Study on global AGEing and adult health (SAGE), Wave 3

INDIA

WHO SAGE WAVE 3

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Capacity Building for Better Future

STUDY ON GLOBAL AGEING AND ADULT HEALTH
sage

World Health Organization

(स्थापना / Established in 1956)
बेहतर भविष्य के लिए क्षमता निर्माण
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Study on global AGEing and adult health (SAGE) Wave 3

India National Report

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International Institute for Population Sciences
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Collaborating Institutions and Survey Agencies

Collaborating Institutions

International Institute for Population Sciences (IIPS)
World Health Organisation (WHO)

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INTRODUCTION

The global demographic landscape is undergoing a significant transformation, primarily characterized by the phenomenon of population ageing. This trend, which has gained momentum in the 21st century, is marked by an unprecedented increase in the number of individuals aged sixty years and above. This shift is primarily attributed to the demographic transition witnessed globally, characterized by declining mortality and fertility rates, leading to a rise in life expectancy at birth. Understanding the intricacies of population ageing requires more than just acknowledging the rise in the absolute number of older populations; it necessitates a deeper comprehension of the age structure and population dynamics.

As of 2023, the world's population has surpassed eight billion and is projected to exceed ten billion by 2060, indicating a doubling period of approximately 70 years (United Nations, 2023). Although the global population continues to grow, the rate of this growth has significantly decelerated since 1950 and is expected to further decline in the coming decades. This pattern of growth varies significantly across different regions. Some countries are still experiencing population increases due to the first demographic transition, while others have entered the second demographic transition, characterized by stable or declining populations.

The increase in older populations can be attributed to several factors: an increase in the number and proportion of older individuals, a decrease in the number and proportion of the younger population (typically those under 15), or a combination of both. During the early stages of demographic transition, a reduction in premature mortality and a subsequent decline in fertility significantly contribute to this trend. Additionally, the segment of the population aged 80 and above is growing at a faster rate than the overall older population. Although global ageing is a universal phenomenon, it is not uniform across different regions. Variations in demographic indicators such as median age, ageing index, and sex ratio highlight the disparities in ageing across the globe.

India is witnessing a significant demographic shift, with its older adult population set to experience rapid growth in the coming years. According to the UNFPA India Ageing Report (2023), the proportion of the population aged 60 and above is projected to double from 10.5% in 2022 to 20.8% by 2050, with an impressive decadal growth rate of 41%. This increase will lead to a higher number of highly dependent individuals, with a notable prevalence of widowed women within this group.

The Technical Group on Population Projections for India and States (2011-2036) reports that the absolute number of older individuals rose from 19.8 million in 1951 to 103.8 million in 2011, with projections estimating this number to reach 230 million by 2036, accounting for 16% of the total population.

The results from the third wave of the longitudinal SAGE India survey may help understand how health, social, environmental and economic policies and programmes affect the health status of individuals and populations over a lifetime and at older ages.

The specific objectives of SAGE India are as follows:

Objectives

- To obtain reliable, valid and comparable data on levels of health on 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 well-being using longitudinal follow-up of survey respondents as they age, and to investigate socio-economic 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; and,
- To collect data on health examinations and biomarkers to improve reliability of data on morbidity, and risk factors and monitor the effect of interventions.

METHODOLOGY

SAGE Wave 3 continues with its established methodology by focusing on two primary groups: a larger cohort of individuals aged 50 and above, which remains the central interest of the study, and a smaller comparison group of individuals aged 18-49 years, mirroring the approach taken since the inaugural survey. This latest wave includes follow-up participants aged 50+ from the previous SAGE Wave 2, and new participants of age 50+ in the existing households. The households participating in the study were divided into two distinct categories: "50+ households," where all individuals aged 50 years or older were selected, and "18-49 yrs. households," from which a single individual aged between 18 to 49 years was chosen.

SAGE Wave 3 India (hereafter SAGE India) interviewed 6073 households from six states; viz. Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal. There was a total of 34,510 members of these sampled households. The population consisted of 17,497 males and 17,013 females.

HOUSEHOLDS AND SOCIO-DEMOGRAPHIC CHARACTERISTICS

Information is collected typically from the head of the household, about 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 housing characteristics. These basic household data play an important role in the understanding of the issues related to adult health at the micro-level, particularly older persons. Adults of working age (15-59) accounted for 62% of the household population, while children below the age of 15 accounted for about 22% and people aged 60+ for about 15%. A little over one-fifth of respondents (6329 persons) were in urban areas. Children made up a larger share of the population in rural (23%) than in urban (21%) areas; conversely, working-age adults made up a larger proportion in urban areas. The population aged 60+ has more women in both urban areas and rural areas.

Data on marital status, collected for individuals aged 15 and older, indicate that one-quarter of this adult population had never been married, two-thirds were currently married, and the remaining 10% were widows, widowers, or in other categories. Urban areas have a larger proportion of both men and women who have never been married.

Regarding education, data was collected for the population aged 7 and older, the typical age for formal entry into school. Over one-quarter of the household population (19%) had no formal education; slightly more than half (55%) had less than a high school education; and 26% had education at the high school level or above. Significant differences in education levels were observed between different places of residence and by sex. In rural areas, 21% of the population had no formal education, compared to 11% in urban areas. Meanwhile, 24% of the rural population had an education at the high school level or above, compared to 35% in urban areas. Females in both urban and rural settings were more likely to have no formal education and less likely to have a high school or higher education than their male counterparts. For example, 32% of females in rural areas had no formal education, compared to 12% of rural males, and only 18% had a high school education or above, compared to 29% of rural males.

The distribution of households by wealth quintile revealed a relatively higher proportion of poor people in rural areas and wealthier people in urban areas. About half of the rural population belonged to the first and second (lowest) wealth quintiles, compared to 22% of the urban population. Similarly, 63% of the urban population, but only 39% of the rural population, were in the fourth and fifth (highest) quintiles.

RISK FACTORS AND HEALTH BEHAVIOUR

SAGE India collected data on health risk factors as 1) they have a significant impact on mortality and morbidity from non-communicable diseases, and 2) the risk modification is possible through effective primary prevention and health promotion efforts. The questions were based on the WHO recommendations from the NCD STEPS guidelines. Data was collected on five major risk factors viz., tobacco use, alcohol consumption, intake of fruits and vegetables, physical activity levels and environmental risk factors such as access to improved drinking water, and the type of fuel used for cooking.

The prevalence and patterns of tobacco and alcohol use among respondents in India, as well as nutritional intake, physical activity levels, and access to water, have shown notable trends over time according to the SAGE India surveys. Tobacco use among older respondents (aged 50 and over) varies significantly by state, with Rajasthan, West Bengal, and Uttar Pradesh having the highest percentages of current users. Over time, there has been a significant decrease in the number of current daily tobacco users from 38% in 2007 to 12% in 2020, indicating a general trend towards quitting tobacco among both men and women across different age groups. Similarly, alcohol use has slightly declined over the years, with older members of Scheduled Tribes having a higher prevalence of heavy drinking compared to the national average. Fruit and vegetable intake was insufficient among older adults, with the poor nutritional status reported in Maharashtra and the best in Karnataka. There was an improvement in fruit and vegetable intake among respondents in Karnataka from 2007 to 2020.

In terms of physical activity, there was an increase in physical inactivity levels from 26% in 2007 to 39% in 2020 among older adults. Access to improved drinking water sources remained constant at 96% from 2015 to 2020, with a significant improvement since 2007. The proportion of households spending less than 30 minutes collecting water varied over time, indicating changes in accessibility. The use of clean cooking fuel also increased significantly during the same period, from 20% in 2007 to 62% in 2020, reflecting efforts to promote healthier and more environmentally friendly cooking methods.

HEALTH STATE

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 older adult populations who are 50 years and older. Self-reported ratings on overall general health and eight health domains, WHODAS-12 and activities of daily living/ instrumental activities of daily living (ADL/IADL) scores were measured.

A significant takeaway from the SAGE India findings is the upward trend in self-reported good health. Among older respondents (aged 50 and over), those reporting good health increased from 31% in the first wave (2007) to 46% in the latest wave (2020). Younger respondents (aged 18-49) also showed a similar positive trend, with good health reports rising from 58% to 72% over the same period.

The results highlight the health disparities between urban and rural residents. In urban areas, 54% of older adults reported good health, contrasting with 42% in rural settings. This discrepancy underscores the challenges in healthcare access and infrastructure prevalent in India's rural regions. Wealth and education emerge as critical determinants of health. Among the older demographic, the reporting of good health increased from 36% in the lowest wealth quintile to 54% in the highest. Similarly, educational attainment correlates with health perceptions; only 17% of older individuals with no formal education reported their health as bad, compared to 9% among those with a college education. The results also shed light on gender disparities in health, with women generally reporting worse health outcomes than men. For example, 59% of older women described their health status as moderate or bad, higher than the 49% reported by men.

Functioning and disability assessments reveal that a significant portion of the older population, especially women, face difficulties in daily activities. Among those aged 70 and above, approximately 25% reported challenges in work or household activities, indicating the pressing need for geriatric care and support services. The prevalence of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) deficiencies further emphasizes the challenges older adults face. A substantial number of respondents aged 50+ had at least one ADL deficiency, with higher rates among women (46%) than men (34%).

The findings highlight that the overall health state scores were lower for older adults, averaging 38, compared to younger adults, who had a mean health score of 66. This discrepancy underscores the impact of ageing on health, pointing to the increased health challenges faced by the older population. Additionally, geographical disparities are pronounced, with the highest health scores for older adults found in Uttar Pradesh and Assam, suggesting regional differences in health outcomes that may be influenced by factors such as access to healthcare, lifestyle, and environmental conditions.

Moreover, the results show how mean health scores correlate with various socio-demographic factors. For example, the health score decreased from 84 for the youngest age group of respondents to 21 among the oldest-olds, highlighting a clear age gradient in health status. Gender differences were also significant, with men consistently reporting better health (higher health scores) than women. Furthermore, the results show that health status improves with both education and income, with the health score rising from 31 for persons with no education to 55 for those with a college education, and from 32 in the lowest wealth quintile to 43 in the highest.

MORBIDITIES AND INTERVENTIONS

SAGE India gathered evidence on a selected range of chronic diseases that contribute to a large portion of the burden of non-communicable diseases which are more widely prevalent among older adults. Prevalence of arthritis, stroke, angina, diabetes mellitus, chronic lung disease, asthma, depression, hypertension and edentulism were estimated.

Data on injuries and issues of health coverage and preventative health measures including reported cataract surgery, and cervical and breast cancer was also collected.

In Arthritis, there exists a clear age-related increase in prevalence, rising from just 1% in the younger cohort of 18-29 years to 16% among those aged 70-79. This trend underscores the growing susceptibility to arthritis with advancing age. Furthermore, a notable gender disparity exists, with older women reporting a higher incidence of arthritis (16%) compared to their male counterparts (10%). Stroke and diabetes also stand out as significant health challenges. The prevalence of self-reported stroke hovers around 3% among older adults, while diabetes affects 13% of the same group. The prevalence of stroke was considerably higher in West Bengal (7%).

Asthma and depression further reveal disparities in health outcomes. Asthma's self-reported prevalence among older adults is 6%, and depression's symptom-based prevalence significantly overshadows self-reported figures (19% versus 2%). Hypertension is another major finding, affecting 29% of older respondents, with the highest prevalence noted in Rajasthan (41%).

SAGE India sheds light on the prevalence of injuries, revealing that road traffic accidents account for a notable proportion of injuries among both younger and older populations. Specifically, 4% of older respondents reported being injured in road traffic accidents, with a quarter of these incidents resulting in disabilities. Among younger respondents, the rate of injuries from road traffic accidents was similar, but the transition to disability was notably high, indicating the severe impact of such accidents on individuals' health. Despite the general assumption that injuries might display clear patterns across demographic lines, the survey finds that the prevalence of injuries and subsequent disabilities does not consistently differ by age, gender, residence, education, or wealth index.

Oral health issues, particularly edentulism, and the prevalence of cataracts emerge as significant concerns from the SAGE India data, especially among older adults. The survey reports that 14% of older individuals face oral health problems, with cataracts affecting an even larger segment at 29%. These conditions not only highlight age-related health challenges but also point towards gaps in preventive healthcare and screening practices.

Cancer screening practices for breast and cervical cancer among Indian women are alarmingly low, as revealed by the SAGE India findings. With only about 5% of women undergoing breast cancer screening and even fewer, 3%, for cervical cancer, there is a clear gap in the early detection and prevention strategies for these potentially life-threatening conditions. Karnataka stands out with slightly higher screening rates, yet the overall low participation highlights a nationwide need for improved healthcare awareness and infrastructure. The disparities in screening rates between urban and rural areas, and across different wealth quintiles, further emphasize the socio-economic barriers to accessing cancer screening services.

Chronic conditions such as hypertension, diabetes, and arthritis present a significant burden, with their prevalence intricately linked to various demographic factors including age, wealth, and education. Hypertension, in particular, stands as the most prevalent chronic disease among older respondents, signalling the need for focused interventions on lifestyle modifications and healthcare access. The survey's findings on morbidity rates, especially the increase in multiple morbidities with age, underscore the growing healthcare challenges in managing chronic conditions among India's ageing population. The variation in morbidity rates across states further indicates the regional disparities in health outcomes.

The SAGE India data highlights a critical aspect of healthcare utilization - the unmet need for treatment across various chronic conditions. Depression and chronic lung diseases show the highest levels of unmet need for medication and treatment, particularly among older adults.

HEALTH EXAMINATION AND BIOMARKERS

In SAGE India, a separate health examination and biomarkers module was implemented, which included different biomarkers of anthropometric measures (weight, height, waist and hip circumference), physiology (blood pressure and lung function) and physical function (grip strength, time to walk and vision).

Body Mass Index (BMI) data illustrates a concerning trend of undernutrition among older adults, particularly those from disadvantaged backgrounds, with 35% of older adults in the lowest wealth quintile being underweight. This contrasts sharply with the rising prevalence of overweight and obesity, notably among younger, urban, and more affluent populations. From 2007 to 2020, the percentage of overweight or obese individuals surged from 12% to 30% among younger adults and from 13% to 26% among the older demographic, indicating a significant shift in nutritional status and associated health risks across the population.

The central body obesity measured by waist-hip ratio (WHR), gives a better prediction of cardio risk and metabolic alteration. Waist circumference measurements, which provide insights into central obesity and related health risks, reveal that 38% of younger women and 39% of older women had a high-risk waist circumference, significantly higher than their male counterparts. Urban residents and individuals from higher wealth quintiles exhibited a higher prevalence of high-risk waist circumference, reflecting the urban-rural and socioeconomic divide in obesity risk. Over time, the mean waist circumference has shown an increasing trend, highlighting the growing concern about obesity and its health implications.

Grip strength is a good measure of muscle strength and a predictor of functional limitation and disability among older adults. In SAGE India, mechanical grip strength in Kilogram (Kg), was measured for respondents. The mean value of grip strength of respondents aged 18-49 was 22 Kg (left hand) and 25 Kg (Right Hand). Grip strength and walking pace, indicators of physical function and mobility underscore the decline in physical strength with advancing age. Notably, older adults in Assam reported the lowest mean grip strength, emphasizing regional disparities in physical health. The mean grip strength declined from 2007 to 2020 across all demographic groups, pointing to a broader issue of declining physical fitness and mobility among the Indian population. The results reveal significant insights into the physical mobility of Indian adults, as measured by the average time taken to complete a four-meter walk.

Short walking speed predicts the functional status of the lower limb of the human body. Functional limitations of any individual in general and older adults, in particular, could be easily measured by the time taken to walk 4 meters. Walking speed tests predict adverse results such as hospitalization, dependence and mortality. In SAGE India, normal and rapid walking time (in seconds) to cover a 4-meter distance was collected for respondents. Older adults, on average, took longer to walk this distance compared to younger adults, with times of 5.4 seconds at a normal pace and 3.8 seconds at a rapid pace for the former group, compared to 4.4 seconds and 3.0 seconds for the latter, respectively. This indicates a general decline in physical mobility with age. Regional variations were also noted, with the slowest walking times recorded in West Bengal and the fastest in Assam, suggesting geographical disparities in physical health. Additionally, education level was found to have a significant impact on walking speed for those aged 50 and above, with higher education levels associated with quicker walking times, indicating a potential link between education and physical health. However, factors such as gender, marital status, place of residence, and religion showed no clear correlation with walking speed, suggesting that these factors do not significantly influence physical mobility as measured by this specific task.

Blood pressure is a major etiologic pathway in developing the risk factors for chronic disease in future, like: - heart disease (angina, heart attack and heart failure), stroke (brain attack), peripheral vascular disease, eye disease including blindness, and kidney damage. Blood pressure in the range of 120-140 mmHg may cause ischaemic heart disease through many intermediate risk factors. In SAGE India, three readings of systolic and diastolic blood pressure were recorded and the averages of the readings were used for analysis. Hypertension prevalence highlights the widespread issue of elevated blood pressure, with 45% of older respondents and 26% of younger adults having hypertension based on measurements. The state of Maharashtra reported the highest prevalence among older and younger adults at 54% and 34% respectively. There is an increasing trend in pre-hypertension, from 32% to 45% among younger adults and from 33% to 36% among older adults between 2007 and 2020.

The results of various health biomarkers across different age groups highlight a clear and consistent trend: health risks increase with age. Specifically, conditions such as hypertension and low visual acuity demonstrate a rapid rise in prevalence among older populations, underscoring the significant impact of ageing on these health aspects. Furthermore, this upward trend is not limited to these two conditions; the prevalence of underweight, high-risk waist-hip ratios, and decreased mean grip strength also escalate with advancing age.

HEALTH CARE UTILIZATION, HEALTH SYSTEM RESPONSIVENESS AND HEALTH FINANCING

The availability, accessibility and affordability of health care services are critical determinants of the health status of a population. SAGE India survey asked the respondents to assess their need for health care for inpatient and outpatient treatments. The responsiveness of the health system is further assessed on major domains that address people's concerns when seeking health care. These domains include prompt attention, dignity/respect, communication, choice, confidentiality, access to support and quality of care.

The results indicate varying levels of self-assessed need for health care across different states and age groups, with a general trend showing an increase in health care needs as individuals age. Specifically, among adults aged 50+, the need for health care in the previous year ranged from 59% in Assam to 91% in Rajasthan, averaging 70% across India. Around 15% of older respondents reported not needing health care in the past three years, highlighting potential disparities in health care access or health status. Younger adults aged 18-49 showed a 65% need for health care in the previous year, with about one-fifth (21%) indicating no need for care. Over time, there has been a slight increase in the immediate need for health care, with a decrease in those needing care more than a year ago, suggesting changes in health care accessibility or health status over the years.

Men's health care needs were notably pronounced, with 64% of younger and 68% of older men requiring health care in the year before the survey. The highest need among younger men was in Karnataka (90%) and among older men in Rajasthan (92%), indicating regional variations. Women also reported a significant need for health care, particularly in Rajasthan, with 91% of older women and the same percentage of younger women needing health care in the previous year. This suggests gender and regional disparities in health care needs, with women reporting a higher need for health care compared to men, especially in older age groups.

Regarding health care utilization, 62% of adults aged 50+ received outpatient care, and 23% received inpatient care in the year before the survey. The rate of inpatient care varied widely across states, from 14% in Assam to 37% in Maharashtra, highlighting significant regional differences in health care service utilization. The types of health care received by respondents were categorized into four broad groups: maternal and perinatal conditions, non-communicable and chronic diseases, acute diseases, and other diseases.

Among older respondents, 30% received inpatient care for non-communicable and chronic diseases, and 21% for acute diseases, with men more likely to receive care for chronic conditions than women. Outpatient care was primarily for acute diseases, with 54% of older adults and 60% of younger respondents receiving such care in the previous year. This indicates a significant burden of both acute and chronic diseases across different age groups, requiring various types of health care services.

In SAGE India, data on monthly household expenditure on food and non-food items was collected. Health financing was a critical aspect of the survey, revealing that out-of-pocket (OOP) health care expenditure constituted 17% of total household expenditure and 25% of non-subsistence spending. The major sources of health care financing included current income, savings, and borrowing from relatives, with a small proportion using insurance.

SUBJECTIVE WELL-BEING AND QUALITY OF LIFE

In SAGE India, Quality of Life 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 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 a better quality of life.

The assessment of Quality of Life (WHOQoL) across different states and demographics in SAGE India shows that overall satisfaction with various life domains has a significant correlation with age, geographical location, socioeconomic status, and gender. The overall mean WHOQoL score for respondents was 60, indicating a moderate level of life satisfaction among the study population. Maharashtra emerged as the state with the highest quality of life scores (67), while West Bengal had the lowest (53). A comparison between age groups reveals that younger respondents (mean WHOQoL score 65) reported a better quality of life than older respondents (mean WHOQoL score 59). This trend was consistent across states, with both younger and older adults in West Bengal and Assam reporting the lowest scores, indicating that age and geographic location are key determinants of quality of life.

The findings also identified a significant improvement in WHOQoL scores over time, from 2007 to 2020. Among younger respondents, scores increased from 55 to 65, while for older respondents, scores rose from 49 to 59. This improvement was more pronounced among men in both age groups, suggesting gender disparities in quality-of-life enhancements over the years.

Further analysis by state and gender revealed that Assam and West Bengal consistently had lower WHOQoL scores, with older women in these states reporting the lowest scores. The gender gap in quality-of-life scores was evident across different age groups, with younger women scoring approximately six points lower than younger men, and older women scoring three points lower than older men. This disparity highlights the intersection of gender with other factors like age and geographic location in determining quality of life.

Socioeconomic factors also played a significant role in quality of life, with positive socioeconomic gradients observed across both sexes and age groups. Individuals with higher education levels and wealth status reported higher mean WHOQoL scores, while those with no or lower education and lower wealth status reported lower scores. Quality of life deteriorated progressively with age, with the oldest age group (80+) scoring the lowest.

1. Introduction

1.1 Global ageing

Population ageing is a global phenomenon that intensified in the twenty-first century and has emerged as a megatrend with an unprecedented rise in the population aged sixty years and above. The increase is a consequence of the demographic transition worldwide led by a decline in mortality rates and fertility rates and a consecutive increase in life expectancy at birth. The scenario of population ageing cannot be understood in the context of an increase in the absolute number of older persons alone. The demographic pretext of the age structure and population dynamics are needed to attain the same. The absolute population of the world has reached eight billion in 2022 and is further estimated to rise over ten billion by 2060 taking around 70 years to double itself (United Nations, 2022). The world is growing continuously, the pace however has slowed down by more than half since 1950 and is further projected to decline continuously in the next few decades and throughout the century. The trajectory of population growth, however, is not uniform all across. While some countries are still in their first demographic transition and experiencing further increment in the population, others have entered a second demographic transition with a stabilised or negative population. Eastern and South-eastern Asia emerged as the two most populous regions of the world in 2022. More than half of the projected increase in global population between 2022 and 2050 is expected in just eight countries of the world namely, the Democratic Republic of the Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and the United Republic of Tanzania. Entailing the global ageing, the older population aged 65 years and above in 2022 (771 million) have tripled since 1980 (258 million) and by 2050, it is estimated that persons aged 65 years or older would be twice as many children under five years and almost as same as children under age 12. With nearly 10 per cent of the population aged 65 years and above in 2022, the proportion of older persons is projected further to reach nearly 12 per cent in 2030 and 16 per cent in 2050. In 2022, Europe and North America had the largest proportion of older population with almost 19 per cent aged 65 or over, followed by Australia and New Zealand (16.6 per cent).

The rise in the size and rate of growth of the older population may 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). Further, in the initial stages of demographic transition, reduction in premature mortality of successive generations and subsequent decline in fertility play a remarkable role. The proportion of the oldest old i.e., 80 years and above is also increasing significantly and the rate of growth is faster than the overall older age population.

Global ageing though a universal phenomenon is not homogenous across and varies across the countries. Demographic indicators such as median age, ageing index and sex ratio help in highlighting the differentials in ageing across the globe (see Table 1.1).

- Median Age: It is an index associated with the age distribution of a population that divides the entire population into two parts of equal size, i.e., there are as many persons with ages above the median as there are with ages below the median. The median age of the world has increased from 24 years in 1950 to 30 years in 2022. The indicator however is not uniform and exhibits regional disparity based on the level of development faring higher in more developed compared to less developed regions. The median age in more developed regions is nearly twice that in least developed regions (see Table 1.1)
- Sex Ratio: It is a prominent social indicator to measure the extent of equality between males and females in a society at a given time. In later years, it becomes a prominent indicator to describe the sex balance and the age-sex distribution. As shown in Table 1.1, with increment in the age sex ratio is skewed more in favour of females compared to males. Globally, there were 83 males per 100 females aged 60 years and above while the numbers further decreased to just 61 males per 100 females aged 80 years and above. The sex difference however is expected to improve in near future.
- Ageing Index: Ageing index indicates the number of 65+ persons per 100 children under 0-14 years. On average, there will be 38 elderly people per 100 children in the world in 2022. Globally, children outnumber older populations in 2022. However, elderlies aged 65 years and above outnumber children in the more developed region (121 older persons per 100 children). Contrastingly, in the least developed regions, just 9 individuals are there aged 65 years and above per 100 children.

Table 1.1. Median Age, Sex ratio at ages 60+, 65+ and 80 + and Ageing Index of the Major Regions of the World, 2022.

Major Areas and Regions	Median Age	Sex Ratios (males per 100 females)			Ageing Index
		60+	65+	80+	
World	30.0	83.4	79.5	60.9	37.8
More Developed Regions	41.2	78.2	74.5	57.6	121.4
Less Developed Regions	28.1	85.8	82.1	63.6	34.1
Least Developed Regions	19.2	83.3	81.0	68.3	9.3

Source: United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022.

Increased life expectancy of an individual is the driving factor of the population growth in later years. It is referred to as 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. Globally, individuals are living longer than usual. Life expectancy of individuals has reached to 71 years in 2021, marking an increase of almost 7 years since 1990. By 2050, it is further estimated that the average longevity of an individual will reach around 77.2 years. Females have higher life expectancy at birth compared to men owing to their better survival rates. In 2021, women's life expectancy at birth exceeded that of men by 5.4 years.

Life expectancy at birth is higher among countries such as Australia/ New Zealand with a narrow gender gap between males and females compared to developing regions. Sub-Saharan Africa has the lowest life expectancy at birth (59.7 years) among the major regions of the world. In later years as well, women have better life expectancy and they outnumber men. Additionally, an individual is expected to live 16 more years based on life expectancy at age 65 years globally in 2021 and it is further going to increase to 20 years in 2050 (Figure 1.1). Gender differentials in life expectancy at age 65 years are lowest in Sub-Saharan Africa (1.6 years) followed by Central and Southern Asia (1.7

years). Life Expectancy at age 65 years is also in favour of females and shows similar trends akin to life expectancy at birth across the regions.

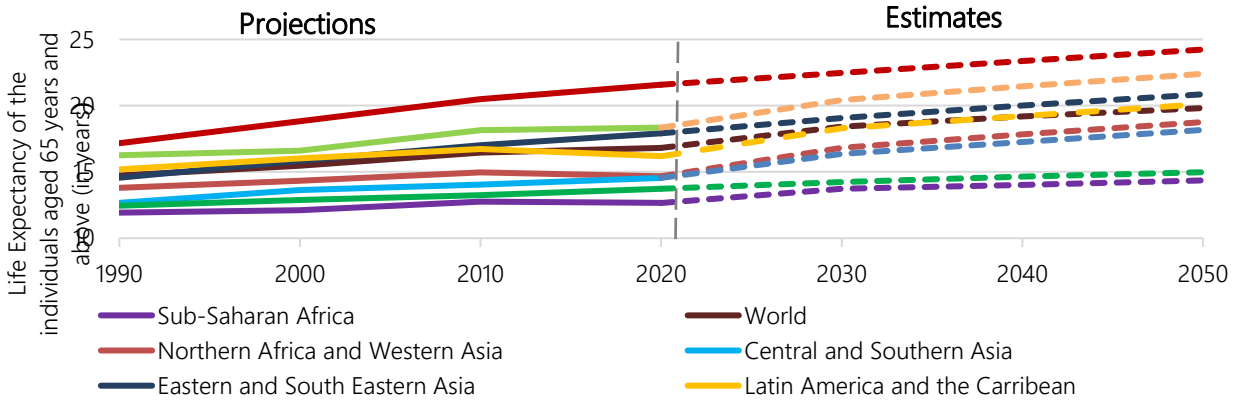
Table 1.2. Life expectancy at birth and Life expectancy at age 65 years by sex and major regions of the world

Region	Life Expectancy at birth (years)				Life Expectancy at age 65 years			
	Both Sexes	Male	Female	Difference between female and male	Both Sexes	Male	Female	Difference between female and male
World	71	68.4	73.8	5.4	16.2	14.7	17.7	3
Sub-Saharan Africa	59.7	57.8	61.6	3.9	12.1	11.2	12.8	1.6
Northern Africa and Western Asia	72.1	69.7	74.8	5	14.6	13.1	16	2.8
Central and Southern Asia	67.7	65.9	69.6	3.7	13.1	12.2	14	1.7
Eastern and South-Eastern Asia	76.5	73.6	79.6	5.9	17.6	15.7	19.4	3.7
Latin America and the Caribbean	72.2	68.8	75.8	7	15.7	14	17.3	3.3
Australia and New Zealand	84.2	82.7	85.6	2.9	21.6	20.4	22.7	2.2
Oceania excluding Australia and New Zealand	67.1	64.6	70.1	5.5	13.1	11.8	14.7	2.9
Europe and Northern America	77.2	73.9	80.4	6.5	18.1	16.4	19.7	3.3

Source: United Nations Department of Economic and Social Affairs, Population Division (2022). *World Population Prospects 2022.*

Though life expectancy is improving all over the globe, the pace is not homogenous. On the whole, life expectancy at age 65 years is estimated to increase by an additional four years in 2050. The life expectancy at age 65 years increased from 14 years in 1990 to 16 years in 2020 and further to 18 years in 2030 indicating a steep rise in the additional years in later ages in the near future. Australia/ New Zealand is supposed to have the highest life expectancy at age 65 with 24 additional years of life followed by Europe and Northern America (22 additional years). Life expectancy at age 65 for Oceania and Sub-Saharan Africa will still take more than 3 decades to add additional life years above 15 years. Female life expectancy at age 65 is highest in Europe and Northern America with 20 additional years of life in 2021 followed by Eastern and South-Eastern Asia. It can be easily observed as mentioned earlier that life expectancy at age 65 is higher in the regions where life expectancy at birth is higher (Table 1.2).

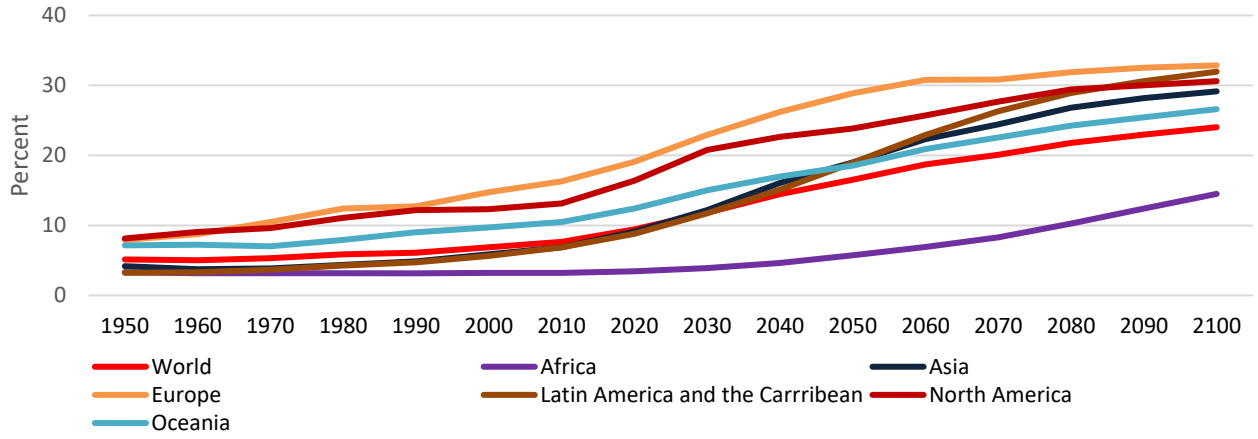
Figure 1.1 Life expectancy at age 65 for both sexes combined, by region, 1990-2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2022). *World Population Prospects 2022.*

The gender gap in life expectancy at age 65 is largest in regions with high levels of life expectancy at birth, such as Europe and Northern America (6.5 years) and Eastern and South-Eastern Asia (5.9 years). By contrast, the gender gap is much smaller in regions with comparatively low levels of life expectancy at birth, such as Central and Southern Asia (1.7 years), and sub-Saharan Africa (1.6 years).

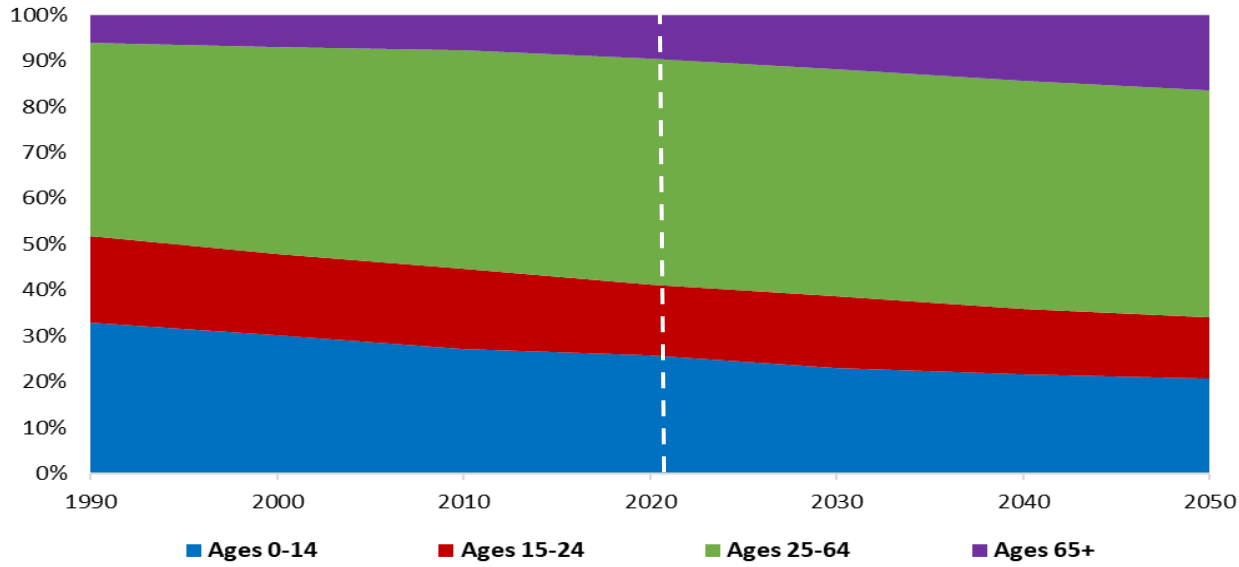
Figure 1.2 Percentage share of persons aged 65 years and above by region, 1950-2100



Source: United Nations Department of Economic and Social Affairs, Population Division (2022). *World Population Prospects 2022*.

Ageing is determined not only by the pace of growth of the older population but also by its pace relative to the other age groups (Figure 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) 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).

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



Source: United Nations Department of Economic and Social Affairs, Population Division (2022). *World Population Prospects 2022*.

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 estimated to increase continuously above 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 21st century evinces unprecedented growth in the elderly population and thereby poses profound implications for the various aspects of society, including the health dimensions. The parody, however, is that the epidemiological transition does not align with the demographic transition and thereby healthy and successful ageing is posing a serious concern. The epidemiological transition first coined by Abdel R. Omran explains 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. The epidemiological shift with demographic transition in tune with declining fertility and increasing longevity has shifted the disease burden on the old persons. Without a doubt, longevity is increasing but ensuring a disease-free and healthy life is still a crucial challenge.

The concerted focus of organisations like WHO on increasing life expectancy has led to a marked growth in the older population worldwide, both in relative and absolute terms. Globally, life expectancy has increased by more than 4 years between 2000 and 2021, i.e., from 67 years in 2000 to 71 years in 2021. While healthy life expectancy (HALE) has increased by 8% between 2000 and 2019, it attributed mostly to the declining mortality rather than the reduced years lived with disability, revealing that the increase in HALE has not kept pace with the increase in life expectancy (WHO, 2019).

In 2019, the top 10 causes of death accounted for 55% of the 55.4 million deaths worldwide. At the global level, 7 of the top 10 causes of death in 2019 are from non-communicable diseases while it was just 4 of the top 10 causes in 2000. These seven causes have accounted for 44% of all deaths or 80% of the deaths out of the ten leading causes. However, all noncommunicable diseases together accounted for 74% of deaths globally in 2019. The year 2019 also evinces Alzheimer's disease and other forms of dementia ranked as the 7th leading cause of death affecting women disproportionately. More than two-thirds of the deaths from Alzheimer's and other forms of dementia are among women (WHO, 2019). Ischaemic heart disease continues to be the leading cause of death since 2000 and is now killing more people than ever before. Cardiovascular diseases, including heart diseases and stroke, further accounting for the largest proportion of deaths among older persons worldwide. Apart from cardiovascular diseases, chronic obstructive pulmonary disease (COPD), lower respiratory infections, diabetes mellitus, Kidney diseases, Alzheimer's disease (including other dementias) 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, 2019

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

Source: World Health Organization (2020). Global Health Estimates 2019 Summary Tables: Deaths by Cause, Age and Sex. 2000-2019.

However, due to the glaring disparities in socio-cultural and economic advancements as well as medical advancements, 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. Others might experience periods of illness and disability interspersed by periods of partial or full recovery (WHO, 2019). Studies conducted further reveal that though health care costs may not increase appreciably with increasing age, 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 the specified need and following principles of intergenerational solidarity. Among the elderly population, the high health care expenditure is attributed to falling health, higher disability in later life, and higher prevalence of chronic disease and co-morbidity (Medhi & Mahanta, 2007).

In the Indian context as well, non-communicable diseases are posing a serious threat to older persons. Furthermore, for a youth country like India where maternal and child health are still prominent, maintaining healthcare infrastructure and advancing it especially to meet geriatric care is adding a double burden on the government and thereby, increasing the out-of-pocket expenditure to meet the health demands. LASI survey conducted in 2017-18 reveals that with advancing age, the risk of experiencing more than one chronic health condition at the same time is higher, steady and more pronounced for cardiovascular and lung diseases. Almost a quarter aged 60 and above have been diagnosed with multi-morbidities with higher risk among women. CVDs, diabetes mellitus and respiratory diseases contribute to a major share of chronic health conditions among older adults as well as elderly aged 60 and above. The prevalence of heart disease, stroke, diabetes mellitus, chronic lung disease and neurological problems are higher among elderly men; whereas, elderly women are more likely to be diagnosed with hypertension, anaemia, bronchitis, depression, Alzheimer's diseases and dementia, any bone/ joint disease and cancer.

Reforming health systems to place prevention at the forefront of healthcare for the elderly could be a major factor in reducing morbidity and expense. Proper health care shall be ensured by prioritising the leading causes of death and awareness needs to be raised for the same.

1.3 Population ageing and economic development

Population ageing has emerged as a megatrend of the 21st century with dramatic demographic and social transformations in nearly all social sectors inclusive of the labour and financial markets. It exhibits direct economic implications with raised expenditure on health and long-term care, disease burden, multi-morbidities, labour-force shortage and old age income shortage with strain on pension and health schemes in later years (Bloom, Canning and Lubet, 2017). Moreover, with advancing towards later years, emotional social and economic dependency is burgeoning on the family members as well as on state affairs. The transformation of this growing older population into a demographic dividend to boost the country's economic growth is challenging, especially in developing countries like India where ageing is not in tune with socio-economic advancements. Primitively the family being the caregivers in later ages, financial security of older persons is debatable implicating a severe influence on the decision-making capabilities and social status of individuals. With the disintegration of families and changes in living arrangements along with the rising cost of living, fulfilling the needs of older populations adequately remains a major challenge. It is important to take into consideration that in the absence of proper employment opportunities, the majority of the working population is employed in the informal sector with no provision for social security and no fixed retirement age or financial security at later ages. The role of social protection programmes as an effective means of supporting poorer individuals and families in lower and higher-income countries alike, cannot be nullified in its contribution to economic growth; however,

the gaps between need and available programmes remain large in India in terms of universal coverage and utilization of social security measures.

Extensive research is thereby needed to understand the dynamics of the elderly labour force in India address the root concerns associated with the same and regularise and regulate the social security schemes to ensure their economic well-being.

1.4 Social aspects of population ageing

Social traits of an individual play a significant role with advancing ages, especially in accordance with the living arrangements, life satisfaction, social behaviour as well as on overall well-being. Traditionally, in countries like India; the families tend to serve as a primary source of caregivers to the older persons and in particular, the sons. However, with the expanding pace of industrialization, globalisation, and migration under the pretext of upliftment in the lifestyle; older persons are left behind and bound to live on their own (Rajan, 2013). This eventually led to the gradual disintegration of the families with dynamic familial changes. The essence of social security especially in terms of social support, care and companionship thereby, is weakening, leaving older adults alone to struggle with social insecurity, vulnerability and relative economic deprivation and in particular, at the risk of isolation (Berkman et al., 2012; Bincy et al., 2022). Along with the left-behind elderly, feminization of ageing is also emerging as an important concern with the increment in the dependent older women making them more vulnerable in tune with loneliness and emotional vulnerability.

Insufficient savings, lack of social security schemes and changes in the family structure further are associated with adverse health outcomes among the elderly (Chakravorty, Goli and James, 2021). Previous studies indicate the linkage of living arrangements such as living alone to poor self-rated health, high levels of disability and poor cognitive health among the older generation. The fast pace of social change is affecting traditional caregiving mechanisms for the elderly emphasising the 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

With every one out of the five individuals set to be a senior citizen, India's ageing population is surging rapidly marking a new phase of demographic transition in recent years. The elderly population is supposed to double between 2022 (10.5 %) and 2050 (20.8 %) with a decadal growth rate standing at 41% (UNFPA, India Ageing Report 2023). The population aged above 80 years is further expected to grow at a rate of around 279% between 2022 and 2050 increasing the population of highly dependent individuals with the predominance of widowed women. As per the Report of the Technical Group on Population Projections of India and States (2011-2036), the absolute population of the elderly increased from 1.98 crores in 1951 to 10.38 crore in 2011 and is further estimated to be 23 crores in 2036 comprising a total share of 16%. As known, improvements in medical advancements and better healthcare facilities have contributed to the rise in population at later ages. The life expectancy at birth of an individual has increased significantly from 41.7 years in 1950 to 67.2 years in 2021 and is further expected to reach 77.9 years in 2050. Contrary to the scenario in 1950 when life expectancy at birth was in favour of men (42.6 years) compared to women (40.8 years) in India, it is in favour of females (68.9 years) in recent times as life expectancy at birth is 65.8 years among males. Women further tend to live longer in later ages. The success story of increasing longevity in India showcases a major concern of ensuring a secure, dignified and productive life and not merely an increase in the additional years of life. In the absence of the needed socio-economic development, the increasing longevity is thereby advancing towards increasing old age dependency, reduced level of potential support, and older parents for the older persons to take care of. The demographic changes are indicative of the emerging burden and chronic and

degenerative diseases forcing India to bear a double burden of diseases and consequently, a significant share of the global burden of disease as well (Arokiasamy, 2018). Apart from the health concern, social and economic challenges are also accompanied by the people in later ages. The feminisation of ageing itself acts as a curse in Indian society with more widowed and dependent women who have to face multiple discrimination in accessing job and health care facilities, subjugated to abuse, denial of the right to own and inherit property, as well as lack of basic minimum income and social security (Berkman et al., 2012).

