, as compared to 13% of women.

Table 4.2.4 Percent distribution of older respondents who have discontinued work by reasons of discontinuation according to selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 50-plus													
	Male							Female						
	Home-maker/ family related	Health	old age/ retired	Laid off/ cannot find job	Other	Total	Number	Home-maker/ family related	Health	old age/ retired	Laid off/ cannot find job	Other	Total	Number
Age group														
50-59	19.7	26.1	13.0	8.8	32.5	100	147	58.7	15.9	6.4	5.4	13.6	100	179
60-69	14.2	28.4	33.9	6.4	17.1	100	357	43.3	25.9	18.2	2.4	10.3	100	182
70-79	19.1	20.7	44.1	3.6	12.5	100	276	38.3	35.2	19.6	4.0	2.9	100	135
80+	10.0	39.7	39.3	3.6	7.5	100	95	23.3	47.2	19.9	3.2	6.5	100	26
Marital status														
Never married	0.0	32.6	11.9	38.0	17.5	100	7	0.0	0.0	100.0	0.0	0.0	100	1
Currently married	17.6	25.5	33.7	5.1	18.1	100	732	52.1	21.3	12.6	3.8	10.3	100	272
Widowed	10.2	32.7	39.6	5.9	11.7	100	133	40.7	30.4	16.7	3.7	8.5	100	244
Other[1]	0.0	74.7	25.3	0.0	0.0	100	3	0.0	74.4	0.0	25.6	0.0	100	5
Residence														
Urban	25.5	20.7	38.6	6.8	8.4	100	222	69.9	16.3	11.2	0.5	2.1	100	112
Rural	12.2	29.5	32.4	5.0	20.9	100	653	36.0	30.1	16.0	5.4	12.5	100	410
Caste														
Scheduled tribe	3.1	30.5	46.6	0.0	19.8	100	47	33.6	22.7	20.3	7.4	16.1	100	41
Scheduled caste	13.0	38.4	23.2	10.2	15.2	100	132	36.5	27.5	17.0	3.4	15.6	100	104
Other[2]	17.5	24.7	35.5	5.1	17.3	100	696	49.8	25.8	13.4	3.7	7.2	100	377
Religion														
Hindu	16.1	24.7	36.3	5.9	17.0	100	736	47.1	25.6	14.5	3.9	8.9	100	467
Muslim	13.6	44.0	21.9	5.0	15.4	100	107	30.8	32.2	14.9	5.0	17.0	100	41
Other[3]	29.2	11.4	32.4	0.0	27.1	100	32	60.3	19.0	15.5	0.0	5.2	100	14
Education														
No formal education	13.4	34.0	28.8	8.2	15.7	100	258	42.0	30.6	13.1	4.1	10.3	100	391
Less than primary	20.0	36.9	20.8	4.5	17.8	100	128	74.5	7.8	7.7	5.5	4.5	100	41
Primary school	15.9	33.9	27.9	4.0	18.4	100	133	50.3	29.8	4.8	3.8	11.2	100	39
Secondary school	24.9	20.7	28.3	7.8	18.3	100	140	53.3	30.6	5.6	0.0	10.5	100	16
High school	7.4	22.1	51.2	3.0	16.2	100	126	66.4	0.4	20.0	0.0	13.3	100	14
College and above	15.8	5.6	58.8	2.6	17.2	100	90	31.1	8.0	58.2	2.7	0.0	100	21
Wealth quintile														
Lowest	14.3	33.8	19.2	9.5	23.2	100	155	41.3	29.1	13.3	2.7	13.5	100	109
Second	17.7	26.0	21.6	7.9	27.0	100	131	42.7	26.9	12.2	6.3	11.9	100	119
Middle	9.4	37.4	38.4	0.9	13.9	100	150	27.1	38.2	17.2	6.0	11.6	100	95
Fourth	12.9	29.2	39.6	4.1	14.3	100	192	56.3	23.6	10.3	2.7	7.1	100	106
Highest	23.4	14.7	43.9	5.8	12.2	100	247	61.2	13.4	21.1	2.1	2.2	100	93
Total	**16.2**	**26.8**	**34.3**	**5.6**	**17.1**	**100**	**875**	**46.3**	**25.9**	**14.5**	**3.9**	**9.3**	**100**	**522**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

4.3 Sector of employment

All participants who had ever worked were asked about the sector in which they had been engaged. Table 4.3.1 presents the results by state for respondents who were currently working in four categories of employment: the public sector, the private sector, self-employment, and informal employment.

Among respondents aged 50-plus, most were either self-employed (57%) or working in the informal sector (23%), with only a small proportion engaged in the public sector (8%) or private sector (12%) employment. This pattern was replicated among younger adults, the highest proportions of whom were also either self-employed (48%) or engaged in informal employment (26%). Among older respondents, private sector employment was highest in Assam and Rajasthan and lowest in Karnataka (Figure 4.5). For the same group, self-employment was most common in Karnataka, Rajasthan, Uttar Pradesh and West Bengal: for example, 71% of older respondents were self-employed in Karnataka compared with 39% in Assam. Informal employment among older adults was the highest (45%) in Maharashtra and the lowest (8%) in Rajasthan. For younger respondents, informal employment was the most common in the states of Maharashtra and West Bengal.

Trends: *Among all employed respondents, the percent distribution of respondents employed in the public sector and informal employment have declined substantially in the year 2007-2015. However, the percentage of respondents employed in the private sector and self-employed have increased in those years. Karnataka has experienced the highest decline in the percentage of people in informal employment over the years.*

Table 4.3.1 Percent distribution of currently working respondents by sector of employment, states and India (pooled), SAGE Wave 2, 2015

State	Age 18-49						Age 50+					
	Public sector	Private sector	Self-employed	Informal employment	Total	Number	Public sector	Private sector	Self-employed	Informal employment	Total	Number
Assam	14.8	35.4	34.3	15.5	100	98	14.8	28.1	49.1	8.0	100	199
Karnataka	5.4	13.3	69.8	11.5	100	103	6.5	8.3	71.9	13.3	100	258
Maharashtra	2.0	20.2	38.4	39.4	100	184	4.8	10.7	39.5	45.0	100	495
Rajasthan	6.9	28.9	53.4	10.9	100	153	13.5	20.8	59.6	6.2	100	400
Uttar Pradesh	9.7	19.1	56.9	14.3	100	105	8.8	9.3	70.2	11.7	100	421
West Bengal	3.3	16.1	45.5	35.2	100	194	7.3	11.1	58.8	22.8	100	442
India (pooled)	**5.4**	**20.3**	**48.4**	**25.9**	**100**	**837**	**7.9**	**12.0**	**57.3**	**22.9**	100	**2,215**

Figure 4.5 Percentage of respondents aged 50-plus by current sector of employment, states and India (pooled), SAGE Wave 2, 2015

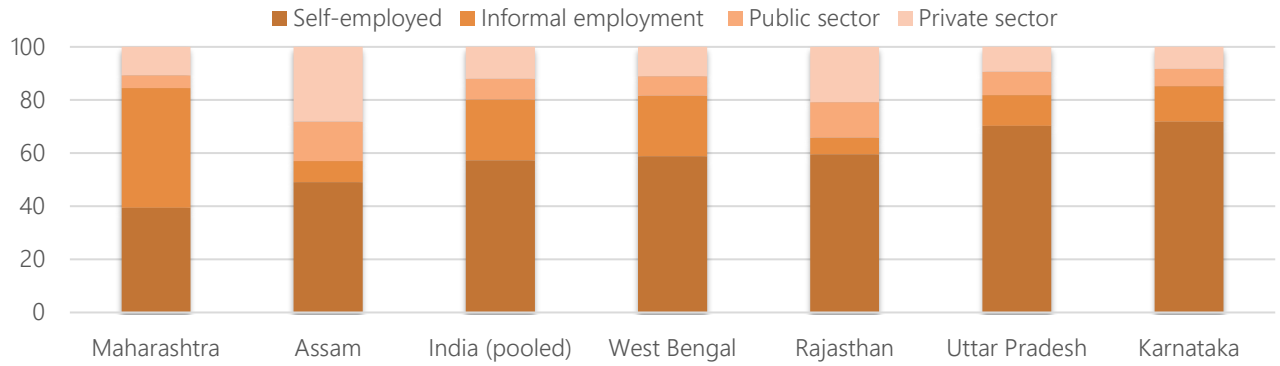


Table 4.3.2 shows the employment categories of current workers with different background characteristics. In most categories, the pattern of distribution of workers was more or less uniform. As noted earlier, the highest proportion of older workers were self-employed, followed by those engaged in the informal sector. The highest proportion of older men and women were self-employed. Increasing educational attainments and income brought a sharp reduction in the proportion of persons working in the informal sector, with a consequent increase in public sector employment. Seven percent of rural older respondents were employed in the public sector compared with 11% in urban areas (Figure 4.6).

Table 4.3.2 Percent distribution of currently working respondents by sector of employment according to background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49							Aged 50-plus					
	Public sector	Private sector	Self employed	Informal employment	Total	Number		Public sector	Private sector	Self employed	Informal employment	Total	Number
Age group													
18-29	2.5	23.7	48.1	25.7	100	179	50-59	10.7	12.4	53.8	23.1	100	1,129
30-39	6.4	26.2	45.5	21.9	100	263	60-69	5.6	12.0	60.2	22.3	100	794
40-49	6.3	14.2	50.6	29.0	100	395	70-79	3.4	10.7	60.8	25.2	100	261
							80+	0.0	6.2	83.0	10.8	100	31
Sex													
Male	4.9	21.5	53.6	20.1	100	549		7.5	12.9	59.4	20.2	100	1,636
Female	6.2	18.4	40.4	35.0	100	288		9.1	9.0	50.6	31.2	100	579
Marital status													
Never married	3.2	25.6	45.3	25.9	100	136		7.5	16.9	64.0	11.6	100	35
Currently married	6.0	19.9	48.8	25.3	100	656		8.2	11.8	57.3	22.7	100	1,861
Widowed	3.8	8.0	51.7	36.4	100	41		6.0	11.7	56.2	26.2	100	301
Other[1]	0.0	10.9	58.4	30.7	100	4		11.0	22.5	55.3	11.2	100	18
Residence													
Urban	4.4	24.2	46.3	25.1	100	166		10.9	16.3	48.9	23.9	100	407
Rural	5.8	18.7	49.2	26.3	100	671		6.7	10.3	60.5	22.5	100	1,808
Caste													
Scheduled tribe	5.5	26.3	30.7	37.6	100	84		8.6	12.3	50.5	28.6	100	202
Scheduled caste	4.9	13.4	54.1	27.7	100	187		6.7	10.4	54.8	28.1	100	398
Other[2]	5.6	21.3	49.4	23.8	100	566		8.1	12.3	58.5	21.1	100	1615
Religion													
Hindu	5.3	18.8	49.2	26.8	100	720		8.1	11.9	56.7	23.4	100	1,888
Muslim	5.2	28.8	48.7	17.3	100	82		5.5	11.7	67.7	15.1	100	215
Other[3]	9.4	29.5	28.6	32.6	100	35		9.1	13.9	48.5	28.5	100	112
Education													
No formal education	1.7	14.6	50.0	33.7	100	211		3.0	10.2	58.7	28.1	100	852
Less than primary	1.0	16.9	48.9	33.2	100	111		2.7	10.3	54.3	32.7	100	342
Primary school	4.3	21.2	54.5	20.0	100	160		6.8	13.6	56.4	23.2	100	361
Secondary school	6.8	26.6	42.0	24.7	100	171		8.8	14.5	62.6	14.1	100	245
High school	6.9	24.8	49.4	18.9	100	115		16.7	10.9	57.1	15.2	100	250
College and above	21.2	15.8	43.6	19.4	100	69		23.2	16.4	51.8	8.7	100	165
Wealth quintile													
Lowest	4.6	18.0	53.5	23.9	100	149		3.8	10.9	61.9	23.4	100	454
Second	1.7	17.7	47.2	33.3	100	179		2.6	8.6	60.9	27.8	100	423
Middle	2.6	18.4	50.5	28.5	100	215		7.8	9.4	56.7	26.2	100	460
Fourth	8.9	21.4	46.7	23.0	100	155		8.2	15.6	51.0	25.2	100	436
Highest	11.2	27.2	42.9	18.8	100	139		16.8	15.3	56.1	11.8	100	442
Total	**5.4**	**20.3**	**48.4**	**25.9**	**100**	**837**		**7.9**	**12.0**	**57.3**	**22.9**	**100**	**2215**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 4.6 Percent distribution of respondents aged 50-plus by current sector of employment, sex and residence, India (pooled), SAGE Wave 2, 2015

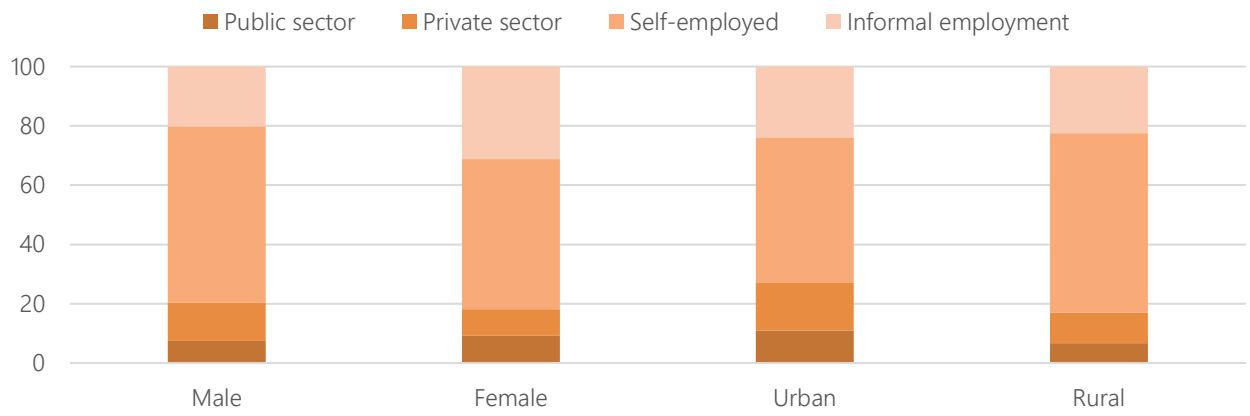


Table 4.3.3 shows state-level differentials in the sector of employment among older persons aged 50-plus by sex. Most older men (59%) were self-employed, with the highest proportion of older women (51%) were self-employed. Although, among older women, around 31% were engaged in the informal sector in comparison to 20% among their counterparts. In each state, the employment pattern was similar to the national pattern, and also was similar to that among younger respondents age 18-49 with the exception in Maharashtra.

Table 4.3.3 Sector of employment of respondents aged 50-plus, states and India (pooled), SAGE Wave 2, 2015

State	Aged 50-plus											
	Male						female					
	Public sector	Private sector	Self-employed	Informal employment	Percent	Number	Public sector	Private sector	Self-employed	Informal employment	Percent	Number
Assam	13.6	25.7	52.3	8.4	100	160	19.3	37.4	36.6	6.7	100	39
Karnataka	4.8	10.6	72.8	11.8	100	163	9.6	4.2	70.1	16.2	100	95
Maharashtra	5.3	13.5	38.0	43.2	100	312	3.7	5.1	42.4	48.8	100	183
Rajasthan	13.3	20.9	60.3	5.5	100	291	14.0	20.4	57.6	8.1	100	109
Uttar Pradesh	8.1	10.5	73.9	7.5	100	367	13.3	1.5	47.0	38.2	100	54
West Bengal	6.0	9.8	59.7	24.5	100	343	12.4	15.9	55.3	16.4	100	99
India (pooled)	**7.5**	**12.9**	**59.4**	**20.2**	**100**	**1,636**	**9.1**	**9.0**	**50.6**	**31.2**	**100**	**579**

Table 4.3.4 provides a closer look at male and female respondents aged 50-plus who were working at the time of the study. With the increase in age, a declining trend in the percentage of people employed in the public and private sectors was observed among both sexes. However, among women, with the increase in age, the percentage of women who were either self-employed or were in the informal sector increased. Distribution by sector of employment was more or less the same across different castes and religions. As noted earlier, education and income level had a strong impact: an increase in education and income brought a sharp reduction in the proportion of persons, especially men, working in the informal sector, with a commensurate increase in the public and private sectors.

Table 4.3.4 Sector of employment of respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 50-plus											
	Male						Female					
	Public sector	Private sector	Self-employed	Informal employment	Total	Number	Public sector	Private sector	Self-employed	Informal employment	Total	Number
Age group												
50-59	10.2	13.0	55.9	21.0	100	787	12.1	10.8	48.4	28.7	100	342
60-69	5.6	13.1	62.3	18.9	100	619	5.5	7.6	52.1	34.7	100	175
70-79	3.2	12.5	61.5	22.7	100	202	3.9	3.7	58.2	34.2	100	59
80+	0.0	6.8	85.1	8.1	100	28	0.0	0.0	63.0	37.0	100	3
Marital status												
Never married	5.0	15.9	70.4	8.6	100	29	25.5	23.6	17.9	33.1	100	6
Currently married	7.8	12.7	58.3	21.2	100	1,488	9.7	8.1	53.0	29.2	100	373
Widowed	3.8	13.9	71.0	11.3	100	111	7.4	10.3	46.6	35.7	100	190
Other[1]	6.7	33.2	51.0	9.2	100	8	15.3	11.9	59.7	13.2	100	10
Residence												
Urban	10.7	18.9	50.1	20.4	100	317	12.0	4.9	43.6	39.6	100	90
Rural	6.1	10.4	63.3	20.2	100	1,319	8.4	10.1	52.5	29.0	100	489
Caste												
Scheduled tribe	8.1	10.5	55.0	26.4	100	125	9.4	15.3	42.8	32.4	100	77
Scheduled caste	7.0	11.3	56.4	25.3	100	276	5.9	8.0	51.1	35.0	100	122
Other[2]	7.5	13.4	60.4	18.7	100	1,235	10.0	8.2	51.9	29.9	100	380
Religion												
Hindu	7.7	12.8	58.9	20.5	100	1,377	9.0	9.1	49.6	32.3	100	511
Muslim	5.4	12.2	66.5	16.0	100	186	6.5	8.5	75.5	9.4	100	29
Other[3]	6.9	17.2	49.7	26.2	100	73	12.5	8.8	46.7	32.0	100	39
Education												
No formal education	2.1	12.7	61.5	23.7	100	431	4.0	7.7	55.9	32.5	100	421
Less than primary	2.1	9.8	54.8	33.3	100	282	6.2	13.2	51.5	29.2	100	60
Primary school	4.3	13.8	61.8	20.1	100	311	23.0	12.6	20.4	44.0	100	50
Secondary school	8.9	13.5	63.9	13.7	100	231	6.4	34.7	36.8	22.2	100	14
High school	13.7	11.4	58.9	16.0	100	233	60.4	4.5	31.1	4.0	100	17
College and above	20.6	17.2	52.9	9.3	100	148	60.5	3.9	35.6	0.0	100	17
Wealth quintile												
Lowest	2.3	11.4	66.2	20.2	100	309	7.5	9.6	52.0	30.9	100	145
Second	2.6	8.5	64.2	24.7	100	291	2.6	9.1	52.0	36.3	100	132
Middle	6.6	10.7	56.9	25.8	100	344	11.7	5.3	55.9	27.2	100	116
Fourth	9.9	18.0	51.7	20.5	100	315	3.9	9.4	49.1	37.7	100	121
Highest	14.4	15.4	58.7	11.5	100	377	34.7	14.0	37.4	13.9	100	65
Total	**7.5**	**12.9**	**59.4**	**20.2**	**100**	**1,636**	**9.1**	**9.0**	**50.6**	**31.2**	**100**	**579**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

4.4 Occupational structure

Tables 4.4.1 and 4.4.2 show the occupational structure of older respondents by state and background characteristics. A large proportion of these workers were engaged either in agriculture (56%) or in elementary occupations (17%). Occupational distribution was fairly similar in all states, but Maharashtra (76%) and Uttar Pradesh (60%) had especially high rates of workers in agriculture.

Trends: Occupational structure of the respondents has changed over the years with more s getting engaged in agriculture and service work among persons aged 50-plus However, elementary occupation has observed a decline from 25.5% in the year 2007 to 16.6% in the year 2015. All other occupations have witnessed a decline in the percentage of people engaged except for senior officials.

Table 4.4.1 Occupational structure of the respondents aged 50-plus states and India (pooled), SAGE Wave 2, 2015

State		Aged 50-plus									
	Armed	Senior officials	Professionals	Technicians	Clerks	Service workers	Agricultural	Trade	Plant	Elementary occupation1	Number
Assam	2.4	0.0	7.8	1.5	3.6	9.2	37.7	7.8	1.1	29.1	181
Karnataka	2.7	1.1	3.9	0.7	2.2	9.0	45.1	8.0	0.8	26.5	219
Maharashtra	0.0	2.8	1.7	0.6	1.6	7.5	76.0	3.6	0.4	5.8	441
Rajasthan	0.7	1.3	3.1	3.1	2.9	12.9	51.7	3.7	0.8	19.8	388
Uttar Pradesh	1.7	2.2	4.1	1.1	0.7	16.1	59.8	1.9	1.2	11.2	362
West Bengal	0.4	0.5	4.2	2.0	1.1	12.2	32.1	15.2	1.8	30.6	421
India (pooled)	**1.0**	**1.7**	**3.4**	**1.3**	**1.6**	**11.5**	**55.8**	**6.0**	**1.0**	**16.6**	**2,012**

Note: Elementary occupations usually require a minimum general level of education, plus short periods of work-related training in areas such as health and safety, food hygiene, and customer service requirements.

The occupational distribution of older workers by selected characteristics is shown in Table 4.4.2. Considerably a higher percentage (58%) of working women aged 50-plus were engaged in agriculture whereas Fifty-six percent of older men worked in agriculture. Sixteen percent of men were engaged in elementary occupations, compared with 20% among older women. The four occupations of a senior official, professional, technician and clerk collectively accounted for 8% of older male workers, but for only 6% of older female workers. The highest proportion of older scheduled tribe respondents worked in agriculture, while a high percentage of scheduled castes were involved in elementary occupations. An increase in education and wealth quintile brought decreases in the proportion of older respondents engaged in elementary occupations, and a corresponding increase in the proportion working as senior officials, professionals, technicians and clerks.

Table 4.4.2 Occupational structure of respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 50-plus										
	Armed	Senior officials	Professionals	Technicians	Clerks	Service workers	Agricultural	Trade	Plant	Elementary occupation[1]	Number
Age group											
50-59	1.5	1.6	4.0	2.3	1.7	11.8	50.6	7.8	1.0	17.8	1,028
60-69	0.5	2.2	3.0	0.5	1.9	11.2	59.7	4.5	1.2	15.4	718
70-79	0.0	0.6	2.8	0.0	0.3	12.3	65.3	3.0	0.2	15.5	239
80+	0.0	2.1	0.0	0.0	0.0	6.0	72.1	6.3	0.0	13.5	27
Sex											
Male	1.1	1.9	3.4	1.4	1.6	12.7	55.1	5.9	1.3	15.6	1498
Female	0.5	1.2	3.5	1.2	1.5	7.6	58.1	6.3	0.2	20.0	514
Marital status											
Never married	16.8	0.0	1.3	0.0	5.7	5.7	38.6	8.4	2.2	21.4	33
Currently married	0.7	2.0	3.4	1.5	1.4	11.6	56.7	6.0	1.1	15.6	1,688
Widowed	0.4	0.2	3.1	0.3	1.6	11.8	53.0	5.8	0.3	23.4	273
Other[2]	3.9	0.0	21.4	3.4	7.7	8.8	46.6	3.2	0.0	5.1	18
Residence											
Urban	1.8	3.0	4.1	2.1	2.0	24.2	35.7	11.3	1.9	14.0	364
Rural	0.7	1.3	3.2	1.1	1.4	6.7	63.5	4.0	0.6	17.6	1,648
Caste											
Scheduled tribe	0.0	2.8	1.4	1.2	0.8	6.8	60.2	3.1	0.5	23.2	185
Scheduled caste	0.7	0.9	3.0	0.3	3.1	7.8	53.3	6.6	0.3	24.1	368

Background characteristic	Aged 50-plus										
	Armed	Senior officials	Professionals	Technicians	Clerks	Service workers	Agricultural	Trade	Plant	Elementary occupation[1]	Number
Other[3]	1.1	1.8	3.8	1.6	1.3	12.9	55.9	6.2	1.2	14.3	1,459
Religion											
Hindu	1.1	2.0	3.3	1.2	1.6	10.8	56.7	5.7	1.0	16.6	1,713
Muslim	0.0	0.2	4.3	3.3	0.4	19.4	42.7	10.3	0.9	18.5	197
Other [4]	0.8	0.0	4.6	0.6	2.9	9.4	65.0	3.9	0.6	12.4	102
Education											
No formal education	0.4	0.2	0.8	0.2	0.7	5.4	65.3	5.6	0.3	21.2	778
Less than primary	0.2	0.0	1.5	0.4	0.2	9.4	61.9	10.2	0.5	15.8	312
Primary school	2.3	1.4	2.5	0.4	0.8	16.4	55.2	4.7	1.6	14.9	335
Secondary school	0.8	1.5	2.9	2.0	3.5	14.3	53.1	3.7	0.3	17.9	213
High school	2.5	2.3	7.7	3.4	4.6	18.3	45.3	5.3	0.3	10.5	226
College and above	0.2	10.3	13.2	5.2	2.4	17.1	29.3	7.1	5.0	10.1	148
Wealth quintile											
Lowest	0.3	0.3	2.5	0.3	0.6	4.9	64.8	4.4	0.2	21.7	413
Second	2.6	0.3	0.9	0.6	0.4	8.4	64.7	3.2	0.4	18.5	392
Middle	0.7	1.0	3.6	0.5	1.8	10.9	55.3	7.8	1.2	17.4	414
Fourth	0.3	2.2	2.4	1.4	2.0	13.9	57.6	5.6	2.4	12.3	388
Highest	1.0	4.9	8.0	3.9	3.1	19.6	36.4	9.2	0.8	13.2	405
Total	**1.0**	**1.7**	**3.4**	**1.3**	**1.6**	**11.5**	**55.8**	**6.0**	**1.0**	**16.6**	**2,012**

[1] Elementary occupations usually require a minimum general level of education, plus short periods of work-related training in areas such as health and safety, food hygiene, and customer service requirements.

[2] Includes divorced, separated or cohabiting.

[3] Includes non-scheduled caste or tribe and no caste or tribe.

[4] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

4.5 Sources of household income

The household income questionnaire deals about income received from a variety of different sources – wages or salary, trading or business, rent, pensions, interest or dividends, or any other source – as well as the amount received from each source. A question was also asked about the perception of the sufficiency of income.[1]

Table 4.5.1 presents the results by state. Overall, the most common source of household income was wages or salaries: other than in Assam, less than two-thirds (62%) of households received income from this source (in Maharashtra, the figure was only 45%). Meanwhile, 27% of households overall received income from trade or business (41% in Maharashtra), while only a small proportion received income from interest or dividends (2%) or rent (5%). The exception was Karnataka, where rental income was more than twice as high as any other state at 10%. A large proportion of households (13% overall, although 23% in West Bengal and 29% in Assam) reported income from sources other than those mentioned above. These other sources probably include agriculture or farm income and remittances from abroad. Overall, only about one in 5 households received income from a pension.

Trends: *Although wages remain to be the main source of income over the period 2007-15, it has declined from 68.3% to 62.1%. More households report pension as the income source in 2015 (21%) in comparison to the previous survey (10%). Despite increases in the per capita mean monthly household income from Rs 1121 in the year 2007 to Rs 1564 in the year 2015, fewer households have reported the income to be adequate (45.2% (2007) and 38.7% (2015).*

[1] The exact wording of this question was: "Thinking about the income for this household, do you believe that it is enough money to cover your daily living needs and obligations?"

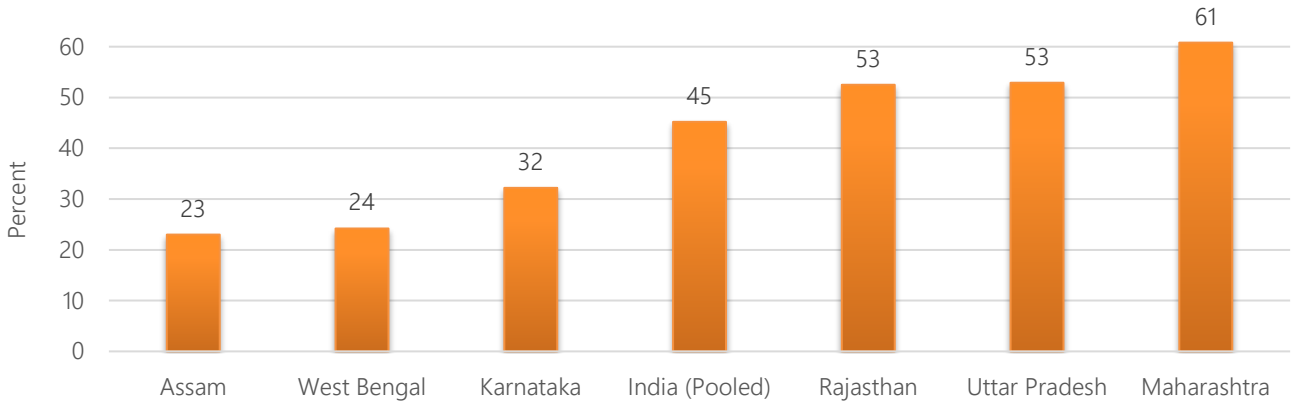
The estimated per capita mean monthly household income was Rs. 1,564, varying from Rs. 1,854 in Karnataka down to Rs. 1545 in Rajasthan and Rs. 1150 in Uttar Pradesh. Most households – 61% overall, and a half in Karnataka and one fifth in Assam– did not find their income sufficient to take care of their needs. Perhaps unsurprisingly, Maharashtra, which had the highest income, also had the highest proportion (63%) of households reporting that their income was adequate to meet daily needs and obligations (Figure 4.7). Interestingly, however, most households (43%) in Rajasthan also reported their income to be adequate to their daily needs, even though that state had low levels of mean income in the survey.

Table 4.5.1 Sources of income and per capita mean monthly household income (Rs.) states and India (pooled), SAGE Wave 2, 2015

State	wages/ salary	Trading / business	Rental	pension	Interest/ dividends	services	other	Per capita mean monthly household income*	Income Adequate
Assam	46.0	33.8	5.6	9.9	3.4	18.5	28.7	1614	16.3
Karnataka	82.3	20.1	9.8	32.8	0.7	11.6	7.9	1854	49.9
Maharashtra	45.2	40.7	2.9	10.1	2.1	13.3	14.7	1816	37.4
Rajasthan	79.0	25.0	6.1	42.6	1.6	2.5	12.9	1545	57.2
Uttar Pradesh	60.2	16.5	6.3	17.5	0.9	2.8	6.0	1150	32.1
West Bengal	67.3	30.5	3.4	21.7	4.7	8.1	23.1	1741	40.3
India (pooled)	**62.1**	**26.8**	**5.4**	**20.9**	**2.1**	**8.0**	**13.3**	**1564**	**38.7**

* Household income outliers have been excluded from the analysis. Income outliers for each state have been determined by considering the respective state levels of maximum consumption expenditure (NSSO 64th Round, 2007-08) as the limit.

Figure 4.7 Percentage of households reporting sufficient income, states and India (pooled), SAGE Wave 2, 2015



Information on household income, by selected characteristics of the head of household, is presented in Table 4.5.2. Patterns varied depending upon the sex and ages of the head of households. The most commonly reported source of income for all categories of the household was wages or salaries, followed by other sources such as trading or business and pension. However, far more male-headed households (28%) than female-headed households (19%) received income from trade or business. On the other hand, female-headed households (31%) were more likely to report income from pensions than male-headed households (20%).

The negligible difference exists in the income of male-headed households and female-headed households (Rs. 1560 versus Rs. 1590 per month). Although overall, the proportions of male and female-headed households perceiving their income to be adequate did not vary widely (39% of male-headed households versus 37.8% of female-headed households), a greater variation appeared when these groups were broken down by age: nearly 39% of households headed by older men considered their income to be adequate, compared to 35% of those headed by younger women.

Households headed by younger people were more likely to receive income from wages or salaries, whereas those headed by older adults were more likely to receive income from pensions. Nevertheless, the mean monthly income of households headed by older women was higher than for those headed by younger women. However, among men, the mean monthly income of households headed by younger men was higher than for those headed by old men.

The mean monthly income of urban households was higher than rural households. Most urban households perceived their income to be adequate, whereas most rural households perceived it to be inadequate. A larger proportion of rural households (15%) compared to urban (9%) received income from other sources.

With the increase in education and wealth quintile of the head of household increased no much differences exists among the proportion receiving income from wages and salaries. Educational attainment and wealth quintile of the head of the household was positively related to income adequacy. About 62% of the households headed by a person who was college-educated found monthly income enough to meet daily needs and obligations, compared to 32% of the households headed by a person with no formal education.

Table 4.5.2 Sources of income and per capita mean monthly household income (Rs.), India (pooled), SAGE Wave 2, 2015

Background characteristics	wages/ salary	Trading / business	Rental	pension	Interest/ dividends	services	other	Per capita monthly household income [1]	Income Adequate
Age of Head of the Household									
Female age 18-49	77.5	14.7	4.1	19.4	3.6	9.8	13.6	1312	35.1
Female age 50+	61.6	20.3	6.3	33.3	1.4	9.6	12.3	1582	38.4
Male age 18-49	66.8	26.9	5.2	14.5	1.3	7.6	12.5	1494	37.7
Male age 50+	60.0	27.9	5.3	21.7	2.4	7.9	13.7	1331	39.3
Sex of Head of Household									
Male	61.8	27.6	5.3	19.8	2.1	7.8	13.3	1560	38.9
Female	64.6	19.3	5.9	30.7	1.8	9.6	12.6	1590	37.8
Marital Status									
Never Married	53.5	28.8	5.7	28.0	3.5	6.3	9.2	1312	42.9
Currently Married	62.3	27.7	5.2	19.0	2.1	8.0	13.4	1582	39.0
Widowed	61.7	22.2	6.4	30.3	1.8	8.4	12.4	1494	37.1
Other[2]	66.5	10.6	3.9	26.1	3.7	4.7	30.1	1331	33.0
Residence									
Urban	59.1	29.3	6.8	20.1	2.6	11.0	8.7	1762	45.1
Rural	63.2	25.9	4.8	21.2	1.9	6.9	15.1	1509	36.3
Education									
No formal Education	68.0	21.0	4.1	23.8	0.8	5.7	12.7	1447	31.5
Less than primary	60.0	35.7	5.6	15.4	2.1	7.4	14.5	1636	31.8
primary school	58.4	30.2	5.0	15.8	1.8	8.1	18.5	1573	37.3
secondary school	57.2	29.3	5.8	16.0	1.9	9.4	14.7	1774	43.6
high school	66.1	26.4	8.1	23.6	3.6	11.5	8.8	1782	47.5

Background characteristics	wages/ salary	Trading / business	Rental	pension	Interest/ dividends	services	other	Per capita monthly household income [1]	Income Adequate
collage and above	55.8	29.0	7.9	30.6	5.0	12.3	10.0	1494	62.1
Wealth Quintile									
lowest	60.1	16.1	4.9	21.1	0.8	4.4	11.8	1224	20.2
second	63.0	23.0	4.2	16.6	1.1	7.8	15.2	1588	29.8
middle	63.2	32.1	3.7	19.7	1.7	8.6	17.3	1746	35.6
fourth	61.9	33.3	5.3	22.4	1.8	8.9	12.3	1731	44.1
highest	62.5	30.7	8.7	24.4	5.1	10.8	10.2	1964	66.1
Total	**62.1**	**26.8**	**5.4**	**20.9**	**2.1**	**8.0**	**13.3**	**1564**	**38.7**

1 Household income outliers have been excluded from the analysis. Income outliers for each state have been determined by considering the respective state levels of maximum consumption expenditure (NSSO 64th Round, 2007-08) as the limit.

2 includes divorced, separated or cohabiting

4.6 Financial and other transfers

Along with data on household income, SAGE India also collected data on household support networks and financial transfers. The respondents were asked whether any household member had received financial or non-monetary (in-kind) support during the previous 12 months, from family, the community or the government. It also asked whether any household member received assistance in doing household chores or providing care or transportation. Information was also collected on transfers and assistance provided by a household to other family members not residing in the same household and to the community.

Table 4.6.1 presents state-level data on financial and in-kind transfers into and out of households. Overall, 28% of households received monetary assistance and 15% received in-kind assistance from family members, community or the government. A relatively smaller proportion of households provided monetary (15%) or in-kind (6%) assistance to other family members or community. Only 4% of households received assistance in household chores from either family members or the community.

Trends: *There has been a decline in the percentage of the households who received and provided monetary, non-monetary and household chore assistance in the year 2007-2015. There has been a three-fold increase in the mean non - monetary value (Rs 1758 in 2007 and Rs 549 in 2007) in the household. As far as the monetary value is concerned, out from household monetary assistance has doubled from the previous survey.*

A considerably higher percentage of households in Karnataka (39%) and Rajasthan (37%) received monetary transfers, whereas in Assam the figure was only 13%. In the other three states, 16-34% of households received monetary assistance. The proportion of households receiving in-kind transfers ranged from 57% in Karnataka down to 9% in Rajasthan. Monetary transfers out of the household were less common than inward transfers, ranging from 25% in Uttar Pradesh down to 6% in Assam. About 3-12% of households provided in-kind assistance.

Table 4.6.1 Percentage of households who received and provided monetary, non-monetary and assistance in household chores, states and India (pooled), SAGE Wave 2, 2015

State	Into household			Out from household		
	Monetary	Non-monetary	Assistance	Monetary	Non-monetary	Assistance
Assam	13.03	12.37	3.59	6.35	3.41	2.19
Karnataka	39.36	57.33	1.08	9.77	5.35	1.46
Maharashtra	16.01	5.72	1.47	9.41	3.52	0.94
Rajasthan	37.28	8.58	5.48	12.07	3.05	4.56
Uttar Pradesh	34.62	10.51	8.67	25.46	12.55	9.91
West Bengal	22.57	10.46	0.95	12.19	2.72	0.77
India (pooled)	**27.9**	**14.71**	**4.13**	**15.0**	**6.29**	**4.21**

Table 4.6.2 presents information on transfers and assistance by the source of support, type of household head and wealth quintile. Families (19%) and the government (11%) were most commonly reported as sources of monetary support. Meanwhile, 5% and 10% of households received in-kind support from family or the government, respectively. Very little support came from the community. In return, households more often provided monetary and in-kind support to families than to the community.

A relatively higher proportion of female-headed households received all three types of support (monetary, non-monetary and assistance with chores): for example, 29% of households headed by younger women received monetary support and 21% received in-kind support, compared to 28% and 17% respectively for households headed by men in the same age group. Households headed by older women were more likely to receive all three types of support than households headed by younger women. Meanwhile, a lower proportion of female-headed households provided monetary or in-kind support to others.

The proportion of households who received monetary support or assistance with chores did not vary with income. However, with higher wealth quintile the proportion receiving in-kind support decreased. An increase in income also brought a rise in all three types of transfers out of the households: 24% of households in the highest wealth quintile provided monetary support, 8% gave in-kind support and 4% provided assistance. In the lowest quintile, the corresponding figures were 10%, 5% and 5%.

Table 4.6.2 Percentage of households who received and provided monetary or non-monetary support and assistance by source, household head type and wealth quintile, India (pooled), SAGE Wave 2, 2015

Background characteristic	Into household			Out from household		
	Monetary	Non-monetary	Assistance[1]	Monetary	Non-monetary	Assistance
Family	18.7	5.3	3.9	12.1	5.2	3.4
Community	3.7	0.6	0.5	4.4	1.3	1.4
Government	11.0	9.9				
Household head type						
Female 18-49	29.01	21.09	5.62	8.48	8.99	6.27
Female 50+	29.3	23.94	3.77	11.35	6	3.09
Male 18-49	28.37	17.55	4.42	13.22	5.56	4.87
Male 50+	27.5	12.37	4.02	16.31	6.5	4.04

Background characteristic	Into household			Out from household		
	Monetary	Non-monetary	Assistance[1]	Monetary	Non-monetary	Assistance
Wealth quintile						
Lowest	28.94	15.06	4.92	10.47	4.63	4.72
Second	28.42	15.44	3.6	11.28	4.37	3.71
Middle	29.58	20.61	3.69	13.4	6.75	3.15
Fourth	28.92	14.46	5	16.83	7.58	5.38
Highest	**23.22**	**7.94**	**3.32**	**23.64**	**8.34**	**4.01**
Total	**27.85**	**14.71**	**4.13**	**15.0**	**6.3**	**4.2**

[1] Refers to physical help in the year prior to interview, including involvement in household chores or activities (meal preparation, shopping, cleaning and laundry), physical care, or transportation/help getting around outside the home.

SAGE India also collected data on the monetary value of support received and provided during the 12 months before the survey. For those who received or provided assistance with household chores, personal care or transportation, data was collected on the average number of hours per week involved in assisting. Table 4.6.3 provides state-level data on the average monetary value of support and average hours of assistance per week received or provided.

Table 4.6.3 Mean value of monetary, non-monetary and time transfer into or out of household, states and India (pooled), SAGE Wave 2, 2015

States	Into household			Out from household		
	Mean monetary value (Rs./year)	Mean non-monetary value (Rs./year)	Assistance (hours/ week)	Mean monetary value (Rs./year)	Mean non-monetary value (Rs./year)	Assistance (hours/ week)
Assam	3339	556	16.9	1576	242	15
Karnataka	38139	3389	4.4	8420	447	4
Maharashtra	7340	568	5.0	4430	209	11
Rajasthan	22942	6394	13.8	8669	544	8
Uttar Pradesh	9008	1099	34.0	3833	975	46
West Bengal	5152	758	12.6	1420	149	8
India (pooled)	**12498**	**1758**	**17**	**4455**	**501**	**20**

On average, in a year a typical household received monetary support of Rs. 12498, in-kind support worth Rs. 1758, and 17 hours per week of assistance. At the same time, the average household provided others with the support of Rs. 4455, in-kind support worth Rs. 501, and assistance for 20 hours per week. Across the states, there was a large variation in the magnitude of monetary assistance received: households in Karnataka and Rajasthan received on average Rs. 38139 and Rs. 22,942 respectively during the 12 months before the survey, whereas in Assam the amount received was only Rs. 3,339. Similarly, the monetary value of in-kind support ranged from Rs. 6,394 in Rajasthan down to Rs. 556 in Assam. In Uttar Pradesh households received assistance for an average of 34 hours per week, whereas in Karnataka the average was only 4.4 hours per week. Compared to the state-level variation in the monetary support received, the variation in the monetary support which households provided was quite small, ranging from Rs. 8669 in Rajasthan down to Rs. 1420 in West Bengal. Although households in Uttar Pradesh provided monetary support of only Rs. 3833, they also provided in-kind support worth Rs. 975, the highest amount among all the states.

Table 4.6.4 presents the average monetary value of support and average hours of assistance per week received and provided, by source, type of head of the household and wealth quintile. Out of the monetary support of Rs. 12,498 received by the average household, Rs. 7,219 (58%) came from family, Rs. 3,856 (31%) came from the government and Rs. 1,403 (11%) came from the community. Of the Rs. 1758 worth of in-kind support received by the average household, 62% came from family, 34% from the government and 4% from the community. The 17 hours per week of assistance received was made up of 15 hours from family and 2 hours from the community. Of the monetary, non-monetary and assistance with chores which households provided to others, 74-87% was provided to family members and the remaining 13-24% to community members.

Although female-headed households were more likely to receive all three types of support, the overall average monetary value of support received by female-and male-headed households was similar. However, female-headed households receive far more hours of assistance with household chores. The monetary value of the support provided by female-headed households was higher than that provided by male-headed households.

Monetary support received and provided increased in parallel with the wealth quintile. For example, households from the lowest quintile received Rs. 8,468 in monetary support and provided support of Rs. 1196, whereas those from the highest wealth quintile received Rs. 12,512 and provided Rs. 13,726.

Table 4.6.4 Mean value of monetary, non-monetary and assistance in household chores by source, household head type and wealth quintile, India (pooled), SAGE Wave 2, 2015

Background characteristic	Into household			Out from household		
	Mean monetary value (Rs./year)	Mean non-monetary value (Rs./year)	Assistance (hours/week)	Mean monetary value (Rs./year)	Mean non-monetary value (Rs./year)	Assistance (hours/week)
Family	7219	1086	14.98	3485	434	15
Community	1403	71	2.01	971	67	5
Government	3856	598				
Household head type						
Younger women	15058	1875	28	1872	752	24
Older women	12010	1594	17	2559	336	20
Younger men	13176	1508	18	4450	886	25
Older men	12220	1872	16	4785	375	18
Wealth quintile						
Lowest	8469	1425	25	1196	157	22
Second	12838	1275	14	1127	244	18
Middle	12607	1422	15	1944	425	17
Fourth	16560	1278	18	4741	410	19
Highest	12512	3446	12	13726	1319	27
Total	**12498**	**1758**	**17**	**4455**	**501**	**20**

4.7 Caregiving and receiving

Older persons may become less mobile and mentally alert with increasing age, and as a result, may need care and assistance. This includes daily personal care, such as help with eating, dressing, bathing and moving around the house, as well as assistance with affairs outside the home, such as transportation to see doctors, going to buy medicines, or managing finances, health care, emotional wellbeing or other personal affairs.

To gauge whether older members of households might be receiving assistance from other household members, either from the older or younger cohorts, All respondents were asked whether they had provided any type of help to a household member who was ill and needing assistance in the 12 months before the survey. Table 4.7.1 provides state-level details of the help provided by older respondents to an adult in the household. Across all states, very few of the respondents assisted adults in all the different domains of care. Overall, 1% of older respondents provided financial help and social/emotional help, 3% provided help in health-related matters, 1% provided physical help and help with personal care. Among the states, older respondents in Karnataka and Uttar Pradesh were more likely to extend help in various domains of care, while Assam had the lowest proportion of older respondents who provided care.

Table 4.7.1 Percentage of respondents aged 50-plus who provided care to other household member needing assistance by type of care, states and India (pooled), SAGE Wave 2, 2015

States	Aged 50-plus				
	Financial	Social/emotional	Health	Physical	Personal
Assam	0.1	0.1	0.4	0.3	0.0
Karnataka	2.3	1.4	3.4	2.7	2.8
Maharashtra	0.8	1.3	1.9	1.5	1.2
Rajasthan	0.7	0.1	0.9	0.1	0.1
Uttar Pradesh	1.7	1.3	4.2	0.9	0.6
West Bengal	1.0	0.3	2.4	1.6	1.4
India (pooled)	**1.3**	**0.9**	**2.7**	**1.2**	**1.0**

Table 4.7.2 shows the proportion of older respondents who provided different kinds of help according to their background characteristics. As respondents grow older, they were less likely to provide help to others – presumably because they were increasingly in need of help themselves. Although a higher proportion of men than women provided financial help, a lower proportion of men provided other kinds of help. A higher proportion of rural respondents provided help than did urban respondents.

Table 4.7.2 Percentage of respondents aged 50-plus who provided care by type of care according to background characteristics, India (pooled), SAGE Wave 2, 2015

Background Characteristics	Aged 50-plus				
	Financial	Social/emotional	Health	Physical	Personal
Age group					
50-59	1.6	1.3	3.4	1.6	1.4
60-69	1.2	0.8	2.5	1.2	0.8
70-79	0.5	0.3	1.5	0.4	0.6
80+	2.1	1.0	2.2	1.2	0.9
Sex					
Male	2.0	1.2	2.7	1.2	1.1
Female	0.6	0.6	2.7	1.2	0.9
Marital status					
Never married	1.1	1.5	0.0	0.0	0.0
Currently married	1.5	1.0	3.0	1.3	1.1
Widowed	0.5	0.5	1.9	0.8	0.7
Other[1]	1.9	1.9	4.6	1.9	2.7
Residence					
Urban	0.2	0.3	1.6	0.9	0.9
Rural	1.7	1.1	3.1	1.3	1.1
Wealth quintile					
Lowest	1.1	1.0	3.2	1.2	1.1

Background Characteristics	Aged 50-plus				
	Financial	Social/emotional	Health	Physical	Personal
Second	1.0	0.4	2.3	0.9	0.8
Middle	1.3	0.8	2.1	1.4	1.0
Fourth	1.7	1.2	2.9	1.4	1.3
Highest	1.2	1.0	2.8	1.1	0.9
Total	**1.3**	**0.9**	**2.7**	**1.2**	**1.0**

[1] *Includes divorced, separated or cohabiting.*

Table 4.7.3 provides state-level details of the care provided by younger respondents. Again, only a small proportion of these respondents reported providing care; about 2-4% provided help to an adult household member. Younger respondents in Maharashtra and Karnataka were most likely to have assisted.

Table 4.7.3 Percentage of respondents aged 18-49 who provided care by type of care, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				
	Financial	Social/emotional	Health	Physical	Personal
Assam	0.8	0.0	0.3	0.3	0.3
Karnataka	1.7	2.0	2.6	3.8	4.0
Maharashtra	2.9	2.9	3.9	3.1	1.0
Rajasthan	0.8	0.0	0.4	0.0	0.1
Uttar Pradesh	3.3	2.4	8.0	1.4	1.3
West Bengal	0.5	0.3	2.1	1.5	0.7
India (pooled)	**1.9**	**1.5**	**3.7**	**1.8**	**1.2**

Table 4.7.4 shows the proportion of younger adults who provided care to an adult in the household according to the background characteristics of the respondent. As the respondents' age increased, there was a slight increase in the proportion that provided help to an older household member. Men and urban respondents tended to help more often than women or rural respondents. One of the possible reason behind this can be attributed to male dominance in decision making in money matters and urban people being more financially stronger than their rural counterparts. The wealth quintile did not hold any relationship with the help provided. A higher proportion of young widowed women provided care in all domains than other categories.

Table 4.7.4 Percentage of respondents aged 18-49 who provided care by type of care according to background characteristics, India (pooled), SAGE Wave 2, 2015

Background Characteristic	Aged 18-49				
	Financial	Social/emotional	Health	Physical	Personal
Age group					
18-29	0.5	1.1	2.4	1.0	0.4
30-39	2.9	2.4	4.9	2.7	1.3
40-49	2.2	1.2	3.7	1.7	1.7
Sex					
Male	2.4	1.7	3.5	1.2	1.0
Female	1.6	1.4	3.8	2.1	1.3
Marital status					
Never married	0.7	0.8	2.4	1.0	0.6
Currently married	2.3	1.7	4.1	1.9	1.4
Widowed	2.6	2.6	3.9	3.5	0.2
Other[1]	0.0	0.0	0.0	0.0	0.0
Residence					
Urban	2.2	2.5	5.8	2.1	0.7
Rural	1.8	1.2	3.0	1.6	1.3
Wealth quintile					
Lowest	2.1	0.9	3.9	1.6	1.1
Second	0.9	0.7	3.0	1.6	1.2
Middle	2.3	1.2	3.2	1.7	2.1
Fourth	2.8	3.4	4.1	3.1	0.5
Highest	1.3	1.5	4.4	0.7	0.7
Total	**1.9**	**1.5**	**3.7**	**1.8**	**1.2**

[1] *Includes divorced, separated or cohabiting.*

5. Risk Factors and Health Behaviours

Health behaviour and exposure to health risks such as smoking, alcohol consumption and physical inactivity can have long-term health implications and thus, negatively influence health in older age (WHO, 2011). Therefore, understanding these risk factors and health behaviours among older people is essential and relevant for policy implication and developing effective prevention programs to improve health and reduce the disease burden of the older population.

This chapter describes risks to health and measures how these risks are distributed in the population. The rationale behind the inclusion of risk factors in SAGE is that 1) they have a significant impact on mortality and morbidity from non-communicable diseases, and 2) risk modification is possible through effective primary prevention and health promotion efforts. The SAGE questions were based on the WHO NCD risk factor surveillance (STEPS) guidelines (WHO, 2005).

SAGE India, Wave 2 (hereafter SAGE India) collected data on five major risk factors: tobacco abuse, alcohol consumption, intake of fruit and vegetables, physical activity levels, and environmental risk factors. The use of tobacco and alcohol has a considerable impact on the health of the individual. The nutritional content of food, levels of fruit and vegetable intake and levels of physical activity are directly associated with health. SAGE has added questions on food security, which is particularly important for vulnerable groups, especially in the context of globalization, inequalities, environmental damage and financial crises. Finally, environmental risk factors such as access to improved drinking water, improved sanitation facilities, type of fuel used for cooking, and ventilation of cooking areas are crucial determinants of human health. Interventions to promote safe environments offer a large potential for disease prevention and can help to reduce health inequalities.

5.1 Tobacco use

Tobacco use and smoking is a recognized risk factor for many chronic diseases such as chronic pulmonary disease, hypertension, cardiovascular disease, diabetes, cancer and microbial infections which leads to heavy burden involving health care and economic as well as social costs in all countries (Yang et al., 2015). WHO has estimated that tobacco use (smoking and smokeless) is currently responsible for the death of about six million people across the world each year with many of these deaths occurring prematurely (WHO,2015). There is sufficient evidence to support the causal relationship between tobacco use and its adverse health effects. Although often associated with ill-health, disability and death from non-communicable chronic disease, tobacco smoking is also associated with increased risk of death from communicable diseases. .

Most cardiovascular diseases, cancers and chronic lung diseases are directly attributable to tobacco consumption. Tobacco use increases risk of tuberculosis and more than 20% of tuberculosis incidence may be attributed to smoking (WHO, 2009). In India, according to WHO report around 266.8m are current tobacco users and a substantial number of people exposed to second-hand smoke are at risk of CVDs. (WHO, 2018).

While globally, smoking of factory-made cigarettes is the dominant form of tobacco use, in India tobacco is used in a variety of forms. The most popular way to smoke tobacco, especially among rural men and women, is through small, thin hand-rolled cigarettes known as *bidi*. It is estimated that bidi is the most popular smoking tobacco product in India with a market share of 85% making (GATS, 2010), 2004). Factory-made cigarettes are the second most popular form of tobacco smoking, mainly in urban areas. Other methods of smoking tobacco popular in different parts of the country are *chutta* (coarse cheroots), *dhumti* and other cigars, *chillu* and other forms of pipes, and *hookah* water pipes. Tobacco is also chewed with *paan* (betel quid), areca nut and other flavourings to form mixtures such as *paan masala, gutka* and *mawa* (Reddy and Gupta, 2004). Powders containing tobacco are also widely used for application to the teeth and gums.

Information collected in SAGE India on tobacco use included ever and current use of tobacco; frequency of tobacco use (daily or occasional); daily frequency of use of different tobacco products, both smoking and smokeless; and age at the time of quitting daily tobacco use and the time elapsed since quitting.

5.1.1 Tobacco use among older respondents

Table 5.1.1 and Figure 5.1 presents the prevalence of tobacco use among older respondents (aged 50-plus) by state. Tobacco use among people aged 50 and above stood at 23%. Of this 23%, 20% were daily users and 3% used occasionally. About 14% used smoking tobacco every day and 4% used smokeless tobacco every day. About 11% of persons had previously used tobacco but had stopped smoking by the time of the survey.

***Trends**: Current daily users and non-users of tobacco among respondents aged 50-plus has decreased significantly over the period 2007-15. Current daily users of tobacco have reduced by more than half in the period with a rise in the not current user and never a user of tobacco. This signifies that less number of people are now consuming tobacco and are quitting tobacco use as well. On the other hand, daily tobacco consumption of smokeless tobacco has decreased from 30.2 in SAGE-1 to 4.4 in SAGE-2. This decline is almost the same for both men and women and younger and older respondents.*

Tobacco use varied significantly by state, by smoking status and type of tobacco (whether smokeless or not) consumed. In Uttar Pradesh (32%), Rajasthan (25%) and West Bengal (21%) the majority of older respondents had consumed tobacco or were currently consuming, either daily or occasionally, whereas in the other three states current use of tobacco varied between 13-20%. In Rajasthan, the prevalence of smoking tobacco excluding smokeless tobacco (19%) was almost eight times higher than that of smokeless tobacco (2%). In all of the state's prevalence of smoking tobacco was quite higher than the use of smokeless tobacco, however, in Karnataka, this gap between smoking and smokeless tobacco was of three points only.

Table 5.1.1 Tobacco consumption among respondents aged 50-plus, states and India (pooled), SAGE Wave 2, 2015

State	Tobacco consumption (all products)					Daily tobacco consumption[1]		Number
	Current daily user	Not daily user	Not current user	Never user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Assam	12.5	7.8	9.1	70.6	100	11.4	3.9	723
Karnataka	11.7	1.6	13.7	73.0	100	8.7	5.6	864
Maharashtra	12.8	2.2	9.9	75.1	100	10.4	8.5	1,171
Rajasthan	23.1	1.8	7.7	67.5	100	19.4	2.4	1,455
Uttar Pradesh	28.7	3.0	7.5	60.8	100	14.5	2.9	1,533
West Bengal	18.2	2.5	20.8	58.6	100	17.2	2.9	1,357
India (pooled)	20.0	2.7	11.2	66.1	100	14.0	4.4	7,103

[1] These two columns are subsets of the data under Current daily user and sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.

Figure 5.1 Percentage of respondents aged 50-plus who are current daily tobacco users, states and India (pooled), SAGE Wave 2, 2015

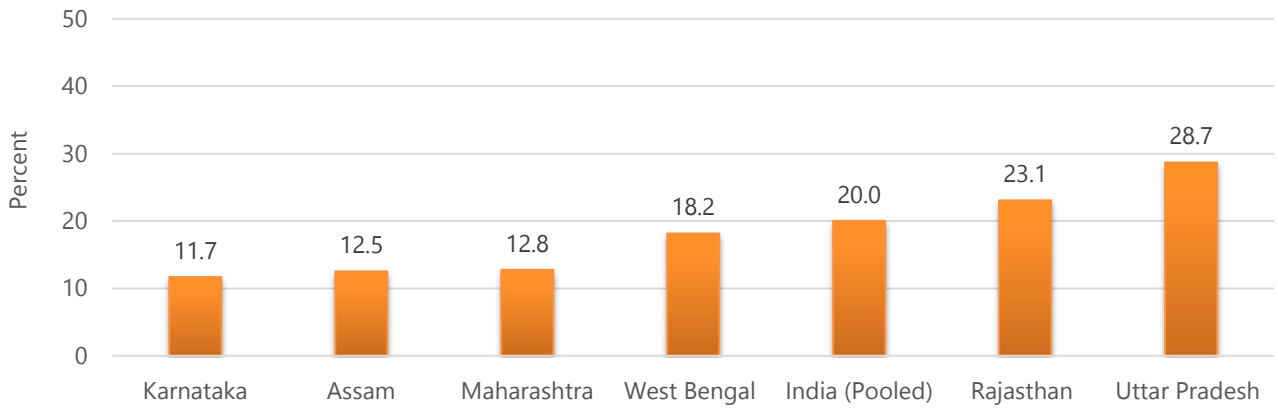


Table 5.1.2 presents the prevalence of tobacco use among older respondents by selected background characteristics. Tobacco consumption fluctuated in the range of 21-25% among persons aged 50-79. Tobacco use was highest among persons aged 70-79 which was reported to be 25%. The percentage of persons who had quit using tobacco increased with age: around 15% of persons aged 80-plus had quit, compared to 8% of persons aged 50-59.

Table 5.1.2 Tobacco consumption among respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Age group								
50-59	17.9	2.6	9.8	69.7	100	3.5	12.7	2,902
60-69	21.5	2.7	12.2	63.7	100	4.7	14.5	2,580
70-79	22.4	2.5	11.7	63.4	100	5.8	16.1	1,279
80+	18.5	3.6	14.5	63.4	100	4.5	12.8	342
Sex								
Male	32.5	4.2	14.5	48.8	100	7.5	25.0	3,331
Female	8.6	1.3	8.3	81.8	100	1.5	3.9	3,772
Marital status								
Never married	34.0	1.5	9.8	54.7	100	2.2	25.2	75

Background characteristic	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Currently married	21.4	2.8	11.0	64.9	100	5.0	15.4	5,294
Widowed	15.1	2.4	12.0	70.6	100	2.6	9.0	1,688
Other[1]	19.3	5.2	17.6	57.9	100	0.0	10.1	44
Residence								
Urban	14.5	2.0	11.3	72.3	100	5.9	10.0	1,509
Rural	22.2	2.9	11.2	63.6	100	3.8	15.5	5,594
Caste								
Scheduled tribe	19.0	3.7	13.5	63.8	100	3.6	14.7	521
Scheduled caste	25.2	3.6	12.9	58.4	100	3.8	18.9	1,165
Other[2]	19.1	2.4	10.7	67.7	100	4.6	13.0	5,417
Religion								
Hindu	20.1	2.6	10.8	66.5	100	4.4	14.3	5,957
Muslim	20.4	2.5	14.0	63.2	100	3.4	12.4	866
Other[3]	15.6	4.1	13.1	67.2	100	8.0	10.0	280
Education								
No formal education	18.7	2.2	9.9	69.1	100	3.1	12.3	3,564
Less than primary	18.7	3.3	14.1	63.9	100	3.5	14.0	940
Primary school	22.9	3.9	10.8	62.5	100	4.6	18.0	980
Secondary school	24.8	2.1	10.9	62.3	100	6.0	16.8	675
High school	21.7	2.9	13.0	62.5	100	7.2	16.3	545
College and above	17.2	2.8	14.0	65.9	100	8.8	10.4	399
Wealth quintile								
Lowest	28.2	4.0	11.1	56.8	100	4.6	18.9	1,370
Second	21.5	2.0	11.4	65.0	100	3.7	14.2	1,301
Middle	20.0	3.6	14.3	62.1	100	4.2	15.4	1,315
Fourth	15.8	2.0	11.2	71.1	100	3.7	11.7	1,465
Highest	15.6	1.9	8.8	73.7	100	5.5	10.3	1,652
Total	**20.0**	**2.7**	**11.2**	**66.1**	**100**	**4.4**	**14.0**	**7,103**

** sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.*

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

As the prevalence and pattern of tobacco use differed substantially between older men and women, tobacco use is tabulated separately by sex in Table 5.1.3. Current tobacco use was much higher among older men (37%) than older women (10%). Uttar Pradesh has the highest percentage of older men using tobacco 47% of all the states. In Uttar Pradesh, Rajasthan and West Bengal, slightly higher than one-third of older men used tobacco every day and about 4% used occasionally. However, smoking tobacco is more prevalent in India in comparison to smokeless tobacco.

Among older women, Uttar Pradesh has the highest percentage of daily tobacco users (14%) whereas the lowest proportion of tobacco users among women was recorded in West Bengal (4%). The use of smokeless tobacco is more prevalent than smoking tobacco among older women.

Table 5.1.3 Tobacco consumption among men and women aged 50-plus, state and India (pooled), SAGE Wave 2, 2015

State	Males								Females							
	Tobacco consumption (all products)					Daily tobacco consumption*			Tobacco consumption(all products)					Daily tobacco consumption*		
	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	Number	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	Number
Assam	20.7	11.1	9.5	58.8	100	7.8	22.4	347	5.1	4.8	8.7	81.4	100	0.4	1.3	376
Karnataka	16.8	2.5	13.5	67.2	100	8.5	15.3	374	7.7	0.9	13.9	77.5	100	3.2	3.5	490
Maharashtra	19.9	3.7	11.7	64.7	100	13.9	17.3	555	5.8	0.7	8.2	85.2	100	3.2	3.8	616
Rajasthan	40.3	3.1	12.5	44.1	100	5.0	35.8	669	8.2	0.7	3.5	87.7	100	0.3	5.3	786
Uttar Pradesh	43.5	3.8	12.0	40.8	100	4.6	25.1	773	14.2	2.1	3.2	80.5	100	1.3	4.2	760
West Bengal	34.7	5.3	26.3	33.7	100	6.3	33.7	613	4.3	0.1	16.2	79.4	100	0.1	3.4	744
India (pooled)	**32.5**	**4.2**	**14.5**	**48.8**	**100**	**7.5**	**25.0**	**3,331**	**8.6**	**1.3**	**8.3**	**81.8**	**100**	**1.5**	**3.9**	**3,772**

** sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.*

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 5.1.4 (a & b) presents the prevalence of tobacco use among older male and female respondents by selected background characteristics. Among older men, the prevalence of daily tobacco use decreased with age, mainly because of the reduction in smoking. However, among older women, the proportion of daily tobacco users increased with increasing age. Among both older men and women, current daily user of tobacco and the smokeless user was much higher in rural than urban areas.

Percent of daily tobacco users declined with increasing education and wealth quintile in both sexes. Among older men, this inverse relationship was mainly because of a reduction in daily use of smoking tobacco, whereas the use of smokeless tobacco changed slightly. However, among older women, it is the use of smokeless tobacco that decreased with education and income, since even in the lowest education and income brackets very few older women smoked.

Table 5.1.4 (a) Tobacco consumption among men respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Male							
	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Age group								
50-59	32.4	5.0	13.8	48.9	100	6.5	26.0	1170
60-69	34.4	3.4	14.1	48.1	100	7.9	24.6	1289
70-79	31.8	4.0	15.3	48.9	100	9.0	25.5	672
80+	24.0	4.9	18.6	52.6	100	6.4	20.6	200
Marital status								
Never married	42.5	0.0	9.8	47.7	100	2.8	30.2	50
Currently married	32.0	4.0	14.7	49.3	100	7.8	24.8	2944
Widowed	35.0	5.9	13.2	45.9	100	6.7	26.0	325
Other[1]	31.8	17.9	29.0	21.2	100	0.0	26.3	12
Residence								
Urban	24.3	2.8	15.6	57.3	100	11.2	19.2	677
Rural	35.7	4.8	14.0	45.5	100	6.1	27.3	2654
Caste								
Scheduled tribe	28.7	7.4	17.7	46.2	100	6.5	25.7	237
Scheduled caste	39.0	5.8	15.7	39.5	100	5.4	33.8	531
Other[2]	31.7	3.7	14.0	50.7	100	8.0	23.4	2563
Religion								
Hindu	33.5	4.1	14.3	48.1	100	7.6	25.8	2781
Muslim	29.1	4.1	16.4	50.4	100	6.2	22.7	413
Other[3]	18.7	6.6	12.9	61.8	100	10.7	13.6	137
Education								
No formal education	39.1	4.2	12.5	44.2	100	6.2	32.1	999
Less than primary	29.1	5.1	17.5	48.3	100	5.3	23.0	538
Primary school	36.0	5.3	14.2	44.4	100	7.6	29.3	586
Secondary school	33.6	2.9	12.5	51.1	100	8.1	22.8	466
High school	27.5	3.7	15.7	53.1	100	9.1	20.8	434
College and above	21.5	3.5	16.3	58.7	100	10.9	13.0	308
Wealth quintile								
Lowest	45.6	5.1	13.1	36.2	100	7.4	34.4	619
Second	33.6	3.2	14.9	48.2	100	5.8	23.9	604
Middle	32.7	6.4	15.8	45.2	100	6.5	28.0	632
Fourth	26.5	3.3	15.2	55.0	100	6.8	21.4	673
Highest	26.6	3.3	13.6	56.5	100	10.3	19.5	803
Total	**32.5**	**4.2**	**14.5**	**48.8**	**100**	**7.5**	**25.0**	**3331**

** sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.*

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 5.1.4 (b) Tobacco consumption among women respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Female							
	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily tobacco user	Tobacco user, not daily	Not current tobacco user	Never tobacco user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Age group								
50-59	7.6	1	6.9	84.6	100	1.3	3.3	1732
60-69	8.4	1.9	10.3	79.5	100	1.4	4.2	1291
70-79	11.4	0.7	7.5	80.5	100	2.2	5	607
80+	11.9	2.1	9.6	76.4	100	2.2	3.5	142
Marital status								
Never married	2.5	7	9.8	80.6	100	0	7	26
Currently married	7.8	1.1	6.3	84.9	100	1.5	3.4	2351
Widowed	10.1	1.5	11.7	76.7	100	1.6	4.8	1363
Other[1]	14.2	0	12.9	72.9	100	0	3.5	32
Residence								
Urban	5.7	1.3	7.4	85.6	100	1.1	1.9	832
Rural	9.8	1.3	8.6	80.3	100	1.7	4.7	2940
Caste								
Scheduled tribe	11.2	0.6	10.2	77.9	100	1.4	5.9	284
Scheduled caste	13.1	1.6	10.4	74.9	100	2.5	6	634
Other[2]	7.6	1.3	7.7	83.5	100	1.4	3.3	2854
Religion								
Hindu	8	1.3	7.6	83.1	100	1.5	3.9	3176
Muslim	12.3	0.9	11.8	75	100	0.9	2.8	453
Other[3]	12.6	1.6	13.2	72.6	100	5.2	6.3	143
Education								
No formal education	11.4	1.5	9	78.1	100	2	5.2	2565
Less than primary	4.9	1	9.6	84.5	100	1.3	2.2	402
Primary school	2.5	1.7	5.4	90.4	100	0	0.4	394
Secondary school	2.1	0	6.7	91.2	100	0.5	1	209
High school	0	0	2.7	97.4	100	0	0	111
College and above	0	0	4.5	95.5	100	0	0	91
Wealth quintile								
Lowest	14.2	3.1	9.4	73.4	100	2.3	6.5	751
Second	10.4	0.9	8.2	80.5	100	1.8	5.3	697
Middle	8.2	1	12.9	78	100	2.1	3.5	683
Fourth	6.5	0.9	7.8	84.9	100	1.1	3.4	792
Highest	4.2	0.4	3.9	91.5	100	0.5	0.9	849
Total	**8.6**	**1.3**	**8.3**	**81.8**	**100**	**1.5**	**3.9**	**3772**

** sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

5.1.2 Tobacco use among younger respondents

Table 5.1.5 shows the prevalence of tobacco use among younger respondents (aged 18-49) by state. About 16% of younger respondents used tobacco in some form; 12.6% every day and 3.3% occasionally. Meanwhile, 77.1% of younger respondents had never used tobacco at all; a small proportion (7.1%) had previously used tobacco but had stopped.

As the figures above indicate, 13% of younger current tobacco users used tobacco daily. Daily tobacco use ranged from 18% in Uttar Pradesh down to 5% in Assam, with levels in West Bengal almost the same as the national level of 13%. In all states except Assam, 2-4% of younger persons used tobacco occasionally; with 9% of users in Assam.

Smokeless tobacco was more commonly used than smoking tobacco: about 9% of younger adults were using smokeless tobacco daily, compared to 4% who smoked daily. In Rajasthan and Uttar Pradesh, the prevalence of smokeless tobacco strongly exceeded that of the smoking form, whereas in Maharashtra and Karnataka daily use of both smoking and smokeless tobacco was almost the same.

Table 5.1.5 Tobacco consumption among respondents aged 18-49, states and India (pooled), SAGE Wave 2, 2015

State	Consumption of tobacco (all products)					Daily tobacco consumption[1]		Number
	Current daily user	Not daily user	Not current user	Never used	Total	Excluding smokeless tobacco	Smokeless tobacco	
Assam	5.4	9.4	8.2	77.1	100	2.8	8.0	295
Karnataka	8.4	1.5	5.6	84.4	100	5.3	6.0	221
Maharashtra	8.4	1.6	4.3	85.6	100	7.1	7.3	342
Rajasthan	15.6	3.4	5.4	75.6	100	3.3	12.5	359
Uttar Pradesh	17.9	4.2	6.0	71.9	100	1.9	7.8	328
West Bengal	13.2	2.3	12.4	72.1	100	2.7	9.5	446
India (pooled)	**12.6**	**3.3**	**7.1**	**77.1**	**100**	**3.8**	**8.5**	**1,991**

1 sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.

Table 5.1.6 gives the prevalence of tobacco use among younger respondents by selected background characteristics. The use of both smoking and smokeless tobacco increased sharply with age: 13% of persons aged 18-29 currently used tobacco, rising to 19% in persons aged 40-49. This increase was larger for smokeless tobacco than for smoking tobacco. Tobacco use was much higher among younger men (32%) than among younger women (0.8%). Women used both smoking and smokeless tobacco more or less equally, while most men used smokeless tobacco: less than 0.5% of women reported using smoking compared to 10% of men, while 0.5% of younger women reported using smokeless tobacco compared to 22% of younger men.

Table 5.1.6 Tobacco consumption among respondents aged 18-49, India (pooled), SAGE Wave 2, 2015

Background Characteristic	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily user	Not Daily user	Not current user	Never user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Age group								
18-29	9.1	3.8	2.9	84.2	100	2.8	4.7	541
30-39	12.8	1.6	6.9	78.7	100	5.3	8.9	598
40-49	15.0	4.1	10.1	70.8	100	3.4	10.9	852
Sex								
Male	28.1	7.0	9.1	55.8	100	9.6	21.9	830
Female	3.3	1.0	5.9	89.8	100	0.3	0.5	1,161
Marital status								
Never married	8.2	4.4	2.6	84.9	100	2.9	4.3	416
Currently married	14.0	3.1	8.4	74.6	100	4.2	9.9	1,476
Widowed	11.0	1.5	7.3	80.2	100	1.7	5.5	90
Other[1]	12.3	0.0	10.9	76.8	100	0.0	12.3	9
Residence								
Urban	11.8	2.0	3.9	82.3	100	7.4	8.4	410
Rural	12.9	3.7	8.2	75.3	100	2.6	8.5	1,581
Caste								
Scheduled tribe	7.5	7.6	10.3	74.7	100	1.6	7.7	198
Scheduled caste	16.1	3.1	9.2	71.6	100	3.7	9.8	416
Other[2]	12.3	2.7	6.1	78.9	100	4.1	8.2	1,377

Background Characteristic	Tobacco consumption (all products)					Daily tobacco consumption*		Number
	Current daily user	Not Daily user	Not current user	Never user	Total	Excluding smokeless tobacco	Smokeless tobacco	
Religion								
Hindu	11.9	3.3	7.2	77.6	100	3.2	7.9	1,662
Muslim	18.1	2.0	6.5	73.4	100	6.8	12.1	252
Other[3]	9.4	5.9	6.7	78.1	100	6.5	9.4	77
Education								
No formal education	12.2	2.7	9.7	75.4	100	2.1	7.7	581
Less than primary	14.4	4.8	8.4	72.4	100	3.4	13.6	227
Primary school	12.3	3.9	7.6	76.3	100	5.9	10.6	345
Secondary school	15.2	2.7	5.5	76.6	100	3.8	7.7	374
High school	11.7	4.5	4.3	79.4	100	6.0	8.5	313
College and above	7.2	0.8	3.6	88.4	100	1.7	1.1	151
Wealth quintile								
Lowest	15.9	7.4	6.0	70.7	100	3.4	12.4	380
Second	13.4	4.1	10.1	72.4	100	2.8	9.3	423
Middle	12.7	1.9	9.0	76.5	100	3.3	8.6	456
Fourth	10.5	1.3	6.0	82.3	100	3.1	5.1	372
Highest	10.2	1.6	3.7	84.4	100	6.8	6.7	360
Total	**12.6**	**3.3**	**7.1**	**77.1**	**100**	**3.8**	**8.5**	**1,991**

** sum of these columns will not add up to "Currently daily user" result because multiple responses allowed about forms of tobacco used.*

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

The users of tobacco generally decreased as levels of education rose. However, tobacco use was higher among persons with a secondary school level education than among those with no education at all. The sharpest drop in tobacco use came with education at the college level and above: about less than one-tenth of college-educated persons used tobacco, compared to 16% of those with high school education.

Use of both of smoking and smokeless tobacco was much lower among younger people who had never married than in married or widowed persons, possibly due to the lower exposure to tobacco in the younger age group. Tobacco use, both smoking and smokeless, was inversely related to income, decreasing from 12% in the lowest wealth quintiles to 5% among the fourth quintile except for the highest wealth quintile. Overall tobacco use was higher in rural areas than in urban areas. Although the use of smokeless tobacco does not vary much by place of residence, however, use of smoking tobacco is quite higher in urban areas as compared to rural area (7% and 3% percent respectively).

One prominent observation was that there was a uniformly low prevalence of occasional tobacco use (approx. 3%) among younger users however, only a small proportion of younger people had quit using tobacco (7%).

5.2 Alcohol consumption

Alcoholic beverages, in addition to tobacco products, are the most widespread and the main risk factor for premature death. Alcohol use contributes to a range of acute and chronic health consequences, from injuries to cardiovascular disease. Research has linked varying average levels of alcohol consumption to increased and sometimes decreased risk for morbidity and mortality related to more than 60 disease conditions. It increases the incidence of stomach cancer. Alcohol consumption can lead to fatty liver, alcoholic hepatitis and permanent liver damage/cirrhosis. It slows down the functioning of the brain, causes loss of inhibitions and affects judgment and coordination.

It can lead to depression, poor memory and concentration. Alcohol consumption also interferes with normal heart rhythm, and excessive alcohol use can damage blood vessels, weaken heart muscles and enlarge the heart. Information on alcohol consumption collected by SAGE India included ever and current use, along with an estimate of the daily volume of standard drinks consumed. Information was collected on the frequency of drinking and the average number of drinks per day during the previous 12 months.

To measure current alcohol consumption, the survey collected information on the amount of alcohol consumed by an individual on each day of one week before the interview. To improve estimates of the prevalence of alcohol consumption, interviewers used pictures of typical servings in different glasses and asked respondents to indicate which size of glass they had used for each type of alcohol consumed. Categories of drinking are defined in Table 5.2.1, including lifetime abstainers, non-heavy drinkers, infrequent heavy drinkers, and frequent heavy drinkers.

5.2.1 Alcohol consumption among older respondents

Table 5.2.1 presents the prevalence of alcohol use by state among older respondents. About 10% of these respondents reported consuming alcohol. The highest prevalence was reported in Assam (26%) and the lowest in Uttar Pradesh (8%).

Trends: *Like tobacco consumption, prevalence of alcohol use among younger and respondents aged 50-plus who are lifetime abstainer, non-heavy drinkers, infrequent and frequent heavy drinkers have also witnessed a slight decline over the period.*

Alcohol consumption among older respondents differed significantly by sex, with older women significantly less likely to drink at all (2%) than older men (20%). Among older men, the prevalence of alcohol consumption ranged from 37% in Assam to 16% in Uttar Pradesh. By contrast, only 0.5% of older women consumed alcohol in Maharashtra and none in Uttar Pradesh and less than 3% in Karnataka and West Bengal– although a surprising 15% did so in Assam.

Overall, the prevalence of heavy drinking, both frequent and infrequent, was low (1.6% and 2.3% respectively). The prevalence of frequent heavy drinking was highest in Assam (7%), followed by West Bengal (2%) and lowest in Karnataka (1%) (Figure 5.2).

Table 5.2.1 Alcohol consumption among respondents aged 50-plus, states and India (pooled) , SAGE Wave 2, 2015

State	Persons					Male					Female				
	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Assam	74.1	10.5	8.7	6.6	723	62.6	13.2	12.8	11.3	347	84.6	8.1	4.9	2.4	376
Karnataka	90.5	6.7	2.0	0.8	864	81.6	14.1	2.6	1.7	374	97.4	0.9	1.5	0.2	490
Maharashtra	91.0	5.6	1.9	1.5	1,171	82.2	11.1	3.6	3.1	555	99.5	0.2	0.3	0.0	616
Rajasthan	89.2	7.1	2.3	1.4	1,455	77.8	14.4	4.8	3.0	669	99.1	0.8	0.1	0.0	786
Uttar Pradesh	91.9	5.6	1.6	1.0	1,531	83.6	11.3	3.1	2.0	771	100.0	0.0	0.0	0.0	760
West Bengal	88.3	7.8	2.2	1.7	1,357	78.0	15.0	3.8	3.1	613	97.0	1.7	0.8	0.5	744
India (pooled)	**89.7**	**6.5**	**2.3**	**1.6**	**7,101**	**80.4**	**12.7**	**4.0**	**3.0**	**3,329**	**98.1**	**1.0**	**0.7**	**0.2**	**3,772**

Note: Lifetime abstainers = never consumed alcoholic beverages; non-heavy drinkers (social drinkers) = no days in last year/less than once a month/1-3 days per month with fewer than five standard drinks in the last seven days; infrequent heavy drinker = 1-3 days per week with fewer than five standard drinks in the last seven days; frequent heavy drinker = five or more days per week with five or more standard drinks in the last seven days.

Figure 5.2 Percentage of respondents aged 50-plus who are frequent heavy drinkers, states and India (pooled), SAGE Wave 2, 2015

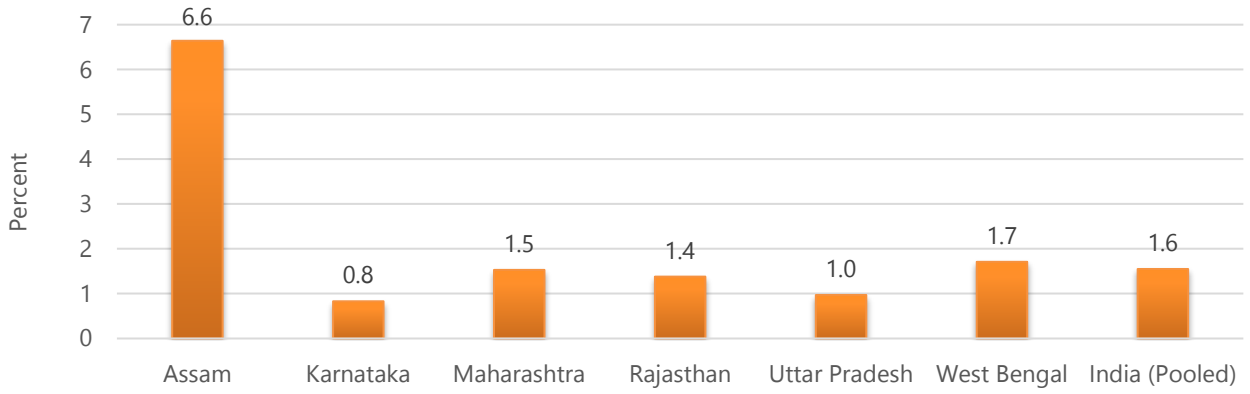


Table 5.2.2 presents the prevalence of alcohol use among older respondents by background characteristics Among older women, the prevalence of alcohol consumption did not vary consistently with age, though among men it decreased with age. Older women showed a relatively lower prevalence of alcohol use in urban areas, among castes other than scheduled tribes/castes, and Muslims. The prevalence of heavy drinking decreased as education and income increased.

As elsewhere in the world, alcohol use among older SAGE India respondents was higher among some historically socially disadvantaged groups: 13% of older members of scheduled tribes were frequent or infrequent heavy drinkers (6% frequent), compared with the national average of 5%. However, the rate of heavy drinking among older respondents from scheduled castes was significantly lower from scheduled tribes at just over 4%. Overall, rates differed between men and women, with 23% of older male members of scheduled tribes reporting frequent or infrequent heavy drinking compared to 5% of older women.

Table 5.2.2 Alcohol consumption among respondent aged 50-plus, India (pooled), SAGE Wave 2, 2015

Background characteristic	Persons					Male					Female				
	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Age group															
50-59	89.6	6.0	2.5	1.9	2,901	77.3	13.7	4.9	4.2	1,169	98.4	0.6	0.8	0.2	1,732
60-69	89.6	6.7	2.2	1.6	2,579	81.4	12.0	3.7	2.9	1,288	97.9	1.3	0.6	0.3	1,291
70-79	89.3	7.5	2.2	1.1	1,279	82.2	12.5	3.4	1.8	672	97.5	1.6	0.7	0.2	607
80+	92.0	6.5	1.2	0.4	342	85.9	11.2	2.2	0.7	200	99.3	0.7	0.0	0.0	142
Marital status															
Never married	88.4	5.4	1.7	4.5	76	86.1	6.0	2.2	5.7	50	96.9	3.1	0.0	0.0	26
Currently married	88.3	7.5	2.5	1.7	5,295	80.2	12.8	4.1	2.9	2,944	98.6	0.8	0.6	0.1	2,351
Widowed/widower	94.0	3.6	1.4	1.0	1,687	80.8	12.6	3.4	3.1	324	97.3	1.4	0.9	0.5	1,363
Other[1]	94.5	3.0	2.5	0.0	43	79.2	11.4	9.5	0.0	11	100.0	0.0	0.0	0.0	32
Residence															
Urban	89.6	6.8	2.2	1.4	1,508	78.5	14.0	4.5	3.0	676	99.5	0.4	0.0	0.0	832
Rural	89.7	6.4	2.3	1.6	5,593	81.1	12.1	3.8	3.0	2,653	97.5	1.2	0.9	0.3	2,940
Caste															
Scheduled tribe	77.6	9.4	7.3	5.8	521	61.1	15.9	12.5	10.5	237	90.8	4.1	3.1	2.1	284
Scheduled caste	84.6	9.0	3.7	2.7	1,164	71.7	16.6	6.1	5.6	530	95.8	2.3	1.7	0.2	634
Other[2]	91.6	5.9	1.6	1.0	5,416	83.4	11.7	3.0	2.0	2,562	99.2	0.5	0.3	0.1	2,854
Religion															
Hindu	88.7	7.3	2.4	1.6	5,955	78.4	14.3	4.3	3.0	2,779	98.1	0.9	0.7	0.3	3,176
Muslim	98.0	1.0	0.3	0.7	866	96.4	1.7	0.5	1.4	413	99.5	0.4	0.1	0.0	453
Other[3]	82.7	8.1	4.8	4.5	280	72.3	10.8	7.9	8.9	137	93.2	5.3	1.6	0.0	143
Education															
No formal education	92.5	4.2	1.9	1.3	3,563	78.4	12.7	4.8	4.1	998	97.6	1.1	0.9	0.3	2,565
Less than primary	87.6	7.2	2.6	2.7	940	78.8	12.1	4.4	4.7	538	99.2	0.6	0.2	0.0	402
Primary school	87.3	6.8	3.8	2.1	980	79.5	10.9	6.2	3.4	586	99.4	0.5	0.0	0.1	394
Secondary school	86.7	10.2	1.7	1.4	675	82.2	13.6	2.2	2.0	466	98.3	1.4	0.3	0.0	209
High school	86.5	10.8	2.2	0.5	544	82.9	13.7	2.8	0.6	433	100.0	0.0	0.0	0.0	111
College and above	86.3	11.0	1.6	1.1	399	83.1	13.5	2.0	1.4	308	99.1	0.9	0.0	0.0	91
Wealth quintile															
Lowest	88.5	6.3	2.9	2.3	1,369	78.2	12.6	5.0	4.2	618	96.7	1.3	1.2	0.8	751
Second	89.5	6.6	2.1	1.9	1,301	81.3	11.7	3.2	3.7	604	97.0	1.8	1.0	0.2	697
Middle	89.1	7.0	2.6	1.4	1,315	80.0	13.0	4.3	2.7	632	97.6	1.3	0.9	0.1	683
Fourth	91.6	5.4	1.9	1.1	1,465	82.8	11.1	3.8	2.3	673	99.2	0.5	0.2	0.1	792
Highest	89.5	7.5	1.9	1.2	1,651	79.5	14.4	3.7	2.3	802	99.7	0.2	0.1	0.0	849
Total	**89.7**	**6.5**	**2.3**	**1.6**	**7,101**	**80.4**	**12.7**	**4.0**	**3.0**	**3,329**	**98.1**	**1.0**	**0.7**	**0.2**	**3,772**

Note: Lifetime abstainers = never consumed alcoholic beverages; non-heavy drinkers (social drinkers) = no days in last year/less than once a month/1-3 days per month with fewer than five standard drinks in the last seven days; infrequent heavy drinker = 1-3 days per week with fewer than five standard drinks in the last seven days; frequent heavy drinker = five or more days per week with five or more standard drinks in the last seven days.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

5.2.2 Alcohol consumption among younger respondents

About 9% of younger respondents consumed alcohol, while the other 91% were lifetime abstainers (Table 5.2.3). Among the 9% who were drinkers, 1% were frequent heavy drinkers, 3% infrequent heavy drinkers and the remaining 5% were non-heavy drinkers. The prevalence of alcohol consumption was highest in Assam (24% drinkers) and lowest in Maharashtra (4%).

Table 5.2.3 Alcohol consumption among respondents aged 18-49, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				
	Lifetime abstainers	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Assam	76.4	8.6	10.7	4.4	295
Karnataka	92.6	4.0	1.7	1.7	221
Maharashtra	96.0	3.8	0.2	0.0	342
Rajasthan	91.0	5.3	2.8	0.9	359
Uttar Pradesh	91.9	5.0	2.0	1.1	328
West Bengal	90.8	5.5	2.7	1.0	446
India (pooled)	**91.3**	**5.1**	**2.5**	**1.2**	**1,991**

Note: Lifetime abstainers = never consumed alcoholic beverages; non-heavy drinkers (social drinkers) = no days in last year/less than once a month/1-3 days per month with fewer than five standard drinks in the last seven days; infrequent heavy drinker = 1-3 days per week with fewer than five standard drinks in the last seven days; frequent heavy drinker = five or more days per week with five or more standard drinks in the last seven days.

The prevalence of alcohol consumption as well as heavy drinking increased with age (Table 5.2.4). Alcohol consumption was much less common among women: fewer than 2% reported drinking alcohol, compared to 21% of men. Prevalence was lower among respondents from urban areas, among those from groups other than scheduled tribes/castes, and Muslims. Alcohol consumption decreased as education and income rose for younger respondents. Perhaps encouragingly, the prevalence of frequent or infrequent heavy drinking was lower among younger members of scheduled tribes than among older members (9%, compared to 13%), including among frequent heavy drinkers (3%, compared to 6%).

Table 5.2.4 Alcohol consumption among respondents aged 18-49, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49				
	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Age group					
18-29	92.3	4.4	2.5	0.9	541
30-39	92.5	4.3	2.2	1.0	598
40-49	89.7	6.0	2.8	1.4	852
Sex					
Male	79.2	12.3	5.5	3.0	830
Female	98.5	0.7	0.7	0.1	1,161
Marital status					
Never married	92.1	4.6	2.5	0.8	416
Currently married	90.9	5.4	2.5	1.2	1,476
Widowed/widower	93.9	1.8	2.8	1.5	90
Other[1]	87.7	6.6	5.6	0.0	9
Residence					
Urban	93.3	4.9	1.1	0.8	410
Rural	90.6	5.1	3.0	1.3	1,581
Caste					
Scheduled tribe	80.4	10.5	6.5	2.6	198

Background characteristic	Aged 18-49				
	Life time abstainer	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Scheduled caste	89.5	4.7	3.8	2.0	416
Other[2]	93.2	4.4	1.6	0.7	1,377
Religion					
Hindu	90.6	5.6	2.5	1.2	1,662
Muslim	97.9	1.4	0.7	0.0	252
Other[3]	82.4	4.6	9.6	3.4	77
Education					
No formal education	93.1	3.7	2.5	0.7	581
Less than primary	87.1	6.6	5.0	1.3	227
Primary school	90.6	5.2	2.6	1.7	345
Secondary school	88.8	7.4	1.7	2.1	374
High school	92.4	4.3	3.2	0.1	313
College and above	96.3	2.9	0.0	0.8	151
Wealth quintile					
Lowest	89.4	5.5	3.3	1.9	380
Second	85.5	8.7	4.5	1.3	423
Middle	92.7	3.9	2.2	1.2	456
Fourth	94.7	3.6	1.1	0.5	372
Highest	94.1	3.7	1.5	0.7	360
Total	**91.3**	**5.1**	**2.5**	**1.2**	**1,991**

Note: Lifetime abstainers = never consumed alcoholic beverages; non-heavy drinkers (social drinkers) = no days in last year/less than once a month/1-3 days per month with fewer than five standard drinks in the last seven days; infrequent heavy drinker = 1-3 days per week with fewer than five standard drinks in the last seven days; frequent heavy drinker = five or more days per week with five or more standard drinks in the last seven days.

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

5.3 Diet

Dietary factors such as total fat, saturated fatty acids and salts are associated with increased risk of cardiovascular diseases and cancer, whereas fibers, fruits and vegetables may decrease the risk (WHO, 1990). Information on dietary habits and their changing pattern are important for planning and improving nutrition-related health policies and programmes. Following the WHO NCD risk factors surveillance strategy (WHOSTEPS), SAGE India collected data on the number of servings of fruit and vegetables eaten by respondents on a typical day (WHO, 2005). WHO considers fewer than five (WHO, 2003) servings of fruit and vegetables per day to be insufficient to reduce the risk of diet contributing to cardiovascular disease and other health conditions.

5.3.1 Nutritional intake among older respondents

Fruit and vegetable intake of older men and women is presented in Table 5.3.1. In this population, the intake of fruit/vegetables was grossly insufficient: fewer than 20% of older respondents met the minimum standard. The situation was worst in West Bengal, where only 10% of older men and less than 7% of older women reported a sufficient intake of fruit/vegetables. The best nutritional status was observed in Karnataka, where almost one quarter of men and women had sufficient fruit/vegetable intake.

Trends: *Fruit and vegetable intake of older and younger respondents have improved in the period 2007-15. Around 20 percent of respondents reported having a sufficient intake of fruits and vegetables in comparison to 9 percent in the previous SAGE -2007. Uttar Pradesh shows the highest improvement in sufficient intake of fruits and vegetables (33% in 2015 and 8% in 2007) among respondents aged 15-49.*

Table 5.3.1 Percent distribution of respondents aged 50-plus by sufficiency of fruit/vegetable intake, states and India (pooled), SAGE Wave 2, 2015

State	Persons			Male			Female			Total
	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	
Assam	75.3	24.7	723	79.0	21.1	347	71.9	28.1	376	100
Karnataka	73.8	26.2	872	71.2	28.8	379	75.9	24.1	493	100
Maharashtra	84.8	15.2	1,176	83.5	16.6	556	86.1	14.0	620	100
Rajasthan	81.9	18.1	1,456	79.8	20.2	669	83.7	16.3	787	100
Uttar Pradesh	73.4	26.6	1,534	71.8	28.2	773	75.0	25.0	761	100
West Bengal	91.9	8.1	1,357	90.1	9.9	613	93.5	6.6	744	100
India (pooled)	**80.4**	**19.7**	**7,118**	**78.8**	**21.2**	**3,337**	**81.8**	**18.2**	**3,781**	**100**

Note: Sufficient nutrition implies five or more servings of fruit/vegetables in a typical day on average in the last seven days.

Table 5.3.2 presents the nutritional intake of older respondents by background characteristics. Sufficient intake of fruit/vegetables among older adults decreased with age. The proportion of respondents with sufficient intake of fruit/vegetables was slightly higher in urban areas, among those from castes other than scheduled castes/tribes, the better educated and those with higher incomes. For all background characteristics, a lower proportion of female older adults were eating enough fruit/vegetables in comparison to their men counterparts.

Table 5.3.2 Percent distribution of respondents aged 50-plus by sufficiency of fruit/vegetable intake according to selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Persons			Male			Female			
	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Total
Age group										
50-59	78.6	21.4	2,904	75.8	24.2	1,170	80.6	19.4	1,734	100
60-69	80.9	19.1	2,585	79.5	20.5	1,292	82.3	17.7	1,293	100
70-79	83.2	16.8	1,285	83.1	16.9	675	83.3	16.7	610	100
80+	80.6	19.4	344	76.8	23.2	200	85.1	15.0	144	100
Marital status										
Never married	72.8	27.2	76	72.0	28.0	50	75.9	24.1	26	100
Currently married	79.8	20.2	5,305	78.9	21.1	2,950	81.1	18.9	2,355	100
Widowed	82.0	18.0	1,693	78.5	21.6	325	82.9	17.1	1,368	100
Other[1]	94.9	5.1	44	95.4	4.6	12	94.6	5.4	32	100
Residence										
Urban	76.1	23.9	1,512	75.7	24.4	679	76.6	23.4	833	100
Rural	82.0	18.0	5,606	80.0	20.0	2,658	83.9	16.1	2,948	100
Caste										
Scheduled tribe	84.4	15.7	522	87.8	12.2	237	81.6	18.4	285	100
Scheduled caste	82.8	17.2	1,168	80.0	20.0	533	85.2	14.8	635	100
Other[2]	79.6	20.4	5,428	77.9	22.1	2,567	81.2	18.8	2,861	100
Religion										
Hindu	81.0	19.1	5,966	79.4	20.6	2,784	82.4	17.6	3,182	100
Muslim	76.9	23.1	869	73.9	26.2	414	79.7	20.3	455	100
Other[3]	77.3	22.7	283	81.0	19.0	139	73.4	26.6	144	100
Education										
No formal education	82.6	17.4	3,574	81.8	18.2	1,001	82.8	17.2	2,573	100
Less than primary	82.9	17.2	942	83.4	16.6	539	82.1	17.9	403	100
Primary school	80.2	19.8	980	80.1	19.9	586	80.4	19.6	394	100
Secondary school	79.7	20.3	675	79.5	20.6	466	80.2	19.8	209	100
High school	75.8	24.2	547	73.9	26.1	436	83.0	17.1	111	100
College and above	66.7	33.4	400	68.4	31.7	309	59.7	40.3	91	100

Background characteristic	Persons			Male			Female			
	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Total
Wealth quintile										
Lowest	85.4	14.6	1,371	84.8	15.2	619	85.9	14.1	752	100
Second	86.4	13.7	1,304	85.5	14.5	605	87.2	12.8	699	100
Middle	82.0	18.0	1,318	78.5	21.5	632	85.2	14.8	686	100
Fourth	77.5	22.5	1,468	76.2	23.8	676	78.5	21.5	792	100
Highest	72.5	27.5	1,657	71.4	28.6	805	73.7	26.3	852	100
Total	**80.4**	**19.7**	**7,118**	**78.8**	**21.2**	**3,337**	**81.8**	**18.2**	**3,781**	**100**

Note: Sufficient nutrition implies five or more servings of fruit/vegetables in a typical day on average in the last seven days.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

5.3.2 Nutritional intake among younger respondents

Table 5.3.3 shows the state-level variation in the intake of fruits and vegetables among younger respondents. Most (78%) younger respondents did not eat enough fruit/vegetables; only 22% had sufficient intake. However, the proportion with sufficient intake was highest in Uttar Pradesh among younger respondents and older respondents. The lowest rate of younger adults with a sufficient intake of fruit/vegetables was in West Bengal, at just 5%.

Table 5.3.3 Percentage of respondents aged 18-49 by sufficiency of fruit/vegetable intake, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Assam	72.7	27.3	100	297
Karnataka	76.8	23.2	100	223
Maharashtra	76.7	23.3	100	344
Rajasthan	77.5	22.6	100	360
Uttar Pradesh	67.2	32.8	100	328
West Bengal	94.9	5.1	100	446
India (pooled)	**78.0**	**22.0**	**100**	**1,998**

Note: Sufficient nutrition implies five or more servings of fruit/vegetables in a typical day on average in the last seven days.

Table 5.3.4 presents data on younger respondents by selected background characteristics. The proportion of younger respondents with sufficient intake of fruit/vegetables varies by age group. With the increase in age, the proportion of respondents having sufficient intake decreased. Men had a slightly better nutritional status than women, but even among men, only one quarter had sufficient intake. Residents of urban areas (29%) ate slightly better than those in rural areas (20%). The proportion of respondents with a sufficient intake of fruit/vegetables increased with education and income.

Even so, sufficient intake was reported by only 36% of younger people with a college education, and by only one-third of those in the highest wealth quintile.

Table 5.3.4 Fruit and vegetable intake of respondents aged 18-49, by socio-demographic characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Age group				
18-29	75.1	24.9	100	542
30-39	77.9	22.1	100	602
40-49	80.1	19.9	100	854

Background characteristic	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Sex				
Male	75.4	24.6	100	833
Female	79.6	20.4	100	1165
Marital status				
Never married	73.8	26.2	100	418
Currently married	78.5	21.5	100	1480
Widowed/widower	88.0	12.0	100	91
Other[1]	100.0	0.0	100	9
Residence				
Urban	71.1	28.9	100	412
Rural	80.4	19.6	100	1586
Caste				
Scheduled tribe	75.1	24.9	100	199
Scheduled caste	80.1	19.9	100	417
Other[2]	77.8	22.2	100	1382
Religion				
Hindu	78.3	21.7	100	1667
Muslim	76.9	23.1	100	254
Other[3]	80.6	19.4	100	50
Education				
No formal education	82.9	17.1	100	583
Less than primary	80.3	19.7	100	228
Primary school	81.2	18.9	100	345
Secondary school	73.5	26.5	100	376
High school	76.4	23.6	100	314
College and above	63.7	36.3	100	152
Wealth quintile				
Lowest	78.8	21.2	100	381
Second	83.8	16.2	100	423
Middle	83.0	17.0	100	458
Fourth	75.2	24.8	100	373
Highest	67.1	32.9	100	363
Total	**78.0**	**22.0**	**100**	**1998**

Note: Sufficient nutrition implies five or more servings of fruit/vegetables in a typical day on average in the last seven days.

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

5.4 Physical activity

Physical activity refers to activity undertaken at work, around the home and garden, to get to and from places, and for recreation, fitness and sport. Regular physical activity is associated with a reduced risk of premature death from any cause and cardiovascular disease and in preventing ischemic heart diseases, ischemic stroke, type two diabetes mellitus, and breast and colon cancers. Improvements in mental health, emotional, psychological and social well-being and cognitive function are also associated with regular physical activity. It also increases insulin sensitivity, raises HDL cholesterol levels and reduces blood pressure. Besides, recreational physical activity has been shown to reduce minor anxiety, depression and weight (Salmon, 2001).

Questions in SAGE on physical activity allows for direct comparisons with the Global Physical Activity Questionnaire (GPAQ) surveys (Armstrong 2006). The physical activity questions assessed the frequency (days), intensity (low, moderate, high) and duration (minutes and/or hours) of activity over the preceding seven days.

SAGE India incorporates questions on three types of activities: 1) vigorous-intensity activity, such as lifting heavy weights, digging or chopping wood; 2) moderate-intensity activity, such as brisk walking, carrying light loads, cleaning, cooking, or washing clothes; and 3) light-intensity activity, such as walking or riding a bicycle. Respondents were asked whether they had performed such activity continuously for at least 10 minutes, the number of days they performed the activity in a typical week, and the average time spent per day for the activity.

5.4.1 Physical activity by older respondents

Table 5.4.1 presents the activity levels of older respondents, divided into four categories: 1) those who engaged in the vigorous activity; 2) those who are engaged in moderate activity; 3) those engaged in the light activity; and 4) those who aren't engaged in any kind of activity. For this study, any activity – vigorous, moderate or light – for more than 150 minutes over the seven days preceding the interview was considered sufficient. Overall, the majority of the older respondents were quite active however, a large proportion of people aged 50-plus (45%) reported physical inactive. This level was similar for men and women, though a higher proportion of older men than older women engaged in vigorous activity. Older respondents in Assam, Karnataka and Rajasthan were less likely to be adequately active than those in Maharashtra, Uttar Pradesh and West Bengal.

Trends: *The physical inactivity levels of older adults have increased from 26% to 45% in the period 2007-15 who reported not doing any kind of physical activity. Correspondingly, all kinds of physical activity except for light activity, among older and younger men and women has also seen a decline from SAGE -1.*

Table 5.4.1 Percent distribution of respondents aged 50-plus by physical activity, states and India (pooled), SAGE Wave 2, 2015

State	Persons					Male					Female					Total
	Vigorous activity	Moderate activity	Light Activity	No activity	Number	Vigorous activity	Moderate activity	Light activity	No activity	Number	Vigorous activity	Moderate activity	Light activity	No activity	Number	
Assam	16.5	11.3	8.2	64.1	719	21.3	7.7	10.9	60.1	345	12.1	14.5	5.7	67.7	374	100
Karnataka	10.1	17.5	14.9	57.5	859	14.1	12.4	20.0	53.4	370	7.0	21.3	10.9	60.7	489	100
Maharashtra	14.1	27.2	16.3	42.4	1166	21.5	16.6	21.2	40.7	554	6.9	37.4	11.6	44.1	612	100
Rajasthan	17.3	23.4	8.9	50.4	1446	19.9	17.1	12.4	50.6	666	15.1	28.9	5.9	50.2	780	100
Uttar Pradesh	15.0	18.3	24.0	42.8	1516	19.6	14.9	29.3	36.2	767	10.4	21.6	18.7	49.3	749	100
West Bengal	17.1	41.0	8.3	33.6	1352	24.3	29.6	12.2	33.9	612	11.0	50.5	5.1	33.3	740	100
India (pooled)	**15.0**	**24.5**	**15.9**	**44.7**	**7,058**	**20.4**	**17.5**	**20.6**	**41.5**	**3,314**	**10.1**	**30.8**	**11.5**	**47.6**	**3,744**	**100**

Note: Sufficient physical activity was defined as spending more than 150 minutes per week (in the last seven days) on light, moderate or vigorous activity.

The activity levels of older respondents according to background characteristics are presented in Table 5.4.2. Among both sexes, the proportion of persons with insufficient activity increased with age: among the oldest age group (80-plus), 66% of men and 83% of women were insufficiently active. However, only one-tenth of the oldest men and women engaged in vigorous or moderate physical activity. A higher proportion of both men and women from rural areas undertook sufficient physical activity, and also vigorous activity than their urban counterparts. The proportion of men and women who were insufficiently active bore little relationship with either educational attainment or income.

Table 5.4.2 Physical activity level among respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015

Characteristic	Persons					Male					Female					Total
	Vigorous activity	Moderate activity	Light activity	No activity	Number	Vigorous activity	Moderate activity	Light activity	No activity	Number	Vigorous activity	Moderate activity	Light activity	No activity	Number	
Age group																
50-59	20.2	26.5	14.0	39.3	2890	29.5	15.2	19.8	35.5	1166	13.6	34.6	9.9	42.0	1724	100
60-69	14.8	25.3	16.4	43.5	2562	20.4	20.1	19.5	40.1	1280	9.2	30.6	13.2	47.1	1282	100
70-79	7.1	21.9	19.8	51.2	1273	9.6	18.2	24.8	47.4	671	4.2	26.3	13.9	55.6	602	100
80+	2.0	11.2	13.2	73.6	333	2.7	12.0	19.0	66.3	197	1.1	10.2	6.0	82.7	136	100
Marital status																
Never married	19.7	29.0	11.4	39.9	75	23.1	26.6	14.5	35.8	49	7.7	37.8	0.0	54.5	26	100
Currently married	16.8	24.5	16.7	42.0	5272	21.5	17.5	20.4	40.6	2,931	10.9	33.4	12.0	43.8	2,341	100
Widowed	8.7	24.2	13.3	53.8	1668	10.0	15.2	23.9	50.9	323	8.3	26.5	10.7	54.5	1,345	100
Other[1]	24.3	27.0	13.9	34.8	43	14.7	42.9	21.0	21.4	11	27.7	21.3	11.4	39.6	32	100
Residence																
Urban	9.2	26.1	16.5	48.1	1504	12.4	19.6	22.9	45.0	675	6.4	31.9	10.9	50.9	829	100
Rural	17.3	23.8	15.6	43.3	5554	23.5	16.7	19.8	40.1	2639	11.6	30.4	11.7	46.3	2915	100
Caste																
Scheduled tribe	21.4	24.4	9.0	45.2	518	27.3	18.5	13.0	41.2	236	16.7	29.2	5.7	48.4	282	100
Scheduled caste	16.9	23.4	17.4	42.3	1155	22.0	18.0	22.6	37.4	525	12.4	28.1	12.9	46.6	630	100
Other[2]	14.1	24.7	16.1	45.1	5382	19.6	17.3	20.9	42.2	2553	9.1	31.5	11.7	47.7	2832	100
Religion																
Hindu	15.0	24.9	16.0	44.1	5919	20.1	18.1	21.0	40.8	2768	10.3	31.1	11.5	47.1	3151	100
Muslim	14.1	21.1	15.8	49.0	859	20.4	14.0	19.2	46.4	409	8.2	27.6	12.7	51.5	450	100
Other[3]	16.1	25.2	6.6	52.2	185	27.2	13.4	18.0	41.4	137	10.1	37.1	4.9	47.9	143	100
Education																
No formal education	14.1	24.4	13.7	47.9	3530	22.6	15.5	18.6	43.3	991	11.1	27.6	11.9	49.5	2,542	100
Less than primary	16.0	25.5	14.8	43.7	935	23.5	17.6	17.3	41.7	535	6.1	36.0	11.5	46.4	400	100
Primary school	19.1	22.8	15.5	42.6	974	24.3	17.0	19.6	39.1	582	11.1	31.6	9.3	48.0	392	100
Secondary school	14.7	25.1	19.9	40.3	673	17.8	17.9	22.6	41.7	465	6.5	44.2	12.8	36.5	208	100
High school	15.3	26.8	20.1	38.0	544	17.0	20.3	23.0	39.7	433	9.0	50.6	9.1	31.4	111	100
College and above	11.4	22.9	23.0	42.8	399	12.8	18.8	26.1	42.3	308	5.5	39.5	10.4	44.7	91	100
Wealth quintile																
Lowest	19.4	23.8	16.4	40.4	1354	26.9	16.2	21.3	35.7	613	13.5	29.9	12.5	44.2	741	100
Second	20.8	22.3	13.4	43.5	1290	30.0	14.2	15.4	40.4	599	12.2	29.8	11.6	46.4	691	100
Middle	15.0	25.2	15.9	43.9	1311	21.6	19.3	20.3	38.9	631	8.9	30.8	11.7	48.6	680	100
Fourth	11.8	26.7	16.1	45.4	1458	15.5	20.2	21.6	42.6	669	8.6	32.2	11.4	47.8	789	100
Highest	9.5	24.2	17.0	49.3	1645	11.5	17.3	23.5	47.7	802	7.4	31.4	10.3	50.9	843	100
Total	**15.0**	**24.5**	**15.9**	**44.7**	**7058**	**20.4**	**17.5**	**20.6**	**41.5**	**3314**	**10.1**	**30.8**	**11.5**	**47.6**	**3744**	**100**

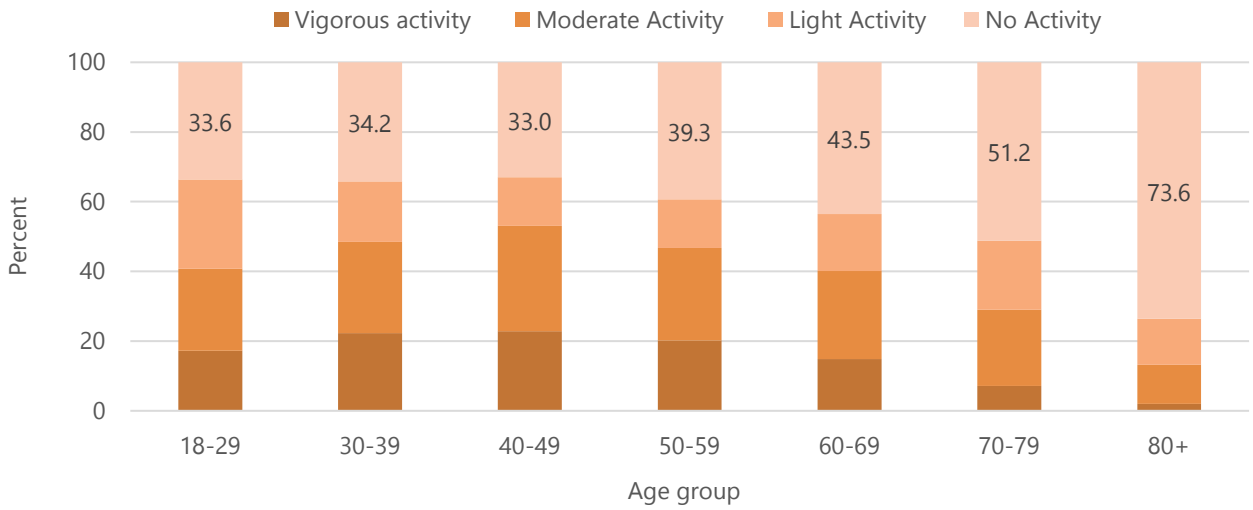
Note: Sufficient physical activity was defined as spending more than 150 minutes per week (in the last seven days) on light, moderate or vigorous activity.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 5.3 Physical activity levels by age, India (pooled), SAGE Wave 2, 2015



5.4.2 Physical activity by younger respondents

Table 5.4.3 gives state-level data on younger respondents. This group was also quite active: only 34% did not engage in physical activity, while 27% were moderately active and 21% engaged in vigorous activity. The most active younger respondents were in West Bengal, where 80% engaged in vigorous or moderate activity and only 7% did not engage in physical activity. The least active younger respondents were in Assam and Karnataka.

Table 5.4.3 Physical activity of respondents aged 18-49, states and India (pooled), SAGE Wave 2, 2015

State	Age 18-49					
	Vigorous activity	Moderate activity	Light activity	No activity	Total	Number
Assam	16.6	12.1	14.0	57.4	100	291
Karnataka	16.0	27.5	12.9	43.6	100	221
Maharashtra	17.3	31.0	16.3	35.5	100	342
Rajasthan	24.6	23.8	10.3	41.3	100	359
Uttar Pradesh	21.8	14.8	34.8	28.5	100	327
West Bengal	25.8	44.6	10.1	19.5	100	445
India (pooled)	**21.1**	**27.0**	**18.4**	**33.5**	**100**	**1,985**

Note: Sufficient physical activity was defined as spending more than 150 minutes per week (in the last seven days) on light, moderate or vigorous activity.

The activity levels of younger adults according to background characteristics are presented in Table 5.4.4. Younger men were more likely than younger women to be active, as were respondents from rural areas compared with their urban counterparts. The proportion of younger respondents who engaged in sufficient physical activity bore an inverse relationship with educational attainment. Wealthier people were more likely to be insufficiently active among the younger respondents. There was little variation by age groups. The vigorous activity declined with age, whereas no activity has increased with age and was highest in the 80+ age group (figure 5.3)

Table 5.4.4 Physical activity of respondents aged 18-49, by socio-demographic characteristics, India (pooled), SAGE Wave 2, 2015

Characteristic	Age 18-49					
	Vigorous activity	Moderate activity	Light activity	No activity	Total	Number
Age group						
18-29	17.2	23.5	25.7	33.6	100	538
30-39	22.3	26.1	17.4	34.2	100	596
40-49	22.9	30.2	14.0	33.0	100	851
Sex						
Male	30.0	15.2	27.7	27.2	100	826
Female	15.7	34.2	12.8	37.3	100	1159
Marital status						
Never married	14.5	22.9	28.5	34.1	100	413
Currently married	23.4	27.8	15.7	33.1	100	1,473
Widowed	14.5	32.7	13.9	39.0	100	90
Other[1]	18.9	47.8	26.7	6.6	100	9
Residence						
Urban	15.6	30.0	14.5	39.9	100	407
Rural	22.9	26.1	19.7	31.4	100	1578
Caste						
Scheduled tribe	34.0	22.4	11.3	32.4	100	197
Scheduled caste	20.5	29.1	17.1	33.3	100	416
Other[2]	19.5	27.1	19.7	33.7	100	1,372
Religion						
Hindu	20.8	26.9	19.0	33.4	100	1,657
Muslim	24.2	27.4	16.5	31.9	100	251
Other[3]	16.2	30.6	11.3	41.8	100	77
Education						
No formal education	22.2	28.9	14.2	34.7	100	581
Less than primary	28.7	22.3	14.4	34.6	100	226
Primary school	19.5	25.7	14.4	40.4	100	342
Secondary school	23.8	29.5	17.8	29.0	100	372
High school	18.2	24.5	26.4	30.9	100	313
College and above	7.4	28.5	35.4	28.8	100	151
Wealth quintile						
Lowest	26.9	17.9	27.2	28.0	100	379
Second	26.6	24.9	17.8	30.8	100	423
Middle	18.8	31.9	12.6	36.7	100	453
Fourth	15.4	34.4	17.6	32.7	100	370
Highest	17.4	25.3	17.7	39.7	100	360
Total	**21.1**	**27.0**	**18.4**	**33.5**	**100**	**1985**

Note: Sufficient physical activity was defined as spending more than 150 minutes per week (in the last seven days) on light, moderate or vigorous activity.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

5.5 Environmental risk factors

Access to safe drinking water and adequate sanitation is important for public health and can contribute greatly to poverty reduction. In 2010, the UN general assembly explicitly recognized the human right to water and sanitation. Sustainable development goal target 6.1 calls for universal and equitable access to safe and affordable drinking water. Contaminated water and poor sanitation are linked to the transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio. Absent, inadequate or unimproved water sources and sanitation exposes individual to preventable health risks.

Adverse health outcomes are associated with unsafe water, lack of access to water for hygiene purposes, poor sanitation, and inadequate management of water resources and systems, especially in agriculture. Questions in this section are based on the WHO/UNICEF Joint Monitoring Programme core questions (WHO/UNICEF 2006).

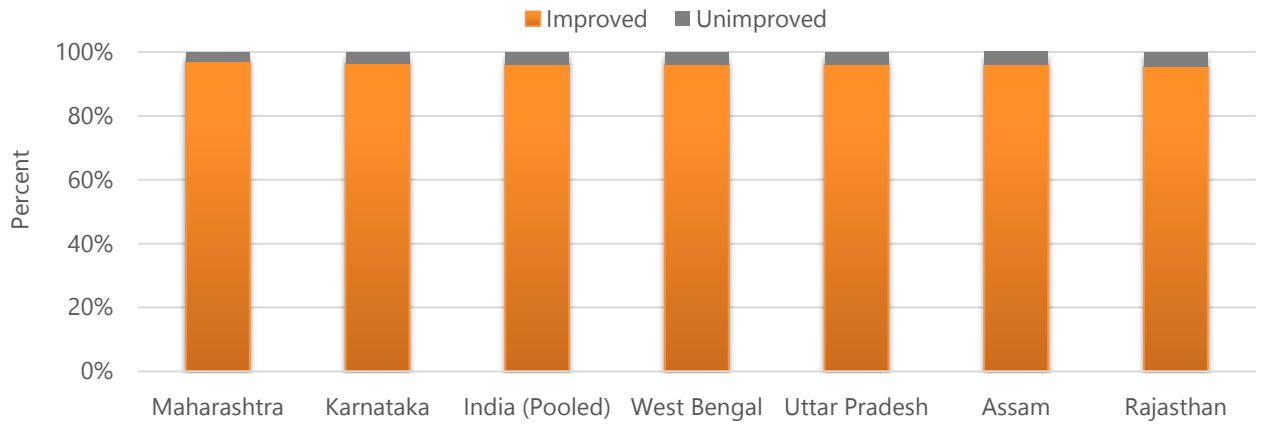
5.5.1. Access to improved water sources

SAGE India collected data on the main source of drinking water in dwellings. From households that used bottled water for drinking, information was also collected on the main source of water used for other purposes, such as hand washing. For all households that did not have a water source within the household, information on the time required for one round trip to fetch water and the person who usually fetches water was also collected.

Figure 5.4 presents state-level variations in access to improved sources of drinking water. An improved source of drinking water was defined as: 1) water piped into the dwelling, yard or plot; 2) water available from a public tap or standpipe; 3) a tube well or borehole; 4) a protected dug well or a protected spring; or 5) rainwater. Households that drank bottled water were included in this category only if the water used for cooking and/or hand-washing was from an improved source. In total, 96% of households used improved sources for drinking water. The lowest rate was 95% in Rajasthan; the highest rate was 97% in Maharashtra.

Trends: *The availability of improved sources of drinking water has increased by ten percent points. Around 96% of the household had access to an improved drinking water source as compared to 86% in SAGE-1. However, only 3 percent of households reported having water on premise as compared to 34% in ASGE-1. Around 82% of households reported spending less than 30 minutes in collecting water which was 53% in SAGE-1. A higher proportion of male child (under 15) share the responsibility of fetching water than Female child (under 15) (4.8% vs. 2.8% in 2015 and 1.6% vs. 3.4% in 2007)*

Figure 5.4 Household access to improved drinking water, states and India (pooled), SAGE Wave 2, 2015



The availability of improved sources of drinking water increased with income: 99% of households in the highest wealth quintile had access to improved sources of drinking water, as compared to 95% in the lowest quintile (Table 5.5.1). Almost all households in urban areas (99%) had access to improved drinking water. Access did not vary substantially by age or sex of household head.

Table 5.5.1 Percent distribution of households by source of drinking water, India (pooled), SAGE Wave 2, 2015

Background characteristic	Improved	Unimproved	Total	Number of households
Wealth quintile				
Lowest	95.0	5.0	100	1,628
Second	94.6	5.4	100	1,585
Middle	95.8	4.2	100	1,569
Fourth	96.3	3.7	100	1,575
Highest	98.9	1.1	100	1,578
Residence				
Urban	99.1	0.9	100	1,703
Rural	95.0	5.1	100	6,232
Household head				
Female 18-49	97.2	2.8	100	168
Female 50+	96.3	3.8	100	637
Male 18-49	95.2	4.8	100	1,995
Male 50+	96.4	3.6	100	5,104
Other person	100.0	0.0	100	31
Total	**96.1**	**3.9**	**100**	**7935**

Note: Improved water means water piped into the household or from a protected source.

5.5.1.1 Time spent to collect drinking water

Only 3% of the households surveyed had drinking water sources on the premises (Table 5.5.2). Meanwhile, 82% of households did not have drinking water sources on the premises, but had to spend less than 30 minutes making one trip to collect water; the remaining 15% of households had to spend 30 minutes or longer obtaining drinking water. The proportion of households with drinking water on the premises increased substantially with increased income. In the lowest wealth quintile, only 3% of households had sources of drinking water on the premises and 12% had to spend more than 30 minutes for one round trip to water sources. By contrast, in the wealthiest households, 5% of households had water sources on the premises and only 15% had to spend more than 30 minutes for one round trip to water sources. A higher proportion of rural (17%) than urban households (8%) had to travel more than 30 minutes to collect water.

Table 5.5.2 Time to collect drinking water (round trip), India (pooled), SAGE Wave 2, 2015

Background characteristic	Time to collect drinking water (round trip)				
	Water on premises	Less than 30 minutes	More than 30 minutes	Total	Number of households
Wealth quintile					
Lowest	2.7	85.0	12.3	100	817
Second	2.2	80.2	17.7	100	599
Middle	0.6	83.7	15.7	100	500
Fourth	4.0	76.3	19.7	100	355
Highest	5.4	79.8	14.8	100	137
Residence					
Urban	0.8	91.0	8.2	100	207
Rural	2.8	80.6	16.6	100	2,201
Household head					
Female 18-49	0.0	80.8	19.2	100	57
Female 50+	1.5	85.6	12.9	100	157
Male 18-49	3.1	79.8	17.0	100	659
Male 50+	2.4	82.7	14.9	100	1,532
Other person	0.0	100.0	0.0	100	3
Total	**2.5**	**82.1**	**15.4**	**100**	**2,408**

5.5.1.2 Person who usually collects drinking water

For households that did not have water sources within the household premises, information was collected on the person who usually collected water. Table 5.5.3 shows that in most households, females (77% adults) did the work of collecting water; in about 13% of households, adult men collected the water. This pattern prevailed in households from all wealth quintiles, in urban and rural areas, and also prevailed in the households having different types of the household head. Only in households from the highest wealth quintile did a higher proportion of adult men (20%) share the responsibility of fetching water.

Table 5.5.3 Person who usually collects drinking water, India (pooled), SAGE Wave 2, 2015

Characteristic	Male	Female	Male child (under 15)	Female child (under 15)	Other	Total	Number of households
Wealth quintile							
Lowest	15.1	74.5	4.6	3.4	2.4	100	797
Second	11.1	79.8	3.8	3.1	2.2	100	583
Middle	8.8	83.6	4.9	1.9	0.9	100	495
Fourth	14.4	74.4	6.9	2.7	1.6	100	342
Highest	19.8	71.6	5.1	1.1	2.4	100	130
Residence							
Urban	16.7	75.2	5.8	2.3	0.0	100	206
Rural	12.5	77.7	4.6	2.9	2.3	100	2,141
Household head							
Female 18-49	9.5	82.6	6.4	1.6	0.0	100	57
Female 50+	4.8	82.4	4.1	2.8	5.9	100	155
Male 18-49	10.5	77.8	7.3	3.1	1.3	100	639
Male 50+	15.1	76.5	3.8	2.8	1.9	100	1,493
Other person	0.0	100.0	0.0	0.0	0.0	100	3
Total	**13.1**	**77.4**	**4.8**	**2.8**	**1.9**	**100**	**2,347**

5.5.2 Access to improved sanitation

Table 5.5.4 shows the state-level variation in the type of sanitation facility usually used by households. Around one-third of the households (37%) did not have any sanitation facility; 51% had an improved facility, and the remaining 13% used an unimproved facility. Improved sanitation facilities include toilet facilities with a flush or a pour-flush that was connected to a sewer system, septic tank or pit latrine; a ventilated improved pit (VIP) latrine, biogas latrine or pit latrine with slab; or a twin pit composting toilet. If a household had any of these types of toilet facilities but shared them with other households, the household was not considered to have an improved sanitation facility.

Trends: *Access to improved sanitation facility has increased in the period 2007-15. There has been a 20%-point increase in households having access to improved sanitation facilities from SAGE-1. Only 35% of households do not have toilet facilities in comparison to 59 percent in 2007.*

Among the six surveyed states, only in Assam did the majority (97%) of households have any sanitation facilities, compared with two-thirds of the households in the remaining states. In Assam, slightly higher than half of the households had improved toilet facilities, whereas in the remaining states the proportion of households with improved facilities ranged from 40-60%. Around 3% of the households in Assam did not have any toilet facility, compared with one-half in Uttar Pradesh (Figure 5.5).

Table 5.5.4 Access to improved sanitation facility, states and India (pooled), SAGE Wave 2, 2015

State	Improved	Unimproved	No toilet	Total	Number of households
Assam	56.6	40.0	3.4	100	980
Karnataka	55.3	14.0	30.8	100	1,005
Maharashtra	60.9	8.3	30.8	100	1,344
Rajasthan	46.2	10.1	43.7	100	1,479
Uttar Pradesh	40.2	8.3	51.5	100	1,622
West Bengal	54.4	16.3	29.3	100	1,502
India (pooled)	**50.8**	**12.6**	**36.6**	**100**	**7,932**

Figure 5.5 Percentage of households without any toilet facility, states and India (pooled), SAGE Wave 2, 2015

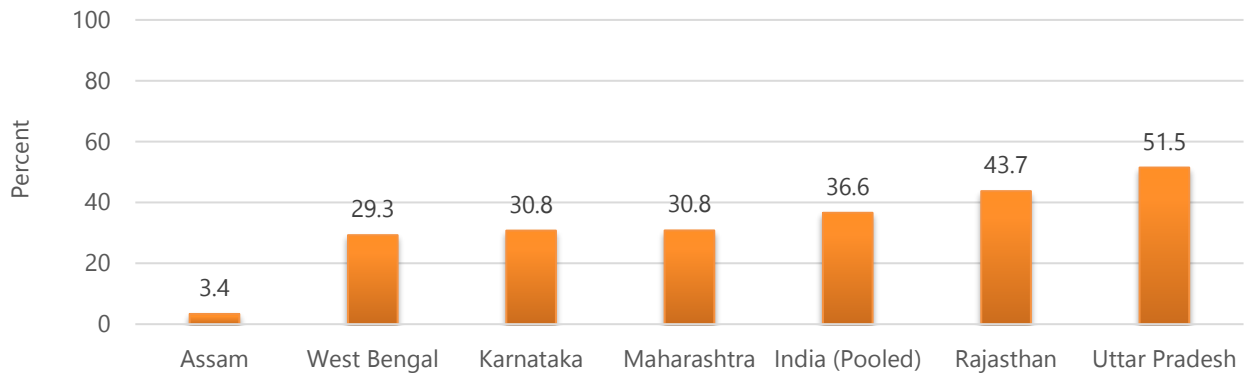


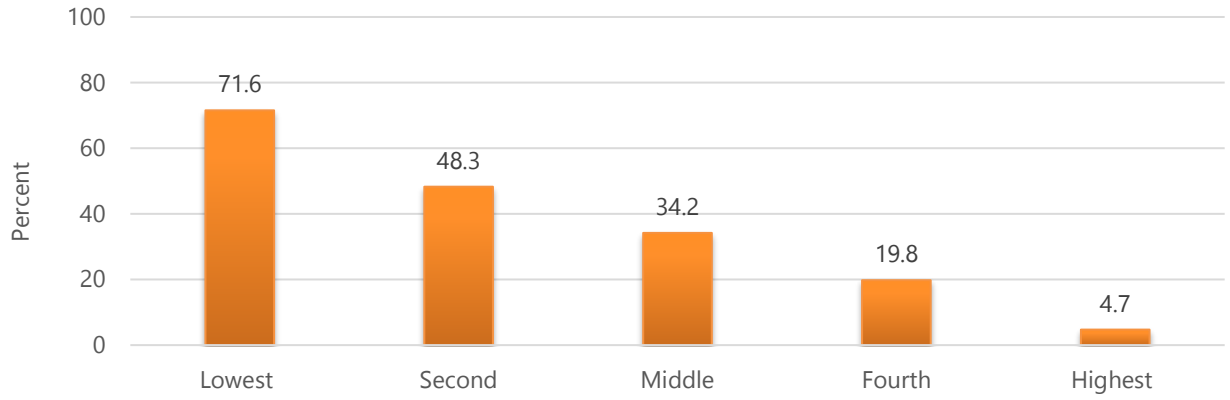
Table 5.5.5 shows the availability of sanitation facilities generally, and improved facilities specifically, concerning selected characteristics. Only 28% of the poorest households had sanitation facilities, compared to 95% of households from the highest wealth quintile (see also Figure 5.6).

Eighty-three percent of urban households had sanitation facilities, including 69% with improved facilities, compared to only 56% and 44% respectively in rural areas.

Table 5.5.5 Access to improved sanitation facility, India (pooled), SAGE Wave 2, 2015

Characteristic	Improved	Unimproved	No toilet	Total	Number of Household
Wealth quintile					
Lowest	16.9	11.5	71.6	100	1,625
Second	35.7	16.0	48.3	100	1,585
Middle	53.6	12.2	34.2	100	1,568
Fourth	69.2	11.0	19.8	100	1,576
Highest	82.8	12.5	4.7	100	1,578
Residence					
Urban	68.8	14.2	17.0	100	1,703
Rural	43.7	12.0	44.3	100	6,229
Household head					
Female 18-49	48.2	12.9	38.9	100	169
Female 50+	50.4	12.9	36.7	100	636
Male 18-49	43.2	13.1	43.7	100	1,996
Male 50+	53.6	12.3	34.1	100	5,100
Other person	57.6	39.1	3.3	100	31
Total	**50.8**	**12.6**	**36.6**	**100**	**7932**

Figure 5.6 Percentage of households without any toilet facility by wealth quintile, India (pooled), SAGE Wave 2, 2015



5.5.3 Solid fuel use

Solid fuel use is defined as the household combustion of coal or biomass such as dung, charcoal, wood, or crops or other agriculture waste, shrubs and straw. Worldwide, some 410% of all households rely on solid fuels for cooking however, in Asia more than 60% of households cook with solid fuels. (Bonjour et al., 2013). Solid fuels are commonly burned in inefficient simple stoves and poorly ventilated conditions. In such situations, burning solid fuel generates substantial emissions of many health-damaging pollutants, including respirable particulates and carbon monoxide, and results in exposure to indoor air pollution often far exceeding national standards and international guidelines (Desai et al., 2004). The disease burden from solid fuel use is most significant in developing countries, particularly in poor households in rural areas. The use of solid fuels in households is associate with increased mortality from pneumonia and other acute lower respiratory disease among children as well as increased mortality from chronic obstructive disease and lung cancer among adults.

SAGE India collected data on the main type of fuel used by households for cooking, based on a harmonized WHO/UN approach to environmental risks. All households that used solid fuel were asked whether the food was cooked on an open fire, or an open or closed stove; whether the fire/stove had a chimney or hood; and whether the cooking was done in a separate building, a dedicated kitchen, or a room also used for living or sleeping.

Table 5.5.6 shows the distribution of households by type of cooking fuel used. Nearly 61% of households used solid fuel; 39% used clean fuel (LPG, electricity) and 1% used kerosene. Except Maharashtra, where only 38% of households used solid fuel, all remaining states the proportion of households using solid fuel was in the range of 44-73%.

Trends: *The use of clean cooking fuel has increased from 20% in the year 2007 to 39% in 2015. There has been a substantial decrease in the percent of households using kerosene/paraffin and solid fuel as cooking fuel types in the last decade. However, households using chimney or hood in the place of cooking has not changed a lot.*

Table 5.5.6 Percent distribution of households by type of cooking fuel used, states and India (pooled), SAGE Wave 2, 2015

State	Cooking fuel used				
	Clean fuel	Kerosene/paraffin	Solid fuel	Total	Number of households
Assam	30.6	0.3	69.1	100	972
Karnataka	55.4	1.2	43.5	100	1,001
Maharashtra	62.2	0.2	37.6	100	1,342
Rajasthan	28.1	0.1	71.8	100	1,476
Uttar Pradesh	27.0	0.1	72.9	100	1,620
West Bengal	30.8	1.3	67.9	100	1,504
India (pooled)	**38.9**	**0.5**	**60.6**	**100**	**7,915**

The majority of the households (93%) of the households in the lowest wealth quintile used solid fuel, whereas in the highest quintile the majority (81%) used clean fuel (Table 5.5.7). Solid fuel use was a little less than thrice as common in rural (74%) as in urban areas (27%).

Table 5.5.7 Percent distribution of households by type of cooking fuel used according to household type and wealth quintile, India (pooled), SAGE Wave 2, 2015

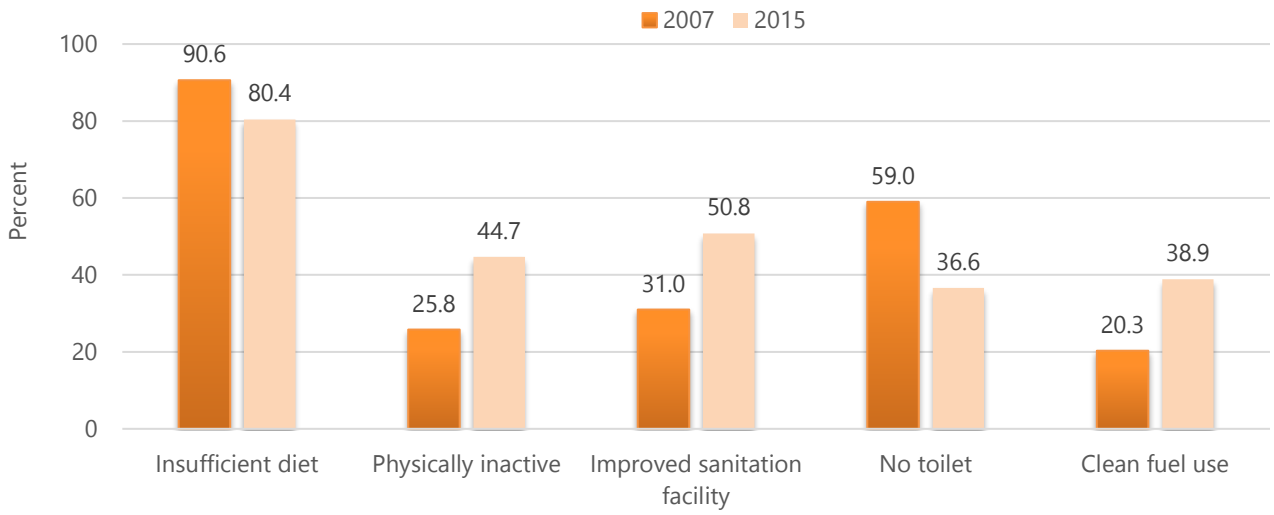
Characteristic	Cooking fuel used				
	Clean fuel	Kerosene/paraffin	Solid fuel	Total	Number of households
Wealth quintile					
Lowest	6.9	0.2	92.9	100	1,626
Second	18.1	0.7	81.3	100	1,583
Middle	37.1	1.2	61.8	100	1,563
Fourth	56.5	0.3	43.2	100	1,574
Highest	80.5	0.1	19.3	100	1,569
Residence					
Urban	72.3	0.8	26.9	100	1,698
Rural	26.0	0.4	73.7	100	6,217
Total	**38.9**	**0.5**	**60.6**	**100**	**7,915**

Among the households that used solid fuel, 14% had a chimney or hood (Table 5.5.8). Among the households that used solid fuel, and cooked in a room used for living or sleeping, 18% had a chimney or a hood, 18% of household cooked in a separate room that used as a kitchen had a chimney/hood. About 5% of the households cooked outside the house and one-tenth of the household cooked in a separate building used as the kitchen had a chimney/hood.

Table 5.5.8 Percent distribution of households using chimney or hood by place of cooking in the household, India (pooled), SAGE Wave 2, 2015

Where cooking usually done	Fire/stove covered or not			
	Chimney/hood	Neither	Total	Number of households
In room used for living or sleeping	17.6	82.4	100	816
In separate room used as kitchen	17.2	82.8	100	2,646
In separate building used as kitchen	10.0	90.0	100	569
Outdoor	4.7	95.3	100	824
Other place	0.0	100.0	100	41
Total	**14.1**	**85.9**	**100**	**4,896**

Figure 5.7 Health behaviours and risk factors: A comparison of SAGE, Wave 1 and 2



6. Health state

Ageing is attributed to wide variety of degenerative changes that take place over time. But these changes are neither linear nor consistent. This leads to the gradual decline in both, physical and mental state of health and increases susceptibility to disease conditions.

Older age is also characterized by the emergence of several complex health states that tend to occur only later in life. Furthermore, as people age, they are more likely to experience several conditions at the same time. Although some of the variations in older people's health are genetic, much is due to people's physical and social environments – including their homes, neighbourhoods, and communities, as well as their characteristics – such as their sex, ethnicity, or socioeconomic status.

The WHO definition of health diversified and health moved beyond the boundaries of biology and encompass the social, psychological, spiritual and environmental factors. There is no uniform scale to measure health, and it often differs according to sex, occupation, families, communities, and socioeconomic groups. Nevertheless, to standardize approaches to the measurement of health, WHO's health survey team has proposed several operational indicators (WHO, 2003). The main objective of WHO SAGE is to obtain reliable, valid and comparable data on levels of health in a range of key domains for adult populations aged 50-plus.

Individual health status is assessed in SAGE through a single overall general self-reported health questions as well as through self-evaluation of eight health domains: mobility, self-care, pain and discomfort, cognition, interpersonal activity, sleep and energy, affect, and vision. A major advantage of SAGE, compared to other health surveys, is the multi-domain approach to measuring health combined with the anchoring vignette methods to improve our understanding of the ways different people and populations respond to the same health questions. Using multiple domains allows one to generate a single composite score, or alternately to examine the various components that determine the whole. The vignette methodology establishes a latent scale used by populations, and when applied to the health score, can be used to improve the comparability of health levels across different populations.

The survey also includes assessments of functioning using 12 questions from the WHO Disability Assessment Schedule-II (WHODAS-2) (Ustun et al., 2010). WHODAS-2 focuses on six areas of activity and produces an overall disability score that can be used to identify health needs, determine needed interventions, identify changes in physical function over time, and evaluate the clinical effects of treatment. A fuller set of activities of daily living and instrumental activities of daily life are also included because they are widely used in surveys and studies of older populations (see Section 6.2).

This chapter discusses respondents' self-reported health and functioning and presents some more objective health measures, specifically on cognition.

6.1 Self-reported overall general health and activity

6.1.1. Self-reported overall general health

Self-Reported General Health (SRGH) is the most widely used measure of health in both population and clinical health surveys and the most frequent tool for heath comparisons. SAGE India included a single overall general health question, "In general, how would you rate your health today?" Respondents could choose from five options: very good, good, moderate, bad and very bad. The five possible responses categories were collapsed into three groups for presentation of results: good (including respondent choices 'very good' and 'good'), moderate, and bad (including 'very bad' and 'bad').

Among the older respondents (aged 50-plus), more than a third (35%) reported their health status as good, although nearly half (47%) considered their health to be moderate (Figure 6.1). A higher percentage in Maharashtra (49%) and Karnataka (48%) reported good health than those in the other states, while Karnataka also has the lowest percentage of those reporting bad health (9%). Older respondents in West Bengal and Assam reported the lowest level of good health (25%), as well as lower levels of bad health (27% and 15% respectively).

As expected, the younger respondents (aged 18-49) rate their health better than older respondents with only 7% considering their health to be bad (Fig. 6.2) and the majority (60%) reporting good health. Among the six states, more younger respondents rated their health status as good in Karnataka, (71%) and only 1% reported it as bad. On the contrary younger respondents in Assam and West Bengal are more likely to report to their health status as bad. For instance, only 44% reported their health status as good and 11% reported it as bad. Similarly, in West Bengal 51% rated their health status as good while 9% rated as bad.

Trends: *Proportion of respondents aged 18-49 and 50-plus (who reported their health as good has increased from 58% and 31% resp. to 60% and 35% resp. Consequently, there has been a decline in the percentage of people reporting their health status as moderate or bad. Although, self-reported health has improved in the period, mean health score has decreased from 68 percent to 60 and WHODAS has improved from 12% to 14% among respondents aged 18-49. Similarly mean health score has decreased from 54% to 37% and WHODAS has remained same among respondents aged 50-plus.*

Figure 6.1 Self-reported health status of respondents aged 50-plus, states and India (pooled), SAGE Wave 2, 2015

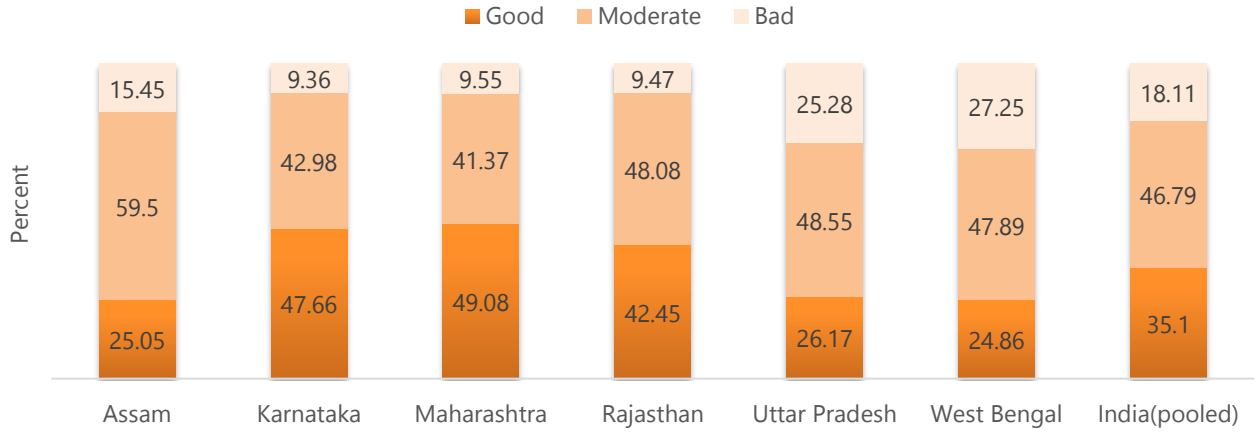
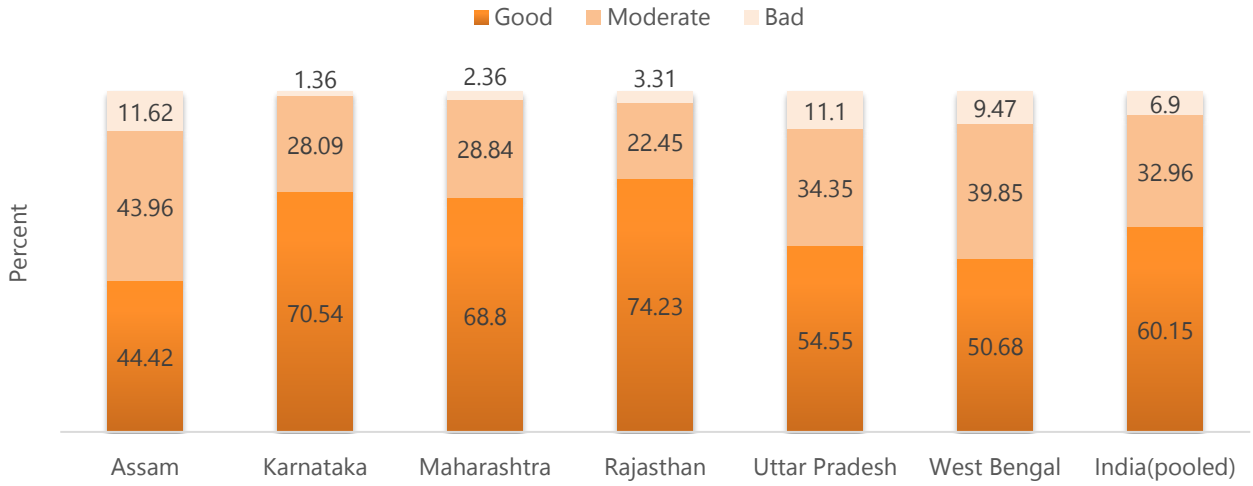


Figure 6.2 Self-reported health status of respondents aged 18-49, states and India (pooled), SAGE Wave 2, 2015



The self-reported health status among women is lower than that of men across the two age groups, although more noticeably in the older cohort. A little over two-thirds (68%) of older women reported their current health status as moderate or bad, compared to 62% of older men. Meanwhile, 36% of younger women reported their health as moderate and 8% as bad, compared to 28% and 6% of younger men respectively (Table 6.1.1).

Comparison between the results of the composite health and disability variables (mean health and WHODAS mean scores) with the single health question demonstrate the face validity; with higher health scores for good health and lower for bad health, and worse health scores for those reporting bad health – and differences between the broad age groups.

Table 6.1.1 Self-reported health, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49					Aged 50-plus					
	Good	Moderate	Bad	Total	Number		Good	Moderate	Bad	Total	Number
Age group											
18-29	76.4	20.7	2.8	100	540	50-59	42.8	45.2	11.9	100	2,901
30-39	64.7	30.1	5.3	100	599	60-69	32.9	48.8	18.3	100	2,581
40-49	45.4	43.7	10.9	100	853	70-79	26.8	48.3	25.0	100	1,282
						80+	18.3	39.7	42.0	100	344
Sex											
Male	66.3	28.0	5.7	100	831		38.0	45.8	16.2	100	3,333
Female	56.5	35.9	7.6	100	1,161		32.4	47.7	19.9	100	3,775
Marital status											
Never married	73.4	22.6	4.0	100	416		45.9	32.3	21.9	100	76
Currently married	57.8	34.8	7.4	100	1,477		38.2	46.3	15.5	100	5,298
Widowed	34.7	52.9	12.4	100	90		25.0	48.7	26.3	100	1,690
Other[1]	61.8	21.6	16.6	100	9		24.5	62.3	13.2	100	44
Residence											
Urban	67.3	28.1	4.6	100	411		40.1	45.1	14.9	100	1,510
Rural	57.7	34.6	7.7	100	1,581		33.1	47.5	19.4	100	5,598
Caste											
Scheduled tribe	58.9	33.0	8.1	100	198		28.0	57.7	14.3	100	520
Scheduled caste	54.1	37.5	8.5	100	415		30.2	50.3	19.5	100	1,167
Other[2]	62.1	31.7	6.3	100	1,379		36.6	45.3	18.2	100	5,421
Religion											
Hindu	61.8	32.0	6.2	100	1,662		36.7	46.1	17.2	100	5,959
Muslim	52.5	35.9	11.6	100	253		23.1	51.0	25.9	100	869

Background characteristic	Aged 18-49					Aged 50-plus				
	Good	Moderate	Bad	Total	Number	Good	Moderate	Bad	Total	Number
Other[3]	48.7	44.7	6.6	100	77	37.8	48.6	13.6	100	280
Education										
No formal education	49.6	41.8	8.7	100	581	28.8	50.3	20.9	100	3,568
Less than primary	52.4	38.7	8.9	100	228	37.5	43.3	19.2	100	940
Primary school	56.4	36.4	7.3	100	344	36.2	47.1	16.7	100	980
Secondary school	64.7	28.3	6.9	100	374	38.5	46.4	15.1	100	675
High school	76.0	20.2	3.8	100	314	48.6	38.2	13.3	100	545
College and above	77.0	20.7	2.3	100	151	51.2	39.1	9.7	100	400
Wealth quintile										
Lowest	50.7	36.7	12.6	100	380	23.2	50.8	25.9	100	1,370
Second	53.1	40.0	6.9	100	422	29.8	50.9	19.3	100	1,302
Middle	61.4	32.3	6.3	100	456	33.8	47.4	18.8	100	1,316
Fourth	68.0	26.7	5.3	100	373	39.9	46.0	14.1	100	1,467
Highest	68.3	28.8	2.9	100	361	46.4	40.3	13.4	100	1,653
Total	**60.2**	**33.0**	**6.9**	**100**	**1,992**	**35.1**	**46.8**	**18.1**	**100**	**7,108**
Mean health score	**68.7**	**48.8**	**30.7**	**59.5**		**49.5**	**34.5**	**17.0**	**36.6**	
WHODAS mean score	**9.6**	**19.1**	**30.1**	**14.2**		**19.4**	**29.2**	**45.9**	**28.8**	

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

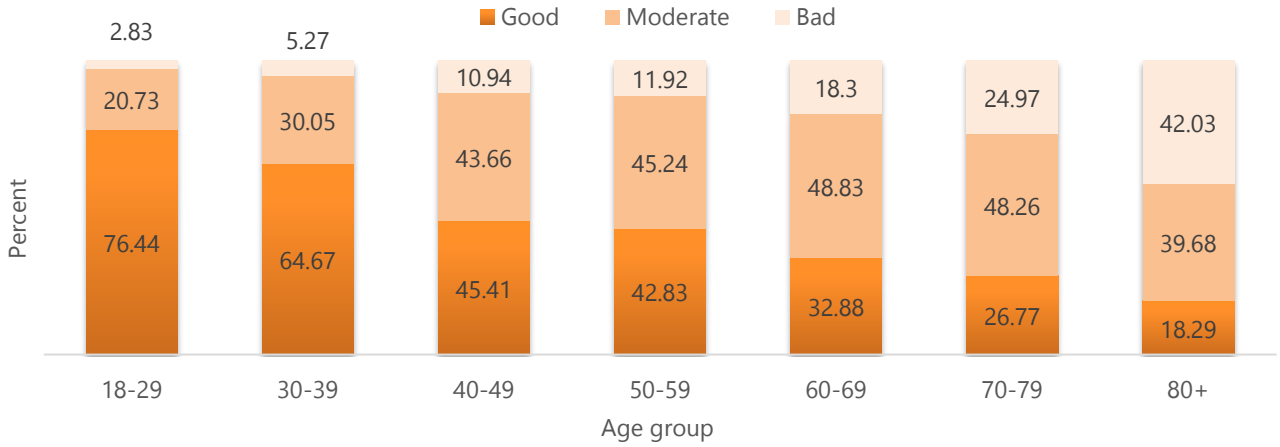
Urban residents are more likely to associate themselves with better health status as reported by both older and younger respondents. For instance, in the older age group, 40% of respondents in urban areas said their health is good, compared with 33% among their rural counterparts. Similarly, a higher proportion of rural respondents consider their health as bad (8% among younger groups and 19% among older age groups).