Trends of key demographic indicators related to ageing are as follows:

- The median age reported in 2019 is 28.4 years; it is expected to rise to 31.7 years in 2030 and 38.1 years in 2050 (World Population Prospects, 2022).
- The Old-age dependency ratio (65+ persons per hundred 15-64 persons) for India has increased from 5.25 in 1950 to 9.92 in 2020. It is further estimated to increase to 11.05 in 2025 and double by 2050 (22.36) (UN Population Prospects, 2022).

With the increasing pace of modernisation and urbanisation, families are disintegrating and thereby support system is further declining. Migration and aspirations for a better life further accentuate the plight of an older generation who desire to be in their native place while the younger cohort aspires to move to urban areas or abroad for better living standards amplifying the emotional vulnerability of the older cohort. 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).

Ageing dynamics further vary within the country itself highlighting the rural-urban divide. Longitudinal Ageing Survey in India (LASI) conducted in 2017-18 reflects that nearly fifty of the older men aged 60 years and above are currently working compared to just 22 % with a higher share of the older persons working in rural areas. This indicates their involvement in informal or agricultural work either to support their families or to earn their livelihood. The share of elderly officially retiring from any organised sector of employment is just seven per cent which further raises the concern for financial insecurity at a large (IIPS *et al.*, 2020; Bloom *et al.*, 2021).

As ageing is a multi-factorial process encompassing biological and physical degeneration, it is prone to be vulnerable to health complications and co-morbidities as well afflicted to chronic non-communicable diseases. CVDs, diabetes mellitus and respiratory diseases contribute to a major share of chronic health conditions among older adults as well as elderly aged 60 and above (IIPS *et al.*, 2020).

A thorough examination of geriatric morbidity and Related risk factors thereby is required to improve the delivery of health care to the elderly owing to the deterioration in the physical and mental health of the elderly belonging to a vulnerable group or society (Pandey, 2011). Like many developing countries, India is also undergoing a rapid demographic and epidemiological transition.

Keeping in view the geriatric complications in older ages and the fatal rates of individuals due to NCDs especially those that could be preventable, one needs to assess the health profile of the older persons in accordance with the demographic traits using longitudinal data to have a comprehensive and accurate analysis. The study shall envisage all dimensions and analyse the changing dynamics of the ageing patterns and relatable concerns to ensure healthy ageing.

1.6 Ageing related Programmes and Policies in India

With a surging ageing population, multi-faceted elderly care provision is essential to ensure a dignified life for the elderly. The anticipated increase in the ageing population in the recent era is one of the priorities of the relevant stakeholders and the concerned government owing to its adverse implications on the health, economy and society as a whole. Thereby, in order to ensure the basic rights of the older population and uplift their quality of life, the Government of India has initiated several programmes and policies under various ministries such as the "Ministry of Health and Family Welfare", "the Ministry of Social Justice and Empowerment" and "the Ministry of Rural Development". The zeal for such concerted efforts finds its root in the "First World Assembly on Ageing" organised in Vienna Austria in the year 1982 to draw worldwide attention to the global issue of population ageing. Proceeding on the same line, came the declaration of United Nations Principles for Older Persons in 1991, encouraging the governments of the member countries to incorporate the principles of independence, dignity, care, participation, and self-fulfilment of the elderly in their national policies and programs. 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. It also provides financial assistance to non-governmental 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) was formulated 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. It further 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 policy recognizes that older persons are a resource and render useful services in the family and community.

With the vision to provide accessible, affordable and high-quality long-term dedicated services to the elderly by creating a more enabling environment for a society of all ages to promote active and healthy ageing, the Government of India launched the National Programme for the Health Care of the Elderly (NPHCE) in 2011 (Verma, 2013). It suggested that home-based care backed up by a pre-defined referral chain, especially in rural and tribal areas, should also be incorporated into the NPHCE. Other than having a national vision, the program has a decentralized view which can make its policies demand-driven to furnish the services according to the 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 the credibility of the National Council of Senior Citizens (NCSRC) and spreading awareness about the National Policy on Older Persons (NPOP) requires sincere and combined state efforts as well as of individuals to sustain the strength of the country's human resource which is ageing steadily.

Apart from the nationwide programmes and policies several social welfare schemes were also launched by the Indian government such as the Indira Gandhi National Old Age Pension Scheme (IGNOAPS) introduced in 1995 as part of the National Social Assistance Programme (NSAP) to provide financial assistance to the BPL elderly aged 60 years and above who have little or no regular means of subsistence either from their source of income or through financial support from family members or other sources (Sekher & Gupta, 2023). The financial aids vary between INR 200 and INR 2500 per month based on the state grant. Another popular scheme is the Annapurna scheme launched in the year 2000 to provide food security for senior citizens who, although eligible, remain

uncovered by the National Old-Age Pension Scheme (NOAPS). Rashtriya Vayoshri Yojana launched in 2017 by the Ministry of Social Justice and Empowerment provides aids and assisted living devices to senior citizens belonging to the BPL category or earning less than 15000 per month and suffering from age-related disabilities such as low vision, hearing impairment, loss of teeth and loco-motor disabilities. Atal Vayo Abhyuday Yojana renamed in 2021 (earlier National Action Plan for Senior citizen) is an umbrella scheme that aims to provide information and educational material to individuals, families, and groups for better understanding of the ageing process.

Moreover, the government even launched the National Helpline for Senior Citizens (14567) "Elderline" in 2021 to address the grievances of elders across the country. Senior Care Ageing Growth Engine (SAGE) launched an initiative to encourage innovative start-ups to develop products, processes, and services for the welfare of the elderly. Under this initiative, innovative start-ups are identified and provided with equity support of up to Rs 1 crore per project while ensuring that the total Government equity in the start-up does not exceed 49%.

However, the utilization rate remains very low due to a lack of public awareness 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. As per the LASI survey 2017-18, Overall, the awareness of the social security schemes among the elderly in India is low with slightly more than half of the elderly (55%) aware of the old-age pension scheme (IGNOAPS), 44% of the elderly being aware of the widow pension scheme (IGNWPS), and just 12% of the elderly interviewed are aware of Annapurna Scheme. Also, only 12% of the elderly are aware of the Maintenance and Welfare of Parents and Senior Citizens Act 2007. Overall, the awareness of the social security schemes among the elderly in India is low. Slightly more than half of the elderly (55%) are aware of the old-age pension scheme (IGNOAPS), 44% of the elderly are aware of the widow pension scheme (IGNWPS), and only 12% of the elderly interviewed are aware of Annapurna Scheme.

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 well-being of its ageing population in the years to come (WHO, 2015).

To foster healthy ageing, existing programmes and policies shall reach to the concerned individuals and proper efficacy needs to be ensured through proper and regular channels. The policies and programmes shall assess and address the changing needs of the elderly and meet the demands accordingly at the grassroots level. Further to enhance the maximum yield of the elderly and turn them into a demographic dividend and boon for the country, the Indian government shall revise and introduce specific policies for older women and those in the informal work sector while ensuring 100 per cent utilisation of the schemes by the needy ones.

1.7 Data and policy gaps related to older adults in India

In the era of an ageing population, the well-being and security of the elderly is emerging as a major concern. Especially regarding the policy implementation and policy gaps persisting in the country in the field of elderly care. Ageing not only commemorates biological degeneration but also influences

life transitions such as retirement, caregiving needs, relocation to more appropriate and efficient housing, as well as emotional losses. Furthermore, Globalization, technological developments, urbanization, migration and changing gender norms have also influenced the lives of older persons in one or the other ways. Robust and effective policy-making becomes more crucial in addressing the key concerns of the ageing population through focused research, new metrics and analytical methods through the current and projected trends.

For the addressal of ageing concern and upliftment of the rights of the older population; reliable and valid data sets along with cross-nationally comparable data are needed and in particular, the health and well-being of the older population. Till date, the country lacks sound evidence-based datasets on the health and subjective well-being of the older population as well as the quality of life of the older population. The recent years, however, mark significant progress to fill the gap in the area of elderly care with the Longitudinal Ageing Study in India (LASI) survey. LASI is a nationally and state-representative longitudinal study of ageing and health for India's older adults aged 45 years and above conducted in 2017-18. The research works still have much emphasis on the younger population and in particular, children and women of reproductive ages.

Longitudinal data imbibing all the dimensions of ageing are still poor with the lack of consecutive series of datasets at the large scale. Also, for the proper access and availing of the pre-existing schemes and programmes, as well as for the formulation of new policies for the betterment of the older population, one needs quality data to understand the core problems and areas of improvement. The awareness of the social security schemes among the elderly in India is low with just 55% of the older population being aware of the old-age pension schemes (IGNOAPS) and only 12% of the older population being aware of the Maintenance and Welfare of Parents and Senior citizens Act, 2007 (IIPS *et al.*, 2020). The figures further validate the need for better implementation of the policies as well as addressing the root cause with proper database management from time to time.

1.8 Study on Global Ageing and Adult Health (SAGE)

Study on Global Ageing and Adult Health (SAGE), is a longitudinal household survey study that includes respondents aged 50 years and above with a comparative cohort of adults aged 18-49 years. The study is conducted in six countries with nationally representative samples in China, Ghana, India, Mexico, Russian Federation and South Africa. SAGE India, first initiated in 2007; is part of a multi-country study by the World Health Organization which aims to address the gap in an evidence-based policy for the older population. The Baseline survey of SAGE India was conducted in World Health Survey, 2003. India was among the 70 countries that participated in the World Health Survey, in 2003. The sample for SAGE is nationally representative and is implemented in six states namely Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal which are randomly selected as per the geographic location and the level of development based on the four important indicators namely infant mortality rate, female literacy rate, percentage of safe deliveries and per capita income.

SAGE Wave 3 is a longitudinal, face-to-face follow-up household survey of previous waves i.e. Wave 2 and Wave 1. It uses an updated version of the same sampling frame and in addition to providing the needed health and ageing data, SAGE further continues to improve the 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

By providing baseline and longitudinal health-related data on older persons in middle and low-income countries, SAGE aims to improve the empirical evidence base on the health and well-being of older persons in developing countries. Thus, with a special focus on individuals aged 50 years and above, SAGE emphasises health and health-related outcomes, including special attention towards the examination of determinants and impacts of health and well-being. The prime goals of SAGE are:

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

Improving the empirical understanding of the health and well-being of older adults is the ultimate objective of SAGE through reliable, valid and cross-nationally comparable data. The data collection domains in SAGE thereby comprise self-reported assessments of health, using anchoring vignettes for improved comparability across the 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 for the dynamic examination of changes in health expectations and experiences over the life course and investigation of the compression of morbidity in the ageing population.

Primary objectives

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

Additional objectives

- To generate a large enough cohort of older adult populations, and a smaller comparative cohort of the younger population in order to permit the follow-up of intermediate outcomes, monitoring of trends, an examination of transitions and life events, as well as addressing of the relationships between the determinants and health and wellbeing and health-related outcomes.
- To develop a mechanism to link survey data and surveillance data from demographic surveillance sites.
- To build the linkages with other national and cross-national ageing studies.
- To improve the methodologies to enhance the reliability and validity of outcomes and determinants.
- To examine how the mix and distribution of health, health care, and socioeconomic characteristics as well as 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 well-being of older adults.

2. Methodology

2.1 SAGE Wave 3 India: Coverage and Scope

The World Health Organisation's Study on Global Ageing and Adult Health (SAGE) is a longitudinal household survey study on the health and well-being of adult populations, and the ageing process which comprises respondents aged 50 years and older with a smaller, comparative cohort of adults aged 18-49 years. It focuses primarily on health and health-related outcomes, including an examination of the determinants and their impact on health and well-being.

SAGE surveys are designed by the World Health Organization and are implemented by the national agencies in participating countries. The baseline survey of SAGE India comprised the same primary sampling units and households covered in the 2003 World Health Survey in India. The first wave of SAGE (Wave 1) was conducted in 2007 and was implemented in six states to ensure a nationally representative sample – Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and West Bengal. The selection of these six states is in accordance with their geographic location and the level of development. Except for Jammu and Kashmir, all the states with a population of 5 million and above were characterised into six regions North, Central, East, North-east, West and South. The level of development was measured considering four indicators: infant mortality rate, female literacy rate, percentage of safe deliveries and per capita income. The states were thus selected purposively in such a manner that one state was selected from each region as well as from each level of development. Wave 2 of the SAGE India survey was completed in 2015 which was the follow-up survey of SAGE Wave1. Wave 3 of the SAGE India survey, 2019-20 is a follow-up survey of Wave 2.

The scope of the study is to provide in detail, information about household characteristics, housing, household and family support at the household level and further socio-demographic characteristics, work history, health state, anthropometrics, performance tests and biomarkers, risk factors, chronic conditions and health service coverage, health care utilisation, social cohesion, subjective well-being and quality of life along with caregiving at the individual level.

2.2 Sampling Design

The study design for SAGE 3, has maintained its two target populations: a large sample of persons aged 50 years and above i.e., the prime focus of the study and a small comparative sample of persons aged 18-49 years since the first survey. The third wave comprises "aged-in" follow-up respondents for the 18-49 and 50+ from SAGE Wave 2, with new respondents of age 50+ for the losses to follow-up to maintain the sample sizes. Households involved were further classified into two mutually exclusive categories: "50+ households" from which one or more 50 years and older are

selected and then "18-49 yrs. households" from which one person aged 18-49 years was selected. Apart from this, all persons aged 50 years and older (for ex., spouses and siblings) were invited for participation from older households.

2.3 Sampling for the states

The selected households of the state were characterised into the rural and urban areas as per the size proportional to their share of the state population. Further, Sampling of PSUs has been done for rural and urban areas by the probability proportionate to their size (PPS) sampling method.

Rural Sampling

Two-stage stratified sampling has been used for the selection of households in rural areas. The villages served as the primary sampling units (PSUs) in rural areas. Also, these villages are 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. From each PSU, 28 households with a target of 25 households along with 3 additional households were chosen to account for non-response.

Urban Sampling

A three-stage stratified sampling design has been used for the selection of households in the urban areas starting from the selection of wards followed by census enumeration blocks (CEBs) and lastly the households. All the urban wards in each 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 and two CEBs were selected from each selected ward. From each CEB, 33 households including a target of 30 households along with the additional three households to account for non-response were selected for the survey.

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

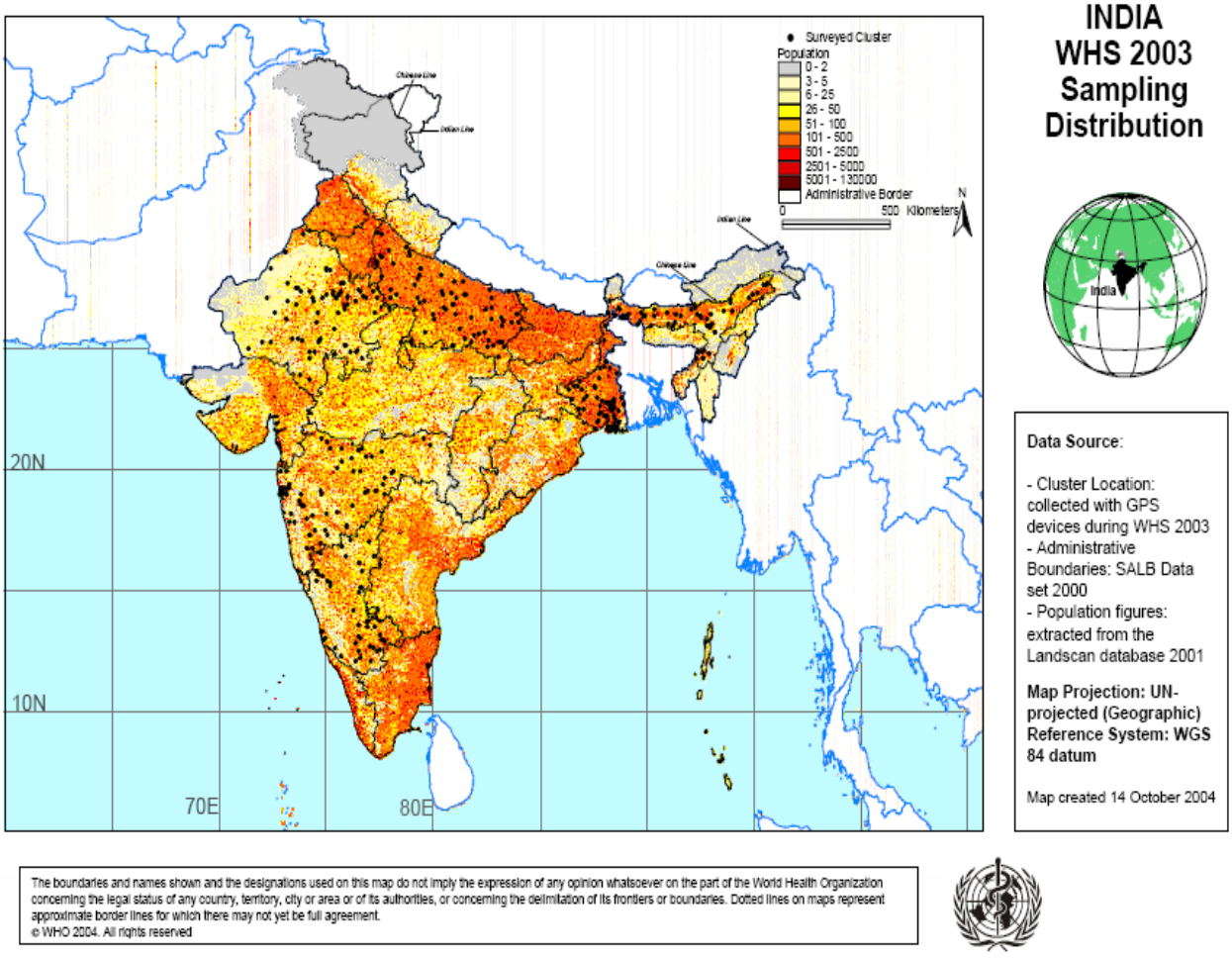


Table 2.1 Number of rural and urban PSUs and CEBs selected for SAGE India

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
India (pooled)	**285**	**90**	**375**

A total of 375 rural PSUs (285) and Urban CEBs (90) were selected using the probability proportionate to size (PPS) sampling across the selected six states (see Table 2.1). Further, the information regarding the sample size of households interviewed from these PSUs and CEBs and their age-sex distribution of the selected sample is presented in Table 2.2 and Table 2.3 respectively.

Table 2.2 Number of Households and Individuals for SAGE Wave 3 India, 2019-20

State	Households interviewed in SAGE W1	Individuals interviewed in SAGE W1	Households interviewed in SAGE W2	Individuals interviewed in SAGE W2	Households interviewed in SAGE W3	Individuals interviewed in SAGE W3
Assam	1074	1194	993	1020	771	941
Karnataka	1208	1553	1041	1095	746	988
Maharashtra	1851	1983	1384	1520	987	1297
Rajasthan	1895	2225	1535	1816	1168	1521
Uttar Pradesh	1899	2201	1650	1862	1172	1508
West Bengal	1699	2074	1549	1803	1229	1630
India (pooled)*	**9626**	**11230**	**8152**	**9116**	**6073**	**7885**

*Note: *Includes fully completed and partially completed interviews.*

Table 2.3 State-Wise Individual Sample Size for SAGE Wave 3 India, 2019-20

State	18-49			50+			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Assam	64	109	173	370	398	768	434	507	941
Karnataka	47	85	132	379	477	856	426	562	988
Maharashtra	105	113	218	510	569	1079	615	682	1297
Rajasthan	80	102	182	587	752	1339	667	854	1521
Uttar Pradesh	69	111	180	632	696	1328	701	807	1508
West Bengal	101	180	281	596	753	1349	697	933	1630
India (pooled)	**466**	**700**	**1166**	**3074**	**3645**	**6719**	**3540**	**4345**	**7885**

Points to note regarding sampling in SAGE WAVE 3, India Survey

1. The respondents of SAGE Wave 2, India were followed up in SAGE Wave 3, India, 2019-20 and were classified as below:

   a) For the cohort aged 50+, WHO-SAGE Wave 2 respondents aged 46-49 years and above were selected for the interview.
   b) For the age cohort of 18-49 years, only WHO-SAGE Wave 2 respondents were interviewed.

2. The third wave of SAGE was conducted only in PSUs covered in WHO-SAGE Wave-2. In case of lost PSU due to reasons such as inaccessibility or non-traceability of PSUs, no replacements were made.

3. SAGE Wave 3, India survey was conducted only in the households included in the WHO-SAGE Wave 2 survey.

4. In the case of "50+" households, all eligible individuals aged 50+ were interviewed, whereas from "18-49" households, only the same individual who was interviewed in the earlier wave was interviewed.

5. It must be kept in consideration that individuals were interviewed exclusively from "50+ households" and "18-49 years households". This indicates that in the HHs where persons aged 50+ were interviewed, persons aged 18-49 were not interviewed. Similarly, in the HHs where we interviewed males/females aged 18-49, persons aged 50+ were not interviewed.

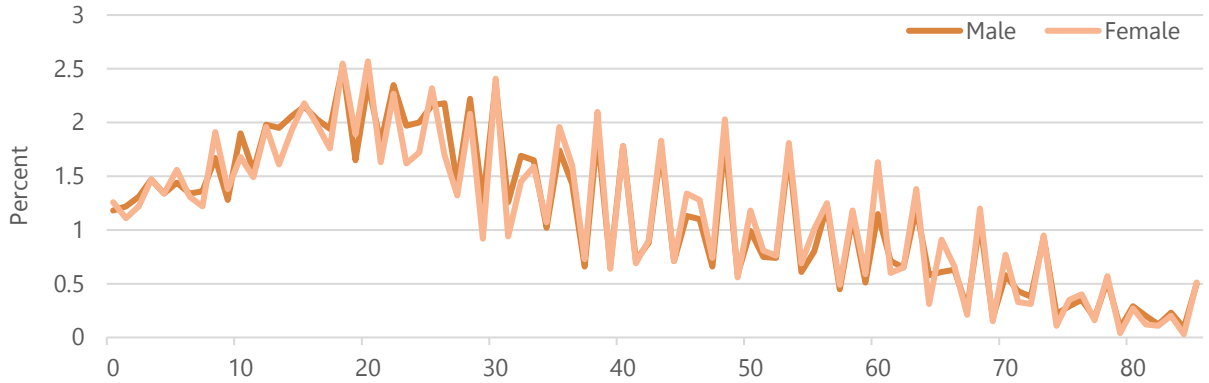
2.4 Myers' Blended Index

Age structure, being a crucial determinant of several socio-economic and demographic factors is a vital component in epidemiological and demographic studies. Hence, the better the quality of age data, the higher the reliability and accuracy of data estimates provided. Age heaping- a measure for data quality assessment is an issue in all decennial census and household surveys, it is pronouncing and emerging as a grey concern for large-scale surveys in India (Malik, 2021; Pardeshi, 2010). This report thus assesses the quality of age-reporting in data using Myer's Blended Index.

Myers' Blended Index was developed to measure the preference or avoidance of all 10 digits with a basic principle that "in the absence of age heaping, the population aggregated on each terminal digits 0-9 shall represent roughly 10% of the total population". It thus, determines the proportion of the population whose age ends in each terminal digit (0-9), also varying the particular starting age for any 10-year age group. Assuming the population is equally distributed among the different ages, it compares the expected proportions of the population to each age with the reported population proportions. The index ranges from 0 to 99, with 0 indicating no age heaping and 99 indicating that all ages are reported with the same terminal digit. The data quality is usually considered poor with severe age heaping if the index is above 60 (Swanson *et al.*, 2004).

Figure 2.2 shows the Myers' Blended Index for the household respondents in SAGE Wave 3, India. The computed index is 12.6 indicating that a minimum of 12.6% of them misreported their ages through incorrect final digits as evidence of age heaping ending with digits 0 and 5. The misreporting is higher among females than males.

Figure 2.2 Age heaping using Myers' Blended Index for household members in SAGE Wave 3 India, 2019-20



2.5 Response rate

Response rates, also referred to as completion rate or return rate an indicators of survey quality or the likelihood of non-response biases. Generally expressed in percentages, it refers to the number of persons who answered the survey out of the total sample of the population. Regarding our survey, we hereby provide the response rates at both the household level as well as individual level. All the households selected for the interview were considered as a denominator for computing household response rate. Likewise, all the individuals aged 18-49 years as well as 50 years and above were selected from the roster to be interviewed and were used as the denominator (Table 2.4). In the third survey of SAGE conducted across the six states with 6073 households and a total of 7,885 individuals, the household response rate is 92% and that for individuals is 89%.

Table 2.4 Household and individual response rates, SAGE Wave 3 India, 2019-20

Category	Response rate
Household	91.82
Individual	88.65

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

2.6 SAGE Wave 3, India survey instruments

SAGE Wave 3, India used household, individual, and proxy questionnaires.

(a) Household questionnaires

The household questionnaire was administered to any household member aged 18 and above with informed consent before administering the household interview.

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.
- *Section 0450:* 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 0700:* Household income and assets.
- *Section 0800:* Household health and non-health expenditures.

The household roster for the follow-up households included additional questions on deaths in the household since the last interview, reasons for departures from the household, and the addition of new household members if any since the last interview.

(b) Individual questionnaire

The individual questionnaire was administered to all the adult respondents aged 50 and above in older households as well as the selected adults aged 18-49 years in the younger households.

Before the administration of the individual questionnaire, a consent form was collected from the respondents irrespective of the individual's given consent for the household questionnaire. The questionnaire also included consent for the collection and storage of the blood sample for the analyses.

The individual questionnaire was divided into nine sections. The first section started with filter questions about memory to assess whether respondents aged 50+ 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.

Brief description of each section in the individual questionnaire are as follows:

- *Section 1000:* Individual consent form and background characteristics of the respondent.
- *Section 2000:* Overall health, day-to-day life activities and nine self-rated health domains i.e. 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 the indicators of functional wellbeing, in particular, the ability to perform the activities of daily living (ADLs) and instrumental activities of daily living (IADLs)
- *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).
- *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 conditions 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 4000:* Diagnosis, and for some conditions 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 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. Information for weights and heights was measured to calculate Body Mass Index (BMI) as an independent risk factor for several health outcomes. Also, waist and hip circumferences were measured to calculate the waist-to-hip ratio, which is an independent risk factor for cardiovascular diseases 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]
  - **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. The information provides an estimate of cognitive ability and the 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 asked to read a series of digits and asked to repeat them immediately. In the backward test, the person must repeat the numbers in reverse order. These tests measure concentration, attention, and immediate memory.

(c) Proxy questionnaire

In the individual questionnaire, a short set of questions about memory preceded the main set of questions. These questions helped the interviewer to subjectively determine whether a respondent was cognitively and physically fit to complete the interview. The respondent, if considered incapable of providing reliable outcomes or too ill to participate, the proxy respondent is to be interviewed on their behalf. The proxy respondent is supposed to know the respondent well to accurately provide information regarding the respondent's health and well-being through the proxy questionnaire. The proxy questionnaire also comprised a standardized set of screening questions for dementia and cognitive decline. Moreover, separate consent was required for a proxy interview.

The proxy respondent, however; needed to provide specific informed consent for a proxy interview. The proxy questionnaire comprised a standardized set of screening questions for dementia and cognitive decline among individuals and the sections are as listed below:

- 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.

[1] Smedley's Hand Dynamometer, Scandidact, Oldenvej 45, 3490 Kvistgard, Denmark.
[2] OMRON R6 Wrist Blood Pressure Monitor, HEM-6000-E, Omron Healthcare Europe, Wegelaan 67-69 2312 JD Hoofddorp, The Netherlands.

- Chronic conditions and health care service use: The same conditions as is in the individual questionnaire.
- Health care utilization: The same strategy was used in the individual questionnaire.

2.7 Sampling Weight

Sage India Wave 3, a follow-up survey of SAGE Wave 2 also uses a multi-stage stratified cluster sampling design. In order to compensate for the unequal selection probabilities at the various levels of selection as well as non-response, household and individual weights are computed respectively as per the selection probability at each stage of selection.

Household weights are 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 of Population. Also, individual weights are post-stratified by the six states, locality, sex and age groups (18-49, 50-59,60-69, 70+) as per the 2006 projected population estimates. As per the number of households and 18+ population of the entire country respectively, a second set of household and individual weights are also provided. Weights, however, are not normalised.

All the analyses presented are carried out using these probability weights, with the variance estimates to account for the complex design implemented in STATA. Design weights are calculated considering the specific sample design. Both household and individual weights are calculated to perform analyses at the household and individual levels.

3. Household and Individual Respondent Characteristics

3.1 Household Profile

SAGE Wave 3 India interviewed 6073 households from six states; viz. Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh, and West Bengal. There was a total of 34,510 members of these sampled households. This chapter presents a profile of the selected households and household members. Information is collected from household informants, typically the head of the household, about 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 housing characteristics. These basic household data play an important role in the understanding of the issues related to adult health at the micro-level, particularly 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 17,497 males and 17,013 females. Adults of working age (15-59) accounted for 62% of the household population, while children below the age of 15 accounted for about 22% and people aged 60+ for about 15%. A little over one-fifth of respondents (6329 persons) were in urban areas. Children made up a larger share of the population in rural (23%) than in urban (21%) areas; conversely, working-age adults made up a larger proportion in urban areas. The population aged 60+ has more women in both urban areas and rural areas.

Trends: *Since 2014-15, there has been a slight decrease in the percentage of women and men aged 15-59 years while a substantial increase in the percentage of women and men aged 60 and above. There has been a decrease in the person who is never married and an increase in the percentage of 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 3, 2020

Background characteristics	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Age group[1]									
0-14	21.4	19.7	20.6	23.8	22.8	23.3	23.0	21.8	22.4
15-59	64.7	63.7	64.2	61.4	61.3	61.4	62.5	62.1	62.3
60+	13.9	16.6	15.2	14.8	15.8	15.3	14.5	16.1	15.3
Marital status[2]									
Never married	31.8	19.5	25.6	30.7	17.4	24.2	31.1	18.1	24.6
Currently married	64.3	63.5	63.9	64.7	67.4	66.0	64.6	66.1	65.3
Widowed	3.2	16.3	9.8	3.9	14.3	9.0	3.7	15.0	9.3
Other[3]	0.7	0.7	0.7	0.7	0.9	0.8	0.7	0.8	0.8
Education[4]									
No formal education	4.7	17.7	11.2	11.4	31.6	21.3	9.3	26.9	18.0
Less than primary	13.6	15.8	14.8	17.9	17.3	17.6	16.5	16.8	16.7
Primary school	21.6	19.6	20.6	24.7	21.3	23.0	23.7	20.7	22.2
Secondary school	19.6	16.9	18.3	17.1	12.3	14.7	17.9	13.8	15.9
High school	19.7	15.5	17.6	15.3	10.4	12.9	16.7	12.1	14.4
College and above	20.7	14.5	17.6	13.6	7.3	10.5	15.9	9.7	12.8
Wealth quintile									
Lowest	7.0	6.5	6.7	19.7	20.2	19.9	15.6	15.7	15.6
Second	14.7	14.6	14.7	19.8	20.4	20.1	18.2	18.5	18.3
Middle	16.1	16.1	16.1	21.5	21.6	21.6	19.8	19.8	19.8
Fourth	23.3	21.9	22.6	19.3	19.2	19.3	20.6	20.1	20.4
Highest	38.9	40.9	39.9	19.7	18.6	19.1	25.9	26.0	25.9
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (Total)	**3,168**	**3,161**	**6,329**	**14,329**	**13,852**	**28,181**	**17,497**	**17,013**	**34,510**
Number (Aged 7+)	**2,892**	**2,905**	**5,797**	**12,898**	**12,539**	**25,437**	**15,790**	**15,444**	**31,234**
Number (Aged 15+)	**2,545**	**2,595**	**5,140**	**10,985**	**10,805**	**21,790**	**13,530**	**13,400**	**26,930**

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

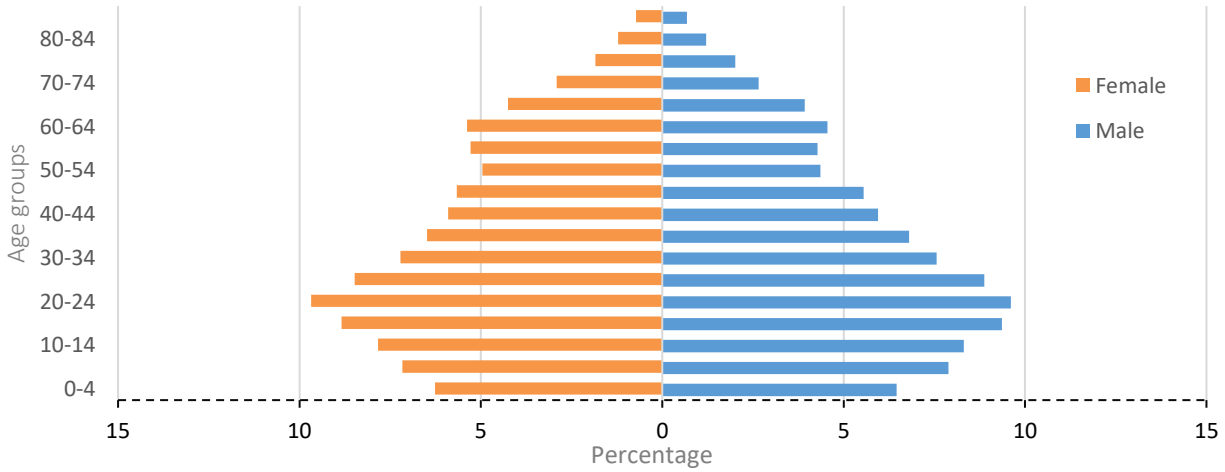
[2] Marital status is calculated for the population aged 15+.

[3] Includes divorced, separated or cohabiting.

[4] Education is collected for the population aged seven 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 3, 2020



Data on marital status collected for persons aged 15+ 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 10%. Urban areas have a larger proportion of both men and women who have 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+, which is the age of formal entry into school. More than one-quarter of the household population (19%) had no formal education; slightly more than half (55%) 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, 21% of the population had no formal education, compared to 11% in urban areas. Meanwhile, in rural areas, 24% 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, 32% of females in rural areas had no formal education, compared to 12% of rural males, and only 18% had a high school education or above, compared to 29% of rural males.

Distribution of households by wealth quintile shows a relatively higher proportion of poor people in rural areas and wealthier people in urban areas. About half the rural population belonged to the first and second (lowest) wealth quintiles, compared to 22% of the urban population. Similarly, 63% of the urban population, but only 39% 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 18% of the population in West Bengal to 25% in Uttar Pradesh. The working population ranged from 60% in Uttar Pradesh to nearly 68% in Assam. Adults aged 60+ accounted for 15% or more of the population in Karnataka, Maharashtra and West Bengal (Table 3.1.2). In all the six states, less than one-half of the population had never been married. Uttar Pradesh has the highest proportion of never-married persons (47%) and the lowest proportion of currently married (46%).

The proportion of males with no formal education was the lowest in Maharashtra (5%), whereas the proportion of females with no formal education was observed to be the lowest in Assam (17%). The highest proportion with no education at all was in Rajasthan for both males and females (13% and 39% respectively). Karnataka has the highest proportion of males and females with a high school education or above – 40% of males and 31% of females. In all six states, the educational attainment of females was significantly lower than that of males. Overall, the proportion of females with no formal education was higher than males by 18 percentage points; in Rajasthan and Uttar Pradesh, the difference was 26 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, Assam has the worst economic conditions, with the largest proportion (32%) of households in the lowest wealth quintile, while Maharashtra has the highest proportion (35%) in the highest wealth quintile.

Table 3.1.2 Percent distribution of the household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	19.7	21.0	21.0	24.4	25.1	18.1	22.4
15-59	67.5	60.7	63.9	60.6	60.2	65.6	62.3
60+	12.8	18.3	15.1	15.1	14.7	16.3	15.3
Sex[1]							
Male	51.2	49.6	49.2	50.7	51.9	50.2	50.7
Female	48.8	50.4	50.8	49.3	48.1	49.8	49.3
Marital status[2]							
Never married	38.8	38.3	38.6	42.1	46.8	35.5	41.5
Currently married	52.2	52.4	54.3	51.4	45.9	55.1	50.7
Widowed	6.1	8.5	6.8	6.1	7.0	8.8	7.2
Other[3]	2.9	0.8	0.3	0.5	0.4	0.6	0.6
Education[4]							
Male							
No formal education	7.9	11.2	5.0	13.1	9.5	10.2	9.3
Less than primary	26.3	15.4	14.6	16.1	15.0	19.8	16.5
Primary school	27.5	19.5	15.8	25.3	25.0	30.7	23.7
Secondary school	18.7	13.5	24.7	16.2	17.1	14.7	17.9
High school	11.3	22.8	22.6	13.2	15.9	12.5	16.7
College and above	8.5	17.5	17.3	16.2	17.4	12.1	15.9
Female							
No formal education	16.6	27.8	16.4	38.9	31.0	24.7	26.9
Less than primary	26.6	12.4	16.7	13.1	16.5	20.0	16.8
Primary school	27.8	16.6	19.5	20.4	20.0	24.2	20.7
Secondary school	14.8	11.9	22.6	10.1	11.1	12.5	13.8
High school	9.4	18.5	15.9	7.9	11.1	9.7	12.1
College and above	4.8	12.9	9.0	9.7	10.3	9.1	9.7
Wealth quintile							
Lowest	31.7	6.4	6.2	14.0	21.9	14.4	15.6
Second	25.2	21.4	19.5	14.8	17.3	17.8	18.3
Middle	20.4	22.7	19.1	14.0	17.9	28.1	19.8
Fourth	14.1	24.3	19.9	31.1	16.1	21.6	20.4
Highest	8.5	25.3	35.4	26.3	26.8	18.1	25.9
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (Total)	**3,940**	**3,661**	**5,273**	**7,500**	**7,989**	**6,147**	**34,510**
Number (Aged 7-plus)	**3,624**	**3,324**	**4,845**	**6,666**	**7,145**	**5,630**	**31,234**
Number (Aged 15-plus)	**3,184**	**2,920**	**4,222**	**5,629**	**5,953**	**5,022**	**26,930**

[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 seven and above.

Table 3.1.3 Percent distribution of urban household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	14.9	21.3	21.6	21.2	21.9	15.9	20.5
15-59	70.3	60.8	64.6	66.3	63.6	65.4	64.3
60+	14.8	17.9	13.8	12.5	14.5	18.7	15.2
Sex[1]							
Male	52.6	50.7	47.2	51.9	52.1	49.2	49.9
Female	47.4	49.3	52.8	48.1	47.9	50.8	50.1
Marital status[2]							
Never married	34.7	39.3	40.0	43.2	47.3	32.3	40.7
Currently married	53.2	51.7	53.1	51.1	43.9	56.4	50.9
Widowed	7.2	8.1	6.7	5.5	8.4	10.5	7.8
Other[3]	5.0	1.0	0.2	0.1	0.4	0.8	0.6

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Education[4]							
Male							
No formal education	1.3	7.7	2.2	5.3	6.1	4.6	4.7
Less than primary	22.5	14.2	11.8	15.8	12.7	15.2	13.8
Primary school	25.4	19.3	13.5	22.0	27.4	28.5	21.6
Secondary school	23.0	13.1	26.9	12.8	18.6	17.6	19.7
High school	14.4	25.6	24.4	14.7	17.2	14.3	19.6
College and above	13.4	20.1	21.2	29.4	17.9	19.9	20.7
Female							
No formal education	2.6	22.3	8.7	22.3	27.1	15.8	17.5
Less than primary	21.3	11.8	17.9	12.6	15.8	16.8	15.9
Primary school	28.2	16.4	17.8	21.8	20.3	22.3	19.7
Secondary school	21.8	13.0	25.0	10.0	12.7	14.5	17.0
High school	15.4	20.4	19.1	10.7	12.5	11.7	15.4
College and above	10.7	16.2	11.6	22.7	11.7	18.8	14.6
Wealth quintile							
Lowest	8.2	2.6	2.3	2.8	18.5	2.2	6.7
Second	22.8	15.8	14.5	6.8	20.4	8.6	14.7
Middle	25.6	14.1	17.4	10.3	15.1	19.9	16.2
Fourth	21.2	29.0	17.2	33.4	15.5	32.2	22.7
Highest	22.2	38.6	48.7	46.7	30.5	37.1	39.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (Total)	**549**	**1018**	**1325**	**1325**	**800**	**1312**	**6329**
Number (Aged 7+)	**518**	**925**	**1221**	**1192**	**728**	**1213**	**5797**
Number (Aged 15+)	**479**	**825**	**1081**	**1018**	**631**	**1106**	**5140**

[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 seven and above.

Table 3.1.4 Percent distribution of rural household population by selected socio-demographic characteristics across states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
Age group[1]							
0-14	20.4	20.8	20.4	25.5	26.1	19.2	23.2
15-59	67.1	60.6	63.2	58.5	59.2	65.7	61.4
60+	12.5	18.6	16.3	16.0	14.7	15.1	15.4
Sex[1]							
Male	51.0	48.6	51.4	50.2	51.8	50.8	51.0
Female	49.0	51.4	48.7	49.8	48.2	49.3	49.0
Marital status[2]							
Never married	39.5	37.3	37.1	41.7	46.6	37.1	41.7
Currently married	52.0	53.1	55.6	51.4	46.5	54.5	50.8
Widowed	5.9	9.0	6.9	6.3	6.6	8.0	7.0
Other[3]	2.6	0.7	0.4	0.6	0.4	0.5	0.6
Education[4]							
Male							
No formal education	8.9	14.5	7.7	16.0	10.7	13.0	11.5
Less than primary	26.9	16.6	17.2	16.2	15.7	22.1	17.8
Primary school	27.8	19.7	17.9	26.5	24.3	31.6	24.6
Secondary school	18.0	14.0	22.7	17.4	16.6	13.3	17.1
High school	10.8	20.2	20.9	12.7	15.5	11.7	15.4
College and above	7.6	15.0	13.5	11.2	17.3	8.3	13.6
Female							
No formal education	18.6	32.9	24.8	44.7	32.2	29.2	31.5
Less than primary	27.3	12.9	15.4	13.3	16.7	21.6	17.2
Primary school	27.8	16.7	21.3	19.9	19.9	25.2	21.2
Secondary school	13.8	10.8	19.9	10.2	10.6	11.4	12.4
High school	8.5	16.7	12.4	6.9	10.7	8.6	10.5

Background characteristics	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	India (pooled)
College and above	4.0	9.9	6.1	5.1	9.8	4.1	7.3
Wealth quintile							
Lowest	35.3	10.2	10.1	18.0	22.9	20.5	19.6
Second	25.6	26.8	24.7	17.6	16.4	22.3	20.2
Middle	19.7	31.1	20.8	15.3	18.8	32.1	21.8
Fourth	13.1	19.6	22.8	30.2	16.3	16.4	19.4
Highest	6.4	12.2	21.6	19.0	25.6	8.8	19.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number (Total)	**3391**	**2643**	**3948**	**6175**	**7189**	**4835**	**28181**
Number (Aged 7+)	**3106**	**2399**	**3624**	**5474**	**6417**	**4417**	**25437**
Number (Aged 15+)	**2705**	**2095**	**3141**	**4611**	**5322**	**3916**	**21790**

[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 seven and above.

3.2 Household size

Table 3.2.1 shows the distribution of households by the size of the household. Almost two-thirds of households have five or fewer members, and the other one-third have six or more members. Just 3% were single-member households, while 8% of rural and 9% of urban areas had large households with more than 11 members. The mean household size was six persons.

Trends: *Single-person households and households with 2-5 persons have increased and the gap between rural and urban in terms of the number of persons in the household has reduced during 2015-2020. Households having 11 or more persons have witnessed a decline from the last survey conducted. However, the mean household size has declined from 7.4 to 5.8 in the period.*

Households in urban areas were comparatively smaller than in rural areas, with a mean household size of 5.6 in urban areas and 5.9 in rural areas. 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 4% in the lowest quintile to 12% in the highest.

The mean size of the highest wealth quintile households (6.6) was 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 six for lower levels of education, dropping to 5 for households with a college-educated head.

Table 3.2.1 Percent distribution of household size by residence, caste, religion, wealth quintile, and education of household heads across state and India (pooled), SAGE Wave 3, 2020

Background characteristics	Single person	2-5 persons	6-10 persons	11+ persons	Total	Mean household size
Residence						
Urban	3.0	56.8	31.4	8.8	100	5.6
Rural	2.6	49.5	39.7	8.2	100	5.9
Caste						
Scheduled tribe	3.3	44.6	40.5	11.6	100	6.2
Scheduled Caste	2.9	50.7	38.5	7.9	100	5.8
Other[1]	2.7	52.9	36.2	8.2	100	5.8
Religion						
Hindu	2.7	51.8	37.1	8.4	100	5.8
Muslim	3.0	55.8	34.7	6.5	100	5.5
Other[2]	2.7	51.2	36.9	9.3	100	5.9
Wealth quintile						
Lowest	8.0	54.9	33.2	3.9	100	4.9

Background characteristics	Single person	2-5 persons	6-10 persons	11+ persons	Total	Mean household size
Second	2.0	56.3	34.7	7.0	100	5.4
Middle	1.8	52.0	37.7	8.5	100	5.9
Fourth	1.0	50.1	39.5	9.3	100	6.1
Highest	1.3	47.7	38.7	12.3	100	6.6
Education of head of household						
No formal education	5.1	44.9	40.9	9.1	100	5.9
Less than primary	2.5	55.3	33.6	8.7	100	5.7
Primary school	1.2	51.1	39.0	8.7	100	6.0
Secondary school	1.4	55.4	34.9	8.4	100	6.0
High school	1.0	53.2	36.4	9.4	100	5.9
College and above	3.7	62.2	29.9	4.3	100	5.1
State						
Assam	1.3	62.2	32.7	3.7	100	5.2
Karnataka	3.4	61.2	29.5	5.9	100	5.1
Maharashtra	3.5	57.9	31.1	7.6	100	5.5
Rajasthan	2.7	41.1	45.2	11.1	100	6.5
Uttar Pradesh	1.9	39.5	45.9	12.7	100	6.7
West Bengal	3.4	64.8	28.6	3.2	100	4.9
Total[3]	**2.7**	**52**	**36.9**	**8.4**	**100**	**5.8**
Number	**166**	**3237**	**2241**	**429**	**6073**	

[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 the education level of the 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. Eighty-two percent of households were headed by men and 18% of households were headed by women. Around 50% of the household heads were in the 50-69 age group, while about 22% of the households were noted to have septuagenarian heads (aged 70+).

Female household heads were slightly older than males. Most of the male heads (89%) were married while most of the female heads (83%) were widowed. The majority of the households with female household heads were in rural areas. Nearly one-third (27%) of household heads had no formal education and only about one-quarter (21%) studied beyond high school. Ten percent were college-educated. The educational attainment of female heads was especially low: 58% with no formal education and only 6% 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 3, 2020

Background characteristics	Male	Female	Total
Age group			
18-29	1.8	0.5	1.6
30-39	6.8	3.6	6.2
40-49	18.7	10.1	17.1
50-59	24.0	22.4	23.7
60-69	27.6	35.4	29.1
70-79	15.7	21.1	16.7
80+	5.4	6.8	5.7
Marital status			
Never married	1.9	0.6	1.7
Currently married	89.3	14.1	74.9
Widowed	8.4	83.4	22.8
Other[1]	0.4	1.9	0.7

Background characteristics	Male	Female	Total
Residence			
Urban	32.2	41.7	34.0
Rural	67.8	58.4	66.0
Caste			
Scheduled Tribe	6.9	7.4	7.0
Scheduled Caste	14.7	13.5	14.5
Other[2]	78.4	79.1	78.5
Religion			
Hindu	75.6	77.2	75.9
Muslim	7.1	7.7	7.2
Other[3]	17.3	15.1	16.9
Education			
No formal education	19.6	57.6	26.9
Less than primary	16.4	14.7	16.1
Primary school	24.1	14.6	22.3
Secondary school	15.2	7.0	13.7
High school	13.2	2.9	11.2
College and above	11.4	3.3	9.9
Wealth quintile			
Lowest	17.0	24.4	18.4
Second	19.1	21.9	19.7
Middle	19.8	17.7	19.4
Fourth	20.2	16.5	19.5
Highest	23.8	19.5	23.0
State			
Assam	6.3	6.9	6.4
Karnataka	10.7	12.5	11.0
Maharashtra	21.8	19.0	21.3
Rajasthan	12.8	9.2	12.1
Uttar Pradesh	31.1	32.1	31.3
West Bengal	17.5	20.4	18.0
Total	**100**	**100**	**100**
Number	**4996**	**1077**	**6073**

[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 heads 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+. Higher proportions of female-headed households were found in Karnataka (18%) and West Bengal (19%). The pattern of headship is more or less similar by residence, caste, religion, income and education. However, female-headed households were slightly more common in urban than rural areas, and also among scheduled tribes. 41% of households headed by women had no formal education, and only 6% of households had 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: *Households headed by 50+ males have decreased (from 66% to 59%) over the period. The mean age of the main income earner has decreased from 2015 to 2020. The living arrangements of survey respondents have changed over the years. Households without members aged 50+ have remained same over the years. However, households with two or more members aged 50 plus have decreased from 54 percent to 48% in the period 2015-2020.*

Table 3.2.3 Percent distribution of household heads by age and sex according to selected characteristics, India (pooled), SAGE Wave 3, 2020

Background characteristics	Female 49 or younger	Female 50+	Male 49 or younger	Male 50+	Total	Mean age of household head
Residence						
Urban	2.9	20.5	22.4	54.2	100	58.9
Rural	2.6	14.3	22.0	61.1	100	58.9
Caste						
Scheduled Tribe	3.5	16.7	24.5	55.3	100	58.9
Scheduled Caste	2.1	15.8	21.4	60.7	100	59.2
Other[1]	2.8	16.5	22.0	58.7	100	58.8
Religion						
Hindu	2.7	16.7	22.2	58.4	100	59.0
Muslim	2.8	17.4	23.8	56.0	100	58.6
Other[2]	2.6	14.5	21.1	61.8	100	58.5
Education						
No formal education	4.2	36.7	10.4	48.7	100	62.7
Less than primary	4.0	13.4	16.1	66.5	100	60.1
Primary school	2.1	10.4	28.1	59.4	100	56.8
Secondary school	1.4	8.4	28.6	61.6	100	57.5
High school	0.8	4.1	33.1	62.0	100	56.1
College and above	1.7	4.7	29.0	64.7	100	56.6
Wealth quintile						
Lowest	4.2	21.1	24.0	50.7	100	58.1
Second	2.8	18.5	23.2	55.5	100	58.2
Middle	3.4	14.0	24.3	58.2	100	58.0
Fourth	2.4	13.7	21.1	62.8	100	58.7
Highest	1.1	15.1	18.7	65.1	100	61.1
State						
Assam	4.3	16.4	25.2	54.1	100	56.5
Karnataka	3.4	18.3	21.5	56.9	100	58.9
Maharashtra	3.0	14.1	26.3	56.6	100	57.8
Rajasthan	2.1	12.5	24.9	60.6	100	58.7
Uttar Pradesh	2.0	17.6	18.6	61.8	100	60.4
West Bengal	3.0	18.6	20.8	57.6	100	58.5
Total	**2.7**	**16.3**	**22.2**	**58.8**	**100**	**58.9**
Number	**166**	**911**	**1351**	**3645**	**6073**	

[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.*

(b) Main income earner of households

Table 3.2.4 presents the distribution of households by type of main income earner. In most households (81%), men were the main income earners. The mean age of income earners was 47 years. People aged 50+ constitute 75% of household heads, but only 47% are main income earners, indicating that not all heads 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 3, 2020

Background characteristics	Female 49 or younger	Female 50+	Male 49 or younger	Male 50+	Total	Mean age of main income earner
Residence						
Urban	3.4	6.0	53.7	37.0	100	47.5
Rural	2.9	5.1	50.7	41.3	100	48.7
Caste						
Scheduled Tribe	3.0	5.6	52.2	39.3	100	49.2
Scheduled Caste	2.5	4.2	50.8	42.6	100	48.9
Other[1]	3.2	5.6	51.8	39.4	100	48.1
Religion						
Hindu	3.1	5.8	52.4	38.7	100	48.1
Muslim	2.7	4.7	50.3	42.3	100	48.8
Other[2]	3.0	4.0	49.3	43.7	100	48.7
Wealth quintile						
Lowest	4.2	8.5	51.6	35.7	100	48.2
Second	2.7	6.8	54.8	35.8	100	47.0
Middle	3.3	5.2	53.1	38.3	100	47.6
Fourth	3.4	3.7	52.6	40.3	100	46.9
Highest	2.1	3.4	47.2	47.4	100	51.2
Household Head Education						
No formal education	3.8	11.8	52.7	31.7	100	47.2
Less than primary	4.3	4.5	47.9	43.3	100	47.9
Primary school	3.0	2.4	58.9	35.8	100	46.3
Secondary school	2.2	2.1	52.5	43.2	100	49.4
High school	1.6	2.5	47.8	48.0	100	51.0
College and above	2.4	4.4	42.4	50.8	100	51.7
State						
Assam	4.2	4.8	48.5	42.5	100	48.8
Karnataka	3.6	8.7	51.8	35.9	100	48.3
Maharashtra	4.2	4.7	54.2	36.9	100	47.8
Rajasthan	2.5	3.2	57.1	37.1	100	46.7
Uttar Pradesh	1.6	4.5	51.6	42.3	100	48.8
West Bengal	4.0	7.3	46.5	42.2	100	48.8
Total[3]	**11.9**	**7.3**	**41.4**	**39.4**	**100**	**47.2**
Number	**630**	**404**	**2,242**	**2,199**	**5,475**	

[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.*

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+. In 39% of households, there was only one person aged 50+, and in the remaining 48%, there were two or more. This pattern prevailed in both urban and rural areas. Richest households were less likely to have people aged 50+. In the lowest wealth quintile, 16% of households have no members in this age group and 38% of households with at least two. In contrast, in the highest wealth quintile, only 10% of households have no members aged 50+, and 56% of households with two or more. Households in Assam were least likely (18%) to have persons aged 50+, while households in Rajasthan 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 3, 2020

Background characteristics	Households without members aged 50+	Household with single member aged 50+	Households with two or more members aged 50+	Total
Residence				
Urban	13.8	41.2	45.0	100
Rural	13.1	38.0	48.9	100
Wealth quintile				
Lowest	16.1	45.7	38.2	100
Second	13.9	44.2	41.9	100
Middle	14.8	35.6	49.6	100
Fourth	12.3	37.8	49.9	100
Highest	10.2	33.6	56.2	100
State				
Assam	17.9	45.8	36.3	100
Karnataka	12.3	39.2	48.5	100
Maharashtra	16.4	39.7	43.9	100
Rajasthan	13.4	34.8	51.8	100
Uttar Pradesh	10.4	39.3	50.3	100
West Bengal	13.8	38.5	47.7	100
Total	**13.3**	**38.7**	**48**	**100**
Number	**798**	**2362**	**2913**	**6073**

3.4 Individual respondents

Overall, 7,885 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+ 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+. Among these respondents, more than one-third (39%) of men were aged 60-69, 23% were aged 70-79, and 8% were aged 80+. The age distribution of women shows more than one-third (39% and 37%) were aged 50-59 and 60-69.

Among the older men, 87% were currently married, 11% were widowed, and a small proportion were either never married or divorced/separated. Among older women, a substantial proportion was widowed (38%); this proportion was higher in West Bengal (44%) and Karnataka (40%).

Nearly three-quarters of older respondents (70% of men and 69% 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 older respondents from scheduled tribes while West Bengal has more from scheduled castes. In Karnataka, 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 lower for women - 22% of men, and 61% of women with no formal education. More than one-third (39%) of older men completed at least secondary schooling and 11% completed college education. In older women also, 12% of older women have completed secondary schooling, and a mere 3% completed college. Educational attainment is lowest in Rajasthan, where 34% of older men and 82% of older women have no formal education.

Among older men, Maharashtra has the lowest proportion with no formal education (14%), while Maharashtra has the highest proportion of older men with secondary schooling (44%). Assam has the lowest proportion of older women with no formal education (41%). West Bengal has the highest proportion of older women with a college education and above (8%).

Older respondents from Rajasthan and Maharashtra are more likely to be economically better off than those from other states, and those from Assam and West Bengal were more likely to be the worse off. In Karnataka, only 7% of older men and 9% of older women belonged to the lowest wealth quintile, whereas in Assam 31% of older men and 33% of older women belonged to the lowest wealth quintile.

Table 3.4.1 (a) Percent distribution of male older respondents by selected socio-demographic characteristics, states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
50-59	35.0	20.5	31.4	27.3	29.7	35.6	29.8
60-69	35.1	46.2	40.4	42.7	36.7	39.2	39.5
70-79	20.6	23.8	20.7	22.3	26.2	19.3	23.1
80+	9.3	9.5	7.5	7.7	7.4	5.9	7.6
Marital status							
Never married	0.6	1.1	0.0	1.5	3.1	2.7	1.9
Currently married	89.3	89.3	94.0	90.8	79.9	88.6	86.8
Widowed	9.7	9.4	5.9	7.7	15.8	8.4	10.8
Other[1]	0.4	0.2	0.1	0.0	1.1	0.4	0.5
Residence							
Urban	12.1	54.9	46.3	22.3	19.3	32.3	30.2
Rural	87.9	45.1	53.7	77.7	80.7	67.7	69.8
Caste							
Scheduled Tribe	17.0	3.5	5.0	8.6	0.3	6.0	4.3
Scheduled Caste	8.1	5.8	9.7	15.6	20.0	21.1	15.5
Other[2]	74.9	90.6	85.3	75.9	79.7	73.0	80.2
Religion							
Hindu	63.6	84.8	90.9	86.9	84.1	81.8	84.4
Muslim	11.7	12.1	3.9	8.3	15.5	17.1	12.0
Other	24.7	3.1	5.2	4.8	0.4	1.1	3.6
First language							
Hindi	1.4	1.1	2.8	60.2	99.7	2.2	46.2
Assamese	51.0	0.0	0.0	0.0	0.1	0.0	2.7
Bengali	29.9	0.0	0.0	0.0	0.2	94.4	15.1
Marathi	0.0	7.1	95.0	0.0	0.0	0.0	18.9
Kannada	0.0	68.4	0.0	0.0	0.0	0.0	7.4
Other language	17.8	23.5	2.2	39.8	0.1	3.4	9.7
Education							
No formal education	18.7	26.3	14.1	34.6	21.9	18.0	21.8
Less than primary	33.9	15.8	22.2	15.0	10.4	24.1	17.0
Primary school	21.9	17.3	16.9	21.6	25.9	26.1	22.5
Secondary school	11.4	5.9	20.3	12.7	14.1	11.9	13.7
High school	6.5	20.3	16.2	7.0	16.0	7.0	13.5
College and above	7.7	14.3	9.9	9.2	11.9	12.9	11.3
Wealth quintile							
Lowest	30.9	6.7	9.2	16.7	22.0	13.6	16.5
Second	24.4	16.7	23.9	15.1	18.6	18.5	19.2
Middle	20.5	17.7	18.4	11.9	16.0	24.6	17.6
Fourth	15.0	23.9	21.6	27.4	16.3	18.7	19.9
Highest	9.2	35.0	27.0	28.9	27.0	24.6	26.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**370**	**379**	**510**	**587**	**632**	**596**	**3074**

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

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

Table 3.4.1 (b) Percent distribution of female older respondents by selected socio-demographic characteristics, states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
50-59	47.2	41.6	46.2	32.0	34.6	42.1	39.0
60-69	32.5	35.9	31.6	39.1	40.8	32.8	36.5
70-79	16.1	17.8	20.1	20.4	16.7	16.8	18.0
80+	4.3	4.8	2.1	8.5	8.0	8.3	6.5
Marital status							
Never married	1.3	0.7	0.3	0.0	0.3	0.5	0.4
Currently married	62.7	57.1	64.2	64.6	60.9	54.0	60.7
Widowed	35.4	39.8	35.4	35.4	38.3	44.4	38.3
Other[1]	0.7	2.4	0.1	0.0	0.5	1.1	0.6
Residence							
Urban	13.5	47.6	47.5	20.2	22.3	35.0	31.1
Rural	86.5	52.4	52.5	79.8	77.7	65.0	68.9
Caste							
Scheduled Tribe	18.2	5.7	5.0	7.8	0.7	6.8	4.9
Scheduled Caste	11.3	7.9	9.5	14.7	21.7	22.9	16.6
Other[2]	70.5	86.4	85.5	77.5	77.7	70.3	78.5
Religion							
Hindu	62.9	84.9	91.4	88.9	85.8	79.9	85.1
Muslim	11.5	11.8	3.2	7.4	13.9	19.2	11.4
Other[3]	25.6	3.3	5.4	3.7	0.3	0.9	3.4
First language							
Hindi	2.0	2.1	3.4	51.4	100.0	1.9	43.4
Assamese	46.5	0.0	0.0	0.0	0.0	0.0	2.3
Bengali	33.0	0.0	0.0	0.0	0.0	94.8	17.1
Marathi	0.0	7.9	93.9	0.0	0.0	0.0	18.8
Kannada	0.0	68.3	0.0	0.0	0.0	0.0	7.1
Other language[4]	18.4	21.7	2.7	48.6	0.0	3.3	11.3
Education							
No formal education	40.6	56.7	46.2	81.9	70.6	48.8	61.1
Less than primary	29.9	10.7	14.5	5.1	8.7	20.5	12.5
Primary school	17.5	11.8	21.4	9.4	13.6	14.2	14.6
Secondary school	5.3	6.5	12.6	1.8	3.5	5.9	5.8
High school	5.14	7.42	2.7	0.6	2.0	3.2	2.8
College and above	1.5	6.9	2.6	1.3	1.6	7.5	3.2
Wealth quintile							
Lowest	32.8	9.1	9.6	17.8	27.9	16.5	19.4
Second	21.9	23.8	21.7	15.3	18.5	17.0	19.1
Middle	21.4	21.9	25.0	16.3	17.0	25.1	20.5
Fourth	16.3	19.6	17.3	26.3	13.8	18.3	17.7
Highest	7.6	25.7	26.4	24.4	22.8	23.2	23.3
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**398**	**477**	**569**	**752**	**696**	**753**	**3645**

[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 3.4.2 (a & b) presents the characteristics of younger respondents, aged 18-49 years. In the SAGE India study, younger respondents constitute one-fifth(16%) 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, 32% were in the youngest age group (18-29 years), 29% were aged 30-39 years and 39% were aged 40-49 years. Women were relatively older; more than one-third

were in the 30-39 and 40-49 age groups (36% and 53% respectively). 80% of male respondents and 83% of female respondents were currently married; 19% of men and 8% of women were never married. West Bengal and Karnataka have relatively more widowed women.

Nearly two-thirds of younger respondents were from rural areas, and one-third were from urban areas. Seven percent of men and women younger respondents were from scheduled tribes, about one-fifth from scheduled castes and about three-fourths from other castes. Assam has relatively more younger respondents from scheduled tribes, while West Bengal has more from scheduled castes. Most younger respondents (83% of men and 86% of women) were Hindu, about 11% were Muslim, and the remaining from other religions. Karnataka and West Bengal have relatively higher proportions of Muslim respondents.

Less than one-fifth of younger men and 35% of younger women have no formal education. More than half (56%) of younger men completed secondary schooling and 19% completed college. Among younger women, 33% have completed secondary schooling and 8% completed college. The proportion of younger respondents with no formal education is lowest in Maharashtra (4%) for men and in Assam (19%) for women. However, in the case of higher education, Karnataka has a maximum of 34% of younger men and Maharashtra has a maximum of 15% 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 3, 2020

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
18-29	38.1	17.8	30.1	35.8	28.4	45.2	31.8
30-39	14.1	38.2	32.4	19.2	28.7	28.1	28.6
40-49	47.8	44.0	37.5	45.0	42.9	26.7	39.5
Marital status							
Never married	23.4	15.7	20.0	17.9	10.7	31.5	18.6
Currently married	75.1	84.3	80.0	78.9	86.5	67.6	80.0
Widowed	1.5	0.0	0.0	2.0	1.4	0.6	0.8
Other[1]	0.0	0.0	0.0	1.2	1.4	0.3	0.6
Residence							
Urban	13.0	67.5	42.8	17.3	23.8	27.6	32.3
Rural	87.0	32.5	57.2	82.7	76.3	72.4	67.7
Caste							
Scheduled Tribe	22.6	2.4	4.7	17.1	1.9	10.8	7.3
Scheduled Caste	4.1	10.1	18.7	14.1	28.2	41.3	22.7
Other[2]	73.3	87.6	76.6	68.8	69.9	48.0	70.0
Religion							
Hindu	62.2	83.4	81.4	88.2	86.3	81.7	82.7
Muslim	8.8	14.9	9.0	5.7	13.7	14.5	11.5
Other[3]	29.0	1.7	9.6	6.1	0.0	3.8	5.8
First language							
Hindi	1.9	13.7	10.1	57.4	100.0	3.2	41.3
Assamese	51.8	0.0	0.0	0.0	0.0	0.0	3.5
Bengali	26.9	0.0	0.0	0.0	0.0	93.5	16.9
Marathi	0.0	0.3	87.8	0.0	0.0	0.0	21.8
Kannada	0.0	81.9	0.0	0.0	0.0	0.0	8.8
Other language[4]	19.4	4.1	2.1	42.6	0.0	3.2	7.8
Education							
No formal education	9.2	6.2	3.6	12.7	16.3	10.5	10.2
Less than primary	16.2	12.3	2.7	10.0	1.9	20.4	8.1
Primary school	29.7	15.8	27.9	32.3	26.3	18.9	25.3

Background characteristics	Male						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Secondary school	22.8	14.8	19.2	17.0	15.2	19.5	17.6
High school	11.8	17.3	28.6	13.4	19.0	20.2	20.3
College and above	10.2	33.6	17.9	14.5	21.2	10.6	18.5
Wealth quintile							
Lowest	42.5	1.2	4.2	18.6	23.1	9.0	14.6
Second	22.9	16.1	20.6	7.8	14.9	25.8	17.9
Middle	17.3	26.1	24.0	22.8	23.8	29.1	24.4
Fourth	10.0	38.2	24.1	35.2	18.1	16.4	23.0
Highest	7.3	18.3	27.1	15.6	20.1	19.7	20.2
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**83**	**57**	**116**	**87**	**88**	**118**	**549**

[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 3.4.2 (b) Percent distribution of female younger respondents by selected socio-demographic characteristics and sex across states and India (pooled), SAGE Wave 3, 2020

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Age group							
18-29	11.0	8.3	10.8	8.9	11.5	15.8	11.6
30-39	38.3	42.5	46.5	24.0	36.4	27.6	35.7
40-49	50.8	49.2	42.7	67.1	52.1	56.6	52.7
Marital status							
Never married	8.5	10.1	6.6	6.3	7.3	9.7	8.0
Currently married	81.5	76.6	83.7	86.8	86.3	78.9	82.7
Widowed	9.6	13.3	9.8	5.8	5.7	9.8	8.6
Other[1]	0.4	0.0	0.0	1.2	0.6	1.6	0.7
Residence							
Urban	18.4	43.8	56.3	37.4	21.1	31.4	35.3
Rural	81.6	56.2	43.7	62.6	78.9	68.6	64.8
Caste							
Scheduled Tribe	12.3	4.5	3.5	9.0	3.2	11.6	6.6
Scheduled Caste	14.5	13.0	5.5	13.2	24.9	32.9	18.9
Other[2]	73.2	82.5	91.0	77.8	71.9	55.4	74.5
Religion							
Hindu	60.7	74.9	94.7	91.6	92.9	79.4	85.7
Muslim	14.2	20.7	2.6	6.7	5.2	19.1	10.3
Other[3]	25.2	4.4	2.7	1.7	1.9	1.6	4.0
First language							
Hindi	0.4	0.0	5.2	61.3	100.0	1.1	34.6
Assamese	44.3	0.0	0.0	0.0	0.0	0.0	3.4
Bengali	37.9	0.0	0.0	0.0	0.0	93.3	22.9
Marathi	0.0	10.3	93.8	0.0	0.0	0.0	21.3
Kannada	0.0	64.9	0.0	0.0	0.0	0.0	7.6
Other language[4]	17.5	24.8	1.1	38.7	0.0	5.6	10.3
Education							
No formal education	19.2	31.6	30.0	51.1	38.6	33.3	34.8
Less than primary	28.7	9.3	5.5	8.2	12.8	22.6	13.6
Primary school	23.8	24.6	15.8	22.1	18.0	17.5	19.1
Secondary school	16.2	9.7	27.9	8.9	11.2	13.9	15.3
High school	8.7	16.1	6.2	5.6	13.1	4.5	8.9
College and above	3.4	8.7	14.7	4.3	6.3	8.2	8.3

Background characteristics	Female						
	Assam	Karnataka	Maharashtra	Rajasthan	Uttar Pradesh	West Bengal	Total (pooled)
Wealth quintile							
Lowest	36.0	4.0	3.8	15.1	19.8	18.1	14.9
Second	31.4	30.4	22.3	15.0	22.1	20.4	22.6
Middle	11.7	22.9	28.3	15.6	16.4	35.5	23.4
Fourth	16.3	15.0	16.2	33.6	18.7	19.0	19.4
Highest	4.5	27.7	29.4	20.7	23.0	6.9	19.8
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Number	**131**	**107**	**133**	**123**	**132**	**216**	**842**

[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.*

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 were more likely to be economically worse. In Karnataka, only 1% of younger male and 4% of younger female respondents belong to the lowest wealth quintile, whereas in Assam, 43% of younger men and 36% of younger women were in the lowest quintile.

4. Risk Factors and Health Behaviours

Behavioural risk factors include numerous lifestyle habits such as smoking, risky alcohol consumption, obesity, and physical inactivity. These risk factors alone can influence health, including health in older ages. The predisposition of individuals towards these risk factors and health problems should be the basis for health promotion and disease prevention interventions. The questions were developed in accordance with the WHO NCD risk factor surveillance (STEPS) standards (WHO, 2017) and gathered information on five key risk factors: tobacco use, alcohol intake, fruit and vegetable consumption, physical activity levels, and environmental risk factors, which have a significant impact on non-communicable diseases, morbidity, and mortality.

The study of risk factors also makes risk modification feasible through effective primary prevention and health promotion activities. This chapter discusses potential health risks and their distribution in the population. Tobacco and alcohol use have a significant impact on an individual's health. The nutrient composition of food, the amount of fruit and vegetables consumed, and the level of physical activity are all directly associated with health. SAGE has incorporated food security questions, which are especially significant for disadvantaged populations in the context of globalization, inequality, environmental degradation, and financial crises.

Additionally, environmental risk factors such as access to improved drinking water, improved sanitation facilities, cooking fuel type, and ventilation of cooking areas are important determinants of human health. SAGE India, Wave 3 (hereinafter referred to as SAGE India) gathered information on tobacco use, alcohol intake, fruit and vegetable consumption, physical activity levels, and environmental risk factors of older adults that is critical for policy implications and the development of effective preventive programs aimed at improving health and reducing the disease burden among older adults.

4.1 Tobacco use

According to the GBD report (2019), more than 1 billion people smoked tobacco regularly, and smoking was responsible for an estimated 8 million deaths. More than 7 million of these deaths are caused by direct tobacco use, while 1.2 million are caused by non-smokers inhaling second-hand smoke. Tobacco use accounted for 20.2% of all-cause deaths in males and was the main risk factor for both deaths and DALYs in males. Tobacco use accounted for approximately 5.8% of all deaths among females, owing to their lower prevalence, shorter duration, and lesser intensity of smoking than in males. However, the study has also suggested that tobacco control has contributed to reductions in global prevalence of smoking tobacco use of 27% for males and 37% for females.

Tobacco use and smoking are recognized risk factors for many chronic diseases such as chronic pulmonary disease, hypertension, cardiovascular disease, diabetes, cancer, and microbial infections, which lead to heavy burdens involving health care, and economic, and social costs in all countries (Yang et al., 2015). There is sufficient evidence pointing toward a causal association between tobacco smoking and negative health outcomes. Although tobacco smoking is frequently related to ill health, disability, and mortality from non-communicable chronic diseases, it is also associated with a greater risk of death from communicable diseases. Over 80% of the 1.3 billion tobacco users worldwide live in low- and middle-income countries where the burden of tobacco-related illness and death is heaviest (WHO Facts, 2022). Tobacco use contributes to poverty by diverting household spending from basic needs such as food and shelter to tobacco. In India, according to WHO, around 273,664 people aged 15 years and older are current tobacco users in the year 2020, and India is likely to achieve a 30 percent reduction in tobacco use by 2025. (WHO, 2021).

While factory-made cigarettes are the most common type of tobacco consumption globally, tobacco is used in India in several different ways. Small, thin, hand-rolled cigarettes, known as bidis, have been the most popular way to smoke tobacco, especially among rural men and women. With an estimated market share of 85 percent, bidis are the most popular smoking tobacco product in India (GATS, 2010). Factory-made cigarettes are the second most common tobacco smoking habit, particularly in urban areas. Chutta (coarse cheroots), dhumti and other cigars, chillum and other types of pipes, and hookah water pipes are all popular methods of smoking tobacco in different parts of the country. Tobacco is also chewed with other ingredients, including paan (betel quid), areca nut, and other seasonings, to make paan masala, gutka, and mawa (Reddy and Gupta, 2004). Tobacco-based powders are also commonly used for applying 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.

3.1.1 Tobacco use among older respondents

Table 4.1.1 represents the prevalence of tobacco use among older respondents (aged 50 and over) by state. Tobacco use varied significantly by state and smoking status. In Rajasthan (23%), West Bengal (17%), and Uttar Pradesh (13%), the majority of older respondents had consumed tobacco or were currently consuming it, either daily or occasionally, whereas in the other three states, current use of tobacco varied between 3-23%.

Trends: *Current daily users have decreased significantly over time from SAGE-1 (38%) in 2007, to SAGE-2 (20%) in 2015, to SAGE-3 (12%) in 2020. Current daily users reduced over a period of time with a rise in the number of not current users and never users of tobacco. This signifies that a smaller number of people are now consuming tobacco and are quitting tobacco use as well. This decline is almost the same for men and women and younger and older respondents. Respondents who never used tobacco marginally declined from SAGE-2 (66%) to SAGE-3 (61%).*

Table 4.1.1 Tobacco consumption among respondents aged 50+, states and India (pooled), SAGE Wave 3, 2019-20

State	Tobacco consumption (all products)					Number
	Current daily user	Not daily user	Not current user	Never user	Total	
Assam	9.5	4.3	35.0	51.3	100	768
Karnataka	9.9	2.5	21.3	66.3	100	856
Maharashtra	3.0	0.7	20.7	75.7	100	1079
Rajasthan	22.9	2.8	16.3	58.0	100	1339
Uttar Pradesh	12.8	3.2	26.3	57.7	100	1328
West Bengal	16.5	1.9	26.5	55.1	100	1349
India (Pooled)	**12.4**	**2.5**	**23.8**	**61.4**	**100**	**6719**

Table 4.1.2 presents the prevalence of tobacco use among older respondents by selected background characteristics. Tobacco consumption fluctuated in the range of 9-14% among persons aged 50+. Tobacco use was highest among persons aged 60-69, which was reported to be 14%. The percentage of persons who had quit using tobacco increased with age: around 27% of persons aged 80 and over had quit, compared to 21% of persons aged 50-59.

Table 4.1.2 Tobacco consumption among respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
Age group						
50-59	11.0	2.2	21.0	65.8	100	2,360
60-69	13.9	2.8	23.8	59.5	100	2,569
70-79	13.2	2.2	27.5	57.1	100	1,311
80+	8.9	2.6	26.5	62.0	100	479
Sex						
Male	23.7	4.4	32.1	39.8	100	3,074
Female	2.7	0.8	16.6	79.9	100	3,645
Marital status						
Never married	34.8	0.0	34.7	30.4	100	66
Currently married	13.9	2.8	23.8	59.6	100	4,943
Widowed	7.1	1.8	23.2	68.0	100	1,667
Other[1]	15.4	0.8	26.5	57.3	100	43
Residence						
Urban	8.2	1.4	19.2	71.2	100	1,235
Rural	14.3	2.9	25.8	57.0	100	5,484
Caste						
Scheduled Tribe	19.7	2.2	27.4	50.7	100	472
Scheduled Caste	16.9	2.9	27.6	52.6	100	1,106
Other[2]	11.1	2.4	22.8	63.8	100	5,141
Religion						
Hindu	12.6	2.6	22.6	62.2	100	5,578
Muslim	12.6	2.1	30.3	55.1	100	751
Other[3]	7.0	1.3	29.7	62.0	100	390
Education						
No formal education	10.9	1.7	22.3	65.1	100	2,984
Less than primary	15.7	2.4	27.9	54.0	100	1,090
Primary school	16.1	3.8	24.6	55.5	100	1,222
Secondary school	12.6	3.3	23.3	60.8	100	599
High school	8.9	2.1	25.2	63.8	100	440
College and above	8.5	3.2	21.1	67.3	100	384
Wealth quintile						
Lowest	16.5	2.9	29.0	51.6	100	1,254
Second	12.8	3.0	29.0	55.2	100	1,283
Middle	11.4	2.1	22.6	63.9	100	1,300
Fourth	14.5	2.0	23.1	60.3	100	1,391
Highest	8.3	2.3	17.4	72.0	100	1,491
Total	**12.4**	**2.5**	**23.8**	**61.4**	**100**	**6719**

** The sum of these columns will not add up to the "Currently daily user" result because multiple responses are 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 4.1.3. Current tobacco use was much higher among older men (24%) than among older women (3%). Rajasthan has the highest percentage of older men using tobacco (44%) of all the states. Among the states, Maharashtra has the least current

daily tobacco users (5%) and non-daily tobacco users (1%). Among older women, Rajasthan has the highest percentage of daily tobacco users (7%), whereas the lowest proportion of tobacco users among women was recorded in Karnataka (0%).

Table 4.1.3 Tobacco consumption among men and women aged 50+, state and India (pooled), SAGE Wave 3, 2019-20

State	Males						Females					
	Tobacco consumption (all products)						Tobacco consumption (all products)					
	Current daily user	Not Daily user	Not current user	Never user	Total	Number	Current daily user	Not Daily user	Not current user	Never user	Total	Number
Assam	17.9	8.1	38.9	35.0	100	370	1.8	0.8	31.4	66.0	100	398
Karnataka	20.8	5.1	22.8	51.3	100	379	0.0	0.1	19.8	80.1	100	477
Maharashtra	5.3	0.8	32.6	61.3	100	510	0.7	0.6	10.4	88.3	100	569
Rajasthan	43.6	4.8	26.0	25.5	100	587	6.7	1.2	8.8	83.3	100	752
Uttar Pradesh	23.1	5.6	35.9	35.4	100	632	3.2	1.1	17.4	78.3	100	696
West Bengal	35.7	3.5	32.0	28.8	100	596	2.0	0.7	22.4	74.9	100	753
India (pooled)	**23.7**	**4.4**	**32.1**	**39.8**	**100**	**3074**	**2.7**	**0.8**	**16.6**	**79.9**	**100**	**3645**

Table 4.1.4 (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. Among both older men and women, current daily users of tobacco and smokeless users were much higher in rural than urban areas.

Table 4.1.4 (a) Tobacco consumption among male respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Male					
	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
Age group						
50-59	25.4	4.7	32.9	37.0	100	932
60-69	24.8	5.1	30.2	39.9	100	1224
70-79	22.4	2.5	34.3	40.8	100	668
80+	15.2	4.8	32.7	47.4	100	250
Marital status						
Never married	42.8	0.0	33.4	23.9	100	42
Currently married	23.8	4.5	32.4	39.4	100	2708
Widowed	19.3	4.5	31.1	45.2	100	307
Other[1]	36.6	2.0	16.0	45.5	100	17
Residence						
Urban	16.8	2.8	26.1	54.3	100	549
Rural	26.7	5.0	34.8	33.5	100	2525
Caste						
Scheduled Tribe	36.3	4.7	32.8	26.3	100	204
Scheduled Caste	31.6	5.3	34.8	28.4	100	483
Other[2]	21.5	4.2	31.6	42.7	100	2387
Religion						
Hindu	24.1	4.4	32.3	39.2	100	2548
Muslim	23.6	4.4	30.6	41.4	100	343
Other[3]	14.9	2.7	34.6	47.9	100	183
Education						
No formal education	34.3	4.0	32.2	29.6	100	742
Less than primary	27.1	3.8	34.2	34.8	100	594
Primary school	28.0	6.0	34.6	31.4	100	694
Secondary school	18.3	4.8	32.1	44.8	100	408

Male						
Background characteristics	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
High school	11.1	2.7	29.4	56.8	100	338
College and above	11.3	4.2	27.4	57.2	100	298
Wealth quintile						
Lowest	31.9	5.3	37.4	25.4	100	547
Second	25.1	5.1	37.9	31.9	100	583
Middle	24.3	3.8	30.3	41.7	100	568
Fourth	25.5	3.0	31.7	39.9	100	656
Highest	16.0	4.7	26.4	53.0	100	720
Total	**23.7**	**4.4**	**32.1**	**39.8**	**100**	**3074**

Table 4.1.4 (b) Tobacco consumption among women respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20

Female						
Background characteristics	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
Age group						
50-59	1.5	0.6	13.2	84.7	100	1428
60-69	3.8	0.6	17.9	77.7	100	1345
70-79	3.0	1.9	20.0	75.2	100	643
80+	2.5	0.4	20.3	76.8	100	229
Marital status						
Never married	0.0	0.0	40.8	59.2	100	24
Currently married	1.7	0.6	13.3	84.3	100	2235
Widowed	4.2	1.1	21.3	73.4	100	1360
Other[1]	0.0	0.0	34.2	65.8	100	26
Residence						
Urban	1.0	0.2	13.5	85.3	100	686
Rural	3.4	1.1	18.0	77.5	100	2959
Caste						
Scheduled Tribe	7.4	0.3	23.3	69.0	100	268
Scheduled Caste	5.1	0.9	21.9	72.1	100	623
Other[2]	1.9	0.8	15.0	82.3	100	2754
Religion						
Hindu	2.8	1.0	14.4	81.8	100	3030
Muslim	2.6	0.0	30.0	67.4	100	408
Other[3]	0.0	0.0	25.4	74.6	100	207
Education						
No formal education	3.7	1.0	19.3	76.0	100	2242
Less than primary	2.3	0.7	20.4	76.6	100	496
Primary school	0.3	0.8	11.5	87.4	100	528
Secondary school	1.2	0.2	5.2	93.5	100	191
High school	0.0	0.0	7.5	92.6	100	102
College and above	0.0	0.0	2.0	98.0	100	86
Wealth quintile						
Lowest	5.2	1.2	22.8	70.8	100	707
Second	2.2	1.1	21.4	75.3	100	700
Middle	1.9	0.8	16.9	80.4	100	732
Fourth	3.9	1.1	14.9	80.1	100	735
Highest	0.6	0.0	8.5	90.9	100	771
Total	**2.7**	**0.8**	**16.6**	**79.9**	**100**	**3645**

[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.*

4.1.2 Tobacco use among younger respondents

Table 4.1.5 shows the prevalence of tobacco use among younger respondents (aged 18-49) by state. About 7% of younger respondents used tobacco daily, and 5% occasionally. Meanwhile, 74% of younger respondents had never used tobacco at all; nearly one-fifth (17%) had previously used tobacco but had stopped.

As the figures above indicate, 7% of younger current tobacco users used tobacco daily. Daily tobacco use ranged from 11% in Rajasthan down to 2% in Karnataka and 3% in Maharashtra. Around 4% of younger persons in Assam used tobacco occasionally, 3% in Uttar Pradesh, and less than that in the rest of the states were non-daily users of tobacco.