The reporting of health status is also observed to differ by marital status. For instance, among the younger cohort, health status is rated as good or better by those who have never been married, followed by who are either divorced, separated or cohabiting, by currently married and then widowed. Likewise, among older respondents also, never-married people rated better or good health subsequently, followed by those currently married, and widowed.

As is commonly observed across the world, social disadvantage translates to worse health outcomes, particularly among older persons. A little more than one-fourth (28% and 30%) of older respondents from scheduled tribes and scheduled castes reported their health as good. Hindus reported relatively better health than respondents of other religions. In the younger age groups, little variation in health status reported by scheduled tribes or castes, but comparatively much lower than the others (62%) .

This study exhibits that self-reported health status deteriorates progressively with age (Fig. 6.3). The findings indicate that while 76% of the youngest respondents (aged 18-29) rated their health was good, the level dropped to 18% in the 80-plus age group. Correspondingly, the proportion who rated their health as bad rose from 3% among age 18-29 to 42% at 80-plus (Fig. 6.3).

Figure 6.3 Self-reported health of respondents by age group, India (pooled), SAGE Wave 2, 2015



The differential in self-reported health status was also observed by age and gender across the state, as presented in Figures 6.4 and 6.5. Across the states and among the age groups, usually females reported worse health status than males. For instance, among those aged 50-plus, 32% of females compared with 38% of males reported their health as good. The gender differential has been most striking in Uttar Pradesh, where 77% of older females rated their health as moderate or bad, compared with 70% of older males (Fig. 6.4). The difference was smallest (4%) in Rajasthan and Assam, more males than females aged 50plus reported health as moderate or bad. The gender differential in self-reported health was evident in almost every category of background characteristic, e.g. residence, caste, religion, education and income. As expected, both males and females aged 70-plus reported the highest level of bad health (Fig. 6.5).

Figure 6.4 Proportion of men and women aged 50-plus who reported health as moderate or bad, states and India (pooled), SAGE Wave 2, 2015

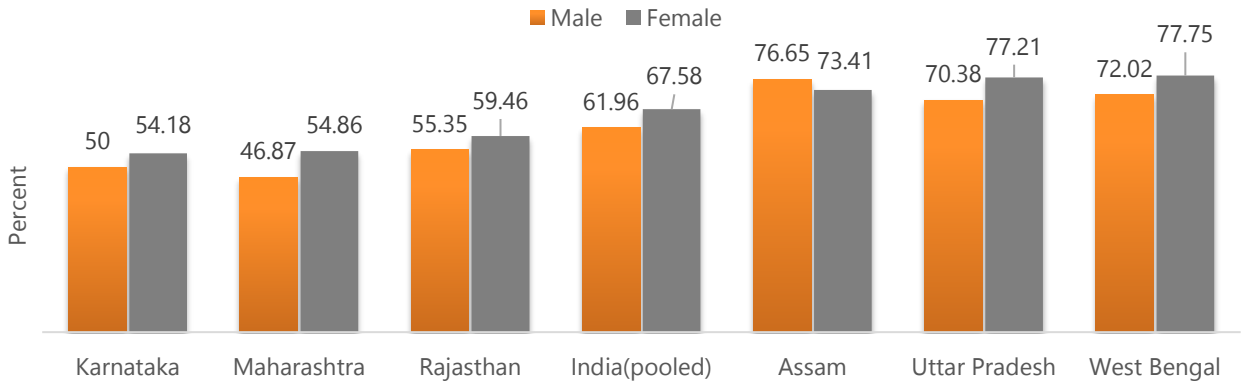
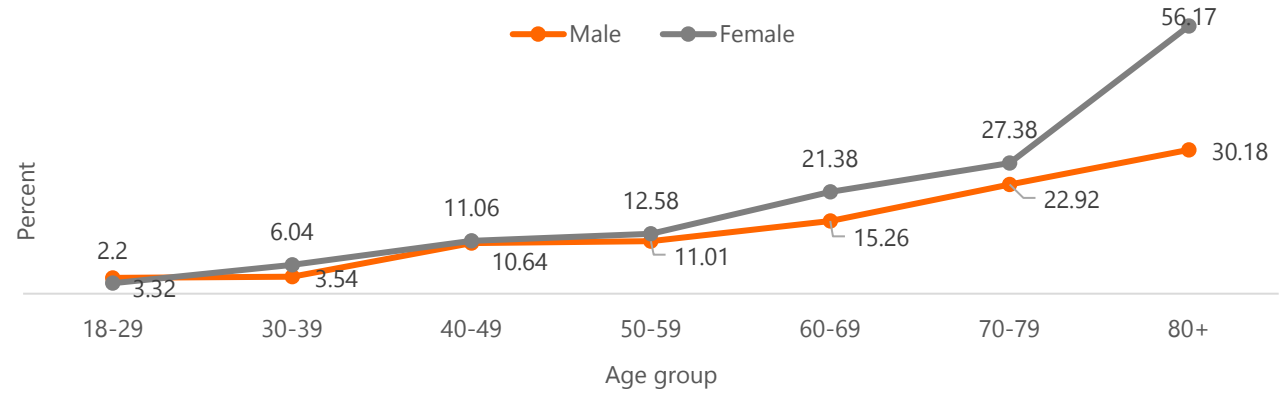


Figure 6.5 Proportion of persons who reported health as bad, by age and sex, India (pooled), SAGE Wave 2, 2015

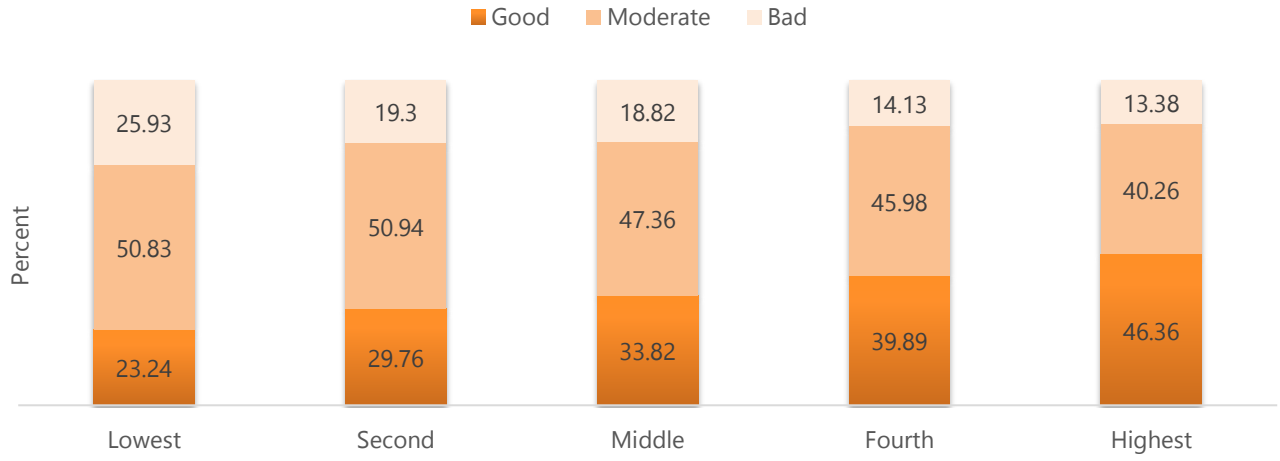


Educational attainment is also found to influence inversely the self-reported health status both among the younger and older age groups. As presented in table 6.1.1, self-reported health status generally improves with increasing educational attainment. For instance, among older respondents, 21% of those with no formal education rated their health was bad, compared with 10% with a college education.

A similar pattern is observed among the younger respondents. About 9% of those with no formal education compared with 2% with college education reported their health as bad.

The relationship between income and health status is also positively correlated. Between the sexes and age groups, reports of good health increases while the rating of bad health decreases with rising wealth (Fig. 6.6). In the older group, reporting good health increases from 23% in the lowest wealth quintile to 46% in the highest wealth quintile. Even among the younger respondents, reporting of good and bad health is inversely related to wealth status; better health status among the higher wealth quintiles and vice-versa.

Figure 6.6 Self-reported health status of respondents aged 50-plus by wealth quintile, India (pooled), SAGE Wave 2, 2015

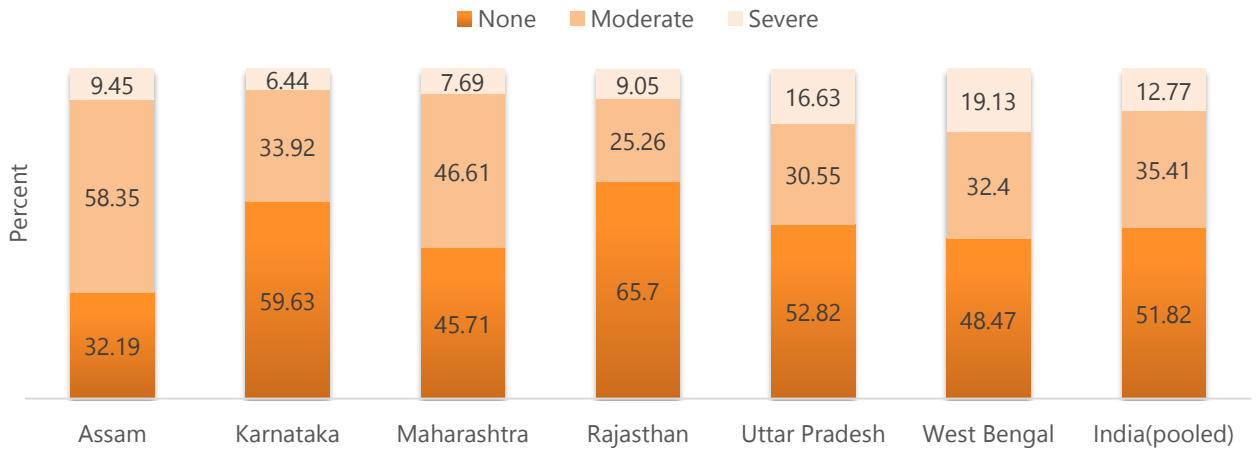


6.1.2. Difficulty with work or household activities

Another dimension of general health is the extent to which a person can carry out typical, routine household or work activities. To identify any particular health issues limiting respondents' regular activities, SAGE India asked the question, "Overall in the last 30 days, how much difficulty did you have with work or household activities?" Respondents could choose among five response options: none, mild, moderate, severe, and extreme/cannot do. The five possible responses were divided into three groups as none (including 'none' and 'mild'), moderate, and severe (including 'severe' and 'extreme'), as presented in Table 6.1.2.

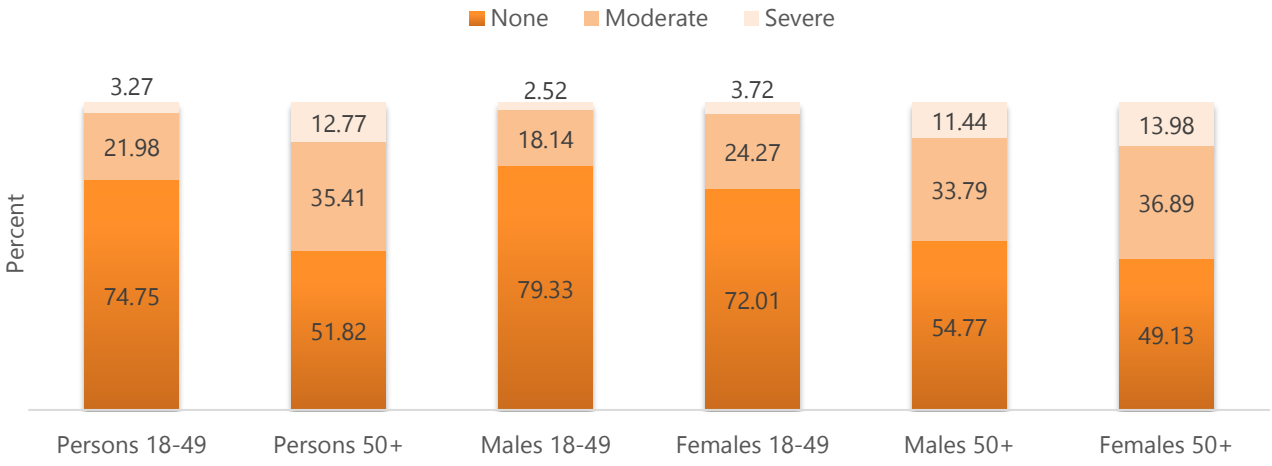
A considerable proportion of older respondents, particularly those aged 70-plus (about 40%), reported difficulty in work or household activities. Among the surveyed states, the proportion of older respondents who reported some difficulty, either moderate or severe, is highest in Assam and lowest in Rajasthan (Figure 6.7). Older adults in Assam were more likely, and those in Rajasthan least likely, to report difficulty with work or household activities.

Figure 6.7 Self-reported difficulty with work or household activities for respondents aged 50-plus, states and for India (pooled), SAGE Wave 2, 2015



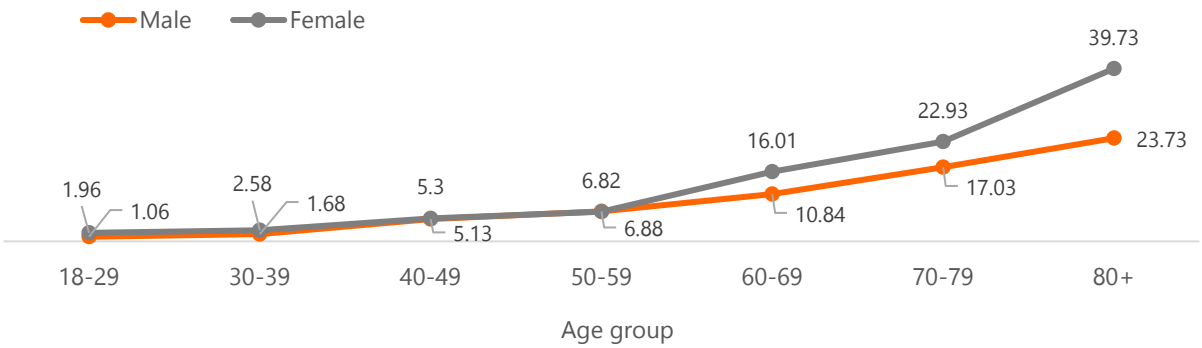
Age emerges as an important factor that defines difficulty with work or household activity. About 75% of younger respondents reported no difficulty, compared to only 52% of older respondents (Figure 6.8). Severe difficulty with work or household activity was reported by 13% of the older group, compared to just 3% of younger respondents. Older feamales were more likely than older males to have such difficulty: 14% of females reported severe difficulty, compared to 11% of males.

Figure 6.8 Self-reported difficulty with work or household activities, by age group and sex, India (pooled), SAGE Wave 2, 2015



A clear age gradient indicated in the proportion of respondents reporting difficulty with work or household activities. Among the oldest group or those, aged 80-plus, 29% reported no difficulty, compared with 84% among the younger adults age 18-29. Meanwhile, the proportion who reported severe difficulty decreased from 31% in the oldest group to 2%in the younger age groups. In each age group, a higher proportion of females than males reported severe difficulty with work: 61% of females aged 80-plus faced severe difficulty, compared with 44% of males (Figure 6.9).

Figure 6.9 Proportion of persons who reported severe difficulty with work or household activities by age group and sex, India (pooled), SAGE Wave 2, 2015



A varying perception of difficulty with work/household activities has been observed by marital status, residence, social groups, religion, education, and economic status. In terms of marital status, widowed respondents were more likely to have difficulty than married persons, who in turn reported more difficulty than those who had never been married. The variation observed could be a reflection of the age factor among married, especially with the widowed persons (Table 6.1.2).

Similarly, younger respondents, living in rural areas were somewhat more likely to report difficulty in carrying out work or household activities than those from urban areas. However, not much difference in difficulty with household work reported among respondents aged 50 plus by residence. A more pronounced difference is evident among different castes and religions. Among respondents aged 18-49, scheduled tribes indicate more difficulty than the scheduled castes. Younger Muslims were also more likely to report severe difficulty with work than younger Hindu and persons from other religions. A similar pattern is indicated among the older age group.

Trends: *Overall, the percentage of people reporting having no difficulties with work/household activities has increased in the period 2007 to 2015. Among younger respondents, this has increased from 73% to 75% and from 47% to 52% among older respondents. Subsequently, there has been a decline in the percentage of respondents reporting moderate or severe difficulty in the period 2007 to 2015. Mean health score has decreased and WHODAS mean score has increased in all categories of difficulty with work/household activities among younger and older respondents.*

Table 6.1.2 Difficulty with work/household activities, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49					Aged 50-plus					
	None	Moderate	Severe	Total	Number		None	Moderate	Severe	Total	Number
Age group											
18-29	84.4	14.2	1.5	100	540	50-59	60.8	32.4	6.8	100	2,901
30-39	76.6	21.1	2.3	100	599	60-69	50.3	36.3	13.4	100	2,581
40-49	66.6	28.1	5.3	100	853	70-79	41.0	39.2	19.8	100	1,282
						80+	29.0	40.0	31.0	100	344
Sex											
Male	79.3	18.1	2.5	100	831		54.8	33.8	11.4	100	3,333
Female	72.0	24.3	3.7	100	1,161		49.1	36.9	14.0	100	3,775
Marital status											
Never married	81.9	15.9	2.2	100	416		56.1	29.2	14.7	100	76
Currently married	73.1	23.3	3.6	100	1,477		55.0	34.2	10.8	100	5,298
Widowed	67.1	30.0	2.9	100	90		41.1	39.8	19.1	100	1,690
Other[1]	74.5	25.5	0.0	100	9		66.0	32.7	1.3	100	44
Residence											
Urban	79.8	19.0	1.2	100	411		51.3	37.2	11.5	100	1,510
Rural	73.0	23.0	4.0	100	1,581		52.0	34.7	13.3	100	5,598

Background characteristic	Aged 18-49					Aged 50-plus				
	None	Moderate	Severe	Total	Number	None	Moderate	Severe	Total	Number
Caste										
Scheduled tribe	69.5	27.0	3.6	100	198	54.4	38.1	7.5	100	520
Scheduled caste	74.3	22.8	3.0	100	415	52.3	33.8	13.9	100	1,167
Other [2]	75.6	21.1	3.3	100	1,379	51.5	35.5	13.0	100	5,421
Religion										
Hindu	76.0	21.1	3.0	100	1,662	52.7	35.1	12.3	100	5,959
Muslim	69.6	24.3	6.1	100	253	47.2	35.6	17.2	100	869
Other[3]	64.4	35.0	0.6	100	77	46.4	44.5	9.1	100	280
Education										
No formal education	70.0	25.5	4.5	100	581	48.1	36.6	15.2	100	3,568
Less than primary	68.8	27.3	3.9	100	228	47.0	39.9	13.2	100	940
Primary school	70.2	27.4	2.5	100	344	49.3	39.8	11.0	100	980
Secondary school	77.4	19.7	2.9	100	374	58.9	30.9	10.2	100	675
High school	83.6	14.3	2.1	100	314	70.7	20.8	8.5	100	545
College and above	87.2	9.7	3.0	100	151	59.0	34.1	7.0	100	400
Wealth quintile										
Lowest	66.1	28.1	5.7	100	380	44.1	37.9	18.0	100	1,370
Second	68.2	29.1	2.7	100	422	48.2	38.0	13.8	100	1,302
Middle	76.6	20.4	3.1	100	456	53.3	34.0	12.7	100	1,316
Fourth	82.7	13.4	3.9	100	373	52.9	36.2	10.9	100	1,467
Highest	80.6	18.8	0.7	100	361	59.3	31.6	9.1	100	1,653
Total	**74.8**	**22.0**	**3.3**	**100**	**1,992**	**51.8**	**35.4**	**12.8**	**100**	**7,108**
Mean health score	**66.3**	**41.0**	**27.6**	**59.5**		**48.1**	**27.5**	**15.0**	**36.6**	
WHODAS mean score	**10.9**	**22.4**	**34.2**	**14.2**		**20.7**	**33.2**	**49.3**	**28.8**	

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

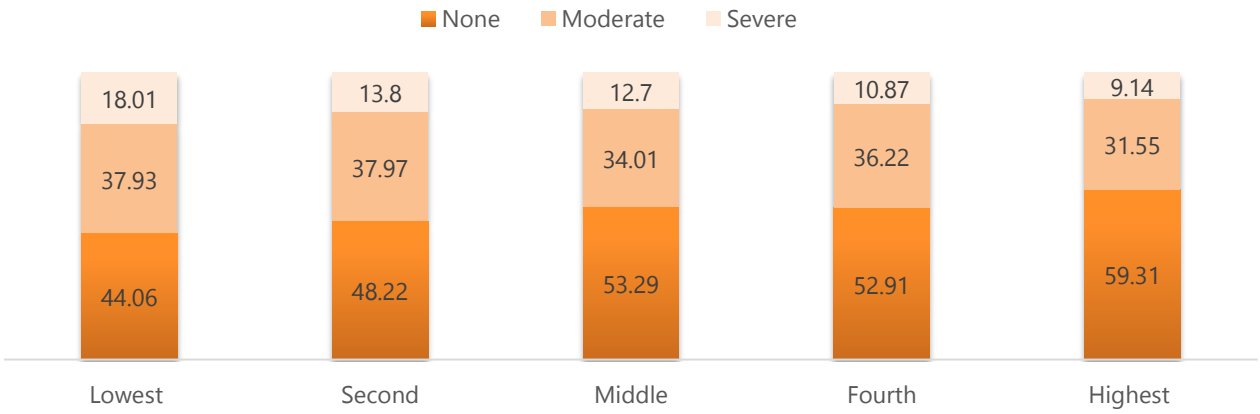
[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Difficulty with work or household activities reflects an inverse relationship with education and wealth quintile, especially among older respondents (Table 6.1.2). In the 50-plus age group, 48% of men without formal education have no difficulty, rising to 71% for men with high school education. Similarly, 15% of men with no formal education reported severe difficulty, which decreases to 7% among men with a college education. However, as mentioned earlier, the relationship between education and difficulty with work could be due to a higher representation of younger respondents in higher education. With increases in wealth, there was a progressive increase in the proportion of persons reporting no difficulty with work and a corresponding decrease in the proportion with severe difficulty. For instance, the proportion who reported no difficulty with work or household activity increases from 44% in the lowest wealth quintile to 59% in the highest wealth quintile (Figure 6.10).

Figure 6.10 Percent distribution of respondents aged 50-plus by level of difficulty with work or household activities and wealth quintile, India (pooled), SAGE Wave 2, 2015



6.2 Health state and functioning

Assessment of functioning and disability is critical to understand the relationship between the individual and the disease. The ability to disaggregate health into distinct domains helps to better understand the determinants of health, and the possible differences between perceived and true levels of health. For this reason, SAGE India used WHO's approach to measuring health state, based on a multi-dimensional construct which can be viewed as a point of comparison with the single overall self-reported general health question. Respondents were asked their situation in the past 30 days about 16 survey items in eight domains of health, including mobility, self-care, pain and discomfort, cognition, interpersonal activities, sleep and energy, affect, and vision. An individual's health state score was then generated using item response theory (Baker, 2001). The health score ranged from 0 (indicating worst health) to 100 (best health).

To better understand subjective health states, SAGE India also used anchoring vignettes as a method of improving the comparability of self-reported measures. A vignette is a description of a hypothetical person of the same age and characteristics of the respondent doing a particular activity, and respondents were asked to rate the condition and experience of the person in the vignette story. Five vignettes were available for each of the eight health domains. Additionally, SAGE India used performance tests, such as a timed walk and vision tests, for cross-validation of the anchoring vignette strategy and as independent tests for improving understanding of self-reported health. The objective tests used in SAGE India are presented in Chapter 8

Functional assessment is also an important aspect of overall health evaluation. To assess functioning, SAGE India used the 12-item WHO Disability Assessment Schedule (WHODAS) version 2, as well as a broader set of typical activities of daily living and instrumental activities of daily living. Activities of daily living (ADL) refer to daily self-care activities, typically within an individual's place of residence, and include more basic activities such as eating, bathing and toileting. Service or caregiving issues are typically triggered when a person has two or more ADL deficiencies. Instrumental activities of daily living (IADLs) include more complex activities, such as heavy or light housework, laundry, preparing meals, shopping for daily necessities, getting around outside, travelling, managing money and using a telephone. WHODAS provides a well validated assessment of overall functioning or disability (Ustun et al., 2010). A respondent is asked about the level of difficulty he/she experienced with daily activities. A single score is then generated by adding up the responses to the 12 questions and standardizing the raw score to a 0-100 scale, a higher WHODAS score reflecting higher disability (worse overall functioning).

Mean health scores for older and younger adults are presented by the state in Table 6.2.1. Although the variation in mean health scores by the state was small, older adults in Assam have the lowest health score (30), as with the younger adults (50). The highest health score for older adults as well as for younger respondents is in Karnataka and Maharashtra.

Table 6.2.1 Mean health score and WHODAS score, by states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Mean health state score	Number	Mean WHODAS score*	Number	Mean health state score	Number	Mean WHODAS score	Number
Assam	49.6	297	19.8	297	29.7	723	33.7	723
Karnataka	68.4	223	10.5	223	44.4	872	24.2	872
Maharashtra	61.3	344	12.9	344	38.6	1176	25.9	1176
Rajasthan	63.4	360	12.8	360	37.2	1456	28.8	1456
Uttar Pradesh	56.0	328	17.8	328	34.4	1534	32.5	1534
West Bengal	58.3	446	11.6	446	34.8	1357	26.8	1357
India (pooled)	**59.4**	**1998**	**14.1**	**1998**	**36.6**	**7118**	**28.8**	**7118**

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

Issues with functioning are more typically seen at older ages; with higher levels of disability more likely with increasing age. The WHODAS results by state reflect this scenario, with the highest levels of disability in older adults observed in Assam (34), followed by Uttar Pradesh (33). In younger adults, problems with functioning were much lower, but highest in Assam (20) and Uttar Pradesh (18). The ranking of health state scores by the state was relatively consistent for older and younger adults.

Overall, health state scores were lower for older adults (37) than the younger adults (59), with a clear age gradient (Table 6.2.1). The health score decreased from 72 for the youngest age group respondents to 20 among the oldest-olds. Men consistently reported better health (higher health scores) than women. The scores indicate relatively better health status among never-married persons and worse status among widowed persons. Scores were somewhat better among urban than rural residents. Health status does not vary greatly by caste, but people belonging to a religion other than Hindu and Muslim scored slightly lower. Health status improves with both education and income. Among older people, the health score rose from 31 for persons with no education to 52 for those with college education. Similarly, the health score increased from 30 in the lowest wealth quintile to 43 in the highest wealth quintile (Table 6.2.2).

Table 6.2.2 Mean health score and WHODAS score, India (pooled), SAGE Wave 2, 2015

Background characteristics	Age 18-49				Age 50-plus				
	Mean health score	Number	Mean WHODAS score	Number	Mean health score		Number	Mean WHODAS score	Number
Age group									
18-29	72.0	542	8.0	542	50-59	43.0	2904	23.6	2904
30-39	62.1	602	13.0	602	60-69	35.5	2585	29.5	2585
40-49	48.7	854	19.2	854	70-79	29.0	1285	34.2	1285
					80+	20.0	344	45.4	344
Sex									
Male	67.0	833	10.4	833		40.9	3337	25.4	3337
Female	54.9	1165	16.3	1165		32.7	3781	31.8	3781

Background characteristics	Age 18-49				Age 50-plus			
	Mean health score	Number	Mean WHODAS score	Number	Mean health score	Number	Mean WHODAS score	Number
Marital status								
Never married	70.3	418	8.8	418	38.1	76	29.9	76
Currently married	57.2	1480	15.2	1480	39.3	5305	26.5	5305
Widowed	44.7	91	21.6	91	27.7	1693	36.0	1693
Other[1]	55.0	9	18.5	9	40.0	44	24.8	44
Residence								
Urban	63.3	412	12.3	412	40.8	1512	26.6	1512
Rural	58.1	1586	14.8	1586	34.9	5606	29.6	5606
Caste								
Scheduled tribe	54.3	199	16.2	199	36.3	522	27.9	522
Scheduled caste	60.0	417	13.4	417	35.3	1168	29.1	1168
Other[2]	59.9	1382	14.1	1382	36.8	5428	28.8	5428
Religion								
Hindu	60.3	1667	13.7	1667	36.8	5966	28.5	5966
Muslim	55.5	254	16.3	254	34.8	869	30.1	869
Other[3]	51.7	77	16.3	77	36.2	283	29.6	283
Education								
No formal education	51.5	583	18.2	583	31.4	3574	32.9	3574
Less than primary	53.2	228	17.1	228	35.5	942	29.4	942
Primary school	59.9	345	13.7	345	36.6	980	27.0	980
Secondary school	61.0	376	12.4	376	43.8	675	22.9	675
High school	71.1	314	8.7	314	47.5	547	21.4	547
College and above	70.7	152	10.1	152	51.4	400	19.1	400
Wealth quintile								
Lowest	55.2	381	16.7	381	30.4	1371	33.4	1371
Second	55.5	423	15.7	423	33.2	1304	31.1	1304
Middle	59.0	458	12.9	458	36.0	1318	29.1	1318
Fourth	64.3	373	12.9	373	38.8	1468	27.1	1468
Highest	63.7	363	12.3	363	43.1	1657	24.1	1657
Total	**59.4**	**1998**	**14.1**	**1998**	**36.6**	**7118**	**28.8**	**7118**

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

The WHODAS scores indicate that disability levels have a positive relationship with age - higher disability level with increasing age, culminating at the oldest-olds with the highest score of 45 as compared with a score of 8 among the youngest age group of 18-29 years, disability level is also observed to be higher among females, widowed, rural residents, lower education and poorer wealth quintiles.

SAGE India also assesses functioning, among older adults by their ability to perform certain sets of activities daily or the number of ADL and IADL deficiencies. The results show that with increasing age, there is a sharp increase in the proportion with ADL and IADL deficiencies. Most respondents aged 50-plus (37%) have at least one ADL deficiency, and 23% with two or more deficiencies. A lower proportion (25%) of older persons reported IADL deficiencies. Deficiencies were far more common among older women than older men: about 43% and 28% of older women had at least one ADL and IADL deficiency respectively, compared with 31% and 21% among older men (Table 6.2.3 (a & b)). Along with these deficiencies, it is also seen that the mean health score decreased (i.e. health worsened) and the mean WHODAS score decreased (i.e. disability increased) with an increase in the number of ADL and IADL deficiencies.

ADL and IADL deficiencies were more common in rural than in urban areas. Older respondents who were widowed were most likely to have at least one ADL and IADL deficiency (35% with two or more ADL deficiencies, and 23% with two or more IADL deficiencies). Higher education is associated with lower disability levels. The proportion of people with no IADL deficiencies also increased with education. However, the gender gap was very evident in each educational category. For example, 28% of college-educated older women have at least one ADL deficiency and 16% have two or more, compared to 20% and 12% respectively of college-educated older men.

Similar to higher education, a better economic status indicates an improvement in carrying out daily activities. The proportion of persons with no ADL deficiencies rises from 55% in the lowest wealth quintile to 69% in the highest quintile. The gender gap is again evident: wherein in each wealth quintile, the proportion of women with ADL and IADL deficiencies is much higher than men.

Table 6.2.3 (a) Activity of daily living (ADL) and instrumental activity of daily living (IADL) among older men , India (pooled), SAGE Wave 2, 2015

Background characteristic	Male aged 50-plus								
	ADL				IADL				Number
	0	1	2+	Total	0	1	2+	Total	
Age group									
50-59	78.2	8.5	13.3	100	87.5	6.2	6.4	100	1,170
60-69	69.4	11.7	18.9	100	78.7	11.0	10.3	100	1,292
70-79	58.7	16.5	24.9	100	70.5	14.3	15.2	100	675
80+	42.7	17.7	39.6	100	51.7	13.9	34.4	100	200
Marital status									
Never married	55.6	6.6	37.9	100	58.5	14.0	27.5	100	50
Currently married	70.2	11.7	18.1	100	79.7	9.9	10.4	100	2,950
Widowed	58.1	15.1	26.8	100	71.4	11.4	17.2	100	325
Other[1]	82.0	4.6	13.4	100	86.6	13.4	0.0	100	12
Residence									
Urban	75.2	7.4	17.4	100	83.3	5.9	10.9	100	679
Rural	66.3	13.7	20.1	100	76.7	11.8	11.5	100	2,658
Caste									
Scheduled tribe	70.8	11.9	17.3	100	79.1	9.6	11.3	100	237
Scheduled caste	68.2	14.3	17.5	100	79.9	9.8	10.2	100	533
Other[2]	68.8	11.5	19.8	100	78.3	10.2	11.5	100	2,567
Religion									
Hindu	69.8	12.0	18.2	100	79.3	10.1	10.6	100	2,784
Muslim	62.7	12.2	25.1	100	74.2	10.3	15.5	100	414
Other[3]	64.4	8.3	27.4	100	74.5	10.7	14.8	100	139
Education									
No formal education	62.8	15.4	21.9	100	72.2	13.2	14.6	100	1,001
Less than primary	65.8	9.6	24.7	100	74.9	10.2	14.9	100	539
Primary school	67.0	14.4	18.5	100	79.2	11.8	9.0	100	586
Secondary school	69.2	11.4	19.4	100	80.1	6.8	13.1	100	466
High school	76.5	8.6	14.9	100	86.3	6.9	6.8	100	436
College and above	79.8	7.8	12.4	100	85.9	8.5	5.5	100	309
Wealth quintile									
Lowest	58.7	16.1	25.3	100	68.7	15.6	15.8	100	619
Second	66.8	10.6	22.6	100	75.7	11.9	12.4	100	605
Middle	70.9	10.6	18.6	100	80.1	8.1	11.8	100	632
Fourth	68.6	12.6	18.8	100	81.6	7.4	11.1	100	676
Highest	76.8	10.0	13.2	100	84.6	8.5	6.9	100	805

Background characteristic	Male aged 50-plus								
	ADL				IADL				Number
	0	1	2+	Total	0	1	2+	Total	
Total	**68.8**	**11.9**	**19.3**	**100**	**78.6**	**10.1**	**11.3**	**100**	**3337**
Mean health score	**49.79**	**28.92**	**16.36**	**40.9**	**46.99**	**24.71**	**12.69**	**40.9**	
WHODAS mean score	**16.7**	**32.7**	**51.7**	**25.4**	**18.7**	**39.9**	**58.7**	**25.4**	

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 6.2.3 (b) Activity of daily living (ADL) and instrumental activity of daily living (IADL) among older women, India (pooled), SAGE Wave 2, 2015

Background characteristic	Female aged 50-plus								
	ADL				IADL				Number
	0	1	2+	Total	0	1	2+	Total	
Age group									
50-59	68.1	15.0	17.0	100	80.9	11.3	7.9	100	1,734
60-69	52.0	18.7	29.4	100	70.3	12.3	17.4	100	1,293
70-79	46.3	19.1	34.7	100	59.3	16.1	24.7	100	610
80+	25.2	9.9	64.8	100	38.2	13.6	48.2	100	144
Marital status									
Never married	53.6	28.3	18.1	100	66.3	18.5	15.3	100	26
Currently married	62.5	16.0	21.5	100	76.5	12.2	11.4	100	2,355
Widowed	47.9	17.4	34.7	100	64.1	13.1	22.8	100	1,368
Other[1]	60.8	27.8	11.4	100	69.1	6.4	24.5	100	32
Residence									
Urban	59.6	15.8	24.6	100	75.4	10.1	14.6	100	833
Rural	56.2	17.0	26.8	100	70.6	13.5	16.0	100	2,948
Caste									
Scheduled tribe	64.3	12.3	23.4	100	75.1	12.1	12.7	100	285
Scheduled caste	53.1	20.3	26.6	100	68.4	14.2	17.4	100	635
Other[2]	57.4	16.3	26.3	100	72.3	12.2	15.5	100	2,861
Religion									
Hindu	58.3	16.4	25.3	100	72.3	12.6	15.1	100	3,182
Muslim	51.4	18.8	29.8	100	71.1	10.7	18.2	100	455
Other[3]	48.1	16.3	35.6	100	64.7	17.3	18.0	100	144
Education									
No formal education	54.4	16.7	29.0	100	68.3	14.0	17.7	100	2,573
Less than primary	59.8	14.8	25.4	100	78.0	8.1	13.9	100	403
Primary school	63.6	16.7	19.8	100	75.9	9.7	14.4	100	394
Secondary school	61.1	21.6	17.4	100	84.0	9.0	7.0	100	209
High school	69.2	18.5	12.3	100	82.5	12.9	4.6	100	111
College and above	72.5	11.9	15.6	100	88.5	7.8	3.7	100	91
Wealth quintile									
Lowest	51.1	15.9	33.0	100	64.3	16.8	18.9	100	752
Second	51.4	18.9	29.7	100	67.7	14.0	18.3	100	699
Middle	59.2	12.9	27.9	100	71.4	11.3	17.3	100	686
Fourth	61.4	18.5	20.1	100	74.8	10.6	14.5	100	792
Highest	62.2	16.9	20.9	100	80.5	9.8	9.7	100	852
Total	**57.2**	**16.7**	**26.1**	**100**	**71.9**	**12.5**	**15.6**	**100**	**3,781**
Mean health score	**42.13**	**28.23**	**14.9**	**32.7**	**39.04**	**22.26**	**11.8**	**32.7**	
WHODAS mean score	**21.3**	**33.7**	**53.7**	**31.8**	**24.3**	**41.5**	**58.7**	**31.8**	

Note: The mean health score is a composite variable based on responses to questions in eight health domains, ranging from 0 (worst health) to 100 (best health). The mean WHODAS score is an estimation of functioning or disability; it is a composite variable based on 12 questions. A score of 0 indicates no disability and 100 the highest level of disability.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7. Morbidity and Interventions

Chronic disease is the leading cause of death and disability worldwide. Disease such as cardiovascular disease, mental health disorders, diabetes and cancer and injuries are the leading cause of death and mortality in India. Most chronic diseases are common and often occur as comorbidities.

India's burden of disease is dominated by two different clusters of disease- cardiovascular conditions on the one hand and diarrheal disease and lower respiratory tract infections on the other. India is probably the most relevant nation regarding chronic diseases given its rising distinction of becoming the diabetes capital of the world (Mohan & Reddy, 2014). Mortality in middle and older ages is largely attributable to chronic diseases and mostly represents a normal development function. However, a disproportionate distribution of disease is prevalent in urban and rural areas, with the increasing prevalence of chronic diseases in younger populations.

A high proportion of deaths due to chronic diseases occur at relatively younger ages among the Indian population. In terms of productive years of life lost due to cardiovascular diseases among people between 35 and 64 years, India ranks first in the world with 9.2 million years lost in 2000 alone. Coronary heart diseases too occur among Indians at least five to ten years earlier than other populations with the average age of first acute myocardial infarction being 53 years (Singh, 2011).

With the shift in the burden of disease from infectious to non-communicable disease, the overall burden of disease is increasing which is largely dominated by chronic conditions. The risk of having chronic diseases rises as the proportion of elderly people increases. Assessment of the morbidity profile will assist in the effective interventions, to improve the health status and the quality of life of the older population. Yet there is little or no baseline information on the prevalence of the chronic disease in this population. The lack of such information on health trends among the elderly inhibits accurate predictions for their health care needs. Therefore, to address this, it is required to obtain a correct and up-to-date database to plan health services and policy implications

SAGE gathered evidence on a range of chronic conditions prevalent among older adults which account for a large portion of the burden of non-communicable diseases in this age group. This chapter presents the results for a set of chronic conditions and how well health needs associated with these conditions were met. It also discusses co-morbidities – i.e. the co-occurrence of chronic conditions, injuries, oral health and cataracts – as well as screening for cervical and breast cancer.

7.1 Single chronic conditions

In this section, results are presented for eight selected chronic conditions: arthritis, stroke, angina pectoris, diabetes mellitus, asthma, depression, hypertension and chronic lung disease. For each condition, two sets of questions were posed. The first set asked whether the respondent had ever been diagnosed with the disease, i.e. told by a health care professional that they had the given health condition. For those who had been diagnosed with the disease, the second set of questions was asked relating to treatment. For four conditions – angina, arthritis, asthma and depression – respondents were also asked about a set of specific symptoms related to the health condition that, when combined with validated diagnostic algorithms, predicted the given health condition with adequate sensitivity and specificity to improve the prevalence rate estimates.

Those who reported affirmatively for a given chronic condition were asked about current treatments in the last two weeks (medication or other treatment) and chronic ongoing therapy over the last 12 months. Respondents who had taken medication or treatment in the previous two weeks were categorised as 'currently treated'. Those who had taken medication or treatment in the previous 12 months were categorised as 'on chronic therapy' irrespective of their current treatment status. All respondents were asked if during the previous 12 months they had experienced symptoms of the specific chronic condition.

7.1.1 Arthritis

SAGE asked the question, "Have you ever been diagnosed with/told you have arthritis (a disease of the joints, or by another name, osteoarthritis)?" A set of symptomatic questions were also asked, regardless of the answer about being diagnosed. Table 7.1.1 (a & b) shows the prevalence of arthritis among older and younger respondents by selected background characteristics. The self-reported prevalence of arthritis increased with age, from 2% at age 18-29 to 16% at age 50-59. Self-reported prevalence was highest (21%) in the 70-79 age group, decreasing to a value slightly lower than 21 in the oldest group aged 80-plus. Symptom-based prevalence also increased with age, rising from 3% in the 18-29 age group to 23% in the 70-79 age group, and then declining to 19% for those aged 80-plus. For older and younger adults, self-reported diagnosis, as well as symptom-based prevalence, was higher among women than men; for older women, self-reported prevalence (22%) was much higher than for men (14%). Rural respondents were more likely to have arthritis than their urban counterparts. The prevalence of arthritis was negatively correlated with educational attainment for both older and younger adults: at age 50-plus, self-reported and symptom-based prevalence among college-educated respondents was 11%, compared with 19% and 21% respectively for those with no formal education.

Trends: *Prevalence of self-reported arthritis has increased marginally between SAGE-1 and SAGE-2, increasing from 6.6 percent in 2007 to 7.3 percent in 2015 among younger respondents. However, symptom-based arthritis has decreased from 9 percent in 2007 to 8 percent among younger respondents and from 24 percent in 2007 to 19 percent among older respondents. The proportion of respondents who are currently treated for arthritis has increased by 15 percent points for younger respondents and 10 percent points for older respondents. Chronic therapy taken for arthritis has increased by 4 percent points among younger and older respondents in the same period.*

Table 7.1.1 (a) Self-reported and symptom-based prevalence of arthritis and percentage receiving current or chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	1.7	541	2.5	541	47	11	53.6	11
30-39	8.3	597	6	597	35.3	42	66.8	42
40-49	10.5	852	14.1	852	37.5	113	47.5	113
Sex								
Male	4	829	4.4	829	51.8	39	58.3	39
Female	9.2	1,161	10.6	1,161	34.4	127	50.7	127
Marital status								
Never married	2.5	415	2.6	416	48.5	11	67.8	11
Currently married	8.2	1476	9.5	1,475	32.9	142	47.7	142
Widowed	15	90	16.7	90	75.5	13	81.7	13
Other[1]	5.6	9	0	9	NA	NA	NA	NA
Residence								
Urban	6	1,581	7.6	1,580	38.3	129	52.9	129
Rural	11	409	10.3	410	36.8	37	50.7	37
Caste								
Scheduled tribe	4.7	198	7.4	198	30.7	15	45.5	15
Scheduled caste	9.3	416	9.3	415	46.3	38	68.6	38
Other[2]	7.1	1376	8.1	1,377	36	113	47.6	113
Religion								
Hindu	7.2	1,661	7.6	1,661	35.9	139	51.2	139
Muslim	5.1	252	10.7	252	24.4	21	38.6	21
Other[3]	18.8	77	15.6	77	96.2	6	100	6
Education								
No formal education	8.5	581	10.2	580	29.3	63	39.1	63
Less than primary	6.9	227	10.2	227	37.8	22	47.7	22
Primary school	9.8	344	10.3	345	49.9	35	71.8	35
Secondary school	8.2	374	8.2	374	36.9	29	48.6	29
High school	3.8	313	3.4	313	60.4	11	79	11
College and above	1.9	151	3.4	151	13.3	6	56.4	6
Wealth quintile								
Lowest	3.4	380	5.6	380	19.7	23	30.5	23
Second	11	423	8.2	422	58.3	38	76.1	38
Middle	7.2	455	8.2	456	39.4	39	56.7	39
Fourth	6.4	372	10.1	372	41	32	49.3	32
Highest	8.7	360	9.7	360	25.2	34	42.4	34
Total	**7.3**	**1990**	**8.3**	**1990**	**37.9**	**166**	**52.2**	**166**

Note: Prevalence of arthritis is the proportion of population affected by arthritis at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.1 (b) Self-reported and symptom-based prevalence of arthritis and percentage receiving current or chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	15.5	2897	16.7	2,895	35.6	527	56.4	527
60-69	19.2	2576	19.7	2575	41.6	531	60.6	531
70-79	20.9	1278	22.9	1278	44.1	298	59.2	298
80+	20.6	341	19	341	47.2	75	62	75
Sex								
Male	14.1	3,327	14.3	3,325	37.1	528	56.8	528
Female	21.7	3,765	23.4	3,764	42	903	59.9	903
Marital status								
Never married	13.6	75	17.6	75	28.3	16	24.7	16
Currently married	17.1	5289	17.9	5286	38.6	1,015	59	1,015
Widowed	21.2	1685	22.6	1685	44.8	391	58.9	391
Other[1]	28.1	43	15.6	43	48.3	9	100	9
Residence								
Urban	17.1	5585	18.8	5582	38.3	1,117	55	1,117
Rural	20.4	1507	19.6	1507	45.1	314	67.9	314
Caste								
Scheduled tribe	18.4	521	17.1	521	40.7	93	63.4	93
Scheduled caste	15.7	1162	16.2	1,162	32.7	215	53.7	215
Other[2]	18.4	5409	19.7	5,406	41.4	1,123	59.3	1,123
Religion								
Hindu	17.6	5948	18.4	5946	40.2	1,188	58.6	1,188
Muslim	19.5	865	23.1	864	38.4	187	57.8	187
Other[3]	24.8	279	19.8	279	52.1	56	69.5	56
Education								
No formal education	19	3558	21.2	3,556	38.2	771	54	771
Less than primary	21.1	939	21.1	939	37.6	199	64.5	199
Primary school	19.6	977	17.9	976	48	192	64.8	192
Secondary school	17.3	674	16.6	674	42.5	131	70.2	131
High school	12	545	14.3	545	32	85	52.3	85
College and above	11.2	399	11.2	399	61.3	53	70.9	53
Wealth quintile								
Lowest	15.9	1367	16.4	1366	31.2	238	56.3	238
Second	18.4	1298	20	1298	42.4	265	57.4	265
Middle	18.2	1313	18.4	1312	46	251	59.8	251
Fourth	19.9	1465	19.6	1464	38.3	289	57.5	289
Highest	17.8	1649	20.5	1649	42.8	388	62.1	388
Total	**18**	**7092**	**19**	**7089**	**40.3**	**1431**	**58.8**	**1431**

Note: Prevalence of arthritis is the proportion of population affected by arthritis at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.2 presents arthritis prevalence by state and total, based on self-reported diagnosis as well as reported symptoms. Among older respondents, the self-reported prevalence of arthritis was 18%. The highest prevalence for older adults was in Assam (35%). Prevalence was also high in Karnataka and Maharashtra at 25% and 24% respectively. In Uttar Pradesh, however, only 10% of older adults reported being diagnosed with arthritis.

There was little association found between self-reported and symptom-based prevalence. Rajasthan, for example, had a low level of self-reported prevalence, yet had the highest symptom-based prevalence. Symptom-based prevalence ranged from 15% in Uttar Pradesh to 27% in Rajasthan.

Among younger adults, 7% reported being diagnosed with arthritis; the symptom-based prevalence of arthritis was 8%, indicating that some of the respondents who had been diagnosed with arthritis had not experienced any symptoms during the previous 12 months.

Although there was a large variation between states in the self-reported prevalence of arthritis (from 2% to16%), the symptom-based prevalence had a much narrower range (from 5% in Karnataka to 10% in Rajasthan). Among younger respondents, the highest self-reported arthritis prevalence was in Assam (16%) along with the high percentage based on symptom reporting as well (10%). In Maharashtra and West Bengal, 9% of the younger respondents were diagnosed with arthritis. In Rajasthan, only 2% reported being diagnosed with arthritis, but 10% had arthritis based on symptom reporting. The state-level variation in the self-reported prevalence was similar to that observed in older adults.

Among older adults who had arthritis, 59% had received treatment in the previous 12 months, while just 40% had received treatment in the previous two weeks. Rates of treatment in the previous 12 months was higher in Karnataka than Rajasthan. This fact could contribute to the variability in symptom reporting, as adequately treated arthritis would result in reduced or no symptoms.

Of the young respondents with arthritis, half had received medication or treatment during the previous 12 months (on chronic treatment). By contrast, only 38% had received treatment in the previous two weeks (currently treated). In Karnataka, Maharashtra and Assam, 95%, 83% and 82% respondents had received treatment in the past 12 months respectively, but only 76%, 74% and 24% respectively had received any treatment in the past two weeks.

For each category of age, gender, residence, education and wealth quintile, at least half of those reporting a diagnosis of arthritis were on chronic treatment (over the past 12 months). However, only two-third were currently (within the past two weeks) receiving medication or treatment.

Table 7.1.2 Self-reported and symptom-based prevalence of arthritis and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49								Aged 50-plus							
	Arthritis self-reported	Number	Arthritis symptom- based	Number	Currently treated	Number	Chronic therapy	Number	Arthritis self-reported	Number	Arthritis symptom- based	Number	Currently treated	Number	Chronic therapy	Number
Assam	16.3	294	9.6	295	24.1	22	81.8	22	34.6	722	15.0	722	35.5	106	91.3	106
Karnataka	7.9	221	5.3	220	76.0	13	94.9	13	24.5	862	18.1	862	61.2	154	96.2	154
Maharashtra	13.9	342	8.5	342	74.3	32	82.9	32	23.6	1,169	18.3	1,169	55.1	239	74.0	239
Rajasthan	2.1	359	10.1	359	5.8	37	9.4	37	13.1	1,454	27.0	1,453	20.3	406	29.9	406
Uttar Pradesh	3.5	328	7.6	328	14.7	25	28.7	25	9.5	1,528	15.3	1,527	29.4	213	40.3	213
West Bengal	4.9	446	8.9	446	42.8	37	51.8	37	21.4	1,357	22.7	1,356	46.2	313	65.9	313
India (pooled)	**7.3**	**1,990**	**8.3**	**1,990**	**37.9**	**166**	**52.2**	**166**	**18.0**	**7,092**	**19.0**	**7,089**	**40.3**	**1,431**	**58.8**	**1,431**

Note: Prevalence of arthritis is the proportion of population affected by arthritis at a specific time. Symptom- based prevalence includes symptom-based prevalence and treated cases during the previous 12 months.

Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

7.1.2 Stroke

SAGE included the question, "Have you ever been told by a health professional that you have had a stroke?" All respondents were also asked whether they had ever experienced symptoms of a stroke. Table 7.1.3 presents the prevalence of stroke by state based on self-reporting of diagnosis. For older adults, the prevalence of self-reported stroke was 2%. Among the six states, the lowest self-reported prevalence was in Uttar Pradesh (0.5%). The prevalence of self-reported diagnosed stroke among older adults ranged from 0.5% in Uttar Pradesh to 6% in West Bengal.

Trends: *Prevalence of self-reported stroke has barely changed in the eight years between SAGE-1 and SAGE-2 among younger and older respondents. However, the proportion of respondents who are currently treated for this condition has increased from 13 percent to 41 percent among younger respondents. For older respondents, in the same period, it has increased from 37 percent to 55 percent. Similarly, for younger respondents, chronic therapy taken has increased from 10 percent to 68 percent from SAGE-1 and SAGE-2. However, among older respondents, it has increased from 51 percent to 68 percent.*

Less than 1% of younger respondents reported being diagnosed with stroke. Among the six states, the lowest self-reported stroke prevalence for Karnataka and highest prevalence for Assam (1.8 percent). Slightly more than two-thirds (64%) of older adults who were diagnosed with stroke had received medical treatment over the past 12 months, while 55% were currently in treatment. Assam had the lowest percentage of older respondents (46%) who were diagnosed with stroke had received treatment or medication over the past 12 months, whereas in the remaining four states, 61-66% of respondents had done so.

The prevalence of stroke by selected respondent characteristics is presented in Table 7.1.4. (a & b) Self-reported prevalence of stroke diagnosis increased from 0.4% at age 18-29 to 3% at age 60-69, rising to 4% in the oldest age group. Symptom-based prevalence increased by age from 1% at 18-29 to 7% at 70-79, dropping to 5% at age 80-plus. Among older adults, the prevalence of self-reported stroke was somewhat higher among men than women, but symptom-based prevalence was higher among women (5%) than men (4%). Urban respondents were more likely to have a stroke diagnosis than rural respondents, although a higher proportion of rural respondents reported symptoms of a stroke. Neither self-reported nor symptom-based prevalence varied consistently with education levels or wealth quintiles. Meanwhile, the proportion of respondents on chronic or current treatment showed no consistent pattern by age, residence, sex, education or wealth quintile.

Table 7.1.3 Self-reported prevalence of stroke, percentage receiving current therapy and recent therapy, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49						Aged 50-plus					
	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	1.8	295	70.6	4	70.6	4	2.4	722	66.7	19	45.8	19
Karnataka	0.3	220	0.0	1	100.0	1	1.7	861	55.8	16	63.2	16
Maharashtra	1.0	342	61.6	4	76.8	4	1.4	1169	63.5	22	64.8	22
Rajasthan	1.0	359	18.8	5	37.7	5	3.1	1454	39.6	46	61.1	46
Uttar Pradesh	0.4	328	50.0	2	100.0	2	0.5	1528	39.1	8	62.5	8
West Bengal	0.6	446	0.0	3	43.6	3	5.6	1357	58.8	72	66.5	72
India (pooled)	**0.8**	**1,990**	**41.1**	**19**	**67.5**	**19**	**2.1**	**7,091**	**54.8**	**183**	**63.6**	**183**

Note: Prevalence of stroke is the proportion of population affected by stroke at a specific time.

Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

Table 7.1.4 (a) Self-reported prevalence of stroke and percentage receiving current or chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
18-29	0.4	541	0.0	3	66.0	3
30-39	0.7	597	72.3	5	76.8	5
40-49	1.0	852	37.2	11	63.2	11
Sex						
Male	1.0	829	39.2	11	48.3	11
Female	0.6	1161	43	8	88.1	8
Marital status						
Never married	0.2	416	0.0	2	0.0	2
Currently married	0.9	1475	39.8	15	69.7	15
Widowed	1.0	90	100	2	100.0	2
Other[1]	0.0	9	NA	NA	NA	NA
Residence						
Urban	0.6	410	57.6	2	100.0	2
Rural	0.8	1580	37.3	17	60.1	17
Caste						
Scheduled tribe	1.6	198	32.3	3	53.3	3
Scheduled caste	1.1	415	30.6	6	70.0	6
Other[2]	0.5	1377	50.4	10	71.8	10
Religion						
Hindu	0.8	1661	37.5	18	65.6	18
Muslim	0.0	252	NA	NA	NA	NA
Other	1.3	77	100	1	100.0	1
Education						
No formal education	0.6	580	13.2	6	75.2	6
Less than primary	2.9	227	41.2	6	51.5	6
Primary school	0.5	345	26.2	2	100.0	2
Secondary school	0.3	374	62.3	2	62.3	2
High school	0.4	313	64.0	2	64.0	2
College and above	0.7	151	100	1	100.0	1
Wealth quintile						
Lowest	0.8	380	14.6	3	100.0	3
Second	1.1	422	45.9	6	61.3	6
Middle	1.3	456	61.2	7	64.4	7
Fourth	0.3	372	0.0	2	45.8	2
Highest	0.2	360	0.0	1	0.0	1
Total	**0.8**	**1990**	**41.1**	**19**	**67.5**	**19**

Note: Prevalence of stroke is the proportion of population affected by stroke at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.4 (b) Self-reported prevalence of stroke and percentage receiving current or chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50- plus					
	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	1.3	2,897	45.4	48	62	48
60-69	2.6	2,575	46.4	74	53	74
70-79	2.7	1,278	70.9	43	74.8	43
80+	3.9	341	80.3	18	89.2	18
Sex						
Male	2.8	3326	56.7	112	68.2	112
Female	1.6	3765	52.0	71	56.3	71
Marital status						
Never married	2.5	75	74.3	3	74.3	3
Currently married	2.2	5289	51.8	135	64.5	135
Widowed	2.1	1684	62.6	42	61.8	42
Other[1]	6.3	43	70.2	3	38.0	3
Residence						
Urban	2.0	1506	48.5	43	65.4	43
Rural	2.2	5585	57.1	140	62.9	140
Caste						
Scheduled tribe	1.8	521	62.2	7	77.3	7
Scheduled caste	2.3	1,162	51.0	32	71.2	32
Other[2]	2.2	5408	55.1	144	61.2	144
Religion						
Hindu	2.1	5948	54.6	147	62.9	147
Muslim	2.6	863	65.2	29	79.8	29
Other	2.0	280	11.2	7	3.4	7
Education						
No formal education	1.3	3557	54.9	61	63.6	61
Less than primary	2.7	939	53.7	29	71.0	29
Primary school	2.9	977	58.3	36	62.6	36
Secondary school	2.6	674	70.3	22	67.9	22
High school	2.9	545	46.8	13	63.2	13
College and above	4.1	399	44.9	22	52.0	22
Wealth quintile						
Lowest	1.7	1,366	52.8	29	63.0	29
Second	1.5	1,299	55.7	24	58.9	24
Middle	2.3	1,313	60.1	33	70.4	33
Fourth	2.1	1,464	54.1	37	63.7	37
Highest	3.0	1,649	52.8	60	61.4	60
Total	**2.2**	**7091**	**54.8**	**183**	**63.6**	**183**

Note: Prevalence of stroke is the proportion of population affected by stroke at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7.1.3 Angina pectoris

Table 7.1.5 presents the prevalence of angina pectoris based on self-reported diagnosis as well as through symptom reporting (based on the Rose Questionnaire) by state. Among older respondents, the symptom-based prevalence of angina (20%) was almost five times higher than the self-reported prevalence of diagnosis (4%). Comparing states, self-reported prevalence varied from 2% in Uttar Pradesh to 6% in Karnataka, while the symptom-based prevalence ranged from a low of 12% in Karnataka to 35% in Maharashtra followed by Rajasthan.

Among younger adults, more than 1% reported being diagnosed with angina, while 12% of respondents had symptom-based diagnosis angina. The variation by state in angina diagnosis ranged from 5% in Karnataka to 22% in Maharashtra. The difference between self-reported diagnosis and symptom-based prevalence was greatest in Maharashtra, where the self-reported prevalence of angina was only 1%, compared with over 22% for symptom-based diagnosis. Among both younger and older adults, the proportion of those who were receiving current treatment for angina was comparatively low, ranging from 1% to 26% among younger adults, and from 7% to 35% among older adults. The figure for chronic therapy was only somewhat better for Assam, Karnataka, and West Bengal, ranging from 1% to 38% for younger adults whereas 7% to 42% for older adults had been treated in the last year.

Trends: *The prevalence of self-reported angina in age 18-49 declined from 2 percent in 2007 to 1 percent in 2015; at the same time the proportion having symptom-based angina has increased from 10 percent to 12 percent. similarly, among older respondents, the prevalence of self-reported angina has decreased from 6 percent to 4 percent. Although there has been an increase from the past among the currently treated respondents, those who have taken chronic therapy have decreased in the period 2007-15.*

Table 7.1.5 Self-reported and symptom-based prevalence of angina and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49								Aged 50-plus							
	Angina self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number	Angina self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Assam	1.8	295	9.2	263	9.0	20	21.5	20	3.2	722	12.6	581	7.4	80	7.1	80
Karnataka	1.9	220	5.1	213	26.7	12	38.4	12	5.7	860	11.9	813	34.9	95	42.5	95
Maharashtra	1.1	342	21.7	258	6.6	53	6.6	53	4.8	1169	35.2	776	10.7	304	11.2	304
Rajasthan	0.2	359	14.1	314	1.5	43	1.5	43	3.6	1454	27.6	1,173	8.1	318	8.5	318
Uttar Pradesh	1.1	328	9.2	278	11.0	25	11.0	25	1.8	1524	15.2	1,269	11.0	206	13.2	206
West Bengal	1.8	446	8.4	370	4.5	31	19.0	31	4.3	1357	18.5	1,032	23.2	194	26.1	194
India (pooled)	**1.3**	**1990**	**11.6**	**1,696**	**7.6**	**184**	**11.3**	**184**	**3.6**	**7086**	**20.2**	**5,644**	**14.0**	**1,197**	**16.1**	**1,197**

Note: Prevalence of angina is the proportion of population affected by angina at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

Table 7.1.6 (a & b) presents the prevalence of angina by selected background characteristics. Among older respondents, the self-reported prevalence was higher among men (5%) than women (3%). interestingly the symptom-based prevalence was found higher among women (18%) than women (22%). The self-reported prevalence was higher in urban areas (6%) than in rural areas (3%), but the symptom-based prevalence was higher in rural (22%) areas compared to an urban area (17%). The self-reported prevalence of angina increased with age, from less than 1% at age 18-29 to 5% among respondents aged 80-plus. Whereas, the symptom-based prevalence increased consistently with age, from less than 1% at age 18-29 to 25% at age 70-79. Following the similar pattern of other most chronic diseases, the prevalence of angina showed a marginal decline in the oldest age group of 80 and above.

The symptom-based prevalence of angina showed a negative relationship with education levels. Neither self-reported nor symptom-based prevalence of angina showed any relationship with the wealth quintile. Again about 16% of respondents diagnosed with angina had received medication or treatment in the last 12 months. However, fewer than 8% of the younger respondents were currently receiving treatment, and this pattern was common across age, sex, residence, education and wealth quintile.

Table 7.1.6 (a) Self-reported and symptom-based prevalence of angina and percentage receiving current or chronic therapy among younger respondents, by background characteristics of the respondents, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Angina Self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	0.3	541	3.3	475	11.3	15	11.3	2
30-39	1.7	597	12.4	507	8.6	61	15.5	8
40-49	1.6	852	17.2	714	6.6	108	9.1	12
Sex								
Male	1.5	829	7.4	731	14.9	54	18.4	54
Female	1.11	1161	14.3	965	5.1	130	9.0	130
Marital status								
Never married	0.2	416	4.0	363	4.9	13	4.9	13
Currently married	1.6	1475	13.0	1250	8.6	158	13.1	158
Widowed	0.5	90	24.9	76	2.3	12	2.2	12
Other[1]	0	9	14.4	7	0	1	0	1
Residence								
Urban	1.5	1580	13.1	342	1.6	36	12.5	36
Rural	1.2	410	11.1	1354	10.0	148	10.9	148
Caste								
Scheduled tribe	3.1	198	14.3	175	5.2	20	22.4	20
Scheduled caste	0.4	415	10.5	364	4.5	35	4.5	35
Other[2]	1.3	1377	11.5	1157	8.9	129	11.4	129
Religion								
Hindu	1.1	1661	10.2	1408	7.9	140	11.2	140
Muslim	2.2	252	15.6	218	6.9	29	14.4	29
Other[3]	1.7	77	28.5	70	6.8	15	6.8	15
Education								
No formal education	1.4	580	13.12	483	7.1	63	12.1	63
Less than primary	0.7	227	25.5	191	1.8	36	3.5	36
Primary school	0.6	345	15.0	303	2.5	40	2.5	40
Secondary school	2.5	374	9.7	313	17.0	33	24.9	33
High school	0.7	313	2.5	272	21.3	7	33.4	7
College and above	0.9	151	2.1	134	52.3	5	52.3	5
Wealth quintile								
Lowest	1.3	380	8.3	322	10.9	32	17.1	32
Second	2.3	422	15.6	364	12.5	51	15.0	51
Middle	1.1	456	10.9	392	4.3	34	12.4	34
Fourth	0.6	372	13.7	313	2.5	36	2.5	36
Highest	1.0	360	9.3	305	9.0	31	11.9	31
Total	**1.3**	**1990**	**11.6**	**1696**	**7.6**	**184**	**11.3**	**184**

Note: Prevalence of angina is the proportion of population affected by angina at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.6 (b) Self-reported and symptom-based prevalence of angina and percentage receiving current or chronic therapy among older respondents, by background characteristics of the respondents, India (pooled), SAGE Wave 2, 2015

Background characteristics	50 Plus							
	Angina Self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	2.5	2894	16.8	2362	12.6	415	13.8	415
60-69	4.3	2575	21.6	2055	14.5	451	17.4	451
70-79	4.4	1277	24.9	982	15.0	261	17.0	261
80+	5.0	340	23.4	245	17.6	70	17.7	70
Sex								
Male	4.6	148	18.3	2719	19.3	526	21.9	526
Female	2.7	103	22.1	2925	10.1	671	11.5	671
Marital status								
Never married	0.0	75	6.9	57	0.0	5	0.0	5
Currently married	3.8	5286	19.7	4260	14.8	867	16.8	867
Widowed	3.2	1682	22.4	1296	12.5	315	14.5	315
Other[1]	2.5	43	32.7	31	11.1	10	11.1	10
Residence								
Urban	5.6	16	16.7	1151	30.1	210	32.0	210
Rural	2.8	5580	21.6	4493	9.5	987	11.5	987
Caste								
Scheduled tribe	2.3	521	21.4	400	6.8	79	10.1	79
Scheduled caste	2.6	1162	22.2	895	7.0	209	11.2	209
Other[2]	3.9	5403	19.8	4349	16.2	909	17.6	909
Religion								
Hindu	3.4	5945	19.9	4723	13.1	995	15.2	995
Muslim	4.2	862	20.4	710	17.6	153	18.2	153
Other[3]	6.9	279	28.0	211	24.9	49	27.2	49
Education								
No formal education	2.0	3554	21.4	2810	6.7	642	8.7	642
Less than primary	3.5	938	20.4	740	16.4	158	16.4	158
Primary school	5.6	976	24.7	781	13.8	175	14.8	175
Secondary school	3.5	674	16.5	539	16.8	99	18.9	99
High school	5.1	545	14.4	452	29.4	71	36.3	71
College and above	9.2	399	16.4	322	53.3	52	55.7	52
Wealth quintile								
Lowest	1.7	1364	18.4	1077	5.7	212	7.4	212
Second	2.5	1298	21.3	1046	8.1	234	10.4	234
Middle	3.4	1312	17.9	1042	17.5	205	18.8	205
Fourth	3.3	1463	20.1	1175	12.2	237	13.4	237
Highest	6.6	1649	23.0	1304	23.8	309	26.6	309
Total	**3.6**	**7086**	**20.2**	**5644**	**14.1**	**1197**	**16.1**	**1197**

Note: Prevalence of angina is the proportion of population affected by angina at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7.1.4 Diabetes mellitus

Unlike the previous chronic conditions, the prevalence of diabetes was based only on self-reported diagnosis and was not based on symptom reporting. Table 7.1.7 presents the self-reported prevalence of diabetes by states. The prevalence of diabetes among older adults was 10% at the national level. Across states, the prevalence among older adults ranged from 7% in Uttar Pradesh to 17% in Karnataka. In this age group, almost three-quarters of those who reported being diagnosed with diabetes had received treatment over the past 12 months, and nearly 66% were currently receiving treatment.

Almost 3% of younger respondents said they had been diagnosed with diabetes. Across the six states, the prevalence ranged from less than 2% in West Bengal and Maharashtra to 6% in Assam and Rajasthan for younger adults.

Trends: *Prevalence of self-reported diabetes has marginally changed between SAGE-1 and SAGE-2, increasing from 1.9 percent in 2007 to 2.6 percent in 2015 among younger respondents. For older respondents, it has increased from 6.9 percent to 9.7 percent in the same time. However, the proportion of respondents who are currently treated for this condition has decreased from 53 percent to 47 percent among younger respondents. For older respondents, in the same period, it has increased from 49 percent to 66 percent. Similarly, for younger respondents, chronic therapy taken has decreased from 69 percent to 51 percent from SAGE-1 and SAGE-2. However, among older respondents, it has barely changed.*

Table 7.1.7 Self-reported prevalence of diabetes and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 2, 2015

State	Age 18-49						Age 50-plus					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	6.1	295	48.7	17	32.8	17	11.1	721	48.2	77	54	77
Karnataka	1.9	220	87.6	5	36.5	5	16.9	861	85.3	129	92	129
Maharashtra	1.6	342	55.2	9	62.8	9	9.4	1169	64.5	119	70	119
Rajasthan	6.2	359	16.3	22	16.3	22	9.6	1454	58.5	143	56	143
Uttar Pradesh	2.0	328	64.6	8	86.6	8	6.7	1526	68.6	110	72	110
West Bengal	1.5	446	58.1	8	100.0	8	10.9	1354	53.6	136	73	136
India (pooled)	**2.63**	**1990**	**47.1**	**69**	**56.0**	**69**	**9.7**	**7085**	**65.5**	**714**	**73**	**714**

Note: Prevalence of diabetes is the proportion of population affected by diabetes at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

Table 7.1.8 (a & b) presents the self-reported prevalence of diabetes by selected background characteristics. Although the prevalence of diabetes among older adults was much higher than for younger adults, within the 50-plus age group it did not increase appreciably with age. Among older adults, diabetes was more prevalent among men (11%) than women (9%) and in urban areas (15%) compared with rural areas (8%). In this older age group, the prevalence of diabetes increased with education levels and wealth quintile; for example, the prevalence increased from 3% in the lowest wealth quintile to 19% for older adults in the highest quintile. Similarly, it increased from 6% among those with no formal education to 20% for those with college and above education. The proportion of older respondents who had received treatment in the previous 12 months increased with education level and wealth quintile.