Table 4.1.5 Tobacco consumption among respondents aged 18-49, states and India (pooled), SAGE Wave 3, 2019-20

State	Consumption of tobacco (all products)					Number
	Current daily user	Not daily user	Not current user	Never used	Total	
Assam	9.3	3.6	18.3	68.9	100	173
Karnataka	1.5	1.6	9.5	87.4	100	132
Maharashtra	2.9	0.0	5.4	91.6	100	218
Rajasthan	11.3	1.4	20.3	66.9	100	182
Uttar Pradesh	8.9	2.5	25.8	62.8	100	180
West Bengal	9.8	1.7	20.5	68.0	100	281
India (pooled)	**7.2**	**4.6**	**17.0**	**74.2**	**100**	**1166**

Table 4.1.6 gives the prevalence of tobacco use among younger respondents by selected background characteristics. The use of tobacco increased with age: 4% of persons aged 18-29 currently used tobacco, which rises to 9% in persons aged 40-49. Tobacco use was much higher among younger men (16%) than among younger women (1%).

Table 4.1.6 Tobacco consumption among respondents aged 18-49, India (pooled), SAGE Wave 3, 2019-20

Background Characteristic	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
Age group						
18-29	4.4	2.8	14.4	78.4	100	267
30-39	5.8	2.3	16.4	75.6	100	353
40-49	9.3	0.7	18.5	71.5	100	546
Sex						
Male	16.3	2.9	25.2	55.7	100	466
Female	0.8	0.7	11.2	87.3	100	700
Marital status						
Never married	5.0	2.9	6.6	85.4	100	191
Currently married	7.9	1.5	18.9	71.7	100	918
Widowed	1.7	0.0	15.5	82.8	100	51
Other[1]	0.0	0.0	13.1	86.9	100	6
Residence						
Urban	4.7	1.3	11.1	82.9	100	233
Rural	8.4	1.8	19.7	70.2	100	933
Caste						
Scheduled Tribe	9.1	1.8	26.1	63.0	100	113
Scheduled Caste	13.2	3.1	14.7	69.1	100	245
Other[2]	5.2	1.2	16.8	76.9	100	808

Background Characteristic	Tobacco consumption (all products)					Number
	Current daily user	Not Daily user	Not current user	Never user	Total	
Religion						
Hindu	7.4	1.9	15.9	74.8	100	963
Muslim	5.6	0.3	28.1	66.0	100	124
Other[3]	6.7	0.0	10.9	82.4	100	79
Education						
No formal education	10.4	2.2	18.5	69.0	100	266
Less than primary	8.5	1.6	24.1	65.9	100	148
Primary school	6.2	0.6	24.3	68.9	100	250
Secondary school	8.3	2.4	12.7	76.5	100	204
High school	4.8	1.9	14.2	79.1	100	164
College and above	3.2	0.9	5.4	90.6	100	134
Wealth quintile						
Lowest	10.3	3.5	27.3	58.8	100	214
Second	5.5	2.1	21.0	71.4	100	258
Middle	8.8	1.4	15.8	74.1	100	272
Fourth	4.6	1.1	15.5	78.8	100	216
Highest	7.3	0.5	7.7	84.5	100	206
Total	**7.2**	**1.6**	**17.0**	**74.2**	**100**	**1166**

[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 use of tobacco generally decreased as levels of education rose. About 3% of college-educated persons used tobacco, compared to 5% of those with high school education. Tobacco use was inversely related to income, decreasing from 10% in the lowest wealth quintiles to 5% in the fourth quintile, except for the highest wealth quintile, which increased to 7%. Overall, tobacco use was lower in urban areas than in rural areas.

4.2 Alcohol consumption

Alcoholic beverages, in addition to tobacco products, are the most widespread and the leading risk factor for premature death. Alcohol use contributes to a range of acute and chronic health consequences, from injuries to cardiovascular diseases. 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 brain's functioning, 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 and 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 each day for 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 4.2.1, including lifetime abstainers, non-heavy drinkers, infrequent heavy drinkers, and frequent heavy drinkers.

4.2.1 Alcohol consumption among older respondents

Table 4.2.1 presents the prevalence of alcohol use by state among older respondents. About 9% of these respondents reported consuming alcohol. The highest prevalence was reported in Assam (16%) and the lowest in Maharashtra (5%).

Trends: *Like tobacco consumption, the prevalence of alcohol use among younger and respondents aged 50+ who are lifetime abstainers, non-heavy drinkers, infrequent and frequent heavy drinkers has also witnessed a slight decline over the period from SAGE-1, 2007, 2015 to 2020.*

Alcohol consumption among older respondents differed significantly by sex, with older women considerably less likely to drink at all (1%) than older men (18%). Among older men, the prevalence of alcohol consumption ranged from 27% in Karnataka to 10% in Maharashtra. By contrast, only less than one percent of older women consumed alcohol in Maharashtra, none in Uttar Pradesh and Rajasthan, and less than 3% in Karnataka and West Bengal– although a surprising 9% did so in Assam.

Overall, the prevalence of heavy drinking, both frequent and infrequent, was low (1.6% and 0.9% respectively). The prevalence of frequent heavy drinking was highest in Assam (3%), followed by Karnataka (2%) and lowest in Maharashtra (0.4%) (Figure 4.1).

Figure 4.1 Percentage of respondents aged 50+ who are frequent heavy drinkers, states and India (pooled), SAGE Wave 3, 2019-20

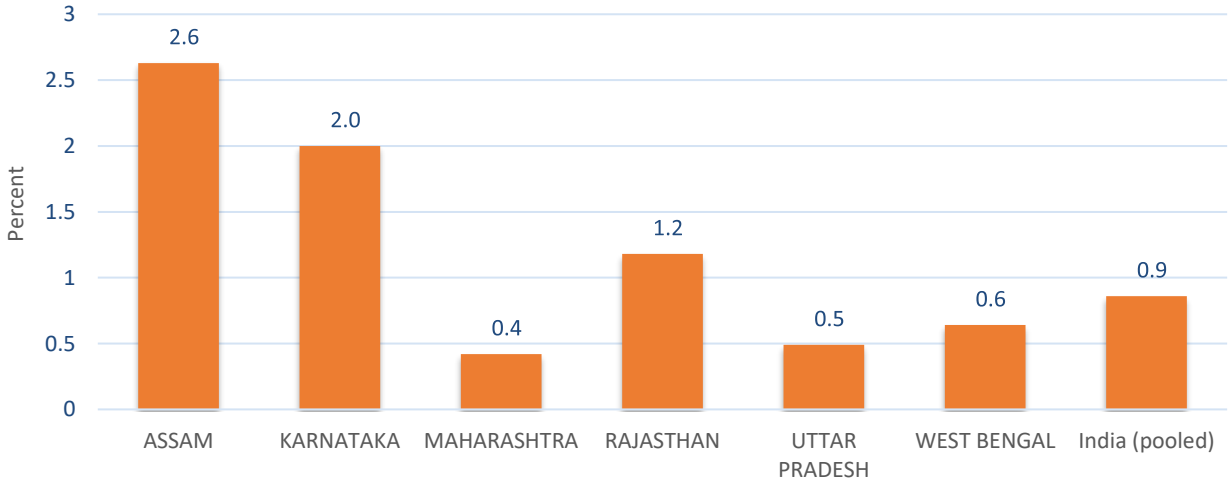


Table 4.2.2 presents the prevalence of alcohol use among older respondents by background characteristics. Among older women, the prevalence of alcohol consumption did not vary consistently with age, though among men it decreased with age. Older women showed a relatively lower prevalence of alcohol use 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 socially disadvantaged groups: 9% of older members of Scheduled Tribes were frequent or infrequent heavy drinkers, compared with the national average of 2%. However, the rate of heavy drinking among older respondents from the Scheduled Caste was significantly lower, at just over 2%, as compared to respondents from the Scheduled Tribe (9%). Overall, rates differed between men and women, with 17% of older male members of the Scheduled Tribe reporting frequent or infrequent heavy drinking compared to 3% of older women.

Table 4.2.1 Alcohol consumption among respondents aged 50+, states and India (pooled) , SAGE Wave 3, 2019-20

State	Person					Male					Female				
	Life time abstainer	Non heavy drinkers	infrequent drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non heavy drinkers	infrequent drinkers	Frequent heavy drinkers	Number	Life time abstainer	Non heavy drinkers	infrequent drinkers	Frequent heavy drinkers	Number
Assam	83.6	8.5	5.3	2.6	768	75.5	12.4	8.1	4.1	370	91.0	4.9	2.7	1.3	398
Karnataka	86.0	10.4	1.6	2.0	856	73.3	19.5	3.0	4.2	379	97.4	2.2	0.4	0.0	477
Maharashtra	95.1	3.6	0.9	0.4	1079	89.6	7.4	2.0	0.9	510	99.8	0.2	0.0	0.0	569
Rajasthan	89.1	8.5	1.2	1.2	1339	75.2	19.3	2.8	2.7	589	100.0	0.0	0.0	0.0	752
Uttar Pradesh	92.3	5.8	1.4	0.5	1328	84.1	12.0	2.9	1.0	632	100.0	0.0	0.0	0.0	696
West Bengal	89.9	7.6	1.9	0.6	1349	80.3	14.8	3.6	1.4	596	97.2	2.2	0.6	0.1	753
India (pooled)	**90.9**	**6.6**	**1.6**	**0.9**	**6728**	**81.8**	**13.4**	**3.1**	**1.8**	**3074**	**98.8**	**0.9**	**0.3**	**0.1**	**3645**

Table 4.2.2 Alcohol consumption among respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	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	90.9	6.6	1.9	0.7	2360	79.2	15.0	4.2	1.7	932	98.5	1.0	0.3	0.1	1428
60-69	90.6	6.9	1.3	1.2	2569	81.7	13.4	2.6	2.4	1224	99.0	0.8	0.1	0.1	1345
70-79	90.4	7.1	1.9	0.7	1311	82.8	12.9	3.1	1.3	668	98.8	0.7	0.5	0.1	643
80+	94.6	4.5	0.7	0.3	479	90.1	8.2	1.2	0.5	250	99.2	0.7	0.2	0.0	229
Marital status															
Never married	91.5	8.5	0.0	0.0	66	90.3	9.7	0.0	0.0	42	97.1	2.9	0.0	0.0	24
Currently married	89.3	8.0	1.8	1.0	4943	81.2	14.0	3.0	1.7	2708	99.2	0.5	0.2	0.1	2235
Widowed	95.6	2.7	1.1	0.5	1667	84.2	9.1	4.4	2.3	307	98.4	1.2	0.3	0.1	1360
Other[1]	91.4	7.3	0.0	1.3	43	96.8	0.0	0.0	3.2	17	87.5	12.6	0.0	0.0	26
Residence															
Urban	92.5	5.9	1.5	0.2	1235	84.0	12.5	3.2	0.4	549	99.6	0.4	0.0	0.0	686
Rural	90.3	7.0	1.6	1.2	5484	80.9	13.7	3.1	2.4	2525	98.4	1.1	0.4	0.1	2959
Caste															
Scheduled Tribe	76.5	14.5	5.7	3.4	472	60.0	22.9	9.8	7.4	204	88.8	8.1	2.7	0.4	268
Scheduled Caste	89.6	8.3	1.6	0.5	1106	77.2	18.3	3.4	1.2	483	99.6	0.3	0.2	0.0	623
Other[2]	92.1	5.8	1.3	0.8	5141	83.9	11.9	2.7	1.6	2387	99.2	0.5	0.1	0.1	2754
Religion															
Hindu	90.0	7.4	1.7	0.9	5578	79.9	14.9	3.2	1.9	2548	98.7	0.9	0.3	0.1	3030
Muslim	97.8	1.5	0.6	0.1	751	95.4	3.2	1.3	0.2	343	100.0	0.0	0.0	0.0	408
Other[3]	89.7	5.8	2.7	1.8	390	81.1	9.7	5.5	3.7	183	97.5	2.3	0.3	0.0	207
Education															
No formal education	93.7	4.4	1.4	0.5	2984	78.7	15.3	4.5	1.5	742	98.4	1.1	0.4	0.1	2242
Less than primary	90.1	6.3	2.0	1.6	1090	81.9	11.3	3.8	3.0	594	99.6	0.4	0.0	0.0	496
Primary school	86.7	9.9	2.3	1.1	1222	77.4	16.7	4.0	1.9	694	98.9	0.9	0.2	0.0	528
Secondary school	90.9	7.8	1.1	0.2	599	86.4	11.6	1.7	0.3	408	100.0	0.0	0.0	0.0	191
High school	89.7	7.3	1.5	1.5	440	87.4	9.0	1.9	1.8	338	99.5	0.5	0.0	0.0	102
College and above	88.1	10.0	0.6	1.3	384	84.2	13.2	0.8	1.8	298	100.0	0.0	0.0	0.0	86
Wealth quintile															
Lowest	89.8	6.6	2.4	1.2	1254	79.0	13.5	4.9	2.6	547	97.8	1.4	0.6	0.2	707
Second	90.3	7.3	1.6	0.8	1283	81.3	14.3	3.0	1.5	583	98.1	1.3	0.4	0.3	700
Middle	91.7	6.7	0.8	0.9	1300	82.4	14.2	1.5	2.0	568	98.6	1.2	0.3	0.0	732
Fourth	91.3	6.5	1.3	0.9	1391	83.0	12.6	2.6	1.8	656	99.3	0.6	0.1	0.0	735
Highest	91.4	6.3	1.7	0.7	1491	82.7	12.5	3.5	1.4	720	99.9	0.1	0.0	0.0	771
Total	**90.9**	**6.6**	**1.6**	**0.9**	**6719**	**81.8**	**13.3**	**3.1**	**1.8**	**3074**	**98.8**	**0.9**	**0.3**	**0.1**	**3645**

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.

4.2.2 Alcohol consumption among younger respondents

About 8% of younger respondents consumed alcohol, while the other 93% were lifetime abstainers (Table 4.2.3). Among the 8% drinkers, 1% were frequent heavy drinkers, 2% were infrequent heavy drinkers, and the remaining 5% were non-heavy drinkers. The prevalence of alcohol consumption was highest in Assam (13% drinkers) and lowest in Maharashtra (3%).

Table 4.2.3 Alcohol consumption among respondents aged 18-49, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				
	Lifetime abstainers	Non-heavy drinkers	Infrequent heavy drinkers	Frequent heavy drinkers	Number
Assam	87.1	6.9	3.5	2.5	173
Karnataka	90.3	3.2	2.4	4.1	132
Maharashtra	97.1	1.6	1.3	0.0	218
Rajasthan	92.5	4.1	2.0	1.5	182
Uttar Pradesh	93.4	5.1	1.5	0.0	180
West Bengal	89.3	9.9	0.8	0.0	281
India (pooled)	**92.5**	**5.0**	**1.6**	**0.9**	**1166**

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 4.2.4). Alcohol consumption was much less common among women: less than 1% reported drinking alcohol, compared to 17% 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 but slightly increased in the highest wealth quintile. The prevalence of frequent or infrequent heavy drinking was higher among younger members of Scheduled Tribes than among older members (12%, compared to 2%).

Table 4.2.4 Alcohol consumption among respondents aged 18-49, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Lifetime abstainer	Non-heavy drinker	Infrequent heavy drinker	Frequent heavy drinker	Number
Age group					
18-29	92.8	5.0	2.3	0.0	267
30-39	94.8	4.6	0.2	0.4	353
40-49	90.8	5.3	2.3	1.5	546
Sex					
Male	82.7	11.6	3.7	1.9	466
Female	99.4	0.4	0.1	0.1	700
Marital status					
Never married	90.8	8.4	0.8	0.0	191
Currently married	92.4	4.7	1.9	1.1	918
Widowed/widower	100.0	0.0	0.0	0.0	51
Other[1]	100.0	0.0	0.0	0.0	6
Residence					
Urban	96.0	2.2	0.2	1.6	233
Rural	90.9	6.4	2.3	0.5	933
Caste					
Scheduled Tribe	80.3	7.3	9.9	2.5	113
Scheduled Caste	87.9	10.1	2.1	0.0	245
Other[2]	95.1	3.3	0.7	1.0	808

Background characteristics	Aged 18-49				
	Lifetime abstainer	Non-heavy drinker	Infrequent heavy drinker	Frequent heavy drinker	Number
Religion					
Hindu	92.1	5.3	1.6	1.0	963
Muslim	98.5	0.9	0.6	0.0	124
Other[3]	85.8	10.4	3.8	0.0	808
Education					
No formal education	93.3	4.6	1.9	0.3	266
Less than primary	90.1	6.2	2.4	1.4	148
Primary school	90.4	5.1	1.6	3.0	808
Secondary school	92.3	7.2	0.4	0.2	204
High school	93.6	3.5	2.9	0.0	808
College and above	95.8	3.6	0.6	0.0	134
Wealth quintile					
Lowest	88.3	9.4	0.6	1.7	214
Second	89.6	5.6	2.5	2.4	258
Middle	94.1	4.2	1.5	0.1	808
Fourth	96.2	1.1	2.4	0.4	216
Highest	93.0	6.1	0.9	0.0	808
Total	**92.5**	**5.0**	**1.6**	**0.9**	**1166**

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.*

4.3 Diet

Food consists of various components that are needed in different quantities for the proper functioning of the human body. Fibers, fruits, and vegetables are considered health-promoting elements of our food. They also serve as immunity boosters, which protect from and fight against diseases. On the other hand, dietary factors such as total fat, saturated fatty acids, and salts are associated with an increased risk of cardiovascular diseases and cancer. According to the WHO, five or more servings of fruits and vegetables per day are necessary to reduce the risk of diet contributing to cardiovascular disease and other health conditions. SAGE India collected data on the number of servings of fruit and vegetables eaten by respondents on a typical day following the WHO NCD risk factors surveillance strategy (WHOSTEPS).

4.3.1 Nutritional intake among older respondents

Fruit and vegetable intake of older men and women is presented in Table 4.3.1. In this population, the intake of fruit/vegetables was grossly insufficient: only 14% of older respondents met the minimum standard. For men, the situation was worst in Maharashtra with only 6% and for women, the situation was worst in Rajasthan, where less than 5% reported a sufficient intake of fruit/vegetables. The best nutritional status was observed in Karnataka, where more than one-third of men and women had sufficient fruit/vegetable intake.

Trends: *Fruit and vegetable intake of older respondents has improved from SAGE-1, 2007 to SAGE-2, 2015, and decreased during SAGE-2, 2015 and SAGE-3, 2020. In SAGE-2 2015, around 20 percent of older respondents and 22 percent of younger respondents reported having a sufficient intake of fruits and vegetables in comparison to 9 percent and 11 percent in the previous SAGE-1, 2007, respectively, and it has decreased to 14 and 19 percent in SAGE-3, 2020. There was a significant improvement in sufficient intake of fruits and vegetables among older respondents and respondents aged 15-49 in Karnataka (from 26% to 37% and 23% to 52%, respectively) during SAGE-2 and 3.*

Table 4.3.1 Percent distribution of respondents aged 50+ by sufficiency of fruit/vegetable intake, states and India (pooled), SAGE Wave 3, 2019-20

State	Persons			Male			Female		
	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number
Assam	73.1	26.9	768	71.2	28.8	370	74.7	25.3	398
Karnataka	62.8	37.2	856	63.4	36.7	379	62.3	37.7	477
Maharashtra	94.0	6.0	1079	93.9	6.1	510	94.1	5.9	569
Rajasthan	94.0	6.0	1339	92.3	7.7	587	95.4	4.6	752
Uttar Pradesh	85.0	15.0	1328	81.1	18.9	632	88.7	11.3	696
West Bengal	88.9	11.1	1349	86.8	13.2	596	90.6	9.4	753
India (pooled)	**85.6**	**14.4**	**6719**	**83.4**	**16.6**	**3074**	**87.6**	**12.4**	**3645**

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

Table 4.3.2 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 rural areas, among those from the Scheduled Tribes, the better educated, and those with higher incomes.

Table 4.3.2 Percent distribution of respondents aged 50+ by sufficiency of fruit/vegetable intake according to selected background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Persons			Male			Female		
	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number	Insufficient	Sufficient	Number
Age group									
50-59	82.9	17.1	2360	80.7	19.3	932	84.3	15.7	1428
60-69	86.6	13.4	2569	84.2	15.8	1224	88.8	11.2	1345
70-79	86.6	13.4	1311	83.9	16.1	668	89.6	10.4	643
80+	91.4	8.6	479	87.7	12.3	250	95.0	5.0	229
Marital status									
Never married	84.8	15.3	66	82.2	17.8	42	95.8	4.2	24
Currently married	84.1	15.9	4943	82.9	17.1	2708	85.7	14.4	2235
Widowed	90.0	10.0	1667	87.1	12.9	307	90.7	9.3	1360
Other[1]	82.2	17.9	43	87.4	12.6	17	78.3	21.7	26
Residence									
Urban	87.4	12.6	1235	84.4	15.6	549	89.9	10.1	686
Rural	84.9	15.1	5484	83.0	17.1	2525	86.5	13.5	2959
Caste									
Scheduled Tribe	82.9	17.1	472	77.7	22.3	204	86.8	13.2	268
Scheduled Caste	90.1	9.9	1106	88.8	11.2	483	91.1	8.9	623
Other[2]	84.9	15.1	5141	82.6	17.4	2387	86.9	13.1	2754
Religion									
Hindu	85.6	14.4	5578	83.0	17.0	2548	87.8	12.2	3030
Muslim	85.9	14.2	751	85.5	14.5	343	86.2	13.8	408
Other[3]	85.4	14.6	390	85.1	14.9	183	85.6	14.4	207
Education									
No formal education	90.4	9.6	2984	90.6	9.4	742	90.4	9.6	2242
Less than primary	86.4	13.7	1090	85.7	14.3	594	87.1	12.9	496
Primary school	82.3	17.7	1222	81.8	18.2	694	83.0	17.0	528
Secondary school	79.0	21.0	599	79.4	20.6	408	78.3	21.7	191
High school	82.3	17.7	440	83.3	16.7	338	78.4	21.6	102
College and above	75.9	24.1	384	74.0	26.0	298	81.7	18.3	86
Wealth quintile									
Lowest	92.1	7.9	1254	90.7	9.4	547	93.2	6.8	707
Second	84.1	15.9	1283	79.2	20.8	583	88.3	11.7	700
Middle	87.5	12.5	1300	85.6	14.4	568	88.9	11.1	732
Fourth	86.2	13.8	1391	87.0	13.0	656	85.3	14.7	735
Highest	80.3	19.7	1491	77.7	22.3	720	82.9	17.1	771
Total	**85.6**	**14.4**	**6719**	**83.4**	**16.6**	**3074**	**87.6**	**12.4**	**3645**

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.

4.3.2 Nutritional intake among younger respondents

Table 4.3.3 shows the state-level variation in the intake of fruits and vegetables among younger respondents. Most (81%) of the younger respondents did not eat enough fruit/vegetables; only 19% had sufficient intake. The proportion with sufficient intake was highest among younger respondents in Karnataka (52%). The lowest rate of younger adults with a sufficient intake of fruit/vegetables was in Rajasthan at just 10%.

Table 4.3.3 Percentage of respondents aged 18-49 by sufficiency of fruit/vegetable intake, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Assam	73.0	27.0	100	173
Karnataka	48.4	51.6	100	132
Maharashtra	89.5	10.5	100	218
Rajasthan	89.8	10.2	100	182
Uttar Pradesh	81.0	19.0	100	180
West Bengal	88.8	11.3	100	281
India (pooled)	**85.6**	**18.9**	**100**	**1166**

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

Table 4.3.4 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 less than one-quarter had sufficient intake, even among men. The proportion of respondents with a sufficient intake of fruit/vegetables increased with education and income. Even so, sufficient intake was reported by only 26% of younger people with a college education and by 28% of those in the highest wealth quintile.

Table 4.3.4 Fruit and vegetable intake of respondents aged 18-49, by sociodemographic characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Age group				
18-29	78.9	21.1	100	267
30-39	79.4	20.6	100	353
40-49	83.2	16.8	100	546
Sex				
Male	79.0	21.0	100	466
Female	82.6	17.4	100	700
Marital status				
Never married	73.3	26.8	100	191
Currently married	81.9	18.1	100	918
Widowed	89.8	10.2	100	51
Other[1]	100.0	0.0	100	6
Residence				
Urban	80.8	19.2	100	233
Rural	81.3	18.7	100	933
Caste				
Scheduled Tribe	83.1	16.9	100	113
Scheduled Caste	86.2	13.8	100	245
Other[2]	79.4	20.6	100	808
Religion				
Hindu	82.7	17.3	100	963
Muslim	72.1	27.9	100	124
Other[3]	75.2	24.8	100	79

Background characteristics	Aged 18-49			
	Insufficient	Sufficient	Total	Number
Education				
No formal education	85.6	14.4	100	266
Less than primary	92.8	7.2	100	148
Primary school	80.1	19.9	100	250
Secondary school	80.9	19.1	100	204
High school	73.4	26.6	100	164
College and above	74.2	25.8	100	134
Wealth quintile				
Lowest	85.7	14.3	100	214
Second	81.4	18.6	100	258
Middle	86.7	13.3	100	272
Fourth	80.1	19.9	100	216
Highest	72.0	28.0	100	206
Total	**81.1**	**18.9**	**100**	**1166**

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.*

4.4 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 of 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 allow for direct comparisons with the Global Physical Activity Questionnaire (GPAQ) surveys (Armstrong *et al.,* 2006). The physical activity questions assessed the frequency (days), intensity (low, moderate, high), and duration (minutes and 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.

4.4.1 Physical activity by older respondents

Table 4.4.1 presents the activity levels of older respondents, divided into four categories: 1) those who engaged in vigorous activity; 2) those who are engaged in moderate activity; 3) those engaged in light activity; and 4) those who aren't engaged in any kind of activity. For this study, vigorous, moderate, or light activity for more than 150 minutes over the seven days preceding the interview was considered sufficient. Most of the older respondents were quite active; however, a large proportion of people aged 50+ (39%) reported physical inactivity. This level was for men (37%) and women (40%), though a higher proportion of older men than older women engaged in vigorous activity. Older respondents in Assam, Karnataka, and Maharashtra were less likely to be adequately active than those in Rajasthan, Uttar Pradesh, and West Bengal.

Trends: *The physical inactivity levels of older adults have increased from 26% in SAGE-1, 2007 to 45% in SAGE-2, 2015, and it has slightly decreased to 39 % in SAGE-3, 2020, 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, have increased from SAGE-1 and SAGE-2 to SAGE-3.*

Table 4.4.1 Percent distribution of respondents aged 50+ by physical activity, states and India (pooled), SAGE Wave 3, 2019-20

State	Persons					Male					Female				
	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	23.7	10.7	12.4	53.2	768	29.2	5.5	16.7	48.7	370	18.7	15.5	8.6	57.2	398
Karnataka	14.4	21.9	16.7	46.9	856	14.3	10.8	25.7	49.1	379	14.5	31.9	8.6	45.0	477
Maharashtra	21.9	26.2	7.6	44.2	1079	25.0	17.4	12.4	45.2	510	19.4	33.7	3.5	43.4	569
Rajasthan	20.4	29.8	15.4	34.4	1339	23.1	22.7	21.8	32.5	587	18.3	35.3	10.5	36.0	752
Uttar Pradesh	23.1	25.3	14.1	37.6	1328	27.0	21.0	20.1	31.9	632	19.5	29.2	8.5	42.9	696
West Bengal	13.7	56.1	2.7	27.4	1349	26.1	42.0	4.1	27.8	596	4.5	66.8	1.7	27.1	753
India (pooled)	**20.2**	**29.7**	**11.5**	**38.6**	**6719**	**24.7**	**21.6**	**17.0**	**36.7**	**3074**	**16.3**	**36.7**	**6.7**	**40.3**	**3645**

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 4.4.2. Among both sexes, the proportion of persons with insufficient activity increased with age: among the oldest age group (80+), 60% of men and 69% of women were insufficiently active. However, only nearly one-fourth of men (46%) and 53% of women engaged in vigorous or moderate physical activity. A higher proportion of men and women from rural areas undertook sufficient physical and vigorous physical activity than their urban counterparts. The proportion of men and women who were insufficiently active bore little relationship with either educational attainment or income.

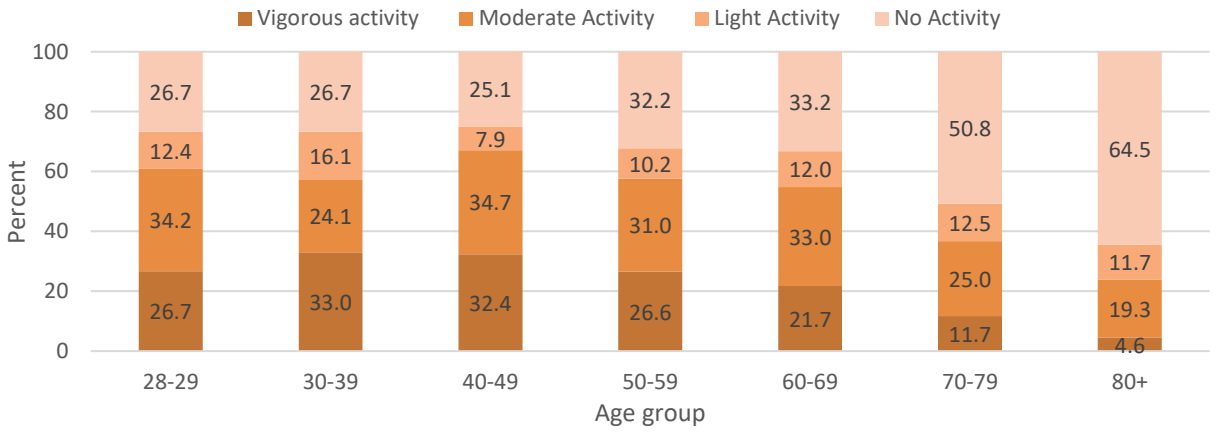
Table 4.4.2 Physical activity level among respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Male					Female				
	Vigorous Activity	Moderate Activity	Light activity	No activity	Number	Vigorous activity	Moderate Activity	Light Activity	No activity	Number
Age group										
50-59	35.3	19.7	16.5	28.6	932	20.9	38.4	6.2	34.6	1428
60-69	24.7	25.4	17.3	32.7	1224	19.0	40.1	7.1	33.8	1345
70-79	17.0	19.4	17.3	46.2	668	5.8	31.2	7.2	55.9	643
80+	6.6	16.4	16.6	60.4	250	2.5	22.2	6.7	68.6	229
Marital status										
Never married	37.4	20.4	8.6	33.6	42	16.1	53.8	1.1	29.0	24
Currently married	25.3	21.5	17.2	36.1	2708	19.2	38.2	6.3	36.3	2235
Widowed	18.1	23.3	17.1	41.6	307	11.7	34.0	7.5	46.8	1360
Other[1]	16.6	11.2	18.7	53.5	17	13.8	50.0	1.4	34.9	26
Residence										
Urban	13.6	18.8	20.2	47.4	549	14.1	36.7	4.5	44.7	686
Rural	29.5	22.8	15.6	32.1	2525	17.2	36.7	7.7	38.3	2959
Caste										
Scheduled Tribe	31.2	20.2	15.1	33.5	204	20.6	34.6	8.6	36.3	268
Scheduled Caste	31.9	22.9	13.7	31.6	483	17.4	44.9	6.8	30.9	623
Other[2]	23.0	21.5	17.7	37.8	2387	15.8	35.1	6.6	42.6	2754
Religion										
Hindu	25.0	21.1	17.2	36.7	2548	17.2	36.3	6.7	39.9	3030
Muslim	22.3	26.3	16.9	34.4	343	9.5	40.8	7.2	42.6	408
Other[3]	24.9	19.0	11.5	44.6	183	17.2	32.0	6.8	44.1	207

Background Characteristics	Male					Female				
	Vigorous Activity	Moderate Activity	Light activity	No activity	Number	Vigorous activity	Moderate Activity	Light Activity	No activity	Number
Education										
No formal education	28.7	17.4	16.8	37.2	742	17.5	35.6	7.2	39.8	2242
Less than primary	28.1	25.2	13.0	33.7	594	11.9	37.6	5.6	45.0	496
Primary school	25.9	29.7	16.0	28.5	694	17.0	40.1	5.1	37.8	528
Secondary school	23.9	21.6	16.6	37.9	408	18.0	34.1	4.8	43.1	191
High school	21.6	15.0	18.8	44.7	338	10.6	37.6	13.5	38.3	102
College and above	14.2	16.6	23.7	45.4	298	9.3	43.8	6.7	40.2	86
Wealth quintile										
Lowest	33.0	17.7	14.7	34.7	547	19.7	38.3	6.6	35.4	707
Second	27.1	25.5	7.7	39.8	583	16.5	35.5	5.3	42.7	700
Middle	30.3	26.6	12.8	30.4	568	16.0	40.2	5.6	38.1	732
Fourth	22.4	21.8	23.5	32.3	656	14.8	40.2	7.6	37.5	735
Highest	15.9	18.0	23.0	43.1	720	14.6	30.7	8.3	46.5	771
Total	**24.7**	**21.6**	**17.0**	**36.7**	**3074**	**16.3**	**36.7**	**6.7**	**40.3**	**3645**

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.

Figure 4.2 Physical activity levels by age, India (pooled), SAGE Wave 3, 2019-20



4.4.2 Physical activity by younger respondents

Table 4.4.3 gives state-level data on younger respondents. This group was also quite active: only 26% did not engage in physical activity, while 31% were moderately active and 32% engaged in vigorous activity. The most active younger respondents were in Karnataka, where 86% engaged in vigorous or moderate activity, and only 9% did not engage in physical activity. The least active younger respondents were in Assam and Maharashtra.

Table 4.4.3 Physical activity of respondents aged 18-49, states and India (pooled), SAGE Wave 3, 2019-20

State	Age 18-49					
	Vigorous Activity	Moderate Activity	Light Activity	No Activity	Total	Number
Assam	15.6	14.2	13.3	57.0	100	173
Karnataka	51.5	19.5	4.2	24.9	100	132
Maharashtra	26.3	25.8	17.0	30.9	100	218
Rajasthan	42.2	17.8	14.2	25.9	100	182
Uttar Pradesh	29.8	30.7	13.3	26.2	100	180
West Bengal	26.2	59.8	4.6	9.3	100	281
India (pooled)	**31.5**	**31.1**	**11.5**	**25.9**	**100**	**1166**

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 4.4.4. Younger men were more likely than younger women to be active. Urban and rural respondents had similar levels of physical activity (74%): about 65% of rural and 59% of urban residents engaged in vigorous or moderate activity, and 10% of rural and 16% of urban residents engaged in light physical activity. The proportion of younger respondents who were 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 slight variation by age group. The vigorous activity declined with age, whereas no activity increased with age and was highest in the 80+ age group (Figure 4.2)

Table 4.4.4 Physical activity of respondents aged 18-49, by sociodemographic characteristics, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Age 18-49					
	Vigorous Activity	Moderate Activity	Light Activity	No activity	Total	Number
Age group						
18-29	26.7	34.2	12.4	26.7	100	267
30-39	33.0	24.1	16.1	26.7	100	353
40-49	32.4	34.7	7.9	25.1	100	546
Sex						
Male	42.2	19.6	13.6	24.6	100	466
Female	23.9	39.3	10.0	26.9	100	700
Marital status						
Never married	25.0	33.6	18.2	23.3	100	191
Currently married	32.7	30.3	10.6	26.4	100	918
Widowed	29.9	37.4	6.2	26.6	100	51
Other[1]	41.3	43.1	0.0	15.6	100	6
Residence						
Urban	27.4	31.2	15.6	25.8	100	233
Rural	33.4	31.1	9.5	26.0	100	933
Caste						
Scheduled Tribe	45.0	25.6	6.9	22.6	100	113
Scheduled Caste	33.8	34.0	14.3	17.9	100	245
Other[2]	29.4	30.9	11.1	28.7	100	808
Religion						
Hindu	30.9	31.2	11.8	26.2	100	963
Muslim	36.8	34.6	5.2	23.5	100	124
Other[3]	29.9	21.8	21.1	27.2	100	79
Education						
No formal education	39.5	31.7	5.5	23.3	100	266
Less than primary	20.8	38.9	11.7	28.6	100	148
Primary school	35.6	36.3	11.2	17.0	100	250
Secondary school	30.3	20.5	17.6	31.6	100	204
High school	29.5	21.4	14.4	34.8	100	164
College and above	23.8	41.7	10.1	24.5	100	134
Wealth quintile						
Lowest	33.1	31.3	9.0	26.6	100	214
Second	33.6	38.4	7.7	20.4	100	258
Middle	33.1	32.3	8.1	26.6	100	272
Fourth	35.5	23.6	13.7	27.3	100	216
Highest	22.0	30.1	18.9	29.0	100	206
Total	**31.5**	**31.1**	**11.5**	**25.9**	**100**	**1166**

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.

4.5 Environmental Risk Factors

Access to safe drinking water is essential for public health and can significantly reduce poverty. Sustainable development goal target 6.1 calls for universal and equitable access to safe and affordable drinking water. Contaminated water is linked to the transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio. Absent, inadequate, or unimproved water sources expose individuals to preventable health risks.

Adverse health outcomes are associated with unsafe water, lack of access to water for hygiene purposes, 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, 2006).

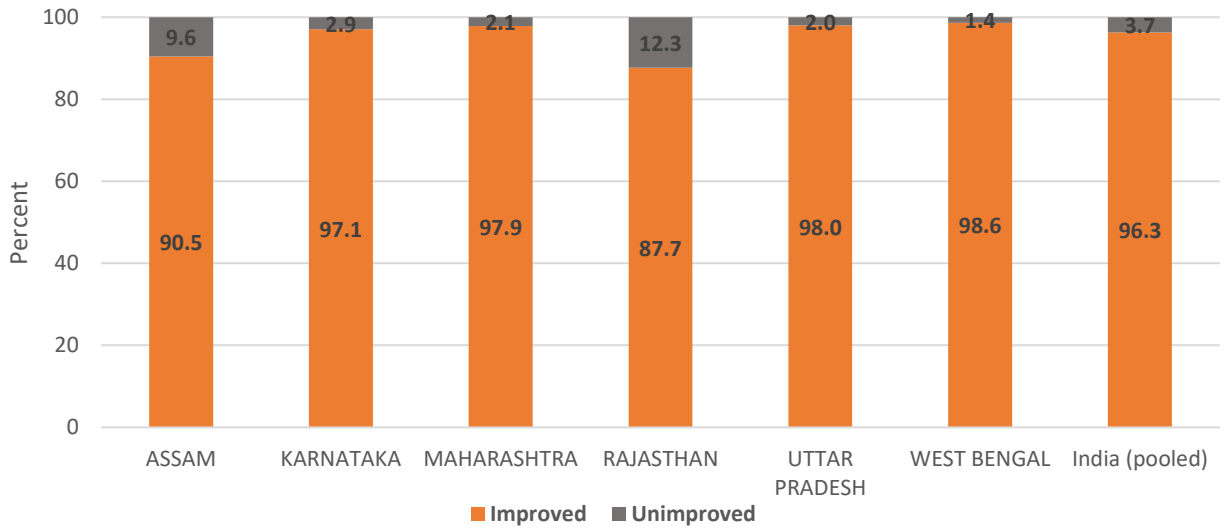
4.5.1. Access to improved water sources

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 4.3 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 of drinking water. The lowest rate was 88% in Rajasthan; the highest rate was 98% in Maharashtra.

Trends: *The availability of improved drinking water sources has increased by ten percent from SAGE-1, 2007 to SAGE-2, 2015. Around 96% of the households had access to an improved drinking water source in SAGE 2 as compared to 86 % in SAGE-1, and it has remained constant in SAGE-3, 2020, as well. The proportion of households spending less than 30 minutes in water collection has significantly increased from 53% in SAGE-1 to 82% in SAGE-2 and decreased to 56 % in SAGE-3. A higher proportion of female children (under 15) share the responsibility of fetching water than male children (under 15) (9% vs 2%).*

Figure 4.3 Access to improved drinking water, states and India (pooled), SAGE Wave 3, 2019-20



The availability of improved drinking water sources increased with income: 98% of households in the highest wealth quintile had access to improved drinking water sources, as compared to 93% in the lowest quintile (Table 4.5.1). 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 4.5.1 Percent distribution of households by source of drinking water, India (pooled), SAGE Wave 3, 2015

Background characteristics	Improved	Unimproved	Total	Number of households
Wealth quintile				
Lowest	92.6	7.4	100	1,223
Second	95.7	4.3	100	1,209
Middle	97.1	2.9	100	1,221
Fourth	97.6	2.4	100	1,206
Highest	97.9	2.1	100	1,214
Residence				
Urban	99.1	0.9	100	1,173
Rural	94.8	5.2	100	4,900
Household head				
Female 18-49	95.3	4.7	100	166
Female 50+	96.8	3.3	100	911
Male 18-49	96.1	3.9	100	1,351
Male 50+	96.2	3.8	100	3,645
Total	**96.3**	**3.7**	**100**	**6073**

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

4.5.1.1 Time spent to collect drinking water

Almost two-fifths of the households (39%) had drinking water sources on the premises (Table 4.5.2). Meanwhile, 56% 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 5% 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, 29% of households had drinking water sources on the premises, and 6% had to spend more than 30 minutes for one round trip to water sources. By contrast, in the wealthiest households, 60% had water sources on the premises, and only 2% had to spend more than 30 minutes for one round trip to water sources. A higher proportion of rural (5%) than urban households (2%) had to travel more than 30 minutes to collect water.

Table 4.5.2 Time taken to collect drinking water (round trip), India (pooled), SAGE Wave 3, 2019-20

Background characteristics	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	28.5	65.8	5.7	100	965
Second	34.8	59.9	5.4	100	811
Middle	37.9	58.1	4	100	790
Fourth	42.2	52.4	5.4	100	624
Highest	59.7	38.3	1.9	100	504
Residence					
Urban	39.1	59.2	1.7	100	410
Rural	39.1	55.6	5.4	100	3,284
Household head					
Female 18-49	26.5	68	5.5	100	102
Female 50+	29.1	67.1	3.8	100	525
Male 18-49	37.9	57.5	4.6	100	855
Male 50+	42.8	52.4	4.8	100	2,212
Total	**39.1**	**56.3**	**4.6**	**100**	**3,694**

4.5.1.2 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 4.5.3 shows that in most households, females (71% adults) collected water; in about 17% of households, adult men collected the water. This pattern prevailed in households from all wealth quintiles, in urban and rural areas, and households with different types of household heads. In households from the highest wealth quintile, the highest proportion of adult men (22%) shared the responsibility of fetching water.

Table 4.5.3 Person who usually collects drinking water, India (pooled), SAGE Wave 3, 2019-20

Background Characteristic	Male	Female	Male child (under 15)	Female child (under 15)	Other	Total	Number of households
Wealth quintile							
Lowest	16.4	66.3	4.0	12.5	0.8	100	676
Second	17.4	72.9	1.5	7.3	1.0	100	536
Middle	16.8	75.5	0.9	6.3	0.5	100	483
Fourth	14.8	71.6	1.9	10.2	1.6	100	356
Highest	22.1	67.3	2.6	6.6	1.4	100	231
Residence							
Urban	20.3	65.5	2.7	11.3	0.2	100	259
Rural	16.3	72.0	2.2	8.4	1.2	100	2023
Household head							
Female 18-49	6.1	86.3	2.3	4.4	1.0	100	71
Female 50+	13.1	72.4	0.4	13.3	0.8	100	363
Male 18-49	19.2	68.4	4.6	7.1	0.7	100	526
Male 50+	18.2	70.2	2.0	8.5	1.1	100	1,322
Total	**17.1**	**70.7**	**2.3**	**9.0**	**1.0**	**100**	**2,282**

4.5.2 Solid fuel use

Solid fuel use is the household combustion of coal or biomass such as dung, charcoal, wood, crops, or other agricultural 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 associated with increased mortality from pneumonia and other acute lower respiratory diseases among children, as well as increased mortality from chronic obstructive disease and lung cancer among adults.

SAGE India collected data on the primary type of fuel households use 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 4.5.4 shows the distribution of households by type of cooking fuel used. Nearly 38% of households used solid fuel, 62% used clean fuel (LPG, electricity), and less than 1% used kerosene. Except for Maharashtra and Karnataka, where 11% and 19% of households used solid fuel, in all remaining states, the proportion of households using solid fuel was 44-65%.

Trends: *The use of clean cooking fuel has increased over the 2015-2020 period. There have been 20%-point increases in the use of clean cooking fuel by households from SAGE-1, 2007 (20%) to*

SAGE-2, 2015 (22%), and it has further increased by 26 % points from SAGE-2(40%) to SAGE-3 (62%). There has been a substantial decrease in the percentage of households using kerosene/paraffin and solid fuel as cooking fuel types over time (SAGE-1, SAGE-2, and SAGE-3). However, households using chimneys or hoods in the place of cooking have not changed a lot (14% in SAGE-2, 2015 to 20% in SAGE-3, 2020).

Table 4.5.4 Percent distribution of households by type of cooking fuel used, states and India (pooled), SAGE Wave 3, 2019-20

State	Cooking fuel used				
	Clean fuel	Kerosene/paraffin	Solid fuel	Total	Number of households
Assam	35.0	0.1	64.9	100	771
Karnataka	80.6	0.1	19.3	100	746
Maharashtra	89.3	0.2	10.5	100	987
Rajasthan	45.7	0.0	54.3	100	1168
Uttar Pradesh	56.3	0.1	43.6	100	1172
West Bengal	46.8	0.2	53.0	100	1229
India (pooled)	**61.6**	**0.1**	**38.3**	**100**	**6073**

The majority of the households (75%) in the lowest wealth quintile used solid fuel, whereas in the highest quintile, the majority (92%) used clean fuel (Table 5.5.5). Solid fuel use was less than thrice as common in rural (51%) as in urban areas (13%).

Table 4.5.5 Percent distribution of households by type of cooking fuel used according to household type and wealth quintile, India (pooled), SAGE Wave 3, 2019-20

Background Characteristic	Cooking fuel used				
	Clean fuel	Kerosene/paraffin	Solid fuel	Total	Number of households
Wealth quintile					
Lowest	25.0	0.3	74.7	100	1,223
Second	49.4	0.2	50.5	100	1,209
Middle	59.2	0.0	40.8	100	1,221
Fourth	75.6	0.1	24.4	100	1,206
Highest	91.6	0.0	8.4	100	1,214
Residence					
Urban	86.5	0.1	13.4	100	1,173
Rural	48.8	0.1	51.1	100	4,900
Total	**61.6**	**0.1**	**38.3**	**100**	**6,073**

Among the households that used solid fuel, 20% had a chimney or hood (Table 4.5.6). Among the households that used solid fuel and cooked in a room used for living or sleeping, 32% had a chimney or a hood, and 27% of households cooked in a separate room that used a kitchen had a chimney/hood. About 8% of the households cooked outside the house, and 18% of the households cooked in a separate building used as the kitchen had a chimney/hood.

Table 4.5.6 Percent distribution of households using chimney or hood by place of cooking in the household, India (pooled), SAGE Wave 3, 2019-20

Where cooking is usually done	Fire/stove covered or not			
	Chimney/hood	Neither	Total	Number of households
In room used for living or sleeping	32.1	67.9	100	190
In separate room used as kitchen	27.1	72.9	100	1477
In separate building used as kitchen	18.4	81.6	100	279
Outdoor	8.4	91.7	100	769
Other place	14.8	85.2	100	9
Total	**19.7**	**80.3**	**100**	**2724**

5. Health State

Ageing is a non-linear, inconsistent process attributable to a wide variety of degenerative changes that lead to a gradual decline in both physical and mental health, increasing susceptibility to disease conditions. Furthermore, as people age, their proneness to multimorbidity increases. Certain complex health states tend to occur largely only later in life, increasing the disease burden in older ages. Although some of the variations in older people's health are genetic, much is due to their 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 encompasses the social, psychological, spiritual, and environmental dimensions of health, apart from the biological one. 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 and over. Individual health status is assessed in SAGE through a single overall general self-reported health question 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 how 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 5.2).

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

5.1 Self-reported overall general health and activity

5.1.1. 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 is the most frequent tool for health 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 response categories were collapsed into three groups for the 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 and over), forty-six percent reported their health status as good, although two-fifths considered their health to be moderate (Figure 5.1). A higher percentage in Maharashtra (76%) and Karnataka (55%) reported good health than those in other states, while Maharashtra also has the lowest percentage of those reporting bad health (2%).

As expected, the younger respondents (aged 18-49) rated their health better than older respondents, with only 6% considering their health to be bad (Figure 5.2) and the majority (72%) reporting good health. Most younger respondents rated their health status as good in Maharashtra (95%), and less than 1 percent reported it as bad. On the contrary, a higher number of younger respondents in Uttar Pradesh and West Bengal reported their health status as bad. For instance, 63% reported their health status as good and 9% reported it as bad in Uttar Pradesh. Similarly, in West Bengal, 62% rated their health status as good, while 8% rated it as bad.

Trends: *The proportion of respondents aged 18-49 and 50 and over (who reported their health as good) has increased over time. For instance, the reported good health among younger and older respondents has increased from 58% and 31% respectively in SAGE-1, 2007, to 60% and 35% in SAGE-2, to 72% and 46% in SAGE-3, 2020. Consequently, there has been a decline in the percentage of people reporting their health status as moderate or bad over the years. Although self-reported health has improved over time, the mean health score has decreased from 68% in SAGE-1 to 60% in SAGE-2, and it has improved to 66% in SAGE-3, and WHODAS has increased from 12% in SAGE-1 to 14% in SAGE-2 and has slightly declined to 13% in SAGE-3 among respondents aged 18-49. Similarly, the mean health score has decreased from 54% in SAGE-1 to 37% in SAGE-2 and it increased slightly to 38% in SAGE-3. WHODAS has also remained the same among respondents aged 50 and over.*

Figure 5.1 Self-reported health status of respondents aged 50+, states and India (pooled), SAGE Wave 3, 2019-20

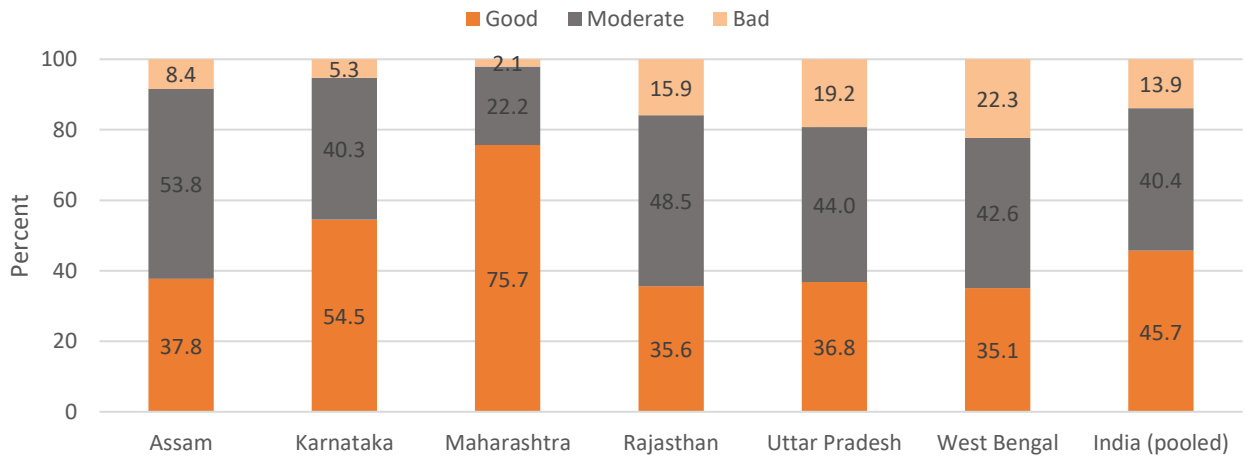
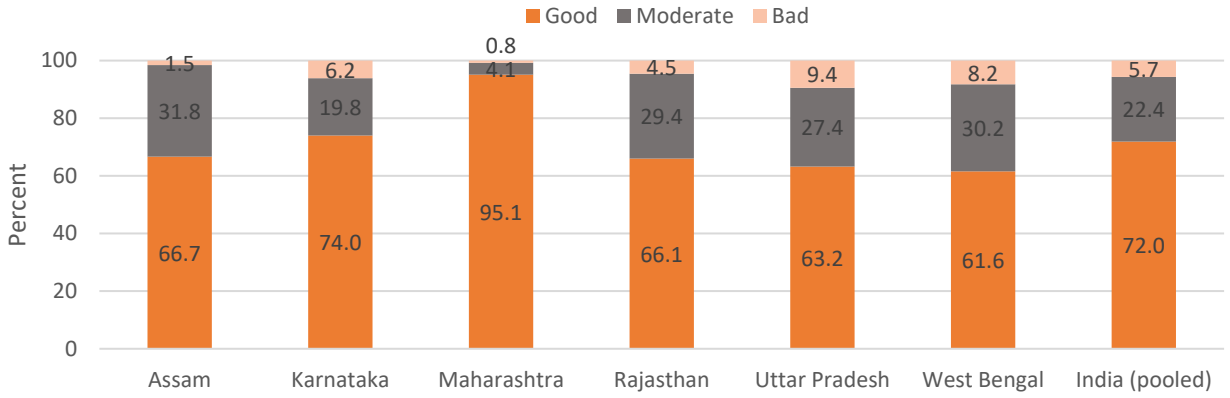


Figure 5.2 Self-reported health status of respondents aged 18-49, states and India (pooled), SAGE Wave 3, 2019-20



Among women, those who reported their health status as good is lower than that of men across the two age groups. Around two-fifths (59%) of older women (50 and over) reported their current health status as moderate or bad, compared to 49% of older men (50 and over). Meanwhile, 29% of younger women (18-49) reported their health as moderate and 6% as bad, compared to 14% and 5% of younger men (18-49) respectively (Table 5.1.1).

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

Table 5.1.1 Self-reported health, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					Aged 50+					
	Good	Moderate	Bad	Total	Number		Good	Moderate	Bad	Total	Number
Age group											
18-29	89.7	8.1	2.2	100	267	50-59	56.5	34.6	8.9	100	2360
30-39	71.4	24.2	4.4	100	353	60-69	45.2	42.4	12.4	100	2569
40-49	64.9	27.1	8.0	100	546	70-79	35.5	44.7	19.8	100	1311
						80+	25.0	45.3	29.6	100	479
Sex											
Male	81.8	13.5	4.7	100	466		50.6	37.0	12.4	100	3074
Female	65.0	28.7	6.4	100	700		41.5	43.3	15.2	100	3645
Marital status											
Never married	82.7	13.7	3.7	100	191		53.7	31.8	14.5	100	66
Currently married	70.9	23.2	5.9	100	918		49.8	38.4	11.9	100	4943
Widowed	53.6	37.0	9.4	100	51		33.9	46.3	19.7	100	1667
Other[1]	80.6	19.4	0.0	100	6		45.9	43.8	10.4	100	43
Residence											
Urban	75.0	20.8	4.2	100	233		53.6	36.4	10.0	100	1235
Rural	70.5	23.1	6.4	100	933		42.2	42.1	15.7	100	5484
Caste											
Scheduled Tribe	76.0	16.8	7.2	100	113		46.2	43.6	10.3	100	472
Scheduled Caste	67.8	28.2	4.0	100	245		40.3	43.3	16.4	100	1106
Other[2]	72.8	21.2	6.0	100	808		46.8	39.6	13.6	100	5141
Religion											
Hindu	72.5	22.0	5.6	100	963		47.2	40.0	12.8	100	5578
Muslim	70.3	22.4	7.4	100	124		34.7	44.2	21.2	100	751
Other[3]	67.0	29.4	3.5	100	79		46.1	37.6	16.3	100	390

Background characteristics	Aged 18-49						Aged 50+				
	Good	Moderate	Bad	Total	Number		Good	Moderate	Bad	Total	Number
Education											
No formal education	60.1	31.4	8.5	100	266		37.8	45.1	17.1	100	2984
Less than primary	58.0	32.4	9.5	100	148		47.7	38.2	14.1	100	1090
Primary school	74.8	19.9	5.3	100	250		47.7	39.8	12.5	100	1222
Secondary school	74.1	25.1	0.8	100	204		54.8	34.7	10.5	100	599
High school	84.5	11.5	4.0	100	164		55.7	36.1	8.2	100	440
College and above	82.3	10.9	6.8	100	134		61.8	29.5	8.7	100	384
Wealth quintile											
Lowest	68.9	23.6	7.5	100	214		36.2	43.9	19.9	100	1254
Second	65.1	32.0	3.0	100	258		43.0	43.0	14.0	100	1283
Middle	74.1	18.4	7.5	100	272		44.7	41.6	13.7	100	1300
Fourth	73.1	23.2	3.7	100	216		48.0	39.8	12.3	100	1391
Highest	77.9	15.2	6.9	100	206		53.8	35.3	11.0	100	1491
Total	**72.0**	**22.4**	**5.7**	**100**	**1166**		**45.7**	**40.4**	**13.9**	**100**	**6719**
Mean health score	**74.9**	**47.1**	**28.1**	**66.1**			**52.0**	**30.8**	**13.0**	**38.0**	
WHODAS mean score	**8.7**	**20.1**	**29.5**	**12.5**			**19.1**	**30.4**	**48.5**	**27.8**	

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 is 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.

A higher proportion of urban residents have reported their health as good compared to their rural counterparts in both older and younger age groups. For instance, in the older age group, 54% of respondents in urban areas said their health is good, compared to 42% among their rural counterparts. Similarly, a higher proportion of rural respondents consider their health as bad (6% among younger age groups and 16% among older age groups).

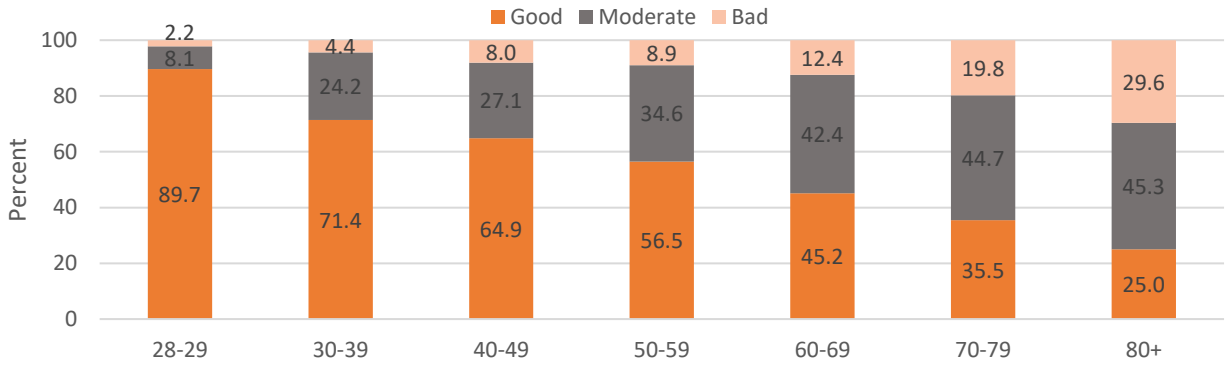
The reporting of health status is also observed to differ by marital status. For instance, among the younger cohort, health status is rated as good or better by those who have never been married, followed by those who are either divorced, separated, or cohabiting, as compared to those who are currently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

In the older age group, respondents reporting good health increased from 36% in the lowest wealth quintile to 54% in the highest wealth quintile. Even among the younger respondents, the reporting of bad health is inversely related to wealth status; good health status is higher among the higher wealth quintiles and vice-versa.

Educational attainment is also found to directly influence self-reported health status among both the younger and older age groups. As presented in Table 5.1.1, self-reported health status generally improves with increasing educational attainment. For instance, among older respondents, 17% of those with no formal education rated their health as bad, compared with 9% with a college education. A similar pattern is observed among the younger respondents. About 9% of those with no formal education, compared with 7% with college education, reported their health as bad.

This study exhibits that self-reported health status deteriorates progressively with age (Figure 5.3). The findings indicate that while 90% of the youngest respondents (aged 18-29) rated their health as good, the level dropped to 25% in the 80+ age group. Correspondingly, the proportion who rated their health as bad rose from 2% among those aged 18-29 to 30% at 80+ (Figure 5.3).

Figure 5.3 Self-reported health of respondents by age group, India (pooled), SAGE Wave 3, 2019-20



The differential in self-reported health status was also observed by age and gender across the state, as presented in Figures 5.4 and 5.5. Across the states and among the age groups, females usually reported worse health status than males. The gender differential was most striking in Uttar Pradesh, where 69% of older females rated their health as moderate or bad, compared with 57% of older males (Figure 5.4). The gender differential in self-reported health was evident in almost every category of background characteristics, e.g., residence, caste, religion, education, and income. As expected, both males and females aged 80 and over reported the highest level of bad health (Figure 5.5).

Figure 5.4 Proportion of men and women aged 50+ who reported health as moderate or bad, states and India (pooled), SAGE Wave 3, 2019-20

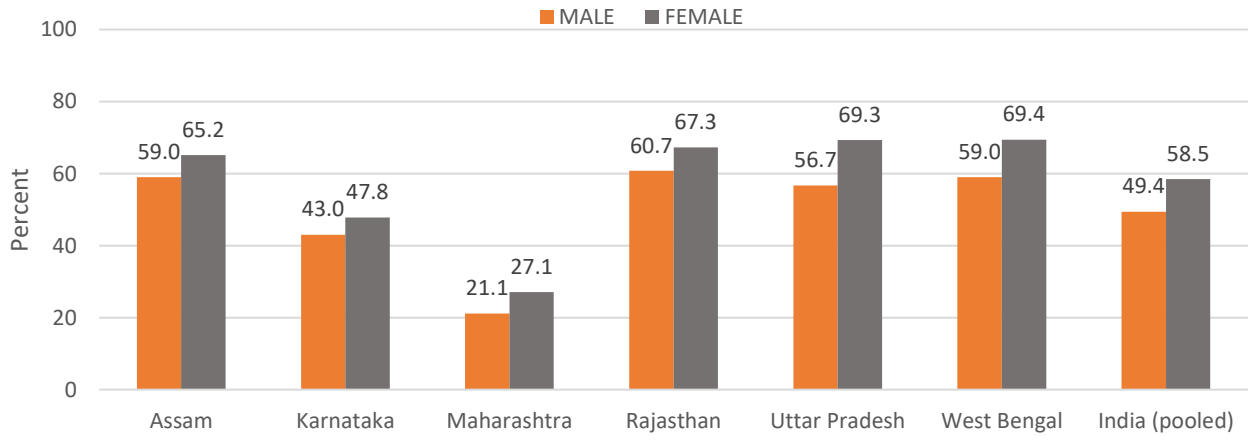
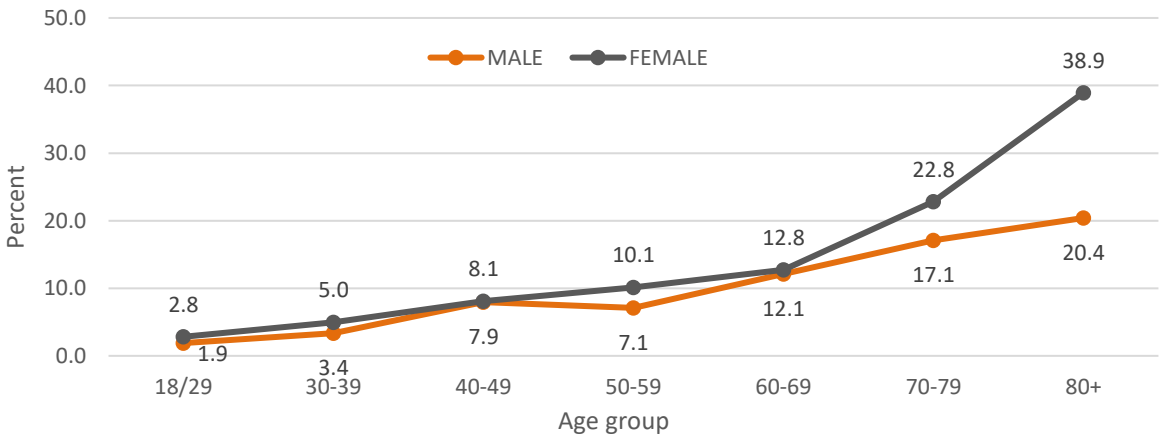
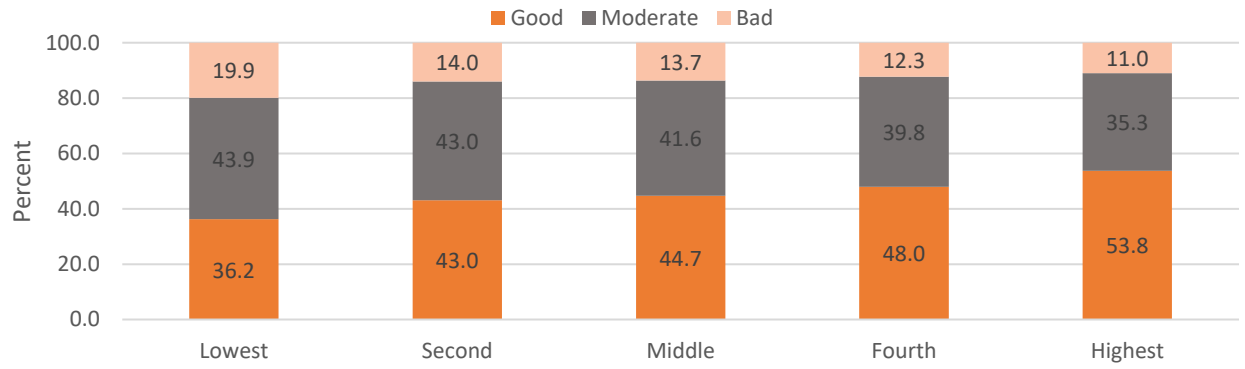


Figure 5.5 Proportion of persons who reported health as bad, by age and sex, India (pooled), SAGE Wave 3, 2019-20



The relationship between income and health status is positively correlated. It can be seen that the number of respondents who reported good health increases, while those who rated their health as bad decreases as they move up the wealth quintile (Figure 5.6). The proportion of respondents who rated their health as good increases as they move up the wealth quintile, from 36% in the lowest quintile to 54% in the highest quintile.

Figure 5.6 Self-reported health status of respondents aged 50+ by wealth quintile, India (pooled), SAGE Wave 3, 2019-20

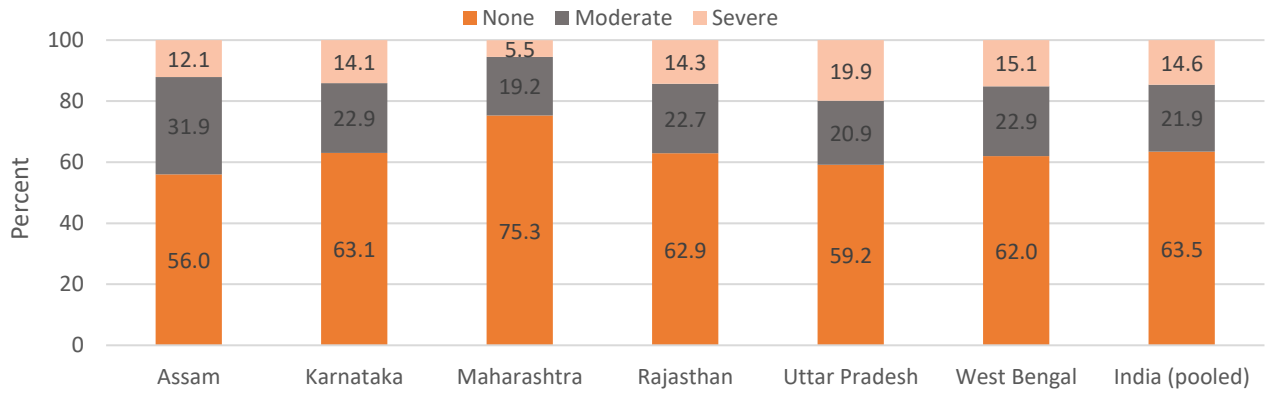


5.1.2. Difficulty with work or household activities

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/cannot do').

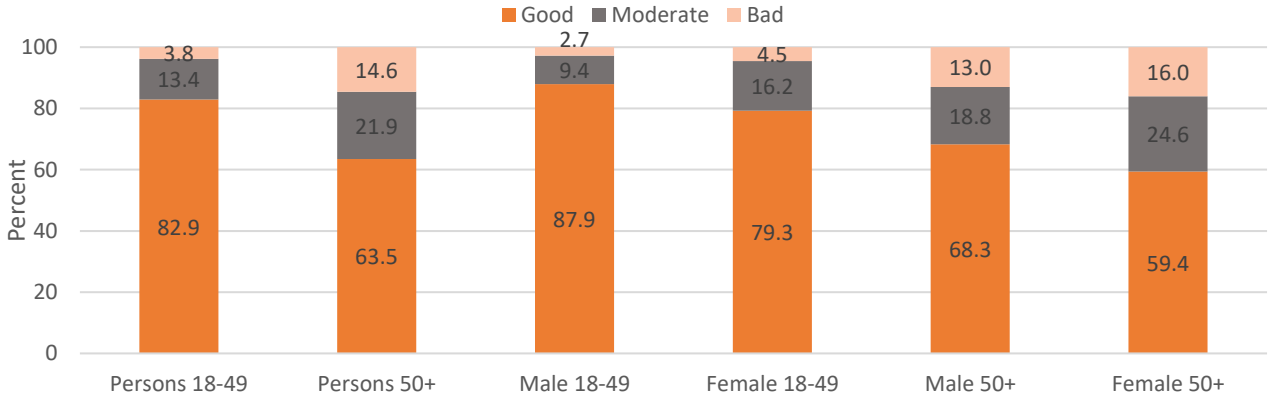
Among the surveyed states, the proportion of older respondents who reported severe difficulty is found to be highest in Uttar Pradesh (20%), followed by West Bengal (15%) and lowest in Maharashtra (6%) (Figure 5.7).

Figure 5.7 Self-reported difficulty with work or household activities for respondents aged 50+, states and for India (pooled), SAGE Wave 3, 2019-20



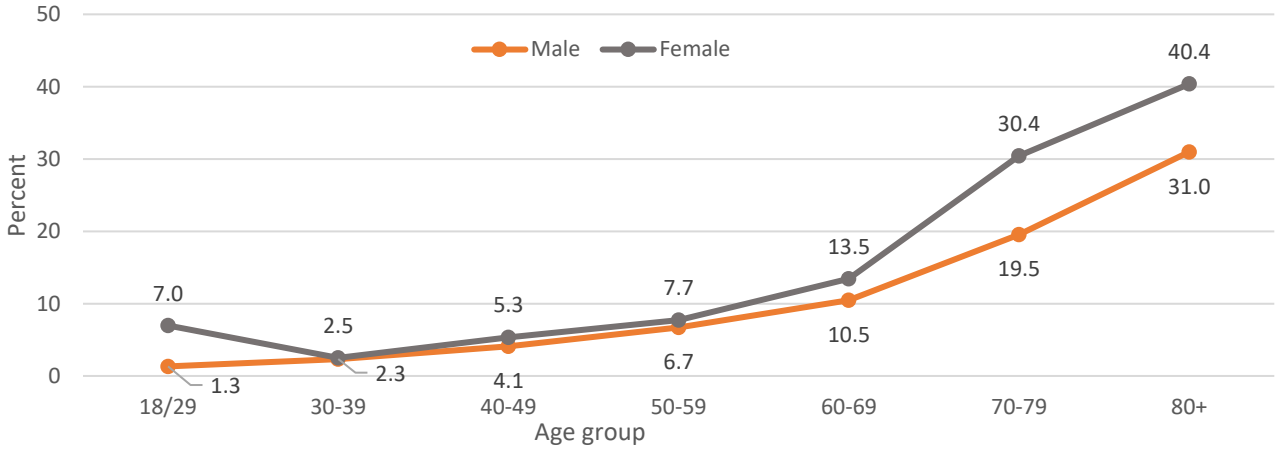
Age emerges as an important factor that defines difficulty with work or household activity. About 83% of younger respondents reported no difficulty, compared to only 63% of older respondents (Figure 5.8). Severe difficulty with work or household activity was reported by 15% in the older age group, compared to just 4% of younger respondents. Older females were more likely than older males to have such difficulty: 16% of females reported severe difficulty, compared to 13% of males.

Figure 5.8 Self-reported difficulty with work or household activities, by age group and sex, India (pooled), SAGE Wave 3, 2019-20



A clear age gradient is indicated in the proportion of respondents reporting difficulty with work or household activities. Among female respondents aged 80+, 60% reported no difficulty, compared to 93% among younger adults aged 18-29. Meanwhile, the proportion of male respondents who reported severe difficulty decreased from 31% in the oldest age groups to 1.3% in the younger age groups. In each age group, a higher proportion of females than males reported severe difficulty with work: 40% of females aged 80+ faced severe difficulty, compared with 31% of males (Figure 5.9).

Figure 5.9 Proportion of persons who reported severe difficulty with work or household activities by age group and sex, India (pooled), SAGE Wave 3, 2019-20



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 respondents, especially among widowed persons (Table 5.1.2).

A considerable proportion of older respondents, particularly those aged 70+ (about 30%), reported difficulty in work or household activities. Similarly, older respondents living in rural areas were more likely to report difficulty in carrying out work or household activities than those from urban areas. However, there are hardly any rural-urban differences in difficulty with household work among respondents aged 18-49. A more pronounced difference is evident among different castes and religions. Among respondents aged 18-49, respondents belonging to the Scheduled Caste were reported to have marginally more difficulty than those belonging to the Scheduled Tribe. A higher proportion of younger Muslims also reported severe difficulty with work than younger Hindus and persons from other religions. A similar pattern is indicated among the older age groups as well.

Trends: *Overall, the percentage of people reporting no difficulties with work/household activities has increased over the period of time from SAGE-1, 2005, to SAGE-3, 2020. Among younger respondents, this has increased from 73% in SAGE-1 to 75% in SAGE-2, to 83% in SAGE-3, and from 47% in SAGE-1 to 52% in SAGE-2, to 64% in SAGE-3 among older respondents. Subsequently, there has been a decline in the percentage of respondents reporting moderate or severe difficulty during the same period. The mean health score has increased, and the WHODAS mean score has decreased among younger respondents. Among the older respondents, the mean health score has almost remained constant, and the WHODAS mean score has shown a slight decrease.*

Table 5.1.2 Difficulty with work/household activities, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					Aged 50+					
	None	Moderate	Severe	Total	Number		None	Moderate	Severe	Total	Number
Age group											
18-29	93.3	3.5	3.2	100	267	50-59	73.7	19.0	7.3	100	2360
30-39	86.3	11.2	2.4	100	353	60-69	67.1	20.9	12.0	100	2569
40-49	76.1	19.1	4.9	100	546	70-79	49.9	25.4	24.7	100	1311
						80+	32.3	32.0	35.7	100	479
Sex											
Male	87.9	9.4	2.7	100	466		68.3	18.8	13.0	100	3074
Female	79.3	16.2	4.5	100	700		59.4	24.6	16.0	100	3645
Marital status											
Never married	90.1	5.2	4.7	100	191		67.1	22.1	10.8	100	66
Currently married	82.0	14.6	3.4	100	918		67.5	20.8	11.7	100	4943
Widowed	75.7	19.1	5.1	100	51		52.0	25.0	23.0	100	1667
Other[1]	80.6	0.0	19.4	100	6		63.4	22.9	13.6	100	43
Residence											
Urban	83.1	12.4	4.5	100	233		67.5	19.2	13.3	100	1235
Rural	82.8	13.8	3.4	100	933		61.7	23.1	15.2	100	5484
Caste											
Scheduled Tribe	81.5	18.2	0.4	100	113		60.9	26.8	12.3	100	472
Scheduled Caste	82.1	15.9	1.9	100	245		62.5	22.4	15.2	100	1106
Other[2]	83.2	12.1	4.7	100	808		63.8	21.5	14.6	100	5141
Religion											
Hindu	83.1	13.3	3.6	100	963		64.3	22.0	13.7	100	5578
Muslim	83.7	11.2	5.2	100	124		58.3	20.8	20.9	100	751
Other[3]	77.5	19.9	2.7	100	79		60.7	24.2	15.1	100	390
Education											
No formal education	76.8	18.6	4.6	100	266		56.0	24.2	19.8	100	2984
Less than primary	76.1	16.1	7.8	100	148		63.8	23.2	13.1	100	1090
Primary school	86.9	10.1	3.0	100	250		67.1	21.3	11.7	100	1222
Secondary school	78.6	18.0	3.4	100	204		69.2	22.1	8.7	100	599
High school	87.9	10.0	2.1	100	164		79.6	11.1	9.3	100	440
College and above	92.9	4.5	2.6	100	134		73.5	18.6	8.0	100	384
Wealth quintile											
Lowest	83.9	13.6	2.5	100	214		55.9	26.6	17.5	100	1254
Second	81.9	12.4	5.7	100	258		63.5	20.8	15.7	100	1283
Middle	83.2	13.3	3.6	100	272		63.4	22.0	14.5	100	1300
Fourth	82.0	16.3	1.7	100	216		62.9	21.2	16.0	100	1391
Highest	83.7	11.2	5.1	100	206		69.4	19.9	10.7	100	1491
Total	**82.9**	**13.4**	**3.8**	**100**	**1166**		**63.5**	**21.9**	**14.6**	**100**	**6719**
Mean health score	**73.6**	**33.4**	**15.4**	**66.06**			**50.5**	**20.9**	**9.4**	**38.0**	
WHODAS mean score	**9.1**	**26.4**	**35.4**	**12.4**			**19.4**	**35.7**	**52.3**	**27.8**	

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 is the highest level of disability.

[1] Includes divorced, separated or cohabiting.

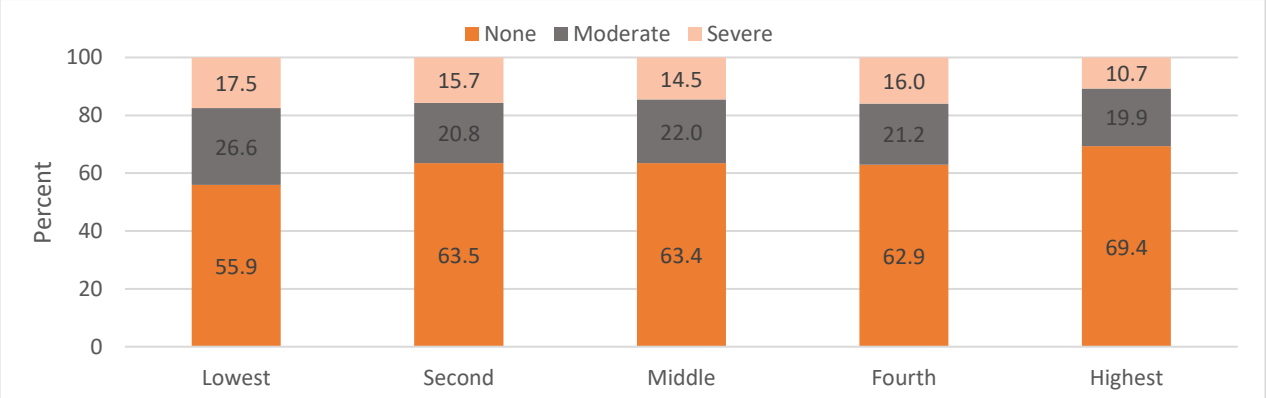
[2] Includes non-Scheduled Caste or tribe and no caste or tribe.

[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 5.1.2). In the 50+ age group, 56% of those without formal education reported no difficulty, as opposed to 74% of those with high school education. Similarly, 20% of those with no formal education reported severe difficulty, while only 8% of respondents with a college education reported having severe difficulty.

However, as mentioned earlier, the relationship between education and difficulty with work could be due to a higher representation of younger respondents having attained higher education. With an increase 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 reporting no difficulty with work or household activity increases from 56% in the lowest wealth quintile to 69% in the highest wealth quintile (Figure 5.10).

Figure 5.10 Percent distribution of respondents aged 50+ by level of difficulty with work or household activities and wealth quintile, India (pooled), SAGE Wave 3, 2019-20



5.2 Health state and functioning

Assessment of functioning and disability is critical to understanding 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 about their situation in the past 30 days regarding 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 the 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 as 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 timed walk and vision tests, for cross-validation of the anchoring vignette strategy and as independent tests for improving the understanding of self-reported health.

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 going to the toilet. 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 in Table 5.2.1. Uttar Pradesh has the lowest health score. The highest health score for older adults, as well as for younger respondents, is in Maharashtra and Rajasthan. Overall, health state scores were lower for older adults (38) than for younger adults (66), with a clear age gradient (Table 5.2.1).

The state-wise WHODAS results reflect this scenario, with the highest levels of disability in older adults observed in Uttar Pradesh (33), followed by Assam (29). In younger adults, problems with functioning were much lower but highest in Uttar Pradesh (17) and Assam (13). The ranking of health state scores by state was relatively consistent for both older and younger adults.

Table 5.2.1 Mean health score and WHODAS score, by states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Mean health state score	Number	Mean WHODAS score*	Number	Mean health state score	Number	Mean WHODAS score	Number
Assam	63.2	173	13.4	173	32.0	768	29.0	768
Karnataka	63.2	132	12.4	132	40.9	856	23.4	856
Maharashtra	79.5	218	7.0	218	48.3	1079	21.0	1079
Rajasthan	69.0	182	13.0	182	41.8	1339	28.4	1339
Uttar Pradesh	54.6	180	16.8	180	30.7	1328	32.6	1328
West Bengal	66.6	281	12.2	281	39.1	1349	27.1	1349
India (pooled)	**66.1**	**1166**	**12.4**	**1166**	**38.0**	**6719**	**27.8**	**6719**

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 is the highest level of disability.

The health score decreased from 84 for the youngest age group respondents to 21 among the oldest-olds. Men consistently reported better health (higher health scores) than women. The scores indicate a relatively better health status among never-married persons and a 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 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 55 for those with a college education. Similarly, the health score increased from 32 in the lowest wealth quintile to 43 in the highest wealth quintile (Table 5.2.2).

Table 5.2.2 Mean health score and WHODAS score, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Age 18-49				Age 50+				
	Mean health score	Number	Mean WHODAS score	Number		Mean health score	Number	Mean WHODAS score	Number
Age group									
18-29	83.5	267	6.3	267	50-59	45.8	2360	21.6	2360
30-39	70.6	353	9.6	353	60-69	39.0	2569	26.9	2569
40-49	55.6	546	16.9	546	70-79	28.5	1311	35.4	1311
					80+	21.4	479	41.1	479

Background characteristics	Age 18-49					Age 50+			
	Mean health score	Number	Mean WHODAS score	Number		Mean health score	Number	Mean WHODAS score	Number
Sex									
Male	75.5	466	9.0	466		44.6	3074	24.1	3074
Female	59.4	700	14.9	700		32.4	3645	31.0	3645
Marital status									
Never married	82.6	191	6.6	191		41.1	66	25.2	66
Currently married	64.2	918	13.0	918		41.3	4943	25.6	4943
Widowed	45.1	51	21.3	51		28.7	1667	34.1	1667
Other[1]	72.7	6	12.6	6		35.5	43	27.2	43
Residence									
Urban	72.9	233	9.7	233		43.6	1235	24.7	1235
Rural	62.9	933	13.7	933		35.6	5484	29.1	5484
Caste									
Scheduled Tribe	62.2	113	14.4	113		37.5	472	28.3	472
Scheduled Caste	65.8	245	11.9	245		33.5	1106	29.2	1106
Other[2]	66.5	808	12.4	808		39.0	5141	27.5	5141
Religion									
Hindu	66.5	963	12.5	963		38.6	5578	27.3	5578
Muslim	63.1	124	13.0	124		34.2	751	31.1	751
Other[3]	65.2	79	10.5	79		36.8	390	28.3	390
Education									
No formal education	55.8	266	17.7	266		30.7	2984	32.6	2984
Less than primary	56.4	148	17.0	148		37.1	1090	28.5	1090
Primary school	63.6	250	12.8	250		39.8	1222	25.9	1222
Secondary school	68.9	204	10.6	204		45.1	599	22.1	599
High school	74.0	164	8.4	164		52.2	440	19.6	440
College and above	83.3	134	5.9	134		55.0	384	18.6	384
Wealth quintile									
Lowest	59.6	214	16.2	214		32.2	1254	31.3	1254
Second	63.5	258	13.4	258		34.5	1283	30.0	1283
Middle	65.3	272	12.2	272		38.8	1300	26.1	1300
Fourth	71.7	216	10.5	216		39.4	1391	27.1	1391
Highest	68.7	206	10.8	206		43.4	1491	25.4	1491
Total	**66.1**	**1166**	**12.4**	**1166**		**38.0**	**6719**	**27.8**	**6719**

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 is the highest level of disability.