Table 7.1.8 (a) Self-reported prevalence of diabetes, percentage receiving current or chronic therapy among younger respondents, by selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
18-29	1.0	541	7.7	5	7.7	5
30-39	2.5	597	41.5	22	51.7	22
40-49	3.9	852	56.6	42	57.9	42
Sex						
Male	2.1	829	44.5	23	55.8	23
Female	2.9	1161	48.3	46	48.5	46
Marital status						
Never married	1.0	416	74.7	5	30.8	5
Currently married	3.2	1475	44.4	61	52.7	61
Widowed	1.7	90	49.5	3	49.5	3
Other[1]	0.0	9	NA	NA	NA	NA
Residence						
Urban	3.0	410	56.2	23	82.9	23
Rural	2.5	1580	43.4	46	37.6	46
Caste						
Scheduled tribe	0.8	198	33.6	3	33.6	3
Scheduled caste	3.8	415	31.9	17	33.6	17
Other[2]	2.5	1,377	54.2	49	58.8	49
Religion						
Hindu	2.3	1661	40.5	52	42.5	52
Muslim	4.1	252	74.3	11	80.9	11
Other[3]	4.5	77	38.6	6	53.0	6
Education						
No formal education	3.6	580	46.8	23	42.6	23
Less than primary	3.1	227	56.2	8	67.5	8
Primary school	2.1	345	35.2	11	26.7	11
Secondary school	2.6	374	51.6	12	77.0	12
High school	1.7	313	52.6	9	52.6	9
College and above	1.6	151	28.8	6	28.8	6
Wealth quintile						
Lowest	1.3	380	47.4	6	91.3	6
Second	2.2	422	60.8	10	35.7	10
Middle	3.8	456	43.3	18	51.4	18
Fourth	2.7	372	45.2	13	45.2	13
Highest	2.9	360	44.0	22	48.2	22
Total	**2.6**	**1990**	**47.1**	**69**	**50.8**	**69**

Note: Prevalence of diabetes is the proportion of population affected by diabetes at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 7.1.8 (b) Self-reported prevalence of diabetes, percentage receiving current or chronic therapy among older respondents, by selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 50-plus					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	8.7	2,893	71.0	256	74.5	256
60-69	11.1	2,574	66.6	298	75.3	298
70-79	9.1	1,277	59.2	122	66.1	122
80+	11.1	341	42.6	38	61.6	38
Sex						
Male	11.0	3,322	63.8	365	72.6	365
Female	8.6	0	67.6	349	72.7	349
Marital status						
Never married	11.7	75	79.1	9	66.2	9
Currently married	10.2	5,283	65.9	541	73.5	541
Widowed	8.3	1,684	62.7	161	69.5	161
Other[1]	5.9	43	100.0	3	100.0	3
Residence						
Urban	15.1	1,506	69.8	267	79.3	267
Rural	7.6	5,579	62.2	447	67.4	447
Caste						
Scheduled tribe	6.1	520	78.4	25	78.4	25
Scheduled caste	6.6	1,161	45.7	84	60.5	84
Other[2]	10.6	5,404	67.2	605	73.8	605
Religion						
Hindu	9.2	5,944	67.9	563	73.6	563
Muslim	13.0	862	60.7	120	74.7	10
Other[3]	12.6	279	37.6	31	45.1	31
Education						
No formal education	6.2	3,555	59.9	247	66.4	247
Less than primary	10.2	936	66.3	101	74.7	101
Primary school	10.9	977	66.3	101	81.5	101
Secondary school	12.1	674	62	90	64.3	90
High school	16.4	544	63.5	96	67.4	96
College and above	20.3	399	81.1	79	86.9	79
Wealth quintile						
Lowest	2.9	1,365	34.5	50	51.7	50
Second	7.1	1,296	62.3	89	65.6	89
Middle	7.6	1,312	60.4	111	67.2	111
Fourth	10.4	1,463	63.4	158	73.0	158
Highest	18.9	1,649	73.4	306	79.1	306
Total	**9.7**	**7085**	**65.5**	**714**	**72.7**	**714**

Note: Prevalence of diabetes is the proportion of population affected by diabetes at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7.1.5 Asthma

Table 7.1.9 presents the prevalence of asthma, based on self-reporting of diagnosis as well as symptom reporting, by state. At a national level, the prevalence of asthma among older adults, both self-reported and symptom-based, was 5% and 11%, respectively. Among older respondents the self-reported prevalence was highest, 8% in Rajasthan. In each state, the self-reported prevalence was lower than the symptom-based prevalence by 4-7%.

Nearly one-third (33%) of older respondents who were diagnosed with asthma had received treatment within the previous 12 months. However, a smaller proportion of older respondents (24%) were currently receiving treatment.

The self-reported prevalence of asthma among younger respondents in different states varied by a narrow range of 1-3%. In each state, the symptom-based prevalence was higher than the self-reported prevalence by 1-3%. Less than one-fifth (18%) of younger respondents reporting a diagnosis of asthma had received treatment in the previous 12 months; only 13% were currently receiving treatment, however.

Trends: *Prevalence of self-reported asthma has decreased marginally between SAGE-1 and SAGE-2, decreasing from 7.2 percent in 2007 to 4.8 percent in 2015 among older respondents. Similarly, symptom-based asthma has barely increased from 4 percent in 2007 to 5 percent among younger respondents. The proportion of respondents who are currently treated for arthritis has decreased by 6 percent points for younger respondents and 8 percent points for older respondents. Chronic therapy taken for asthma has halved among younger respondents and decreased by 17 percent points among older respondents in the same period.*

Table 7.1.9 Self-reported and symptom-based prevalence of asthma and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49								Aged 50-plus							
	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Assam	3.7	295	7.1	295	16.1	20	26.5	20	7.0	721	14.0	718	19.7	96	30.9	96
Karnataka	1.2	220	3.0	220	39.6	8	39.6	8	3.0	861	8.5	861	25.0	79	34.0	79
Maharashtra	2.0	342	4.9	342	20.0	18	28.3	18	4.7	1,169	8.9	1,169	30.2	120	37.2	120
Rajasthan	1.8	359	5.5	359	13.9	18	18.1	18	8.2	1,451	13.9	1,453	30.8	199	38.5	199
Uttar Pradesh	1.3	328	6.3	328	9.7	20	12.9	20	4.0	1,526	11.3	1,526	16.7	184	27.8	184
West Bengal	0.5	446	4.2	446	0.0	21	3.1	21	4.9	1,357	11.4	1,357	28.7	158	33.8	158
India (pooled)	**1.5**	**1,990**	**5.2**	**1,990**	**13.2**	**105.0**	**18.1**	**105**	**4.8**	**7,085**	**10.9**	**7,084**	**24.4**	**836**	**33.0**	**836**

Note: Prevalence of asthma is the proportion of the population affected by asthma at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

The self-reported and symptom-based prevalence of asthma by selected background characteristics are presented in Table 7.1.10 (a & b). Both the self-reported and symptom-based prevalence of asthma increased with age. The prevalence of self-reported asthma increased from 1% in the 18-29 age group to 3% in the 50-59 age group, then increased to 8% among the oldest adults aged 80-plus.

Among older respondents, the prevalence of asthma was higher among men than among women: one in seven males reported having symptoms of asthma, compared with one in ten females. The prevalence of self-reported asthma diagnosis was slightly higher in rural (5%) than in urban areas (4%).

Besides, the percentage of those experiencing symptoms was higher in rural (12%) than in urban areas (7%). The symptom-based prevalence decreased with educational level and wealth quintile. Similarly, the self-reported prevalence bore a negative relationship with wealth quintile only.

Table 7.1.10 (a) Self-reported and symptom-based prevalence of asthma and percentage receiving current or chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	0.9	541	3.3	541	22.3	17	22.3	17
30-39	1.0	597	2.9	597	13.5	23	11.7	23
40-49	2.3	852	8.1	852	10.5	65	18.5	65
Sex								
Male	1.5	829	4.2	829	10.6	41	16.3	41
Female	1.5	1161	5.7	1161	14.3	64	18.9	64
Marital status								
Never married	1.3	416	3.7	416	29.6	12	29.6	12
Currently married	1.4	1,475	5.5	1,475	7.0	86	12.7	86
Widowed	4.5	90	6.2	90	57.7	6	57.7	6
Other[1]	5.6	9	5.6	9	0.0	1	100.0	1
Residence								
Urban	0.9	410	4.8	410	9.3	17	10.4	17
Rural	1.7	1,580	5.3	1,580	14.4	88	20.5	88
Caste								
Scheduled tribe	2.2	198	8.1	198	10.1	18	19.9	18
Scheduled caste	1.7	415	5.5	415	15.8	23	18.3	23
Other[2]	1.3	1,377	4.7	1,377	13.0	64	17.6	64
Religion								
Hindu	1.4	1,661	4.3	1,661	12.9	76	18.5	76
Muslim	1.5	252	10.6	252	8.6	23	12.5	23
Other[3]	4.4	77	7.3	77	42.8	6	42.8	6
Education								
No formal education	1.5	580	7.8	580	10.7	41	15.7	41
Less than primary	2.7	227	8.8	227	2.6	18	4.8	18
Primary school	2.7	345	5.3	345	15.1	20	27.5	20
Secondary school	0.5	374	2.3	374	13.0	12	17.3	12
High school	1.3	313	2.8	313	46.0	11	46.8	11
College and above	0.3	151	1.7	151	14.8	3	0.0	3
Wealth quintile								
Lowest	2.2	380	9.1	380	6.6	33	11.7	33
Second	0.7	422	3.9	422	7.3	16	7.3	16
Middle	1.2	456	4.6	456	12.6	20	14.5	20
Fourth	2.2	372	3.8	372	24.8	19	45.6	19
Highest	1.1	360	4.3	360	24.3	17	22.3	17
Total	**1.5**	**1990**	**5.2**	**1990**	**13.2**	**105**	**18.1**	**105**

Note: Prevalence of asthma is the proportion of the population affected by asthma at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.10 (b) Self-reported and symptom-based prevalence of asthma and percentage receiving current or chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	3.3	2,894	9.0	2,893	15.2	281	25.2	281
60-69	5.3	2,573	11.1	2,573	28.7	313	36.6	313
70-79	6.7	1,278	13.9	1,277	30.7	186	38.2	186
80+	7.7	340	15.1	341	25.1	56	34.0	56
Sex								
Male	5.9	3,324	12.9	3,322	26.7	452	34.7	452
Female	3.9	3,761	9.1	3,762	21.4	384	30.7	384
Marital status								
Never married	1.9	75	13.9	75	0.7	12	0.7	12
Currently married	4.8	5,284	11.0	5,282	23.8	621	33.0	621
Widowed	5.1	1,683	10.6	1,684	26.8	197	34.4	197
Other[1]	10.1	43	14.4	43	50.4	6	50.4	6
Residence								
Urban	3.6	1,505	7.3	1,506	26.5	141	32.7	141
Rural	5.3	5,580	12.4	5,578	23.9	695	33.0	695
Caste								
Scheduled tribe	5.6	521	11.1	520	26.3	58	36.8	58
Scheduled caste	6.0	1,162	13.9	1,160	25.7	163	34.4	163
Other[2]	4.6	5,402	10.4	5,404	23.9	615	32.3	615
Religion								
Hindu	4.8	5,944	10.6	5,946	25.4	685	33.8	685
Muslim	5.3	862	13.1	859	20.9	121	31.4	121
Other[3]	5.8	279	12.4	279	14.2	30	20.4	30
Education								
No formal education	4.9	3,551	12.1	3,553	21.9	469	31.0	469
Less than primary	6.4	939	12.7	939	30.8	129	42.2	129
Primary school	4.9	977	11.0	975	21.2	114	30.4	114
Secondary school	5.6	674	10.4	673	33.7	67	33.0	67
High school	3.3	545	6.0	545	22.6	34	32.6	34
College and above	2.3	399	5.9	399	23.7	23	32.5	23
Wealth quintile								
Lowest	5.9	1,363	13.7	1,363	20.3	189	32.1	189
Second	5.2	1,297	12.7	1,298	18.3	171	27.9	171
Middle	4.7	1,313	10.1	1,313	29.3	146	37.2	146
Fourth	4.1	1,463	10.3	1,462	27.5	174	35.3	174
Highest	4.4	1,649	8.4	1,648	29.2	156	33.5	156
Total	**4.8**	**7085**	**10.9**	**7084**	**24.4**	**836**	**33.0**	**836**

Note: Prevalence of asthma is the proportion of the population affected by asthma at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions

7.1.6 Depression

Respondents were asked whether they had ever been diagnosed with depression and whether they had experienced symptoms of depression in the past 12 months. The diagnosis of depression derived from the reporting of symptoms was based on the International Classification of Diseases, 10th Edition, Diagnostic Criteria for Research (ICD-10-DCR).

The self-reported and symptom-based prevalence of depression is presented by the state in table 7.1.11. The survey found a self-reported prevalence of depression of a slightly higher than 2% among younger adults and a lower value than 2% among those aged 50-plus. In both age groups, the symptom-based prevalence was much higher than the self-reported prevalence: among younger and older adults, 6% and 12% respectively met the criteria for a diagnosis of depression.

By state, for older respondents, Rajasthan had the highest (5%) prevalence of self-reported depression and Uttar Pradesh (1%) the lowest. However, in terms of symptom-based prevalence among older respondents, West Bengal (15%) and Rajasthan and Uttar Pradesh (15%) strongly outstripped other states. The self-reported prevalence of depression among young adults aged 18-49 ranged from 0.9% in Maharashtra to 6% in Karnataka. The symptom-based prevalence was also highest in Karnataka (16%). In West Bengal, only 1% of respondents were diagnosed with depression; however, 6% met the diagnostic criteria based on symptom reporting.

Trends: *Prevalence of self-reported depression has declined between SAGE-1 and SAGE-2. It has decreased from 3.2 percent in 2007 to 2.4 percent in 2015 among younger respondents. For older respondents, it has decreased from 4.1 percent to 1.9 percent in the same time. Similarly, there has been a decrease in the prevalence of symptom-based depression also. For older respondents, in the same period, it has decreased from 19 percent to 12 percent. However, the proportion of respondents who are currently treated for this condition has increased from 4.5 percent to 12.8 percent among younger respondents. Similarly, for younger respondents, chronic therapy taken has increased from 8 percent to 16 percent from SAGE-1 and SAGE-2. However, among older respondents, it has barely changed.*

At the national level, among older respondents diagnosed with depression, 5% had received treatment in the past 12 months and a similar percentage were currently receiving treatment. Similarly, only 16% of younger respondents diagnosed with depression had received treatment in the past 12 months. However, 13% were currently receiving treatment.

Table 7.1.11 Self-reported and symptom-based prevalence of depression and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 2, 2015

States	Aged 18-49								Aged 50-plus							
	Depression self-reported	Number	Depression symptom- based	Number	Currently treated	Number	Chronic therapy	Number	Depression self-reported	Number	Depression symptom- based	Number	Currently treated	Number	Chronic therapy	Number
Assam	3.2	295	3.5	295	8.9	11	16.9	11	4.2	722	3.2	722	4.1	23	0.0	23
Karnataka	6.1	220	9.5	220	18.2	19	17.6	19	2.5	861	11.8	859	5.3	99	3.7	99
Maharashtra	0.9	342	3.7	342	5.5	14	15.9	14	0.9	1,169	11.0	1,169	2.6	129	3.8	129
Rajasthan	3.3	359	4.4	359	9.5	19	14.2	19	5.2	1,452	12.5	1,454	10.8	171	16.7	171
Uttar Pradesh	2.2	328	7.0	328	18.2	23	18.2	23	0.7	1,525	12.5	1,523	2.3	197	1.4	197
West Bengal	1.3	446	6.3	446	7.8	31	10.6	31	1.8	1,357	15.0	1,353	5.7	188	6.4	188
India (pooled)	**2.4**	**1,990**	**5.8**	**1,992**	**12.8**	**117**	**15.5**	**117**	**1.9**	**7,086**	**12.1**	**7,080**	**4.6**	**807**	**5.1**	**807**

Note: Prevalence of depression is the proportion of population affected by depression at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

The self-reported prevalence increased with age, from 1% at age 18-29 to 3% at age 40-49. By comparison, the symptom-based prevalence of depression increased sharply from 3% at age 18-29 to 15% in adults aged 80-plus (Table 7.1.12 (a & b)). Among both older and younger adults, the self-reported prevalence and symptom-based prevalence was higher among women than men, whereas the symptom-based prevalence was higher for women than men. Rural people had a higher percentage of depression self-reported and depression symptom-based among younger and adult respondents.

The self-reported prevalence of depression did not vary consistently with either education or wealth; however, the symptom-based prevalence decreased with both education level and wealth quintile.

Table 7.1.12 (a) Self-reported and symptom-based prevalence of depression and percentage receiving current or chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Depression self-reported	Number	Depression symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	1.4	541	3.3	541	32.2	15	32.2	15
30-39	2.1	5977	4.5	597	9.5	31	17.4	31
40-49	3.3	852	8.5	852	8.7	71	10.3	71
Sex								
Male	1.6	829	4.3	829	10.4	37	17.6	37
Female	2.8	1,161	6.7	1,161	13.7	80	14.7	80
Marital status								
Never married	2.3	416	4.8	416	32.8	15	32.8	15
Currently married	2.3	1,475	5.7	1,475	8.6	88	12.4	88
Widowed	4.0	90	10.2	90	8.2	11	8.2	11
Other[1]	0.0	9	21.6	9	0.0	3	0.0	3
Residence								
Urban	1.7	410	4.9	410	25.3	17	25.3	17
Rural	2.6	1,580	6.1	1,580	9.3	100	12.9	100
Caste								
Scheduled tribe	0.8	198	6.7	198	0.0	12	6.5	12
Scheduled caste	3.4	415	5.5	415	10.6	26	25.8	26
Other[2]	2.3	1,377	5.8	1,377	15.3	79	14.1	79
Religion								
Hindu	2.4	1,661	5.9	1,661	13.4	98	16.2	98
Muslim	1.7	252	6.2	252	7.2	16	10.0	16
Other[3]	3.7	77	2.5	77	29.5	3	29.5	3
Education								
No formal education	3.2	580	7.9	580	9.7	46	11.0	46
Less than primary	1.6	227	7.7	227	4.1	19	9.0	19
Primary school	1.1	345	5.3	345	8.2	19	8.2	19
Secondary school	1.9	374	4.7	374	7.4	18	10.1	18
High school	1.0	313	2.0	313	14.6	9	14.6	9
College and above	7.1	151	6.7	151	59.4	6	72.7	6
Wealth quintile								
Lowest	3.4	380	8.4	380	24.2	31	22.1	31
Second	3.5	422	7.8	422	6.8	28	12.8	28
Middle	1.9	456	3.8	456	16.5	20	20.9	20
Fourth	2.1	372	4.9	372	8.7	21	8.7	21
Highest	1.0	360	4.3	360	0.0	17	8.8	17
Total	**2.4**	**1,990**	**5.8**	**1,992**	**12.8**	**117**	**15.5**	**117**

Note: Prevalence of depression is the proportion of population affected by depression at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.12 (b) Self-reported and symptom-based prevalence of depression and percentage receiving current or chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Depression self - reported	Number	Depression symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	1.3	2,894	10.2	2,892	2.3	282	2.7	282
60-69	2.0	2,574	13.0	2,571	6.8	318	7.4	318
70-79	2.6	1,278	13.5	1,276	5.3	158	5.9	158
80+	2.6	340	15.1	341	1.2	49	2.3	49
Sex								
Male	1.8	3,325	11.3	2,231	6.3	351	6.1	351
Female	1.9	3,761	12.7	3,759	3.2	456	4.3	456
Marital status								
Never married	1.8	75	18.8	75	0.0	14	0.0	14
Currently married	1.6	5,285	10.7	5,279	5.2	539	6.4	539
Widowed	2.5	1,683	16.2	1,683	3.2	248	3.0	248
Other[1]	4.4	43	14.3	43	16.6	6	0.0	6
Residence								
Urban	1.0	1,505	11.2	1,505	4.3	144	4.6	144
Rural	2.2	5,581	12.4	5,575	4.7	663	5.3	663
Caste								
Scheduled tribe	1.8	520	12.3	520	5.3	55	4.3	55
Scheduled caste	2.6	1,162	13.3	1,162	6.7	141	7.3	141
Other[2]	1.7	5,404	11.8	5,398	4.1	611	4.8	611
Religion								
Hindu	1.8	5,945	12.1	5,942	4.5	681	4.8	681
Muslim	2.1	862	11.7	859	5.5	102	7.2	102
Other[3]	1.5	279	11.6	279	4.1	24	7.7	24
Education								
No formal education	1.9	3,552	12.6	3,552	3.2	417	3.9	417
Less than primary	2.2	939	11.7	938	6.1	110	3.3	110
Primary school	2.2	977	14.5	974	5.3	141	8.4	141
Secondary school	1.6	674	10.4	673	3.5	62	2.7	62
High school	1.3	545	10.6	544	8.1	43	8.1	43
College and above	1.3	399	8.5	399	8.6	34	11.5	34
Wealth quintile								
Lowest	1.8	1,363	14.3	1,364	2.6	196	1.8	196
Second	2.4	1,297	12.9	1,296	4.8	155	5.6	155
Middle	1.7	1,313	12.5	1,311	2.9	149	3.1	149
Fourth	1.5	1,464	11.5	1,461	5.9	155	7.1	155
Highest	2.0	1,649	9.7	1,648	7.1	152	9.1	152
Total	**1.9**	**7,086**	**12.1**	**7,080**	**4.6**	**807**	**5.1**	**807**

Note: Prevalence of depression is the proportion of population affected by depression at a specific time. Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7.1.7 Hypertension

The prevalence of hypertension was estimated based on self-reported diagnosis and direct measurement of blood pressure with the help of an automated recording device (see Chapter 2). Table 7.1.13 presents the prevalence of hypertension by state. A comparative assessment of self-reported versus measured hypertension is given in Chapter 8. The prevalence of self-reported hypertension among younger and older respondents was 9% and 20% respectively. However, based on the measurement of blood pressure, a much larger proportion of respondents had hypertension: 17% among younger and 39% among older adults. Among older adults, the lowest prevalence of self-reported hypertension was in Uttar Pradesh (12%); the highest prevalence (32%) was reported in Assam. In all states, the measured prevalence of hypertension among older respondents was much greater than the self-reported prevalence.

Among younger respondents, the prevalence by the state of self-reported hypertension ranged from 7% in Karnataka to 17% in Assam. By contrast, based on the measurement of blood pressure the prevalence of hypertension was lowest in Rajasthan (13%). Furthermore, in the remaining five states, at least 16% of respondents in this group had blood pressure exceeding normal levels. Based on measured blood pressure, the highest level of hypertension was recorded in Karnataka (20%).

Trends: *Prevalence of self-reported hypertension has substantially increased between SAGE-1 and SAGE-2. It has increased from 6.9 percent in 2007 to 8.8 percent in 2015 among younger respondents. However, there has been a decline in the proportion having measured hypertension for them. For older respondents, self-reported hypertension increased from 17 percent to 20 percent at the same time. Similarly, there has been an increase in the prevalence of measured hypertension also. For older respondents, in the same period, it has increased from 36 percent to 39 percent. However, the proportion of respondents who are currently treated for this condition has doubled from 10 percent to 21 percent among younger respondents. Similarly, for younger respondents, chronic therapy taken has increased from 21 percent to 27 percent from SAGE-1 and SAGE-2. However, among older respondents, the proportion of respondents who had chronic therapy has decreased from the past.*

Table 7.1.13 Prevalence of self-reported hypertension and prevalence based on measurement of blood pressure and percentage receiving current and chronic therapy, states and India (pooled), SAGE Wave 2, 2015

State	Age 18-49								Age 50-plus							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Assam	17.3	294	18.9	292	12.2	56	26.6	56	31.8	721	40.1	714	22.8	282	25.5	282
Karnataka	6.8	219	19.9	199	17.7	46	19.3	46	24.0	855	54.7	758	36.4	426	39.3	426
Maharashtra	7.6	342	16.4	327	16.6	57	18.0	57	16.6	1,168	36.6	1,114	19.5	393	19.9	393
Rajasthan	10.5	359	12.9	336	19.2	43	41.3	43	24.1	1,451	34.2	1,378	30.8	481	37.5	481
Uttar Pradesh	8.1	328	18.2	315	21.0	54	28.7	54	12.2	1,523	32.1	1,441	18.3	470	19.4	470
West Bengal	7.6	446	16.8	435	31.3	75	30.4	75	28.9	1,354	47.0	1,320	46.6	616	48.5	616
India (pooled)	**8.8**	**1,988**	**17.1**	**1,904**	**21.0**	**331**	**26.8**	**331**	**19.9**	**7,072**	**38.9**	**6,725**	**29.2**	**2,668**	**31.3**	**2,668**

Note: Hypertension: systolic blood pressure ≥140 mmHg and/or diastolic blood pressure ≥90 mmHg. Prevalence of hypertension is the proportion of population affected by hypertension at a specific time.

Current therapy or currently treated refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

About one-fourth of younger respondents and one-third of older respondents who reported being diagnosed with hypertension had received treatment in the last 12 months. However, only 21% and 29% respectively were currently receiving treatment.

Table 7.1.14 (a & b) presents the prevalence of hypertension by selected background characteristics of respondents. The prevalence of hypertension increased with age, based on both self-reported and measurement-based findings. The self-reported prevalence rose from 3% at age 18-29 to 12% at age 40-49, and further to 24% in the 70-79 age group. A higher proportion of females than males reported having hypertension. Based on the direct measurement of blood pressure, females were more likely to have hypertension than males in the respective age group.

The prevalence of self-reported hypertension, especially among older respondents, bore a positive relationship with both education levels and wealth; for example, more than a quarter of older respondents with either a college education (29%) or from the highest wealth quintile (30%) reported being diagnosed with hypertension.

However, based on measured blood pressure, respondents from every educational level and wealth quintile were almost equally likely to be hypertensive. 27% of younger respondents and 31% of the older respondents who reported being diagnosed with hypertension had received treatment in the previous 12 months.

Table 7.1.14 (a) Self-reported hypertension and prevalence based on measurement of blood pressure and percentage receiving current and chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	2.6	540	6.6	520	14.5	32	27.4	32
30-39	9.8	596	14.4	571	19.3	83	26.6	83
40-49	12.3	852	26.4	813	22.8	216	26.7	216
Sex								
Male	7.0	827	16.9	790	18.2	133	20.9	133
Female	9.8	1,161	17.2	1,114	22.7	198	30.2	198
Marital status								
Never married	3.8	416	7.9	402	18.6	30	33.0	30
Currently married	9.9	1,473	19.0	1,407	20.7	273	26.5	273
Widowed	15.0	90	30.4	86	27.8	27	22.9	27
Other[1]	0.0	9	10.9	9	0.0	1	0.0	1
Residence								
Urban	8.3	409.0	19.3	384	25.9	81	27.3	81
Rural	8.9	1579.0	16.3	1520	19.1	250	26.6	250
Caste								
Scheduled tribe	6.2	198	15.2	189	2.8	32	8.0	32
Scheduled caste	8.2	415	15.4	399	18.1	65	30.8	65
Other[2]	9.3	1,375	17.8	1,316	23.8	234	27.9	234
Religion								
Hindu	8.4	1,660	16.7	1,589	19.9	267	25.2	267
Muslim	9.2	252	19.1	240	29.8	49	36.1	49
Other[3]	15.2	76	19.8	75	12.3	15	26.7	15
Education								
No formal education	7.9	580	21.7	551	12.8	114	17.0	114
Less than primary	11.0	226	23.0	221	19.3	48	38.4	48
Primary school	7.9	345	16.5	337	24.4	58	23.1	58
Secondary school	10.2	374	12.1	361	25.9	57	28.3	57

Background characteristics	Aged 18-49							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
High school	8.0	313	11.5	299	32.8	34	37.6	34
College and above	8.6	150	16.2	135	33.8	20	45.5	20
Wealth quintile								
Lowest	5.4	380	14.3	362	7.2	47	12.9	47
Second	8.9	422	22.0	409	14.4	91	19.3	91
Middle	7.3	456	14.8	442	24.3	65	28.2	65
Fourth	9.0	371	15.4	353	30.5	59	40.9	59
Highest	14.2	359	19.5	338	29.5	69	34.2	69
Total	**8.8**	**1988**	**17.1**	**1904**	**21.0**	**331**	**26.8**	**331**

Note: Hypertension: systolic blood pressure≥140 mmHg and/or diastolic blood pressure/≥90 mm Hg. Prevalence of hypertension is the proportion of population affected by hypertension at a specific time.
Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.14 (b) Self-reported hypertension and prevalence based on measurement of blood pressure and percentage receiving current and chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	16.6	2,888	33.7	2,721	28.2	921	29.4	921
60-69	21.5	2,569	39.3	2,463	30.3	1,015	32.6	1,015
70-79	23.6	1,275	47.6	1,214	29.5	574	32.4	574
80+	22.9	340	46.6	327	27.7	158	30.2	158
Sex								
Male	17.6	3,320	35.5	3,141	28.9	1,153	31.2	1,153
Female	22.1	3,752	41.9	3,584	29.4	1,515	31.4	1,515
Marital status								
Never married	17.5	75	42.0	71	13.3	24	8.8	24
Currently married	19.1	5,275	36.1	5,010	31.5	1,874	33.3	1,874
Widowed	22.9	1,679	47.5	1,605	24.3	753	27.4	753
Other[1]	15.2	43	37.0	39	36.0	17	32.2	17
Residence								
Urban	25.0	1,504	46.1	1,377	35.5	693	38.6	693
Rural	17.9	5,568	36.1	5,348	26.2	1975	27.8	1975
Caste								
Scheduled tribe	11.8	520	37.2	501	11.9	185	17.5	185
Scheduled caste	17.4	1,158	33.6	1,097	26.6	392	28.5	392
Other[2]	21.1	5,394	40.0	5,127	30.9	2,091	32.8	2,091
Religion								
Hindu	19.6	5,934	39.0	5,635	28.8	2,227	30.7	2227
Muslim	20.5	859	36.7	827	31.7	325	36.5	325
Other[3]	27.6	279	43.3	263	30.4	116	28.7	116
Education								
No formal education	16.5	3,545	37.1	3,374	22.2	1,268	24.9	1268
Less than primary	20.4	937	40.1	886	32.3	371	32.4	371
Primary school	20.1	975	36.2	935	27.4	361	31.1	361
Secondary school	28.0	673	43.9	642	40.4	276	43.0	276
High school	21.9	543	40.5	514	31.3	214	33.1	214
College and above	29.3	399	45.6	374	50.7	178	49.3	178

Background characteristics	Aged 50-plus							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Wealth quintile								
Lowest	14.2	1,362	34.4	1,297	20.5	455	21.7	455
Second	14.7	1,291	36.6	1,237	21.2	452	24.5	452
Middle	18.9	1,311	38.8	1,243	30.4	496	31.0	496
Fourth	20.4	1,461	40.2	1,380	28.1	564	29.2	564
Highest	29.5	1,647	43.5	1,568	40.6	701	44.4	701
Total	**19.9**	**7072**	**38.9**	**6725**	**29.2**	**2668**	**31.3**	**2668**

Note: Hypertension: systolic blood pressure≥140 mmHg and/or diastolic blood pressure/≥90 mm Hg. Prevalence of hypertension is the proportion of population affected by hypertension at a specific time.
Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks. Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

7.1.8 Chronic lung disease

SAGE estimated the prevalence of chronic lung disease based on the self-reported diagnosis. The prevalence of lung disease is presented by the state in Table 7.1.15. At a national level, the self-reported prevalence of lung disease among older respondents was estimated at 2%, with the lowest levels in Maharashtra (1%) and the highest in Rajasthan (4%). Among younger respondents, 0.5% reported a diagnosis of lung disease, with prevalence again the lowest in Maharashtra and Uttar Pradesh (0.2%) and highest in Rajasthan (1.1%).

Trends: *Prevalence of lung disease (Self-reported) has decreased substantially from SAGE-1, decreasing from 2.3 percent in 2007 to 0.5 percent in 2015 among younger respondents and from 4.5 percent in 2007 to 2 percent in 2015 among older respondents. There has been an increase in the proportion of respondents who had current therapy for the disease. However, the proportion of having chronic therapy has decreased between 2007 and 2015.*

Table 7.1.15 Self-reported prevalence of lung disease and percentage receiving current and chronic therapy, states and India (pooled), SAGE Wave 2, 2015

States	Aged 18-49						Aged 50-plus					
	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	0.5	294	0.0	2	0.0	2	2.0	722	28.9	16	7.8	16
Karnataka	0.7	220	0.0	2	0.0	2	2.1	860	53.4	17	58.0	17
Maharashtra	0.2	341	0.0	1	0.0	1	1.0	1168	68.4	18	55.9	18
Rajasthan	1.1	358	16.3	5	33.2	5	4.3	1453	43.2	54	51.3	54
Uttar Pradesh	0.2	328	0.0	1	100.0	1	1.9	1527	23.5	33	26.1	33
West Bengal	0.6	446	100.0	2	0.0	2	2.1	1354	62.3	31	61.5	31
India (pooled)	**0.5**	**1,987**	**30.9**	**13**	**21.3**	**13**	**2.1**	**7,084**	**43.9**	**169**	**44.8**	**169**

Note: Prevalence of lung dysfunction is the proportion of population affected by lung dysfunction at a specific time.
Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

Table 7.1.16 (a & b) shows the prevalence of lung disease by selected background characteristics. The self-reported prevalence of lung disease increased with age. The self-reported prevalence increased from 1% in the 40-49 age group to 3% for those in the 70-79 age group. The prevalence of lung disease based on self-reporting was higher among men than women.

It was also higher in rural areas than in urban areas. Self-reported prevalence of lung disease did not show any relationship with wealth, but symptom-based prevalence showed a negative relationship with wealth quintile.

Table 7.1.16 (a) Self-reported prevalence of lung disease and percentage receiving current and chronic therapy among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
18-29	0.0	541	NA	NA	NA	NA
30-39	0.1	595	0.0	1	0.0	1
40-49	1.0	851	33.8	12	23.4	12
Sex						
Male	0.9	828	26.6	8	23.6	8
Female	0.2	1159	40.4	5	16.1	5
Marital status						
Never married	0.4	416	0.0	2.0	56	2
Currently married	0.4	1472	52.8	8.0	17	8
Widowed	2.2	90	0.0	3.0	0	3
Other[1]	0.0	9	NA	NA	NA	NA
Residence						
Urban	0.3	410	100.0	1	0.0	1
Rural	0.5	1577	15.1	12	26.2	12
Caste						
Scheduled tribe	1.0	197	0.0	2	59.1	2
Scheduled caste	0.4	414	0.0	2	0.0	2
Other[2]	0.4	1376	47.7	9	15.5	9
Religion						
Hindu	0.4	1658	6.6	11	28.8	11
Muslim	1.0	252	100.0	2	0.0	2
Other[3]	0.0	77	NA	NA	NA	NA
Education						
No formal education	1.1	579	45.7	8	31.6	8
Less than primary	0.3	225	0.0	1	0.0	1
Primary school	0.6	345	0.0	3	0.0	3
Secondary school	0.1	374	0.0	1	0.0	1
High school	0.0	313	NA	NA	NA	NA
College and above	0.0	151	NA	NA	NA	NA
Wealth quintile						
Lowest	1.1	380	62.2	5	32.7	5
Second	0.1	421	0.0	1	0.0	1
Middle	0.7	455	0.0	6	14.2	6
Fourth	0.2	372	0.0	1	0.0	1
Highest	0.0	359	NA	NA	NA	NA
Total	**0.5**	**1987**	**30.9**	**13**	**21.3**	**13**

Note: Prevalence of lung dysfunction is the proportion of population affected by lung dysfunction at a specific time.

Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 7.1.16 (b) Self-reported prevalence of lung disease and percentage receiving current and chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus					
	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	1.6	2,893	53.6	51	49.1	51
60-69	2.3	2,574	31	63	41.9	63
70-79	2.6	1,277	53.1	45	48.0	45
80+	2.5	340	46.2	10	29.7	10
Sex						
Male	2.9	3,321	47.9	107	47	107
Female	1.4	3,763	36.1	62	40.4	62
Marital status						
Never married	3.6	74	100	4	49	4
Currently married	2.2	5,285	100	127	47.2	127
Widowed	1.8	1,682	100	38	35.1	38
Other[1]	0.0	43	NA	NA	NA	NA
Residence						
Urban	1.6	1,504	61.3	38	58.1	38
Rural	2.3	5,580	38.9	131	40.9	131
Caste						
Scheduled tribe	2.7	521	76	14	76	14
Scheduled caste	2.2	1,162	41.7	26	44.1	26
Other[2]	2	5,401	40.9	129	41.5	129
Religion						
Hindu	2	5,944	47.3	134	45.9	134
Muslim	2.5	861	24.8	25	35.2	25
Other[3]	3.1	279	42.5	10	54.6	10
Education						
No formal education	1.5	3,555	36.5	68	41.6	68
Less than primary	2.6	938	46.9	26	44.6	26
Primary school	2.5	975	59.1	24	63.2	24
Secondary school	2.4	674	52.8	20	44.7	20
High school	2.1	545	24.6	14	32.4	14
College and above	4	397	45.8	17	38.4	17
Wealth quintile						
Lowest	2.1	1,364	31.8	33	33.2	33
Second	2.2	1,298	41.9	32	47.3	32
Middle	1.2	1,312	54.3	22	44.1	22
Fourth	2.3	1,464	37.2	39	37.6	39
Highest	2.4	1,646	56.5	43	58.2	43
Total	**2.1**	**7084**	**43.9**	**169**	**44.8**	**169**

Note: Prevalence of lung dysfunction is the proportion of population affected by lung dysfunction at a specific time.

Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.

Chronic therapy/treatment refers to respondents who received medication or treatment over the previous 12 months.

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

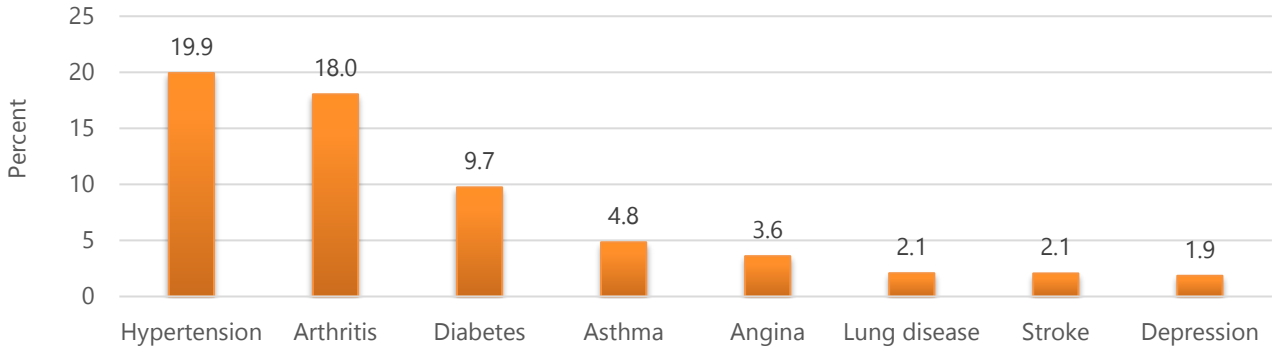
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

7.1.9 Chronic conditions among persons aged 50-plus

In earlier sections, prevalence rates by self-report and also by symptom reporting were discussed separately for arthritis, stroke, angina pectoris, diabetes mellitus, asthma, depression, hypertension and chronic lung disease. This section summarises the discussion on the prevalence of these diseases among older respondents.

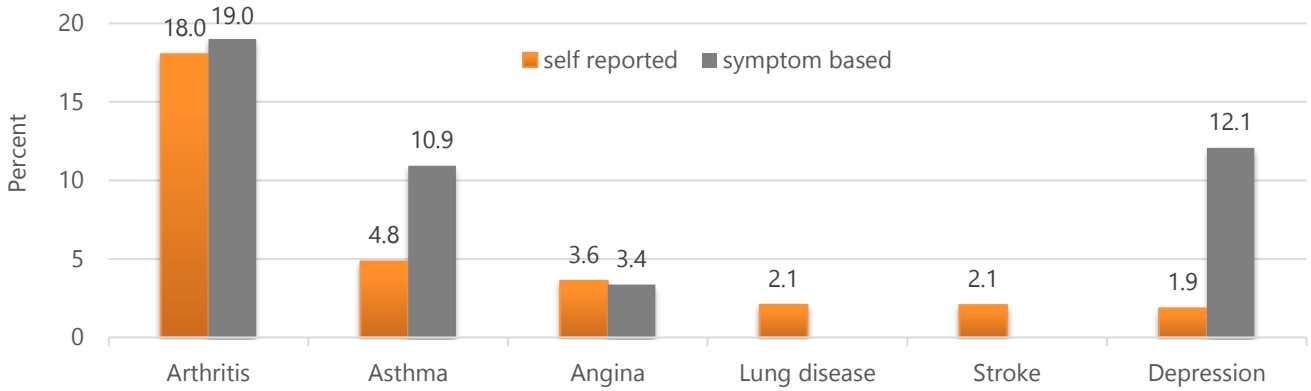
Figure 7.1 presents the self-reported prevalence of these eight chronic diseases among older respondents. Arthritis was the most prevalent chronic disease, affecting 20% of respondents, followed by hypertension (18%). Around one in every ten people reported having diabetes. The prevalence of asthma was 5%, while that of chronic lung disease, depression and stroke was around 2%

Figure 7.1 Self-reported prevalence of chronic diseases among respondents aged 50-plus, India (pooled), SAGE Wave 2, 2015



Many adults may not seek medical care for adverse health conditions, and thus may not be diagnosed; therefore, calculating symptom-based prevalence can improve prevalence estimates. Figure 7.2 compares the self-reported and symptom-based prevalence of diseases, excluding diabetes and hypertension. The symptom-based prevalence of arthritis and asthma was higher by 1% and 5% respectively than the self-reported prevalence. In contrast, the symptom-based prevalence of angina was more or less the same as self-reported. However, the symptom-based prevalence of depression was substantially higher than the self-reported prevalence. Only 2% of older respondents were diagnosed with depression, but 12% reported experiencing symptoms of depression.

Figure 7.2 Self-reported and symptom-based prevalence of chronic diseases among respondents aged 50 plus, India (pooled), SAGE Wave 2, 2015



There was a wide variation in the prevalence of these diseases across the states. Figure 7.3 shows the self-reported prevalence of these diseases in different states. As mentioned earlier, arthritis and hypertension were the most prevalent diseases among older respondents, and lung disease, depression and stroke were the least prevalent. In Assam, Karnataka and Maharashtra arthritis was the most prevalent, followed by hypertension.

In West Bengal, Karnataka and West Bengal hypertension were the most prevalent. In Rajasthan, asthma was more prevalent than arthritis. Lung disease, depression and stroke were the least prevalent diseases in most states; in Karnataka, however, Asthma was the third most prevalent, and in Rajasthan chronic lung disease was the fifth most common disease although the prevalence rate highest among all states..

Figure 7.3 Self-reported prevalence of chronic diseases among respondents aged 50-plus by state, SAGE Wave 2, 2015

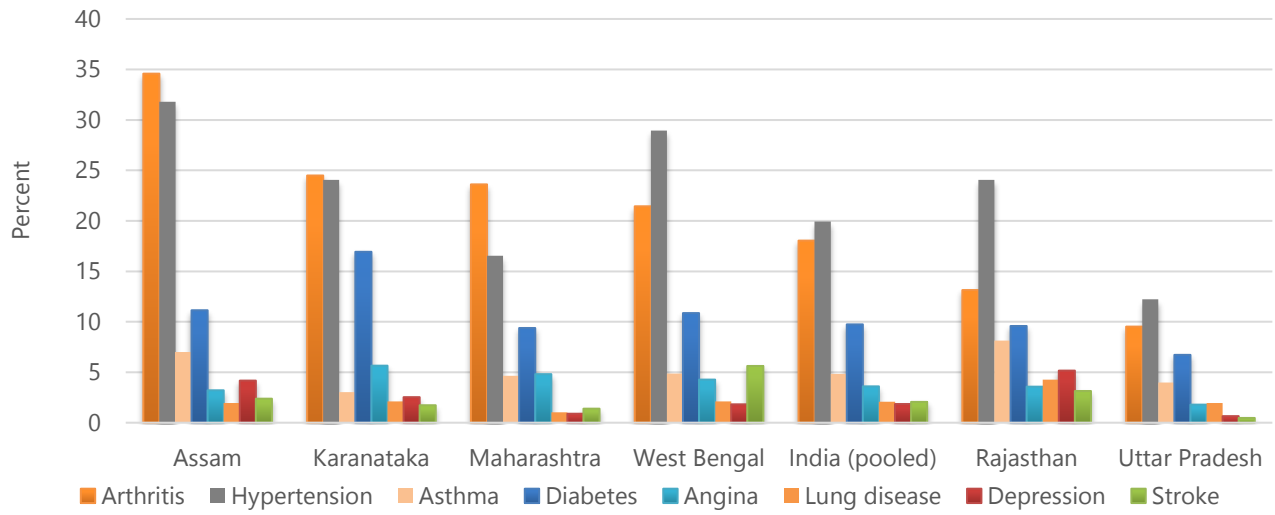


Figure 7.4 compares the self-reported prevalence of chronic diseases among men and women. A higher proportion of women than men were diagnosed with arthritis and hypertension, while the prevalence of the remaining six diseases was higher among men than women (although the differences between male and female prevalence were not large).

Figure 7.4 Self-reported prevalence of chronic diseases among men and women aged 50-plus, India (pooled), SAGE Wave 2, 2015

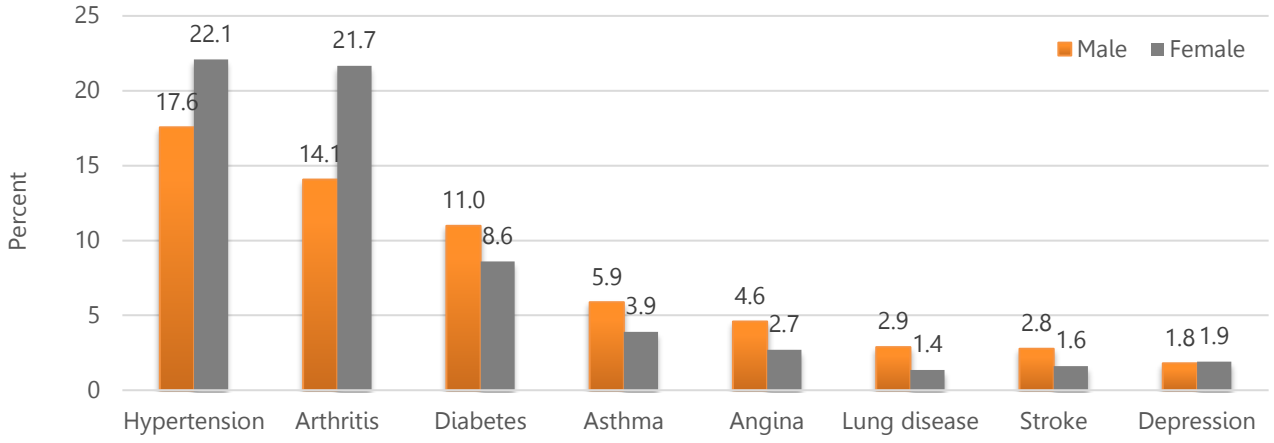
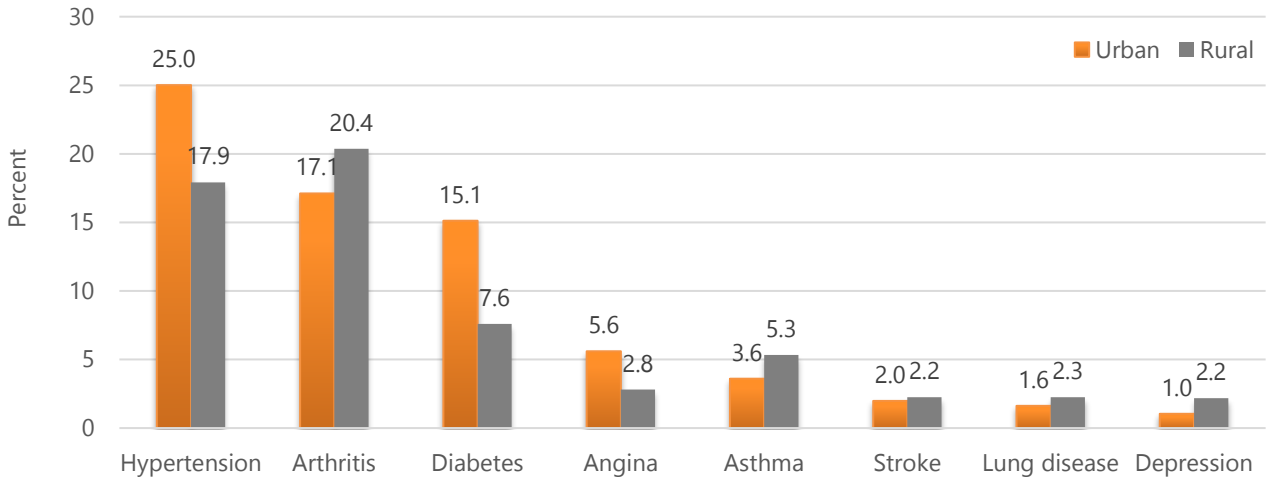


Figure 7.5 depicts the prevalence of chronic diseases in urban and rural areas. The self-reported prevalence of stroke and chronic lung disease was almost the same in urban and rural areas. Older adults in rural areas were more likely to be diagnosed with arthritis, asthma and depression than their urban counterparts, though the prevalence of stroke in both areas was quite low.

The prevalence of hypertension, diabetes and angina was higher in urban areas than in rural areas; for instance, the prevalence of hypertension in urban areas exceeded that in rural areas by 7%. Similarly, 15% of older respondents in urban areas were diagnosed with diabetes, compared with 8% of rural residents. On the whole, the extent of morbidity, as measured by the proportion diagnosed with one or more chronic diseases, was higher in urban areas than in rural areas.

Figure 7.5 Self-reported prevalence of chronic diseases among respondents aged 50 plus in urban and rural areas, India (pooled), SAGE Wave 2, 2015



Morbidity rates also varied substantially with age. Figure 7.6 shows the self-reported prevalence of the eight chronic diseases surveyed. Among adults aged 18-29, the prevalence of all eight diseases was below 3%. After that, the prevalence of different diseases increased with age at different speeds; among older adults age 70-79, for instance, prevalence varied from 3% for stroke to 24% for hypertension. The one exception was depression, which did not vary consistently with age. The increasing prevalence of all diseases continued until age 70-79; after that, the prevalence of all diseases except hypertension decreased. The increasing prevalence with age was particularly sharp for arthritis and hypertension, which rose from 3% in the 18-29 age group to 24% in the 70-79 age group.

Figure 7.6 Self-reported prevalence of chronic diseases by age, India (pooled), SAGE Wave 2, 2015

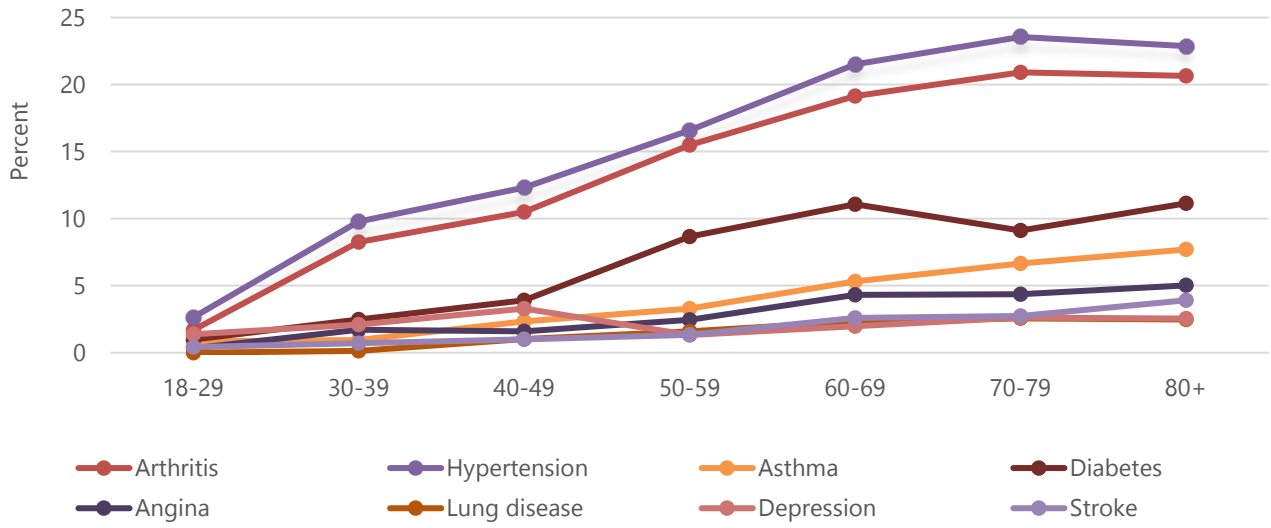
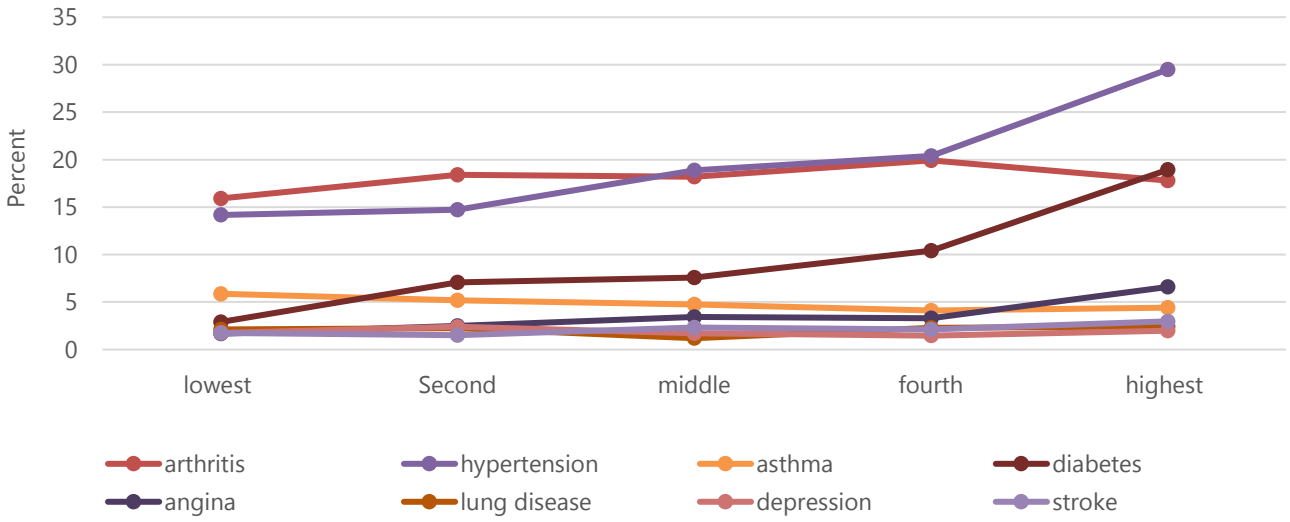


Figure 7.7 shows the variation in the self-reported prevalence of chronic diseases among older respondents by wealth quintiles. The prevalence of at least three chronic diseases – angina, diabetes and hypertension – increased with wealth. For example, the increases in the prevalence of hypertension and diabetes from the lowest wealth quintile to the highest were around 14 and 30 percentage points respectively. On the other hand, the prevalence of asthma dropped with increasing wealth, although the difference in the prevalence of asthma from the lowest to the highest wealth quintile was only two percentage points. The prevalence of arthritis, depression, chronic lung diseases and stroke was almost the same across wealth quintiles.

Figure 7.7 Prevalence of chronic diseases among respondents aged 50-plus by wealth quintile, SAGE Wave 2, 2015



7.1.10 Unmet Need

To assess the health care needs of the population, unmet need was estimated for each chronic condition separately. Unmet need was defined as the proportion of respondents who were diagnosed with a condition but had not received any medication or treatment for it in the previous 12 months. Table 7.1.17 presents by state the levels of unmet need for each condition.

Among older respondents, the highest unmet need was for depression (60%). Unmet need was under 50% for the other seven chronic diseases, including 45% for chronic lung disease, compared with 20-32% for arthritis, angina, diabetes, asthma or hypertension. Among adults aged 18-49, the condition with the highest level of unmet need for medication and treatment nationally was depression (54%). Most younger respondents diagnosed with chronic lung diseases (53%) or diabetes (42%) also had an unmet need. The lowest unmet need in this group was reported for angina (13%).

Trends: *Unmet need of medication/treatment for diseases such as arthritis, diabetes, asthma, and hypertension has increased from SAGE-1 and SAGE -2 among younger respondents. However, among older respondents, the unmet need for medication/treatment has increased for diseases such as arthritis, hypertension and lung disease in the same period.*

Table 7.1.17 Percentage of respondents with unmet need for medication or treatment for chronic diseases, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49								Aged 50-plus							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lungdysfunction
Assam	47.1	29.4	0.0	46.7	42.2	71.2	66.3	100.0	57.0	27.1	59.0	39.1	30.4	93.9	50.3	71.1
Karnataka	36.8	0.0	0.0	12.5	0.0	47.2	49.5	100.0	23.1	19.9	15.1	5.8	5.0	70.9	14.2	42.0
Maharashtra	39.5	0.0	0.0	37.3	31.7	36.8	41.2	100.0	28.7	24.6	43.2	25.9	25.3	53.0	44.6	31.6
Rajasthan	45.0	62.4	0.0	83.7	34.3	81.3	50.1	66.8	34.2	34.3	45.6	36.5	24.3	54.6	38.7	45.5
Uttar Pradesh	24.9	0.0	23.3	13.5	35.2	41.7	31.9	0.0	25.3	37.5	6.4	24.1	16.1	55.7	39.6	61.3
West Bengal	5.8	56.4	24.9	0.0	72.1	49.9	25.9	0.0	27.7	31.4	12.8	24.9	16.7	44.0	17.5	21.2
India (pooled)	**34.0**	**25.9**	**12.7**	**41.6**	**34.9**	**53.9**	**42.0**	**52.7**	**30.3**	**30.2**	**26.8**	**23.5**	**20.1**	**59.6**	**32.0**	**45.1**

Note: Unmet need refers to the percentage of respondents who had not received medication or treatment in the previous 12 months, despite being diagnosed with the condition.

Estimates of unmet need by selected background characteristics of the respondents are presented in Table 7.1.18 (a & b). On the whole, the unmet need for medication or treatment for any chronic condition tended to decrease with age, although the relationship was not clear for every condition. Meanwhile, although the progression was not always even, unmet need increased as education and wealth quintile decreased. For example, less than one-half of the study's poorest respondents had received any diabetes treatment, meanwhile, over one-fifth of respondents in age 50-plus of the study's wealthiest respondents had received treatment for the same two conditions respectively.

Table 7.1.18 (a) Percentage of younger respondents with unmet need for medication or treatment for chronic diseases, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Age group								
18-29	22.3	34.0	0.0	92.3	15.0	22.7	34.3	NA
30-39	46.3	0.0	6.5	42.9	57.9	62.8	58.4	100.0
40-49	28.4	36.8	19.5	32.1	33.2	59.1	33.8	48.2
Sex								
Male	22.1	39.0	20.8	37.0	50.2	52.3	44.2	49.7
Female	37.1	11.9	6.1	43.6	25.5	54.5	41.1	59.6
Marital status								
Never married	13.0	100.0	0.0	25.3	13.8	31.4	34.6	43.7
Currently married	38.7	22.9	13.4	42.9	44.1	58.0	43.5	38.5
Widowed	6.3	0.0	0.0	50.5	21.4	78.7	34.7	100.0
Other[1]	100.0	NA	NA	NA	0.0	NA	NA	NA
Residence								
Urban	52.1	0.0	9.8	17.1	37.9	25.6	35.4	0.0
Rural	22.8	31.8	14.0	51.6	34.3	60.1	44.1	64.7
Caste								
Scheduled tribe	17.5	14.4	11.4	66.4	24.5	45.8	76.4	40.9
Scheduled caste	26.7	30.1	0.0	53.6	35.1	53.5	34.9	100.0
Other[2]	38.2	28.2	14.4	35.5	37.0	54.5	40.8	44.4
Religion								
Hindu	38.2	27.5	13.8	47.2	39.0	52.6	45.2	71.2
Muslim	12.0	0.0	12.0	19.1	14.4	64.2	20.0	0.0

Background characteristics	Aged 18-49							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Other[3]	16.7	NA	0.0	47.0	29.9	58.3	48.7	NA
Education								
No formal education	51.4	24.8	8.3	47.6	10.3	59.0	44.4	29.9
Less than primary	16.8	32.9	0.0	32.6	84.2	21.7	21.8	100.0
Primary school	18.2	0.0	39.2	46.0	45.9	61.4	47.8	100.0
Secondary school	43.1	37.7	17.8	23.0	19.9	75.4	49.6	100.0
High school	10.2	36.0	0.0	47.4	0.0	71.7	47.7	NA
College and above	0.0	0.0	0.0	71.2	0.0	31.7	23.8	NA
Wealth quintile								
Lowest	50.4	0.0	12.3	8.7	47.3	39.9	62.2	15.0
Second	40.7	38.8	12.9	31.3	58.8	52.1	43.8	100.0
Middle	20.3	19.7	0.0	42.2	45.6	51.7	37.4	85.8
Fourth	16.0	54.2	51.8	54.8	21.3	79.8	32.2	100.0
Highest	47.0	100.0	5.2	51.8	4.6	60.5	42.1	NA
Total	**34.0**	**25.9**	**12.7**	**41.6**	**34.9**	**53.9**	**42.0**	**52.7**

Note: Unmet need refers to the percentage of respondents who had not received medication or treatment in the previous 12 months, despite being diagnosed with the condition.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 7.1.18 (b) Percentage of older respondents with unmet need for medication or treatment for chronic diseases, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Age group								
50-59	33.3	30.7	20.6	21.4	24.7	72.3	31.3	38.5
60-69	30.8	38.8	29.9	21.4	18.6	44.7	32.7	55.8
70-79	23.4	21.1	25.8	28.3	17.0	61.5	30.4	35.4
80+	33.2	10.8	36.2	36.8	20.6	81.7	37.0	43.9
Sex								
Male	31.1	27.0	28.3	24.0	17.9	50.9	32.4	41.3
Female	29.8	35.1	24.6	22.8	23.0	67.1	31.8	52.6
Marital status								
Never married	49.2	25.8	NA	20.9	95.2	100	65.9	51
Currently married	30.0	29.8	28.9	23.4	18.6	53.2	30.6	42.8
Widowed	31.0	31.5	19.6	24.3	22.8	72.1	35.2	53.6
Other[1]	16.2	29.8	0.0	0.0	28.1	45.5	0.0	NA
Residence								
Urban	24.4	32.9	27.9	18.1	26.5	44.7	27.5	32.6
Rural	33.0	29.2	25.9	27.6	18.3	62.4	34.4	48.7
Caste								
Scheduled tribe	35.4	22.7	28.5	16.6	27.0	54.2	43.8	24.0
Scheduled caste	38.8	21.9	26.5	33.3	15.1	59.3	31.9	51.6
Other[2]	28.5	32.3	26.8	22.6	20.6	60.2	31.5	46.1
Religion								
Hindu	31.1	31.2	28.2	21.9	19.3	61.4	32.3	42.5
Muslim	22.7	13.2	25.3	24.7	14.9	56.4	28.1	62.5
Other[3]	37.4	85.5	11.2	50.6	56.1	15.9	37.8	38.5
Education								
No formal education	33	29.6	23.1	29.5	17.9	67.4	35.6	53.4
Less than primary	29.7	22.7	25.8	20.9	10	64.9	29.8	42.4
Primary school	29.1	24.1	48.7	16.4	27.4	41.1	37.2	32.9

Background characteristics	Aged 50-plus							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Secondary school	28.6	29.4	28.9	30.5	26.4	77.5	25.1	38.8
High school	17.5	36.8	17.5	27.8	40.3	36.1	31.9	61.0
College and above	24.7	44.1	12.5	10.4	17.5	23.9	23.5	37.3
Wealth quintile								
Lowest	33.0	28.1	28.2	48.3	20.4	73.1	38.2	61.5
Second	32.2	34.4	27.9	29.8	26.9	65.9	32.5	42.7
Middle	32.0	29.6	19.6	29.3	12.7	71.4	24.6	41.5
Fourth	35.3	23.0	34.5	21.3	11.5	39.9	32.7	49.1
Highest	20.1	34.6	25.7	17.5	26.8	48.3	32.5	32.3
Total	**30.3**	**30.2**	**26.8**	**23.5**	**20.1**	**59.6**	**32**	**45.1**

Note: Unmet need refers to the percentage of respondents who had not received medication or treatment in the previous 12 months, despite being diagnosed with the condition.

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

7.2 Co-morbidities

The preceding sections presented information on individual chronic diseases. However, many of these diseases lead to other morbidities or health problems. To understand co-morbidity and provide a complete morbidity profile, this section discusses the prevalence of co-occurring health conditions.

Table 7.2.1 presents the distribution of chronic conditions and co-morbidity by age group and state. Among younger respondents, 80% reported no chronic disease, 16% reported one disease, and 4% reported two or more diseases. The prevalence of chronic disease and particularly multiple morbidities among younger respondents was highest in Assam, with 21% reporting a single health condition and 12% reporting multiple morbidities. In West Bengal, by contrast, only 14% reported a single health condition and 2% reported multiple morbidities.

***Trends**: The pattern and prevalence of chronic disease and multiple morbidity conditions have barely changed in the period 2007 and 2015 among younger and older respondents.*

Table 7.2.1 Percent distribution of respondents by number of health conditions, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	No morbidity	Single health condition	Two or more health conditions	Total	Number	No morbidity	Single health condition	Two or more health conditions	Total	Number
Assam	67.2	20.6	12.2	100	297	41.5	32.4	26.1	100	723
Karnataka	81.9	12.9	5.2	100	223	48.6	31.5	20.0	100	872
Maharashtra	77.1	19.3	3.6	100	344	58.2	27.2	14.5	100	1,176
Rajasthan	78.6	17.2	4.2	100	360	52.5	30.3	17.2	100	1,456
Uttar Pradesh	83.3	15.6	1.1	100	328	72.5	19.9	7.6	100	1,534
West Bengal	84.1	13.6	2.3	100	446	48.3	31.5	20.2	100	1,357
India (pooled)	**80.1**	**16.3**	**3.6**	**100**	**1,998**	**58.4**	**26.8**	**14.8**	**100**	**7,118**

Note: Co-morbidity refers to the presence of one or more diseases or disorders.

Prevalence of chronic disease and particularly multiple morbidities was higher in the 50-plus age group. About one in four (27%) reported single morbidity and one in six of this age group (15%) had multiple morbidities. The prevalence of morbidity was again highest in Assam and lowest in Uttar Pradesh.

In Assam, 32% had only one health condition and 26% had multiple morbidities; only 42% were disease-free. By contrast, in Uttar Pradesh almost three-quarters of older respondents had no morbidity, 20% reported a single health condition and 7% reported multiple morbidities (Figure 7.8).

Figure 7.8 Prevalence of morbidity among adults aged 50-plus, states and India (pooled), SAGE Wave 2, 2015

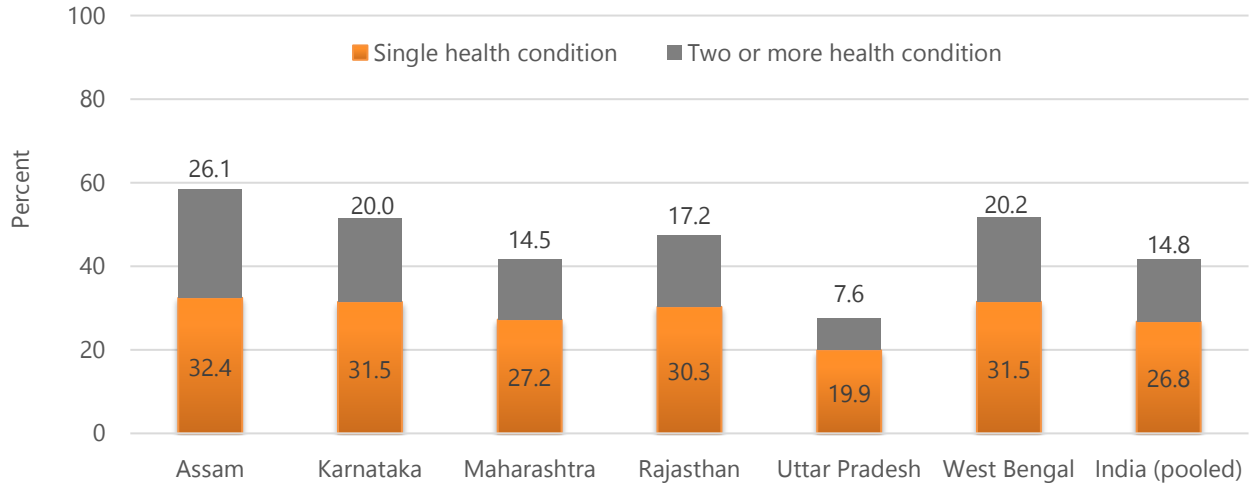


Table 7.2.2 presents the distribution of respondents by background characteristics according to the number of morbidities. The prevalence of morbidity rose sharply with age (Figure 7.9). The proportion of persons with at least one morbidity increased from 8% at age 18-29 to 28% for the oldest group aged 80 and above. The proportion of multiple morbidities also increased from less than 1% at age 18-29 to 19% at age 70-79.

Table 7.2.2 Percent distribution of respondents by number of single health conditions by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					Aged 50-plus			
	No morbidity	Single health condition	Two or more health conditions	Number		No morbidity	Single health condition	Two or more health conditions	Number
Age group									
18-29	92.0	7.7	0.3	542	50-59	63.9	25.0	11.1	
30-39	78.4	18.6	3.0	602	60-69	55.7	27.2	17.1	2585
40-49	73.1	20.6	6.3	854	70-79	52.9	29.6	17.6	1285
					80+	53.3	27.6	19.1	344
Sex									
Male	85.1	11.4	3.5	833		60.3	25.4	14.3	3337
Female	77.2	19.2	3.7	1165		56.7	28.0	15.3	3781
Marital status									
Never married	89.8	9.0	1.2	418		67.0	19.0	14.0	76
Currently married	77.9	18.0	4.1	1480		59.2	26.6	14.2	5305
Widowed	70.6	23.1	6.4	91		55.5	27.6	16.9	1693
Other[1]	94.4	0.0	5.6	9		54.9	30.8	14.3	44
Residence									
Urban	78.3	18.0	3.7	412		53.3	26.9	19.8	1512
Rural	80.8	15.7	3.6	1586		60.4	26.7	12.9	5606
Caste									
Scheduled tribe	84.5	12.2	3.4	199		65.1	23.7	11.2	522
Scheduled caste	77.3	18.9	3.8	417		62.1	25.1	12.8	1168
Other[2]	80.4	16.0	3.6	1382		57.2	27.3	15.5	5428

Background characteristics	Aged 18-49					Aged 50-plus			
	No morbidity	Single health condition	Two or more health conditions	Number		No morbidity	Single health condition	Two or more health conditions	Number
Religion									
Hindu	80.8	15.8	3.3	1667		59.1	26.6	14.3	5966
Muslim	80.4	15.8	3.8	254		56.0	26.5	17.5	869
Other[3]	61.8	28.9	9.4	77		49.9	31.2	19.0	283
Education									
No formal education	77.8	18.5	3.7	583		61.9	27.0	11.1	3574
Less than primary	80.0	14.0	6.0	228		56.3	25.5	18.2	942
Primary school	80.2	15.6	4.2	345		57.1	24.5	18.4	980
Secondary school	79.0	16.5	4.5	376		50.6	32.6	16.9	675
High school	85.3	13.9	0.8	314		58.8	25.2	16.0	547
College and above	82.2	16.4	1.5	152		51.2	25.4	23.4	400
Wealth quintile									
Lowest	84.5	13.0	2.5	381		67.3	22.6	10.1	1371
Second	77.2	17.9	4.9	423		62.2	26.1	11.8	1304
Middle	81.9	14.2	3.9	458		60.5	26.1	13.4	1318
Fourth	80.2	17.1	2.7	373		54.9	30.5	14.6	1468
Highest	75.9	20.2	4.0	363		49.2	28.0	22.8	1657
Total	**80.1**	**16.3**	**3.6**	**1998**		**58.4**	**26.8**	**14.8**	**7118**

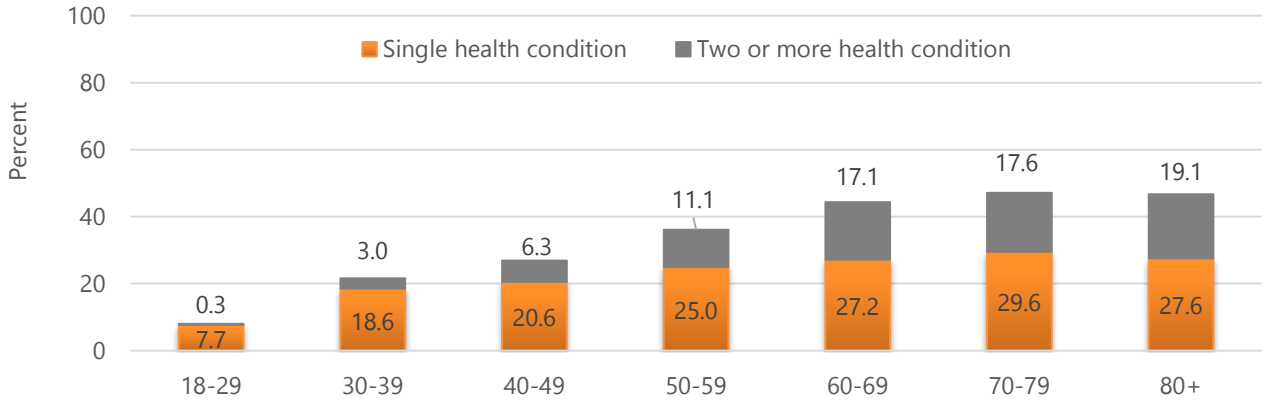
Note: Co-morbidity refers to the presence of one or more diseases or disorders.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

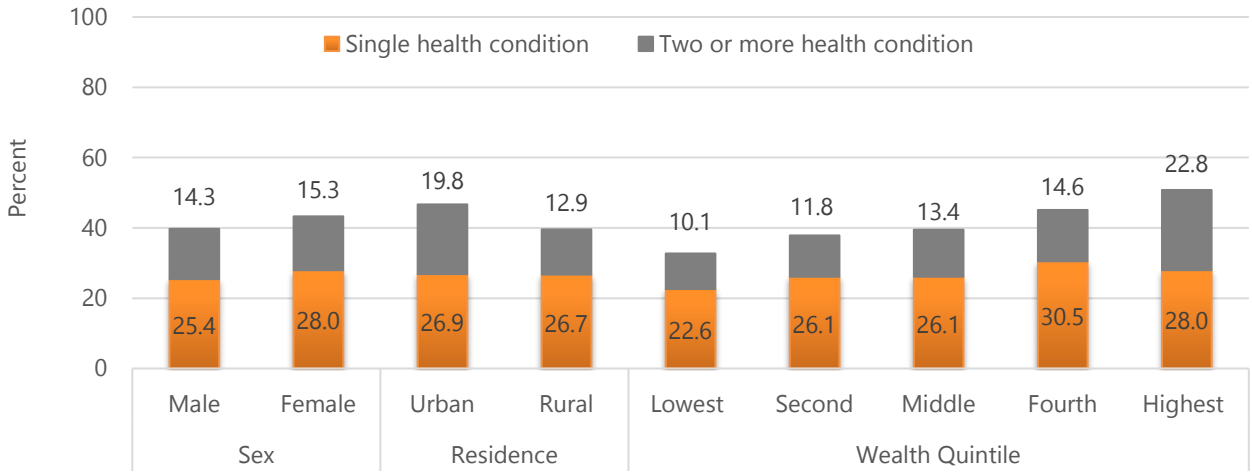
Figure 7.9 Prevalence of co-morbidity by age, India (pooled), SAGE Wave 2, 2015



Older respondents in rural areas were more likely than their urban counterparts to have multiple morbidities (Figure 7.10). Although the percentage of people aged 50-plus who were diagnosed with at least one chronic disease was the same in rural and urban areas. In urban areas, almost half (48%) of respondents, compared with 39% in rural areas, while 20% in urban areas were diagnosed with two or more health conditions, compared with 13% in rural areas.