The WHODAS scores indicate that disability levels have a positive relationship with age - higher disability levels with increasing age, culminating at the oldest-olds with the highest score of 41, as compared with a score of 6 among the youngest age group of 18-29 years. Disability levels are also observed to be higher among females, widowed, rural residents, those with lower education, and those in poorer wealth quintiles. 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 of ADL and IADL deficiencies. Most respondents aged 50+ (34% among men and 46% among women) have at least one ADL deficiency, and 23% of men and 30% of women respectively had two or more deficiencies. A lower proportion (19% of men and 26% of women) of older persons reported IADL deficiencies. Deficiencies were far more common among older women than older men: about 46% and 26% of older women had at least one ADL and IADL deficiency respectively, compared with 34% and 19% among men (Tables 5.2.3 a & b). Along with these deficiencies, it was also seen that the mean health score decreased (i.e., health worsened) and the mean WHODAS score increased (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. 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, 49% of older women with no formal education had at least one ADL deficiency compared to 21% of those with a college degree. Similarly, 46% of older men with no formal education had one or more ADL deficiencies compared to 28% of college-educated older men.

Similarly, a better economic status indicates an improvement in carrying out daily activities. The proportion of persons with no ADL deficiencies rises from 61% for men and 51% for women in the lowest wealth quintile to 68% for men and 55% for women in the highest wealth quintile. The gender gap is evident: within each wealth quintile, the proportion of women with ADL and IADL deficiencies is much higher than men.

Table 5.2.3 (a) Activities of daily living (ADL) and instrumental activities of daily living (IADL) among older men, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Male aged 50+								
	ADL				IADL				Number
	0	1	2+	Total	0	1	2+	Total	
Age group									
50-59	80.1	8.0	12.0	100	90.2	5.6	4.2	100	932
60-69	67.6	12.2	20.2	100	83.8	7.9	8.3	100	1224
70-79	52.9	13.7	33.4	100	72.4	10.0	17.6	100	668
80+	36.6	18.9	44.5	100	61.5	15.3	23.3	100	250
Marital status									
Never married	62.6	13.1	24.3	100	91.6	4.5	3.8	100	42
Currently married	67.3	10.6	22.1	100	82.1	8.2	9.7	100	2708
Widowed	53.2	20.5	26.3	100	73.5	9.8	16.7	100	307
Other[1]	50.4	28.3	21.3	100	91.0	2.0	7.0	100	17
Residence									
Urban	73.3	9.7	17.0	100	86.6	7.0	6.4	100	549
Rural	62.3	12.7	25.1	100	79.2	8.8	12.1	100	2525
Caste									
Scheduled Tribe	60.7	8.5	30.8	100	79.7	9.8	10.6	100	204
Scheduled Caste	62.3	13.5	24.2	100	75.3	11.6	13.1	100	483
Other[2]	66.5	11.6	21.9	100	82.7	7.5	9.8	100	2387
Religion									
Hindu	67.3	11.6	21.1	100	82.5	8.5	9.1	100	2548
Muslim	55.5	13.7	30.8	100	75.0	7.5	17.6	100	343
Other[3]	59.0	10.5	30.5	100	78.4	5.7	15.8	100	183
Education									
No formal education	54.2	14.3	31.4	100	69.2	12.8	18.1	100	742
Less than primary	66.1	9.7	24.3	100	81.3	7.6	11.1	100	594
Primary school	65.7	12.5	21.9	100	82.6	6.5	10.9	100	694
Secondary school	68.0	12.5	19.5	100	86.1	8.8	5.1	100	408
High school	75.4	7.5	17.1	100	87.8	5.5	6.7	100	338
College and above	72.0	12.8	15.2	100	89.5	6.4	4.1	100	298
Wealth quintile									
Lowest	60.5	14.5	25.0	100	79.5	8.3	12.2	100	547
Second	62.6	10.4	26.9	100	77.3	8.8	14.0	100	583
Middle	68.8	12.3	18.9	100	82.6	8.8	8.6	100	568
Fourth	67.4	10.4	22.3	100	80.8	8.4	10.8	100	656
Highest	67.5	11.8	20.7	100	85.3	7.3	7.4	100	720
Total	**65.6**	**11.8**	**22.6**	**100**	**81.4**	**8.2**	**10.4**	**100**	**3074**
Mean health score	**55.4**	**36.5**	**16.8**	**44.6**	**51.7**	**20.8**	**7.6**	**44.6**	
WHODAS mean score	**15.2**	**25.3**	**49.4**	**24.1**	**17.6**	**40.7**	**62.2**	**24.1**	

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 is 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 5.2.3 (b) Activities of daily living (ADL) and instrumental activities of daily living (IADL) among older women, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Female aged 50+								
	ADL				IADL				Number
	0	1	2+	Total	0	1	2+	Total	
Age group									
50-59	69.3	12.3	18.4	100	84.3	8.9	6.8	100	1428
60-69	51.9	17.1	31.1	100	74.5	11.1	14.3	100	1345
70-79	35.9	17.4	46.7	100	54.9	18.1	27.1	100	643
80+	26.6	19.4	54.0	100	55.1	8.5	36.4	100	229
Marital status									
Never married	48.4	37.9	13.7	100	86.2	6.6	7.3	100	24
Currently married	58.7	15.3	26.1	100	78.8	9.5	11.7	100	2235
Widowed	47.0	15.8	37.3	100	65.2	14.2	20.7	100	1360
Other[1]	61.9	0.0	38.1	100	72.3	21.9	5.8	100	26
Residence									
Urban	58.7	14.2	27.1	100	75.3	12.2	12.5	100	686
Rural	52.1	16.0	31.9	100	72.8	10.9	16.3	100	2959
Caste									
Scheduled Tribe	58.1	12.3	29.7	100	71.1	12.6	16.4	100	268
Scheduled Caste	54.7	15.2	30.1	100	74.7	12.2	13.1	100	623
Other[2]	53.8	15.7	30.5	100	73.5	11.1	15.4	100	2754
Religion									
Hindu	54.8	15.7	29.6	100	74.0	11.5	14.5	100	3030
Muslim	49.3	14.5	36.2	100	71.1	9.5	19.4	100	408
Other[3]	54.8	13.2	32.0	100	71.9	13.4	14.7	100	207
Education									
No formal education	50.6	15.5	34.0	100	69.1	13.6	17.4	100	2242
Less than primary	54.6	15.2	30.2	100	73.0	9.7	17.3	100	496
Primary school	58.1	17.6	24.3	100	82.3	7.2	10.5	100	528
Secondary school	62.5	17.0	20.5	100	87.2	5.3	7.5	100	191
High school	63.7	8.5	27.8	100	83.8	9.6	6.7	100	102
College and above	79.4	9.4	11.2	100	88.0	6.6	5.4	100	86
Wealth quintile									
Lowest	51.4	16.1	32.5	100	70.2	11.9	17.9	100	707
Second	55.4	15.4	29.1	100	75.2	12.2	12.7	100	700
Middle	59.5	13.4	27.1	100	73.2	12.6	14.2	100	732
Fourth	49.2	18.1	32.7	100	75.1	9.9	15.0	100	735
Highest	54.5	14.6	30.9	100	74.3	10.1	15.5	100	771
Total	**54.2**	**15.4**	**30.4**	**100**	**73.6**	**11.3**	**15.1**	**100**	**3645**
Mean health score	**43.6**	**27.7**	**14.2**	**32.4**	**39.6**	**20.2**	**6.1**	**32.4**	
WHODAS mean score	**20.4**	**31.2**	**49.7**	**31.0**	**23.2**	**40.5**	**61.7**	**31.0**	

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 is 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.

6. Morbidity and Interventions

Chronic diseases represent the primary cause of death and disability worldwide. Diseases such as cardiovascular disease, mental health disorders, diabetes, cancer, and injuries lead to the mortality charts in India. Often, these chronic conditions coexist as comorbidities.

India's disease burden is primarily divided into two clusters: cardiovascular diseases on one hand and diarrheal diseases and lower respiratory tract infections on the other. With its escalating diabetes rates, India is becoming a prominent hub for chronic diseases (Mohan *et al.*, 2014). Mortality among middle-aged and older individuals is predominantly linked to chronic diseases, reflecting the usual progression of health decline. However, there is a noticeable uneven distribution of diseases between urban and rural areas, with chronic diseases increasingly affecting younger populations.

A significant proportion of deaths due to chronic diseases occur among younger individuals in India. For instance, in terms of productive years lost due to cardiovascular diseases among individuals aged 35 to 64 years, India tops the global charts with 9.2 million years lost in 2000 alone. Additionally, coronary heart diseases manifest among Indians at least five to ten years earlier than in other populations.

As the disease burden shifts from infectious to non-communicable diseases, chronic conditions dominate the overall disease burden. The risk of developing chronic diseases rises with an increasing proportion of elderly individuals. Evaluating the morbidity profile will facilitate effective interventions aimed at enhancing the health status and quality of life among the older population. However, there is a dearth of baseline information on the prevalence of chronic diseases in this population. The absence of such data on health trends among the elderly hampers precise predictions regarding their healthcare requirements. Thus, acquiring accurate and up-to-date databases is essential for planning health services and policy implications.

The Study on Global Ageing and Adult Health (SAGE) compiled evidence on various chronic conditions prevalent among older adults, significantly contributing to the non-communicable disease burden in this age group. This chapter presents results pertaining to chronic conditions and the satisfaction of health needs related to these conditions. It also delves into comorbidities — the simultaneous occurrence of multiple chronic conditions, injuries, oral health, and cataracts — as well as screenings for cervical and breast cancer.

6.1 Single Chronic Conditions

This section presents results 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 asked. The first set inquired whether the respondent had ever received a diagnosis of the disease, i.e., if a healthcare professional had indicated they had the given health condition. For those diagnosed with the disease, the second set of questions pertained to treatment. For four conditions — angina, arthritis, asthma, and depression — respondents were additionally queried about specific symptoms related to the health condition. These symptoms, combined with validated diagnostic algorithms, helped estimate prevalence rates more accurately.

Those affirming the presence of 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. 'Currently treated' respondents had taken medication or received treatment in the previous two weeks, while those on 'chronic therapy' had done so in the last 12 months, irrespective of their current treatment status. All respondents were questioned about experiencing symptoms specific to the chronic condition during the previous 12 months.

6.1.1 Arthritis

SAGE asked the question, "Have you ever been diagnosed with or 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 6.1.1 (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 1% at age 18-29 to 16% at age 70-79. Self-reported prevalence was highest (16%) in the 70-79 age group, decreasing to a value of 15 in the oldest group aged 80+. Symptom-based prevalence also increased with age, rising from 2% in the 18-29 age group to 27% in the 70-79 age group, and then to 21% for those aged 80+. For older and younger adults, both self-reported diagnosis and symptom-based prevalence were higher among women than men; for older women, self-reported prevalence (16%) was much higher than for men (10%). 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+, self-reported and symptom-based prevalence among college-educated respondents was 11%, compared with 13% and 15% respectively for those with no formal education and below primary school.

Trends: *The prevalence of self-reported arthritis has increased marginally between SAGE-1 and SAGE-3 and declined slightly between SAGE-2 and SAGE-3, increasing from 6 percent in 2007 to 7 percent in 2015 and decreasing from 7 percent in 2015 to 6 percent in 2020 among younger respondents. However, symptom-based arthritis has decreased from 9 percent in 2007 to 8 percent and increased to 14 percent among younger respondents in 2020, from 24 percent in 2007 to 19 percent in 2015 and increased to 26 percent among older respondents.*

Table 6.1.1 (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 3, 2019-20

Background characteristics	Aged 18-49							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	1.3	267	1.6	267	81.1	5	81.1	5
30-39	4.7	353	13.3	353	23.1	36	28.7	36
40-49	8.3	546	20.2	546	25.2	100	29.7	100

Background characteristics	Aged 18-49							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Sex								
Male	2.6	466	6.2	466	8.7	26	24.4	26
Female	7.9	700	19.8	700	29.6	115	31.9	115
Marital status								
Never married	0.2	191	1.0	191	18.4	2	18.4	2
Currently married	6.7	918	16.5	918	26.1	129	31.1	129
Widowed	5.8	51	16.2	51	21.1	10	21.1	10
Other[1]	0.0	6	0.0	6	NA	NA	NA	NA
Residence								
Urban	6.4	233	10.9	233	44.2	21	45.3	21
Rural	5.4	933	15.8	933	19.9	120	25.8	120
Caste								
Scheduled Tribe	6.3	113	6.6	113	46.7	11	71.9	11
Scheduled Caste	7.7	245	17.2	245	31.6	30	36.6	30
Other[2]	5.0	808	14.1	808	22.7	100	26.3	100
Religion								
Hindu	6.1	963	14.7	963	26.8	120	31.2	120
Muslim	2.2	124	10.4	124	20.1	11	20.1	11
Other[3]	6.2	79	14.6	79	18.6	10	36.5	10
Education								
No formal education	4.5	266	20.2	266	11.6	47	14.3	47
Less than primary	10.5	148	12.3	148	59.6	19	64.3	19
Primary school	8.0	250	16.0	250	30.1	37	40.7	37
Secondary school	6.7	204	13.6	204	37.3	18	38.2	18
High school	3.2	164	10.8	164	20.2	13	27.0	13
College and above	1.3	134	7.2	134	8.5	7	8.5	7
Wealth quintile								
Lowest	2.5	214	9.6	214	7.4	24	16.2	24
Second	7.6	258	14.1	258	31.9	33	40.3	33
Middle	2.6	272	15.1	272	13.3	32	15.6	32
Fourth	9.5	216	14.0	216	43.9	26	49.2	26
Highest	5.8	206	17.1	206	25.9	26	27.8	26
Total	**5.7**	**1166**	**14.2**	**1166**	**25.8**	**141**	**30.5**	**141**

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.

Table 6.1.1 (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 3, 2019-20

Background characteristics	Aged 50+							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	11.3	2360	23.3	2360	24.9	531	34.9	531
60-69	12.6	2569	26.9	2569	24.5	718	31.7	718
70-79	15.5	1311	26.6	1311	25.1	334	32.7	334
80+	15.2	479	28.4	479	20.9	134	29.1	134
Sex								
Male	9.9	3074	19.8	3074	22.0	638	29.5	638
Female	15.5	3645	30.8	3645	25.8	1079	34.4	1079
Marital status								
Never married	4.9	66	12.0	66	40.7	6	40.7	6
Currently married	12.6	4943	24.0	4943	25.5	1213	34.1	1213
Widowed	14.3	1667	30.9	1667	21.8	484	29.6	484
Other[1]	9.1	43	35.1	43	23.6	14	25.8	14
Residence								
Urban	12.5	1235	20.8	1235	32.1	290	41.1	290
Rural	13.1	5484	27.9	5484	21.9	1427	29.9	1427

Background characteristics	Aged 50+							
	Arthritis self-reported	Number	Arthritis symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Caste								
Scheduled Tribe	17.0	472	22.3	472	28.0	110	37.5	110
Scheduled Caste	9.2	1106	30.6	1106	11.7	300	19.3	300
Other[2]	13.4	5141	24.9	5141	27.4	1307	35.8	1307
Religion								
Hindu	12.7	5578	26.0	5578	23.8	1422	31.6	1422
Muslim	12.1	751	24.0	751	25.3	202	32.6	202
Other[3]	21.5	390	25.2	390	36.6	93	59.2	93
Education								
No formal education	12.9	2984	31.1	2984	20.0	880	26.6	880
Less than primary	15.3	1090	25.4	1090	28.2	275	38.3	275
Primary school	13.7	1222	24.7	1222	23.8	293	34.2	293
Secondary school	10.1	599	18.0	599	27.1	110	35.1	110
High school	11.8	440	17.0	440	38.8	88	51.6	88
College and above	11.0	384	16.1	384	46.4	71	54.7	71
Wealth quintile								
Lowest	11.3	1254	30.4	1254	16.6	347	21.8	347
Second	12.2	1283	26.1	1283	24.1	321	35.3	321
Middle	11.9	1300	21.2	1300	22.9	308	29.4	308
Fourth	13.2	1391	25.5	1391	31.8	339	38.7	339
Highest	15.2	1491	25.6	1491	26.9	402	37.6	402
Total	**12.9**	**6719**	**25.7**	**6719**	**24.4**	**1717**	**32.7**	**1717**

Note: Prevalence of arthritis is the proportion of the 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 6.1.2 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 13%. The highest prevalence for older adults was in Assam (35%), with prevalence also high in West Bengal and Karnataka at 21% and 14% 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 14% in Maharashtra to 34% in Uttar Pradesh. Among younger adults, 6% reported being diagnosed with arthritis; the symptom-based prevalence of arthritis was 14%, indicating that some 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 3% to 11%), the symptom-based prevalence had a much wider range (from 6% in Karnataka to 29% in Uttar Pradesh). Among younger respondents, the highest self-reported arthritis prevalence was in Assam (11%), however, Uttar Pradesh reported the highest percentage based on symptoms (29%). In Karnataka and Uttar Pradesh, 3% of younger respondents were diagnosed with arthritis. In Rajasthan, only 5% reported being diagnosed with arthritis, but 15% 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, 33% had received treatment in the previous 12 months, while just 25% had received treatment in the previous two weeks. The rate of treatment in the previous 12 months was higher in West Bengal than in any other state. 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, 31% had received medication or treatment during the previous

12 months (on chronic treatment). By contrast, only 26% had received treatment in the previous two weeks (currently treated). In Karnataka, 11% and in Maharashtra, and Assam, 56% of respondents had received treatment in the past 12 months respectively, but only 11%, 29%, and 54% respectively had received any treatment in the past two weeks.

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

Table 6.1.2 Self-reported and symptom-based prevalence of arthritis and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49								Aged 50+							
	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	11.2	173	13.2	173	53.7	22	56.0	22	34.5	768	32.9	768	38.0	218	64.6	218
Karnataka	3.0	132	6.0	132	10.8	8	10.8	8	13.7	856	16.8	856	52.6	194	63.1	194
Maharashtra	6.4	218	8.8	218	29.3	18	55.6	18	12.6	1079	14.1	1079	45.2	186	56.8	186
Rajasthan	4.8	182	14.8	182	28.8	29	29.6	29	4.5	1339	32.9	1339	7.5	442	11.1	442
Uttar Pradesh	3.4	180	28.6	180	11.8	48	11.8	48	9.6	1328	33.8	1328	12.9	455	15.6	455
West Bengal	8.1	281	6.3	281	87.1	16	96.5	16	21.1	1349	18.5	1349	55.5	222	79.5	222
India (pooled)	**5.7**	**1166**	**14.2**	**1166**	**25.8**	**141**	**30.5**	**141**	**12.9**	**6719**	**25.7**	**6719**	**24.4**	**1717**	**32.7**	**1717**

Note: Prevalence of arthritis is the proportion of the 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.

6.1.2 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 6.1.3 presents the prevalence of stroke by state based on self-reporting of diagnosis. For older adults, the prevalence of self-reported stroke was 3%. Among the six states, the lowest self-reported prevalence was in Uttar Pradesh (1%). The prevalence of self-reported diagnosed stroke among older adults ranged from 1% in Uttar Pradesh to 7% in West Bengal.

Trends: *The prevalence of self-reported stroke has barely changed in the twelve years between SAGE-1 and SAGE-3 among younger and older respondents. However, the proportion of respondents who are currently treated for this condition has increased from 37 percent in 2007 to 55 percent in 2015 and decreased to 51 percent in 2020 among older respondents. Also, in older respondents, chronic therapy taken has increased from 51 percent in 2007 to 68 percent in 2017 and decreased to 59 percent in 2020.*

The prevalence of stroke by selected respondent characteristics is presented in Table 6.1.4. The self-reported prevalence of stroke diagnosis increased from less than 2% at age 50-59 to 4% at age 70-79. The prevalence of self-reported stroke was somewhat higher among men than women. Urban respondents were more likely to have a stroke diagnosis than rural respondents. Self-reported 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 6.1.3 Self-reported prevalence of stroke, percentage receiving current therapy and recent therapy, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 50+					
	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	2.2	768	70.3	15	58.5	15
Karnataka	3.3	856	37.1	25	33.4	25
Maharashtra	2.6	1079	69.7	31	87.8	31
Rajasthan	2.0	1339	56.4	26	63.8	26
Uttar Pradesh	1.3	1328	37.0	13	41.1	13
West Bengal	6.5	1349	47.0	81	59.9	81
India (pooled)	**2.7**	**6719**	**50.0**	**191**	**58.6**	**191**

Table 6.1.4 Self-reported prevalence of stroke and percentage receiving current or chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+					
	Stroke self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	1.6	2360	50.8	43	58.8	43
60-69	2.9	2569	48.9	77	63.4	77
70-79	4.2	1311	54.1	53	55.2	53
80+	2.4	479	33.9	18	43.4	18
Sex						
Male	3.4	3074	58.2	105	60.6	105
Female	2.1	3645	38.6	86	55.8	86
Marital status						
Never married	4.5	66	100.0	1	100.0	1
Currently married	2.4	4943	51.4	139	61.2	139
Widowed	3.5	1667	43.9	50	50.5	50
Other[1]	2.2	43	100.0	1	100.0	1
Residence						
Urban	4.0	1235	53.2	50	59.8	50
Rural	2.1	5484	47.4	141	57.6	141
Caste						
Scheduled Tribe	1.4	472	60.0	7	60.0	7
Scheduled Caste	2.4	1106	23.6	36	34.7	36
Other[2]	2.8	5141	54.3	148	62.7	148
Religion						
Hindu	2.4	5578	48.5	154	62.1	154
Muslim	4.6	751	59.0	28	49.8	28
Other[3]	2.6	390	31.1	9	31.1	9
Education						
No formal education	2.0	2984	40.7	69	51.5	69
Less than primary	3.3	1090	37.0	31	52.9	31
Primary school	3.3	1222	62.4	43	57.2	43
Secondary school	3.8	599	68.5	22	77.0	22
High school	1.8	440	28.7	9	42.4	9
College and above	3.8	384	62.3	17	78.8	17
Wealth quintile						
Lowest	1.0	1254	20.8	20	63.5	20
Second	4.1	1283	47.0	47	53.1	47
Middle	2.6	1300	65.6	38	67.3	38
Fourth	3.1	1391	64.0	35	55.4	35
Highest	2.6	1491	37.5	51	60.1	51
Total	**2.7**	**6719**	**50.0**	**191**	**58.6**	**191**

Note: Prevalence of stroke is the proportion of the 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.

6.1.3 Angina pectoris

Table 6.1.5 presents the prevalence of angina pectoris based on self-reported diagnosis as well as through symptom reporting (based on the Rose Questionnaire) by states. Among older respondents, the symptom-based prevalence of angina (21%) was almost five times higher than the self-reported prevalence of diagnosis (4%). Comparing states, self-reported prevalence varied from 2% in Maharashtra to 9% in Karnataka, while the symptom-based prevalence ranged from a low of 12% in Karnataka to 35% in Assam, followed by Uttar Pradesh.

Among younger adults, more than 3% reported being diagnosed with angina, while 9% of respondents had a symptom-based diagnosis of angina. The variation by state in angina diagnosis ranged from less than 1% in Maharashtra and West Bengal to 11% in Karnataka. The difference between self-reported diagnosis and symptom-based prevalence was greatest in Assam, where the self-reported prevalence of angina was only 1%, compared with over 17% 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 0% to 81% among younger adults, and from 4% to 73% among older adults. The figure for chronic therapy was somewhat better for Karnataka and Rajasthan, ranging from 3% to 88% for younger adults, whereas 8% to 87% for older adults had been treated in the last year.

Trends: *The prevalence of self-reported and symptom-based angina in the age group 18-49 remained the same from 2007 to 2020. Similarly, among older respondents, the prevalence of self-reported and symptom-based angina has decreased by 2 percent. Although there has been an increase in the past among the currently treated respondents, those who have taken chronic therapy have decreased in the period from 2007-20.*

Table 6.1.5 Self-reported and symptom-based prevalence of angina and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49								Aged 50+							
	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	1.2	173	17.1	144	3.6	25	3.6	25	5.0	768	35.4	555	9.1	188	10.6	188
Karnataka	10.8	132	6.5	106	81.2	7	87.5	7	8.9	856	11.7	594	73.0	69	86.8	69
Maharashtra	0.3	218	7.5	215	3.4	19	3.4	19	1.7	1079	20.3	996	4.1	186	7.5	186
Rajasthan	3.8	182	10.9	165	0.0	15	36.6	15	3.6	1339	20.4	1160	15.5	254	15.9	254
Uttar Pradesh	1.9	180	14.2	149	13.0	22	13.0	22	3.8	1328	25.6	1043	10.8	266	10.6	266
West Bengal	0.3	281	2.5	246	15.1	9	15.1	9	6.0	1349	13.4	1180	33.9	134	37.6	134
India (pooled)	**2.5**	**1166**	**9.2**	**1025**	**12.7**	**97**	**19.2**	**97**	**4.3**	**6719**	**20.8**	**5528**	**15.7**	**1097**	**17.7**	**1097**

Note: Prevalence of angina is the proportion of the population affected by angina at a specific time. Currently treated refers to respondents who received medication/treatment in the previous 2 weeks. Chronic therapy refers to respondents who received medication or treatment over the previous 12 months.

Table 6.1.6 (a & b) presents the prevalence of angina by selected background characteristics. Among older respondents, the self-reported prevalence was higher among men (6%) than women (3%). Interestingly, the symptom-based prevalence was found to be higher among women (22%) than men (20%). The self-reported prevalence was higher in urban areas (5%) than in rural areas (4%), but the symptom-based prevalence was higher in rural (22%) areas compared to urban areas (17%). The self-reported prevalence of angina increased with age, from less than 1% at age 18-29 to 6% among respondents aged 70-79. Whereas, the symptom-based prevalence increased consistently with age, from 1% at age 18-29 to 26% at age 70-79. Following a similar pattern of other chronic diseases, the prevalence of angina showed a marginal decline in the oldest age group of 80+. 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 18% of respondents diagnosed with angina had received medication or treatment in

the last 12 months. However, fewer than 13% of younger respondents were currently receiving treatment, and this pattern was common across age, sex, residence, education, and wealth quintile.

Table 6.1.6 (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 3, 2019-20

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	267	1.2	242	0.0	5	0.0	5
30-39	2.7	353	9.3	311	24.4	31	24.4	31
40-49	3.2	546	12.8	472	7.2	61	17.3	61
Sex								
Male	3.0	466	7.0	417	20.6	31	20.6	31
Female	2.1	700	10.8	608	9.0	66	18.5	66
Marital status								
Never married	0.5	191	1.7	174	0.0	4	0.0	4
Currently married	2.9	918	10.8	802	13.7	88	20.6	88
Widowed	1.0	51	8.8	44	0.0	5	0.0	5
Other[1]	0.0	6	0.0	5	NA	NA	NA	NA
Residence								
Urban	4.6	233	7.1	203	22.5	19	49.4	19
Rural	1.5	933	10.2	822	9.6	78	9.6	78
Caste								
Scheduled Tribe	0.0	113	7.0	101	0.0	9	0.0	9
Scheduled Caste	1.1	245	5.2	211	0.0	13	0.0	13
Other[2]	3.1	808	10.6	713	15.4	75	23.3	75
Religion								
Hindu	2.6	963	9.1	856	11.8	79	19.0	79
Muslim	2.1	124	11.5	107	18.2	13	21.5	13
Other[3]	0.8	79	6.9	62	13.8	5	13.8	5
Education								
No formal education	1.9	266	9.9	231	13.5	23	15.4	23
Less than primary	0.8	148	11.6	131	8.1	18	8.1	18
Primary school	6.2	250	14.0	215	9.4	29	29.1	29
Secondary school	2.3	204	7.0	180	34.6	11	34.6	11
High school	1.6	164	5.5	144	7.3	9	7.3	9
College and above	0.0	134	6.6	124	0.0	7	0.0	7
Wealth quintile								
Lowest	0.4	214	11.4	178	0.0	23	0.0	23
Second	3.7	258	8.0	221	15.7	19	18.4	19
Middle	5.1	272	12.0	249	19.7	25	39.4	25
Fourth	2.0	216	6.2	191	28.3	14	28.3	14
Highest	0.2	206	8.8	186	0.0	16	0.0	16
Total	**2.5**	**1166**	**9.2**	**1025**	**12.7**	**97**	**19.2**	**97**

Table 6.1.6 (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 3, 2019-20

Background characteristics	Aged 50+							
	Angina Self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	3.2	2360	18.5	1917	10.9	321	13.9	321
60-69	4.4	2569	19.9	2143	16.9	436	18.8	436
70-79	6.0	1311	26.1	1080	19.3	239	21.2	239
80+	4.5	479	21.8	388	17.3	101	15.5	101
Sex								
Male	5.6	3074	19.8	2588	21.8	494	23.6	494
Female	3.2	3645	21.8	2940	10.7	603	12.8	603

Background characteristics	Aged 50+							
	Angina Self-reported	Number	Angina symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Marital status								
Never married	0.5	66	4.6	55	14.0	7	14.0	7
Currently married	4.5	4943	20.1	4096	16.4	781	18.6	781
Widowed	3.7	1667	23.8	1341	13.7	303	15.8	303
Other[1]	7.0	43	15.1	36	35.6	6	0.0	6
Residence								
Urban	5.2	1235	17.4	1042	25.2	169	27.6	169
Rural	3.9	5484	22.4	4486	12.3	928	14.1	928
Caste								
Scheduled Tribe	4.4	472	19.0	379	19.0	81	20.8	81
Scheduled Caste	3.4	1106	22.0	905	5.6	170	9.5	170
Other[2]	4.5	5141	20.7	4244	17.7	846	19.2	846
Religion								
Hindu	4.0	5578	20.5	4660	14.7	908	16.3	908
Muslim	6.1	751	23.3	602	21.5	135	25.2	135
Other[3]	6.2	390	20.0	266	21.3	54	27.3	54
Education								
No formal education	3.7	2984	23.3	2437	11.4	521	13.1	521
Less than primary	3.5	1090	24.2	875	10.8	184	11.8	184
Primary school	4.6	1222	18.5	1011	18.6	196	19.1	196
Secondary school	5.0	599	18.4	503	17.3	80	24.4	80
High school	6.2	440	16.6	367	34.7	65	36.9	65
College and above	5.9	384	13.8	335	36.6	51	39.8	51
Wealth quintile								
Lowest	2.4	1254	23.9	1016	7.3	244	7.7	244
Second	3.9	1283	22.0	1016	10.3	218	12.7	218
Middle	3.4	1300	17.8	1074	11.5	188	18.2	188
Fourth	5.7	1391	19.9	1153	23.3	217	23.2	217
Highest	5.7	1491	20.8	1269	24.3	230	25.5	230
Total	**4.3**	**6719**	**20.8**	**5528**	**15.7**	**1097**	**17.7**	**1097**

Note: Prevalence of angina is the proportion of the 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.

6.1.4 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 6.1.7 presents the self-reported prevalence of diabetes by state. The prevalence of diabetes among older adults was 13% at the national level. Across states, the prevalence among older adults ranged from 10% in Uttar Pradesh to 24% in Karnataka. In this age group, almost four-fifths of those who reported being diagnosed with diabetes had received treatment over the past 12 months, and nearly 73% were currently receiving treatment. Almost 4% of younger respondents said they had been diagnosed with diabetes. Across the six states, the prevalence ranged from 2% in Maharashtra to 6% in Assam for younger adults.

Trends: *The prevalence of self-reported diabetes has marginally changed between SAGE-1 and SAGE-3, increasing from 2 percent in 2007 to 4 percent in 2020 among younger respondents. For older respondents, it has increased from 7 percent to 13 percent in the same timeframe. However, the proportion of respondents who are currently treated for this condition has decreased from 53 percent to 43 percent among younger respondents. For older respondents, in the same period, it has increased from 49 percent to 73 percent. Similarly, for younger respondents, chronic therapy taken has decreased from 69 percent to 56 percent from SAGE-1 to SAGE-3. However, among older respondents, it has increased from 71 percent to 81 percent from SAGE-1 to SAGE-3.*

Table 6.1.7 Self-reported prevalence of diabetes and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

State	Age 18-49						Age 50+					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	5.7	173	33.4	12	59.9	12	11.5	768	50.8	105	63.8	105
Karnataka	2.3	132	41.8	3	86.9	3	24.4	856	81.9	169	83.5	169
Maharashtra	2.0	218	38.5	5	59.2	5	12.3	1079	75.8	124	91.1	124
Rajasthan	3.3	182	63.7	8	63.7	8	9.8	1339	71.8	130	84.8	130
Uttar Pradesh	4.0	180	57.3	8	66.7	8	9.6	1328	73.9	133	76.4	133
West Bengal	4.9	281	25.3	11	30.1	11	15.6	1349	65.5	175	75.5	175
India (pooled)	**3.5**	**1166**	**43.1**	**47**	**56.3**	**47**	**12.7**	**6719**	**73.0**	**836**	**80.7**	**836**

Note: Prevalence of diabetes is the proportion of the 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 6.1.8 (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+ age group, it did not increase appreciably with age. Among older adults, diabetes was more prevalent among men (14%) than women (12%) and in urban areas (18%) compared with rural areas (10%). In this older age group, the prevalence of diabetes increased with education levels and wealth quintile; for example, the prevalence increased from 6% in the lowest wealth quintile to 21% for older adults in the highest quintile. Similarly, it increased from 9% among those with no formal education to 26% 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 6.1.8 (a) Self-reported prevalence of diabetes, percentage receiving current or chronic therapy among younger respondents, by selected background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
18-29	0.2	267	100.0	1	100.0	1
30-39	1.6	353	31.7	8	44.5	8
40-49	6.3	546	44.1	38	57.6	38
Sex						
Male	2.0	466	48.1	14	63.7	14
Female	4.6	700	41.5	33	53.9	33
Marital status						
Never married	0.3	191	0.0	1	100.0	1
Currently married	4.3	918	43.0	45	56.3	45
Widowed	0.9	51	100.0	1	0.0	1
Other[1]	0.0	6	NA	NA	NA	NA
Residence						
Urban	3.5	233	23.1	15	34.9	15
Rural	3.6	933	52.1	32	65.9	32
Caste						
Scheduled Tribe	1.3	113	81.9	3	81.9	3
Scheduled Caste	4.2	245	26.9	12	46.2	12
Other[2]	3.6	808	47.3	32	58.8	32
Religion						
Hindu	3.8	963	44.3	41	59.0	41
Muslim	2.9	124	24.9	5	24.9	5
Other[3]	0.8	79	100.0	1	100.0	1
Education						
No formal education	2.9	266	38.6	9	59.3	9
Less than primary	3.8	148	6.7	6	12.2	6

Background characteristics	Aged 18-49					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Primary school	4.5	250	48.3	15	76.8	15
Secondary school	2.3	204	57.5	9	57.5	9
High school	5.5	164	52.2	6	57.3	6
College and above	2.3	134	42.5	2	42.5	2
Wealth quintile						
Lowest	1.4	214	93.1	4	93.1	4
Second	3.4	258	17.1	10	43.7	10
Middle	2.5	272	36.3	9	61.7	9
Fourth	3.5	216	25.5	10	34.5	10
Highest	6.6	206	61.6	14	66.5	14
Total	**3.5**	**1,166**	**43.1**	**47**	**56.3**	**47**

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 6.1.8 (b) Self-reported prevalence of diabetes, percentage receiving current or chronic therapy among older respondents, by selected background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+					
	Diabetes self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	10.2	2,360	70.4	245	79.7	245
60-69	14.8	2,569	76.6	371	82.9	371
70-79	14.5	1,311	71.3	178	79.9	178
80+	9.0	479	63.2	42	70.7	42
Sex						
Male	13.8	3,074	72.7	409	79.6	409
Female	11.8	3,645	73.3	427	81.8	427
Marital status						
Never married	9.2	66	65.5	7	65.5	7
Currently married	12.6	4,943	73.8	612	80.2	612
Widowed	13.4	1,667	71.1	210	82.5	210
Other[1]	4.8	43	67.7	7	82.0	7
Residence						
Urban	18.4	1,235	76.2	259	84.4	259
Rural	10.2	5,484	70.4	577	77.8	577
Caste						
Scheduled Tribe	7.4	472	43.2	37	70.2	37
Scheduled Caste	6.6	1,106	60.1	81	79.2	81
Other[2]	14.3	5,141	75.1	718	81.2	718
Religion						
Hindu	12.4	5,578	72.2	675	81.2	675
Muslim	15.8	751	77.0	124	78.8	124
Other[3]	10.2	390	75.3	37	77.3	37
Education						
No formal education	8.8	2,984	72.7	246	83.0	246
Less than primary	11.7	1,090	71.2	134	81.4	134
Primary school	13.9	1,222	72.0	186	66.3	186
Secondary school	14.5	599	65.6	91	88.9	91
High school	19.0	440	80.1	79	86.0	79
College and above	26.2	384	76.6	100	84.9	100
Wealth quintile						
Lowest	5.5	1,254	64.9	69	83.1	69
Second	7.6	1,283	68.6	109	80.4	109
Middle	11.8	1,300	71.1	158	76.1	158
Fourth	14.8	1,391	65.8	193	72.5	193
Highest	21.0	1,491	80.4	307	86.7	307
Total	**12.7**	**6,719**	**73.0**	**836**	**80.7**	**836**

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

6.1.5 Asthma

Table 6.1.9 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 6% and 10%, respectively. Among older respondents, the self-reported prevalence was highest at 7% in Rajasthan, Uttar Pradesh, and Karnataka. In each state, the self-reported prevalence was lower than the symptom-based prevalence.

Over one-third (35%) of older respondents who were diagnosed with asthma had received treatment within the previous 12 months. However, a smaller proportion of older respondents (30%) were currently receiving treatment.

The self-reported prevalence of asthma among younger respondents in different states varied by a narrow range of 1-6%. In each state, the symptom-based prevalence was higher than the self-reported prevalence. Less than two-fifths (38%) of younger respondents reporting a diagnosis of asthma had received treatment in the previous 12 months; only 36% were currently receiving treatment, however.

Trends: *The prevalence of self-reported asthma has remained the same between SAGE-1 and SAGE-3, 7 percent in 2007 and 2015 and slightly decreased to 6 percent in 2020 among older respondents. Similarly, symptom-based asthma has barely increased from 4 percent in 2007 to 5 percent in 2015 and again barely increased to 6 percent in 2020 for young respondents. The proportion of respondents who are currently treated for asthma has increased by 6 percentage points between SAGE-1 and SAGE-2 and 23 percentage points between SAGE-2 and SAGE-3 for younger respondents and 8 percentage points between SAGE-1 and SAGE-2 and 6 percentage points for older respondents between SAGE-2 and SAGE-3. Chronic therapy taken for asthma has halved between SAGE-1 and SAGE-2 while it increased by 20 percent among younger respondents during SAGE-2 and SAGE-3 and decreased by 17 percentage points and increased by 2 percentage points among older respondents in the same period.*

Table 6.1.9 Self-reported and symptom-based prevalence of asthma and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49								Aged 50+							
	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	2.7	173	10.6	173	13.1	14	13.1	14	4.2	768	12.4	768	12.7	75	12.7	75
Karnataka	1.3	132	1.5	132	75.9	5	75.9	5	7.0	856	7.6	856	51.1	69	63.5	69
Maharashtra	1.0	218	0.9	218	100.0	1	100.0	1	2.7	1079	4.4	1079	45.2	36	50.2	36
Rajasthan	2.6	182	2.9	182	35.0	9	28.6	9	7.0	1339	7.3	1339	64.9	93	78.4	93
Uttar Pradesh	5.6	180	9.6	180	37.3	15	42.0	15	7.0	1328	14.8	1328	19.4	211	21.3	211
West Bengal	0.9	281	2.6	281	24.9	5	24.9	5	3.8	1349	7.8	1349	33.8	94	43.5	94
India (pooled)	**2.5**	**1166**	**4.5**	**1166**	**35.8**	**49**	**37.8**	**49**	**5.5**	**6719**	**9.8**	**6719**	**30.3**	**578**	**35.3**	**578**

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 6.1.10 (a & b). Both the self-reported and symptom-based prevalence of asthma increased with age. The prevalence of self-reported asthma increased from 2% in the 18-49 age group to 8% in the 70-79 age group.

Among older respondents, the prevalence of asthma was higher among men (7%) than women (4%). The prevalence of self-reported asthma diagnosis was slightly higher in rural (6%) than in urban

areas (5%), while among younger respondents, the prevalence of self-reported asthma in rural areas was 3% and 1% in urban areas.

Moreover, the percentage of those experiencing symptoms was higher in rural (11%) 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 6.1.10 (a) 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 3, 2019-20

Background characteristics	Aged 18-49							
	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	2.1	267	3.6	267	40.9	6	57.1	6
30-39	2.3	353	4.5	353	30.5	16	30.5	16
40-49	2.9	546	4.8	546	37.6	27	36.6	27
Sex								
Male	1.1	466	2.2	466	47.4	10	47.4	10
Female	3.5	700	6.1	700	32.8	39	35.4	39
Marital status								
Never married	1.3	191	2.0	191	66.0	3	66.0	3
Currently married	2.6	918	4.9	918	33.9	43	33.3	43
Widowed	1.6	51	2.3	51	68.1	2	68.1	2
Other[1]	21.9	6	21.9	6	0.0	1	100.0	1
Residence								
Urban	0.8	233	2.1	233	1.4	8	1.4	8
Rural	3.3	933	5.6	933	41.9	41	44.3	41
Caste								
Scheduled Tribe	1.1	113	3.5	113	25.2	8	25.2	8
Scheduled Caste	2.5	245	8.0	245	30.9	14	30.9	14
Other[2]	2.7	808	3.5	808	40.1	27	43.8	27
Religion								
Hindu	2.3	963	3.9	963	32.0	38	34.9	38
Muslim	1.0	124	4.6	124	12.1	6	12.1	6
Other[3]	10.2	79	14.4	79	70.9	5	70.9	5
Education								
No formal education	3.2	266	5.9	266	45.2	17	43.3	17
Less than primary	1.7	148	4.6	148	12.5	9	12.5	9
Primary school	1.7	250	2.5	250	8.5	5	8.5	5
Secondary school	2.8	204	5.9	204	47.8	9	47.8	9
High school	3.1	164	4.9	164	31.1	5	31.1	5
College and above	2.3	134	2.6	134	50.7	4	86.3	4
Wealth quintile								
Lowest	1.1	214	6.6	214	16.0	14	16.0	14
Second	2.2	258	5.8	258	20.6	12	23.5	12
Middle	2.7	272	2.2	272	77.3	9	77.3	9
Fourth	2.4	216	5.5	216	39.0	8	44.1	8
Highest	3.8	206	3.0	206	57.5	6	57.5	6
Total	**2.5**	**1,166**	**4.5**	**1,166**	**35.8**	**49**	**37.8**	**49**

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 6.1.10 (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 3, 2019-20

Background characteristics	Aged 50+							
	Asthma self-reported	Number	Asthma symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	3.3	2,360	6.8	2,360	24.1	140	32.0	140
60-69	6.2	2,569	10.9	2,569	31.0	218	32.9	218
70-79	8.0	1,311	11.9	1,311	37.7	162	43.2	162
80+	5.9	479	12.8	479	23.0	58	33.8	58
Sex								
Male	6.9	3,074	11.4	3,074	34.3	294	37.8	294
Female	4.4	3,645	8.4	3,645	25.6	284	32.5	284
Marital status								
Never married	2.1	66	0.0	66	NA	NA	NA	NA
Currently married	6.1	4,943	9.8	4,943	34.1	405	39.5	405
Widowed	4.2	1,667	10.1	1,667	20.7	164	24.7	164
Other[1]	3.9	43	21.9	43	10.1	9	17.9	9
Residence								
Urban	4.6	1,235	6.6	1,235	37.3	93	43.5	93
Rural	6.0	5,484	11.2	5,484	28.4	485	33.2	485
Caste								
Scheduled Tribe	4.1	472	7.7	472	35.6	35	35.6	35
Scheduled Caste	5.5	1,106	14.1	1,106	21.7	118	23.1	118
Other[2]	5.6	5,141	9.1	5,141	32.7	425	39.2	425
Religion								
Hindu	5.4	5,578	9.7	5,578	29.2	476	33.8	476
Muslim	7.1	751	11.8	751	36.2	77	44.1	77
Other[3]	4.2	390	6.3	390	31.2	25	36.0	25
Education								
No formal education	6.4	2,984	12.1	2,984	28.7	286	35.1	286
Less than primary	4.2	1,090	9.1	1,090	27.0	100	30.3	100
Primary school	5.4	1,222	8.2	1,222	34.4	93	39.6	93
Secondary school	4.7	599	8.2	599	34.6	46	29.8	46
High school	5.8	440	9.1	440	36.3	34	42.7	34
College and above	4.3	384	4.4	384	26.3	19	37.2	19
Wealth quintile								
Lowest	4.3	1,254	11.9	1,254	20.1	131	21.6	131
Second	5.4	1,283	10.0	1,283	34.3	113	34.9	113
Middle	4.1	1,300	9.1	1,300	17.6	106	20.1	106
Fourth	6.4	1,391	9.0	1,391	29.0	110	43.3	110
Highest	7.0	1,491	9.2	1,491	47.0	118	54.3	118
Total	**5.5**	**6,719**	**9.8**	**6,719**	**30.3**	**578**	**35.3**	**578**

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.

6.1.6 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, presented by state in Table 6.1.11, found that the self-reported prevalence of depression was almost similar among younger and older adults (2%). In both age groups, the symptom-based prevalence was much higher than the self-

reported prevalence: 7% of younger and 19% of older adults met the criteria for a diagnosis of depression.

By state, for older respondents, Karnataka had the highest (5%) prevalence of self-reported depression, and Rajasthan and West Bengal had the lowest (1%). However, in terms of symptom-based prevalence among older respondents, Uttar Pradesh (25%) strongly outstripped other states. The self-reported prevalence of depression among young adults aged 18-49 ranged from 0% in Assam, Rajasthan, and West Bengal to 6% in Karnataka. The symptom-based prevalence was also highest in Rajasthan (10%). In Uttar Pradesh, only 1% of respondents reported depression; however, 8% met the diagnostic criteria based on symptom reporting.

Trends: *The prevalence of self-reported depression has declined between SAGE-1 and SAGE-3. It decreased from 3 percent in 2007 to 2 percent in 2015 and remained the same in 2020 among younger respondents. For older respondents, it decreased from 4 percent to 2 percent in the same time. Similarly, there has been a decrease in the prevalence of symptom-based depression also between SAGE-1 and SAGE-3. For older respondents, in the same period, it remained the same. However, the proportion of respondents who are currently treated for this condition has increased from 5 percent in 2007 to 13 percent in 2015 and further increased to 17 percent among younger respondents. Similarly, for younger respondents, chronic therapy taken has increased from 8 percent to 16 and further increased to 21 percent in the same time. However, it has barely changed between SAGE-1 and SAGE-2 among older respondents, and it decreased further from 5 percent to 3 percent between SAGE-2 and SAGE-3.*

At the national level, among older respondents diagnosed with depression, 3% had received treatment in the past 12 months, and a similar percentage were currently receiving treatment. Similarly, only 21% of younger respondents diagnosed with depression had received treatment in the past 12 months. However, 17% were currently receiving treatment.

Table 6.1.11 Self-reported and symptom-based prevalence of depression and percentage receiving current or chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

States	Aged 18-49								Aged 50+							
	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	0.0	173	7.2	173	0.0	14	0.0	14	1.1	768	15.7	768	3.2	114	2.1	114
Karnataka	5.8	132	8.6	132	23.3	19	44.7	19	4.5	856	16.7	856	6.0	181	6.7	181
Maharashtra	5.5	218	5.9	218	67.9	8	72.9	8	1.9	1079	12.5	1079	7.0	145	7.0	145
Rajasthan	0.0	182	10.4	182	0.0	15	0.0	15	0.6	1339	19.6	1339	2.6	289	2.9	289
Uttar Pradesh	0.7	180	7.6	180	0.0	16	0.0	16	1.5	1328	25.4	1328	2.1	339	2.4	339
West Bengal	0.0	281	3.1	281	0.0	11	0.0	11	0.6	1349	11.4	1349	1.9	143	1.9	143
India (pooled)	**2.1**	**1166**	**6.8**	**1166**	**16.7**	**83**	**21.0**	**83**	**1.6**	**6719**	**18.6**	**6719**	**3.2**	**1211**	**3.4**	**1211**

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 30-39. By comparison, the symptom-based prevalence of depression increased sharply from 1% at age 18-29 to 30% in adults aged 80+ (Table 6.1.12 (a & b)). Among both older and younger adults, the symptom-based prevalence was higher for women than men. Rural people had a higher percentage of symptom-based depression among younger and older 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 6.1.12 (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 3, 2019-20

Background characteristics	Aged 18-49							
	Depression self-reported	Number	Depression symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	1.2	267	1.2	267	0.0	3	0.0	3
30-39	3.5	353	9.6	353	28.5	30	32.8	30
40-49	1.6	546	7.2	546	7.1	50	11.5	50
Sex								
Male	1.2	466	5.5	466	0.0	28	9.6	28
Female	2.8	700	7.7	700	25.3	55	26.8	55
Marital status								
Never married	0.8	191	1.8	191	0.0	3	0.0	3
Currently married	2.4	918	7.4	918	18.9	70	22.6	70
Widowed	2.0	51	12.4	51	0.0	10	12.8	10
Other[1]	0.0	6	0.0	6	NA	NA	NA	NA
Residence								
Urban	3.7	233	6.5	233	55.3	16	55.3	16
Rural	1.4	933	6.9	933	0.0	67	6.1	67
Caste								
Scheduled Tribe	2.1	113	9.4	113	0.0	6	0.0	6
Scheduled Caste	1.5	245	4.8	245	0.0	13	13.3	13
Other[2]	2.3	808	7.1	808	22.3	64	25.3	64
Religion								
Hindu	2.5	963	7.0	963	19.4	65	24.3	65
Muslim	0.0	124	3.9	124	0.0	9	0.0	9
Other[3]	1.0	79	10.2	79	0.0	9	0.0	9
Education								
No formal education	3.0	266	8.8	266	12.2	26	19.1	26
Less than primary	0.2	148	4.1	148	0.0	8	0.0	8
Primary school	1.3	250	6.6	250	0.0	22	4.8	22
Secondary school	5.6	204	7.7	204	65.1	10	65.1	10
High school	0.8	164	5.6	164	0.0	11	10.1	11
College and above	0.4	134	6.1	134	0.0	6	0.0	6
Wealth quintile								
Lowest	1.9	214	7.5	214	0.0	16	0.0	16
Second	0.5	258	4.0	258	0.0	17	0.0	17
Middle	2.0	272	6.1	272	0.0	22	15.8	22
Fourth	1.5	216	6.9	216	16.7	14	21.3	14
Highest	4.8	206	9.8	206	45.6	14	45.6	14
Total	**2.1**	**1,166**	**6.8**	**1,166**	**16.7**	**83**	**21.0**	**83**

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.
[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 6.1.12 (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 3, 2019-20

Background characteristics	Aged 50-plus							
	Depression self -reported	Number	Depression symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	1.7	2360	13.7	2360	6.4	327	6.9	327
60-69	1.9	2569	18.8	2569	2.7	480	2.9	480
70-79	1.3	1311	22.5	1311	1.9	280	1.9	280
80+	0.7	479	30.1	479	0.5	124	0.5	124
Sex								
Male	1.6	3074	15.8	3074	4.1	510	4.6	510
Female	1.6	3645	20.9	3645	2.6	701	2.6	701

Background characteristics	Aged 50-plus							
	Depression self -reported	Number	Depression symptom-based	Number	Currently treated	Number	Chronic therapy	Number
Marital status								
Never married	5.5	66	13.6	66	35.8	10	35.8	10
Currently married	1.5	4943	16.4	4943	3.6	826	3.8	826
Widowed	1.7	1667	24.7	1667	1.8	364	1.9	364
Other[1]	0.7	43	31.0	43	0.0	11	0.0	11
Residence								
Urban	1.1	1235	14.9	1235	4.4	195	4.4	195
Rural	1.8	5484	20.2	5484	2.8	1016	3.1	1016
Caste								
Scheduled Tribe	2.2	472	16.6	472	3.0	74	1.8	74
Scheduled Caste	1.6	1106	21.4	1106	1.6	222	1.8	222
Other[2]	1.6	5141	18.1	5141	3.6	915	3.9	915
Religion								
Hindu	1.6	5578	18.8	5578	3.2	1029	3.3	1029
Muslim	1.6	751	17.5	751	2.2	123	2.6	123
Other[3]	2.8	390	16.7	390	6.9	59	8.2	59
Education								
No formal education	1.6	2984	22.1	2984	1.7	599	1.8	599
Less than primary	1.2	1090	17.3	1090	2.9	196	2.9	196
Primary school	1.9	1222	20.2	1222	3.4	232	3.6	232
Secondary school	1.8	599	12.5	599	10.3	75	10.3	75
High school	2.1	440	14.1	440	9.3	71	9.3	71
College and above	0.8	384	8.4	384	1.9	38	6.0	38
Wealth quintile								
Lowest	1.2	1254	23.0	1254	1.6	246	1.3	246
Second	1.7	1283	21.1	1283	2.3	260	2.5	260
Middle	1.6	1300	16.1	1300	5.1	203	6.1	203
Fourth	1.7	1391	18.2	1391	1.9	256	1.9	256
Highest	1.7	1491	15.6	1491	5.5	246	5.7	246
Total	**1.6**	**6,719**	**18.6**	**6,719**	**3.2**	**1,211**	**3.4**	**1,211**

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.

6.1.7 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 6.1.13 presents the prevalence of hypertension by state. A comparative assessment of self-reported versus measured hypertension is given in Chapter 7. The prevalence of self-reported hypertension among younger and older respondents was 11% and 29%, respectively. Among older adults, the lowest prevalence of self-reported hypertension was in Uttar Pradesh (21%); the highest prevalence (41%) was reported in Rajasthan. 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 state of self-reported hypertension ranged from 5% in Maharashtra to 20% in Rajasthan. By contrast, based on the measurement of blood pressure, the prevalence of hypertension was lowest in Uttar Pradesh (22%). Based on measured blood pressure, the highest level of hypertension was recorded in Maharashtra (35%).

Trends: *The prevalence of self-reported hypertension has substantially increased over the period of time from SAGE-1 to SAGE-3. It increased from 7 percent in 2007 to 9 percent in 2015 and slightly increased to 11 percent in 2020 among younger respondents. However, there has been an increase in the proportion having measured hypertension for them. For older respondents, self-reported hypertension increased from 17 percent to 20 percent and further increased to 29 percent at the same time. Similarly, there has been an increase in the prevalence of measured hypertension as well. For older respondents, in the same time, it increased from 36 percent to 39 percent and further*

increased to 54 percent. However, the proportion of respondents who are currently treated for this condition has doubled from 10 percent in 2007 to 21 percent in 2015 and it remained the same in 2020 among younger respondents. Similarly, for younger respondents, chronic therapy taken has increased from 21 percent to 27 percent and further slightly decreased to 26 percent in the same time. However, among older respondents, the proportion of respondents who had chronic therapy has decreased from 36 percent to 31 percent and further increased to 38 percent in the same time.

Table 6.1.13 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 3, 2019-20

State	Age 18-49								Age 50+							
	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	12.2	173	32.6	172	8.9	61	18.4	61	36.5	768	56.7	761	28.6	442	33.6	442
Karnataka	6.8	132	34.6	130	19.2	39	17.5	39	37.7	856	61.2	841	52.5	505	52.9	505
Maharashtra	4.5	218	34.2	212	10.0	60	10.2	60	23.2	1079	61.0	1031	31.2	577	29.5	577
Rajasthan	20.3	182	26.3	165	43.6	36	62.6	36	41.3	1339	48.9	1259	46.1	595	60.7	595
Uttar Pradesh	13.6	180	22.0	169	30.4	37	38.7	37	20.7	1328	45.0	1254	23.3	548	22.7	548
West Bengal	10.0	281	24.9	278	25.1	63	26.3	63	36.3	1349	61.2	1340	46.5	791	52.0	791
India (pooled)	**10.8**	**1166**	**28.2**	**1126**	**21.8**	**296**	**26.4**	**296**	**29.0**	**6719**	**53.6**	**6486**	**36.0**	**3458**	**38.6**	**3458**

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 over one-third of older respondents who reported being diagnosed with hypertension had received treatment in the last 12 months. However, only 22% and 36% respectively were currently receiving treatment.

Table 6.1.14 (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 4% at age 18-29 to 36% in the 80+ 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 one-third of older respondents with either a college education (36%) or from the highest wealth quintile (38%) 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.

Table 6.1.14 (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 3, 2019-20

Background characteristics	Aged 18-49							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Age group								
18-29	3.7	267	16.1	259	12.0	42	15.0	42
30-39	5.5	353	20.4	335	7.7	59	10.2	59
40-49	17.4	546	38.7	532	28.6	195	34.2	195
Sex								
Male	2.9	466	25.0	455	2.8	113	4.9	113
Female	16.4	700	30.5	671	33.0	183	39.0	183

Background characteristics	Aged 18-49							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Marital status								
Never married	4.9	191	20.1	184	13.5	35	16.8	35
Currently married	11.3	918	29.4	889	21.8	244	26.7	244
Widowed	19.3	51	37.7	47	37.1	17	38.8	17
Other[1]	19.4	6	0.0	6	NA	NA	NA	NA
Residence								
Urban	11.8	233	36.5	220	22.0	77	25.8	77
Rural	10.3	933	24.3	906	21.6	219	26.8	219
Caste								
Scheduled Tribe	17.4	113	34.8	110	37.1	40	36.3	40
Scheduled Caste	4.8	245	21.6	236	11.4	57	17.4	57
Other[2]	11.9	808	29.5	780	22.2	199	27.2	199
Religion								
Hindu	11.3	963	27.2	928	23.6	238	29.2	238
Muslim	9.0	124	31.7	121	19.3	31	14.3	31
Other[3]	7.1	79	36.9	77	4.3	27	15.2	27
Education								
No formal education	17.1	266	32.6	257	37.5	76	39.1	76
Less than primary	8.8	148	22.3	144	25.5	36	21.8	36
Primary school	11.6	250	33.2	243	15.8	63	22.5	63
Secondary school	9.2	204	25.9	196	18.8	55	22.8	55
High school	7.1	164	29.4	159	13.4	37	21.3	37
College and above	6.9	134	19.1	127	8.8	29	20.1	29
Wealth quintile								
Lowest	6.6	214	23.8	209	16.0	52	21.3	52
Second	9.0	258	31.9	252	19.5	68	21.3	68
Middle	9.0	272	27.4	270	27.7	67	28.7	67
Fourth	15.7	216	26.1	205	33.7	55	33.5	55
Highest	12.9	206	31.0	190	11.0	54	26.3	54
Total	**10.8**	**1166**	**28.2**	**1126**	**21.8**	**296**	**26.4**	**296**

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 6.1.14 (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 3, 2019-20

Background characteristics	Aged 50+							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Age group								
50-59	23.2	2360	48.0	2281	31.1	1094	34.6	1094
60-69	30.7	2569	54.6	2471	38.2	1332	40.1	1332
70-79	33.4	1311	57.7	1271	38.2	747	38.7	747
80+	36.3	479	63.7	463	38.4	285	45.9	285
Sex								
Male	25.4	3074	50.0	2956	35.3	1491	37.7	1491
Female	32.2	3645	56.6	3530	36.5	1967	39.3	1967
Marital status								
Never married	18.3	66	30.7	66	40.6	26	47.7	26
Currently married	27.8	4943	51.1	4757	36.7	2428	39.4	2428
Widowed	33.1	1667	61.9	1621	34.6	981	36.5	981
Other[1]	20.1	43	45.0	42	16.4	23	35.2	23
Residence								
Urban	35.7	1235	65.5	1172	43.8	769	44.6	769
Rural	26.1	5484	48.3	5314	31.3	2689	34.9	2689

Background characteristics	Aged 50+							
	Hypertension self-reported	Number	Hypertension measured	Number	Currently treated	Number	Chronic therapy	Number
Caste								
Scheduled Tribe	26.6	472	52.7	464	24.9	248	31.3	248
Scheduled Caste	23.8	1106	52.4	1074	27.3	568	31.4	568
Other[2]	30.2	5141	53.9	4948	38.4	2642	40.4	2642
Religion								
Hindu	29.1	5578	53.5	5373	36.0	2864	38.8	2864
Muslim	27.6	751	53.4	730	34.4	387	35.3	387
Other[3]	31.6	390	56.6	383	40.6	207	42.6	207
Education								
No formal education	27.1	2984	52.9	2880	29.6	1484	33.3	1484
Less than primary	26.8	1090	56.7	1060	31.7	587	34.3	587
Primary school	29.7	1222	50.0	1181	40.1	603	41.4	603
Secondary school	31.7	599	54.7	574	42.0	313	45.3	313
High school	33.4	440	56.9	422	43.5	242	42.8	242
College and above	35.7	384	55.5	369	56.1	229	58.0	229
Wealth quintile								
Lowest	21.1	1254	46.4	1218	22.2	575	26.6	575
Second	22.5	1283	53.1	1244	23.9	634	26.2	634
Middle	25.9	1300	53.6	1269	29.8	686	32.7	686
Fourth	34.8	1391	56.2	1347	46.0	745	49.5	745
Highest	38.0	1491	57.2	1408	50.0	818	50.7	818
Total	**29.0**	**6719**	**53.6**	**6486**	**36.0**	**3458**	**38.6**	**3458**

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.

6.1.8 Chronic lung disease

SAGE estimated the prevalence of chronic lung disease based on self-reported diagnosis. The prevalence of lung disease is presented by state in Table 6.1.15. 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%).

Trends: *The prevalence of lung disease (self-reported) has decreased from SAGE-1, decreasing from 5 percent in 2007 to 2 percent in 2015 and remained the same in 2020 among older respondents. There has been an increase in the proportion of respondents who had current therapy for the disease. However, the proportion having chronic therapy has decreased over the period of time, 2007-2020.*

Table 6.1.15 Self-reported prevalence of lung disease and percentage receiving current and chronic therapy, states and India (pooled), SAGE Wave 3, 2019-20

States	Aged 50+					
	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number
Assam	2.7	768	36.9	17	18.7	17
Karnataka	2.8	856	61.3	30	54.0	30
Maharashtra	1.1	1079	20.9	16	17.7	16
Rajasthan	4.1	1339	62.7	42	61.3	42
Uttar Pradesh	1.4	1328	47.2	24	47.9	24
West Bengal	1.2	1349	55.4	11	55.4	11
India (pooled)	**1.9**	**6728**	**51.1**	**140**	**48**	**140**

Table 6.1.16 shows the prevalence of lung disease by selected background characteristics. The self-reported prevalence of lung disease increased with age, rising from 1% in the 70-79 age group to 3% for those in the 80+ age group. The prevalence of lung disease based on self-reporting was higher among men than women among older adults.

In older adults, it was almost similar in rural and urban areas. The self-reported prevalence of lung disease did not show any relationship with wealth or educational status.

Table 6.1.16 Self-reported prevalence of lung disease and percentage receiving current and chronic therapy among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+					
	Lung disease self-reported	Number	Currently treated	Number	Chronic therapy	Number
Age group						
50-59	1.7	2360	52.7	34	48.1	34
60-69	2.2	2569	45.1	62	43.5	62
70-79	1.4	1311	49.7	31	43.3	31
80+	3.0	479	72.3	13	72.3	13
Sex						
Male	2.6	3074	48.5	81	44.6	81
Female	1.3	3645	55.6	59	54.0	59
Marital status						
Never married	0.0	66	45.0	119	42.8	119
Currently married	2.2	4943	80.8	21	73.5	21
Widowed	1.3	1667	NA	NA	NA	NA
Other[1]	0.0	43	NA	NA	NA	NA
Residence						
Urban	1.5	1235	39.4	21	26.1	21
Rural	2.1	5484	54.9	119	55.2	119
Caste						
Scheduled Tribe	1.8	472	52.8	9	52.8	9
Scheduled Caste	0.9	1106	42.5	17	42.5	17
Other[2]	2.1	5141	51.7	114	48.2	114
Religion						
Hindu	1.9	5578	50.0	119	45.2	119
Muslim	2.0	751	53.9	16	66.1	16
Other[3]	1.0	390	79.8	5	59.2	5
Education						
No formal education	1.8	2984	48.8	65	50.6	65
Less than primary	2.4	1090	39.7	28	33.6	28
Primary school	2.1	1222	63.8	23	52.2	23
Secondary school	2.0	599	71.8	14	75.7	14
High school	0.3	440	34.9	3	34.9	3
College and above	2.4	384	34.3	7	26.6	7
Wealth quintile						
Lowest	1.0	1254	62.7	17	74.2	17
Second	1.9	1283	60.1	31	55.3	31
Middle	1.8	1300	41.6	28	38.5	28
Fourth	2.6	1391	42.2	32	44.9	32
Highest	2.1	1491	55.0	32	42.8	32
Total	**1.9**	**6719**	**51.1**	**140**	**48.0**	**140**

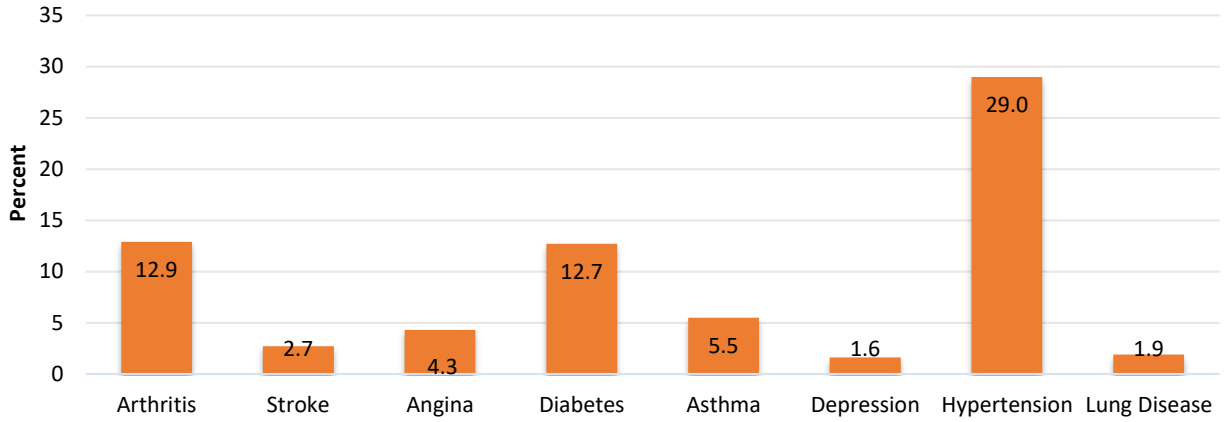
Note: Prevalence of lung dysfunction is the proportion of population affected by lung dysfunction at a specific time.
Current therapy/treatment refers to respondents who received medication/treatment in the previous two weeks.
Chronic therapy/treatment refers to respondents who received medication or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

6.1.9 Chronic conditions among persons aged 50+

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 summarizes the discussion on the prevalence of these diseases among older respondents.

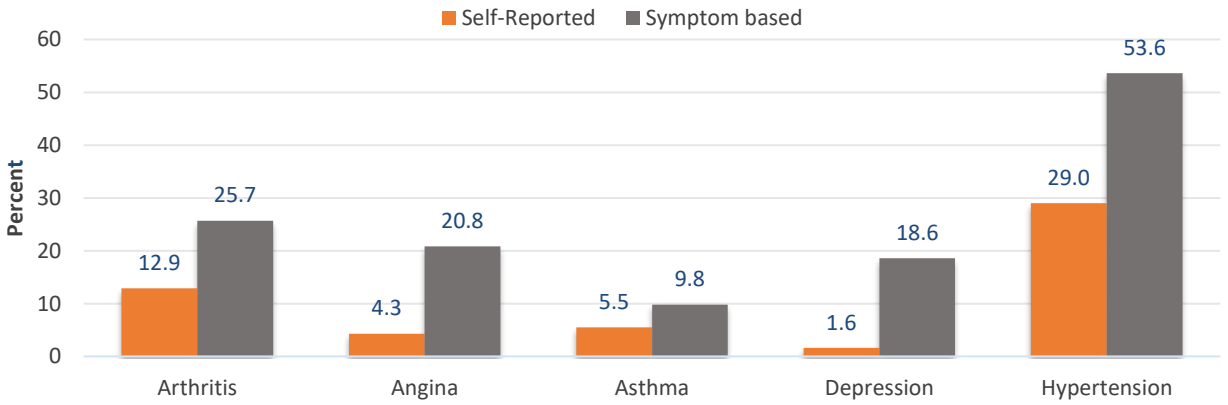
Figure 6.1 presents the self-reported prevalence of these eight chronic diseases among older respondents. Hypertension was the most prevalent chronic disease, affecting 29% of respondents, followed by arthritis and diabetes (13%). The prevalence of asthma was 6%, while that of angina, stroke, chronic lung disease, and depression was 4%, 3%, and 2% respectively.

Figure 6.1 Self-reported prevalence of chronic diseases among respondents aged 50+, India (pooled), SAGE Wave 3, 2019-20



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 6.2 compares the self-reported and symptom-based prevalence of diseases. The symptom-based prevalence of all i.e., arthritis, angina, asthma, depression and hypertension were higher by 13%, 17%, 4%, 17% and 25%, respectively, than the self-reported prevalence.

Figure 6.2 Self-reported and symptom-based prevalence of chronic diseases among respondents aged 50 plus, India (pooled), SAGE Wave 3, 2019-20



There was a wide variation in the prevalence of these diseases across the states. Figure 6.3 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, while lung disease, depression, and stroke were the least prevalent. In Rajasthan, Karnataka, and Assam, hypertension was the most prevalent.

In Assam, West Bengal, and Karnataka, arthritis was the most prevalent. In Maharashtra, hypertension was more prevalent than arthritis. Lung disease, depression, and stroke were the least prevalent diseases in most states; however, in Uttar Pradesh, hypertension was the most prevalent.

Figure 6.3 Self-reported prevalence of chronic diseases among respondents aged 50+ by state, SAGE Wave 3, 2019-20

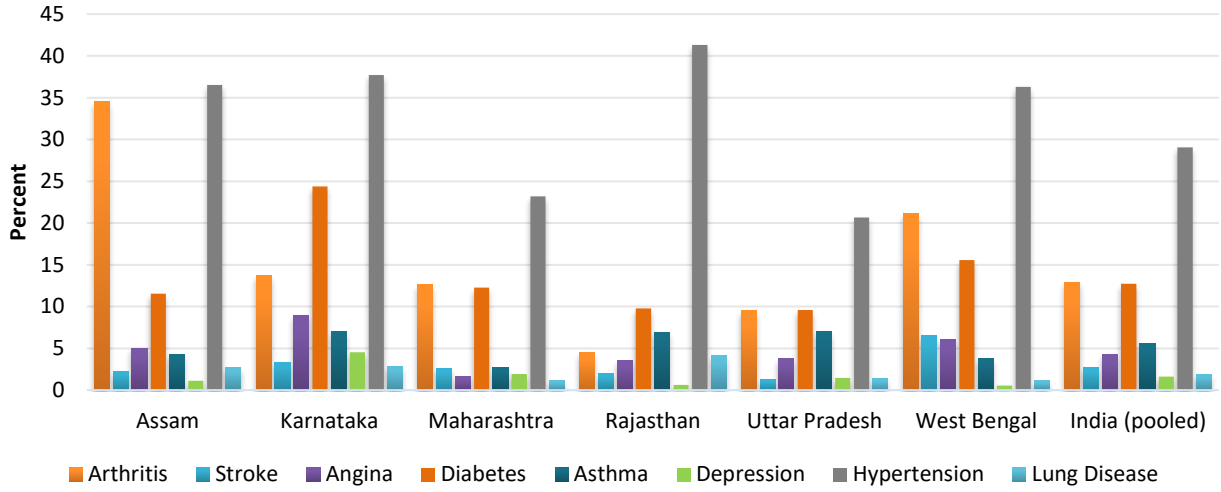


Figure 6.4 compares the self-reported prevalence of chronic diseases among men and women. A higher proportion of women than men were diagnosed with arthritis and hypertension, while the prevalence of the remaining six diseases was higher among men than women (although the differences between male and female prevalence were not large).

Figure 6.4 Self-reported prevalence of chronic diseases among men and women aged 50+, India (pooled), SAGE Wave 3, 2019-20

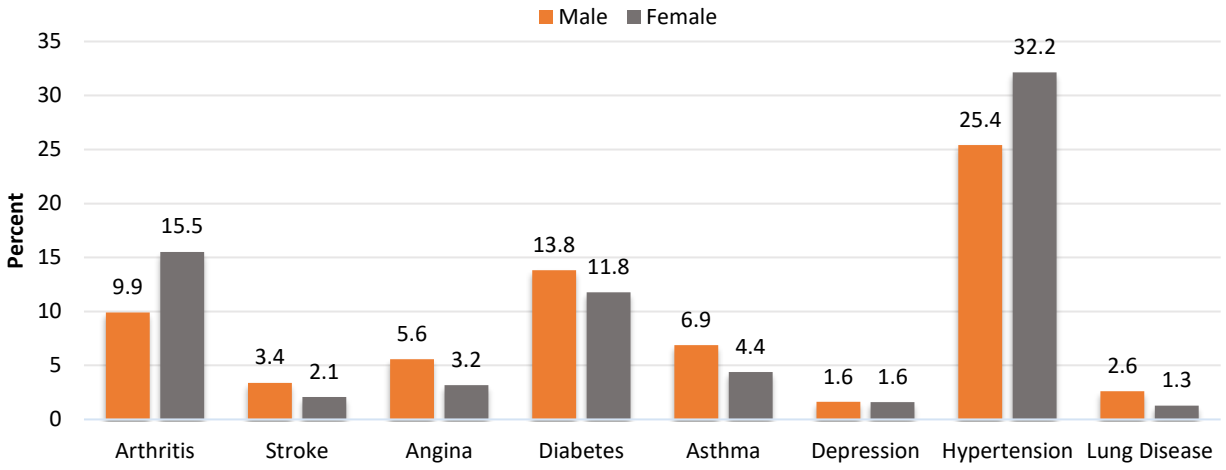
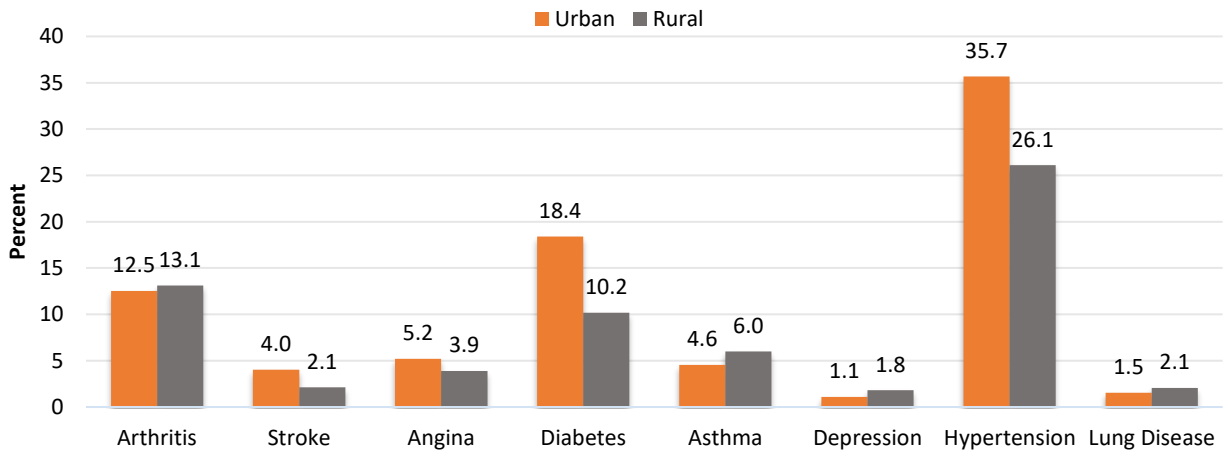


Figure 6.5 depicts the prevalence of chronic diseases in urban and rural areas. Older adults in rural areas were more likely to be diagnosed with arthritis, asthma, and depression than their urban counterparts.

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 10%. Similarly, 18% of older respondents in urban areas were diagnosed with diabetes, compared with 10% 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 6.5 Self-reported prevalence of chronic diseases among respondents aged 50 plus in urban and rural areas, India (pooled), SAGE Wave 3, 2019-20



Morbidity rates also varied substantially with age. Figure 6.6 shows the self-reported prevalence of the eight chronic diseases surveyed. Among adults aged 18-29, the prevalence of all eight diseases was below 4%. After that, the prevalence of different diseases increased with age at different rates; among older adults aged 80+, for instance, prevalence varied from 3% for lung disease to 36% 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 hypertension, which rose from 4% in the 18-29 age group to 36% in the 80+ age group.

Figure 6.6 Self-reported prevalence of chronic diseases by age, India (pooled), SAGE Wave 3, 2019-20

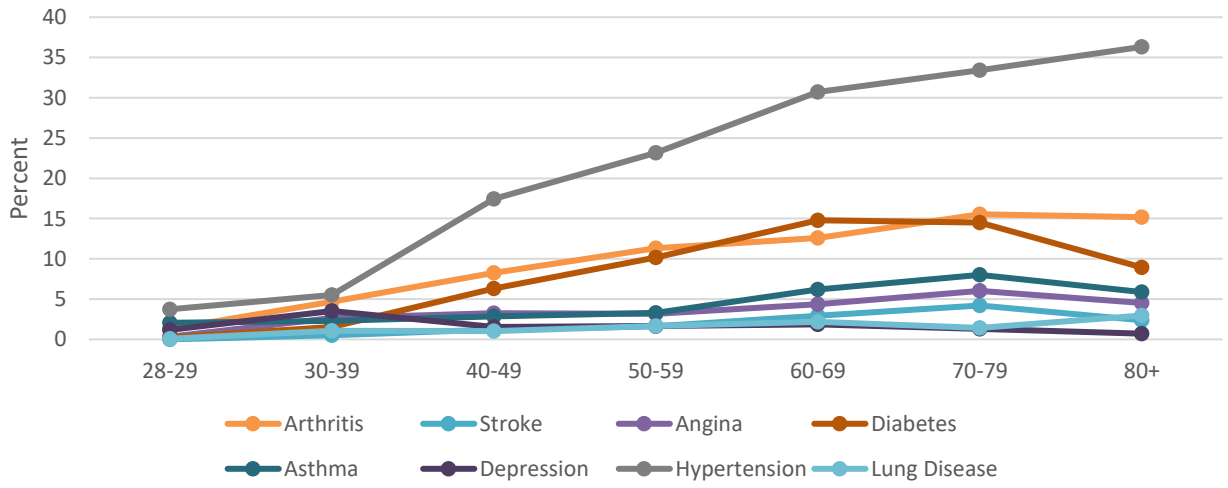
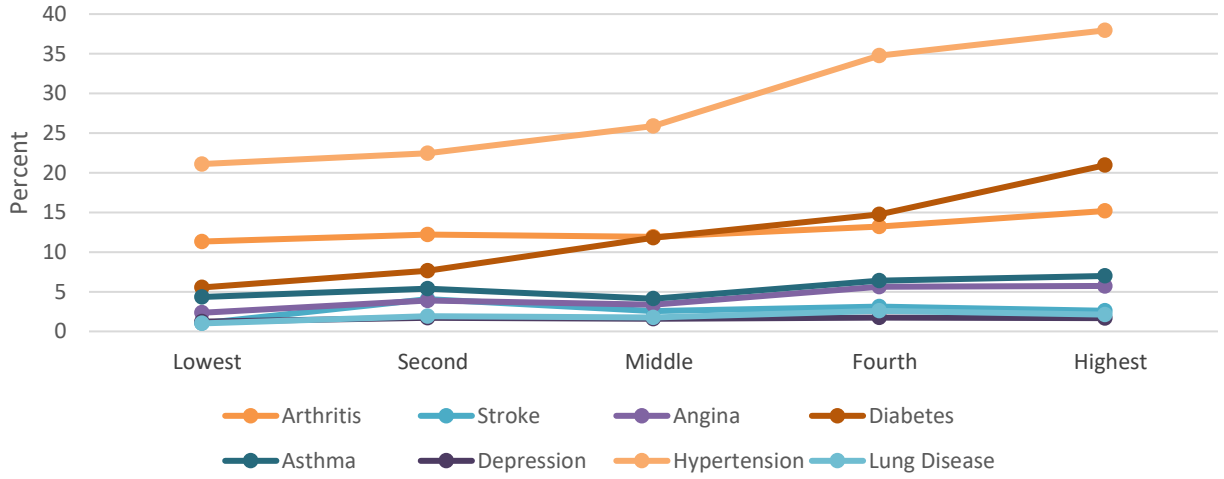


Figure 6.7 shows the variation in the self-reported prevalence of chronic diseases among older respondents by wealth quintiles. The prevalence of at least three chronic diseases – diabetes and hypertension – increased with wealth. For example, the increases in the prevalence of hypertension and diabetes from the lowest wealth quintile to the highest were around 17 and 15 percentage points, respectively. The prevalence of depression and chronic lung diseases was almost the same across wealth quintiles.

Figure 6.7 Prevalence of chronic diseases among respondents aged 50+ by wealth quintile, SAGE Wave 3, 2019



6.1.10 Unmet Need

To assess the healthcare 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 6.1.17 presents the levels of unmet need for each condition by state.

Among older respondents, the highest unmet need was for depression (55%). Unmet need was under 50% for the other seven chronic diseases, including 45% for chronic lung disease, compared with 15-37% for arthritis, angina, diabetes, asthma, stroke or hypertension. Younger respondents diagnosed with chronic lung diseases (39%) or diabetes (43%) also had an unmet need. The lowest unmet need in this group was reported for asthma (20%).

Trends: *The unmet need for medication/treatment for diseases such as arthritis, asthma, depression, chronic lung diseases, and hypertension has decreased over time from SAGE-1, 2007, to SAGE-3, 2020, among younger respondents. However, among older respondents, the unmet need for medication/treatment has increased for diseases such as arthritis and asthma in the same period.*

Table 6.1.17 Percentage of respondents with unmet need for medication or treatment for chronic diseases, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49								Aged 50+							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Assam	17.4	0.0	57.6	40.2	47.9	NA	47.9	100	30.1	23.5	45.0	32.3	62.6	54.6	42.1	63.2
Karnataka	78.0	100	57.3	13.1	12.5	28.2	3.3	9.3	22.3	49.1	10.6	13.2	20.0	67.9	10.6	36.3
Maharashtra	16.2	0.0	0.0	40.8	0.0	22.7	12.8	0.0	29.0	12.2	12.5	4.4	12.6	47.5	13.9	75.7
Rajasthan	8.4	NA	0.0	36.3	42.7	NA	25.2	0.0	16.6	36.3	13.7	14.4	14.3	0.2	30.1	31.8
Uttar Pradesh	0.0	42.1	18.6	29.7	27.8	100.0	28.3	50.7	40.6	53.8	28.6	16.9	42.4	59.3	38.1	46.7
West Bengal	25.1	70.0	0.0	69.9	26.0	NA	17.0	NA	26.9	39.2	24.0	21.1	10.6	50.3	10.7	44.6
India (pooled)	**19.4**	**43.7**	**35.5**	**42.7**	**27.7**	**31.3**	**23.8**	**38.6**	**30.4**	**37.2**	**21.7**	**15.1**	**29.1**	**55.3**	**24.0**	**44.9**

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 6.1.18 (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, 15% of the study's poorest respondents had an unmet need for diabetes treatment, while the wealthiest quintile reported 11%.

Table 6.1.18 (a) Percentage of younger respondents with unmet need for medication or treatment for chronic diseases, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Age group								
18-29	0.0	NA	100.0	0.0	0.0	100.0	31.4	0.0
30-39	10.6	0.0	20.4	55.5	40.1	10.8	62.8	23.0
40-49	24.1	55.9	41.4	41.2	29.3	41.6	14.5	51.0
Sex								
Male	23.2	23.2	56.3	31.9	4.2	55.3	53.4	4.1
Female	18.5	49.9	14.9	46.1	32.9	24.0	20.0	50.2
Marital status								
Never married	0.0	NA	100.0	0.0	0.0	100.0	33.4	0.0
Currently married	18.5	43.7	32.5	43.7	32.6	27.4	23.7	39.3
Widowed	41.4	NA	100.0	0.0	0.0	20.5	6.9	NA
Other[1]	NA	NA	NA	NA	0.0	NA	100.0	NA
Residence								
Urban	18.0	0.0	33.7	65.1	96.2	4.3	16.8	1.0
Rural	20.1	46.7	38.0	32.6	20.5	65.5	27.5	38.6
Caste								
Scheduled Tribe	15.0	0.0	NA	18.1	23.2	100.0	18.4	0.0
Scheduled Caste	18.1	100.0	100.0	53.8	0.0	57.9	11.0	17.0
Other[2]	20.5	36.3	28.9	39.8	35.6	19.6	26.1	46.9
Religion								
Hindu	21.2	21.0	39.9	39.9	34.2	29.6	22.9	33.0
Muslim	3.8	100.0	0.0	75.1	41.5	NA	32.3	100.0
Other[3]	0.0	100.0	0.0	0.0	0.0	100.0	22.1	100.0
Education								
No formal education	35.5	100.0	31.5	40.7	8.9	43.4	16.1	1.0
Less than primary	24.5	100.0	0.0	87.8	48.0	100.0	20.7	30.8
Primary school	13.5	40.5	44.8	19.3	87.0	75.4	30.0	0.0
Secondary school	8.7	0.0	0.0	42.5	0.0	7.0	31.4	30.2
High school	9.8	0.0	63.0	42.7	51.0	28.9	14.0	0.0
College and above	51.9	NA	NA	57.5	0.0	100.0	41.2	92.6
Wealth quintile								
Lowest	38.2	0.0	100.0	6.9	0.0	100.0	18.6	51.7
Second	15.2	90.8	67.3	51.1	20.1	100.0	19.0	37.6
Middle	7.9	76.1	16.9	38.3	30.0	45.0	8.3	0.0
Fourth	27.8	NA	21.7	65.5	0.0	0.0	30.4	0.0
Highest	10.2	0.0	0.0	33.5	54.8	6.3	33.4	53.5
Total	**19.4**	**43.7**	**35.5**	**42.7**	**27.7**	**31.3**	**23.8**	**38.6**

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.