Though many individual diseases did not show a consistent relationship with wealth, the proportion of persons diagnosed with at least one chronic disease, and also the proportion diagnosed with two or more chronic diseases, increased with wealth quintile. The proportion diagnosed with at least one disease increased from 23% in the lowest wealth quintile to 28% in the highest. Similarly, the proportion diagnosed with two or more diseases rose from 10% in the lowest wealth quintile to 23% in the highest.

Figure 7.10 Prevalence of co-morbidity among persons aged 50-plus by sex, residence and wealth quintile, India (pooled), SAGE Wave 2, 2015



7.3 Injuries (road traffic and all other)

Injuries are a growing burden for most countries. The SAGE India questions on the prevalence of injury followed WHO's suggested injury surveillance guidelines. Questions were asked about injuries incurred during the 12 months before the survey, including their source (road traffic or other) and their impact on a person's ability.

Table 7.3.1 presents by state the prevalence of road traffic accidents and other injuries during the 12 months before the survey, and the proportion of persons who developed disabilities as a result. Among the six surveyed states, respondents in West Bengal reported the highest prevalence of injuries due to both types of incidents in both the age groups. Among older respondents, 4% and 6% had been injured in road traffic and other incidents respectively; fourteen percent of the former had developed a disability, and just under a fifth (20%) of the latter. Respondents aged 18-49 reported higher injury levels overall. Among younger respondents, 5% had been injured in road traffic accidents, and 15% of these developed a disability; 5% had been injured in other incidents, and 13% of these had developed a disability. Maharashtra had the lowest prevalence of injuries in the younger age group.

Table 7.3.1 Self-reported prevalence of injuries and any resulting physical disability, states and India (pooled), SAGE Wave 2, 2015

State	Age 18-49								Age 50-plus							
	Road-traffic accidents				All other incidents				Road-traffic accidents				All other incidents			
	Percentage road injury	Number	Percentage with disability	Number	Other injury	Number	Percentage with disability	Number	Percentage road injury	Number	Percentage with disability	Number	Other injury	Number	Percentage with disability	Number
Assam	6.2	295	0.0	17	6.3	295	0.0	21	3.1	721	21.7	22	2.7	721	30.6	19
Karnataka	5.7	220	42.4	13	5.1	220	47.8	8	4.2	859	41.9	31	4.6	859	43.6	46
Maharashtra	1.2	342	19.0	5	1.7	342	14.0	6	2.7	1,169	19.2	28	2.3	1,169	34.0	35
Rajasthan	3.0	359	52.8	11	6.5	359	7.5	22	1.6	1,454	35.6	25	9.0	1,454	34.1	136
Uttar Pradesh	4.8	328	4.6	14	5.8	328	11.5	22	3.6	1,525	8.9	47	6.2	1,525	10.6	101
West Bengal	8.1	446	7.6	34	5.4	444	6.2	25	7.1	1,357	1.9	103	7.7	1,355	5.2	110
India (Pooled)	**4.8**	**1,990**	**14.8**	**94**	**4.9**	**1,988**	**12.7**	**104**	**3.8**	**7,085**	**14.0**	**256**	**5.6**	**7,083**	**19.5**	**447**

The prevalence of injuries by background characteristics of the respondents is presented in table 7.3.2.(a & b). The prevalence of injury due to either road traffic accidents or other incidents does not show consistent differentials by age, gender, residence, education or wealth index, nor does the proportion of respondents who developed disabilities.

Trends: Among road traffic accidents, there has been an increase in the proportion having road injury among younger and older respondents.

Table 7.3.2 (a) Self-reported prevalence of injuries and resulting physical disability among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49							
	Road traffic accidents				All other accidents			
	Percentage with injury	Number	Percentage with disability	Number	Percentage with injury	Number	Percentage with disability	Number
Age group								
18-29	7.2	541	4.5	35	3.5	540	2.5	20
30-39	3.8	597	21.0	27	4.8	597	21.8	29
40-49	3.7	852	24.2	32	6.0	851	11.6	55
Sex								
Male	7.5	829	9.9	59	5.2	829	3.8	47
Female	3.1	1,161	22.0	35	4.7	1159	18.5	57
Marital status								
Never married	8.4	416	6.8	29	4.9	414	0.0	22
Currently married	3.9	1,475	20.3	62	5.0	1,475	15.1	79
Widowed	1.3	90	0.0	2	2.6	90	51.0	2
Other[1]	5.6	9	0.0	1	5.6	9	0.0	1
Residence								
Urban	4.0	410	30.1	20	4.8	410	19.6	22
Rural	5.0	1,580	10.7	74	4.9	1578	10.3	82
Caste								
Scheduled tribe	7.0	198	16.3	12	3.0	197	17.6	6
Scheduled caste	4.9	415	13.3	18	6.4	414	3.0	29
Other[2]	4.4	1,377	15.0	64	4.7	1,377	16.0	69
Religion								
Hindu	4.7	1,661	14.7	74	4.7	1,660	13.4	81
Muslim	5.5	252	18.0	16	6.0	252	11.7	17
Other[3]	3.1	77	0.0	4	5.5	76	0.0	6
Education								
No formal education	2.6	580	27.4	17	4.3	579	32.5	26
Less than primary	4.9	227	9.3	14	6.0	227	7.6	15
Primary school	5.4	345	30.3	19	4.4	345	5.0	18
Secondary school	7.1	374	5.0	25	6.2	374	7.8	23
High school	6.4	313	9.6	17	4.4	312	0.0	14
College and above	1.7	151	0.0	2	4.0	151	8.4	8
Wealth quintile								
Lowest	3.8	380	3.3	11	6.2	380	25.4	22
Second	5.4	422	23.5	20	4.1	422	4.3	21
Middle	6.7	456	20.0	33	3.6	455	17.9	18
Fourth	2.1	372	1.4	15	4.0	371	0.0	16
Highest	5.5	360	11.9	15	7.0	360	9.6	27
Total	**4.8**	**1990**	**14.8**	**94**	**4.9**	**1988**	**12.7**	**104**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 7.3.2 (b) Self-reported prevalence of injuries and resulting physical disability among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Road traffic accidents				All other accidents			
	Percentage road injury	Number	Percentage with disability	Number	Percentage road injury	Number	Percentage with disability	Number
Age group								
50-59	3.5	2,892	16.1	108	5.6	2,890	17.2	178
60-69	3.5	2,575	8.4	78	5.7	2,575	19.9	158
70-79	5.0	1,278	16.8	54	5.2	1,278	17.7	81
80+	4.7	340	19.9	16	7.5	340	34.6	30
Sex								
Male	4.4	3,324	11.2	136	4.8	3323	16.5	181
Female	3.3	3,761	17.3	120	6.4	3760	21.5	266
Marital status								
Never married	5.2	75	29.3	4	13.6	75	0	5
Currently married	3.9	5,283	12.4	188	5.5	5,281	19	321
Widowed	3.5	1,684	18.9	63	5.7	1,684	23.1	119
Other[1]	1.9	43	0	1	2.4	43	0	2
Residence								
Urban	4.3	1,505	9	59	3.3	1504	20.5	81
Rural	3.6	5,580	16.4	197	6.6	5,579	19.2	366
Caste								
Scheduled tribe	2.2	520	15.4	11	4.1	520	40	23
Scheduled caste	3.6	1,162	14.2	45	6.4	1,162	14.3	79
Other[2]	4.0	5,403	13.9	200	5.6	5,401	19.3	345
Religion								
Hindu	3.5	5,946	16.1	195	5.4	5,945	20.2	365
Muslim	5.9	860	3.6	51	7.4	859	13.9	69
Other[3]	3.7	279	20.8	10	4.5	279	29.2	13
Education								
No formal education	2.7	3,553	17	93	5.8	3,552	25.9	221
Less than primary	5.9	938	12.7	53	7.9	937	14.1	79
Primary school	4.4	976	17.3	39	5.9	976	11.1	66
Secondary school	3.8	674	2.3	28	4.4	674	10.5	37
High school	5.4	545	9.2	25	3.7	545	14.8	24
College and above	5.1	399	18.8	18	3.8	399	16.9	20
Wealth quintile								
Lowest	4.6	1,364	7.0	56	6.1	1,364	19.2	85
Second	3.8	1,297	11.0	47	6.8	1,296	20	91
Middle	3.7	1,311	14.6	52	4.9	1,311	16.4	72
Fourth	3.2	1,464	23.1	42	4.6	1,464	31.2	79
Highest	3.8	1,649	16.5	59	5.9	1,648	12.8	120
Total	**3.8**	**7085**	**14.0**	**256**	**5.6**	**7083**	**19.5**	**447**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

7.4 Oral health and cataracts

Sensory deficits are likely to increase at older ages. Questions about the mouth, teeth and eyes were included in SAGE to get a broad indication of selected sensory problems, which can help improve the burden of disease estimates and also to determine levels of health coverage through indicator conditions like cataracts.

Table 7.4.1 presents the state-level prevalence of edentulism (oral health problems) during the 12 months before the survey and of cataracts in the five years before the survey. Of the study's younger respondents, 2% reported problems with their teeth/mouth and 3% reported having at least one cataract.

The prevalence of both of these problems was much higher among older respondents: about one in every seven older persons reported problems with their teeth/mouth, and one in five reported a cataract.

Trends: *Edentulism prevalence has decreased in the 8 years between SAGE-1 and SAGE-2, decreasing from 4 percent in 2007 to 2 percent in 2015 among younger respondents and from 15 percent in 2007 to 13 percent in 2015 among older respondents. Prevalence of cataract has increased marginally from SAGE-1, increasing from 2 percent in 2007 to 3 percent in 2015 among younger respondents and from 18 percent in 2007 to 21 percent in 2015 among older respondents.*

Table 7.4.1 Self-reported prevalence of edentulism and cataracts, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Edentulism	Number	Cataract	Number	Edentulism	Number	Cataract	Number
Assam	4.55	295	4.15	294	10.13	721	7.24	721
Karnataka	1.47	220	5.31	220	16.57	859	22.13	859
Maharashtra	1.87	342	5.45	342	16.87	1,169	23.52	1,169
Rajasthan	0.19	359	2.8	359	5.92	1,454	21.14	1,453
Uttar Pradesh	1.99	328	2.98	328	11.08	1,526	20.54	1,524
West Bengal	2.58	446	0.95	446	13.26	1,357	23.43	1,355
India (pooled)	**2.01**	**1,990**	**3.38**	**1,989**	**12.63**	**7,086**	**21.27**	**7,081**

Table 7.4.2 presents the prevalence of edentulism and cataracts by different background characteristics. Both edentulism and cataracts show an increase with age, especially above the age of 50, with the prevalence of both edentulism and cataracts almost four times after age 70 and above as compared to in the 50-59 age bracket. The prevalence of edentulism was higher among younger women than younger men, but this trend was reversed among the older age group. However, the prevalence of cataracts was almost the same for both younger men and younger women, whereas it was slightly high for older women. The prevalence of both edentulism and cataracts was higher in rural areas than urban ones. Both edentulism and cataracts varied according to education and wealth among both younger and older respondents.

Table 7.4.2 Self-reported prevalence of edentulism and cataracts by selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					Aged 50-plus			
	Edentulism	Number	Cataract	Number		Edentulism	Number	Cataract	Number
Age group									
18-29	0.6	541	1.2	540	50-59	5.5	2,893	11.0	2,891
30-39	1.7	597	1.7	597	60-69	12.3	2,575	23.8	2,572
40-49	3.2	852	6.1	852	70-79	23.2	1,278	35.1	1,278
					80+	34.9	340	37.4	340
Sex									
Male	0.7	829	2.4	828		12.7	3,324	21.4	3,323
Female	2.8	1,161	4.0	1,161		12.6	3,762	21.1	3,758
Marital status									
Never married	0.6	416	1.8	416		11.4	75	26.9	74

Background characteristics	Aged 18-49					Aged 50-plus			
	Edentulism	Number	Cataract	Number		Edentulism	Number	Cataract	Number
Currently married	2.2	1,475	3.4	1,474		10.5	5,284	18.9	5,282
Widowed	6.7	90	10.5	90		19.5	1,684	29.0	1,682
Other[1]	0.0	9	0.0	9		10.5	43	7.5	43
Residence									
Urban	1.5	410	2.3	410		12.1	1505	23.7	1,504
Rural	2.2	1580	3.7	1579		12.8	5581	20.3	5,577
Caste									
Scheduled tribe	1.9	198	2.8	198		11.7	521	16.8	520
Scheduled caste	1.3	415	2.6	415		11.3	1,162	18.9	1,161
Other[2]	2.2	1,377	3.7	1,376		13.0	5,403	22.1	5,400
Religion									
Hindu	1.9	1,661	3.1	1,660		12.5	5,947	21.4	5,942
Muslim	2.1	252	3.4	252		12.5	860	20.2	860
Other[3]	3.8	77	11.0	77		15.9	279	21.8	279
Education									
No formal education	2.5	580	4.7	580		13.5	3,554	20.4	3,550
Less than primary	6.0	227	2.7	226		13.2	938	18.7	938
Primary school	1.1	345	4.8	345		13.4	976	24.1	975
Secondary school	0.9	374	2.3	374		10.7	674	20.2	674
High school	0.8	313	1.7	313		11.7	545	23.9	545
College and above	2.0	151	2.3	151		7.8	399	25.1	399
Wealth quintile									
Lowest	2.9	380	2.0	380		12.8	1,365	20.4	1,361
Second	1.9	422	5.1	422		13.6	1,297	19.1	1,297
Middle	2.8	456	3.9	456		13.9	1,311	22.2	1,311
Fourth	0.7	372	3.2	371		12.0	1,464	22.1	1,464
Highest	1.6	360	2.5	360		11.3	1,649	22.3	1,648
Total	**2.0**	**1990.0**	**3.4**	**1989**		**12.6**	**7086**	**21.3**	**7081.0**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

7.5 Cervical and breast cancer screening

SAGE included two questions for all female respondents to estimate the prevalence of mammography and pap smears, the screening tests for breast cancer and cervical cancer respectively. The extent to which women undergo these screening tests can be a pointer to gaps in women's health prevention strategies.

Table 7.5.1 presents by state the proportion of female respondents who went for breast and cervical cancer screening in the12 months before the survey. Only a small proportion of women – around 3% in the population aged 18-49 and 2% among 50-plus ages– had gone for breast cancer screening in the previous year. Rates of cervical cancer screening were similarly low: 4% in the 18-49 age group and 3% in the 50-plus age group.

Uttar Pradesh had the highest rates of screening for breast and cervical cancer in both age groups except for the West Bengal which records the highest number of people aged 50-plus to have cervical cancer screening.

Trends: *The percentage of younger women who screened for breast cancer and cervical cancer has increased from 1.4 percent and 2.2 percent in SAGE-1 to 2.5 percent and 3.8 percent respectively in SAGE-2. Similarly, for older women, this has increased from 1.1 percent and 1.7 percent in SAGE-1 to 1.5 percent and 2.9 percent for breast cancer and cervical cancer respectively in SAGE-2*

Table 7.5.1 Percentage of women covered by breast and cervical cancer screening, states and India (pooled) , SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Breast cancer screening	Number	Cervical cancer screening	Number	Breast cancer screening	Number	Cervical cancer screening	Number
Assam	0.5	163	1.4	166	1.7	375	0.9	376
Karnataka	1.2	141	2.9	145	1.4	476	2.9	493
Maharashtra	2.5	191	2.8	194	2.0	602	2.0	620
Rajasthan	0.0	201	0.6	201	0.5	784	1.9	787
Uttar Pradesh	4.8	188	7.2	191	2.3	731	2.8	761
West Bengal	2.7	268	4.0	268	1.6	743	5.2	744
India (pooled)	**2.5**	**1,152**	**3.8**	**1,165**	**1.7**	**3,711**	**2.9**	**3,781**

The proportion of women screened for breast and cervical cancer by selected background characteristics is presented in Table 7.5.2. The proportion of female respondents who had gone for cancer screening did not vary consistently by age. However, women from urban areas and higher wealth quintiles were more likely to have been screened for one or both cancers in both age groups; in both age groups, the proportion of women who had been screened for breast cancer or cervical cancer also showed a weak positive relationship with educational attainment.

Table 7.5.2 Percentage of women covered by breast and cervical cancer screening, by selected background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					Aged 50-plus			
	Breast cancer screening	Number	Cervical cancer screening	Number		Breast cancer screening	Number	Cervical cancer screening	Number
Age group									
18-29	0.5	233	1.8	237	50-59	2.0	1,700	4.0	1,734
30-39	3.0	392	2.9	396	60-69	1.3	1,269	2.4	1,293
40-49	3.0	527	5.3	532	70-79	1.4	601	1.0	610
					80+	2.7	141	2.6	144
Marital status									
Never married	0.0	148	0.7	154		0.0	26	0.0	26
Currently married	3.0	920	4.6	926		1.8	2,310	3.6	2,355
Widowed	2.6	77	0.0	78		1.6	1,344	1.7	1,368
Other[1]	0.0	7	20.3	7		3.1	31	3.1	32
Residence									
Urban	4.0	247	4.7	251		1.0	813	3.6	833
Rural	2.0	905	3.5	914		2.0	2898	2.6	2,948
Caste									
Scheduled tribe	4.0	120	0.6	120		2.0	281	1.3	285
Scheduled caste	0.3	236	4.0	239		2.0	632	3.0	635
Other religion	2.9	796	4.2	806		1.7	2,798	3.0	2,861
Religion									
Hindu	2.1	961	3.5	971		1.4	3,131	2.6	3,182
Muslim	5.4	147	6.6	150		3.0	438	4.2	455
Other religion	3.5	44	2.6	44		5.2	142	6.2	144
Education									
No formal education	3.0	465	3.1	468		1.8	2,538	2.0	2,573
Less than primary	2.9	133	5.4	134		1.3	392	4.2	403
Primary school	1.0	180	6.0	183		1.2	383	3.9	394
Secondary school	3.0	180	1.9	184		1.8	202	5.5	209
High school	2.9	137	5.5	138		0.8	108	4.5	111
College and above	0.3	57	2.1	58		5.2	88	10.3	91
Wealth quintile									
Lowest	4.6	223	5.1	225		1.3	739	1.0	752
Second	0.8	243	2.5	244		0.8	688	2.7	699
Middle	2.0	265	2.3	269		2.3	673	3.4	686
Fourth	2.5	210	3.6	213		1.8	778	3.0	792
Highest	2.8	211	6.2	214		2.4	833	4.4	852
Total	**2.5**	**1,152**	**3.8**	**1,165**		**1.7**	**3711**	**2.9**	**3,781**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Very few percentages of older women seem to have had undergone breast or cervical cancer screening in the previous year. These results point to the practical non-existence of cancer screening programmes for women in India.

Figure 7.11 Self-reported prevalence of chronic disease among older respondents- A comparison of SAGE, Wave 1 and 2

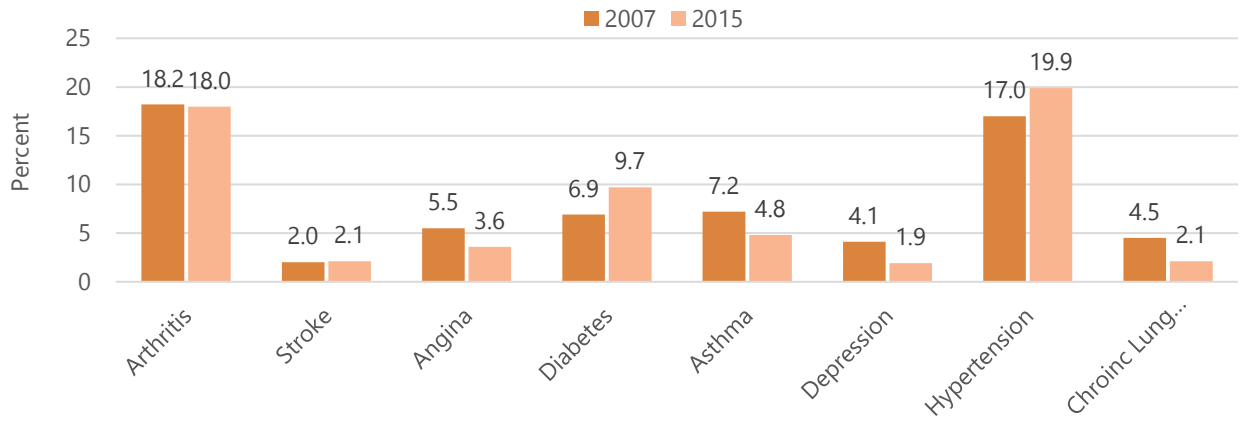
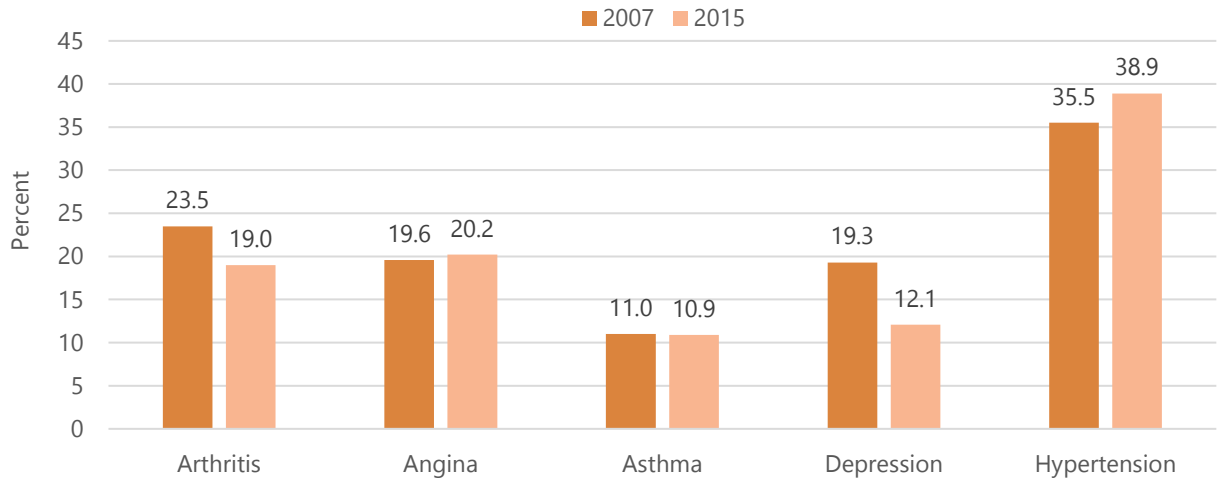


Figure 7.12 Symptom-based prevalence of chronic disease among older respondents- A comparison of SAGE, Wave 1 and 2



8. Health Examination and Biomarkers

In populations, health change occurs in a manner by age beginning with the development of risk factors, through the onset of disease and conditions such as functioning loss or inability to work and perform daily activities necessary for independent living among older populations. To complement self-reporting of health status, and to improve corrections for reporting biases, biomarkers – measures of individual or combined biological functions – can be used to measure age-altered biological or physiological processes. Biomarkers are usually used to monitor and predict the health of the population, to identify individuals with particular resistance or susceptibility to health problems, and to evaluate therapeutic interventions. Biomarkers can be indicators of various aspects of health change such as risk, disease, functioning loss, disability etc. For example, blood pressure and pulse rate can provide information about potential or existing heart disease; similarly, the body mass index (BMI) and waist-hip ratios are indicators of obesity, chronic metabolic disorders and fat distribution in the body. Biomarkers can be useful for studying a variety of social behaviours and environments. They can operate as underlying risk factors (e.g., genetics or birth weight) or as intermediate variables. They can also provide an alternative to self-reports.

SAGE was the first study in India to include a range of biomarker information to complement self-reported health. Social science research often focuses on anthropometric measures and measures of physical and cognitive functions, as these are relatively easy to implement in large household health surveys. Several studies had identified biomarkers as an important tool for understanding the association of socioeconomic status with health and mortality. And from then, biomarkers have rapidly become a standard feature in large-scale social surveys. SAGE incorporated separate health examination and biomarkers module, including measures of anthropometry (measured weight, height, waist and hip circumferences), physiology (blood pressure, heart rate, physical function (grip strength, timed walk, and vision tests) and cognition (learning, memory, concentration, and attention). Before taking measurements and testing, the participants were asked to sign an additional informed consent document.

The incorporation of biomarkers in SAGE complements the WHO approach to measuring health across multiple domains, as biomarkers often measure distinct components of an individual's health state. For example, a self-report of mobility can be assessed against performance on a timed walk and grip strength, or self-reported vision can be compared to results of measured vision using CAPI enabled vision test.

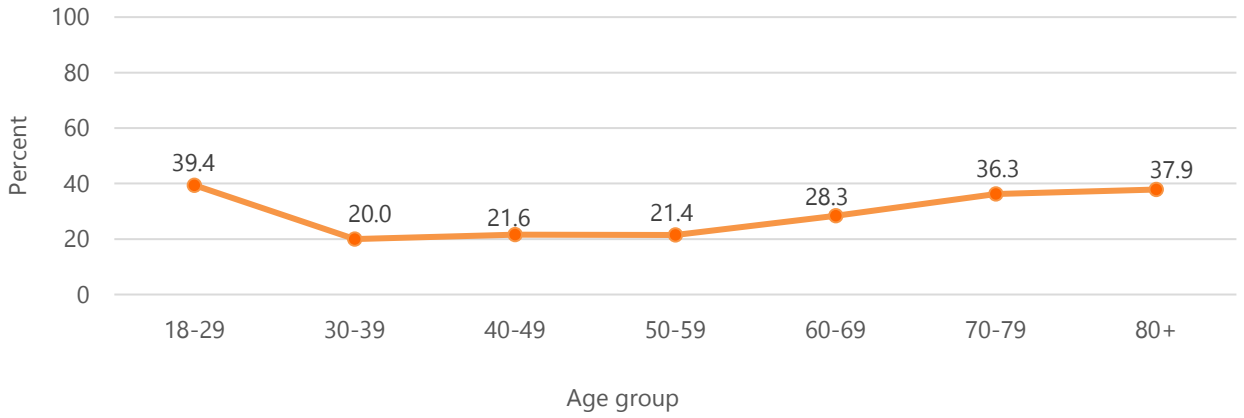
8.1 Anthropometry

8.1.1 Body mass index

Body mass index (BMI) is an important indicator of an individual's nutritional status and is widely used as a risk factor for the development of or the prevalence of several health issues. Raised BMI is a factor in many diseases; it also reflects physiological changes in stature and body composition with ageing. Epidemiological studies have consistently shown that obesity is associated with an increasing risk of cardiovascular diseases and diabetes. Several studies have found strong associations between BMI and all cause mortality. The risks of being underweight are also considerable, and include impairments in the immune system, impaired fertility and micro-nutrient deficiencies, in addition to inadequate energy for daily mental and physical activities. This section presents results on mean BMI and the prevalence of underweight, overweight and obesity by age, sex and state.

Body mass index results are based on measured height and weight. Table 8.1.1 (a & b) includes the prevalence of underweight, normal weight, overweight and obesity among younger and older adults by selected background characteristics. The levels of underweight increased with increasing age (see Figure 8.1).

Figure 8.1 Percentage of underweight persons by age group, India (pooled), SAGE Wave 2, 2015



Overall, as a risk for chronic health issues, the burden of underweight was disproportionately concentrated among respondents from rural backgrounds, scheduled caste/tribes, those with no formal education and in the lowest wealth quintile. For example, 44% of older adults from the lowest wealth quintile were underweight, compared with just 13% in the highest quintile. In contrast, the burden of overweight/obesity was disproportionately concentrated among respondents from urban residence, other castes, higher education categories and higher wealth quintile households. However, mean BMI did not vary much by age, sex, religion or marital status.

***Trends**: The mean BMI has increased marginally since 2007. From 2007 to 2015, there has been a significant increase in the overweight and obese population. However, the proportion of respondents lying in the underweight category has declined in the same period. This pattern is consistent across men and women aged 50 and above. The proportion of respondents Underweight has reduced drastically in Assam i.e. from 34% in 2007 to 20% in 2015 among young respondents. Similarly, the prevalence of underweight has declined from 40% in 2007 to 22% in 2015.*

The proportion of overweight and obesity increased from 6% at age 18-29 to 24% at age 50-59. However, the prevalence of overweight and obesity declined for older adults aged 60-plus. The prevalence of overweight/obesity was much higher for women (22%) than men (16%) at 50-plus years. As one might anticipate from the underweight figures, only 10% of older respondents from the lowest wealth quintile were overweight or obese, compared with 19% of the highest quintile.

Table 8.1.1 (a) Mean body mass index (BMI, kg/m²) and risk category (%) among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number
Age group							
18-29	19.8	39.4	54.7	5.3	0.6	100	515
30-39	22.5	20.0	51.7	24.0	4.3	100	563
40-49	22.0	21.6	55.2	18.8	4.4	100	807
Sex							
Male	21.2	27.3	59.4	11.3	2.0	100	782
Female	21.7	25.6	50.8	19.5	4.0	100	1,103
Marital status							
Never married	19.9	40.5	52.6	5.8	1.1	100	397
Currently married	22.0	22.0	54.7	19.4	3.9	100	1,395
Widowed	21.6	28.7	47.5	20.7	3.2	100	85
Other[1]	20.5	20.3	77.8	2.0	0.0	100	8
Residence							
Urban	22.5	20.2	54.9	20.3	4.6	100	377
Rural	21.2	28.3	53.7	15.2	2.8	100	1,508
Caste							
Scheduled tribe	20.2	42.5	44.5	9.9	3.0	100	188
Scheduled caste	20.7	32.8	51.4	14.0	1.8	100	393
Other[2]	22.0	22.2	56.0	18.0	3.7	100	1,304
Religion							
Hindu	21.6	26.3	53.4	16.8	3.5	100	1,575
Muslim	21.4	23.9	60.2	14.4	1.6	100	235
Other[3]	21.2	33.7	46.5	15.7	4.1	100	75
Education							
No formal education	21.0	29.3	53.9	14.8	2.1	100	544
Less than primary	21.4	27.5	50.5	19.0	3.1	100	219
Primary school	22.1	20.4	59.8	16.7	3.2	100	335
Secondary school	21.9	25.1	51.8	17.1	6.0	100	357
High school	21.2	28.9	53.1	15.3	2.7	100	295
College and above	22.2	24.3	53.9	19.6	2.2	100	135
Wealth quintile							
Lowest	19.8	39.6	53.0	7.4	0.0	100	359
Second	20.9	31.1	53.3	12.7	2.9	100	404
Middle	21.4	27.6	53.5	15.2	3.7	100	439
Fourth	22.3	18.2	58.4	20.6	2.8	100	351
Highest	23.6	12.7	51.7	28.2	7.4	100	332
Total	**21.5**	**26.3**	**54.0**	**16.5**	**3.3**	**100**	**1885**

Note: BMI has been calculated by dividing weight (kg) by height (metres squared) (kg/m²).
BMI levels have been classified according to WHO classifications: underweight = <18.4; normal = 18.5 - 24.9; overweight = 25.0 - 29.9; obese = ≥30.0.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 8.1.1 (b) Mean body mass index (BMI, kg/m²) and risk category (%) among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number
Age group							
18-29	22.2	21.4	54.7	18.9	5	100	2,673
30-39	21.1	28.3	54.7	14.3	2.7	100	2,397
40-49	20.4	36.3	49.8	11.1	2.8	100	1,145
	20.3	37.9	49.6	10.6	1.9	100	279
Sex							
Male	21.1	27.1	57.4	13.4	2.2	100	3,044
Female	21.6	27.5	50.2	17.4	5	100	3,450
Marital status							
Never married	20.5	34.9	57.5	5.2	2.5	100	66
Currently married	21.7	24.4	55.3	16.6	3.7	100	4,871
Widowed	20.6	36.2	47.9	12.3	3.6	100	1,520
Other[1]	21.1	30.2	53.7	11.5	4.6	100	37
Residence							
Urban	22.8	16.6	54.1	23.9	5.5	100	1,322
Rural	20.8	31.3	53.4	12.3	2.9	100	5,172
Caste							
Scheduled tribe	20.4	34.6	51.9	11.5	2	100	488
Scheduled caste	20.2	36.5	54	8.2	1.3	100	1,066
Other[2]	21.7	25	53.7	17.2	4.2	100	4,940
Religion							
Hindu	21.4	27.3	53.5	15.5	3.6	100	5,435
Muslim	21.4	29.2	51.8	15.1	3.8	100	808
Other[3]	21.8	19.4	62.2	15.6	2.9	100	251
Education							
No formal education	20.6	34.1	51.7	11.4	2.8	100	3,250
Less than primary	21.5	27.9	53.4	14.8	3.9	100	854
Primary school	21.9	24.9	52.2	17.8	5.2	100	910
Secondary school	22.2	18.5	56.4	21.4	3.7	100	624
High school	22.3	15.9	59.8	20.5	3.9	100	500
College and above	23.6	8.9	58.7	26.6	5.8	100	356
Wealth quintile							
Lowest	19.6	44.4	45.9	7.5	2.2	100	1,252
Second	20.7	31.8	54.7	11.6	1.9	100	1,199
Middle	20.9	29.8	55.2	12.1	2.9	100	1,190
Fourth	22	21	57.1	18.1	3.8	100	1,346
Highest	23.3	12.7	54.9	25.8	6.6	100	1,507
Total	**21.4**	**27.3**	**53.6**	**15.5**	**3.6**	**100**	**6,494**

Note: BMI has been calculated by dividing weight (kg) by height (metres squared) (kg/m²).
BMI levels have been classified according to WHO classifications: underweight = <18.4; normal = 18.5 - 24.9; overweight = 25.0 - 29.9; obese = ≥30.0.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

In urban areas, more than twice as many older adults (29%) were overweight or obese compared with their rural counterparts (15%). By caste, the prevalence of underweight was extremely high for scheduled caste and scheduled tribe respondents among both older adults (37% and 35% respectively) and younger adults (33% and 43% respectively). By income levels, the percentage of overweight and obesity rose with increasing wealth, with some differences between younger and older adults (Figure 8.2).

Figure 8.2 Prevalence of overweight/obesity by age group and wealth quintile, India (pooled), SAGE Wave 2, 2015

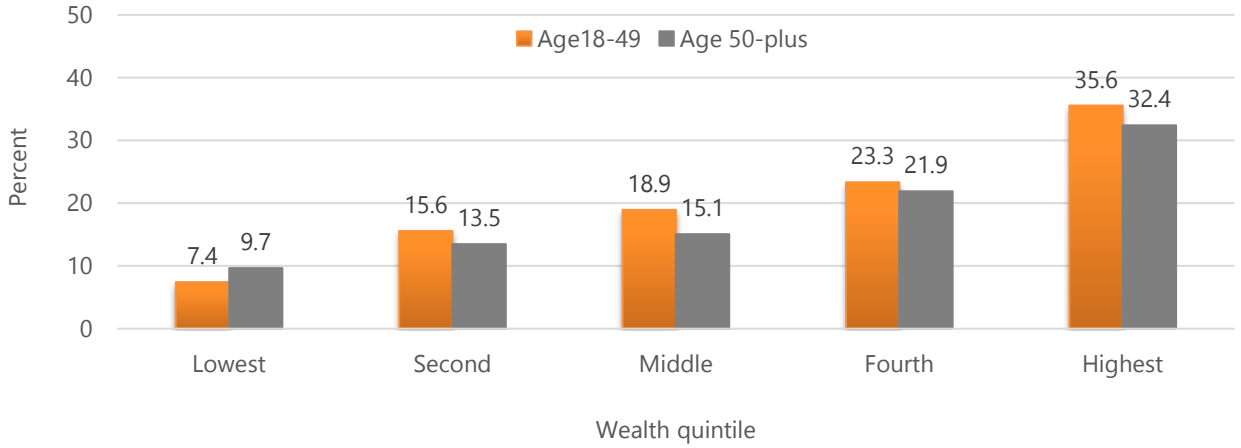


Table 8.1.2 (a & b) presents the percentage distribution of mean BMI for older men and women by selected background characteristics. It shows a steady and steep rise in the proportion of respondents who were underweight as age increased in both sexes. Among men, the proportion of underweight respondents rose from 22% (age 50-59) to 30% (age 80-plus). For women, the proportion rose from 21% in younger adults to 48% in older adults. At the same time, overweight and obesity prevalence declined with age among older men and women.

The positive association of education and wealth with the prevalence of overweight and obesity was much stronger among older women than older men. Almost half (57%) of women with a college-level education or more were overweight or obese, compared with 16% of women with no education. Similarly, more than a third (39%) of women aged 50-plus in the highest wealth quintile were overweight or obese, compared with 13% in the lowest quintile. The burden of overweight/obesity was heavily concentrated among urban women, particularly among those with higher education and higher incomes. Correspondingly, the prevalence of underweight women was disproportionately concentrated among those living in rural areas, with no formal education and in the poorest wealth quintile.

Table 8.1.2 (a) Mean body mass index (BMI, kg/m²) and risk categories (%) among older men, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus						
	Male						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number
Age group							
50-59	21.9	21.5	57.9	17.1	3.5	100	1,069
60-69	20.8	28.3	58.6	11.4	1.7	100	1,197
70-79	20.4	33.8	52.7	12.7	0.8	100	606
80+	21.0	30.4	61.8	6.1	1.7	100	172
Marital status							
Never married	20.1	36.1	59.7	2.1	2.1	100	43
Currently married	21.3	25.6	57.7	14.3	2.4	100	2,699
Widowed	20.0	38.1	54.2	7.6	0.1	100	292
Other[1]	20.0	40.1	53.9	6.0	0.0	100	10
Residence							
Urban	22.6	13.8	62.3	20.8	3.1	100	586
Rural	20.6	31.9	55.6	10.7	1.8	100	2,458

Background characteristics	Aged 50-plus						
	Male						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number
Caste							
Scheduled tribe	20.5	32.9	56.0	10.3	0.7	100	219
Scheduled caste	20.1	37.6	55.5	5.6	1.3	100	488
Other[2]	21.4	24.7	57.8	15.1	2.4	100	2,337
Religion							
Hindu	21.1	26.8	57.7	13.5	2.1	100	2,537
Muslim	21.1	30.7	53.1	13.7	2.6	100	387
Other[3]	21.4	20.4	67.6	10.0	2.0	100	120
Education							
No formal education	20.0	37.6	54.0	6.9	1.5	100	902
Less than primary	20.8	31.4	55.8	10.6	2.3	100	492
Primary school	21.0	29.2	55.5	13.7	1.6	100	547
Secondary school	21.6	23.1	55.6	17.9	3.4	100	429
High school	21.8	16.7	65.3	15.9	2.1	100	399
College and above	23.0	10.2	63.6	23.4	2.8	100	275
Wealth quintile							
Lowest	19.2	47.4	47.0	4.3	1.4	100	565
Second	20.7	30.0	58.9	9.8	1.2	100	555
Middle	20.7	29.0	60.3	9.6	1.2	100	572
Fourth	21.7	21.5	59.0	17.0	2.6	100	614
Highest	22.8	12.8	60.7	22.7	3.8	100	738
Total	**21.1**	**27.1**	**57.4**	**13.4**	**2.2**	**100**	**3,044**

Note: BMI has been calculated by dividing weight (kg) by height (metres squared) (kg/m^2).

BMI levels have been classified according to WHO classifications: underweight = <18.4; normal = 18.5 - 24.9; overweight = 25.0 - 29.9; obese = ≥30.0.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 8.1.2 (b) Mean body mass index (BMI, kg/m²) and risk categories (%) among older women, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus						
	Female						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total	Number
Age group							
50-59	22.4	21.4	52.4	20.2	6	100	1,604
60-69	21.4	28.3	50.7	17.2	3.7	100	1,200
70-79	20.3	39.1	46.4	9.3	5.2	100	539
80+	19.4	48.1	32.9	16.8	2.2	100	107
Marital status							
Never married	21.8	30.2	48.8	17	4	100	23
Currently married	22.1	22.9	52.3	19.6	5.3	100	2,172
Widowed	20.7	35.8	46.4	13.4	4.4	100	1,228
Other[1]	21.6	26	53.7	13.7	6.6	100	27
Residence							
Urban	23	19	46.9	26.6	7.6	100	736
Rural	21.1	30.8	51.4	13.8	3.9	100	2,714
Caste							
Scheduled tribe	20.4	35.9	48.7	12.4	2.9	100	269
Scheduled caste	20.2	35.5	52.7	10.5	1.3	100	578
Other[2]	22	25.2	49.8	19.1	5.9	100	2,603
Religion							
Hindu	21.6	27.8	49.8	17.4	5	100	2,898

Background characteristics	Aged 50-plus						
	Female						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total	Number
Muslim	21.6	27.9	50.7	16.5	4.9	100	421
Other[3]	22.2	18.4	57.2	20.8	3.6	100	131
Education							
No formal education	20.8	32.9	50.9	13	3.2	100	2,348
Less than primary	22.4	23.1	50.2	20.6	6.1	100	362
Primary school	23.4	17.9	46.9	24.3	10.9	100	363
Secondary school	23.6	6.6	58.5	30.2	4.7	100	195
High school	24.2	12.7	39.4	37.5	10.5	100	101
College and above	25.9	3.7	39.2	39.3	17.8	100	81
Wealth quintile							
Lowest	19.8	42.1	45.1	10.1	2.8	100	687
Second	20.7	33.4	50.9	13.1	2.6	100	644
Middle	21.2	30.5	50.5	14.5	4.6	100	618
Fourth	22.2	20.6	55.5	19	4.9	100	732
Highest	23.9	12.5	48.9	29	9.7	100	769
Total	**21.6**	**27.5**	**50.2**	**17.4**	**5**	**100**	**3,450**

Note: BMI has been calculated by dividing weight (kg) by height (metres squared) (kg/m^2).

BMI levels have been classified according to WHO classifications: underweight = <18.4; normal = 18.5 - 24.9; overweight = 25.0 - 29.9; obese = ≥30.0.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 8.3 Prevalence of overweight/obesity among respondents aged 50-plus by education level, India (pooled), SAGE Wave 2, 2015

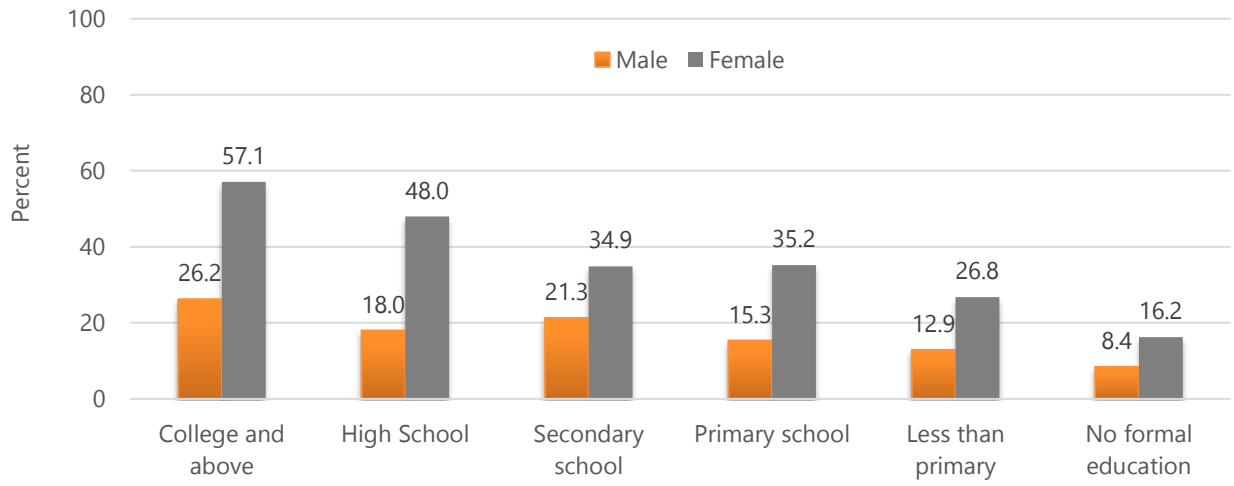


Table 8.1.3 presents mean BMI values and percentage distribution by BMI risk categories among younger and older adults, by state and for India overall. Overall, the prevalence of overweight and obesity was higher among younger adults (20%) compared with older adults (19%).

By state, the prevalence of overweight and obesity in both younger and older adults was highest in Karnataka (23-25%) and lowest in Assam (9-13%). Consistent with this, the mean BMI values for both younger and older adults were highest in Maharashtra and Karnataka (22 in both age groups) and lowest in West Bengal for young adults and Uttar Pradesh among people aged 50-plus. On the other hand, more than a fourth of both age groups were underweight. This pattern confirms the double burden of a high prevalence of underweight combined with a rising prevalence of overweight and obesity.

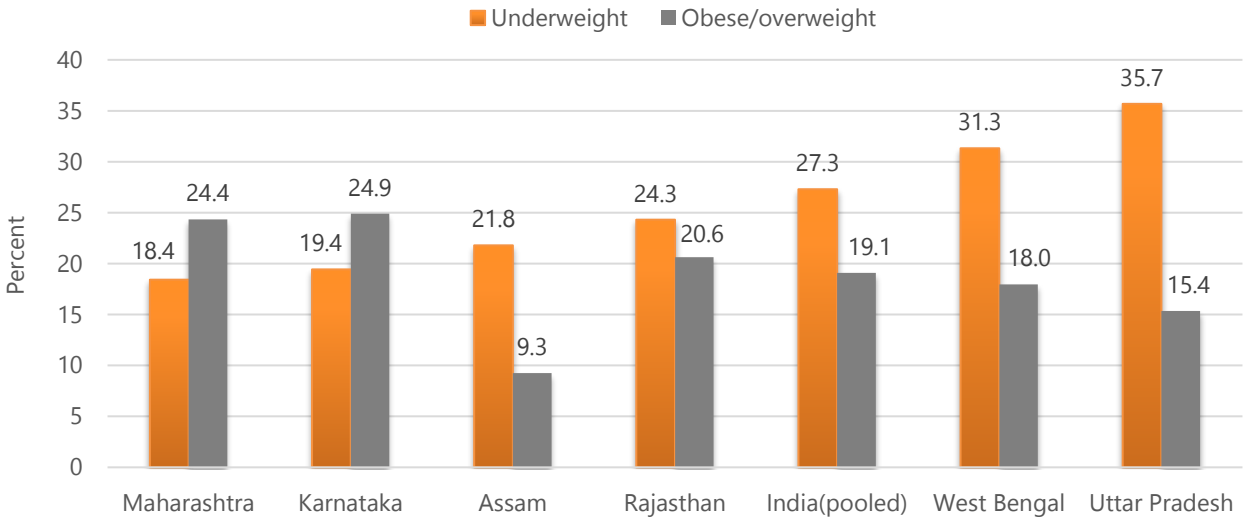
The prevalence of overweight/obesity was as high among older women as it was among older men and was more than three times higher for respondents with a high school education or above compared with those with no education (figure 8.3). While the prevalence of overweight/obesity was much higher in Karnataka, the prevalence of underweight was much higher in Uttar Pradesh and West Bengal (figure 8.4).

Table 8.1.3 Mean body mass index (kg/m2) and risk categories (%) for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49							Aged 50-plus						
	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number	Mean BMI	Underweight (%)	Normal (%)	Overweight (%)	Obese (%)	Total (%)	Number
Assam	21.3	19.6	67.1	11.5	1.9	100	286	20.9	21.8	69.0	7.7	1.5	100	689
Karnataka	21.8	24.5	52.3	18.7	4.6	100	197	22.4	19.4	55.7	18.1	6.8	100	723
Maharashtra	22.2	20.7	56.4	19.2	3.7	100	324	22.3	18.4	57.2	20.6	3.7	100	1,094
Rajasthan	21.1	29.9	52.2	14.0	3.9	100	333	21.7	24.3	55.1	15.6	5.1	100	1,325
Uttar Pradesh	21.7	26.3	50.9	19.8	3.1	100	314	20.6	35.7	49.0	12.4	2.9	100	1,394
West Bengal	20.8	32.8	52.5	12.0	2.6	100	431	21.0	31.3	50.7	15.3	2.6	100	1,269
India (pooled)	**21.5**	**26.3**	**54.0**	**16.5**	**3.3**	**100**	**1,885**	**21.4**	**27.3**	**53.6**	**15.5**	**3.6**	**100**	**6,494**

Note: BMI has been calculated by dividing weight (kg) by height (metres squared) (kg/m^2).
BMI levels have been classified according to WHO classifications: underweight = <18.4; normal = 18.5 - 24.9; overweight = 25.0 - 29.9; obese = ≥30.0.

Figure 8.4 Percentage of underweight and overweight/obese respondents aged 50-plus, states and India (pooled), SAGE Wave 2, 2015



8.1.2 *Waist circumference*

Waist circumference is a key indicator of abdominal fat. This measurement helps in identifying individuals at increased risk of obesity-related morbidity due to the accumulation of abdominal fat (WHO, 2000a). A high waist circumference caused by abdominal fat concentration is associated with the risk of type 2 diabetes, high cholesterol, high blood pressure and heart disease.

Waist circumference can be used in conjunction with BMI to correct for the limitations of the latter in assessing weight-related health risks in persons with high muscle mass or of advanced age.

Table 8.1.4 (a & b) compares mean waist circumference and percentage distribution of respondents with high- and low-risk waist circumference for younger and older respondents by background characteristics. The prevalence of high-risk waist circumference decreased with age for respondents aged 50-plus but increased with age for younger adults. Pronounced gender differentials were observed in high-risk waist circumference: about 36% of younger women and 43% of older women were found to have high-risk waist circumference, compared with just 4% and 7% respectively for their male counterparts. High-risk waist circumference was more prevalent among urban older adults (36%) than rural dwellers (22%).

The prevalence of high-risk waist circumference increased with wealth among younger and older adults alike. Among those aged 50-plus, high-risk waist circumference increased from 16% for respondents in the poorest wealth quintile to 36% in the highest quintile. Marital status, caste, religion and education produced less pronounced differences in the prevalence of high-risk waist circumference.

Trends: *The mean waist circumference has increased since 2007. From 2007 to 2015, the proportion of respondents in the high-risk waist circumference has seen around two-fold increase in men and women irrespective of ages. Similarly, there has been an increase in the high and moderate risk metabolic level (using Waist hip ratio) for younger and older respondents.*

Table 8.1.4 (a) Mean waist circumference (cm) and risk categories (%) among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number
Age group					
18-29	78.0	95.5	4.5	100	515
30-39	84.9	69.2	30.8	100	562
40-49	84.9	68.2	31.8	100	807
Sex					
Male	82.0	96.5	3.5	100	782
Female	83.5	64.4	35.6	100	1,102
Marital status					
Never married	78.2	95.1	4.9	100	397
Currently married	84.2	71.2	28.8	100	1,394
Widowed	84.3	71.9	28.1	100	85
Other[1]	83.8	75.8	24.2	100	8
Residence					
Urban	85.5	69.0	31.0	100	377
Rural	82.1	78.8	21.2	100	1,507
Caste					
Scheduled tribe	78.8	88.5	11.5	100	188
Scheduled caste	80.7	82.1	17.9	100	393
Other[2]	84.1	73.1	26.9	100	1,303
Religion					
Hindu	83.0	76.6	23.4	100	1,574
Muslim	83.0	71.9	28.1	100	235
Other[3]	80.3	87.2	12.8	100	75
Education					
No formal education	81.9	71.9	28.1	100	543

Background characteristics	Aged 18-49				
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number
Less than primary	82.3	79.6	20.4	100	219
Primary school	84.6	72.0	28.0	100	335
Secondary school	83.8	78.4	21.7	100	357
High school	82.0	82.9	17.1	100	295
College and above	83.7	81.6	18.4	100	135
Wealth quintile					
Lowest	79.3	85.4	14.6	100	359
Second	81.8	77.9	22.1	100	404
Middle	82.1	76.6	23.4	100	438
Fourth	84.5	75.3	24.7	100	351
Highest	87.8	65.3	34.7	100	332
Total	**82.9**	**76.4**	**23.6**	**100**	**1,884**

Note: WHO standard waist measure:
Metabolic complication and critical limit for male waist circumference = ≥102 cm;
Metabolic complication and critical limit for female waist circumference = ≥88 cm
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 8.1.4 (b) Mean waist circumference (cm) and risk categories (%) among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number
Age group					
50-59	86.3	69.2	30.8	100	2,678
60-69	85.4	76.3	23.7	100	2,397
70-79	84	80.2	19.8	100	1,151
80+	84.1	85.2	14.9	100	280
Sex					
Male	85.5	93.3	6.7	100	3,047
Female	85.4	57.4	42.6	100	3,459
Marital status					
Never married	83.8	91.1	8.9	100	66
Currently married	86.1	75.7	24.3	100	4,873
Widowed	83.5	69.7	30.3	100	1,530
Other[1]	84.7	68.8	31.2	100	37
Residence					
Urban	89.4	64.2	35.8	100	1,325
Rural	84	78.3	21.7	100	5,181
Caste					
Scheduled tribe	82.6	81.8	18.3	100	488
Scheduled caste	81.5	85.3	14.7	100	1,067
Other[2]	86.5	71.8	28.2	100	4,951
Religion					
Hindu	85.5	74.7	25.3	100	5,445
Muslim	85.2	72.4	27.6	100	809
Other[3]	86.5	76	24	100	252
Education					
No formal education	83.1	72.3	27.7	100	3,257
Less than primary	85.8	76.6	23.4	100	854
Primary school	86.9	73.3	26.7	100	911
Secondary school	87.9	78.5	21.6	100	624
High school	88.4	81.8	18.2	100	503
College and above	92.1	73.5	26.5	100	357

Background characteristics	Aged 50-plus				
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number
Wealth quintile					
Lowest	80.2	83.8	16.2	100	1,255
Second	83.7	79.5	20.5	100	1,200
Middle	84.8	77.5	22.5	100	1,193
Fourth	86.8	70.1	29.9	100	1,348
Highest	90.7	64	36	100	1,510
Total	**85.5**	**74.5**	**25.5**	**100**	**6,506**

Note: WHO standard waist measure:
Metabolic complication and critical limit for male waist circumference = ≥102 cm;
Metabolic complication and critical limit for female waist circumference = ≥88 cm
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 8.5 Percentage of respondents with high-risk waist circumference by sex and age group, India (pooled), SAGE Wave 2, 2015

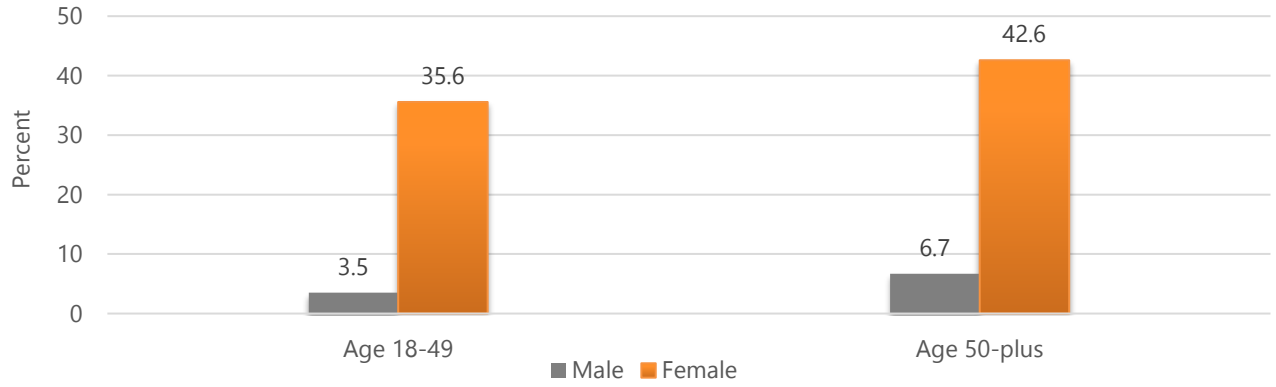


Table 8.1.5 presents the prevalence of high-risk waist circumference in older men and women by background characteristics. Age, residence, marital status, education and wealth quintile showed highly pronounced variations. Overall, the prevalence of high-risk waist circumference was heavily concentrated among urban, educated and upper wealth quintile older women. Almost half of (47%) of women aged 50-59 years had a high-risk waist circumference, compared with about one-third (30%) of women aged 80-plus.

The prevalence of high-risk waist-circumference was higher among older women than among older men (Figure 8.5). Almost three in five older women in urban areas had high-risk waist circumferences, compared with two in five from rural areas. The prevalence of high-risk waist circumference in older women was also much higher among respondents from other castes (47%) compared with those from scheduled castes (25%) and scheduled tribes (30%). By education level, more than three fourth (73%) of older women with a college education had high-risk waist circumferences compared with about 36% among those with no formal education. Almost two-thirds of older women (61%) in the upper wealth quintile were observed to have high-risk waist circumferences, compared with 28% in the poorest quintile.

Table 8.1.5 Mean waist circumference (cm) and risk categories (%) for older men and women, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus							
	Male				Female			
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)
Age group								
50-59	86.3	92.1	7.9	100	86.4	53.2	46.9	100
60-69	85.2	93.9	6.1	100	85.6	58.3	41.7	100
70-79	84.5	93.6	6.4	100	83.3	64.9	35.1	100
80+	86.3	95.8	4.2	100	81.1	70.3	29.7	100
Marital status								
Never married	84.0	95.8	4.2	100	83.3	73.3	26.7	100
Currently married	85.8	92.9	7.1	100	86.5	54.0	46.0	100
Widowed	83.2	96.8	3.2	100	83.5	63.2	36.8	100
Other[1]	83.4	94.1	6.0	100	85.2	58.3	41.7	100
Residence								
Urban	90.1	89.6	10.4	100	88.9	42.3	57.7	100
Rural	83.9	94.7	5.3	100	84.1	63.3	36.7	100
Caste								
Scheduled tribe	83.0	96.2	3.8	100	82.2	70.7	29.3	100
Scheduled caste	82.2	97.3	2.7	100	80.9	74.7	25.3	100
Other[2]	86.3	92.4	7.6	100	86.6	52.9	47.1	100
Religion								
Hindu	85.7	93.3	6.7	100	85.3	57.9	42.1	100
Muslim	84.3	92.5	7.5	100	86.0	53.9	46.1	100
Other[3]	86.1	96.0	4.0	100	87.0	57.0	43.0	100
Education								
No formal education	81.8	96.9	3.1	100	83.6	63.6	36.4	100
Less than primary	84.7	96.1	3.9	100	87.3	50.1	49.9	100
Primary school	85.3	91.7	8.3	100	89.5	43.5	56.5	100
Secondary school	87.0	92.9	7.1	100	89.9	41.5	58.5	100
High school	87.8	92.1	7.9	100	90.5	43.1	56.9	100
College and above	91.4	85.3	14.7	100	94.9	26.7	73.3	100
Wealth quintile								
Lowest	79.8	98.6	1.4	100	80.5	72.1	28.0	100
Second	84.1	95.8	4.2	100	83.4	64.7	35.3	100
Middle	84.5	96.6	3.4	100	85.1	59.8	40.2	100
Fourth	86.6	90.1	9.9	100	87.0	53.1	46.9	100
Highest	90.8	87.8	12.2	100	90.6	38.9	61.1	100
Total	**85.5**	**93.3**	**6.7**	**100**	**85.4**	**57.4**	**42.6**	**100**

WHO Standard waist measure:

Metabolic complication and critical limit for male waist circumference= ≥102 cm;

Metabolic complication and critical limit for female waist circumference= ≥88 cm

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Figure 8.6 Percentage of high-risk waist circumference among respondents aged 50-plus, by sex and wealth quintile, India (pooled), SAGE Wave 2, 2015

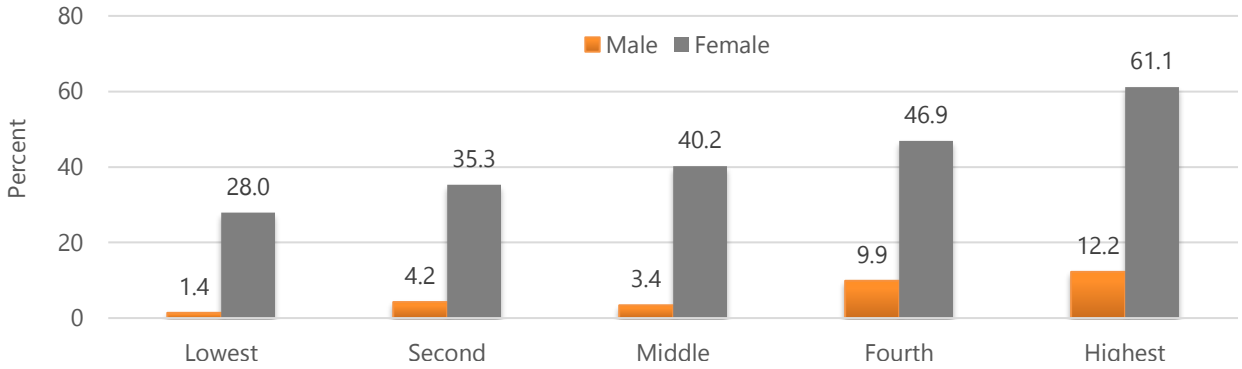


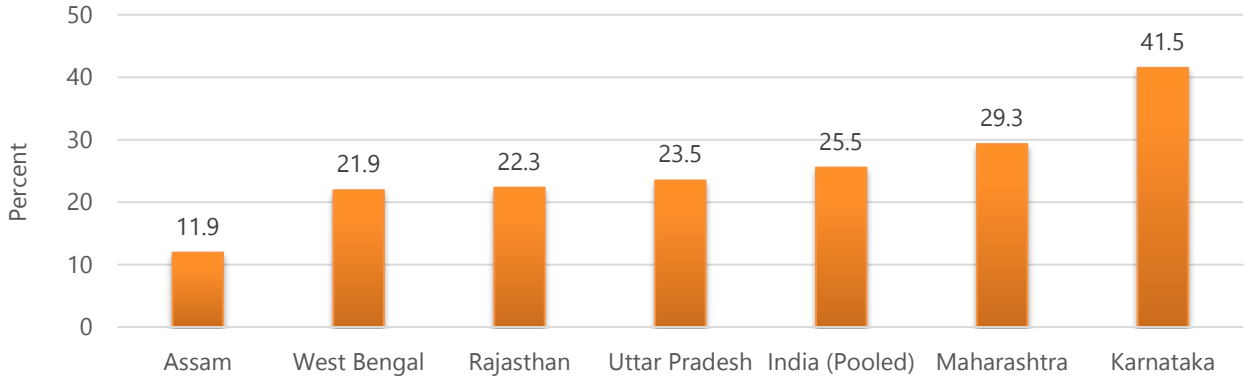
Table 8.1.6 presents mean waist circumference and the percentage distribution of low- and high-risk waist circumference by state and for India overall. The prevalence of high-risk waist circumference was higher among older adults (26%) than among younger adults (24%). The risk also increased with increasing wealth for both older men and women, albeit at much higher risk levels in women (Figure 8.6). Forty-two percent of older adults in Karnataka had high-risk waist circumferences, whereas Assam had the lowest proportion at just 12%. The percentage of older adults with high-risk waist circumference was much higher in Karnataka, Maharashtra than in Assam and West Bengal (Figure 8.7).

Table 8.1.6 Mean waist circumference (cm) and risk categories (%) for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number	Mean waist circumference (cm)	Low risk (%)	High risk (%)	Total (%)	Number
Assam	81.6	87.8	12.2	100	286	81.8	88.1	11.9	100	689
Karnataka	85.1	68.9	31.2	100	196	90.5	58.5	41.5	100	727
Maharashtra	84.4	75.3	24.7	100	324	88.2	70.7	29.3	100	1,094
Rajasthan	80.4	83.5	16.5	100	333	84.3	77.7	22.3	100	1,330
Uttar Pradesh	83.8	71.0	29.0	100	314	84.1	76.5	23.5	100	1,396
West Bengal	81.4	79.3	20.7	100	431	83.7	78.1	21.9	100	1,270
India (Pooled)	**82.9**	**76.4**	**23.6**	**100**	**1,884**	**85.5**	**74.5**	**25.5**	**100**	**6,506**

WHO standard waist measure:
Metabolic complication risk critical limit for male waist circumference = ≥102 cm
Metabolic complication risk critical limit for female waist circumference = ≥88 cm

Figure 8.7 Percentage of respondents aged 50-plus with high-risk waist circumference, states and India (pooled), SAGE Wave 2, 2015



8.1.3 Waist-hip ratio

Central body obesity measured by the waist-hip ratio (WHR) is considered to be a predictor of cardiovascular risks and metabolic alteration, contributing to a higher risk for hypertension and diabetes. Waist–hip ratio (i.e. the waist circumference divided by the hip circumference) was suggested as an additional measure of body fat distribution. The ratio can be measured more precisely than skin folds, and it provides an index of both subcutaneous and intra-abdominal adipose tissue (Bjorntorp, 1987). WHO standard limits for categorizing waist-hip ratio are: low risk (≤0.95 for males and ≤0.80 for females); moderate risk (0.96-1.0 for men and 0.81-0.85 for women); and high risk (≥1.0 for men and ≥0.85 for women).

Overall, 20% of older respondents had a moderate-risk WHR and 53% had a high-risk WHR (Table 8.1.7). By comparison, 15% of younger adults had a moderate-risk WHR and 53% had a high-risk WHR. Overall, around three fourth (73%) of older adults and more than half (68%) of younger adults were assessed with moderate- to high-risk WHR. Among older adults, Karnataka had the highest proportion of respondents (65%) with high-risk WHR. Rajasthan had the lowest proportion of younger adults with high-risk WHR (46%) and Karnataka had the highest (61%).

Table 8.1.7 Percent distribution of metabolic risk levels (using waist-hip ratio) for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Low risk (%)	Moderate risk (%)	High risk (%)	Total (%)	Number	Low risk (%)	Moderate risk (%)	High risk (%)	Total (%)	Number
Assam	15.3	30.7	54.0	100	286	18.7	26.2	55.1	100	689
Karnataka	29.6	9.7	60.8	100	196	17.6	17.8	64.7	100	726
Maharashtra	33.8	14.4	51.8	100	324	26.5	26.5	47.1	100	1,094
Rajasthan	40.9	13.5	45.7	100	332	35.7	13.7	50.6	100	1,330
Uttar Pradesh	32.9	13.0	54.2	100	314	27.4	18.2	54.5	100	1,393
West Bengal	33.7	15.7	50.6	100	431	28.5	19.9	51.6	100	1,267
India (pooled)	**32.5**	**15.0**	**52.5**	**100**	**1883**	**26.9**	**20.2**	**52.9**	**100**	**6,499**

Note: WHO standard waist-hip ratio chart

Male	*Female*	*Risk Level*
0.95	*≤0.80*	*Low*
0.96-1.0	*0.81-0.85*	*Moderate*
1.0+	*0.85+*	*High*

Table 8.1.8 (a & b) presents the percentage distribution of respondents with low-, moderate- and high-risk WHR by background characteristics. As age increased, the percentage of respondents with moderate-risk WHR increased as well, for instance, from 15% (18-29 years) to 19% (50-59 years). Highly pronounced differences by sex were observed in the prevalence of high-risk WHR (see Figure 8.8). In the 50-plus group, more than four in five (86%) women had high-risk WHR, compared with only 17% of men; for younger women, the figure was 79%, compared with only 7% of men.

Irrespective of age, the prevalence of high-risk WHR declined markedly with education. Among older respondents, the prevalence of high-risk WHR declined from 66% for those with no education to 36% for those with a college education and above, while among younger respondents the corresponding decline was from 69% to 35%. This pattern is in marked contrast to the strong positive gradient of education and wealth quintile for the prevalence of overweight and obesity.

Table 8.1.8 (a) Percent distribution of metabolic risk levels (using waist-hip ratio) for younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	Low risk	Moderate risk	High risk	Total	Number
Age group					
18-29	51.0	15.4	33.6	100	515
30-39	27.2	14.4	58.4	100	560
40-49	23.2	15.2	61.6	100	807
Sex					
Male	74.3	18.4	7.3	100	782
Female	7.6	13.0	79.4	100	1,100
Marital status					
Never married	53.8	16.6	29.6	100	397
Currently married	28.0	14.5	57.5	100	1,392
Widowed	5.7	16.5	77.9	100	85
Other[1]	7.7	6.5	85.9	100	8
Residence					
Urban	32.7	9.7	57.6	100	376
Rural	32.4	16.8	50.8	100	1,506
Caste					
Scheduled tribe	31.4	14.1	54.5	100	188
Scheduled caste	33.7	15.9	50.4	100	392
Other[2]	32.3	14.9	52.8	100	1,302
Religion					
Hindu	32.5	14.1	53.4	100	1,573
Muslim	35.7	16.8	47.5	100	234
Other[3]	20.6	31.7	47.7	100	75
Education					
No formal education	20.6	10.6	68.8	100	541
Less than primary	27.0	19.6	53.4	100	219
Primary school	29.5	17.6	52.9	100	335
Secondary school	36.7	15.0	48.3	100	357
High school	49.4	17.0	33.7	100	295
College and above	49.4	15.8	34.8	100	135
Wealth quintile					
Lowest	37.6	13.2	49.2	100	359
Second	31.1	18.3	50.6	100	403
Middle	32.6	14.4	53.0	100	438
Fourth	29.0	15.0	56.1	100	350
Highest	32.0	14.3	53.7	100	332
Total	**32.5**	**15.0**	**52.5**	**100**	**1,882**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

WHO standard waist-hip ratio chart

Male	*Female*	*Risk Level*
0.95	*≤0.80*	*Low risk*
0.96-1.0	*0.81-0.85*	*Moderate risk*
1.0+	*0.85+*	*High risk*

Table 8.1.8 (b) Percent distribution of metabolic risk levels (using waist-hip ratio) for older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Low risk	Moderate risk	High risk	Total	Number
Age group					
50-59	25.2	18.6	56.2	100	2,676
60-69	27.9	22.1	50	100	2,397
70-79	29	18.9	52.1	100	1,147
80+	27.6	23.4	49	100	280
Sex					
Male	52	31.4	16.6	100	3,045
Female	4.3	10	85.7	100	3,455
Marital status					
Never married	40.5	33.5	26	100	66
Currently married	30.4	22.5	47.1	100	4,871
Widowed	15.3	12	72.7	100	1,526
Other[1]	16.5	22.8	60.7	100	37
Residence					
Urban	21.2	22.5	56.3	100	1,324
Rural	29.1	19.3	51.6	100	5,176
Caste					
Scheduled tribe	26.6	22.8	50.6	100	487
Scheduled caste	28.5	19.5	52	100	1,067
Other[2]	26.7	20.1	53.3	100	4,946
Religion					
Hindu	27	20.3	52.7	100	5,440
Muslim	26.5	18.4	55.1	100	808
Other[3]	28	22.6	49.4	100	252
Education					
No formal education	19.4	14.6	66.1	100	3,253
Less than primary	31.6	21	47.3	100	854
Primary school	32.8	23.8	43.4	100	910
Secondary school	38.6	27.9	33.5	100	623
High school	37.2	26.1	36.8	100	503
College and above	31.1	33.1	35.8	100	357
Wealth quintile					
Lowest	33	16.9	50.1	100	1,252
Second	28.7	19	52.3	100	1,199
Middle	27.8	21	51.2	100	1,192
Fourth	23.9	21	55.1	100	1,347
Highest	22.4	22.6	55.1	100	1,510
Total	**27**	**20.2**	**52.9**	**100**	**6,500**

[1] *Includes divorced, separated or cohabiting.*

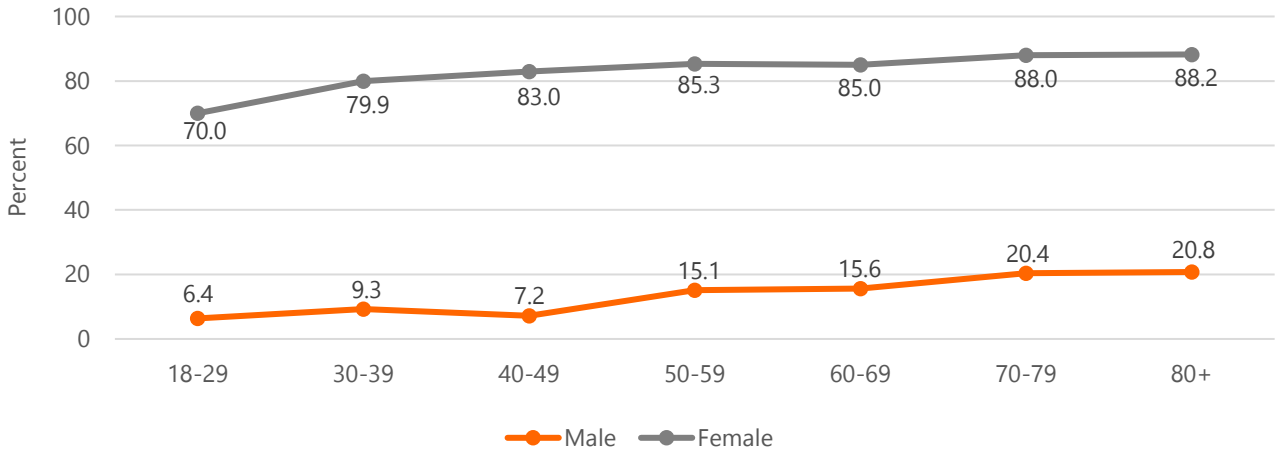
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

WHO standard waist-hip ratio chart

Male	*Female*	*Risk Level*
0.95	*≤0.80*	*Low risk*
0.96-1.0	*0.81-0.85*	*Moderate risk*
1.0+	*0.85+*	*High risk*

Figure 8.8 Prevalence of high risk waist-hip ratio by sex and age group, India (pooled), SAGE Wave 2, 2015



8.2 Grip strength

Healthy ageing implies the maintenance of good functioning as a person gets older. Muscle strength affects the functional ability and the physiological processes of body organs. Grip strength is a measure of muscular strength or the maximum force/tension generated by one's forearm muscles. It can be used as a screening tool for the measurement of upper body strength and overall strength. Grip strength testing is the standard method used for decades to determine functional grasp strength. This test is used initially and in periodic retests to demonstrate improvement in the strength available to grasp. Grip strength was measured in both hands, with the mean of the best result in each hand used as the final result in kilograms.

Table 8.2.1 shows the mean grip strength values by state and in India (pooled). For older respondents, the mean grip strength was 18 kg (left hand) and 20 kg (right hand). For younger adults, the mean was 23 kg (left hand) and 25 kg (right hand). Mean grip strength was lowest in Uttar Pradesh in both younger and older respondents.

Trends: *In the period 2007-15, the mean grip strength of the left and right hand has declined among younger and older respondents irrespective of sex. On the other hand, the mean time taken for 4m rapid and normal walk has increased marginally.*

Table 8.2.1 Mean grip strength (kg) for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Left hand	Number	Right hand	Number	Left hand	Number	Right hand	Number
Assam	25.3	253	26.9	273	21.0	639	22.4	671
Karnataka	23.7	190	26.4	190	20.5	690	22.0	699
Maharashtra	21.3	307	23.1	313	17.3	1037	19.1	1059
Rajasthan	23.2	322	25.9	327	18.2	1321	21.3	1328
Uttar Pradesh	19.5	307	22.1	306	15.6	1357	17.9	1371
West Bengal	26.0	422	29.6	424	21.0	1252	23.7	1254
India (pooled)	**22.6**	**1801**	**25.3**	**1833**	**18.1**	**6296**	**20.3**	**6382**

Table 8.2.2 (a & b) presents measured grip strength by age group and sex. The mean grip strength of both hands declined consistently with the age of respondents, with a particularly heavy decline among respondents aged 70-plus. Mean grip strength was higher for female respondents from rural areas compared with their urban counterparts. However, mean grip strength also increased with education, for both younger and older respondents. Wealth correlated positively with mean grip strength; however, marital status, caste, religion and education indicated no consistent pattern.

Table 8.2.2 (a) Mean grip strength (kg) among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Male		Female	
	Left hand	Right hand	Left hand	Right hand
Age group				
18-29	31.0	34.1	19.2	21.8
30-39	29.3	32.5	19.4	21.7
40-49	27.7	30.6	17.5	19.8
Marital status				
Never married	30.8	33.6	19.1	21.7
Currently married	29.0	32.2	18.4	20.7
Widowed	23.9	26.5	18.1	20.4
Other[1]	29.2	25.8	20.2	24.1
Residence				
Urban	30.3	34.5	17.9	20.5
Rural	29.3	32.0	18.6	21.0
Caste				
Scheduled tribe	30.6	32.9	19.9	22.2
Scheduled caste	30.3	32.7	18.6	20.9
Other[2]	29.2	32.5	18.2	20.6
Religion				
Hindu	29.5	32.4	18.7	21.0
Muslim	29.6	33.6	16.7	19.9
Other[3]	32.5	33.5	19.5	21.3
Education				
No formal education	28.0	30.4	17.6	20.1
Less than primary	29.2	32.3	17.4	19.9
Primary school	29.8	33.1	18.1	20.7
Secondary school	29.6	32.7	20.3	22.4
High school	29.5	32.7	19.3	21.5
College and above	31.5	34.2	20.4	22.4
Wealth quintile				
Lowest	27.0	29.4	17.7	19.8
Second	28.8	31.5	17.8	21.0
Middle	31.3	34.3	19.1	21.1
Fourth	30.3	33.8	18.9	21.4
Highest	30.4	34.1	18.6	20.8
Total	**29.6**	**32.6**	**18.5**	**20.8**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 8.2.2 (b) Mean grip strength (kg) among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus			
	Male		Female	
	Left hand	Right hand	Left hand	Right hand
Age group				
50-59	24.9	27.4	16.2	18.3
60-69	22.0	24.4	13.8	15.6
70-79	18.7	21.2	12.1	14.1
80+	16.6	18.9	8.6	10.7
Marital status				
Never married	22.8	25.2	17.1	18.0
Currently married	22.4	24.8	15.2	17.2
Widowed	19.2	21.8	13.0	15.0
Other[1]	17.6	23.1	15.4	17.5
Residence				
Urban	22.8	25.5	14.0	16.1
Rural	21.8	24.2	14.6	16.5
Caste				
Scheduled tribe	22.9	24.7	15.6	17.5
Scheduled caste	21.5	24.1	14.6	16.7
Other[2]	22.1	24.6	14.3	16.2
Religion				
Hindu	22.1	24.6	14.4	16.4
Muslim	21.0	24.0	13.9	16.5
Other[3]	23.3	25.5	15.7	17.8
Education				
No formal education	20.3	22.8	13.7	15.7
Less than primary	21.9	24.4	15.8	17.6
Primary school	22.1	24.4	15.3	17.2
Secondary school	22.8	25.5	16.0	17.9
High school	22.7	25.3	16.8	18.8
College and above	24.6	27.1	16.8	19.7
Wealth quintile				
Lowest	19.7	22.5	13.5	15.4
Second	21.7	23.8	14.1	16.1
Middle	22.7	25.1	14.8	16.9
Fourth	22.3	24.7	14.5	16.4
Highest	23.3	26.0	15.2	17.3
Total	**22.0**	**24.5**	**14.4**	**16.4**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

8.3 Mean time to walk four metres

Walking is seen as one of the activities that offer less risk of heart disease, weight control, less risk of high blood pressure, less risk of diabetes, less depression and anxiety, less risk of cancer and less risk of osteoporosis. According to Barton, Grant & Guise (2003), actual distance walked varies with individual physical ability and fitness, encumbrances, individual lifestyle choices. A simple speed test measuring the time taken to walk four meters is a useful indicator of overall functional limitation in adults. In older adults particularly, walking speed can be a predictor of adverse results such as hospitalisation, falls, dependence and mortality.

Recently, there has been a growing interest in examining the relationship between walking speed and decline in cognitive functioning, as slow gait often precedes cognitive decline. SAGE measured normal and rapid walking time (in seconds) to cover a four metre distance for all respondents.

Table 8.3.1 presents the average time taken to walk four metres. The national average time taken for older adults was 5.2 seconds at a normal walking pace and 3.8 seconds at a rapid pace. For younger adults, the average was 4.4 seconds at a normal walking pace and 3.0 seconds at a rapid pace. The longest average time taken for normal as well as rapid walking pace was in West Bengal and Karnataka and the shortest in Uttar Pradesh and Assam, for both younger and older adults.

Table 8.3.1 Mean time (seconds) taken for 4m walk at normal and rapid pace among younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Normal walk		Rapid walk		Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number	Mean (seconds)	Number	Mean (seconds)	Number
Assam	4.44	284	2.8	283	5.0	676	3.2	676
Karnataka	4.46	194	3.3	194	5.5	698	4.0	698
Maharashtra	4.09	315	3.0	315	5.1	1045	3.8	1045
Rajasthan	4.74	333	3.1	333	5.4	1316	3.7	1316
Uttar Pradesh	4.04	312	3.0	312	5.0	1348	3.8	1348
West Bengal	4.65	430	3.1	430	5.5	1256	3.9	1256
India (pooled)	**4.35**	**1868**	**3.0**	**1867**	**5.2**	**6339**	**3.8**	**6339**

Table 8.3.2 (a & b) shows the meantime taken for a four metre walk at both normal and rapid walking pace for younger and older adults. The mean time increased with age, from 3.9 seconds to 6.6 seconds at a normal pace and from 2.7 seconds to 5.1 seconds at a rapid walking pace.

For respondents aged 50-plus, education showed a noticeable negative impact. Gender, marital status, residence and religion, however, did not indicate strong gradients with the timed walk (Figure 8.9).

Figure 8.9 Mean time taken for 4m walk (seconds), by age group, India (pooled), SAGE Wave 2, 2015

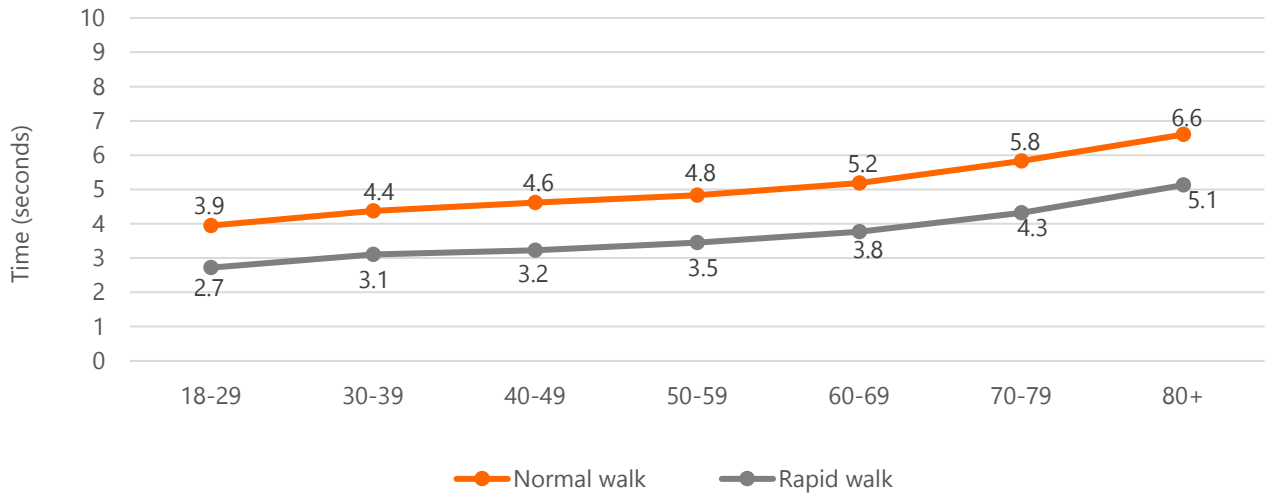


Table 8.3.2 (a) Mean time (seconds) taken for 4m walk at normal and rapid pace among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number
Age group				
18-29	3.9	515	2.7	515
30-39	4.4	557	3.1	556
40-49	4.6	795	3.2	795
Sex				
Men	4.0	773	2.7	772
Women	4.6	1094	3.2	1094
Marital status				
Never married	3.9	396	2.6	396
Currently married	4.5	1381	3.1	1380
Widowed	4.7	82	3.3	82
Other[1]	4.7	8	3.2	8
Residence				
Urban	4.3	369	3.0	369
Rural	4.4	1498	3.0	1497
Caste				
Scheduled tribe	4.6	187	3.2	187
Scheduled caste	4.4	390	3.0	390
Other[2]	4.3	1290	3.0	1289
Religion				
Hindu	4.3	1559	3.0	1559
Muslim	4.5	233	3.2	232
Other[3]	4.6	75	3.2	75
Education				
No formal education	4.6	535	3.3	534
Less than primary	4.6	219	3.2	219
Primary school	4.4	331	3.1	331
Secondary school	4.2	354	2.9	354
High school	4.0	294	2.8	294
College and above	3.8	134	2.6	134
Wealth quintile				
Lowest	4.3	357	3.0	357
Second	4.4	402	3.0	402
Middle	4.4	435	3.1	434
Fourth	4.3	346	3.1	346
Highest	4.3	327	3.0	327
Total	**4.3**	**1867**	**3.0**	**1866**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 8.3.2 (b) Mean time (seconds) taken for 4m walk at normal and rapid pace among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus			
	Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number
Age group				
50-59	4.8	2635	3.5	2635
60-69	5.2	2343	3.8	2343
70-79	5.8	1105	4.3	1105
80+	6.6	257	5.1	257
Sex				
Men	4.9	2981	3.5	2981
Women	5.5	3359	4.1	3359
Marital status				
Never married	4.7	64	3.3	64
Currently married	5.0	4766	3.6	4766
Widowed	5.9	1475	4.4	1475
Other[1]	5.1	35	3.5	35
Residence				
Urban	5.3	1282	3.9	1282
Rural	5.2	5058	3.8	5058
Caste				
Scheduled tribe	5.1	477	3.7	477
Scheduled caste	5.1	1046	3.8	1046
Other[2]	5.2	4817	3.8	4817
Religion				
Hindu	5.2	5311	3.8	5311
Muslim	5.3	785	3.8	785
Other[3]	5.0	244	3.6	244
Education				
No formal education	5.4	3160	4.1	3160
Less than primary	5.2	836	3.8	836
Primary school	5.0	890	3.5	890
Secondary school	5.0	606	3.6	606
High school	4.9	499	3.4	499
College and above	4.7	349	3.2	349
Wealth quintile				
Lowest	5.1	1216	3.8	1216
Second	5.3	1169	3.8	1169
Middle	5.3	1166	3.8	1166
Fourth	5.2	1312	3.8	1312
Highest	5.2	1477	3.8	1477
Total	**5.2**	**6340**	**3.8**	**6340**

[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

8.4 Measured blood pressure

Essential or primary hypertension, the world's leading risk factor for global disease burden, is expected to cause more than half of the estimated 17 million deaths per year resulting from cardiovascular disease (CVD) worldwide.[1] Defined as an elevation of blood pressure (BP) beyond 140/90 mm Hg, hypertension is strongly correlated with adverse outcomes such as stroke, ischemic heart disease, heart failure, and end-stage renal disease. Blood pressure is the pressure of blood in the arteries (blood vessels), which is measured in millimetres of mercury (mmHg). Systolic blood pressure (SBP) is a measure of blood pressure while the heart is beating; diastolic blood pressure (DBP) is a measure of blood pressure while the heart is relaxed, between heartbeats.

Globally, high blood pressure or hypertension – defined as SBP equal to or above 140 mmHg and/or DBP equal to or above 90 mmHg – causes 13% of total deaths and accounts for 4.5% of the burden of disease. High blood pressure is a major risk factor for future chronic diseases such as heart disease (angina, heart attack and heart failure), stroke (brain attack), peripheral vascular disease, eye disease (including blindness) and kidney damage.

SBP in the pre-hypertension range of 120-140 mmHg may cause ischemic heart disease through many intermediate risk factors. Additionally, an elevated pulse rate may be an independent risk factor for cardiovascular disease.

8.4.1 Prevalence of hypertension

For SAGE, three blood pressure measurements were collected from each respondent and the average of the second and third readings was used in the analysis. The prevalence of hypertension was assessed using standard critical limits classification as recommended by WHO in 2003. The WHO classification system for blood pressure is:

- Normal: systolic <120 mmHg; diastolic <80 mmHg
- Pre-hypertension: systolic 120-139 mmHg; diastolic 80-89 mmHg
- Hypertension: systolic ≥140mmHg; diastolic ≥90 mmHg.

Table 8.4.1 shows that 33% of older respondents and 15% of adults aged 18-49 had hypertension on measurement. Almost three fourth (74%) of older adults and slightly more than half (58%) of younger adults had high blood pressure (including both pre-hypertension and hypertension).

By state, the prevalence of hypertension in older adults was highest in Karnataka (45%) followed by and West Bengal (39%) and lowest in Rajasthan (28%). The prevalence of hypertension among young adults was highest in Karnataka (18%) and lowest in Rajasthan (9%).

Trends: *From 2007 to 2015, the proportion of respondents aged 18-49 years having measured pre-hypertension has increased from 32% to 44%. The prehypertension has increased from 33% to 40% among 50plus respondents in the same period.*

The mean systolic and diastolic blood pressure and pulse rate have increased marginally among respondents of all ages. The PH systolic, H systolic, PH diastolic has increased substantially from the year 2007 to 2015. However, during the same period, the proportion of respondents with diastolic hypertension fell from 16% and 24% to 13% and 20% among younger and older respondents respectively.

Table 8.4.1 Percent distribution of younger and older adults by measured hypertensive status (systolic and/or diastolic blood pressure), states and India (pooled), SAGE Wave 2, 2015

States	Aged 18-49				Aged 50+			
	Normal	Pre-hypertension	Hypertension	Number	Normal	Pre-hypertension	Hypertension	Number
Assam	37.2	45.9	17.0	290	24.4	39.2	36.4	714
Karnataka	42.0	39.7	18.3	197	17.3	38.0	44.8	739
Maharashtra	40.8	44.0	15.2	327	23.3	44.1	32.6	1,113
Rajasthan	46.3	45.0	8.7	335	27.8	44.7	27.5	1,369
Uttar Pradesh	43.0	42.1	14.9	315	32.5	38.7	28.9	1,430
West Bengal	39.8	45.7	14.6	436	24.1	37.5	38.5	1,304
India (pooled)	**41.7**	**43.7**	**14.6**	**1,900**	**26.4**	**40.3**	**33.3**	**6,669**

Note: Systolic and diastolic blood pressure have been classified as per WHO norms: normal = systolic<120 mmHg and diastolic <80 mmHg; pre-hypertension = systolic 120-139 mmHg and/or diastolic 80-89 mmHg; hypertension = systolic ≥140 mmHg and/or diastolic ≥90 mmHg.

Figure 8.10 Prevalence of hypertension for younger and older respondents, states and India (pooled), SAGE Wave 2, 2015

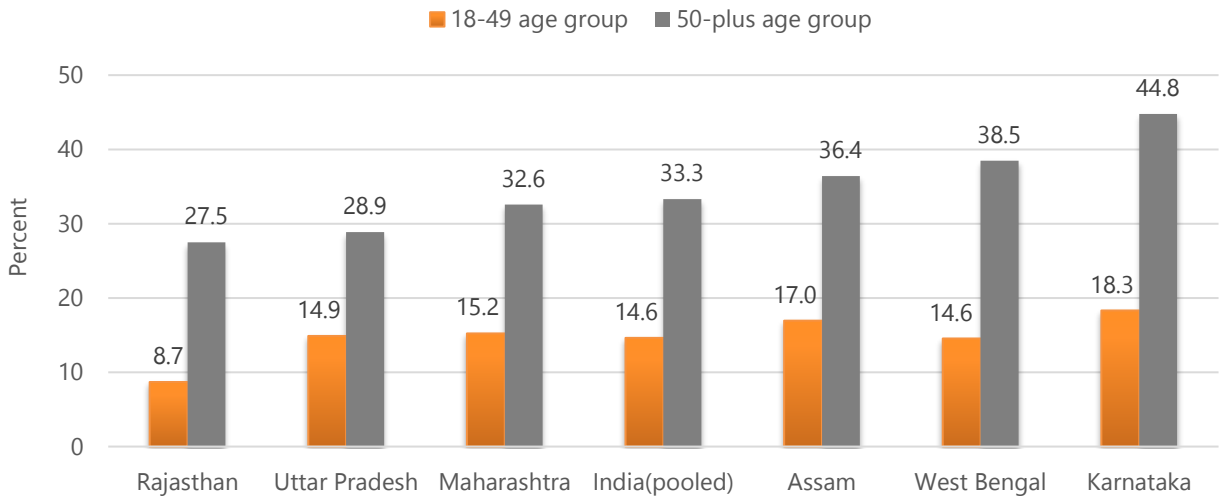


Table 8.4.2 (a & b) presents the overall prevalence of hypertension among older and younger adults by background characteristics. The prevalence of hypertension among both older and younger adults increased with age (see Figure 8.11). The prevalence of hypertension was higher among older women (36%) than older men (31%). Two thirds (64%) of divorced/separated/cohabiting older adults had either pre-hypertension or hypertension. The prevalence of hypertension was higher among both younger and older adults in urban areas compared with rural areas. By caste, differences in the prevalence of hypertension among older adults were less pronounced.

Figure 8.11 Prevalence of hypertension by age groups, India (pooled), SAGE Wave 2, 2015

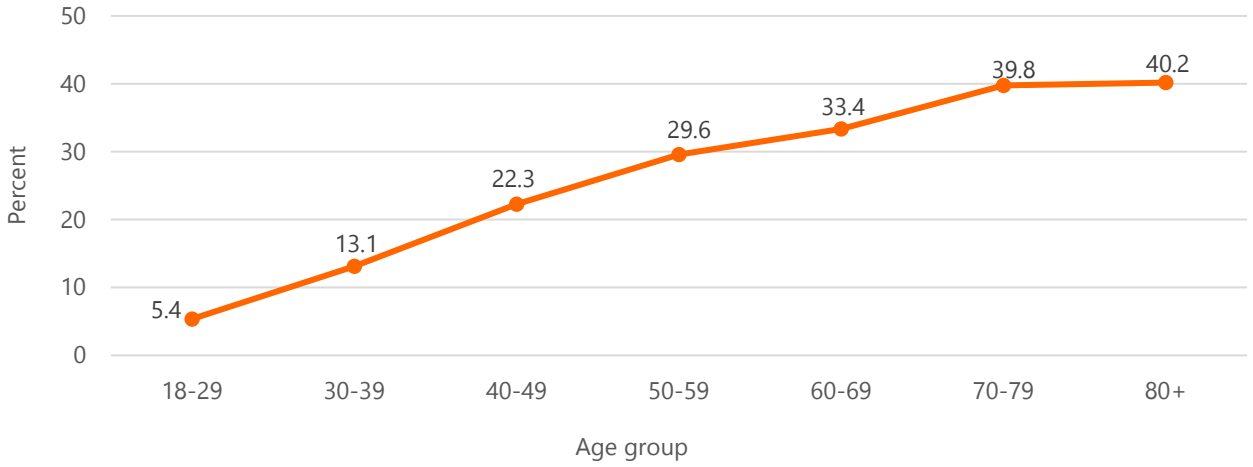


Table 8.4.2 (a) Percent distribution of younger respondents, by hypertensive status and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Normal	Pre-hypertension	Hypertension	Number
Age group				
18-29	48.5	46.2	5.4	520
30-39	45.0	41.8	13.1	569
40-49	34.4	43.4	22.3	810
Sex				
Male	32.5	51.5	16.0	789
Female	47.1	39.1	13.8	1,110
Marital status				
Never married	46.2	47.9	5.9	402
Currently married	40.5	43.2	16.2	1,403
Widowed	37.0	32.8	30.2	85
Other[1]	48.4	35.1	16.6	9
Residence				
Urban	40.0	43.1	16.9	383
Rural	42.2	43.9	13.9	1,516
Caste				
Scheduled tribe	37.7	46.5	15.7	188
Scheduled caste	47.7	39.9	12.5	397
Other[2]	40.4	44.5	15.1	1,314
Religion				
Hindu	41.6	44.1	14.3	1,586
Muslim	42.1	40.8	17.1	238
Other[3]	40.8	44.7	14.5	75
Education				
No formal education	40.3	39.5	20.2	548
Less than primary	38.2	45.4	16.4	221
Primary school	35.1	49.5	15.4	337
Secondary school	44.1	45.9	10.0	360
High school	52.5	38.5	9.0	298
College and above	38.9	48.9	12.2	135
Wealth quintile				
Lowest	41.6	45.2	13.2	362
Second	39.2	40.8	20.0	407
Middle	44.3	43.6	12.0	442
Fourth	43.4	43.3	13.3	353
Highest	38.9	46.0	15.2	335
Total	**41.6**	**43.7**	**14.6**	**1,899**

Note: Systolic and diastolic blood pressure have been classified as per WHO norms: normal = systolic<120 mmHg and diastolic <80 mmHg; pre-hypertension = systolic 120-139 mmHg and/or diastolic 80-89 mmHg; hypertension = systolic ≥140 mmHg and/or diastolic ≥90 mmHg.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 8.4.2 (b) Percent distribution of older respondents, by hypertensive status and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus			
	Normal	Pre-hypertension	Hypertension	Number
Age group				
50-59	27.4	43.1	29.6	2,703
60-69	26.4	40.3	33.4	2,444
70-79	25.3	34.9	39.8	1,200
80+	22.4	37.5	40.2	323

Background characteristics	Aged 50-plus			
	Normal	Pre-hypertension	Hypertension	Number
Sex				
Male	28.6	40.9	30.5	3,121
Female	24.4	39.8	35.8	3,549
Marital status				
Never married	19.5	41	39.5	71
Currently married	28	41.6	30.5	4,972
Widowed	21.4	36.6	42	1,588
Other[1]	36.1	26.9	37	39
Residence				
Urban	21.2	41.4	37.4	1,352
Rural	28.3	39.9	31.8	5,318
Caste				
Scheduled tribe	24.1	40.8	35.1	501
Scheduled caste	27.6	42	30.4	1,089
Other[2]	26.3	40	33.7	5,080
Religion				
Hindu	26.2	40.4	33.4	5,587
Muslim	29.3	39.3	31.4	823
Other[3]	18.9	43.3	37.8	260
Education				
No formal education	27.2	39.8	32.9	3,348
Less than primary	26.1	39	34.9	878
Primary school	29.1	38.9	32	931
Secondary school	24	41.7	34.3	636
High school	24.3	42	33.7	511
College and above	20.6	45.4	33.9	366
Wealth quintile				
Lowest	30.1	39.1	30.8	1,289
Second	29.2	38.6	32.2	1,228
Middle	26.9	38.7	34.4	1,235
Fourth	22.8	42.5	34.7	1,374
Highest	23.7	42.1	34.2	1,544
Total	**26.4**	**40.3**	**33.3**	**6,670**

Note: Systolic and diastolic blood pressure have been classified as per WHO norms: normal = systolic<120 mmHg and diastolic <80 mmHg; pre-hypertension = systolic 120-139 mmHg and/or diastolic 80-89 mmHg; hypertension = systolic ≥140 mmHg and/or diastolic ≥90 mmHg.

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

8.4.2 Prevalence of critical hypertension

A further examination of respondents with critical hypertension, defined as SBP of 160 or above and/or DBP of 100 or above, was also conducted. The European Society of Cardiology and European Society of Hypertension has categorised systolic and diastolic blood pressure into three groups:

- Normal: Those with optimal (systolic < 120 and/or diastolic < 80) and normal (systolic 120-129 and/or diastolic 80-84) blood pressure
- Needing medical attention: Those with high normal blood pressure (systolic 130-139 and/or diastolic 85-89) or Grade 1 hypertension (systolic 140-159 and/or diastolic 90-99)
- Needing urgent medical attention (critical): Those with Grade 2 (systolic 160-179 and/or diastolic 100-109) or Grade 3 hypertension (systolic ≥ 180 and/or diastolic ≥ 110) (Mancia 2007).

Table 8.4.3 presents the percentage distribution of respondents by the following classifications: optimal, normal, and high normal blood pressure and Grade 1, Grade 2 and Grade 3 hypertension. Overall, 10.8% of older respondents and 3.2% of younger respondents were in the critical range (including Moderate and severe hypertension), while a little less than half of older respondents and a quarter of younger respondents had elevated blood pressure. Among older adults, Uttar Pradesh and Rajasthan was the only state where less than 10% of older respondents required urgent medical attention; in Karnataka, 16% of older adults had critical hypertension (see Figure 8.12). Assam had the highest proportion (30%) of young adults needing medical attention. Karnataka also had the highest proportion (5.4%) of younger adults with critical hypertension.

Table 8.4.3 Percent distribution of younger and older adults, by severity of hypertension (HPT), states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49							Aged 50-plus						
	Optimal	Normal	High normal	HPT mild	HPT moderate	HPT severe	Number	Optimal	Normal	High normal	HPT mild	HPT moderate	HPT severe	Number
Assam	37.2	29.1	16.7	13.2	2.1	1.7	290	24.4	20.9	18.3	23.3	9.1	4.0	714
Karnataka	42.0	26.5	13.3	12.9	3.6	1.8	197	17.3	19.3	18.6	28.5	11.7	4.6	739
Maharashtra	40.8	27.1	16.9	12.6	1.9	0.7	327	23.3	24.7	19.5	22.3	8.7	1.6	1,113
Rajasthan	46.3	25.0	20.0	6.8	1.9	0.0	335	27.8	21.3	23.5	19.6	5.2	2.7	1,369
Uttar Pradesh	43.0	26.9	15.2	12.2	2.7	0.0	315	32.5	21.1	17.6	20.0	5.9	2.9	1,430
West Bengal	39.7	27.2	18.6	10.6	3.0	1.0	435	24.1	17.5	19.9	25.3	9.0	4.1	1,305
India (pooled)	**41.6**	**26.9**	**16.8**	**11.4**	**2.6**	**0.7**	**1,899**	**26.4**	**21.0**	**19.3**	**22.5**	**7.8**	**3.1**	**6,670**

Note: Standard measure of blood pressure for adults (based on European Society of Cardiology and on European Society of Hypertension).

		Systolic BP (mmHg)		*Diastolic BP (mmHg)*
Optimal	}*Normal*	*<120*	and/or	*<80*
Normal		*120-129*	and/or	*80-84*
High-normal	}*Need attention(need medical attention)*	*130-139*	and/or	*85-89*
HPT-mild		*140-159*	and/or	*90-99*
HPT-moderate	}*Critical condition(need urgent medical attention)*	*160-179*	*and/or*	*100-109*
HPT-severe		*≥ 180*	and/or	*≥ 110*

Figure 8.12 Percentage of respondents with critical (Grade 2 or Grade 3) hypertension by age group, states and India (pooled), SAGE Wave 2, 2015

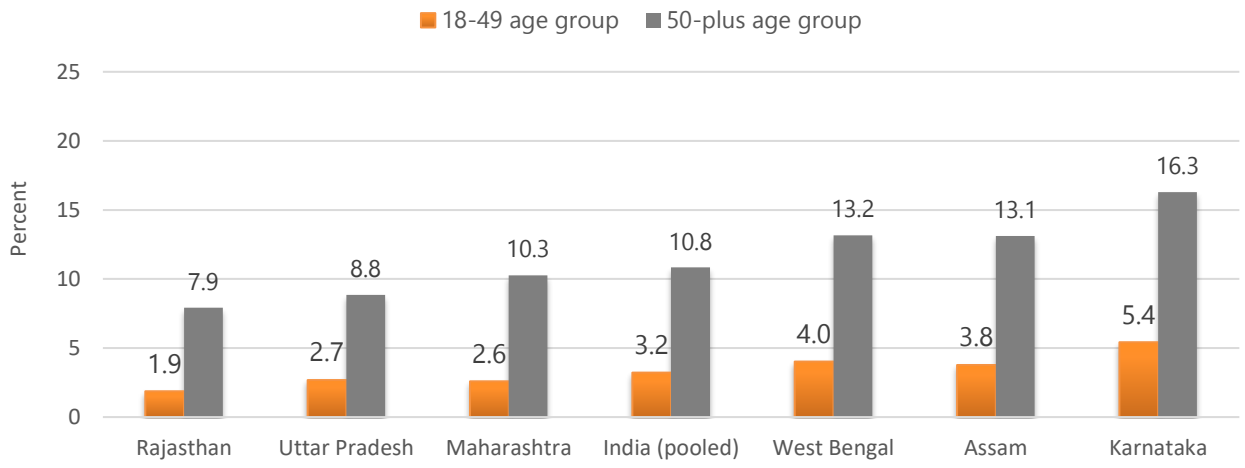
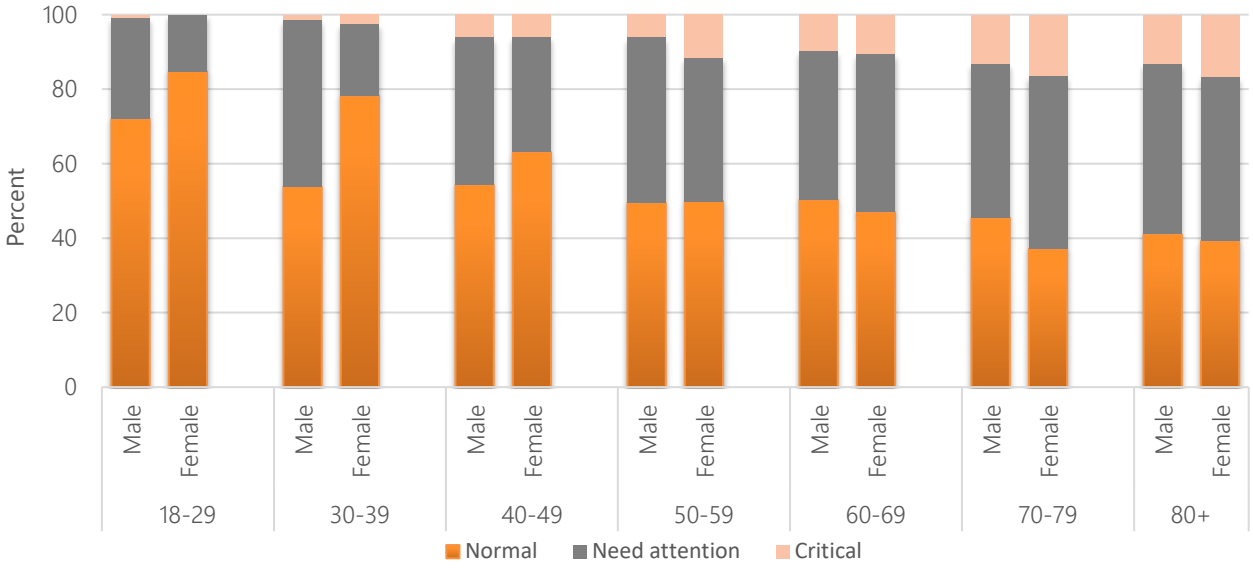


Figure 8.13 presents the percentage distribution of respondents by the need for medical attention and by age. The proportion of respondents with normal blood pressure decreased with age, with this trend more consistent for females. Similarly, the percentage of respondents needing medical attention for high blood pressure did not change much with increasing age in men, whereas the proportion of women needing attention increased consistently with age. The percentage of respondents with critically high blood pressure, however, increased with age for both sexes (Figure 8.13).

Figure 8.13 Percent distribution of respondents by different risk conditions of hypertension according to age and sex, India (pooled), SAGE Wave 2, 2015



8.4.3 Systolic and diastolic blood pressure

For older respondents, mean SBP and DBP blood pressure levels were both highest in Karnataka and lowest in Uttar Pradesh (Table 8.4.4). The average SBP in younger respondents was 118 mmHg (below the ideal of 120 mmHg), while DBP was 79.4 mmHg (almost equal to a normal reading of 80 mmHg). Among older respondents, the mean pulse rate was highest (81.4) in Karnataka and lowest in Maharashtra (80). Overall, for older respondents, the mean SBP was 130 mmHg and the mean DBP was 81 mmHg. For younger respondents, the mean pulse rate was highest (83) in Uttar Pradesh, and lowest in Maharashtra (80). By state, blood pressure levels among younger respondents were lowest in Rajasthan (SBP 119 mmHg; DBP 78 mmHg) and highest in Assam (SBP 122 mmHg; DBP 79 mmHg).

Table 8.4.4 Mean blood pressure and pulse rate for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49						Aged 50-plus					
	Systolic blood pressure (mmHg)		Diastolic blood pressure (mmHg)		Pulse rate		Systolic blood pressure (mmHg)		Diastolic blood pressure (mmHg)		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number	Mean	Number	Mean	Number	Mean	Number
Assam	121.6	290	79.2	290	83.1	290	132.0	714	80.7	714	80.8	714
Karnataka	118.8	197	79.5	197	82.5	197	135.1	739	84.3	739	81.6	739
Maharashtra	117.5	327	79.7	327	80.0	327	129.3	1113	81.4	1113	79.7	1113
Rajasthan	118.5	335	77.7	335	80.7	335	128.1	1369	81.2	1369	79.8	1369
Uttar Pradesh	118.3	315	79.6	315	83.5	315	127.1	1430	79.9	1430	81.4	1430
West Bengal	120.0	436	79.6	436	83.2	436	132.7	1304	81.1	1304	80.3	1304
India (pooled)	**118.8**	**1900**	**79.4**	**1900**	**82.2**	**1900**	**129.8**	**6669**	**81.1**	**6669**	**80.6**	**6669**

Table 8.4.5 (a & b) displays mean SBP and DBP by background characteristics of respondents. Mean SBP and DBP increased with age, from 116 mmHg for respondents aged 18-29 to 136 mmHg at age 80 and above. The gender differential in SBP and DBP at age 50-plus was higher among women than men, while it was less pronounced for adults aged 18-49. Respondents from urban areas had high mean blood pressure compared to their rural counterparts among both younger and older respondents. Mean SBP increased with wealth quintile for respondents aged 50-plus. However, mean DBP showed much less variation by wealth quintile.

Table 8.4.5 (a) Mean systolic and diastolic blood pressure and pulse rate among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Systolic blood pressure		Diastolic blood pressure		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number
Age group						
18-29	116.4	520	76.1	520	81.8	520
30-39	116.8	569	79.5	569	82.4	569
40-49	122.0	810	81.6	810	82.4	810
Sex						
Male	121.3	789	80.1	789	80.2	789
Female	117.4	1110	79.0	1110	83.4	1110
Marital status						
Never married	117.4	402	76.4	402	82.1	402
Currently married	118.9	1403	80.0	1403	82.1	1403
Widowed	125.3	85	83.0	85	84.8	85
Other[1]	122.7	9	82.6	9	79.0	9
Residence						
Urban	119.3	383	80.1	383	82.1	383
Rural	118.7	1516	79.1	1516	82.3	1516
Caste						
Scheduled tribe	120.0	188	79.4	188	81.0	188
Scheduled caste	117.9	397	79.5	397	81.9	397
Other[2]	118.9	1314	79.4	1314	82.5	1314
Religion						
Hindu	118.9	1586	79.3	1586	82.2	1586
Muslim	119.3	238	79.9	238	82.0	238
Other[3]	116.4	75	79.3	75	82.8	75
Education						
No formal education	120.5	548	80.5	548	83.2	548
Less than primary	118.4	221	80.0	221	82.1	221
Primary school	120.1	337	80.1	337	82.2	337
Secondary school	117.6	360	78.2	360	82.0	360
High school	116.3	298	77.4	298	80.9	298
College and above	118.6	135	79.6	135	82.2	135
Wealth quintile						
Lowest	118.4	362	78.8	362	83.4	362
Second	119.5	407	80.1	407	81.8	407
Middle	117.8	442	78.9	442	82.0	442
Fourth	118.9	353	79.0	353	82.0	353
Highest	119.9	335	80.3	335	81.8	335
Total	**118.8**	**1899**	**79.4**	**1899**	**82.2**	**1899**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 8.4.5 (b) Mean systolic and diastolic blood pressure and pulse rate among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus					
	Systolic blood pressure		Diastolic blood pressure		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number
Age group						
50-59	127.2	2703	82.4	2703	81.6	2703
60-69	129.8	2444	80.9	2444	80.9	2444
70-79	134.2	1200	79.4	1200	78.1	1200
80+	135.5	323	78.2	323	79.6	323
Sex						
Male	128.1	3121	81.2	3121	78.7	3121
Female	131.4	3549	81.1	3549	82.3	3549
Marital status						
Never married	127.7	71	83.3	71	83.4	71
Currently married	128.3	4972	81.3	4972	80.3	4972
Widowed	134.7	1588	80.5	1588	81.6	1588
Other[1]	130.8	39	81.0	39	80.3	39
Residence						
Urban	131.8	1352	81.4	1352	81.4	1352
Rural	129.1	5318	81.0	5318	80.3	5318
Caste						
Scheduled tribe	131.3	501	82.5	501	81.0	501
Scheduled caste	129.2	1089	80.5	1089	80.6	1089
Other[2]	129.8	5080	81.1	5080	80.6	5080
Religion						
Hindu	129.9	5587	81.2	5587	80.7	5587
Muslim	128.4	823	80.2	823	80.0	823
Other[3]	133.3	260	82.3	260	79.4	260
Education						
No formal education	129.9	3348	80.5	3348	81.2	3348
Less than primary	130.5	878	81.9	878	80.8	878
Primary school	128.9	931	81.1	931	80.3	931
Secondary school	128.7	636	81.7	636	79.9	636
High school	130.8	511	82.5	511	79.7	511
College and above	130.1	366	81.6	366	78.4	366
Wealth quintile						
Lowest	128.5	1289	79.9	1289	80.8	1289
Second	129.4	1228	80.9	1228	80.2	1228
Middle	129.6	1235	81.2	1235	80.4	1235
Fourth	130.4	1374	81.9	1374	81.1	1374
Highest	131.0	1544	81.6	1544	80.5	1544
Total	**129.8**	**6670**	**81.1**	**6670**	**80.6**	**6670**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

8.4.4. Prevalence of isolated systolic or diastolic hypertension

Table 8.4.6 and Figure 8.14 compare the prevalence of systolic and diastolic hypertension between older and younger adults by state. For people aged 50a and above, the prevalence of both systolic and diastolic hypertension (pre-hypertension and hypertension) was highest in Karnataka (76% and 65% respectively), whereas among young adults, Assam had the prevalence of systolic and diastolic being highest in West Bengal (52% and 51% respectively). Uttar Pradesh showed the lowest prevalence of systolic and diastolic hypertension.

Table 8.4.6 Percentage of younger and older adults with systolic and diastolic pre-hypertension and hypertension, states and India (pooled), SAGE Wave 2, 2015

States	Aged 18-49				Aged 50-plus			
	PH systolic	H systolic	PH diastolic	H diastolic	PH systolic	H systolic	PH diastolic	H diastolic
Assam	41.2	11.2	37.9	12.0	39.7	31.9	31.2	19.7
Karnataka	32.7	11.5	32.2	16.7	37.4	39.0	34.8	30.2
Maharashtra	35.8	7.6	37.8	12.9	40.4	26.4	38.6	19.1
Rajasthan	41.5	5.8	34.4	6.8	43.7	22.1	37.9	17.4
Uttar Pradesh	38.5	4.6	32.3	13.6	37.3	24.0	29.3	18.7
West Bengal	40.8	7.5	37.9	13.1	37.3	34.2	31.7	21.7
India (pooled)	**38.43**	**7.24**	**35.4**	**12.67**	**38.87**	**28.13**	**33.49**	**20.39**

PH= pre-hypertension; H= hypertension

Figure 8.14 Percentage of older and younger respondents with systolic and diastolic hypertension, states and India (pooled), SAGE Wave 2, 2015

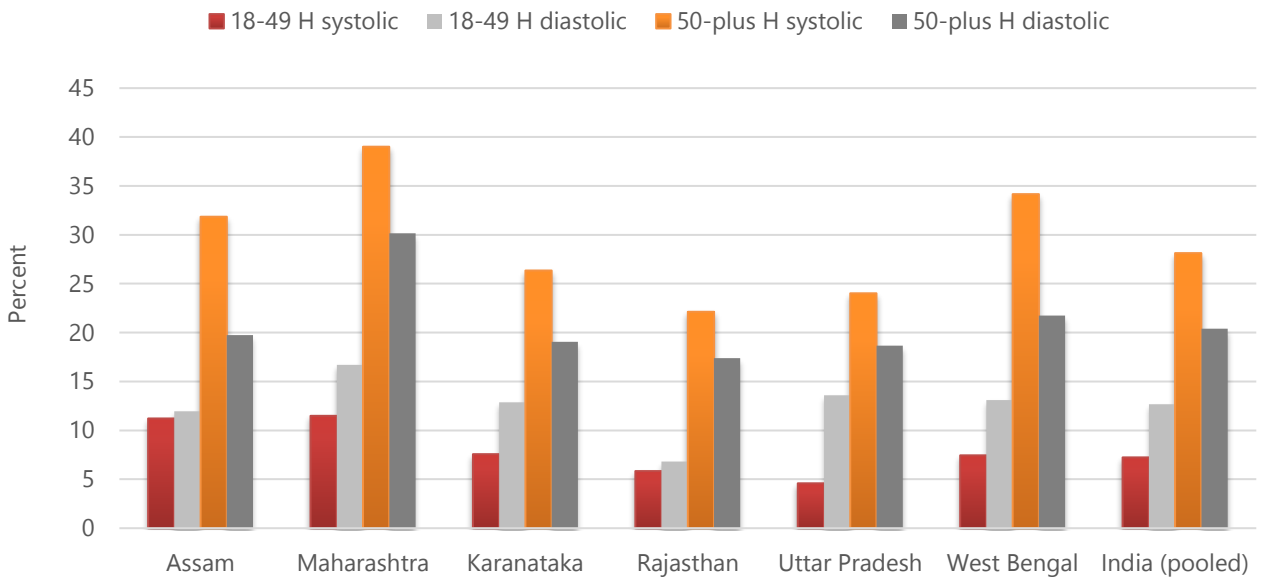


Table 8.4.7 (a & b) compares the prevalence of both systolic and diastolic pre-hypertension and hypertension in older and younger adults by background characteristics. Overall, the prevalence of both systolic and diastolic hypertensions increased with age (Figure 8.15). By sex, the prevalence of hypertension was higher in women than men in older adults but higher in men than women among younger adults. By marital status, the prevalence of hypertension was higher among widowed older adults. By residence, the prevalence of hypertension was higher for older adults in urban areas than those in rural areas. By caste, the prevalence of hypertension was higher among older and younger adults of scheduled tribes compared with other castes. Between older and younger adults, education and wealth showed varying effects on the prevalence of hypertension.

Table 8.4.7 (a) Percentage of younger respondents with systolic and diastolic pre-hypertension and hypertension, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Pre-hypertension systolic	Hypertension systolic	Pre-hypertension diastolic	Hypertension diastolic
Age group				
18-29	40.1	1.5	31.2	4.7
30-39	35.6	4.0	34.3	11.9
40-49	39.3	13.7	39.1	18.9
Sex				
Male	52.5	5.9	38.6	14.7
Female	30.1	8.0	33.5	11.5
Marital status				
Never married	43.0	2.1	32.7	5.0
Currently married	37.6	7.9	36.3	14.3
Widowed	30.3	21.2	34.0	22.6
Other[1]	35.1	16.6	40.7	10.9
Residence				
Urban	37.2	10.5	37.0	13.8
Rural	38.8	6.2	34.9	12.3
Caste				
Scheduled tribe	42.7	6.9	36.9	14.3
Scheduled caste	31.4	6.7	33.7	11.7
Other[2]	39.9	7.4	35.7	12.7
Religion				
Hindu	39.3	7.0	35.5	12.3
Muslim	34.0	9.4	33.9	15.0
Other[3]	34.4	4.4	37.9	14.5
Education				
No formal education	37.3	10.5	32.9	18.0
Less than primary	36.6	7.7	42.0	13.2
Primary school	39.6	8.2	40.4	13.1
Secondary school	41.4	5.5	34.2	8.4
High school	32.2	3.9	27.9	8.0
College and above	48.2	2.8	42.6	11.4
Wealth quintile				
Lowest	37.2	5.7	34.5	10.9
Second	39.8	8.7	32.6	18.6
Middle	37.2	6.5	36.7	10.2
Fourth	36.1	7.7	35.7	11.3
Highest	42.6	7.8	37.4	12.9
Total	**38.4**	**7.2**	**35.4**	**12.7**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 8.4.7 (b) Percentage of older respondents with systolic and diastolic pre-hypertension and hypertension, by background characteristics, India (pooled), SAGE Wave 2, 2015

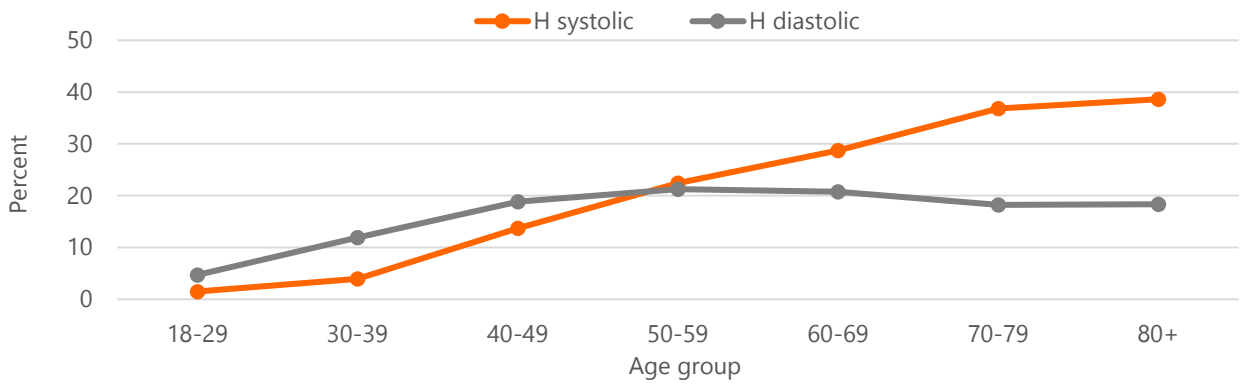
Background characteristics	Aged 50-plus			
	Pre-hypertension systolic	Hypertension systolic	Pre-hypertension diastolic	Hypertension diastolic
Age group				
50-59	40.3	22.5	39.1	21.3
60-69	39.0	28.7	31.9	20.8
70-79	35.9	36.9	26.7	18.2
80+	36.5	38.6	24.0	18.4
Sex				
Male	40.3	24.0	33.6	19.6
Female	37.6	31.8	33.4	21.1
Marital status				
Never married	42.4	22.8	41.3	22.9
Currently married	39.3	25.1	34.8	19.4
Widowed	37.7	37.9	29.3	23.3
Other[1]	26.2	32.6	17.1	27.1
Residence				
Urban	39.7	32.2	34.6	22.6
Rural	38.6	26.6	33.1	19.6
Caste				
Scheduled tribe	41.0	28.9	34.2	22.2
Scheduled caste	40.1	25.9	34.4	18.6
Other[2]	38.5	28.5	33.3	20.6
Religion				
Hindu	38.8	28.1	33.9	20.6
Muslim	38.7	27.1	30.1	18.7
Other[3]	42.9	32.4	36.4	21.2
Education				
No formal education	38.3	28.5	31.6	19.8
Less than primary	36.3	29.6	34.7	21.5
Primary school	37.6	26.7	32.9	19.5
Secondary school	41.3	27.4	38.9	20.9
High school	38.5	29.2	35.0	22.1
College and above	47.9	25.6	36.3	21.8
Wealth quintile				
Lowest	38.2	26.6	31.9	18.2
Second	37.6	27.7	31.2	20.7
Middle	39.0	27.9	35.1	20.1
Fourth	38.0	29.8	36.8	21.6
Highest	41.2	28.6	32.3	21.2
Total	**38.9**	**28.1**	**33.5**	**20.4**

[1] Includes divorced, separated or cohabiting.

[2] Includes non-scheduled caste or tribe and no caste or tribe.

[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 8.15 Prevalence of systolic and diastolic hypertension by age group, India (pooled), SAGE Wave 2, 2015



8.5 Visual acuity

Visual impairment is associated with functional limitations and affects the wellbeing of older people. Visual impairment increases as the number of eye diseases increases and affects the health-related quality of life (HRQOL) through reduced ability for self-care and treatment-seeking behaviour. According to WHO (ICD-10, 1999), a person with low vision is one who has "impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 3.2 (in decimal) to light perception, or a visual field of fewer than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for planning and/or execution of a task".

SAGE measured near and distance vision for both eyes using the using CAPI enabled vision test. Near vision was measured using a prescribed distance of 40 centimetres; distance vision was measured at four metres.

Table 8.5.1 presents the prevalence of low near vision, low distance vision, and low near and/or distance vision by state. Among older adults, Karnataka had the greatest prevalence (69%) of low near and/or distance vision, followed by Uttar Pradesh (67%); Rajasthan was the state with the lowest (40%) prevalence of low near and/or low vision for this age group (Figure 8.16). In contrast, among younger adults, Karnataka was the state with the greatest prevalence (26%) of low near and/or distance vision. Notably, both younger and older adults had a greater prevalence of low near vision compared with low distance vision.

Trends: prevalence of low near, low distance, and low near and/or distance vision in either or both eyes of younger and older respondents have decreased since 2007.

Table 8.5.1 Prevalence (%) of low near, low distance, and low near and/or distance vision in either or both eyes of younger and older adults, states and India (pooled), SAGE Wave 2, 2015

States	Aged 18-49				Aged 50-plus			
	Low near vision	Low distance vision	Low near and/or distance vision	Number	Low near vision	Low distance vision	Low near and/or distance vision	Number
Assam	8.8	3.81	10.3	282	34.7	26.7	40.8	692
Karnataka	25.5	3.44	26.2	195	65.0	26.2	69.1	722
Maharashtra	18.2	4.83	20.3	321	48.2	18.5	50.9	1,094
Rajasthan	13.7	2.08	13.7	335	34.5	20.8	40.0	1,354
Uttar Pradesh	22.0	8.54	24.8	315	58.5	43.9	66.6	1,403
West Bengal	22.0	3.51	23.1	433	55.1	21.2	59.3	1,297
India (pooled)	**19.5**	**5.0**	**21.1**	**1,881**	**52.0**	**28.5**	**57.4**	**6,562**

Figure 8.16 Prevalence of low near and/or distance vision among older respondents, states and India (pooled), SAGE Wave 2, 2015

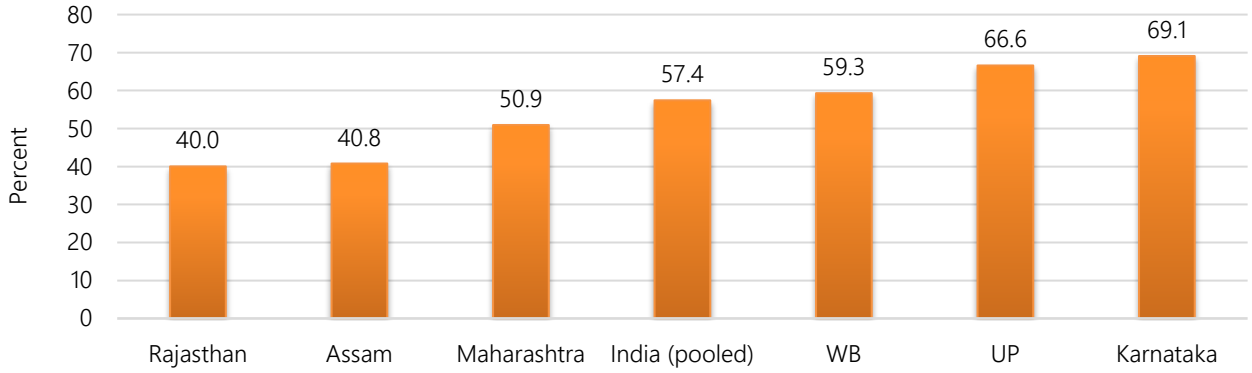


Table 8.5.2 (a & b) presents the prevalence of low vision by background characteristics. The prevalence of low near and/or distance vision increased from 2% in younger adults to 79% for the oldest respondents aged 80-plus (Figure 8.17). Older women had a greater prevalence of low vision than older men across all three categories. The rural-urban difference in the prevalence of low distance vision was more pronounced for older adults than for younger adults. Education and wealth quintiles showed strong negative gradients for the prevalence of low near and/or distance vision among younger adults.

Table 8.5.2 (a) Prevalence (%) of low near vision, low distance vision, and low near and/or distance vision in either eye among younger respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Low near vision	Low distance vision	Low near and/or distance vision	Number
Age group				
18-29	1.8	1.2	2.2	516
30-39	7.9	3.7	9.9	561
40-49	40.5	8.5	42.6	804
Sex				
Male	12.5	3.1	13.0	782
Female	23.6	6.1	25.9	1,099
Marital status				
Never married	2.8	1.8	3.6	399
Currently married	23.3	5.9	25.0	1,390
Widowed	39.9	5.4	43.3	83
Others[1]	0.0	0.0	0.0	9
Residence				
Urban	19.1	3.8	21.4	382
Rural	19.6	5.3	21.0	1,499
Caste				
Scheduled tribe	17.7	3.7	19.7	184
Scheduled caste	21.0	5.2	22.6	394
Other [2]	19.3	5.0	20.8	1,303
Religion				
Hindu	18.6	5.2	20.2	1,569
Muslim	22.4	4.0	24.1	237
Other[3]	31.0	3.3	31.0	75
Education				
No formal education	32.1	6.8	34.2	543
Less than primary	21.2	5.9	22.5	219
Primary school	18.2	3.2	19.1	333

Background characteristics	Aged 18-49			
	Low near vision	Low distance vision	Low near and/or distance vision	Number
Secondary school	16.7	5.7	19.3	355
High school	6.5	3.9	7.7	296
College and above	3.1	0.0	3.1	135
Wealth quintile				
Lowest	22.4	5.1	24.6	359
Second	25.2	4.1	25.8	406
Middle	18.9	5.8	20.0	438
Fourth	16.1	4.1	17.2	348
Highest	14.1	5.5	17.5	330
Total	**19.5**	**4.9**	**21.1**	**1881**

[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

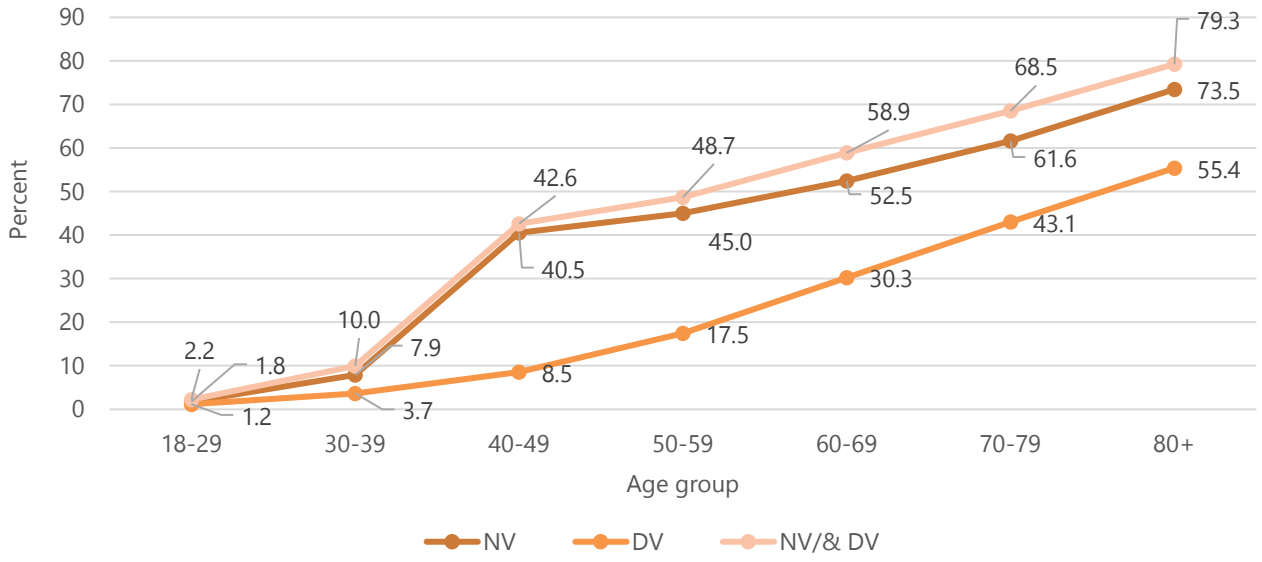
Table 8.5.2 (b) Prevalence (%) of low near vision, low distance vision, and low near and/or distance vision in either eye among older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus			
	Low near vision only	Low distance vision only	Low near and/or distance vision	Number
Age group				
50-59	45.0	17.5	48.7	419
60-69	52.4	30.3	58.9	662
70-79	61.6	43.1	68.5	489
80+	73.5	55.4	79.2	151
Sex				
Male	45.7	24.6	51.4	3066
Female	57.7	32.1	62.9	3496
Marital status				
Never married	49.5	27.4	55.3	67
Currently married	49.0	25.1	54.2	4,904
Widowed	61.9	39.7	67.9	1,552
Others[1]	52.0	22.8	59.3	39
Residence				
Urban	48.4	23.7	52.4	1,334
Rural	53.4	30.4	59.3	5,228
Caste				
Scheduled tribe	53.6	27.6	58.0	485
Scheduled caste	55.1	33.6	61.3	1,069
Other [2]	51.3	27.7	56.7	5,008
Religion				
Hindu	51.8	28.4	57.1	5,502
Muslim	55.3	30.4	61.2	806
Other[3]	43.2	25.5	50.9	254
Education				
No formal education	60.2	36.2	65.8	3,278
Less than primary	54.2	26.2	58.4	865
Primary school	47.2	22.4	51.6	921
Secondary school	42.8	23.4	51.2	626
High school	37.4	16.9	42.4	511
College and above	30.6	12.4	34.5	361
Wealth quintile				
Lowest	57.5	38.2	65.1	1,256
Second	56.9	31.9	62.4	1,207
Middle	55.2	27.9	60.8	1,220

Background characteristics	Aged 50-plus			
	Low near vision only	Low distance vision only	Low near and/or distance vision	Number
Fourth	52.6	26.3	56.0	1,347
Highest	40.5	20.2	45.5	1,532
Total	**52.0**	**28.5**	**57.4**	**6562**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Figure 8.17 Prevalence of low vision by age group, India (pooled), SAGE Wave 2, 2015



8.6 Cognition: Verbal Fluency (VF), Verbal Recall (VR), Forward Digit Span (FDS) and Backward Digit Span (BDS)

To gauge cognitive ability, SAGE included tests of verbal fluency and verbal recall, as well as a forward and backward digit test. A composite score was created from these individual tests.

The mean cognitive test scores are presented by the state in Table 8.6.1. Older respondents scored lower than their younger counterparts on every test and in every state. Indeed, the overall cognition score of older respondents was 54, almost 7 points lower than for younger respondents. Younger adults scored 14.7, 6.4, 4.8 and 3.0 for tests of verbal fluency, verbal recall, forward and backward digit tests respectively, with an overall cognition score of 61. There was little variation between states, but respondents in Karnataka generally scored lowest and those in Maharashtra scored highest.

Trends: *The overall mean cognition score has increased from 58 to 61 and from 50 to 54 among younger and older respondents respectively in the period 2007-15. Mean score for verbal fluency, verbal recall and backward digital span has also increased with exception of the forward digital span.*

Table 8.6.1 Mean score for verbal fluency (VF), verbal recall (VR) and digit span (FDS and BDS) tests, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49						Aged 50-plus					
	Mean cognition scores				Overall score	Number	Mean cognition score				Overall score	Number
	VF	VR	FDS	BDS			VF	VR	FDS	BDS		
Assam	13.6	6.2	4.6	3.4	59.1	290	12.0	5.5	4.0	2.9	52.1	711
Karnataka	11.3	6.2	4.3	2.4	58.1	194	10.3	5.4	4.0	2.2	52.7	720
Maharashtra	17.0	6.7	4.9	3.5	64.2	327	14.4	6.0	4.2	2.7	56.2	1117
Rajasthan	15.7	6.3	4.7	3.2	60.2	334	14.2	5.5	4.1	2.7	52.9	1369
Uttar Pradesh	14.5	6.2	4.7	2.8	58.9	312	13.7	5.5	4.3	2.4	52.8	1426
West Bengal	13.9	6.6	5.3	2.8	61.8	437	13.0	5.8	4.9	2.3	54.8	1306
India (pooled)	**14.7**	**6.4**	**4.8**	**3.0**	**60.8**	**1894**	**13.4**	**5.7**	**4.3**	**2.5**	**53.9**	**6649**

Cognition scores are presented by selected background characteristics in Table 8.6.2. (a & b) Scores for all four tests decreased progressively with age. The overall cognition score was 66 in the 18-29 age group, dropping to 46 in those aged 80-plus. Women scored lower than men on all tests, especially in the group aged 50-plus. The overall cognition score at age 18-49 for women was 5 points lower than for men in the same age group, and 5 points lower at age 50-plus. Cognition in women also declined much more with age: women aged 50-plus scored 7 points lower than at age 18-49, compared with 7.5 points among men. Never married respondents aged 18-49 scored much higher on cognition than their currently married counterparts, who in turn scored higher than those who were widowed. As mentioned earlier, this may reflect a higher proportion of younger persons being unmarried and of older persons being widowed. Respondents in urban areas scored higher on all four tests than their rural counterparts. Across all respondents, those aged 50-plus scored 8-10 points lower than their younger counterparts on overall cognition. Respondents from scheduled tribes scored lowest, followed by those from scheduled castes.

All four cognition tests showed a positive relationship with education and wealth: regardless of age, sex, residence, religion or caste, college-educated persons secured the highest scores. For that aged 50-plus, the overall cognition score increased from 49 for those with no formal education to 65 for college-educated persons. Similarly, the overall score increased from 49 in the lowest wealth quintile to 60 in the highest. However, cognitive ability deteriorated with age regardless of education or economic status.

Table 8.6.2 (a) Mean cognition scores: Mean score for verbal fluency (VF), verbal recall (VR) and digit span (FDS & BDS) tests among younger respondents, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Mean cognition scores				Overall score	Number
	VF	VR	FDS	BDS		
Age group						
18-29	15.6	6.9	5.3	3.5	66.0	518
30-39	15.0	6.6	4.9	3.1	61.9	566
40-49	13.8	6.0	4.4	2.6	56.3	810
Sex						
Male	16.1	6.6	5.2	3.5	63.9	789
Female	13.9	6.3	4.6	2.7	59.0	1105
Marital status						
Never married	15.6	6.9	5.4	3.6	66.0	401
Currently married	14.6	6.3	4.7	2.9	59.7	1399
Widowed	12.9	5.9	4.0	2.4	54.0	85
Other[1]	13.5	6.0	5.1	2.9	57.3	9
Residence						
Urban	15.4	6.7	5.0	3.3	63.4	383
Rural	14.5	6.3	4.8	2.9	59.9	1511
Caste						
Scheduled tribe	13.5	6.0	4.6	2.7	56.5	189
Scheduled caste	13.9	6.5	4.8	2.8	60.3	396
Other[2]	15.1	6.5	4.9	3.1	61.5	1309
Religion						
Hindu	14.7	6.4	4.8	3.0	60.8	1582
Muslim	14.4	6.3	5.0	3.2	60.8	236
Other[3]	14.9	6.6	4.7	3.2	62.0	76
Education						
No formal education	12.6	5.6	4.1	2.1	52.4	543
Less than primary	13.9	6.0	4.7	2.8	57.0	222
Primary school	14.6	6.6	4.8	3.1	62.1	337
Secondary school	15.6	6.7	5.1	3.3	63.9	358
High school	17.1	7.2	5.5	3.8	69.4	298
College and above	17.2	7.3	5.9	4.1	71.1	136
Wealth quintile						
Lowest	13.3	6.0	4.6	2.6	56.2	360
Second	13.9	6.2	4.7	2.8	58.9	408
Middle	14.5	6.5	4.9	2.9	61.4	442
Fourth	15.3	6.6	4.9	3.3	62.6	351
Highest	16.8	6.8	5.1	3.5	65.5	333
Total	**14.7**	**6.4**	**4.8**	**3.0**	**60.8**	**1894**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions*

Table 8.6.2 (b) Mean cognition scores: Mean score for verbal fluency (VF), verbal recall (VR) and digit span (FDS & BDS) tests among older respondents, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus					
	Mean cognition scores				Overall score	Number
	VF	VR	FDS	BDS		
Age group						
50-59	14.0	6.0	4.4	2.7	56.7	2699
60-69	13.2	5.6	4.3	2.5	53.5	2428
70-79	12.9	5.2	4.1	2.3	50.4	1200
80+	11.5	4.8	3.7	1.9	46.3	322
Sex						
Male	14.7	5.8	4.6	2.9	56.5	3108
Female	12.2	5.5	4.0	2.1	51.5	3541
Marital status						
Never married	15.0	5.9	4.4	2.8	56.2	71
Currently married	13.8	5.8	4.4	2.7	55.5	4956
Widowed	12.0	5.1	4.0	2.0	48.9	1582
Other[1]	11.2	5.2	3.7	1.9	49.1	40
Residence						
Urban	14.0	6.0	4.6	2.8	57.6	1347
Rural	13.2	5.5	4.2	2.4	52.5	5302
Caste						
Scheduled tribe	12.1	5.4	3.9	2.2	50.5	500
Scheduled caste	12.8	5.3	4.1	2.1	50.7	1084
Other[2]	13.6	5.7	4.4	2.6	54.8	5065
Religion						
Hindu	13.4	5.7	4.3	2.5	53.9	5571
Muslim	13.2	5.7	4.3	2.5	54.1	816
Other[3]	12.8	5.5	4.2	2.7	52.4	262
Education						
No formal education	11.9	5.2	3.8	1.9	48.6	3332
Less than primary	13.2	5.8	4.4	2.5	54.6	877
Primary school	13.8	6.0	4.7	2.9	57.0	930
Secondary school	15.7	6.3	4.9	3.3	61.0	634
High school	15.7	6.3	5.0	3.4	61.1	511
College and above	17.5	6.6	5.5	3.7	65.2	365
Wealth quintile						
Lowest	12.4	5.3	3.9	2.0	49.4	1283
Second	12.9	5.5	4.1	2.3	51.9	1224
Middle	12.8	5.6	4.4	2.4	53.4	1233
Fourth	13.6	5.7	4.4	2.6	54.3	1370
Highest	14.8	6.2	4.7	3.1	59.5	1539
Total	**13.4**	**5.7**	**4.3**	**2.5**	**53.9**	**6649**

[1] *Includes divorced, separated or cohabiting.*

[2] *Includes non-scheduled caste or tribe and no caste or tribe.*

[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions*

8.7 Subjective and objective appraisal in surveys: hypertension and visual acuity

Given considerable biases in self-reported health and substantial levels of undiagnosed health conditions, a critical objective of incorporating a biomarker module in SAGE was to compare the measured prevalence of health conditions with self-reported prevalence. This section compares the measured prevalence of hypertension and vision problems/visual acuity with their self-reported prevalence.

8.7.1 Self-reported versus measured hypertension

Figure 8.18 compares the prevalence of self-reported vis-à-vis measured hypertension by age and sex of respondents in states. The four possible classifications are:

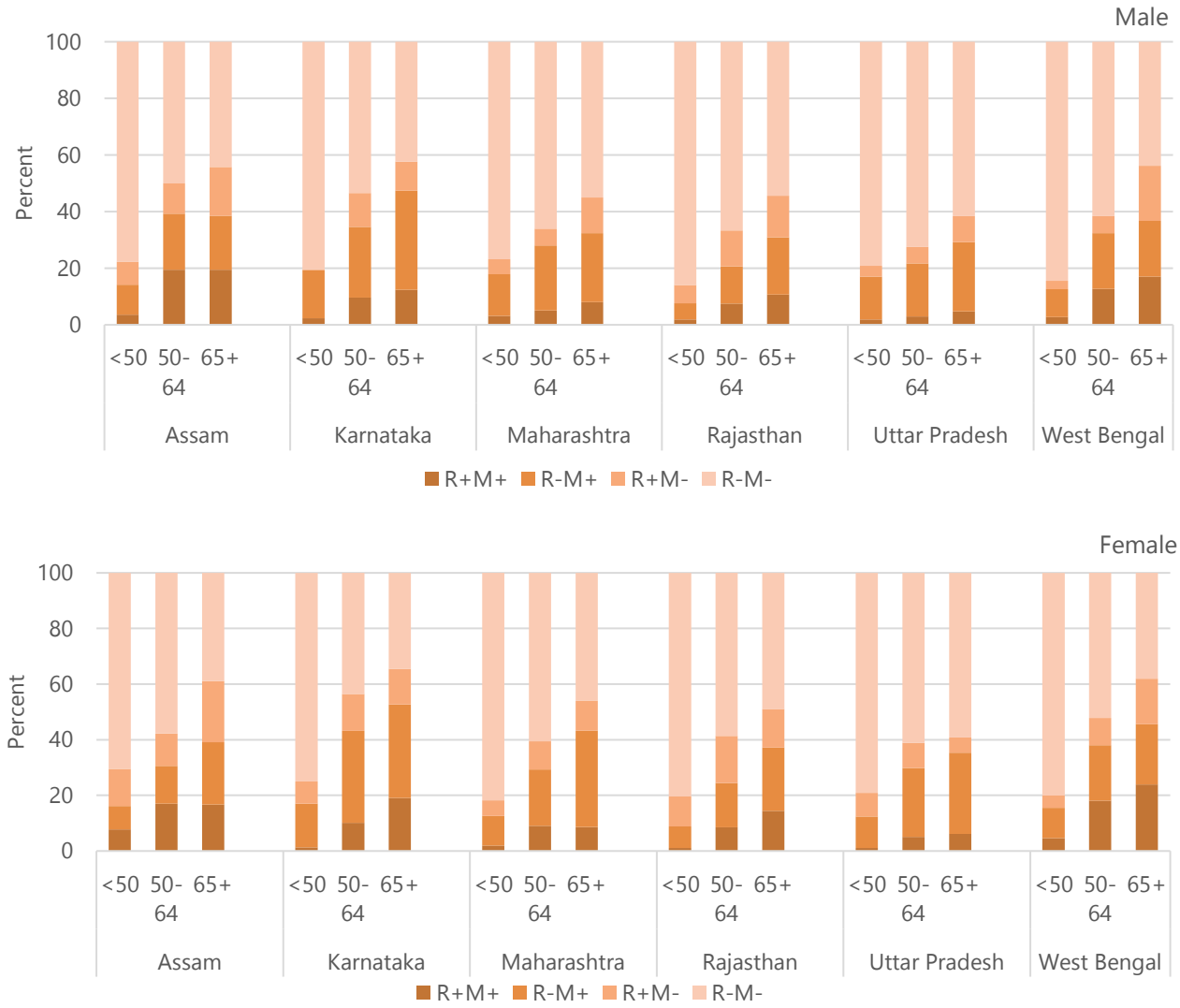
a) Persons who reported hypertension diagnosis and hypertensive on measurement (R+ M+)
b) Persons who reported no hypertension diagnosis but were hypertensive on measurement (R- M+)
c) Persons who reported hypertension diagnosis but were not hypertensive on measurement (R+ M-)
d) Persons who reported no hypertension diagnosis and were not hypertensive on measurement (R- M-)

The comparative results reveal many insights to better understand the prevalence of levels and variations in hypertension. First, age shows a strong positive gradient for those respondents who were hypertensive on measurement respective of their reporting, in all states and by sex. The prevalence of measured hypertension was relatively higher for women than men among the 50+ population. Measured hypertension was highest in Karnataka, West Bengal and Assam.

Second, for adults aged 50-plus, the prevalence of self-reported negatives but measured positives for hypertension varied from 5-35% between the sexes and states. For older adults, the category of reported negative but measured positive for hypertension represented 70% of the true positives of measured hypertension. The prevalence of both reported and measured positive for hypertension varied in the narrow range of 3-24% among states and between sexes. The total prevalence of true positives, varying in the range of 20-47% and out of which, more than half of the older adults have medically treatable hypertension but remained undiagnosed on account of lack of awareness and access to health care. By contrast, those who reported having a diagnosis of hypertension and were normotensive on measurement (R+M-), and also reported being on treatment, suggests a positive outcome for individuals and the health system.

The prevalence of undiagnosed self-reported negative but measured true positives for hypertension was relatively higher in Karnataka. Respondents in Uttar Pradesh had the highest levels of both reported negatives and measured negatives for hypertension.

Figure 8.18 Self-reported vs. measured prevalence of hypertension by age, sex and state, SAGE Wave 2, 2015



Legend:

- **R+M+:** Persons who reported hypertension diagnosis and hypertensive on measurement
- **R-M+:** Persons who reported no hypertension diagnosis but were hypertensive on measurement
- **R+M-:** Persons who reported hypertension diagnosis but were not hypertensive on measurement
- **R-M-:** Persons who reported no hypertension diagnosis and were not hypertensive on measurement

8.7.2 Self-reported versus measured low vision/visual acuity

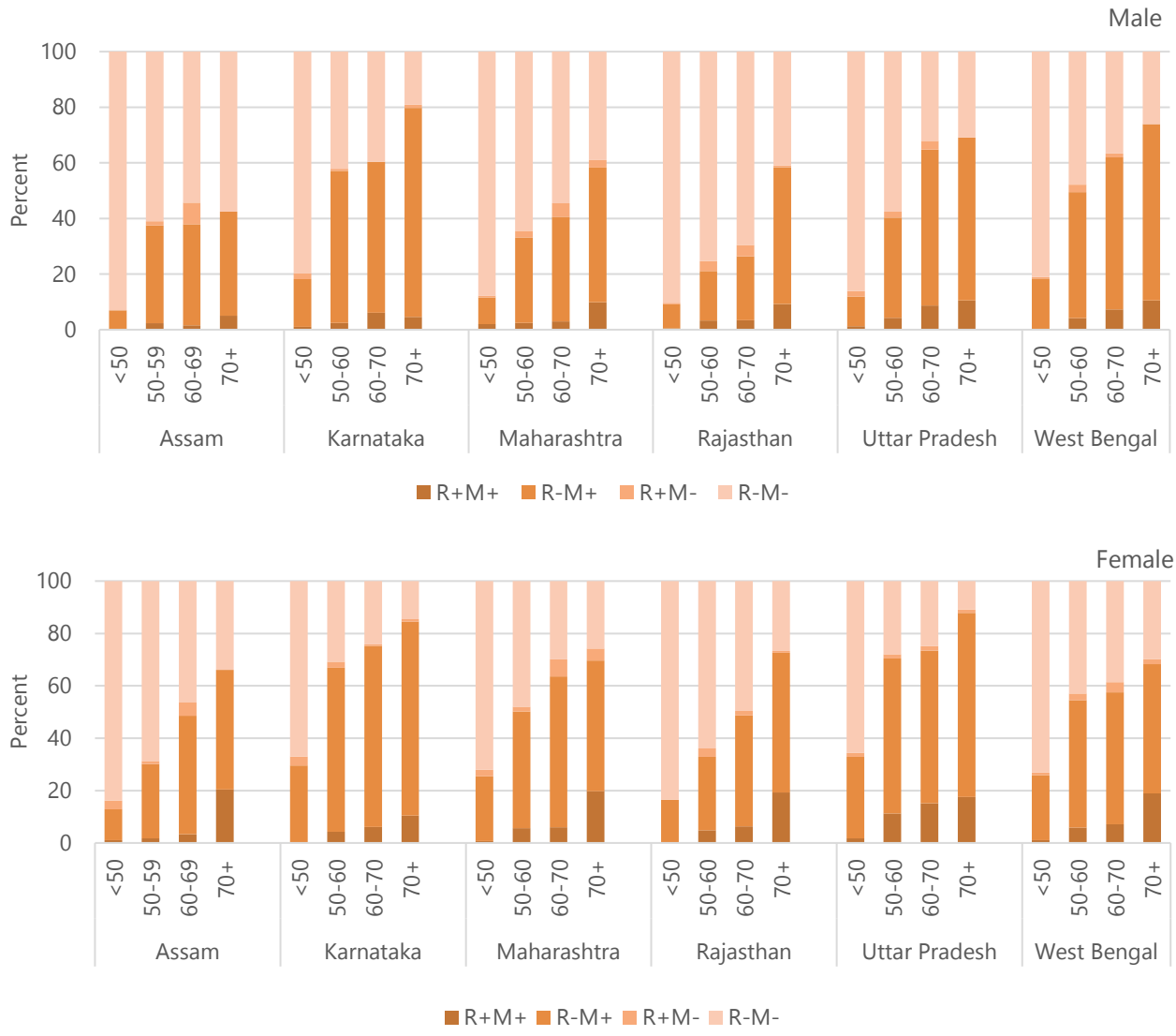
Figure 8.19 compares the results of self-reported vision problems and measured the prevalence of low near and/or distance visual acuity. The prevalence of measured vision problems (representing categories a and b in Figure 8.19 below) increased remarkably with age among adults aged 50-plus. Between 52-83% of older adults aged 70-plus had low visual acuity on measurement.

At age 50-plus, the prevalence of self-reported and measured problems with low vision varied from 16-33.9% between states, whereas the prevalence ranges 9-23% and 21-44% among 50+ males and females respectively.

By comparison, the prevalence of adults in the same age group who reported no problems but had low visual acuity on the measured test (category b) varied from 23-75% across states, however the prevalence of the same ranges between 18-75% among male older adults and 28-74% among female older adults. About 33% of males and 20% of females, adults aged 70-plus did not have low vision problems (either self-reported or on the measured test, category d).

The results indicate the high prevalence of low visual acuity (almost 80%) among female adults aged 70-plus in comparison to their male counterparts, suggesting the need for gender sensitized eye-care intervention for the better reach and access of eye-care services among female.

Figure 8.19 Self-reported and measured low near and/or distance vision according to age, sex and state, SAGE Wave 2, 2015



Legend:

- **R+M+: a)** Reported positive and measured positive for low near and/or distance vision
- **R-M+: b)** Reported negative but measured positive for low near or distance vision
- **R+M-: c)** Reported positive but measured negative for low near or distance vision
- **R-M-: d)** Reported negative and measured negative for low near or distance vision

8.8 Comparative trends in biomarkers by age

Figure 8.20 compares trends in several key biomarkers by age, including the prevalence of underweight; high-risk waist-hip ratio; hypertension; low near and/or distance vision; and mean grip strength from both hands. A consistent gradient with age is seen for each health risk/condition, confirming increasing health risks with increasing age for each biomarker. The prevalence of hypertension and low visual acuity increased rapidly with age, implying an age effect on these two high-risk chronic health conditions. This comparison also reveals the close association among the various biomarkers of health.

Figure 8.20 Biomarkers of health by age group, India (pooled), SAGE Wave 2, 2015

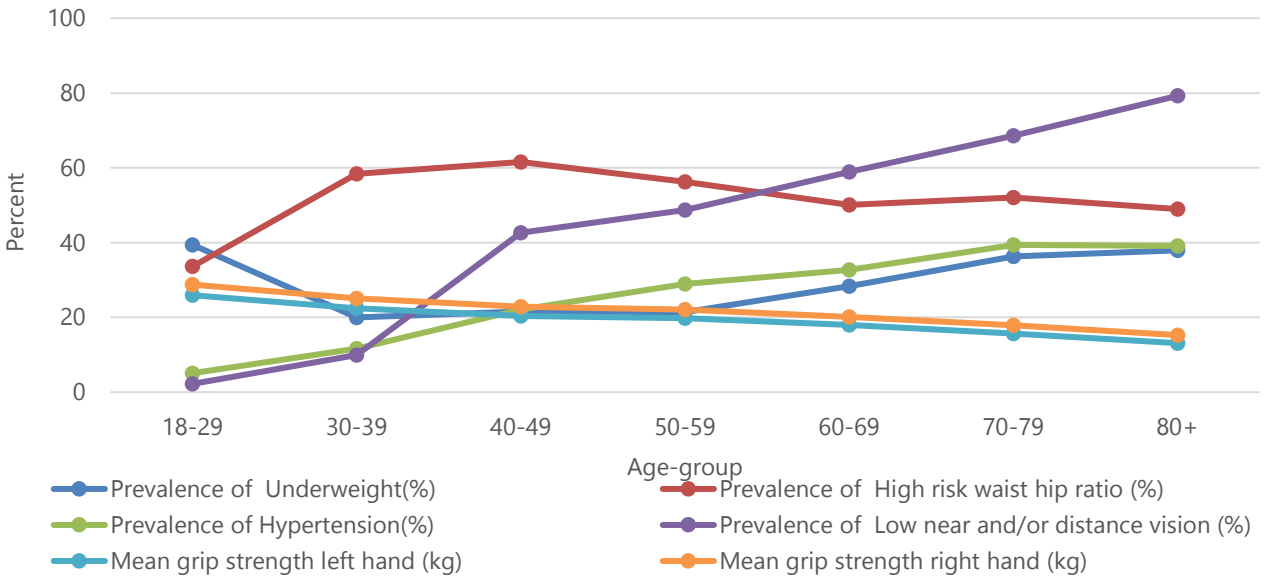
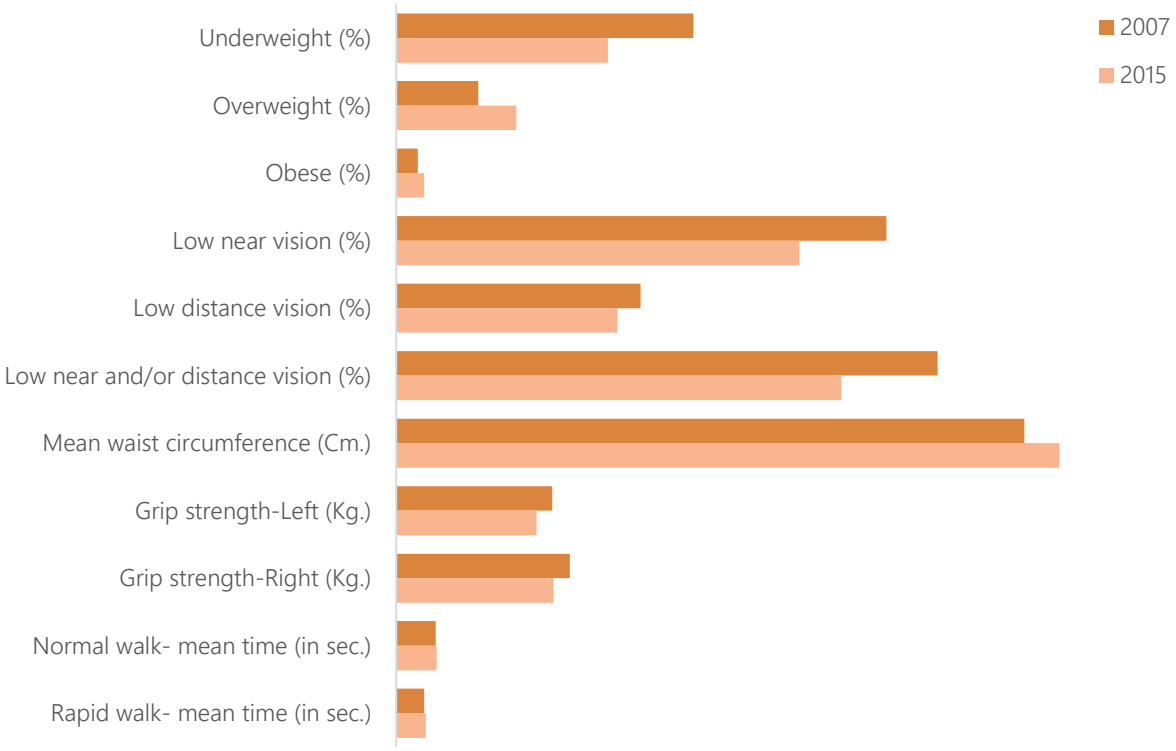


Figure 8.21 Health biomarkers- A comparison of A comparison of SAGE, Wave 1 and 2



9. Health Care Utilization, System Responsiveness and Financing

Universal health coverage (UHC) has become an important stated policy goal in several developing countries (United Nations, 2015). UHC ensures that quality health services are accessible to all those in need, without any financial hardships. The relationship between health and living conditions on the one hand, and health and development on the other, is complex, multi-faceted and multi-directional. Better health care services make an important contribution to economic progress, as healthy populations live longer, are more productive, and save more.

The health status of a population is a reflection of a country's socio-economic development. It is shaped by a variety of factors, such as income and standard of living, housing conditions, water and sanitation, education and employment, personal hygiene, health consciousness and expectations, and – more importantly – the availability, accessibility and affordability of health care services.

Over the years, India has built up a vast network of health infrastructure and personnel for primary, secondary and tertiary care in the public, voluntary and private sectors. Considerable efforts have been made to enhance health standards, and this has been reflected in improvements in life expectancy, infant and child mortality, maternal mortality, and nutrition. Progress in human development, particularly in education and economic well-being, has also reinforced the transition toward better health and longevity.

Responsiveness is a key objective of national health systems and is a measure of how the health system addresses the legitimate expectations of individuals. In the case of the health system, the main aim is to produce health care services which are accessible to all, equally distributed, and treating people with dignity. WHO defines health system responsiveness as "the ability of the health system to meet the population's legitimate expectations regarding their interaction with the health system, apart from expectations for improvements in health or wealth" (WHO, 2000). A health care system's responsiveness may improve the utilization and adherence to interventions and thus directly affect the health outcomes, as well as an increase in people's trust in the health care system and also their willingness to pay (Valentine et al., 2003). Health system response to people's expectations is shaped by actors, processes, institutional and organisational arrangements, including accessibility and quality of health care services. Poor responsiveness can negatively affect the utilization of services and the effectiveness of the interventions, especially those requiring repeated administrations (e.g. HIV/ARVs, tuberculosis treatment).

Responsive health systems anticipate and adapt to changing needs, harness the opportunities to promote access to effective interventions and improve the quality of health services (Lodenstein et al.,2013), ultimately leading to better health outcomes (Smith et al., 2009).

The SAGE survey examined the need for inpatient and outpatient health care services. The responsiveness of the health system was further assessed in several domains, including prompt attention, dignity/respect, communication, choice, confidentiality, access to support and quality of care. Respondents were asked how they were treated by the health care system during their last visit.

9.1 Self-assessed need for health care

A health care system's responsiveness is measured by the system's ability to meet the health requirements of the country's population. SAGE survey respondents were asked, "When was the last time you needed health care?" This was followed by another question: "The last time you needed health care, did you get health care?" Responses were grouped by those who had never needed health care, those who had needed care in the previous year, and those who had needed care more than a year ago.

Respondents' self-assessed need for health care is presented in Table 9.1.1 and Figure 9.1. Among adults aged 50-plus, the proportion who had needed health care during the previous year ranged from 49% in Assam to 83% in Karnataka, and with 62% for India as a whole. Notably, 15% of the older respondents reported not needing health care in the past three years. The extent of the self-assessed need for health care may be an indirect indicator of the levels and utilization of available health care services across the states. For adults aged 18-49, 60% needed health care during the previous year and less than one fifth (18%) of the respondents reported not having needed care.

Trends: There has been a substantial decline in the proportion of respondents needing health care in the previous year with a subsequent increase in the proportion of respondents who never needed health care and health care needed more than a year ago in the period 2007-15. Among younger respondents, health care needed in last year has declined from 79% in SAGE-1 to 61% in SAGE-2. Similarly, among older respondents, this has declined from 81% to 62%, with an increase of 14 percentage points in never needed health care in the same period.

Table 9.1.1 Percent distribution of health care need for younger and older adults, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number	In previous year	More than 1 year ago	Never needed	Total	Number
Assam	46.3	37.6	16.0	100	122	48.6	37.4	14.1	100	339
Karnataka	75.9	10.0	14.1	100	94	82.5	6.2	11.3	100	384
Maharashtra	54.5	22.9	22.6	100	136	61.0	16.9	22.1	100	434
Rajasthan	60.6	18.3	21.1	100	152	63.0	26.2	10.8	100	543
Uttar Pradesh	59.8	13.7	26.5	100	86	52.2	27.5	20.3	100	455
West Bengal	64.5	27.0	8.4	100	182	67.0	28.2	4.7	100	610
India (pooled)	**60.5**	**21.5**	**18.1**	**100**	**772**	**62.3**	**23.0**	**14.7**	**100**	**2765**

Figure 9.1 Percentage of respondents who reported never needing health care by age group, states and India (pooled), SAGE Wave 2, 2015

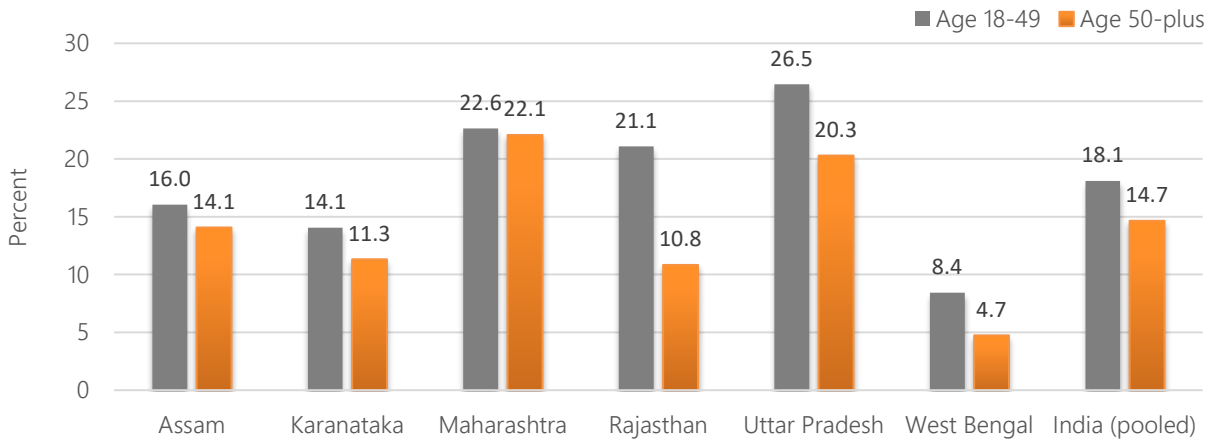


Table 9.1.2 (a & b) presents the results for younger and older adults by selected background characteristics. The need for health care services tended to increase with age. Men in older and younger age groups were more likely to have needed health care during the year before the survey than women. There was little difference between rural and urban areas.

Table 9.1.2 (a) Percent distribution of younger respondents needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	57.3	20.9	21.8	100	203
30-39	60.3	17.2	22.5	100	238
40-49	62.8	24.5	12.7	100	331
Sex					
Male	62.8	22.7	14.5	100	339
Female	58.8	20.5	20.7	100	433
Marital status					
Never married	56.3	20.9	22.8	100	152
Currently married	62.4	20.8	16.8	100	582
Widowed	45.4	37.8	16.9	100	35
Other[1]	67.9	32.1	0.0	100	3
Residence					
Urban	55.2	24.3	20.6	100	155
Rural	62.3	20.5	17.3	100	617
Caste					
Scheduled tribes	57.0	28.8	14.2	100	79
Scheduled castes	64.8	21.1	14.1	100	162
Other[2]	59.6	20.6	19.7	100	531
Religion					
Hindu	62.3	21.6	16.1	100	632
Muslim	52.2	18.8	29.0	100	102
Other[3]	49.2	27.3	23.5	100	38
Education					
No formal education	64.9	18.9	16.1	100	233
Less than primary	55.9	26.2	17.9	100	93
Primary school	68.0	17.0	15.0	100	142
Secondary school	53.8	26.0	20.3	100	148
High school	54.2	18.2	27.6	100	105
College and above	65.6	26.0	8.4	100	51
Wealth quintile					
Lowest	68.3	15.9	15.8	100	153
Second	56.6	26.9	16.5	100	183
Middle	65.4	23.3	11.4	100	186
Fourth	63.6	18.5	17.9	100	113
Highest	46.0	21.7	32.3	100	137
Total	**60.5**	**21.5**	**18.1**	**100**	**772**

[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.1.2 (b) Percent distribution of older respondents needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
60-59	60.2	22.1	17.7	100	1,126
60-69	63.5	22.4	14.1	100	1,026
70-79	62.0	27.6	10.4	100	476
80+	71.5	19.2	9.2	100	137
Sex					
Male	61.4	25.1	13.5	100	1344
Female	63.1	21.1	15.8	100	1421
Marital status					
Never married	55.8	35.8	8.4	100	29
Currently married	61.4	23.2	15.5	100	2,042
Widowed	65.3	22.2	12.5	100	683
Other[1]	80.1	12.7	7.2	100	11
Residence					
Urban	62.0	22.4	15.7	100	551
Rural	62.5	23.3	14.2	100	2214
Caste					
Scheduled tribes	59.8	19.0	21.2	100	192
Scheduled castes	59.7	28.5	11.8	100	467
Other[2]	63.0	22.3	14.7	100	2106
Religion					
Hindu	61.3	23.7	15.0	100	2270
Muslim	66.9	19.4	13.7	100	367
Other[3]	68.5	20.4	11.1	100	128
Education					
No formal education	63.1	21.5	15.4	100	1,370
Less than primary	61.6	24.2	14.2	100	370
Primary school	66.0	23.0	11.0	100	428
Secondary school	60.6	20.5	18.9	100	263
High school	59.6	30.0	10.4	100	197
College and above	55.4	26.8	17.8	100	137
Wealth quintile					
Lowest	61.1	25.4	13.4	100	554
Second	68.4	18.7	12.9	100	495
Middle	60.2	24.6	15.2	100	556
Fourth	63.0	21.8	15.2	100	594
Highest	59.2	24.5	16.4	100	566
Total	**62.3**	**23.0**	**14.7**	**100**	**2765**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 9.1.3 presents the results of men needing health care by state and overall. About 63% of younger men and 61% of older men said they had needed health care during the year before the survey. Among older men, the need had been highest in Karnataka (80%) and lowest in Assam (48%).

Trends: As noted above, there has been a substantial decline in the proportion of younger and older respondents, needing health care in the previous year with a subsequent increase in the proportion of respondents never needed health care and health care needed more than a year ago in the period 2007-15. This pattern is more pronounced among women than men, across different age groups.

Table 9.1.3 Percent distribution of younger and older men needing health care, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number	In previous year	More than 1 year ago	Never needed	Total	Number
Assam	57.2	25.7	17.1	100	60	47.9	41.0	11.1	100	174
Karnataka	75.5	14.3	10.2	100	45	79.8	6.9	13.3	100	169
Maharashtra	53.7	29.1	17.1	100	70	65.1	17.9	17.0	100	223
Rajasthan	47.9	36.1	16.0	100	46	64.8	27.8	7.4	100	260
Uttar Pradesh	65.1	19.8	15.1	100	53	48.4	31.9	19.7	100	231
West Bengal	74.0	15.1	10.9	100	65	66.3	28.3	5.4	100	287
India (pooled)	**62.8**	**22.7**	**14.5**	**100**	**339**	**61.4**	**25.1**	**13.5**	**100**	**1,344**

Table 9.1.4 (a & b) presents results for men needing health care by selected background characteristics. Throughout the ages, the need for health care in the previous year increased considerably with age, increasing from 55% at age 18-29 to 72% among the oldest men aged 80-plus. Younger men's health care needs differed by residence, caste and wealth quintile when compared to older men.

Table 9.1.4 (a) Percent distribution of younger men needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	54.7	26.1	19.1	100	118
30-39	65.4	16.7	18.0	100	84
40-49	70.0	22.9	7.1	100	137
Marital status					
Never married	54.6	28.1	17.2	100	96
Currently married	66.5	20.1	13.4	100	233
Widowed	66.9	25.6	7.6	100	9
Other[1]	100.0	0.0	0.0	100	1
Residence					
Urban	59.4	31.0	9.6	100	61
Rural	63.7	20.5	15.8	100	278
Caste					
Scheduled tribes	58.7	33.9	7.4	100	33
Scheduled castes	68.3	19.1	12.6	100	76
Other[2]	61.5	22.6	16.0	100	230
Religion					
Hindu	62.8	24.3	12.9	100	284
Muslim	58.9	15.9	25.1	100	38
Other[3]	71.4	9.3	19.3	100	17
Education					
No formal education	73.8	19.2	7.0	100	47
Less than primary	57.7	31.7	10.6	100	41
Primary school	75.3	13.4	11.3	100	73
Secondary school	57.5	21.4	21.1	100	82
High school	52.2	26.0	21.8	100	64
College and above	65.3	31.4	3.3	100	32
Wealth quintile					
Lowest	63.8	24.3	11.9	100	66
Second	63.8	21.3	15.0	100	83
Middle	70.6	23.7	5.7	100	85
Fourth	57.1	21.2	21.7	100	56
Highest	52.8	22.6	24.7	100	49
Total	**62.8**	**22.7**	**14.5**	**100**	**339**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Table 9.1.4 (b) Percent distribution of older men needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristic	Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
50-59	60.9	22.6	16.6	100	486
60-69	59.7	26.4	14.0	100	524
70-79	62.8	29.8	7.4	100	254
80+	72.4	16.5	11.1	100	80

Background characteristic	Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number
Marital status					
Never married	62.0	32.5	5.4	100	17
Currently married	61.8	24.5	13.7	100	1,192
Widowed	57.7	29.0	13.3	100	132
Other[1]	71.4	28.6	0.0	100	3
Residence					
Urban	60.8	25.2	13.9	100	257
Rural	61.7	25.1	13.3	100	1087
Caste					
Scheduled tribes	64.0	16.7	19.3	100	94
Scheduled castes	60.2	30.1	9.7	100	216
Other[2]	61.5	24.9	13.7	100	1034
Religion					
Hindu	61.2	25.5	13.3	100	1096
Muslim	60.4	24.2	15.4	100	185
Other[3]	70.9	20.6	8.5	100	63
Education					
No formal education	58.0	29.0	13.0	100	401
Less than primary	68.0	21.0	11.0	100	215
Primary school	63.8	24.8	11.4	100	258
Secondary school	62.1	17.9	19.9	100	192
High school	62.0	27.4	10.5	100	164
College and above	55.8	28.2	16.0	100	114
Wealth quintile					
Lowest	60.5	27.1	12.3	100	260
Second	68.0	24.1	7.9	100	238
Middle	60.0	26.5	13.6	100	288
Fourth	61.5	25.6	12.9	100	272
Highest	58.0	22.4	19.7	100	286
Total	**61.4**	**25.1**	**13.5**	**100**	**1344**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Tables 9.1.5 and 9.1.6 (a & b) provide the same information for women. Of the six states, older women in Karnataka had the highest (85%) and Assam the lowest reported need in the previous year (49%). The patterns by the state were largely similar in younger women, with a higher need for younger than older women in states like Rajasthan.

Table 9.1.5 Percent distribution of younger and older women needing health care, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number	In previous year	More than 1 year ago	Never needed	Total	Number
Assam	36.0	49.0	15.0	100	62	49.3	33.6	17.2	100	165
Karnataka	76.2	7.0	16.8	100	49	84.6	5.6	9.8	100	215
Maharashtra	55.0	17.9	27.1	100	66	56.7	15.9	27.4	100	211
Rajasthan	65.3	11.7	23.0	100	106	61.3	24.6	14.1	100	283
Uttar Pradesh	53.1	5.9	41.0	100	33	55.9	23.3	20.8	100	224
West Bengal	59.5	33.4	7.1	100	117	67.7	28.1	4.2	100	323
India (pooled)	**58.8**	**20.5**	**20.7**	**100**	**433**	**63.1**	**21.1**	**15.8**	**100**	**1,421**

On average, 63% of older women and 59% of younger women said they had needed health care in the previous year (Table 9.1.6 (a & b)). The age gradient seen in men was not as obvious in women, but a larger portion of women than men reported health care needs, except for the oldest age group i.e. 80-plus (see Figure 9.2). Marginal differences were observed based on residence, religion, education and wealth quintiles.

Table 9.1.6 (a) Percent distribution of younger women needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	60.6	14.0	25.4	100	85
30-39	57.6	17.6	24.9	100	154
40-49	58.8	25.5	15.8	100	194
Marital status					
Never married	58.7	10.6	30.6	100	56
Currently married	59.9	21.3	18.8	100	349
Widowed	39.1	41.4	19.6	100	26
Other[1]	59.8	40.2	0.0	100	2
Residence					
Urban	53.0	20.7	26.3	100	94
Rural	61.2	20.5	18.4	100	339
Caste					
Scheduled tribes	55.9	25.5	18.7	100	46
Scheduled castes	61.9	22.7	15.4	100	86
Other[2]	58.4	19.3	22.3	100	301
Religion					
Hindu	61.9	19.6	18.5	100	348
Muslim	48.5	20.4	31.2	100	64
Other[3]	32.4	41.0	26.6	100	21
Education					
No formal education	62.8	18.9	18.3	100	186
Less than primary	54.6	22.1	23.3	100	52
Primary school	61.6	20.2	18.3	100	69
Secondary school	49.6	31.0	19.4	100	66
High school	56.9	7.6	35.5	100	41
College and above	66.1	17.5	16.5	100	19
Wealth quintile					
Lowest	71.9	9.0	19.0	100	87
Second	51.4	31.0	17.7	100	100
Middle	61.5	23.0	15.6	100	101
Fourth	67.8	16.8	15.4	100	57
Highest	42.1	21.1	36.8	100	88
Total	**58.8**	**20.5**	**20.66**	**100**	**433**

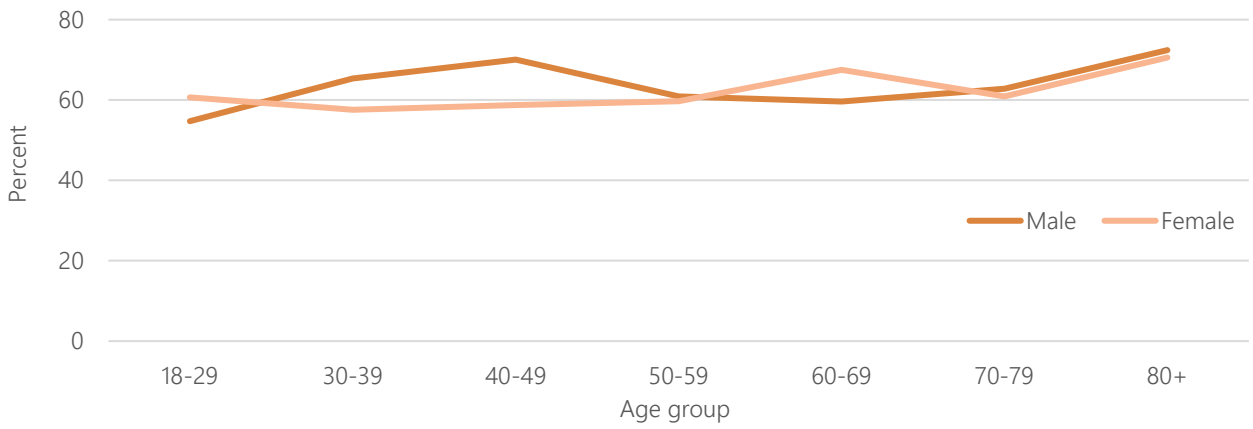
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.1.6 (b) Percent distribution of older women needing health care, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
50-59	59.7	21.8	18.5	100	640
60-69	67.5	18.3	14.2	100	502
70-79	60.9	25.0	14.1	100	222
80+	70.6	22.4	7.0	100	57
Marital status					
Never married	41.5	43.4	15.1	100	12
Currently married	60.8	21.3	18.0	100	850
Widowed	67.1	20.6	12.3	100	551
Other[1]	82.2	8.8	9.0	100	8
Residence					
Urban	62.9	20.0	17.1	100	294
Rural	63.2	21.6	15.2	100	1127
Caste					
Scheduled tribes	55.8	21.2	23.0	100	98
Scheduled castes	59.3	27.3	13.4	100	251
Other[2]	64.4	19.9	15.7	100	1072
Religion					
Hindu	61.5	22.1	16.4	100	1,174
Muslim	73.8	14.4	11.8	100	182
Other[3]	65.9	20.3	13.9	100	65
Education					
No formal education	64.9	18.8	16.3	100	969
Less than primary	54.3	27.9	17.8	100	155
Primary school	69.5	20.2	10.3	100	170
Secondary school	56.0	28.0	16.0	100	71
High school	48.3	41.7	10.0	100	33
College and above	53.2	19.2	27.6	100	23
Wealth quintile					
Lowest	61.6	24.0	14.4	100	294
Second	68.8	13.5	17.7	100	257
Middle	60.5	22.7	16.8	100	268
Fourth	64.2	18.6	17.2	100	322
Highest	60.5	26.9	12.7	100	280
Total	**63.1**	**21.1**	**15.8**	**100**	**1,421**

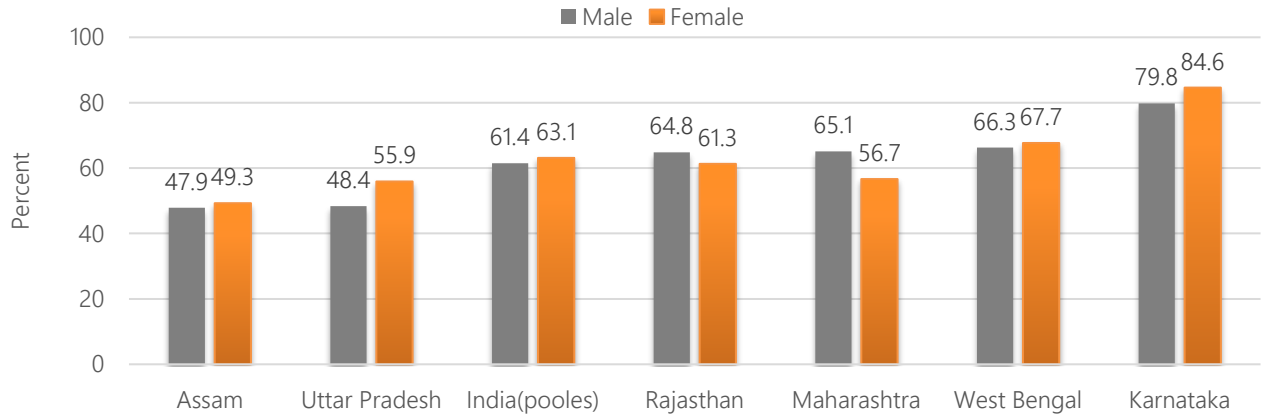
[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

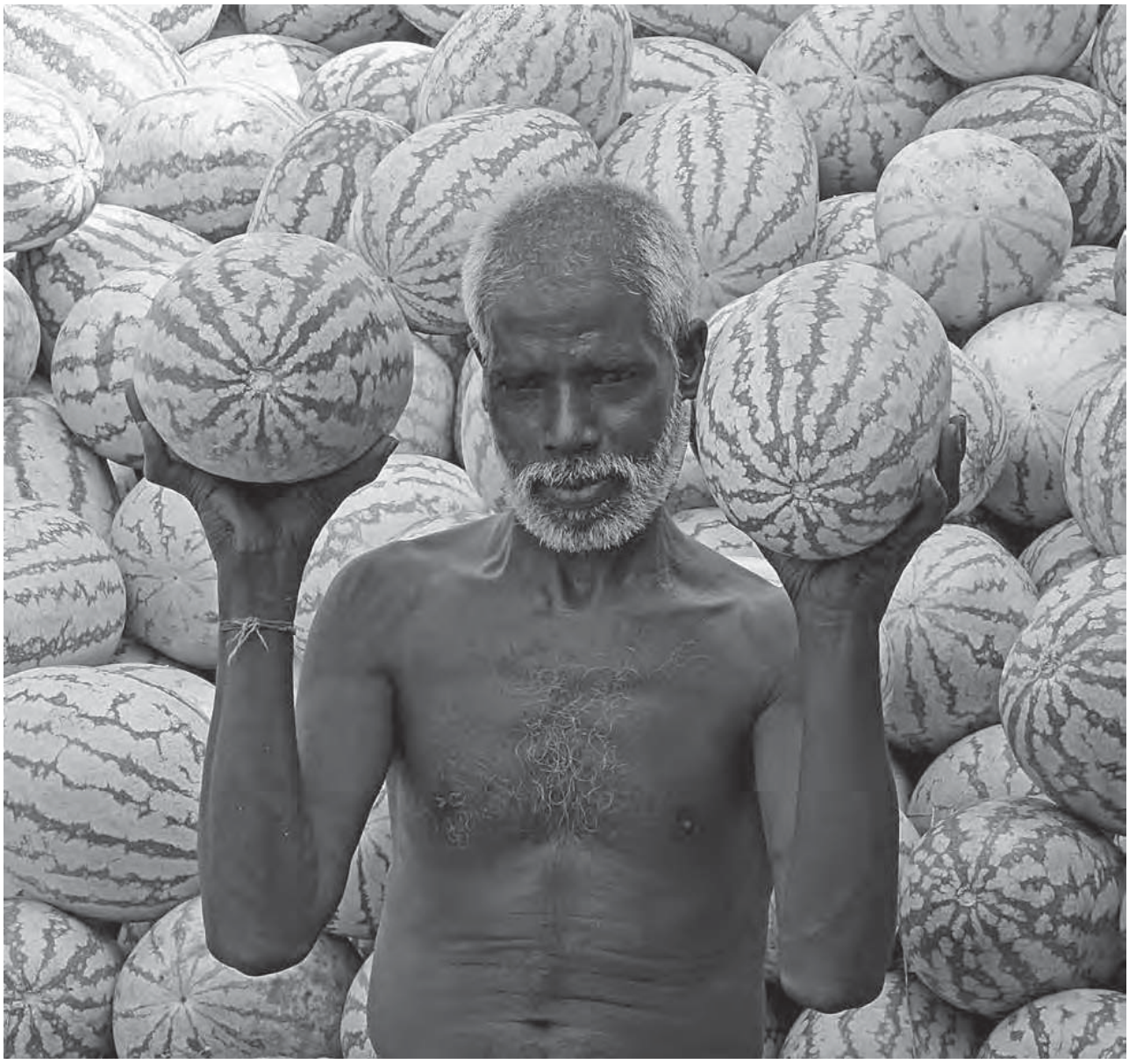
Figure 9.2 Percentage of respondents reporting health care need in previous year, by age group, India (pooled), SAGE Wave 2, 2015



Patterns of reported health care need by state and overall for those aged 50-plus reveal the higher overall need for older women than older men, and in each of the sampled states (Figure 9.3). The reported need was higher in West Bengal and Karnataka and lower in Uttar Pradesh and Assam

Figure 9.3 Percentage of adults aged 50-plus who needed health care in the last year by sex, state and India (pooled) , SAGE Wave 2, 2015





9.2 Use of inpatient and/or outpatient care

Information on types of health care received in the year before the survey is presented by state and overall India in Table 9.2.1. Inpatients are those who have stayed in the hospital or any health care facility for at least one night. Outpatients are those who did not stay in the hospital overnight but required other types of treatment. Among adults aged 50-plus, around 68% of respondents reported receiving outpatient care and 17% inpatient care. Percentages of respondents receiving inpatient care varied considerably across the states, from 9% in Uttar Pradesh to 28% in Karnataka.

Trends: Overall, there has been a decline in the proportion of respondents needing outpatient health care, with a subsequent increase in the proportion of respondents who said that they have not received any health care in the last year from SAGE-1 to SAGE-2. Among older respondents, the percentage of respondents, who reported that they have not received any health care has increased from 6% to 16% from 2007. In the same period, this has increased from 8% to 28% among younger respondents.

There has been a marginal change in the proportion of respondents receiving inpatient health care. This pattern is similar across men and women, although more pronounced among men than women.

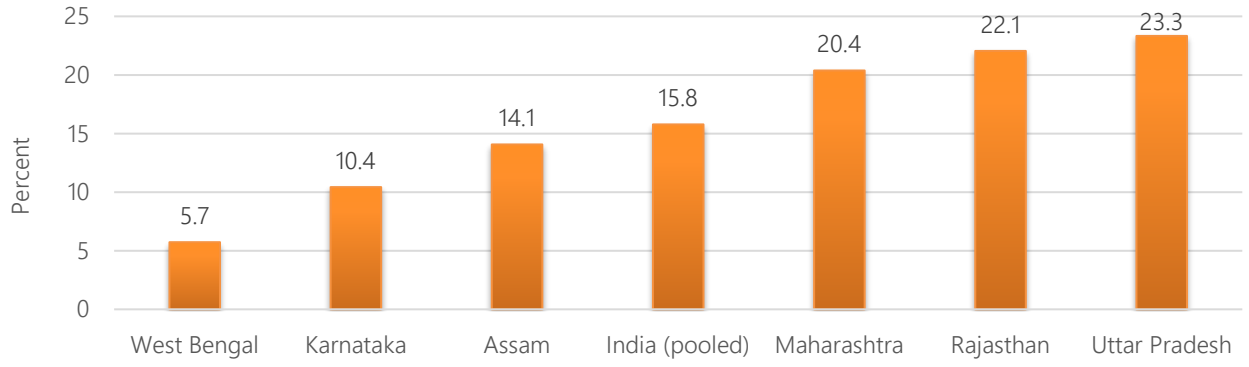
Table 9.2.1 Percent distribution of respondents who required health care in the last year by the type of health care received*, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	11.2	46.1	42.7	100	61	11.3	74.6	14.1	100	159
Karnataka	11.5	70.8	17.8	100	72	27.5	62.0	10.4	100	306
Maharashtra	17.9	51.9	30.2	100	78	16.9	62.7	20.4	100	256
Rajasthan	13.3	49.1	37.7	100	100	10.9	67.1	22.1	100	350
Uttar Pradesh	14.7	50.7	34.7	100	51	8.6	68.1	23.3	100	226
West Bengal	7.7	79.7	12.6	100	123	19.0	75.3	5.7	100	422
India (pooled)	**12.6**	**60.7**	**26.7**	**100**	**485**	**16.5**	**67.8**	**15.8**	**100**	**1,719**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*

Those who said they had not received any health care (either inpatient or outpatient) totaled 16%-27% of all respondents. The percentage not receiving care when needed was slightly higher in younger respondents and considerably higher in Assam than other states in younger age groups (43%). For older adults, the rate (23%) was highest in Uttar Pradesh (Figure 9.4).

Figure 9.4 Percentage of adults aged 50-plus who did not receive health care when needed, states and India (pooled), SAGE Wave 2, 2015



For those who received health care, there was little variation for older adults by residence, caste, religion, education and wealth quintile (Table 9.2.2 (a & b)). Older women were slightly more likely to have reported using outpatient care and slightly less likely to reported using inpatient care than older men.

Table 9.2.2 (a) Percent distribution of younger respondents by type of health care received* in the last year, by background characteristics India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	13.6	58.8	27.6	100	125
30-39	12.8	50.25	37.0	100	148
40-49	11.9	68.3	19.8	100	212
Sex					
Male	13.3	54.6	32.0	100	220
Female	12.1	65.3	22.6	100	265
Marital status					
Never married	10.3	59.5	30.2	100	92
Currently married	13.4	60.8	25.8	100	373
Widowed	11.1	60.7	28.2	100	18
Other[1]	0.0	100.0	0.0	100	2
Residence					
Urban	9.2	72.6	18.2	100	92
Rural	13.7	57.0	29.3	100	393
Caste					
Scheduled tribes	16.1	56.6	27.3	100	49
Scheduled castes	12.1	61.1	26.7	100	110
Other[2]	12.4	61.0	26.6	100	326
Religion					
Hindu	12.2	61.2	26.6	100	402
Muslim	15.3	55.8	29.0	100	64
Other[3]	15.9	63.0	21.1	100	19
Education					
No formal education	11.7	63.2	25.1	100	157
Less than primary	17.6	60.2	22.2	100	50
Primary school	20.0	48.8	31.3	100	99
Secondary school	6.4	73.3	20.3	100	79
High school	16.6	61.6	21.9	100	69
College and above	0.0	42.6	57.4	100	31
Wealth quintile					
Lowest	9.3	67.4	23.4	100	104
Second	15.5	60.8	23.7	100	113
Middle	12.6	54.8	32.5	100	124
Fourth	17.6	58.9	23.5	100	68
Highest	8.1	61.3	30.6	100	76
Total	**12.6**	**60.7**	**26.7**	**100**	**485**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.2.2 (b) Percent distribution of older respondents by type of health care received* in the last year, by background characteristics India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	14.3	67.7	18.0	100	681
60-69	17.3	64.8	17.9	100	652
70-79	18.2	70.3	11.5	100	300
80+	20.7	79.3	0.0	100	86
Sex					
Male	17.9	66.2	15.8	100	819
Female	15.1	69.1	15.7	100	900
Marital status					
Never married	7.5	81.8	10.7	100	15
Currently married	16.3	67.3	16.4	100	1,247
Widowed	17.4	68.4	14.2	100	449
Other[1]	9.4	72.2	18.4	100	8
Residence					
Urban	20.3	62.8	16.9	100	327
Rural	14.9	69.8	15.3	100	1,393
Caste					
Scheduled tribes	21.0	62.6	16.4	100	115
Scheduled castes	14.5	71.3	14.2	100	284
Other[2]	16.5	67.5	16.0	100	1,320
Religion					
Hindu	16.5	66.5	17.0	100	1,385
Muslim	15.9	75.3	8.7	100	249
Other[3]	17.3	66.9	15.8	100	85
Education					
No formal education	14.2	69.0	16.8	100	872
Less than primary	13.9	75.6	10.5	100	227
Primary school	20.4	67.1	12.5	100	277
Secondary school	17.0	70.0	13.0	100	153
High school	20.9	53.2	25.9	100	114
College and above	23.0	58.3	18.7	100	76
Wealth quintile					
Lowest	11.4	71.2	17.4	100	346
Second	12.8	62.1	25.1	100	322
Middle	16.9	71.7	11.5	100	343
Fourth	20.1	68.8	11.1	100	372
Highest	20.9	65.1	14.0	100	336
Total	**16.5**	**67.8**	**15.8**	**100**	**1,719**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.2.3 presents the type of health care received results for men in the selected states and India. About 13% of men aged 18-49 and 18% of men aged 50-plus reporting receiving inpatient care. Among older men, those in Uttar Pradesh had the lowest reported use of inpatient care (10%), while those in Karnataka reported the highest use (28%).

West Bengal also had the overall highest proportion of outpatient care (74 for younger men and 72% for older men). Besides, Assam had the highest proportions who had not received any health care among younger respondents (46%).

Table 9.2.3 Percent distribution of younger and older men by type of health care received* in the last year, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	18.6	35.9	45.5	100	35	12.3	72.1	15.6	100	80
Karnataka	9.6	63.9	26.5	100	37	27.6	59.0	13.3	100	134
Maharashtra	22.5	46.0	31.5	100	39	16.8	59.5	23.8	100	131
Rajasthan	6.4	51.7	42.0	100	26	11.9	66.0	22.1	100	170
Uttar Pradesh	14.4	46.6	38.9	100	35	10.4	71.4	18.2	100	109
West Bengal	6.4	74.0	19.6	100	48	23.9	72.4	3.7	100	195
India (pooled)	**13.3**	**54.6**	**32.0**	**100**	**220**	**17.9**	**66.3**	**15.8**	**100**	**819**

*Note: *Listed under inpatient care if reported receiving both inpatient and outpatient care*

The results for younger and older men are also presented by selected background characteristics in Table 9.2.4 (a & b) Large differences were seen between older and men in the use of inpatient care in urban and rural areas. Younger and older men belonging to scheduled tribes (25% and 30% respectively) were more likely than members of scheduled castes or others to report using inpatient care. The proportion of young respondents who received inpatient care did not show consistent gradients by education and wealth quintiles. However, men aged 50-plus from the lowest wealth quintiles were less to report using inpatient care in comparison to men from the highest wealth quintile.

Table 9.2.4 (a) Percent distribution of younger men by type of health care received* in the last year and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	7.9	58.1	34.0	100	68
30-39	22.0	29.0	49.0	100	55
40-49	13.0	66.8	20.3	100	97
Marital status					
Never married	7.5	55.7	36.9	100	54
Currently married	15.8	53.8	30.4	100	159
Widowed	10.9	63.3	25.8	100	6
Other[1]	0.0	100.0	0.0	100	1
Residence					
Urban	12.6	64.8	22.6	100	41
Rural	13.5	52.1	34.4	100	179
Caste					
Scheduled tribes	24.9	42.5	32.6	100	21
Scheduled castes	13.3	59.7	26.9	100	53
Other[2]	12.0	54.2	33.8	100	146
Religion					
Hindu	12.6	53.8	33.6	100	184
Muslim	17.8	54.9	27.3	100	25
Other[3]	17.0	68.7	14.3	100	11
Education					
No formal education	12.5	67.8	19.7	100	33
Less than primary	28.4	47.7	23.9	100	25
Primary school	18.5	52.1	29.4	100	55
Secondary school	4.3	64.4	31.3	100	47
High school	18.4	52.1	29.5	100	40
College and above	0.0	23.8	76.2	100	20

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Wealth quintile					
Lowest	12.0	63.6	24.4	100	43
Second	16.1	54.2	29.7	100	16
Middle	16.6	50.7	32.8	100	61
Fourth	13.2	35.8	51.0	100	33
Highest	4.2	66.9	29.0	100	28
Total	**13.3**	**54.6**	**32.0**	**100**	**220**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.2.4 (b) Percent distribution of older men by type of health care received* in the last year and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	14.4	65.0	20.6	100	291
60-69	22.1	60.4	17.5	100	320
70-79	16.4	74.0	9.6	100	159
80+	18.3	81.7	0.0	100	49
Marital status					
Never married	4.0	88.5	7.5	100	10
Currently married	18.2	65.3	16.4	100	729
Widowed	17.8	71.4	10.8	100	78
Other[1]	0.0	60.6	39.4	100	2
Residence					
Urban	25.0	57.3	17.6	100	144
Rural	15.2	69.7	15.1	100	675
Caste					
Scheduled tribes	29.6	62.5	7.8	100	60
Scheduled castes	14.1	72.2	13.8	100	131
Other[2]	17.7	65.6	16.8	100	628
Religion					
Hindu	17.5	65.1	17.4	100	654
Muslim	18.5	73.6	7.9	100	123
Other[3]	23.9	64.7	11.4	100	42
Education					
No formal education	14.0	68.7	17.3	100	243
Less than primary	13.3	75.3	11.4	100	138
Primary school	26.5	64.7	8.8	100	163
Secondary school	13.2	72.2	14.6	100	114
High school	19.6	53.3	27.2	100	97
College and above	21.9	58.8	19.4	100	64
Wealth quintile					
Lowest	14.1	72.2	13.7	100	165
Second	11.4	57.9	30.8	100	146
Middle	15.9	72.3	11.8	100	175
Fourth	24.6	67.1	8.3	100	165
Highest	23.2	62.6	14.3	100	168
Total	**17.9**	**66.3**	**15.8**	**100**	**819**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Tables 9.2.5 and 9.2.6 (a & b) present health care utilization information for women. Among women aged 50-plus, 69% had received outpatient care in the previous year, 15% had received inpatient care, and around 16% had not received any health care.

Inpatient care was more common in older women than younger women except in states Uttar Pradesh and Rajasthan. The proportion of older women who had not received any health care was highest in Uttar Pradesh (28%) and lowest in West Bengal(7%). Among women aged 18-49, about 23% had not received any health care. The proportion of younger women who had not received any health care was highest in Assam (38%) and lowest in West Bengal (8%). The proportion of older adults who had not received health care was much higher in the poorer states such as Rajasthan and Uttar Pradesh compared with the demographically advanced states of West Bengal and Karnataka (figure 9.5)

Table 9.2.5 Percent distribution of women by type of health care received in the last year, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49					Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	0.0	61.7	38.3	100	26	10.4	77.1	12.5	100	79
Karnataka	12.7	75.5	11.8	100	35	27.5	64.3	8.3	100	172
Maharashtra	14.3	56.6	29.1	100	39	17.2	66.6	16.3	100	125
Rajasthan	15.1	48.3	36.5	100	74	9.9	68.2	22.0	100	180
Uttar Pradesh	15.0	57.0	28.0	100	16	7.0	65.4	27.6	100	117
West Bengal	8.6	83.5	7.9	100	75	14.9	77.7	7.4	100	227
India (pooled)	**12.1**	**65.3**	**22.7**	**100**	**265**	**15.1**	**69.1**	**15.7**	**100**	**900**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.

No clear age patterns were discernible in the use of inpatient care, but a consistent increase in the use of outpatient care was seen with increasing age among women aged 18-49 (Table 9.2.6(a)). Slight differences were seen in urban and rural areas, but otherwise, no clear patterns emerged by the other background characteristics such as education, caste and religion. Women of higher wealth quintile were had higher levels of inpatient care in comparison to women from lower wealth quintiles.

Table 9.2.6 (a) Percent distribution of younger women by type of health care received in the last year and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	20.5	59.6	19.9	100	57
30-39	7.2	63.1	29.7	100	93
40-49	11.2	69.3	19.5	100	115
Marital status					
Never married	14.1	64.6	21.3	100	38
Currently married	11.8	65.5	22.8	100	214
Widowed	11.1	59.5	29.4	100	12
Other[1]	0.0	100.0	0.0	100	1
Residence					
Urban	7.2	77.2	15.6	100	51
Rural	13.8	61.1	25.1	100	214
Caste					
Scheduled tribes	10.0	66.4	23.6	100	28
Scheduled castes	11.0	62.4	26.6	100	57
Other[2]	12.6	65.9	21.4	100	180

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Religion					
Hindu	11.8	66.8	21.4	100	218
Muslim	13.5	56.4	30.1	100	39
Other[3]	14.1	53.4	32.5	100	8
Education					
No formal education	11.5	62.0	26.6	100	124
Less than primary	9.0	70.1	20.9	100	25
Primary school	21.5	45.1	33.4	100	44
Secondary school	9.1	84.7	6.2	100	32
High school	14.2	73.4	12.4	100	29
College and above	0.0	71.8	28.2	100	11
Wealth quintile					
Lowest	7.3	70.1	22.6	100	61
Second	15.0	66.9	18.2	100	58
Middle	9.3	58.4	32.4	100	63
Fourth	20.0	71.6	8.4	100	35
Highest	10.9	57.3	31.8	100	48
Total	**12.1**	**65.3**	**22.7**	**100**	**265**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

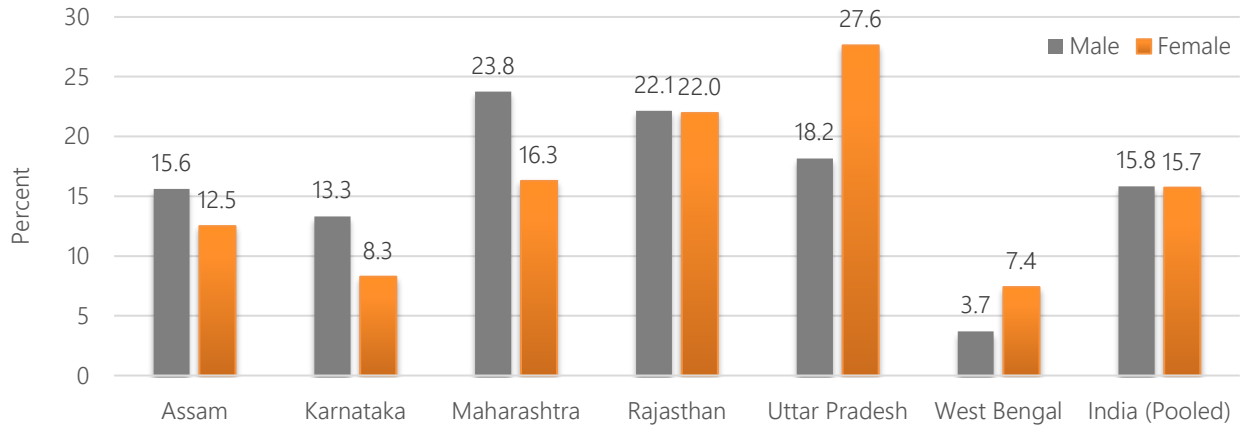
Table 9.2.6 (b) Percent distribution of older women by type of health care received in the last year and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	14.2	69.8	16.0	100	390
60-69	13.0	68.8	18.3	100	332
70-79	20.4	65.6	13.9	100	141
80+	23.5	76.6	0.0	100	37
Marital status					
Never married	19.3	58.9	21.8	100	5
Currently married	13.7	70.0	16.3	100	518
Widowed	17.4	67.8	14.8	100	371
Other[1]	11.3	74.7	14.0	100	6
Residence					
Urban	16.5	67.3	16.3	100	183
Rural	14.5	70.0	15.5	100	717
Caste					
Scheduled tribes	11.5	62.7	25.8	100	55
Scheduled castes	15.0	70.6	14.5	100	153
Other[2]	15.4	69.3	15.3	100	692
Religion					
Hindu	15.6	67.8	16.6	100	731
Muslim	13.7	76.9	9.5	100	136
Other[3]	9.6	69.5	20.9	100	43
Education					
No formal education	14.2	69.1	16.7	100	629
Less than primary	14.7	76.1	9.2	100	89
Primary school	11.8	70.5	17.8	100	114
Secondary school	29.6	62.8	7.7	100	39
High school	29.0	52.8	18.2	100	17
College and above	30.0	55.5	14.5	100	12

Background characteristics	Aged 50-plus				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Wealth quintile					
Lowest	9.2	70.3	20.4	100	181
Second	14.2	66.2	19.6	100	176
Middle	17.8	71.0	11.2	100	168
Fourth	16.6	70.1	13.3	100	207
Highest	18.6	67.7	13.7	100	168
Total	**15.1**	**69.1**	**15.7**	**100**	**900**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 9.5 Percentage of adults aged 50-plus who did not receive any health care in the last year by sex, states and India (pooled), SAGE Wave 2, 2015



9.2.1 Reasons for needing inpatient care

A total of 15% of respondents had sought inpatient health care during the year before the survey. Their need for inpatient care was analysed by the self-reported reason for admission. Information was collected for 18 different types of diseases/treatments, including communicable diseases, nutritional deficiencies, maternal and pre-natal conditions, chronic pain, diabetes or related complications, problems related to heart and chest, high blood pressure/hypertension, cancer, depression/anxiety, occupational and other injury or other reasons. For analysis, these were categorized into four broad groups as presented in Tables 9.2.7 and 9.2.8 (a & b). The four groups were a) maternal and pre-natal conditions; b) non-communicable and chronic diseases (diabetes or related complications, heart problems, including unexplained pain in the chest, problems with the mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer);

c) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); d) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work-related condition/injury, chronic pain in joints/arthritis, other diseases). The first category, maternal and pre-natal conditions, was not tabulated for respondents aged 50-plus.

Trends: Overall, there has been a substantial increase in the inpatient health care need for non-communicable and chronic diseases among younger and older respondents. Inpatient health care need for non-communicable and chronic disease has increased from 8% to 22% among younger respondents in the period 2007-15. Among older respondents, this has increased from 22% to 39%. Inpatient care for maternal health has declined from 22% to 14% from SAGE-1 to SAGE-2. Among younger respondents, inpatient care has increased for acute diseases. However, for older respondents, inpatient care for other diseases has increased.

Among respondents aged 50-plus, 39% had received inpatient care for non-communicable and chronic diseases and 14% for acute diseases during the previous year. Treatment for non-communicable and chronic diseases was more common among women (41 %) than men (37%), and somewhat more common in rural areas (40%) than urban areas (36%) among older respondents.

Table 9.2.7 Percent distribution of respondents who received inpatient care during the last year by main reason for care need, states and India (pooled) , SAGE Wave 2, 2015

State	Aged 18-49						Aged 50-plus				
	Maternal health	Non-communicable and chronic	Acute diseases	Other diseases	Total	Number	Non-communicable and chronic	Acute diseases	Other diseases	Total	Number
Assam	0.0	13.3	0.0	86.7	100	4	41.1	16.0	42.9	100	14
Karnataka	12.4	27.2	28.7	31.8	100	9	44.9	17.5	37.6	100	58
Maharashtra	6.4	34.2	22.5	37.0	100	11	33.6	0.0	66.4	100	36
Rajasthan	38.7	13.0	24.1	24.2	100	10	43.7	27.1	29.2	100	31
Uttar Pradesh	11.0	18.9	0.0	70.1	100	8	52.7	19.0	28.3	100	17
West Bengal	10.1	13.6	59.6	16.7	100	9	27.5	16.2	56.3	100	55
India (pooled)	**13.6**	**21.6**	**22.1**	**42.7**	**100**	**51**	**38.5**	**14.1**	**47.5**	**100**	**211**

Note: - Maternal health not tabulated for adults aged 50-plus.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).

Table 9.2.8 (a) Percent distribution of younger respondents who received inpatient care during the last year, by main reason for care need and background characteristics, India(pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Maternal health	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Age group						
18-29	27.0	15.3	16.7	41.0	100	12
30-39	13.3	5.8	12.8	68.0	100	14
40-49	4.0	37.1	32.5	26.5	100	25
Sex						
Male	0.0	17.6	18.0	64.4	100	25
Female	26.6	25.4	26.1	22.0	100	26
Marital status						
Never married	0.0	35.9	10.1	54.0	100	8
Currently married	15.7	17.3	26.0	41.1	100	40
Widowed	61.3	32.9	5.9	0.0	100	3
Other[1]						

Background characteristics	Aged 18-49					
	Maternal health	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Residence						
Urban	0.0	39.5	15.4	45.1	100	10
Rural	16.6	17.7	23.6	42.1	100	41
Caste						
Scheduled tribes	0.0	0.0	14.7	85.4	100	5
Scheduled castes	37.4	5.1	24.6	32.9	100	10
Other[2]	8.4	30.1	22.6	39.0	100	36
Religion						
Hindu	14.6	20.3	22.1	43.0	100	43
Muslim	0.0	37.5	30.9	31.6	100	6
Other[3]	33.3	0.0	0.0	66.7	100	2
Education						
No formal education	26.0	10.6	28.5	34.9	100	17
Less than primary	0.0	15.8	69.1	15.0	100	6
Primary school	16.7	20.6	1.9	60.9	100	14
Secondary school	0.0	71.3	0.0	28.7	100	5
High school	9.2	12.5	10.0	68.4	100	9
College and above	0.0	0.0	0.0	0.0	0	0
Wealth quintile						
Lowest	23.5	0.0	19.9	56.6	100	9
Second	0.0	36.5	7.6	55.9	100	13
Middle	31.9	19.2	27.6	21.4	100	13
Fourth	7.6	23.9	42.6	25.9	100	11
Highest	0.0	23.1	9.6	67.3	100	5
Total	**13.6**	**21.6**	**22.1**	**42.7**	**100**	**51**

Note: Maternal health not tabulated for adults aged 50-plus.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.2.8 (b) Percent distribution of older respondents who received inpatient care during the last year, by main reason for care need and background characteristics, India(pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Age group					
50-59	43.9	13.3	42.8	100	74
60-69	42.0	16.0	42.0	100	91
70-79	30.7	6.4	62.9	100	33
80+	12.2	27.9	59.9	100	13
Sex					
Male	35.8	13.7	50.5	100	108
Female	41.6	14.5	43.9	100	103
Marital status					
Never married	100.0	0.0	0.0	100	1
Currently married	42.0	10.0	48.0	100	157
Widowed	26.7	27.1	46.2	100	53
Other[1]					
Residence					
Urban	36.2	13.6	50.2	100	52

Background characteristics	Aged 50-plus				
	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Rural	39.8	14.4	45.8	100	159
Caste					
Scheduled tribes	55.2	8.1	36.7	100	18
Scheduled castes	32.1	19.4	48.5	100	32
Other[2]	37.8	13.8	48.3	100	161
Religion					
Hindu	39.5	13.7	46.8	100	169
Muslim	40.4	18.9	40.7	100	31
Other[3]	12.2	7.2	80.6	100	11
Education					
No formal education	35.5	22.4	42.1	100	101
Less than primary	56.4	10.1	33.5	100	23
Primary school	33.7	7.2	59.1	100	40
Secondary school	29.4	19.5	51.1	100	19
High school	62.4	0.2	37.4	100	16
College and above	30.4	2.7	67.0	100	12
Wealth quintile					
Lowest	39.3	22.2	38.5	100	30
Second	50.5	14.6	34.9	100	42
Middle	33.8	19.1	47.2	100	41
Fourth	30.0	12.2	57.8	100	47
Highest	42.8	7.9	49.3	100	51
Total	**38.5**	**14.1**	**47.5**	**100**	**211**

Note: Maternal health not tabulated for adults aged 50-plus.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

9.2.2 Reasons for needing outpatient care

Outpatient care was considered to be health care received in a clinic, hospital, dispensary, private nursing home or at home, where the treatment did not necessitate an overnight stay outside the patient's home. The percentage of those treated for acute diseases among persons aged 50-plus varied considerably across the states, from a high of 50% in Rajasthan to a low of 24% in Uttar Pradesh (Table 9.2.9).

***Trends**: Overall, there has been a marginal change in the outpatient health care need for non-communicable and chronic disease, acute disease and other diseases among younger respondents. Outpatient care for maternal health has declined from 3% to 2% from SAGE-1 to SAGE-2.*

Outpatient health care need for non-communicable and chronic disease has increased from 19% to 28% among older respondents in the period 2007-15. Among older respondents, outpatient care has decreased from 42% to 32% for acute diseases.

Table 9.2.9 Percent distribution of respondents who received outpatient care during the last year by main reason for care need, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49						Aged 50-plus				
	Maternal health	Non-communicable and	Acute diseases	Other diseases	Total	Number	Non-communicable and	Acute diseases	Other diseases	Total	Number
Assam	0.0	37.4	54.3	8.4	100	11	21.3	28.5	50.2	100	22
Karnataka	0.1	4.9	59.2	35.8	100	29	21.7	32.2	46.1	100	116
Maharashtra	0.0	4.8	63.6	31.6	100	26	23.7	43.4	33.0	100	101
Rajasthan	0.0	20.1	61.9	18.0	100	33	22.4	50.4	27.3	100	138
Uttar Pradesh	0.0	4.1	50.3	45.7	100	14	38.9	24.1	37.0	100	75
West Bengal	4.3	9.9	39.2	46.6	100	86	27.1	26.2	46.7	100	291
India (pooled)	**1.8**	**9.3**	**50.5**	**38.5**	**100**	**199**	**27.5**	**32.3**	**40.3**	**100**	**743**

Note: Maternal health not tabulated for adults aged 50-plus.

Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).

Nationally, 32% of older adults received outpatient care for acute diseases and 28% for non-communicable and chronic diseases in the year before the survey (Table 9.2.10 (b)). About 51% of younger respondents aged 18-49 had received outpatient care for acute diseases, 9% for non-communicable and chronic diseases, and 2% for reproductive health problems. As expected, outpatient care received for reproductive health was highest among the youngest age group (5%) and decreased with increasing age (Table 9.2.10 (a)).

Outpatient care for non-communicable and chronic diseases increased from 4% for adults aged 18-29 to 26% for adults aged 50-59 and 32% in the oldest persons aged 80-plus. As with inpatient care, outpatient care for non-communicable and chronic diseases was more common among older women (28 %) than older men (26%), and was also higher in urban than in rural areas for persons aged 50-plus. The percentage of older respondents who received health care for the non-communicable disease increased with age (figure 9.6).

The percentage of older respondents who received health care for acute diseases was much higher in the states of Maharashtra and Rajasthan than Uttar Pradesh and West Bengal (figure 9.7).

Figure 9.6 Percentage of respondents who received outpatient health care for non-communicable and chronic diseases by age, India (pooled), SAGE Wave 2, 2015

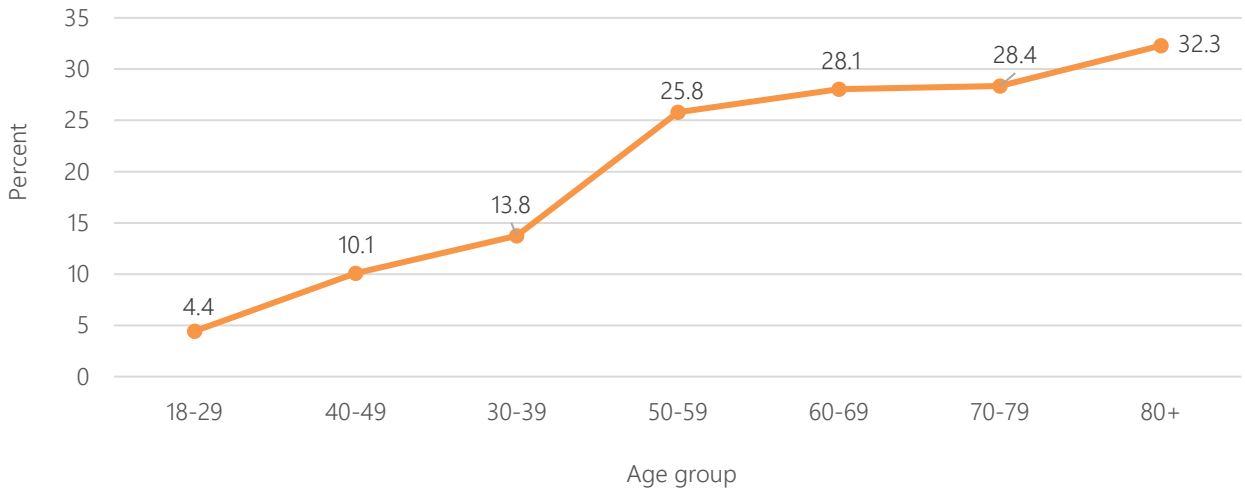


Table 9.2.10 (a) Percent distribution of younger respondents who received outpatient care during the last year by reason for care need and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49					
	Maternal health	Non-communicable & chronic diseases	Acute diseases	Other diseases	Total	Number
Age group						
18-29	4.6	4.4	50.4	40.5	100	58
30-39	0.0	13.8	47.6	38.7	100	56
40-49	0.9	10.1	52.1	36.9	100	85
Sex						
Male	0.0	9.3	49.5	41.3	100	82
Female	3.1	9.3	51.2	36.5	100	117
Marital status						
Never married	0.0	5.7	51.0	43.3	100	43
Currently married	2.5	10.3	51.2	36.1	100	148
Widowed	0.0	17.8	39.2	43.0	100	6
Other[1]	0.0	0.0	0.0	100.0	100	2
Residence						
Urban	1.1	4.9	41.2	52.8	100	47
Rural	2.1	11.1	54.5	32.3	100	152
Caste						
Scheduled tribes	0.0	9.2	51.4	39.4	100	22
Scheduled castes	1.7	7.0	47.7	43.7	100	54
Other castes	2.1	10.0	51.3	36.6	100	123
Religion						
Hindu	1.6	7.3	53.2	38.0	100	167
Muslim	4.0	21.6	33.8	40.5	100	25
Other	0.0	27.8	25.6	46.7	100	7
Education						
No formal educatior	2.7	16.9	58.4	22.0	100	67
Less than primary	0.0	0.0	52.5	47.5	100	21
Primary school	5.0	10.7	48.1	36.3	100	32
Secondary school	1.2	4.6	54.2	40.0	100	39
High school	0.0	6.4	41.0	52.6	100	30
College and above	0.0	14.6	10.4	75.0	100	10
Wealth quintile						
Lowest	0.0	6.5	48.8	44.7	100	49
Second	2.2	15.5	52.9	29.4	100	44
Middle	1.7	10.9	46.9	40.5	100	50
Fourth	4.0	7.6	59.2	29.3	100	27
Highest	2.6	6.1	45.3	46.0	100	29
Total	**1.8**	**9.3**	**50.5**	**38.5**	**100**	**199**

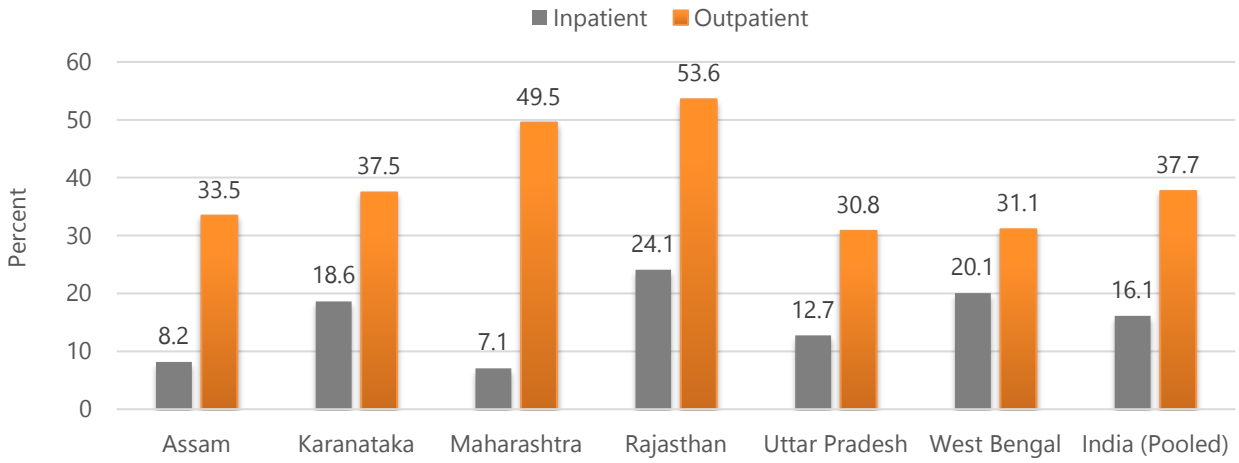
Note: Maternal health not tabulated for adults aged 50-plus.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.2.10 (b) Percent distribution of older respondents who received outpatient care during the last year by reason for care need and background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus				
	Non-communicable & chronic diseases	Acute diseases	Other diseases	Total	Number
Age group					
50-59	25.8	37.4	36.8	100	279
60-69	28.1	29.5	42.5	100	293
70-79	28.4	29.2	42.4	100	137
80+	32.3	28.8	38.9	100	34
Sex					
Male	26.2	36.2	37.6	100	332
Female	28.4	29.3	42.3	100	411
Marital status					
Never married	8.1	21.6	70.3	100	6
Currently married	27.8	33.5	38.8	100	533
Widowed	27.9	29.8	42.3	100	202
Other[1]	0.0	0.0	100.0	100	2
Residence					
Urban	41.7	15.1	43.2	100	146
Rural	21.9	39.1	39.1	100	597
Caste					
Scheduled tribes	15.2	49.1	35.8	100	49
Scheduled castes	19.8	43.9	36.3	100	140
Other castes	29.9	28.7	41.4	100	554
Religion					
Hindu	28.0	32.5	39.5	100	592
Muslim	26.5	25.1	48.4	100	117
Other	20.2	59.9	19.9	100	34
Education					
No formal education	24.2	36.3	39.6	100	357
Less than primary	24.9	26.6	48.5	100	131
Primary school	29.9	30.8	39.3	100	116
Secondary school	31.2	29.5	39.4	100	70
High school	35.3	30.0	34.7	100	36
College and above	43.2	26.0	30.8	100	33
Wealth quintile					
Lowest	25.4	39.0	35.6	100	139
Second	22.4	33.0	44.6	100	131
Middle	30.4	32.2	37.4	100	173
Fourth	25.5	27.3	47.2	100	172
Highest	35.2	31.0	33.8	100	128
Total	**27.5**	**32.3**	**40.3**	**100**	**743**

Note: Maternal health not tabulated for adults aged 50-plus.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with breathing, high blood pressure/hypertension, stroke/paralysis of one side of the body, generalized pain, depression/anxiety, cancer); 3) acute diseases (diarrhoea, fever, flu, headache, infections, malaria, tuberculosis, HIV); 4) other diseases (nutritional deficiencies, injury, surgery, sleep problems, occupation/work related condition/injury, chronic pain in joints/arthritis).
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 9.7 Percentage of respondents who received health care for acute diseases, states and India (pooled), SAGE Wave 2, 2015



9.3 Health system responsiveness

Health system responsiveness was based on responses from health care users to questions in the following seven domains:

1) *Access:* the ease with which the patient could see a health care provider.
2) *Choice:* freedom of respondents in choosing health care providers, as well as access to information about the choice of the health care provider.
3) *Communication:* how clearly the providers explained things to patients and allocated time to them.
4) *Confidentiality:* consultation carried out in a manner that safeguards the individual's privacy, privileged communication and confidentiality of the medical treatment.
5) *Dignity/respect:* respect and care in treatment as well as privacy during physical examinations.
6) *Quality of basic amenities:* clean surroundings, proper ventilation, adequate furniture and provision of healthy and appropriate water and food.
7) *Promptness of attention:* short waiting times for treatment, tests, and consultations and short waiting lists for non-emergency surgery.

Rating of inpatient services was based on respondents' impressions of their last overnight stay in any hospital or health facility, and rating of outpatient services was based on respondents' experience of their last visit to any hospital or health facility where they did not stay overnight. Respondents were asked about "…the amount of time you waited before being attended to; your experience of being treated respectfully; how clearly health care providers explained things to you; your experience of being involved in making decisions for your treatment; the way the health services ensured that you could talk privately to providers; the ease with which you could see a health care provider you were happy with; cleanliness in the health facility". The responses were ranked on the scale: very good = 5, good = 4, moderate = 3, bad = 2, very bad = 1. The responses were rescaled and the score ranged from 0-100, with a higher score indicating better responsiveness.

Overall mean responsiveness scores for inpatient and outpatient services are presented in Table 9.3.1 for the states and India. Ratings for outpatient care services varied widely across the states than for inpatient services (see Figure 9.8).

There were small differences between inpatient and outpatient scores among younger adults by state, with inpatient services slightly more responsive to younger users than outpatient services (Table 9.3.1). However, older adults scored outpatient treatment (74), on average as more responsive than inpatient care (73).

Table 9.3.1 Health system responsiveness score for hospitals or long-term care facilities, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49				Aged 50-plus			
	Inpatient		Outpatient		Inpatient		Outpatient	
	Mean score	Number	Mean score	Number	Mean score	Number	Mean score	Number
Assam	62.6	6	60.9	18	60.4	26	61.5	52
Karnataka	70.4	20	69.1	67	69.6	92	69.1	262
Maharashtra	79.0	33	79.1	83	74.0	122	77.0	313
Rajasthan	72.4	22	77.5	125	74.9	124	78.1	659
Uttar Pradesh	80.2	12	80.9	60	74.6	62	75.4	263
West Bengal	73.5	26	70.4	277	73.1	147	70.9	944
India (pooled)	**75.3**	**119**	**74.3**	**630**	**72.9**	**573**	**73.6**	**2493**

Figure 9.8 Health system responsiveness score of adults aged 50-plus, states and India (pooled), SAGE Wave 2, 2015

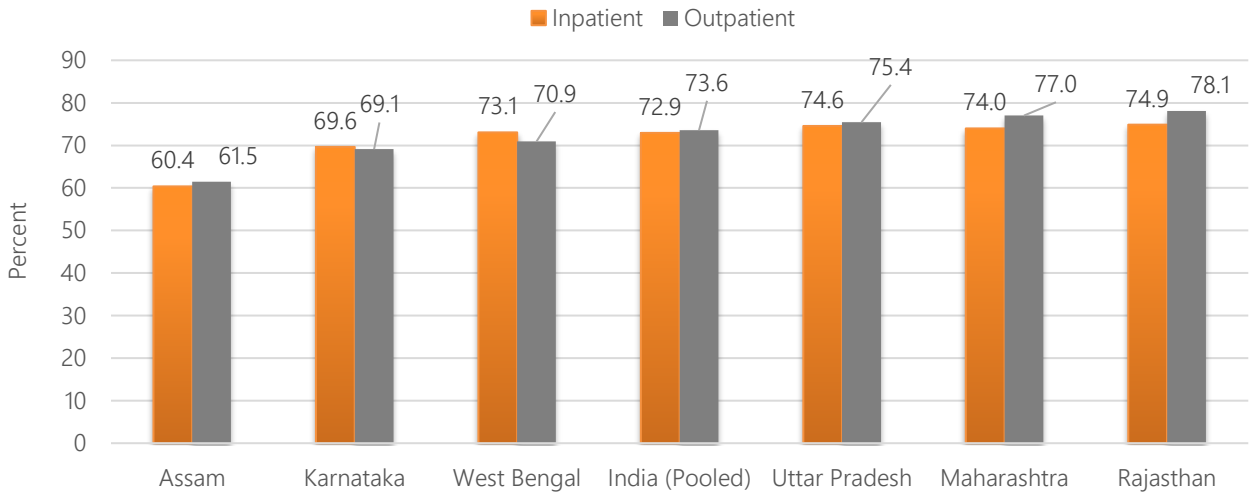


Table 9.3.2 (a & b) presents the health system responsiveness scores by younger and older respondents' background characteristics. Scores were higher in urban than in rural areas in both categories of treatment. With an increase in the wealth quintile, the responsiveness score increased considerably. In general, those with better education also found the health facilities more responsive. This may be because people who are educationally and economically better off usually prefer better and more expensive health care facilities, which usually are more patient-friendly and better equipped in terms of infrastructure.

Table 9.3.2 (a) Percentage distribution of younger respondents according to Health system responsiveness score for hospitals or long term care facilities, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Age group				
18-29	74.3	30	76.8	165
30-39	74.5	36	74.1	174
40-49	76.5	53	72.6	291
Sex				
Male	76.2	50	75.4	253
Female	74.7	69	73.6	377
Marital status				
Never married	71.4	17	77.1	119
Currently married	76.5	97	73.6	483
Widowed	63.9	5	70.1	23
Other[1]		0	72.4	5
Residence				
Urban	76.3	27	76.7	136
Rural	75.1	92	73.5	494
Caste				
Scheduled tribes	68.7	11	70.7	66
Scheduled castes	74.3	20	73.7	146
Other castes	76.3	88	75.0	418
Religion				
Hindu	76.2	102	74.5	526
Muslim	68.1	11	72.1	84
Other	76.4	6	75.8	20
Education				
No formal education	74.2	37	70.9	189
Less than primary	69.4	11	72.9	78
Primary school	75.4	28	74.7	101
Secondary school	76.8	16	76.1	125
High school	78.9	24	77.2	104
College and above	73.8	3	77.4	33
Wealth quintile				
Lowest	73.5	22	72.7	116
Second	72.4	27	72.3	133
Middle	71.4	22	71.0	166
Fourth	77.8	28	75.5	117
Highest	82.7	20	83.0	98
Total	**75.3**	**119**	**74.3**	**630**

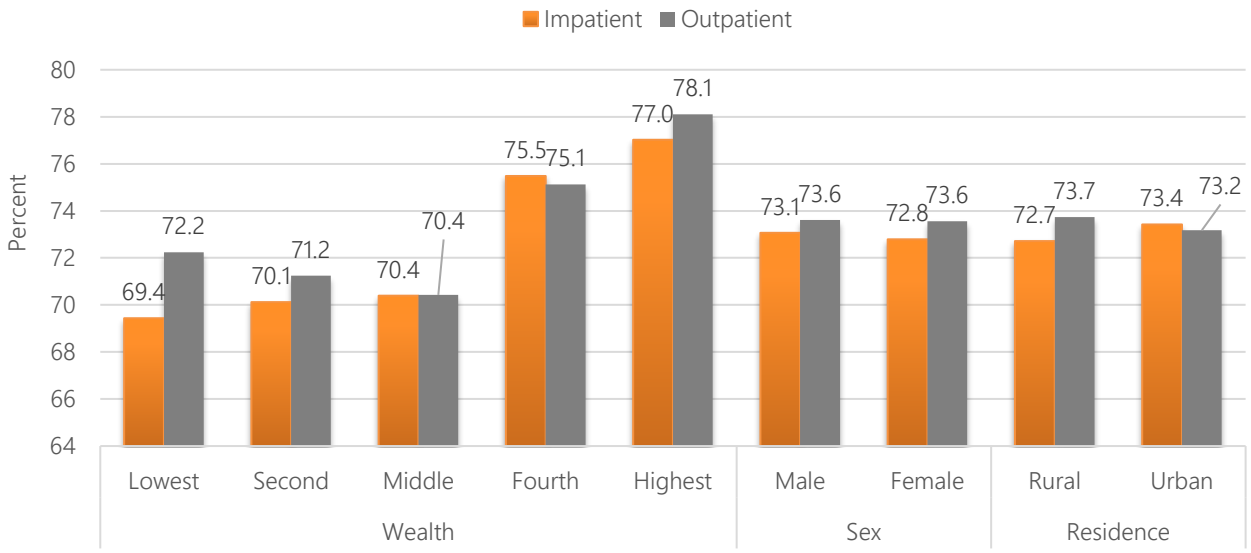
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 9.3.2 (b) Percentage distribution of older respondents according to Health system responsiveness score for hospitals or long term care facilities, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 50-plus			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Age group				
50-59	73.0	209	73.4	987
60-69	72.6	224	74.0	917
70-79	74.2	106	73.5	470
80+	70.4	34	72.3	119
Sex				
Male	73.1	295	73.6	1107
Female	72.8	278	73.6	1386
Marital status				
Never married	75.0	4	67.5	24
Currently married	72.2	439	73.7	1833
Widowed	76.0	124	73.4	613
Other[1]	72.5	6	81.8	23
Residence				
Urban	73.4	134	73.2	572
Rural	72.7	439	73.7	1921
Caste				
Scheduled tribes	72.8	38	68.9	146
Scheduled castes	74.8	94	72.6	462
Other castes	72.6	441	74.1	1885
Religion				
Hindu	72.8	473	73.6	2052
Muslim	74.7	75	73.5	359
Other	70.4	25	73.4	82
Education				
No formal education	72.0	265	73.1	1208
Less than primary	71.2	81	72.9	376
Primary school	72.4	98	72.0	347
Secondary school	76.2	65	75.7	230
High school	77.5	36	75.9	196
College and above	75.6	28	76.3	136
Wealth quintile				
Lowest	69.4	86	72.2	411
Second	70.1	100	71.2	432
Middle	70.4	123	70.4	523
Fourth	75.5	117	75.1	546
Highest	77.0	147	78.1	581
Total	**72.9**	**573**	**73.6**	**2493**

[1] *Includes divorced, separated or cohabiting.*
[2] *Includes non-scheduled caste or tribe and no caste or tribe.*
[3] *Includes Buddhism, Christianity, Jainism, Sikhism and other religions.*

Figure 9.9 Health care responsiveness score for adults aged 50-plus according to wealth quintile, sex and residence, India (pooled), SAGE Wave 2, 2015



9.4 Household Consumption and Health Expenditures

Public health expenditure is one of the most important components for the provisioning of health facilities resulting in further better health outcomes. India's health care is categorized by low levels of public spending making it imperative to target expenditures in places where they are needed the most. Catastrophic spending on health occurs when a household must reduce its basic expenses over a while to cope with the health care expenses of one or more of its members. Since insurance coverage is very low in India, poor households tend to spend large proportions of their income on health care.

This means poor households bear a heavy financial burden on account of illness (Selvaraju, 2000). In a country like India, characterized by the inadequate and inefficient provision of public health, information on the share of total household expenditure going to health care is crucial to health sector planning and interventions, whether by government or donor agencies.

This section presents household expenditure on health care services, food and household items. Household consumption expenditure consisted both of monetary and in-kind payments on all goods and services, and the monetary value of home-made products consumed. Household health expenditure included out-of-pocket (OOP) health payments made by households for health services received by household members. Health payments included doctors' consultation fees, purchases of medications or traditional medicines, and hospital bills, but excluded expenditure on special nutrition. Any reimbursements (for example, from insurance, employers or the government) were deducted to yield the net out-of-pocket health expenditure.

SAGE collected data on food items bought in the thirty days before the survey, non-food items and health care and services purchased in the previous 30 days, and large purchases or expenses that might be more periodic (in the previous 12 months). The different time frames were used to minimize recall bias on expenditures, and also to take into account those items that are purchased irregularly.

As per WHO's 2005 criterion, the poverty line was calculated based on subsistence expenditure per (equivalent) capita being less than the median of the country as a whole, and households with consumption expenditure below the poverty line were regarded as poor. Non-subsistence spending was also collected, which constitutes the aggregate of all other household expenditures including on health and non-food items.

Table 9.4.1 shows the state-level variation in mean monthly household consumption expenditure, percentage of poor households, and the effects of OOP health payments on household economic conditions. Nationally, the mean household expenditure was Rs. 11998 per month, and the mean OOP health care expenditure was Rs. 1956. On average, OOP health care expenditure was 13% of total household expenditure, and 23% of non-subsistence spending. For less than one third (30%) of households, spending on healthcare came to 23% or more of non-subsistence spending; in other words, these households incurred catastrophic expenditure on health. Less than one-third (30%) of the households were poor as defined by consumption expenditure below the poverty line described above. Besides, 8% of the households that were originally not classified as being poor (using the definition above) were considered to have been impoverished due to spending on health care.

Mean household expenditure varied across the states, from a high of Rs. 15156 in Uttar Pradesh to a low of Rs. 8961 in West Bengal. By the same token, the proportion of poor households was highest in Uttar Pradesh (34%) and lowest in Rajasthan (21%). Households in Uttar Pradesh and Assam spent over Rs. 2,000 on health, while those in West Bengal spent only Rs. 1136. OOP expenditure on health varied across the states from 9-16 % of household expenditure and 16-27% of non-subsistent expenditure, with the lowest levels consistently in Rajasthan and the highest in Uttar Pradesh. Around one-third of households in Maharashtra and Uttar Pradesh incurred catastrophic expenditure on health care, as did one-fifth of households in Rajasthan. While 21-34% of households were poor, to begin with, another 4-11% became impoverished due to health care expenditure.

Trends: mean monthly household expenditure has increased from Rs. 6671 in 2007 to Rs. 11998 in 2015. Similarly, mean out of pocket expenditure has also doubled in the period (Rs. 847 in 2007 and Rs. 1956 in 2015). Although the percentage of poor households and percent impoverished due to health care spending has barely changed between SAGE-1 and SAGE-2, the proportion of households incurring catastrophic health payments has increased from 24percent in 2007 to 30 percent in 2015. Out-of-pocket expenditure as a percentage of household, expenditure has increased from 10 percent to 13 percent in the period, whereas OOP as a percentage of non-subsistence spending has increased to 23 percent which was around 22 percent in 2007.

Table 9.4.1 Mean monthly household consumption and health payments (Rs.) and impoverishment (%), states and India (pooled), SAGE Wave 2, 2015

State	Mean household expenditure (Rs.)	Percent poor	Percent impoverished	Percent incurring catastrophic health payments	OOP* as percentage of household expenditure	OOP as percentage of non-subsistence spending	Mean OOP health payments (Rs.)
Assam	11261	25.4	6.3	29.5	11.5	22.8	2292
Karnataka	10455	24.4	4.3	23.5	10.5	18.2	1539
Maharashtra	10505	29.6	8.7	33.0	14.3	24.2	1875
Rajasthan	13393	21.4	5.0	21.2	9.2	16.4	1456
Uttar Pradesh	15156	33.9	10.5	35.3	16.0	27.1	2800
West Bengal	8961	33.4	7.6	29.5	10.7	22.7	1136
India (pooled)	**11998**	**29.8**	**8.0**	**30.4**	**12.9**	**23.1**	**1956**

**OOP = out-of-pocket.*

Note: Catastrophic health expenditure occurs when a household's total OOP health payments equal or exceed 40% of household's capacity to pay or non-subsistence spending. Subsistence spending is the minimum requirement to maintain basic life. The analysis used the poverty line – calculated on the basis of subsistence expenditure per (equivalent) capita being less than the median of the country as a whole – to set subsistence levels.

Table 9.4.2 shows the results according to the background characteristics of households. Incurring catastrophic health expenditures did not substantially affect mean household expenditure, but it did affect mean health expenditure. Some 31% of households incurred catastrophic expenditures on health.

Table 9.4.2 Mean monthly household consumption and health payments (Rs.) and improverishment (%) by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Mean household expenditure (Rs.)	Percent poor	Percent impoverished	Percent incurring catastrophic health payments	OOP* as percentage of household expenditure	OOP as percent of non-subsistence spending	Mean OOP health payments (Rs.)
Catastrophic							
No	12183	29.7	2.3	-	5.3	9.9	716
Yes	11514	29.9	21.0	-	33.0	59.4	4800
Poor							
No	15695	-	11.3	30.3	14.6	23.0	2628
Yes	3748	-	0.0	30.5	9.3	23.4	372
Insurance							
No	11692	30.7	8.3	30.9	13.1	23.5	1906
Yes	13719	24.4	5.9	27.4	11.8	21.1	2235
Residence							
Urban	12377	19.8	6.2	27.6	12.1	20.7	1749
Rural	11852	33.7	8.7	31.5	13.3	24.1	2038
Wealth quintile							
Lowest	10007	48.0	9.6	44.4	14.1	28.4	1155
Second	8929	39.6	9.6	30.7	13.1	24.3	1620
Middle	9268	29.6	9.0	26.9	12.3	22.8	1591
Fourth	11624	20.6	8.1	26.2	12.9	21.9	1925
Highest	20512	6.4	3.1	20.0	12.1	17.7	3706
Member of household 50-plus							
No	9212	31.5	6.7	25.9	10.9	20.4	1655
Yes	12419	29.5	8.2	31.0	13.3	23.6	2001
Total	**11998**	**29.8**	**8.0**	**30.4**	**12.9**	**23.1**	**1956**

**OOP = out-of-pocket.*

Note: Catastrophic health expenditure occurs when a household's total OOP health payments equal or exceed 40% of household's capacity to pay or non-subsistence spending. Subsistence spending is the minimum requirement to maintain basic life. The analysis used the poverty line – calculated on the basis of subsistence expenditure per (equivalent) capita being less than the median of the country as a whole – to set subsistence levels.

The mean monthly consumption expenditure of non-poor households was Rs. 15695 compared to Rs. 3748 for poor households. Among both poor and non-poor households, 30-31% incurred catastrophic health expenditures. OOP health payments constituted 15% of monthly consumption expenditure for non-poor households and 9% for poor households. A minuscule proportion of households had at least one member with health insurance. Households with any insured members spent Rs. 13719 on monthly consumption, compared to uninsured households, which spent Rs. 11692. Impoverishment due to catastrophic health expenditure was 8% among uninsured households, which spent Rs. 1906 on OOP health payments; only 6% for insured households experienced a similar fate, despite a higher monthly health expenditure of Rs. 2235. OOP health payments equaled 24% of non-subsistence spending for uninsured households and only 21% for insured households. Only 20% of households in urban areas were poor, compared to 34% in rural areas. Rates of impoverishment due to catastrophic health payments in rural areas were higher than those in urban areas.

Monthly consumption expenditure rose with economic status, from Rs. 10007 in the lowest wealth quintile to Rs. 20512 in the highest. The lowest quintile had the highest rate of impoverishment (10%) due to catastrophic health payments. Mean OOP health payments increased from Rs. 1155 in the lowest quintile to Rs. 3706 in the highest.

9.4.1 Structure of out-of-pocket payments

Information about different types of expenses involved in OOP health payments can help planners to understand patterns of health expenditure. The SAGE survey included questions about payments for consultations with doctors, medication, long-term care, etc. For items such as medication and diagnostic visits, respondents were asked about their expenditure in the month before the survey; for items such as long-term care and the purchase of health aids, the questions covered the previous 12 months.

Table 9.4.3 shows results by state for different classes of OOP health payments. Payment for medications was the largest category in all states, but it varied from 68% in West Bengal down to 51% in Uttar Pradesh. More was spent on outpatient care than inpatient care in all states except Maharashtra. Rajasthan was far ahead of the rest of the states in health payments for traditional medicine – 12% of OOP health payments, compared to a national average of 6%. Payment for diagnostic tests accounted for less than 9% of OOP health payments in all six states. Karnataka and Maharashtra had the highest payments for inpatient treatment and Rajasthan has the highest payment for long-term care.

Trends: percent distribution of out of pocket expenditure has increased by twice on outpatient care, traditional health care, diagnostic services. For instance, payment for outpatient care has increased from 13 percent in 2007 to 24 percent in 2015. Similarly, payments on diagnostic services have increased from 4 percent to 9 percent between 2007-15. However, the out of total pocket payments on inpatient care has declined from 9 percent to 4 percent in the same period. Payments on medications, long-term care and others have barely changed from the past.

Table 9.4.3 Percent distribution of out-of-pocket payments by different items of health care, states and India (pooled), SAGE Wave 2, 2015

State	Inpatient	Outpatient	Traditional	Diagnostic	Medications	Health aids	Long-term care	Others	Total
Assam	2.6	22.5	8.9	7.3	58.0	0.3	1.0	7.0	100
Karnataka	12.5	19.6	2.4	8.6	67.2	0.0	2.1	2.1	100
Maharashtra	35.6	24.9	5.0	10.1	54.0	0.6	2.8	6.1	100
Rajasthan	5.2	19.7	12.1	10.7	55.1	1.3	15.0	3.8	100
Uttar Pradesh	2.3	29.9	7.2	7.1	51.2	0.8	7.1	3.2	100
West Bengal	8.9	16.6	1.6	8.2	68.2	4.2	3.4	4.9	100
India (pooled)	**4.2**	**23.6**	**5.7**	**8.5**	**57.7**	**1.1**	**6.0**	**4.3**	**100**

Table 9.4.4 shows the nature of OOP payments by household characteristics. The largest component of OOP costs (58%) was medications. Households incurring catastrophic health payments spent 7% for inpatient care and 13% each on diagnosis and 9% on long-term care, compared with 3% on inpatient care, 6% on diagnosis and 5% on long-term care for households without catastrophic expenditure. Poor households spent more on medications (61%) than non-poor households (57%). Outpatient health care accounted for 24% of payments in urban and rural areas. Rural households spent 57% on medications compared to 61% in urban areas.

Table 9.4.4 Percent distribution of out-of-pocket payments by different items of health care by background characteristics, India (pooled), 20015

Background characteristics	Inpatient	Outpatient	Traditional	Diagnosis	Medications	Health aids	Long term care	Others	Total
Catastrophic									
No	3.2	22.0	5.3	5.7	62.2	1.4	4.6	4.8	100
Yes	6.7	26.3	6.3	13.1	50.0	0.3	9.4	3.5	100
Poor									
No	4.2	22.5	5.7	10.0	56.7	1.3	6.1	5.0	100
Yes	3.9	26.8	5.8	4.3	60.6	0.2	5.3	2.5	100
Insurance									
No	3.9	24.7	6.1	8.2	56.4	0.9	6.2	4.4	100
Yes	7.7	17.8	3.6	10.0	64.8	3.3	2.6	3.8	100
Residence									
Urban	4.1	23.7	3.2	9.0	60.8	2.1	0.7	3.7	100
Rural	4.2	23.6	6.7	8.2	56.5	0.9	6.7	4.6	100
Wealth quintile									
Lowest	3.5	27.0	6.4	6.6	56.5	0.4	12.2	2.9	100
Second	5.4	25.0	5.4	6.9	57.2	0.3	2.8	5.7	100
Middle	3.7	20.4	5.0	9.5	60.4	2.2	5.1	4.2	100
Fourth	4.0	22.7	5.1	8.5	60.0	1.2	5.6	3.4	100
Highest	3.9	23.0	6.5	10.9	54.3	1.5	4.8	5.6	100
Member of household 50-plus									
No	3.3	22.3	5.9	7.4	59.6	0.9	5.9	4.7	100
Yes	4.3	23.8	5.7	8.6	57.5	1.1	6.0	4.3	100
Total	**4.2**	**23.6**	**5.7**	**8.5**	**57.7**	**1.1**	**6.0**	**4.3**	**100**

Note: Catastrophic health expenditure occurs when a household's total OOP health payments equal or exceed 40% of household's capacity to pay or non-subsistence spending. Subsistence spending is the minimum requirement to maintain basic life. The analysis used the poverty line – calculated on the basis of subsistence expenditure per (equivalent) capita being less than the median of the country as a whole – to set subsistence levels.

9.4.2 Source of health care financing

Health financing is fundamental to the ability of health systems to maintain and improve human welfare. In India, private financing is mostly out of pocket with a large proportion, especially for hospitalisations, coming not from current incomes, but from savings, debt and sale of assets. Table 9.4.5 shows that current income was the major source of finance across all states, followed by savings. In Rajasthan and West Bengal, over two-third relied on current income, while 25% in Karnataka and 34% in Assam drew on their savings. Borrowing from relatives was the third major source of health care financing, varying from 8% in Assam to 25% in West Bengal. Some 14% of all households sold assets such as furniture, cattle or jewelry to finance health care. Only 4% paid for health care through insurance.

***Trends**: Although, current income is the major source of health care financing as in the past, however, its share has declined from 74 percent in 2007 to 51 percent in 2015. Forty one percent of households use their savings as a source of healthcare financing which was 26 percent in 2007. Share of health insurance has increased from one percent to 4 percent in the period 2007-15. Percent of households who sold items to finance their health care has increased from 8 percent to 14 percent in the same period.*

Table 9.4.5 Percentage of households by sources of health care financing, states and India (pooled), SAGE Wave 2, 2015

State	Current income	Savings	Borrowed from relatives	Borrowed from others	Sold items	Health insurance	Other
Assam	41.8	33.7	8.0	7.2	17.6	3.8	4.0
Karnataka	57.9	24.8	20.6	10.4	7.4	2.2	1.2
Maharashtra	36.6	48.9	16.3	6.6	14.9	1.4	0.2
Rajasthan	67.9	41.3	18.6	4.1	22.1	7.4	1.1
Uttar Pradesh	34.3	38.6	21.2	7.5	9.1	2.4	7.6
West Bengal	82.5	48.2	24.5	13.8	20.7	6.2	1.6
India (pooled)	**50.9**	**41.0**	**19.6**	**8.4**	**14.4**	**3.5**	**3.2**

Note: Row totals do not equal 100 due to multiple responses.

Table 9.4.6 shows sources of health finance by characteristics of households. As OOP health payments accounted for an increasing share of non-subsistence spending, households used their savings to finance health care. When a household member was hospitalised as an inpatient, 7% of households borrowed from others, compared with 8% with no inpatient hospitalisation. Among households with insurance, 65% used their current income and 51% used savings to pay for health care. Urban households were more likely than rural households to use current income 55% and 49% respectively. Households in the lowest and highest wealth quintiles drew on different sources to finance health care.

Table 9.4.6 Source of Health care financing by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Current income	Savings	Borrow from relatives	Borrow from others	Sold items	Health insurance	Other
OOP* as percentage of non-subsistence spending							
Less than 0-10%	53.2	37.3	17.3	7.0	12.1	3.5	2.2
11-20%	55.2	44.7	19.7	9.1	16.8	3.9	6.1
21-40%	48.8	49.2	22.7	10.8	16.5	3.6	3.4
More than 41%	46.9	39.2	22.3	9.1	16.3	3.4	3.3
Hospitalization							
No	50.3	41.4	20.0	8.1	14.1	3.6	3.4
Yes	52.3	42.1	19.3	6.8	15.0	2.4	3.1
Insurance							
No	48.4	39.2	19.1	7.4	13.9	2.6	3.7
Yes	64.9	51.4	22.2	14.1	17.1	8.8	1.0
Residence							
Urban	55.3	43.1	18.2	5.6	9.5	3.2	3.0
Rural	49.2	40.2	20.2	9.5	16.3	3.7	3.4
Wealth quintile							
Lowest	39.4	32.9	21.0	6.4	14.8	2.1	5.9
Second	45.9	37.9	18.5	9.9	14.7	2.8	3.6
Middle	55.2	38.9	21.0	10.0	15.6	3.1	2.7
Fourth	55.1	45.1	19.9	7.4	14.3	3.5	2.3
Highest	60.3	51.1	17.4	8.5	12.3	6.4	1.4
Member of household 50-plus							
No	49.6	36.4	21.6	8.2	16.8	2.8	3.7
Yes	51.1	41.7	19.3	8.4	14.0	3.7	3.2
Total	**50.9**	**41.0**	**19.6**	**8.4**	**14.4**	**3.5**	**3.2**

9.4.3 Health insurance coverage

The percentage of India's national budget allocated to the health sector remains one of the lowest in the world, and healthcare expenditures are largely out of pocket (OOP). Health insurance coverage is considered as a means of addressing health disparity and reducing catastrophic health costs. Health insurance coverage in India is far from satisfactory, especially since a large proportion of people live below the poverty line and under great health risks. This section examines the extent of coverage by health insurance along with the characteristics of insurance plans. The two major insurance schemes are mandatory and voluntary insurance. Mandatory health insurance includes the Employee State Insurance Scheme (ESIS), Central Government Health Scheme (CGHS), and medical reimbursement by some employers (both government and private). Voluntary insurance consists of coverage by other personal insurance companies such as Mediclaim. According to the National Family Health Survey (2015-16), only 29% of households have at least one member covered by a health scheme or health insurance. Private providers of health insurance have only recently emerged after the liberalization of the economy. Table 9.4.7 shows that only 6.3% of respondents were covered under any health insurance policy. Mandatory insurance and voluntary coverage were each just 3%. Health insurance coverage was highest in West Bengal (18%) followed by Karnataka (14%). There was virtually no coverage under health insurance in Rajasthan and Uttar Pradesh.

***Trends**: There has been an increase in the proportion of households covered by any kind of insurance in the period 2007-15. Six percent of households are covered under insurance in 2015 whereas only two percent of households were covered under insurance in 2007. There has been a three-fold increase in the households covered under mandatory and voluntary insurance in the period 2007-15. Mandatory and voluntary insurance has increased from one percent to three percent between 2007 and 2015.*

Table 9.4.7 Percent distribution of household population by health insurance coverage, states and India (pooled), SAGE Wave 2, 2015

State	Mandatory insurance[1]	Voluntary insurance[2]	None	Total
Assam	0.4	0.2	99.4	100
Karnataka	10.5	3.4	86.2	100
Maharashtra	3.2	1.8	95.1	100
Rajasthan	0.5	0.2	99.3	100
Uttar Pradesh	0.1	0.7	99.2	100
West Bengal	5.1	12.5	82.4	100
India (pooled)	**3.0**	**3.3**	**93.7**	**100**

[1] *Includes ESIS, CGHS, RHS, DMS, ECHS and others.*

[2] *Includes CHIS, BPL and SEWA Schemes, Commercial Health Schemes and others.*

Insurance coverage by household characteristics is presented in Table 9.4.8.. More urban households (7%) were covered under health insurance than their rural counterparts (6%). The households most likely to have health insurance were those headed by older women or older men (6% each). More than 9% of households in the highest wealth quintile were covered by health insurance, compared with very few among first, second or third quintiles. In other words, insurance is practically absent among poor households in India.

Table 9.4.8 Percent distribution of household population by health insurance coverage by background characteristics, states and India (pooled), SAGE Wave 2, 2015

Background characteristics	Mandatory insurance[1]	Voluntary insurance[2]	None	Total
Residence				
Urban	4.0	2.7	93.3	100
Rural	2.6	3.6	93.9	100
Household head type				
Female 18-49	1.6	1.2	97.2	100
Female 50-plus	2.9	3.6	93.5	100
Male 18-49	3.8	4.0	92.3	100
Male 50-plus	2.7	3.2	94.1	100
Wealth quintile				
Lowest	1.2	2.9	95.8	100
Second	2.7	3.7	93.5	100
Middle	2.9	4.1	93.1	100
Fourth	3.3	1.7	95.0	100
Highest	5.1	4.4	90.5	100
Total	**3.0**	**3.3**	**93.7**	

[1] *Includes ESIS, CGHS, RHS, DMS, ECHS and others.*

[2] *Includes CHIS, BPL and SEWA Schemes, Commercial Health Schemes and others.*

10. Subjective Well-being and Quality of life

The ageing well in later life is a crucial strategy of public health policy in many developed as well as in developing countries. The process of getting aged is associated with deprivation in the various psycho-social roles and a decline in physical health. Thus, later life as a phase is considered as compromised and with a considerable decline in the quality of life (Bond and Corner, 2004).

There is a noticeable shift in measuring successful ageing. Earlier, the absence of physical and mental health conditions was the basis for assessing successful ageing. However; in recent approaches the subjective well-being (SWB) (WHO, 2015) as a domain considered for its measurement and assessment.

Most of the gerontological literature focused and illustrated that subjective well-being contributes immensely to overall health in old age as well as the longevity (Brummett et al., 2005; Koopmans, Geleijinse, Zitman & Giltay, 2010; Ju, Shin, Kim, Hyun & Park, 2012). It is also found as a protective agent against various maladaptive functioning and is considered as a key factor for a happy life in old age (Myer & Diener, 1995). Therefore, there is an increased interest in gerontological research to identify the predictors for health and quality of life in old age.

Subjective well-being is an important index to measure the quality of life and mental health of the elderly (Peterson, Chatters, Taylor & Nguyen, 2014). Existing literature corroborated that various personal and contextual factors were strongly allied to elderly subjective well-being.

Between 2000 and 2016, global life expectancy at birth, for both sexes combined, increased by 5.5 years, from 66.5 to 72.0 years. The association between SWB and reduced morbidity and mortality is well established although the underlying explanatory mechanisms are not understood (Collins et al., 2009; Lyubomirsky et al., 2005; Pitkala, et al., 2004; Pressman & Cohen, 2005).

Life expectancy around the world has risen by about two decades during the past half-century. This increase has been associated with economic growth and rising levels of subjective well-being (SWB) globally. Increased interest from scientists in studying happiness (or SWB) and its relationship to health and health-related outcomes on the one hand, and economic development on the other, has also been associated with increased attention to measures of subjective well-being by policymakers. The call for governments to focus on the well-being of their population as a means of measuring progress has meant that the science of well-being has become mainstream in health and social policy (Beddington et al., 2008; Stiglitz, Sen, and Fitoussi, 2009). However, science is still nascent, and controversies abound concerning conceptualization, measurement and translation of findings into interventions at the individual and population levels.

Well-being and quality of life encompass subjective individual feelings about various aspects of one's life, such as health, degree of independence, social relationships, personal beliefs, financial status and living conditions. Psychologists, sociologists and others have tried to quantify measurement of this inherently subjective topic using various concepts such as well-being, subjective well-being, happiness and life satisfaction.

The relationship exists between subjective well-being and ageing is unclear. Individual aspirations and adaptations to circumstances of health and life influence happiness over the life course. As health declines with age, happiness also tends to decline, especially among those with poorer health. Nevertheless, circumstances such as marriage and the extent and nature of social support clearly modify subjective well-being, depending on the cultural context. The effect of ageing on happiness varies internationally, with the decline in life satisfaction with age being more notable in low- and middle-income countries. In high-income countries, this relationship is not monotonic; among the English-speaking high-income countries, the relationship is U-shaped (Deaton, 2008).

Understanding the differences in the well-being of older adults across and within countries will have significant implications for national policies. As people live longer and the proportion of the older adult population rises, how older adults spend their time, the circumstances in which they live, the nature of their work and leisure activities, and changes in these over time – along with their health and its determinants – will need to be tracked to inform all aspects of policy-making. Estimates of national well-being (and inequalities within nations) will make it possible to assess how policies affect people's lives, and perhaps to allocate resources more appropriately. Lessons from comparisons within and across countries will provide important insights into what may be responsible for these differences, given the varying contexts of these populations.

For measurement, the notion of SWB can be separated into evaluative well-being (a global assessment of an individual's satisfaction with their entire life) and experienced happiness (the affective experiences of daily life). Evaluative life satisfaction is often measured with single questions, such as "All things considered, how satisfied are you with your life as a whole these days?" or "Taking all things together, these days, would you say you are very happy, happy, neither happy nor unhappy, unhappy, or very unhappy?" These types of overall satisfaction questions can also be asked of specific domains such as health, living environment and other areas of life. Life satisfaction is expected to be fairly stable over short durations of time (for instance, from week to week). SAGE used the eight-item WHO Quality of Life (WHOQoL) instrument to measure evaluative well-being (Schmidt et al., 2006). Meanwhile, experienced happiness fluctuates from day to day, depending on how people use their time. SAGE used the Day Reconstruction Method (DRM) to measure the experienced well-being/happiness component of subjective well-being (Kahneman et al., 2004) in terms of positive affect, negative affect and the net effect overall in a day.

10.1 Evaluative well-being

Evaluative well-being, or quality of life (QOL) is defined by the World Health Organization (WHO, 1994) as individual's perception of their position in life in the context to the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns. Furthermore, the concept of QOL comprises other several domains, including physical and mental health, social functioning, and emotional well-being. The quality of life (QOL) is an umbrella term that conveys an overall sense of well-being, including aspects of happiness and satisfaction with life as a whole (CDC, 2000).

Quality of life (QOL) is a broad multidimensional concept that usually includes subjective evaluations of both positive and negative aspects of life (WHOQOL, 1998). Although health is one of the most important domains of overall quality of life, there are other domains as well—for instance, jobs, housing, schools, and the neighbourhood. Aspects of culture, values, and spirituality are also key domains of overall quality of life that add to the complexity of its measurement. Nevertheless, useful techniques had been developed that helps to conceptualize and measure these multiple domains and explains how they relate to each other.

In SAGE, QoL was assessed by asking respondents to rate their satisfaction with different domains of their lives on a 5-point scale, ranging from very satisfied to very dissatisfied, as well as evaluating the life satisfaction level by rating the overall life satisfaction. A composite score was created by summing the responses across the different questions and rescaling the response from 0-100, where a higher score indicated better quality of life.

Table 10.1.1 presents the quality of life scores (WHOQoL) by the states for older and younger adults. The mean WHOQoL score of older respondents was 51, with West Bengal and Assam scoring lower compare to the other states (mean WHOQoL score 46). Compared with the older adults, younger respondents reported better quality of life (mean WHOQoL score 56). The pattern of mean WHOQoL score by the states for younger adults was similar to that for older adults, with West Bengal and Assam having the lowest (50.4 and 49.6 respectively) and Rajasthan and Maharashtra displaying the highest scores (61.9 and 58.3 respectively).

Trends: *The mean WHOQoL scores for younger and older adults across men and women have marginally increased from the year 2007 to 2015. Among younger respondents, mean WHOQoL scores have increased from 55 in the year 2007 to 56 in the year 2015. This change is more pronounced among young men and an older female.*

Table 10.1.1 Mean WHOQoL scores for younger and older respondents, states and India (pooled), SAGE Wave 2, 2015

State	Aged 18-49		Aged 50-plus	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number
Assam	49.6	297	46.3	723
Karnataka	58.2	223	53.4	872
Maharashtra	58.3	344	52.5	1176
Rajasthan	61.9	360	55.7	1456
Uttar Pradesh	56.8	328	50.1	1534
West Bengal	50.4	446	45.5	1357
India (pooled)	**56.0**	**1998**	**50.6**	**7118**

** 0 = worst quality of life, 100 = best quality of life.*

Table 10.1.2 presents mean WHOQoL scores by states and sex for both older and younger respondents. Respondents in Assam and West Bengal consistently had lower WHOQoL scores than respondents from other states. Among the older adults, the mean WHOQoL score for women was two points lower than that for men, with older women in Assam, Uttar Pradesh and West Bengal reporting the lowest scores. The patterns by the state were similar in older men in Assam and West Bengal. Patterns in younger adults follow similar sex and state differentials in mean WHOQoL scores.

Table 10.1.2 Mean WHOQoL scores for younger and older men and women, states and India (pooled), SAGE Wave 2, 2015

State	Males 18-49		Females 18-49		Males 50-plus		Females 50-plus	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number	Mean WHOQoL score	Number	Mean WHOQoL score	Number
Assam	48.5	131	50.4	166	45.9	347	46.7	376
Karnataka	60.7	78	57.0	145	54.4	379	52.6	493
Maharashtra	59.4	150	57.7	194	53.5	556	51.4	620
Rajasthan	63.7	159	60.8	201	57.2	669	54.3	787
Uttar Pradesh	60.3	137	54.7	191	51.4	773	48.9	761
West Bengal	53.8	178	48.4	268	47.1	613	44.2	744
India (pooled)	**58.1**	**833**	**54.7**	**1165**	**51.9**	**3337**	**49.5**	**3781**

** 0 = worst quality of life, 100 = best quality of life.*

Tables 10.1.3 and 10.1.4 (a & b) mean WHOQoL scores varying across sex, residence, caste, religion, marital status, education and income. Quality of life deteriorated progressively with age: the mean score dropped from 60 in the 18-29 age group to 45 in the 80-plus age group. The quality of life gap between the oldest and youngest women was 17 points, compared with 13 for men (Table10.1.3). The gender gap was six points for , compared to two-point in the youngest age group (18-29 years). Quality of life was better in urban areas than in rural areas.

Table 10.1.3 Mean WHOQoL scores for younger and older respondents, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Aged 18-49			Aged 50-plus	
	Mean WHOQoL score*	Number		Mean WHOQoL score*	Number
Age group					
18-29	59.9	542	50-59	52.3	2904
30-39	56.7	602	60-69	50.3	2585
40-49	52.7	854	70-79	49.1	1285
			80+	45.5	344
Sex					
Male	58.1	833		51.9	3337
Female	54.7	1165		49.5	3781

Background characteristics	Aged 18-49			Aged 50-plus	
	Mean WHOQoL score*	Number		Mean WHOQoL score*	Number
Marital status					
Never married	59.5	418		48.6	76
Currently married	55.3	1480		51.8	5305
Widowed	50.1	91		46.9	1693
Other[1]	49.1	9		49.4	44
Residence					
Urban	57.2	412		51.2	1512
Rural	55.5	1586		50.4	5606
Caste					
Scheduled tribe	54.9	199		49.4	522
Scheduled caste	55.8	417		48.5	1168
Other[2]	56.2	1382		51.1	5428
Religion					
Hindu	56.5	1667		50.9	5966
Muslim	53.3	254		48.4	869
Other[3]	52.6	77		52.2	283
Education					
No formal education	52.7	583		48.8	3574
Less than primary	52.7	228		48.8	942
Primary school	56.1	345		51.1	980
Secondary school	57.1	376		53.0	675
High school	60.0	314		54.7	547
College and above	62.2	152		58.3	400
Wealth quintile					
Lowest	52.5	381		46.2	1371
Second	54.2	423		48.1	1304
Middle	54.8	458		49.5	1318
Fourth	57.9	373		51.8	1468
Highest	61.4	363		56.4	1657
Total	**56.0**	**1998**		**50.6**	**7118**

** 0 = worst quality of life, 100 = best quality of life.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Both Tables 10.1.3 and 10.1.4 (a & b) depict positive socioeconomic gradients in quality of life for both sexes of older and younger adults, with respondents with higher education levels or higher wealth status registering the better quality of life scores. Though, there are age and sex differences with being disadvantaged in terms of quality of life.

Table 10.1.4 (a) Mean WHOQoL scores for younger men and women, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Males 18-49		Females 18-49	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number
Age group				
18-29	60.8	305	58.8	237
30-39	58.4	206	56.0	396
40-49	54.2	322	52.0	532
Marital status				
Never married	60.1	264	58.7	154
Currently married	57.2	554	54.4	926
Widowed	50.5	13	50.1	78
Other[1]	25.2	2	52.4	7
Residence				
Urban	59.1	161	56.2	251
Rural	57.8	672	54.1	914
Caste				
Scheduled tribe	58.5	79	53.2	120
Scheduled caste	57.6	178	54.6	239
Other[2]	58.2	576	54.9	806
Religion				
Hindu	58.5	696	55.3	971
Muslim	56.2	104	51.6	150
Other[3]	54.2	33	51.8	44
Education				
No formal education	53.6	115	52.5	468
Less than primary	53.7	94	52.1	134
Primary school	56.0	162	56.2	183
Secondary school	59.8	192	54.8	184
High school	59.5	176	60.5	138
College and above	64.6	94	59.1	58
Wealth quintile				
Lowest	52.5	156	52.4	225
Second	57.8	179	51.9	244
Middle	56.0	189	54.1	269
Fourth	60.7	160	56.5	213
Highest	64.6	149	59.2	214
Total	**58.1**	**833**	**54.7**	**1165**

** 0 = worst quality of life, 100 = best quality of life.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Table 10.1.4 (b) Mean WHOQoL scores for older men and women, by background characteristics, India (pooled), SAGE Wave 2, 2015

Background characteristics	Males 50-plus		Females 50-plus	
	Mean WHOQoL score	Number	Mean WHOQoL score	Number
Age group				
50-59	53.5	1170	51.4	1734
60-69	51.7	1292	48.9	1293
70-79	50.4	675	47.6	610
80+	48.1	200	42.3	144
Marital status				
Never married	49.5	50	45.4	26
Currently married	52.2	2950	51.4	2355
Widowed	49.0	325	46.4	1368
Other[1]	54.7	12	47.2	32
Residence				
Urban	52.9	679	49.8	833
Rural	51.5	2658	49.4	2948
Caste				
Scheduled tribe	50.3	237	48.7	285
Scheduled caste	50.3	533	47.0	635
Other[2]	52.2	2567	50.1	2861
Religion				
Hindu	52.2	2784	49.8	3182
Muslim	49.2	414	47.6	455
Other[3]	53.6	139	50.8	144
Education				
No formal education	49.5	1001	48.5	2573
Less than primary	48.4	539	49.3	403
Primary school	51.5	586	50.5	394
Secondary school	52.6	466	54.0	209
High school	54.5	436	55.7	111
College and above	58.5	309	57.5	91
Wealth quintile				
Lowest	47.4	619	45.2	752
Second	49.2	605	47.1	699
Middle	50.5	632	48.6	686
Fourth	52.4	676	51.3	792
Highest	57.9	805	54.9	852
Total	**51.9**	**3337**	**49.5**	**3781**

** 0 = worst quality of life, 100 = best quality of life.*
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

10.2 Experienced well-being

SAGE-2 India measured experienced well-being based on the Day Reconstruction Method (DRM). The Day Reconstruction Method (DRM) is used for assessing daily experience and subjective well-being. Using the Day Reconstruction Method, the participants reported how much time during the preceding day they spent in different activities, the level of hedonic (presence of positive and absence of negative emotionality) experienced during each activity in the past day.

Respondents were asked to describe a part of their previous day activities (morning, afternoon or evening) or asked for a summary description of their entire day. Respondents were asked to sequentially describe their activities: if anyone was with the respondent, the duration of each of the activities, and whether the activity was enjoyable and associated with a positive feeling (such as feeling calm)—or with a negative feeling (such as being depressed, irritated or angry).

Based on these responses, the individual's emotional state was quantified and summarized as being overall in positive affect or negative affect, averaged throughout that part of the day for which they responded. Net affect was defined as the average of the two positive emotions (calm/relaxed and enjoyment), minus the average of the five negative ones (worried, rushed, irritated/angry, depressed, and tense/stressed), resulting in positive affect minus negative affect. Affect is the term used to describe a person's feelings.

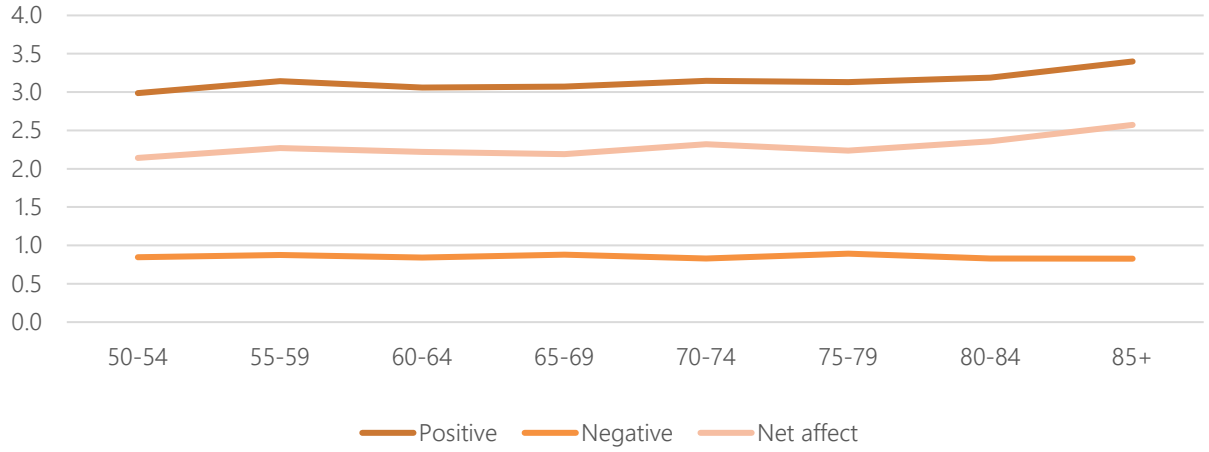
Measures of affect can be thought of as measures of particular feelings or emotional states, and they are typically measured concerning a particular point in time.

Table 10.2.1 presents results for the mean net affect in older adults. Women generally tended to have less mean net affect than men. However, with the increase in age, the mean net affect also increased. Similarly, a clear gradient was seen in education: those with higher education reported a higher mean net affect as compared to those with little or no education. Respondents who were separated, divorced or widowed experienced a lower mean net affect, as did those living in rural areas. A clear gradient is seen with wealth, with the richer groups having higher mean net affect as compared to their poorer counterparts.

Table 10.2.1 Mean Net affect, by background characteristics, India (Pooled), SAGE Wave 2, 2015

Background characteristics	mean net affect	SE	Number
Sex			
Men	2.32	0.034	3337
Women	2.15	0.031	3781
Age-group			
50-59	2.20	0.035	2904
60-69	2.21	0.038	2585
70-79	2.29	0.053	1285
80+	2.43	0.111	344
Education			
No formal education	2.20	0.032	3574
Less than primary	1.93	0.063	942
Primary school	2.12	0.059	980
Secondary school	2.33	0.068	675
High School	2.62	0.084	547
College and above	2.61	0.097	400
Marital status			
Never married	2.22	0.218	76
Currently married	2.28	0.026	5305
Widowed	2.08	0.046	1693
Other	1.60	0.352	44
Wealth Quintile			
Lowest	2.00	0.051	1371
Second	1.94	0.053	1304
Middle	2.20	0.052	1318
Fourth	2.36	0.050	1468
Highest	2.58	0.046	1657
Place of residence			
Urban	2.24	0.048	1512
Rural	2.23	0.026	5606
Total	**2.23**	**0.023**	**7118**

Figure 10.1 Mean net affect among men and women aged 50-plus, India (pooled), SAGE Wave 2, 2015



Conclusions

Our results for SWB reveal very clear patterns for both the evaluative as well as the experienced components. The social gradient in SWB is striking in terms of the evident inequality: those from the poorer and less educated strata of society in India have markedly lower SWB. The relationship between education and income on the one hand and SWB on the other have in fact been the subject of several recent studies. SAGE India's results point to the need to understand various factors in people's lives – such as health, living conditions, social relationships and feelings of loneliness – that relate to SWB and to monitor SWB indicators in national population surveys to develop appropriate policy responses.

The results indicative of increasing age or physical health are not the definitive or sole cause of the lower level of SWB among the older cohort. Older people can expect a high level of SWB. People who are in older cohorts can expect to have higher SWB of different forms than those that are younger when the account is taken of their poorer health and greater likelihood to be widowed. However, people in older cohorts are more likely to experience a faster decline in their SWB over time. This might be related to events and feelings that the oldest old experience in their final years of life that are not related to economic activity, marital status, or health status are unobserved in this study.

In today's ageing societies, assessing the subjective well-being in later life has gained substantial attention among researchers, as well as among policymakers in the areas of economic, health, and social policies. However, remarkably little is known about how older adults understand their subjective well-being and related concepts, such as quality of life, and how these concepts differ between different groups of older adults. Therefore, subjective well-being should be prioritized by the researchers to provide meaningful empirical information on subjective well-being as an individualized and contextualized process for policy implications.

Glossary

Activities of daily living (ADL): Activities necessary for daily self-care and independent community living. Self-care includes using the toilet and grooming, dressing, and feeding oneself; independent community living includes driving, shopping, homemaking, care of family, work activities, and so on.

Alcohol products: A broad range of types of beverages containing alcohol (ethanol), including wine (10-14% alcohol), distilled spirits (greater than 20% alcohol), ciders, pulque, schochu and other local beverages.

Angina: Also known as angina pectoris or ischaemic disease, characterised by a temporary pain in the chest that radiates to other parts of the upper body, mainly to the left arm. Some persons with angina may experience increasingly severe episodes that can lead to a heart attack. The condition can be controlled by lifestyle changes and use of medicines or drugs.

Arthritis: A chronic inflammatory disease which affects the joints and impairs their functioning. Swelling, redness, raised temperature and pain in the joints are common signs of arthritis.

Asthma: Also called allergic respiratory disease, a condition that affects the airways or bronchi and bronchioles, the tubes that carry air in and out of the lungs. Asthma causes the airways to become narrowed or completely blocked, impeding normal breathing. The obstruction of the lungs is reversible, either spontaneously or with medication.

Anthropometry (height, weight, hip and waist circumference): Measurements indicating the general nutritional status of an individual or a population group. Widely used, inexpensive and non-invasive, anthropometry is used to assess and predict performance, health and survival of individuals and reflect the economic and social wellbeing of populations.

Body mass index (BMI): is a simple index of weight-for-height that is commonly used to classify overweight and obesity. It is defined as a person's weight in kilograms divided by the square of their height in meters (kg/m^2).

Blood pressure (BP): the pressure exerted by circulating blood upon the walls of blood vessels, and one of the principal vital signs. "Blood pressure" usually refers to the arterial pressure of the systemic circulation. During each heartbeat, BP varies between a maximum (systolic) and a minimum (diastolic) pressure. Systolic blood pressure is the pressure in vessels during a heartbeat. Diastolic blood pressure is the pressure between heartbeats.

Breast cancer: A cancer originating from breast tissue, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk. The overwhelming majority of cases of breast cancer in humans are in women, but men can also develop breast cancer. In the SAGE questionnaire, questions on breast cancer were only directed to women. The size, stage, rate of growth and other characteristics of the tumour determine the kinds of treatment, which may include surgery, drugs (hormonal therapy and chemotherapy), radiation and/or immunotherapy.

Capacity to pay: A household's capacity to pay is defined as effective income remaining after basic subsistence needs have been met i.e. household non-subsistence spending. (http://www.who.int/health_financing/documents/dp_e_05_2-distribution_of_health_payments.pdf).

Cataract: Changes in clarity of the natural lens inside the eye that gradually degrade visual quality. The natural lens sits behind the coloured part of the eye (iris) in the area of the pupil, and cannot be directly seen with the naked eye unless it becomes extremely cloudy. Significant cataracts block and distort light passing through the lens, causing visual symptoms and complaints.

Catastrophic health expenditure: When a household's total out-of-pocket health payments equal or exceed 40% of the household's capacity to pay on non-subsistence spending. (http://www.who.int/health_financing/documents/dp_e_05_2-distribution_of_health_payments.pdf).

Cervical cancer: Cancer of the cervix uteri or cervical area. One of the most common symptoms is abnormal vaginal bleeding, but there may be no obvious symptoms until the cancer is in its advanced stages. Treatment consists of surgery (including local excision) in early stages and chemotherapy and radiotherapy in advanced stages of the disease. Pap smear screening can identify potentially precancerous changes in cells.

Chronic lung disease: Chronic obstructive pulmonary disease (COPD), also known as chronic obstructive lung disease (COLD), chronic obstructive airway disease (COAD), chronic airflow limitation (CAL) and chronic obstructive respiratory disease (CORD). COPD is the co-occurrence of chronic bronchitis and emphysema, a pair of commonly co-existing diseases of the lungs in which the airways become narrowed. This leads to limitation of the flow of air to and from the lungs, causing shortness of breath. In clinical practice, COPD is defined by its characteristically low airflow on lung function tests.

Communicable diseases: Diseases spread only through air or water.

Co-morbidity: Either the presence of one or more disorders (or diseases) in addition to a primary disease or disorder, or the effect of such additional disorders or diseases. For example, someone can have hypertension (high blood pressure) and not have diabetes. But on the other hand, someone with diabetes very often has hypertension too. So hypertension is a common co-morbidity of diabetes. Other common co-morbidities of diabetes are hyper-lipidemia, cardiovascular disease, kidney disease, non-alcoholic fatty liver disease, and obesity.

Composite health score: An instrument for the quantitative measurement of health-related quality of life. It commonly consists of a number of questions grouped into different domains or health concepts. The numerical scores given in answer to these questions are summed separately and reported as composite scales.

Crude birth rate (CBR): The number of live births (b) in a year divided by the total midyear population (p), multiplied by 1,000: CBR = (b/p)*1000.

Crude death rate (CDR): The total number of deaths in a geographic area (country, state, county) divided by the midyear population of the same area for a specified time period (usually a calendar year), and multiplied by 100,000.

Day Reconstruction Method (DRM): Used to assess quality of life and well-being, by asking participants to systematically reconstruct the activities and experiences of the preceding day with procedures designed to reduce recall biases. DRM assesses how people spend their time and how they experience the various activities and settings of their lives, combining features of time-budget measurement and experience sampling.

Depression: A condition of mood disorder or anxiety, characterised by a depressed mood, lack of interest in activities normally enjoyed, changes in weight and sleep, fatigue, feelings of worthlessness or guilt, difficulty concentrating and thoughts of death. Although depression is common, it is often undetected because it may be attributed to a person's physical, social or economic difficulties. If left untreated, it can lead to a poor quality of life and even suicide.

Diabetes mellitus: A chronic condition in which a person's pancreas have problems producing insulin, which is necessary to turn sugars and starches from food into glucose, to help regulate the body's blood sugar levels. People with diabetes eventually develop a high blood sugar level, which can lead to blood vessel abnormalities that can damage the kidneys, nerves and heart.

Diarrheal diseases: The passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual). Frequent passing of formed stools is not diarrhea, nor is the passing of loose, "pasty" stools by breastfed babies. Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms.

Digit span test: A test of attention and working memory. The digit span task is a common component of many IQ tests. It is generally done in two phases, forward recall, or backward recall.

Disability adjusted life years (DALYs): A composite summary measure which combines years lost through premature death and years lost through disability for incident cases of the health condition. One DALY can be thought of as one lost year of healthy life. The sum of DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between the current health of the population and an ideal situation in which everyone in the population lives into old age in full health.

Drinking water piped to household: A high level of technology, which usually includes treatment to make the water safe and quality monitoring, where minimal or no disease transmission occurs through drinking water.

Edentulism: Dental health problems and the condition of being toothless to at least some degree. Loss of some or all teeth results in partial or complete edentulism respectively.

Flush toilet to sewage system: A high level of technology, where sanitation takes place not onsite but municipally. This technology minimizes the possibility of contact between the facility's user and human excreta.

Geographic Information (GI): Information that contains a reference to its location (longitude, latitude and altitude) on the earth surface.

Geographic Information System (GIS): A computer package for capturing, storing, checking, integrating, manipulating, analysing and displaying data related to positions on the Earth's surface.

Global Positioning System (GPS): A satellite-based system allowing precise identification of locations (longitude, latitude and altitude) on the earth's surface. This system offers highly precise location data in any weather conditions, 24 hours a day. It is mainly used for navigation, positioning and other research applications.

Health: A state of complete physical, mental, and social wellbeing; not merely the absence of disease or infirmity.

Health Expenditure: Expenditure by the household and all its members, in cash or in-kind, on health care and services. In SAGE it referred to expenses incurred in the previous 30 days. It excluded costs reimbursed by insurance. (http://www.who.int/health_financing/documents/dp_e_05_2-distribution_of_health_payments.pdf).

Household consumption expenditure: The expenditure by the household and all its members on food, household items, health services and other goods and services. Such expenditures can be monetary or in-kind. The estimated value of homemade or home-grown items consumed, by the household is included in the expenditure. (http://www.who.int/health_financing/documents/dp_e_05_2-distribution_of_health_payments.pdf).

Household food expenditure: The amount spent on all foodstuffs by the household, plus the value of family's own food production consumed within the household. It excludes expenditure on alcoholic beverages, tobacco and food consumed outside the home.
(http://www.who.int/health_financing/documents/dp_e_05_2-distribution_of_health_payments.pdf).

Household subsistence spending: Also known as the poverty line, the minimum requirement to maintain basic life in a society. The subsistence need is estimated using the food expenditure of the household with the median

food share in total household expenditure, which is then adjusted for household size. This subsistence need is used as the poverty line in the poverty impact analysis. According to this poverty line, 26% of the Indian households were classified as poor.

Human Resources for Health (HRH): All individuals engaged in the promotion, protection or improvement of population health.

Hypertension (HTN): Also called high blood pressure, a chronic cardiac medical condition in which the systemic arterial blood pressure is elevated. It is the opposite of hypotension. Persistent hypertension is one of the risk factors for stroke, myocardial infarction, heart failure and arterial aneurysm, and is a leading cause of chronic kidney failure.

Impoverishment: When a household becomes poor after paying for health services.

Improved drinking water: Sources likely to provide safe drinking water and sufficient quantities of drinking water.

Improved sanitation: Facilities likely to provide adequate sanitation, which means they are private and not shared between multiple households, and they hygienically separate human excreta from human contact.

Improved stove: A stove that reduces emissions from solid fuel burning by venting the smoke to the exterior of the home through a chimney, hood or flue. In a vented and closed improved stove, the combustion process is contained within a compartment, resulting in more complete combustion and often higher fuel efficiency. Many stoves sold as "improved" are fuel-efficient but do not actually reduce emissions.

In-patient fees: Expenditure incurred by a patient for treatment while staying in hospital, including consultation fees, payment for medicines, transport charges and charges for staying in the hospital.

Instrumental activities of daily living (IADLs): Indicators of functional wellbeing that measure the ability to perform more complex tasks necessary for maintaining a person's immediate environment, e.g., obtaining food, cooking, housework, managing medications, getting around outside, travelling, managing money, and using a telephone. IADL measures an elderly, disabled or terminally ill person's ability to live independently.

Items non-response: When a respondent fails to respond to one or more relevant item (s) in the survey.

Kerosene: Hydrocarbon oil used as fuel for lighting, cooking and heating in many parts of the world. In terms of indoor air pollution levels, kerosene is intermediate between solid and gaseous fuels.

Kish Tables: A method by which each eligible person has an equal probability of selection in the survey sample.

Log MAR charts: Charts used to assess a person's visual acuity (VA). Log MAR means the logarithm of the Minimum Angle of Resolution. Log MAR charts are recommended whenever research on visual acuity is done.

Lower respiratory infection: Often used as a synonym for pneumonia, it can also refer to other types of infection of the respiratory tract below the vocal cords, including lung abscess and acute bronchitis. Symptoms include shortness of breath, weakness, high fever, coughing and fatigue.

Moderate intensity physical activity: Activities that take moderate physical effort and make a person breathe somewhat harder than normal. Examples include carrying light loads, bicycling at a regular pace or playing tennis. Walking is not included in the SAGE definition of moderate activity because another item assesses all types of walking separately. Moderate intensity activities require an energy expenditure of 3-6 METs.

National AIDS Research Institute (NARI): Does research on the determinants and dynamics of HIV infection; also develops HIV prevention and control strategies, including field-based prevention and intervention research.

National Old-Age Pension Scheme (NOAPS): A centrally sponsored scheme for which 100% assistance is made available to India's States and Union Territories, to provide benefits for older persons according to the norms,

guidelines and conditions set by the Central Government. The scheme is implemented by district-level authorities headed by the District Collector/Magistrate/ Deputy Commissioner, with the assistance of the Panchayats and Municipalities. The objective is to provide financial assistance to older people who have no regular means of subsistence from their own income or through financial support from family members or other sources.

Need vs coverage: Need refers to the percentage of a population diagnosed with morbidity and coverage refers to the percentage of the population treated for the morbidity.

Non-communicable diseases: Diseases that spread because of changing lifestyles, principally cardiovascular diseases, cancer, chronic respiratory disorder, and diabetes. Together they represent the world's largest killer, causing an estimated 35 million deaths per year.

OASIS (Old Age Social and Income Security): A project to examine the policy questions connected with old age income security in India, under the Ministry of Social Justice and Empowerment. The basic mandate of the project is to make concrete recommendations for actions which the Government of India can take, so that every young person can build up a stock of wealth through his or her working life to serve as a shield against poverty in old age.

Out-of-pocket (OOP) health payments: The payments made by households when they receive health services. Typically, these include doctor's fees, purchases of medication and hospital bills. Although spending on alternative and/or traditional medicine is included in out of pocket payments, expenditure on health-related transportation and special nutrition are excluded. Out-of-pocket payments are net of any insurance reimbursement.

Outpatient fees: The fees incurred by the patient at the time of consultation with the doctor. It includes consultation fees, payment made for the medicines and transport charges.

Overweight or obesity: Abnormal or excessive fat accumulation that presents a risk to health. A crude population measure of obesity is the body mass index (BMI), a person's weight (in kilograms) divided by the square of his or her height (in meters). A person with a BMI of 30 or more is generally considered obese. A person with a BMI of 25 or more is considered overweight.

Physical activity: Activities undertaken at work, around the home and garden, to get to and from places (i.e. for transport) and for recreation, fitness exercise or sport.

Physical test: Also called clinical examination, the process by which a doctor investigates the body of a patient for signs of disease. It generally follows the taking of the medical history — an account of the symptoms as experienced by the patient. Together with the medical history, the physical examination aids in determining the diagnosis and devising the treatment plan. These data then become part of the medical record.

Solid fuels: Include wood, agriculture residues, animal dung, charcoal and coal. Use of these fuels for cooking and heating can result in high levels of health-damaging indoor air pollution. In contrast, the use of nonsolid, cleaner fuels (gas, liquid, electricity) is associated with low levels or no indoor pollution.

Stroke: Rapidly developing loss of brain function(s) due to disturbance in the blood supply to the brain, previously known medically as a cerebrovascular accident (CVA). This can be due to ischemia (lack of blood flow) caused by blockage (thrombosis, arterial embolism), or a haemorrhage (leakage of blood). The affected area of the brain is unable to function, which might result in inability to move one or more limbs on one side of the body, inability to understand or formulate speech, or inability to see one side of the visual field.

Total fertility rate (TFR): The number of children that a hypothetical cohort of 1,000 females in the specified population would bear, if they all went through their childbearing years experiencing the same age-specific birth rates for a specified time period.

Tuberculosis (TB): A contagious disease which spreads through the air like the common cold. Only people who are sick with TB in their lungs are infectious. When infectious people cough, sneeze, talk or spit, they propel TB germs, known as bacilli, into the air. A person needs only to inhale a small number of these to be infected.

Unipolar major depression: See Depression.

Verbal Recall: The recollection of verbal information. It refers to the retrieval of events or information from the past.

Verbal fluency: The ability to produce as many words as possible in one minute. This tests retrieval of information from semantic memory.

Wealth quintile: A statistical division of sample households into five equal parts, based on wealth (assets). Quintile 1 contains the poorest households and quintile 5 the richest households. Household wealth quintiles used in this analysis reflect relative inequalities in income.

WHODAS: A practical, generic instrument of assessment that can measure health and disability at population level or in clinical practice. WHODAS 2.0 captures the level of functioning in six domains of life:
• Domain 1: Cognition – understanding and communicating
• Domain 2: Mobility – moving and getting around
• Domain 3: Self-care – attending to one's hygiene, dressing, eating and staying alone
• Domain 4: Getting along – interacting with other people
• Domain 5: Life activities – domestic responsibilities, leisure, work and school
• Domain 6: Participation – joining in community activities, participating in society

The six domains were selected after a careful review of existing research and survey instruments, and a cross-cultural applicability study. For all six domains, WHODAS 2.0 provides a profile and a summary measure of functioning and disability that is reliable and applicable across cultures, in all adult populations. WHODAS 2.0 provides a common metric of the impact of any health condition in terms of functioning. Being a generic measure, the instrument does not target a specific disease – it can thus be used to compare disability caused by different conditions.

WHOQOL: The World Health Organization Quality of Life (WHOQOL) project, initiated in 1991. The aim was to develop an international cross-culturally comparable instrument for assessing quality of life. It assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns. The WHOQOL instrument comprises 26 items, which measure the broad domains of physical health, psychological health, social relationships and environment.

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Appendices

Appendix 1

WHO Disability Assessment Scale (WHODAS-12 item)

In the last 30 days, how much difficulty did you have....*	
1	...in standing for long periods (such as 30 minutes)?
2	...in taking care of your household responsibilities?
3	...in learning a new task, for example, learning how to get to a new place?
4	...in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?
5	... concentrating on doing something for 10 minutes?
6	...in walking a long distance such as a kilometer (or equivalent)?
7	...in washing your whole body?
8	...in getting dressed (including, for example, putting on your shoes and socks)?
9	...with people you do not know?
10	...in maintaining a friendship?
11	...in your day to day work?
12	...in the last 30 days, how much you been emotionally affected by your health condition(s)?

*Response scale: 1=none; 2=mild; 3=moderate; 4=severe; 5=extreme/cannot do

Appendix 2

ADL and IADL items

In the last 30 days, how much difficulty did you have...*	
ADL	
1	...in sitting for long periods?
2	...concentrating on doing something for 10 minutes?
3	...in walking a long distance such as a kilometer (or equivalent)?
4	...in washing your whole body?
5	...in getting dressed (including, for example putting on your shoes and socks)?
6	...with carrying things?
7	...with eating (including cutting up your food)?
8	...with getting up from lying down?
9	...with getting to and using the toilet?
IADL	
1	...in taking care of your household responsibilities?
2	...in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?
3	...in your day to day work?
4	...with getting where you want to go, using private or public transport if needed?
5	...getting out of your home?

*Response scale: 1=none; 2=mild; 3=moderate; 4=severe; 5=extreme/cannot do. Recoded: (1,2,3) = no deficiencies; (4,5) = yes, deficiencies.

Appendix 3

Education Mapping

Education level by country, based on UNESCO 1997 international classification scheme		
SAGE Code	**Description**	**India**
	Q0409. Q1016, Q1028, Q1032	
0	No formal schooling	None
1	Less than primary school	1 to 4
2	Primary school completed	5 to 7
3	Secondary school completed	8 to 9
4	High school (or equivalent) completed	10 to 13,14 (high school+ higher secondary school)
5	College/University completed	15 to 16
6	University post-graduate degree completed	17+

See ISCED97 classification scheme, http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-1997-en_0.pdf

Appendix 4

Text describing the income or wealth quintile (permanent income)

Income quintiles were derived from the household ownership of durable goods, dwelling characteristics. Durable goods included number of motorbike or cars, and if, for example, the household has electricity, a television, fixed line or mobile phone, a bucket or washing machine. A total of 21 assets were included with overlaps and differences in the asset lists by country.

The results were recoded into dichotomous variables taking the value of 0 if the household did not possess or have access to the good or service, and 1 if it did. The data set was then reshaped, as though each household had multiple observations for wealth (each item being one observation), and was fit as a pure random effect model based on these multiple items per household. The result provides indicator specific thresholds on the latent income scale such that a household is more likely to respond affirmatively than not when its permanent income exceeds this threshold. This "asset ladder" was generated and it is country-specific. Using a Bayesian post-estimation (empirical Bayes) method, households were arranged on the asset ladder, where the raw continuous income estimates are transformed in the final step into quintiles.

The resulting estimates of household permanent income can be compared to the reported income and total household expenditure. Though the correlation coefficients are not very high (both the Pearson and Spearman correlations are less than 0.5) there is a systematic 'upper left triangular' relationship across all countries. Namely, as self-reported income or expenditure increases, our permanent income estimate increases as well. However, our estimates can be high even when self-reported income or expenditure is low, which supports the well-known under-reporting or inadequacies of using income or expenditure indicators as opposed to wealth based on permanent income.

Test describing health score

Valid, reliable, and comparable health measures are essential components to inform clinical practice and health policy. The health module in SAGE included a self-assessment of health consisting of two to three questions pertaining to each of eight health domains (mobility, affect, cognition, self-care, pain, sleep/energy, interpersonal relations, vision and hearing). When deriving the SAGE health score, we used the 18 self-reported health state questions in Section 2000 of the questionnaire: Q2002-05, Q2007, Q2008, Q2010-13, Q2016-19, Q2023-24, Q2051 and Q2052. Respondents could answer using a five-point scale, from 1=None; 2=Mild; 3=Moderate; 4=Severe; 5=Extreme/Cannot do. As this scale is an ordinal scale, we used, Graded response model (GRM) of item response theory (IRT). The IRT adopts an explicit model for the probability of each possible response to an item. This probability is derived as a function of the latent trait and some item parameters, and then used to obtain the likelihood of ability as a functional of the observed responses and item parameters. IRT produces an interval level scale that provides a measure of item difficulty and of person ability. Each person answering the test is assigned a value on the scale. The standard error of the score for each person each item indicates the fit of each person may be assessed, reflecting the pattern of responses by that person. The results were rescaled to 0 to 100 where zero is worst health and 100 is best health.

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Capacity Building for a Better Future

STUDY ON GLOBAL AGEING AND ADULT HEALTH
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World Health Organization

The Study on global AGEing and adult health (SAGE) is part of a Longitudinal Survey Programme in WHO's Multi-Country Studies unit. The main SAGE surveys compile comparable longitudinal information on the health and well-being of adult populations and the ageing process from nationally representative samples in India and five other countries (China, Ghana, Mexico, Russian Federation and South Africa). Financial support for SAGE was provided by the US National Institute on Aging and the World Health Organization. Each country's national report is a descriptive summary of results, including this report of SAGEWave 2.More information is available at: www.who. int/healthinfo/sage and https://iipsindia.ac.in/content/SAGE-wave-2