Table 6.1.18 (b) Percentage of older respondents with unmet need for medication or treatment for chronic diseases, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Age group								
50-59	24.8	37.6	28.0	17.4	25.6	33.2	24.2	41.1
60-69	28.0	34.0	18.0	12.1	32.3	67.4	23.1	50.6
70-79	36.5	37.7	18.9	15.5	27.7	66.8	27.8	48.6
80+	43.1	54.7	29.8	27.6	26.3	76.8	17.4	27.7

Background characteristics	Aged 50+							
	Arthritis	Stroke	Angina	Diabetes	Asthma	Depression	Hypertension	Chronic lung dysfunction
Sex								
Male	34.9	33.4	19.6	17.4	28.0	53.9	22.5	48.0
Female	27.8	42.4	24.9	12.8	30.6	56.5	25.0	39.5
Marital status								
Never married	0.0	0.0	0.0	34.5	100.0	1.3	18.4	NA
Currently married	30.4	36.7	24.3	14.6	27.7	53.9	22.8	50.7
Widowed	31.2	40.7	12.7	15.8	34.2	66.0	27.0	16.9
Other[1]	0.0	0.0	31.8	18.0	0.0	100.0	23.9	NA
Residence								
Urban	29.4	34.2	17.1	13.1	30.8	35.9	15.6	60.6
Rural	30.8	39.7	24.4	16.7	28.5	60.4	29.1	39.8
Caste								
Scheduled Tribe	42.2	40.0	25.8	29.8	17.6	74.0	32.3	47.2
Scheduled Caste	27.2	61.2	42.0	15.7	32.9	70.8	24.6	57.5
Other[2]	29.9	33.0	18.4	14.6	28.9	50.5	23.5	43.7
Religion								
Hindu	30.8	36.5	22.9	14.6	29.5	54.0	24.6	47.0
Muslim	32.1	34.3	15.8	17.3	23.9	70.3	21.4	33.9
Other[3]	21.5	68.9	23.1	18.4	46.2	43.2	17.4	20.2
Education								
No formal education	30.4	43.4	22.2	14.5	27.2	68.5	30.3	42.3
Less than primary	29.8	47.1	31.8	15.1	30.7	51.2	20.9	60.3
Primary school	36.4	31.1	26.9	21.4	36.1	54.8	24.8	36.2
Secondary school	37.3	23.0	23.6	11.1	23.9	29.0	16.6	24.3
High school	25.4	57.6	4.7	9.8	25.4	38.3	20.3	65.1
College and above	9.3	21.2	14.9	14.8	34.0	36.3	10.6	65.7
Wealth quintile								
Lowest	36.7	36.6	26.7	15.2	21.7	66.7	35.5	25.8
Second	19.4	41.7	30.8	14.6	32.2	62.8	30.5	36.7
Middle	41.7	31.2	17.6	17.9	48.0	36.6	28.0	56.2
Fourth	20.7	33.2	25.1	21.0	30.3	67.9	16.8	50.3
Highest	33.2	39.9	14.9	10.9	21.2	47.2	19.3	45.0
Total	**30.4**	**37.2**	**21.7**	**15.1**	**29.1**	**55.3**	**24.0**	**44.9**

[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.

6.2 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 6.2.1 presents the distribution of chronic conditions and co-morbidity by age group and state. Among younger respondents, 78% reported no chronic disease, 18% reported one disease, and 5% reported two or more diseases. The prevalence of chronic disease and particularly multiple morbidities among younger respondents was highest in Rajasthan, with 19% reporting a single health condition and 8% reporting multiple morbidities. In Maharashtra, by contrast, only 15% reported a single health condition and 3% reported multiple morbidities.

Trends: *The pattern and prevalence of chronic disease and multiple morbidity conditions have barely changed over the period of time from 2007-20 among younger respondents; however, for the older respondents, it has moderately increased in the same period.*

Table 6.2.1 Percent distribution of respondents by number of health conditions, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	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	71.1	24.2	4.7	100	173	37.9	34.3	27.8	100	768
Karnataka	80.5	13.4	6.1	100	132	40.7	29.4	29.9	100	856
Maharashtra	82.2	14.8	3.1	100	218	55.8	32.7	11.5	100	1079
Rajasthan	73.3	18.5	8.2	100	182	47.8	34.8	17.5	100	1339
Uttar Pradesh	75.2	20.2	4.5	100	180	61.6	25.8	12.6	100	1328
West Bengal	78.8	18.1	3.2	100	281	46.1	28.0	25.9	100	1349
India (pooled)	**77.6**	**17.8**	**4.6**	**100**	**1166**	**52.8**	**29.5**	**17.7**	**100**	**6719**

Note: Co-morbidity refers to the presence of one or more diseases or disorders.

The prevalence of chronic disease, and particularly multiple morbidities, was higher in the 50+ age group. About 30% reported a single morbidity, and 18% had multiple morbidities. The prevalence of morbidity was again highest in Karnataka and lowest in Maharashtra.

In Assam, 34% had only one health condition, and 28% had multiple morbidities. By contrast, in Uttar Pradesh, almost two-third of older respondents had no morbidity, 26% reported a single health condition, and 13% reported multiple morbidities (Figure 6.8).

Table 6.2.2 presents the distribution of respondents by background characteristics according to the number of morbidities. The prevalence of morbidity rose sharply with age (Figure 6.9). The proportion of persons with at least one morbidity increased from 9% at age 18-29 to 35% at age 70-79. The proportion of multiple morbidities also increased from less than 1% at age 18-29 to 22% at age 80+.

Figure 6.8 Prevalence of morbidity among adults aged 50+, states and India (pooled), SAGE Wave 3, 2019-20

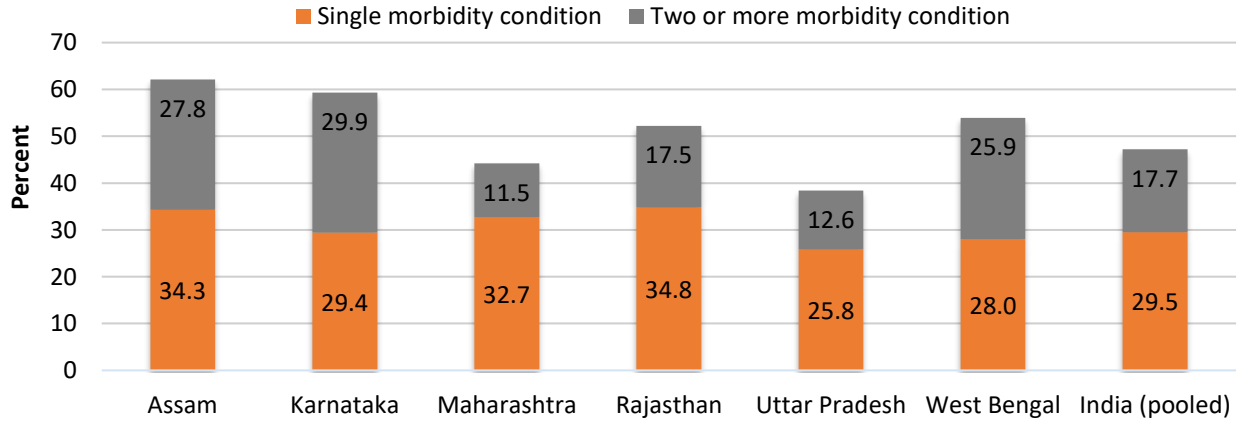


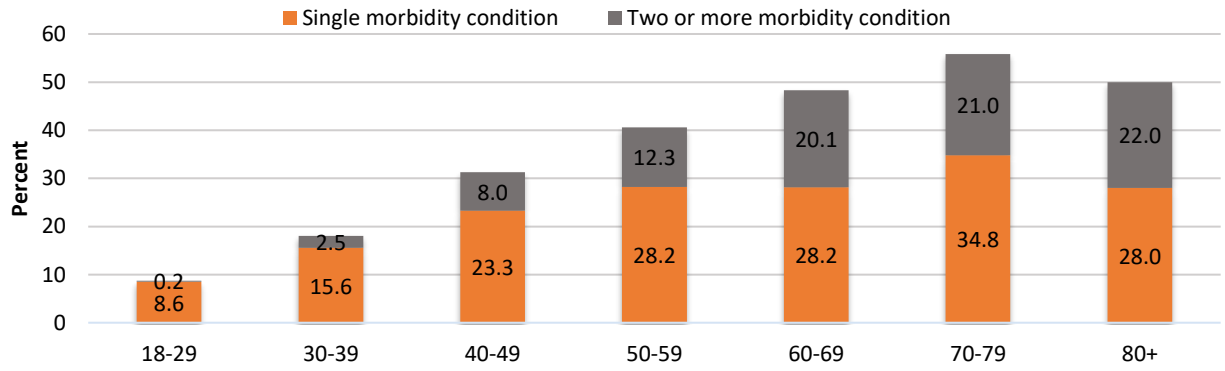
Table 6.2.2 Percent distribution of respondents by number of single health conditions by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					Aged 50+			
	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	91.3	8.6	0.2	267	50-59	59.4	28.2	12.3	2360
30-39	82.0	15.6	2.5	353	60-69	51.7	28.2	20.1	2569
40-49	68.7	23.3	8.0	546	70-79	44.2	34.8	21.0	1311
					80+	50.0	28.0	22.0	479

Background characteristics	Aged 18-49					Aged 50+			
	No morbidity	Single health condition	Two or more health conditions	Number		No morbidity	Single health condition	Two or more health conditions	Number
Sex									
Male	88.4	10.0	1.6	466		55.1	27.3	17.7	3074
Female	69.9	23.4	6.7	700		50.8	31.5	17.8	3645
Marital status									
Never married	91.9	8.1	0.0	191		64.5	26.2	9.4	66
Currently married	75.4	19.1	5.5	918		53.8	29.0	17.3	4943
Widowed	72.7	24.0	3.2	51		49.0	31.5	19.5	1667
Other[1]	58.7	41.3	0.0	6		67.2	18.8	14.1	43
Residence									
Urban	75.5	20.2	4.3	233		47.0	31.0	22.1	1235
Rural	78.6	16.7	4.8	933		55.3	28.9	15.8	5484
Caste									
Scheduled Tribe	75.0	21.3	3.7	113		51.9	34.0	14.1	472
Scheduled Caste	80.0	16.9	3.2	245		62.3	25.6	12.1	1106
Other[2]	77.1	17.8	5.1	808		50.9	30.1	19.1	5141
Religion									
Hindu	77.0	17.8	5.2	963		53.3	29.5	17.2	5578
Muslim	82.8	15.6	1.6	124		50.5	28.4	21.2	751
Other[3]	75.1	23.1	1.8	79		46.8	34.2	19.0	390
Education									
No formal education	73.6	21.4	5.0	266		55.5	29.0	15.6	2984
Less than primary	81.6	11.9	6.5	148		54.5	28.9	16.6	1090
Primary school	74.3	17.4	8.3	250		50.3	30.2	19.5	1222
Secondary school	71.7	27.1	1.2	204		48.9	33.7	17.4	599
High school	82.6	13.7	3.8	164		49.8	29.1	21.2	440
College and above	88.9	9.2	1.9	134		47.1	27.5	25.4	384
Wealth quintile									
Lowest	85.4	13.5	1.1	214		63.6	26.7	9.8	1254
Second	75.4	22.6	2.0	258		60.4	25.8	13.8	1283
Middle	80.9	12.9	6.3	272		55.1	30.7	14.2	1300
Fourth	75.3	17.7	7.0	216		45.4	33.1	21.5	1391
Highest	72.3	22.1	5.7	206		42.8	30.9	26.3	1491
Total	**77.6**	**17.8**	**4.6**	**1166**		**52.8**	**29.5**	**17.7**	**6719**

Note: Co-morbidity refers to the presence of one or more diseases or disorders.

Figure 6.9 Prevalence of co-morbidity by age, India (pooled), SAGE Wave 3, 2019-20

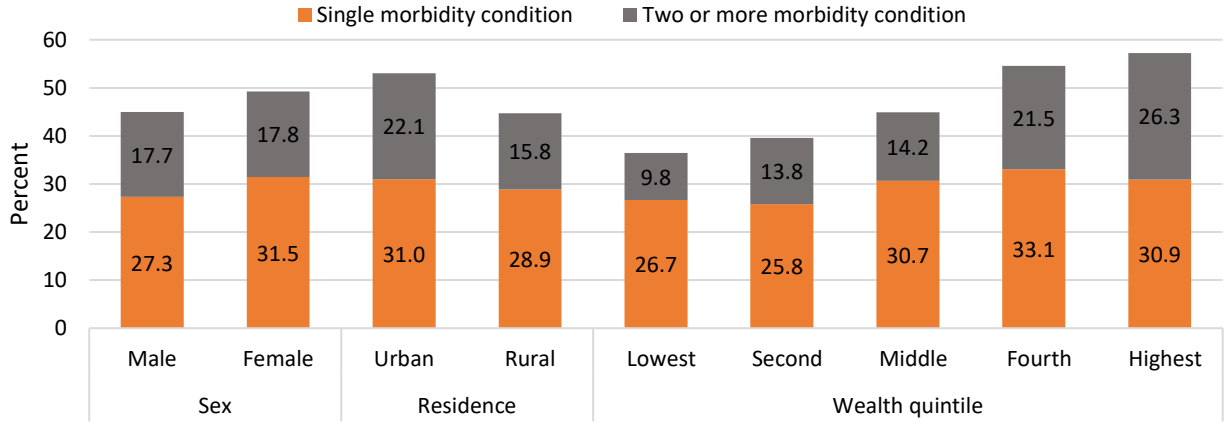


Older respondents in urban areas were more likely than their rural counterparts to have multiple morbidities (Figure 6.10). Although the percentage of people aged 50+ who were diagnosed with at least one chronic disease was almost the same in rural and urban areas. In urban areas, 31% of respondents, compared with 29% in rural areas, had a single morbidity, while 22% in urban areas were diagnosed with two or more health conditions, compared with 16% 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 27% in the lowest wealth quintile to 31% in the highest. Similarly, the proportion diagnosed with two or more diseases rose from 10% in the lowest wealth quintile to 27% in the highest.

Figure 6.10 Prevalence of co-morbidity among persons aged 50+ by sex, residence and wealth quintile, India (pooled), SAGE Wave 3, 2019-20



6.3 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 6.3.1 presents the prevalence of road traffic accidents and other injuries during the 12 months before the survey by state, 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 road traffic accidents in the older age groups. Among older respondents, 4% had been injured in road traffic accidents and 7% in other incidents; 24% of the former had developed a disability, and just under a fifth (19%) of the latter. Among younger respondents, 4% had been injured in road traffic accidents, and 24% of these developed a disability; 5% had been injured in other incidents, and 18% of these had developed a disability. Maharashtra had the lowest prevalence of injuries in the younger age group 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 6.3.1 Self-reported prevalence of injuries and any resulting physical disability, states and India (pooled), SAGE Wave 3, 2019-20

State	Age 18-49								Age 50+							
	Road-traffic accidents				All other incidents				Road-traffic accidents				All other incidents			
	Percentage road injury	Number	Percentage with disability	Number	Other injuries	Number	Percentage with disability	Number	Percentage road injury	Number	Percentage with disability	Number	Other injury	Number	Percentage with disability	Number
Assam	1.3	173	0.0	3	3.8	173	11.3	10	5.2	768	48.3	33	5.9	768	11.8	53
Karnataka	2.1	132	12.7	5	3.4	132	42.4	8	4.7	856	53.4	43	6.4	856	28.1	72
Maharashtra	1.7	218	0.0	6	1.5	218	0.0	4	2.2	1079	14.7	24	5.1	1079	9.5	51
Rajasthan	2.3	182	13.6	7	8.4	182	8.3	19	2.4	1339	9.2	27	12.6	1339	5.1	136
Uttar Pradesh	6.8	180	39.6	8	8.7	180	35.8	17	4.4	1328	21.6	64	7.4	1328	29.4	104
West Bengal	3.5	281	8.1	12	3.2	281	0.0	9	5.3	1349	12.9	58	5.4	1349	15.0	84
India (pooled)	**3.5**	**1166**	**23.7**	**41**	**5.0**	**1166**	**22.2**	**67**	**3.9**	**6719**	**23.9**	**249**	**7.2**	**6719**	**18.3**	**500**

The prevalence of injuries by background characteristics of the respondents is presented in Table 6.3.2 (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.

Table 6.3.2 (a) Self-reported prevalence of injuries and resulting physical disability among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49							
	Road traffic accidents				All other accidents			
	Percentage road injury	Number	Percentage with disability	Number	Percentage with injury	Number	Percentage with disability	Number
Age group								
18-29	3.34	267	8.34	11	2.81	267	0	15
30-39	3.15	353	2.18	14	3.15	353	2.18	13
40-49	3.73	546	42.2	16	7.15	546	31.91	39
Sex								
Male	4.08	466	22.26	24	3.24	466	27.18	22
Female	3.03	700	25.15	17	6.2	700	20.3	45
Marital status								
Never married	3.69	191	10.5	8	2.08	191	0	10
Currently married	3.47	918	27.27	32	5.41	918	25.16	53
Widowed	2.92	51	0	1	7.07	51	0	4
Other[1]	0	6	NA	NA	0	6	NA	NA
Residence								
Urban	1.56	233	4.53	7	2.73	233	6.81	12
Rural	4.35	933	26.95	34	6.02	933	25.39	55
Caste								
Scheduled Tribe	7.15	113	60.34	7	6.56	113	63.6	7
Scheduled Caste	5.25	245	1.63	13	4.55	245	7.37	11
Other[2]	2.56	808	26.93	21	4.94	808	20.65	49
Religion								
Hindu	3.99	963	22.89	38	5.68	963	21.51	61
Muslim	1.02	124	48.63	3	0.88	124	37.02	3
Other[3]	0	79	NA	NA	2.26	79	36.87	3
Education								
No formal education	2.78	266	8.15	8	5.88	266	7.57	18
Less than primary	2.01	148	55.22	3	2.09	148	0	3
Primary school	2.97	250	3.6	10	3.27	250	14.38	13
Secondary school	4.65	204	0	10	4.56	204	0	12
High school	6.56	164	63.01	7	10.48	164	57	16
College and above	1.33	134	0	3	2.72	134	0	5
Wealth quintile								
Lowest	1.77	214	6.63	5	6.12	214	0	14
Second	2.12	258	40.52	9	2.26	258	48.77	11
Middle	4.36	272	3.23	10	3.06	272	5.75	13
Fourth	4.77	216	57.65	8	7.33	216	37.46	16
Highest	3.77	206	2.99	9	6.67	206	19.71	13
Total	**3.46**	**1166**	**23.74**	**41**	**4.97**	**1166**	**22.15**	**67**

[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 6.3.2 (b) Self-reported prevalence of injuries and resulting physical disability among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+							
	Road traffic accidents				All other accidents			
	Percentage road injury	Number	Percentage with disability	Number	Percentage with injury	Number	Percentage with disability	Number
Age group								
50-59	4.26	2,360	20.9	96	6.32	2,360	14.44	145
60-69	4.21	2,569	22.66	99	7.44	2,569	20.38	196
70-79	2.68	1,311	24.73	33	6.52	1,311	18.53	110
80+	4.03	479	44.59	21	12.16	479	20.7	49
Sex								
Male	4.77	3,074	24.4	147	6.02	3,074	19	202
Female	3.16	3,645	23.16	102	8.2	3,645	17.8	298
Marital status								
Never married	0	66			2.75	66	0	2
Currently married	4.18	4,943	24.06	186	6.92	4,943	17.73	343
Widowed	3.36	1,667	22.67	61	8.07	1,667	20.36	151
Other[1]	0.97	43	94.14	2	10.11	43	0	4
Residence								
Urban	4.14	1,235	18.31	53	5.92	1,235	12.26	91
Rural	3.8	5,484	26.54	196	7.75	5,484	20.29	409
Caste								
Scheduled Tribe	3.41	472	23.26	13	5.31	472	19.75	29
Scheduled Caste	4.17	1,106	22.57	37	9.32	1,106	18	93
Other[2]	3.88	5,141	24.17	199	6.87	5,141	18.27	378
Religion								
Hindu	3.62	5,578	21.55	199	7.61	5,578	18.71	440
Muslim	5.88	751	26.58	35	4.57	751	11.81	42
Other[3]	4.07	390	60.59	15	5.79	390	21.17	18
Education								
No formal education	2.96	2,984	28.2	85	8.73	2,984	17.22	232
Less than primary	5.32	1,090	17.59	58	6.98	1,090	16.11	98
Primary school	4.29	1,222	24.63	49	5.93	1,222	11.72	87
Secondary school	4.55	599	33.52	27	5.57	599	40.28	29
High school	3.01	440	15.27	14	5.56	440	16.45	30
College and above	5.84	384	15.56	16	5.46	384	24.4	24
Wealth quintile								
Lowest	2.32	1,254	31.36	37	7.82	1,254	21.4	94
Second	3.42	1,283	17.77	43	6.81	1,283	20.39	101
Middle	5.12	1,300	30.52	65	9.39	1,300	9.84	107
Fourth	4.88	1,391	29.27	53	6.87	1,391	18.42	104
Highest	3.76	1,491	12.54	51	5.58	1,491	23.83	94
Total	**3.9**	**6,719**	**23.86**	**249**	**7.19**	**6,719**	**18.26**	**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.

6.4 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 determine levels of health coverage through indicator conditions like cataracts.

Table 6.4.1 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. In younger respondents, 3% reported problems with their teeth/mouth, and 4% reported having a cataract. The prevalence of both of these problems was much higher among older respondents: 14% of older persons reported problems with their teeth/mouth, and 29% reported a cataract.

Trends: *The prevalence of edentulism has decreased between SAGE-1 and SAGE-2 and slightly increased in SAGE-3, decreasing from 4 percent in 2007 to 2 percent in 2015 and slightly increasing to 3 percent in 2020 among younger respondents and from 15 percent in 2007 to 13 percent in 2015 and slightly increased to 14 percent in 2019 among older respondents. The prevalence of cataracts has increased marginally from SAGE-1, increasing from 2 percent in 2007 to 3 percent in 2015 and further slightly increased to 4 percent in 2020 among younger respondents and from 18 percent in 2007 to 21 percent in 2015 and further increased to 29 percent in 2020 among older respondents.*

Table 6.4.1 Self-reported prevalence of edentulism and cataracts, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Edentulism	Number	Cataract	Number	Edentulism	Number	Cataract	Number
Assam	4.9	173	6.7	173	26.5	768	19.8	768
Karnataka	0.0	132	4.6	132	10.8	856	33.1	856
Maharashtra	0.3	218	1.3	218	7.7	1079	20.1	1079
Rajasthan	6.1	182	3.3	182	9.0	1339	26.9	1339
Uttar Pradesh	6.1	180	7.2	180	20.3	1328	34.2	1328
West Bengal	0.9	281	2.4	281	9.1	1349	26.2	1349
India (pooled)	**2.9**	**1166**	**4.1**	**1166**	**13.9**	**6719**	**28.4**	**6719**

Table 6.4.2 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 eight times higher after age 70 as compared to the 50-59 age bracket. The prevalence of edentulism was higher among women than men in both younger and older respondents. However, the prevalence of cataracts was higher among younger women than younger men. The prevalence of edentulism was higher in rural areas than in urban ones, while the prevalence of cataracts was higher in urban areas among older adults. Both edentulism and cataracts varied according to education and wealth among both younger and older respondents.

Table 6.4.2 Self-reported prevalence of edentulism and cataracts by selected background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					Aged 50+			
	Edentulism	Number	Cataract	Number		Edentulism	Number	Cataract	Number
Age group									
18-29	1.9	267	0.2	267	50-59	5.2	2360	14.3	2360
30-39	2.4	353	1.9	353	60-69	11.4	2569	27.6	2569
40-49	3.8	546	7.2	546	70-79	24.4	1311	45.0	1311
					80+	39.7	479	55.1	479
Sex									
Male	2.7	466	1.7	466		13.7	3074	27.3	3074
Female	3.1	700	5.8	700		14.1	3645	29.4	3645
Marital status									
Never married	3.3	191	1.7	191		12.5	66	21.4	66
Currently married	3.0	918	4.2	918		11.1	4943	25.7	4943
Widowed	1.6	51	11.3	51		21.8	1667	36.6	1667
Other[1]	0.0	6	0.0	6		9.7	43	19.2	43
Residence									
Urban	2.4	233	2.4	233		11.5	1235	31.9	1235
Rural	3.2	933	4.9	933		14.9	5484	26.9	5484
Caste									
Scheduled Tribe	3.9	113	2.1	113		10.0	472	22.7	472
Scheduled Caste	3.1	245	4.9	245		14.3	1106	24.9	1106
Other[2]	2.8	808	4.1	808		14.0	5141	29.5	5141
Religion									
Hindu	3.4	963	4.3	963		14.1	5578	28.3	5578
Muslim	0.7	124	3.5	124		13.4	751	30.9	751
Other[3]	0.0	79	1.2	79		8.7	390	24.4	390

Background characteristics	Aged 18-49					Aged 50+			
	Edentulism	Number	Cataract	Number		Edentulism	Number	Cataract	Number
Education									
No formal education	4.1	266	7.7	266		15.7	2984	30.5	2984
Less than primary	0.2	148	2.6	148		13.0	1090	24.9	1090
Primary school	4.4	250	4.3	250		15.6	1222	28.0	1222
Secondary school	1.0	204	1.5	204		11.0	599	22.6	599
High school	3.7	164	3.2	164		7.8	440	33.0	440
College and above	2.8	134	3.5	134		10.7	384	27.0	384
Wealth quintile									
Lowest	3.6	214	3.0	214		18.2	1254	23.7	1254
Second	0.4	258	6.7	258		11.9	1283	26.5	1283
Middle	4.3	272	5.2	272		12.8	1300	29.6	1300
Fourth	5.9	216	1.5	216		11.5	1391	29.0	1391
Highest	0.5	206	3.6	206		14.9	1491	32.1	1491
Total	**2.9**	**1166**	**4.1**	**1166**		**13.9**	**6719**	**28.4**	**6719**

6.5 Cervical and breast cancer screening

SAGE included two questions for all female respondents to estimate the prevalence of mammography and pap smears, and 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 6.5.1 presents the proportion of female respondents by state who went for breast and cervical cancer screening in the 12 months before the survey. Only a small proportion of women, around 5%, had gone for breast cancer screening in the previous year for both age groups. Rates of cervical cancer screening were similarly low: 3% in the 18-49 age group and 1% in the 50+ age group. Karnataka had the highest rates of screening for breast and cervical cancer in both age groups.

Trends: *The percentage of younger women screened for breast cancer and cervical cancer has increased from 1 percent and 2 percent in SAGE-1 to 3 percent and 4 percent in SAGE-2, with breast cancer screening further increasing to 5 percent and cervical cancer slightly declining to 3 percent in SAGE-3. Similarly, for older women, this has increased from 1 percent and 2 percent in SAGE-1 to 2 percent and 3 percent in SAGE-2, respectively, and increased further to 5 percent for breast cancer in SAGE-3.*

Table 6.5.1 Percentage of women covered by breast and cervical cancer screening, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Breast cancer screening	Number	Cervical cancer screening	Number	Breast cancer screening	Number	Cervical cancer screening	Number
Assam	5.5	109	1.5	109	1.8	398	0.9	398
Karnataka	14.3	85	9.2	85	7.5	477	2.2	477
Maharashtra	0.4	113	3.2	113	1.4	569	1.8	569
Rajasthan	3.9	102	1.4	102	4.3	752	1.9	752
Uttar Pradesh	4.7	111	2.5	111	5.5	696	1.3	696
West Bengal	4.3	180	0.0	180	6.6	753	0.7	753
India (pooled)	**4.9**	**700**	**2.7**	**700**	**4.7**	**3645**	**1.4**	**3645**

The proportion of women screened for breast and cervical cancer by selected background characteristics is presented in Table 6.5.2. 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.

Very few percentages (5% and 1%) of older women seem to have 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.

Table 6.5.2 Percentage of women covered by breast and cervical cancer screening, by selected background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					Aged 50+			
	Breast cancer screening	Number	Cervical cancer screening	Number		Breast cancer screening	Number	Cervical cancer screening	Number
Age group									
18-29	0.0	91	0.0	91	50-59	3.7	1428	2.2	1428
30-39	4.3	244	2.5	244	60-69	5.3	1345	1.2	1345
40-49	6.4	365	3.4	365	70-79	5.6	643	0.5	643
					80+	5.6	229	0.3	229
Marital status									
Never married	0.0	67	0.0	67		0.0	24	0.0	24
Currently married	5.9	579	3.1	579		4.6	2235	1.7	2235
Widowed	0.4	49	1.3	49		5.0	1360	1.1	1360
Other[1]	0.0	5	0.0	5		4.8	26	0.0	26
Residence									
Urban	7.0	144	1.3	144		6.1	686	0.6	686
Rural	3.9	556	3.3	556		4.1	2959	1.8	2959
Caste									
Scheduled Tribe	0.0	60	0.0	60		2.4	268	1.0	268
Scheduled Caste	3.3	139	0.5	139		4.9	623	0.4	623
Other[2]	5.7	501	3.4	501		4.9	2754	1.7	2754
Religion									
Hindu	5.8	577	3.1	577		4.8	3030	1.4	3030
Muslim	0.0	78	0.0	78		5.4	408	1.9	408
Other[3]	0.0	45	0.0	45		0.7	207	1.0	207
Education									
No formal education	7.7	218	3.9	218		4.7	2242	1.2	2242
Less than primary	6.3	110	1.0	110		4.3	496	0.9	496
Primary school	1.4	147	4.1	147		3.7	528	2.5	528
Secondary school	2.5	102	0.4	102		4.6	191	2.1	191
High school	4.5	64	4.0	64		11.9	102	0.6	102
College and above	5.6	59	1.0	59		6.4	86	3.2	86
Wealth quintile									
Lowest	1.6	130	0.0	130		3.2	707	0.4	707
Second	7.0	162	3.6	162		3.4	700	1.6	700
Middle	1.5	167	1.0	167		3.6	732	1.3	732
Fourth	7.3	128	4.0	128		3.4	735	1.8	735
Highest	6.3	113	4.2	113		9.1	771	1.9	771
Total	**4.9**	**700**	**2.7**	**700**		**4.7**	**3645**	**1.4**	**3645**

[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 6.11 Self-reported prevalence of chronic diseases among older respondents- A comparison of SAGE, Wave 1, 2, and 3

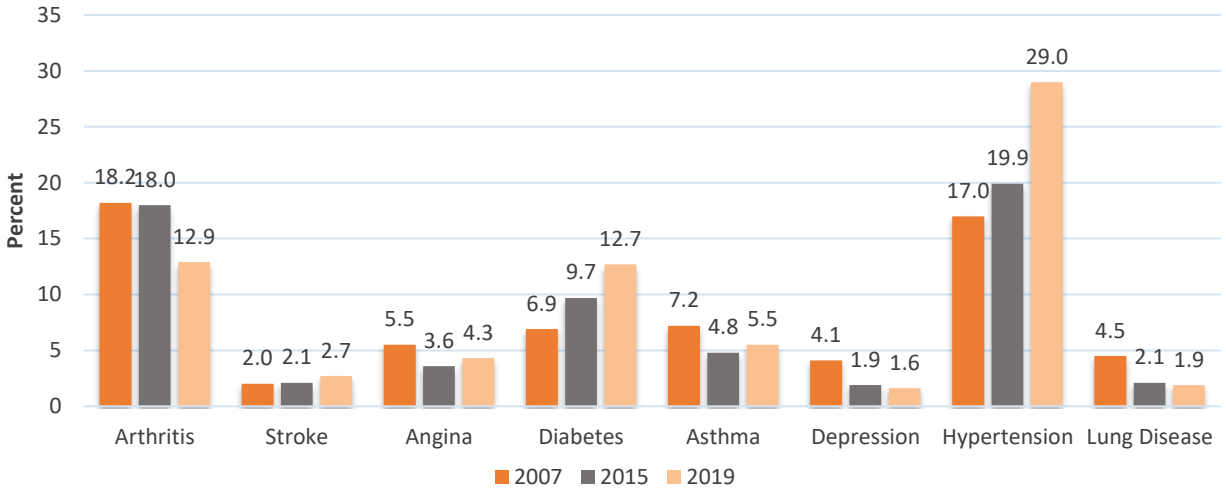
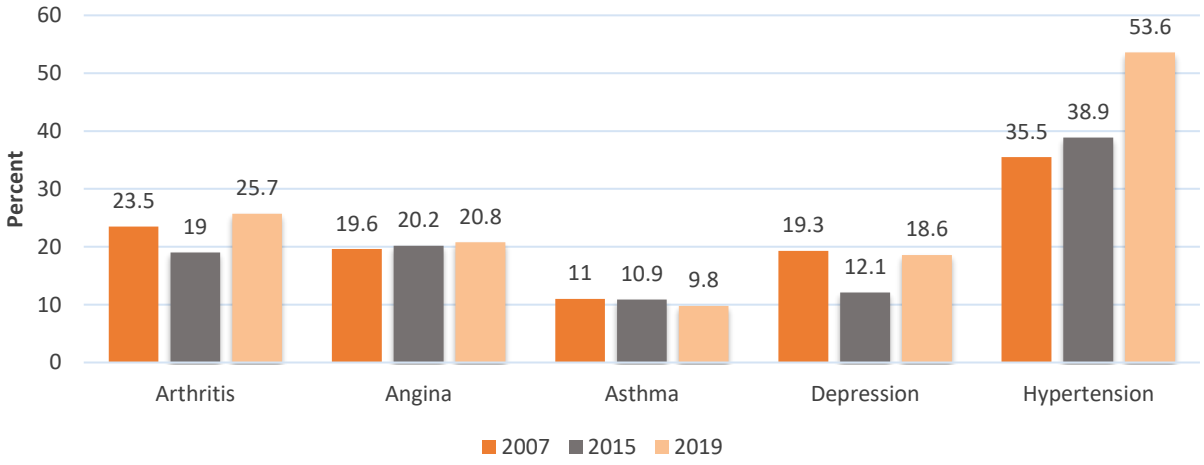


Figure 6.12 Symptom-based prevalence of chronic diseases among older respondents- A comparison of SAGE, Wave 1, 2 and 3



7. Health Examination and Biomarkers

In populations, health changes occur as people age, beginning with the development of risk factors and the onset of diseases and conditions, such as functional loss or the inability to work and perform daily activities necessary for independent living among older populations. To complement self-reporting of health status and 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, identify individuals with particular resistance or susceptibility to health problems, and evaluate therapeutic interventions. They can serve as indicators of various aspects of health change, such as risk, disease, functional loss, disability, etc. For example, blood pressure and pulse rate can provide information about potential or existing heart disease. Similarly, 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 have identified biomarkers as an important tool for understanding the association of socioeconomic status with health and mortality. Since then, biomarkers have rapidly become a standard feature in large-scale social surveys. SAGE incorporated a 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 conducting tests, 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 the results of measured vision using CAPI-enabled vision tests.

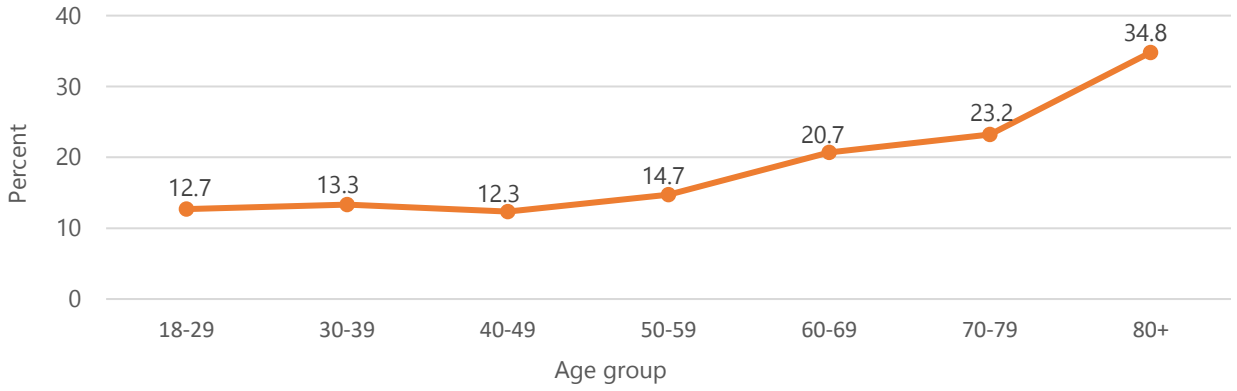
7.1 Anthropometry

7.1.1 Body mass index

Body mass index (BMI) serves as an important indicator of an individual's nutritional status and is widely used as a risk factor for the development or prevalence of several health issues. Elevated BMI is a contributing factor in many diseases; it also reflects physiological changes in stature and body composition as individuals age. Epidemiological studies consistently demonstrate that obesity is associated with an increased risk of cardiovascular diseases and diabetes. Furthermore, several studies have found strong associations between BMI and all-cause mortality. The risks of being underweight are also significant and encompass impairments in the immune system, impaired fertility, micronutrient deficiencies, and inadequate energy for daily mental and physical activities. This section presents results on mean BMI and the prevalence of underweight, overweight, and obesity categorized by age, sex, and state.

The results for body mass Index are derived from measured height and weight. Table 7.1.1 (a & b) presents the prevalence of underweight, normal weight, overweight, and obesity among younger and older adults based on selected background characteristics. The incidence of underweight tends to increase with age, as indicated in Figure 7.1.

Figure 7.1 Percentage of underweight persons by age group, India (pooled), SAGE Wave 3, 2019-20



Overall, concerning the risk for chronic health issues, the burden of being underweight was disproportionately concentrated among respondents from rural backgrounds, Scheduled Caste/Tribe, those with no formal education, and those in the lowest wealth quintile. For instance, 35% of older adults from the lowest wealth quintile were underweight, compared to just 11% in the highest quintile. Conversely, the burden of overweight/obesity was disproportionately concentrated among respondents from urban residences, other castes, higher education categories, and higher wealth quintile households. However, mean BMI did not vary significantly by age, sex, religion, or marital status.

Trends: *The mean BMI has marginally increased since 2007. Between 2007 and 2020, there has been a significant rise in the overweight or obese population. This has escalated from 12 percent in 2007 to 20 percent in 2015, and further to 30 percent in 2020 for the younger population. Similarly, it increased from 13 percent in 2007 to 19 percent in 2015, and then to 26 percent in 2020 for the older population. However, the proportion of respondents categorized as underweight has declined over the same period. This trend is consistent across men and women aged 50 and above. In Maharashtra, the percentage of underweight respondents has notably reduced—from 36% in 2007 and 26% in 2015 to 10% in 2020 among young respondents. Likewise, the prevalence of underweight*

among older adults in Maharashtra decreased from 31% in 2007 and 18% in 2015 and then increased to 20% in 2020.

The proportion of overweight and obesity increased from 18% in the age group of 18-29 to 34% in the age group of 40-49. However, for older adults aged 50+, the prevalence of overweight and obesity declined. Among individuals aged 50+, the prevalence of overweight/obesity was notably higher for women (29%) than for men (22%). As depicted in Figure 7.2, only 12% of older respondents from the lowest wealth quintile were overweight or obese, compared to 41% from the highest quintile.

Table 7.1.1 (a) Mean body mass index (BMI, kg/m^2) and risk category (%) among younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Age group							
18-29	21.9	12.7	69.4	16.8	1.2	100	258
30-39	23.1	13.3	55.6	24.5	6.6	100	334
40-49	24.3	12.3	54.0	25.5	8.2	100	530
Sex							
Male	22.3	13.8	62.6	21.3	2.4	100	454
Female	24.3	12.0	53.9	25.0	9.2	100	668
Marital status							
Never married	22.2	12.5	63.1	22.8	1.7	100	183
Currently married	23.9	11.8	56.6	24.2	7.4	100	887
Widowed	20.8	27.7	56.5	14.2	1.5	100	46
Other[1]	19.6	40.2	59.8	0.0	0.0	100	6
Residence							
Urban	24.0	10.1	53.6	28.6	7.7	100	218
Rural	23.2	14.0	59.4	21.0	5.6	100	904
Caste							
Scheduled Tribe	20.5	29.7	57.1	11.5	1.8	100	109
Scheduled Caste	22.3	14.8	61.9	21.4	1.9	100	236
Other[2]	24.1	10.4	56.3	25.3	8.1	100	777
Religion							
Hindu	23.6	13.5	56.7	23.8	6.0	100	924
Muslim	23.7	7.6	58.3	23.4	10.8	100	121
Other[3]	21.4	12.4	69.9	16.6	1.2	100	77
Education							
No formal education	22.2	17.4	58.0	19.1	5.5	100	256
Less than primary	21.8	21.8	59.0	15.3	3.9	100	143
Primary school	25.8	7.5	63.5	19.6	9.4	100	243
Secondary school	23.7	8.5	56.1	31.0	4.3	100	194
High school	23.8	8.5	51.8	29.9	9.8	100	159
College and above	22.5	16.1	54.3	26.3	3.3	100	127
Wealth quintile							
Lowest	21.0	23.0	62.0	14.1	0.9	100	207
Second	23.8	12.9	60.3	21.9	4.9	100	251
Middle	22.5	14.5	64.9	16.0	4.6	100	270
Fourth	24.7	9.7	54.7	27.4	8.2	100	204
Highest	25.0	5.5	45.1	37.2	12.2	100	190
Total	**23.5**	**12.7**	**57.5**	**23.4**	**6.3**	**100**	**1,122**

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 7.1.1 (b) Mean body mass index (BMI, kg/m^2) and risk category (%) among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Age group							
50-59	24.7	14.7	54.7	22.1	8.5	100	2,248
60-69	22.6	20.7	51.7	21.3	6.3	100	2,421
70-79	21.7	23.2	58.1	14.4	4.3	100	1,209
80+	21.7	34.8	52.1	10.5	2.6	100	424
Sex							
Male	23.1	21.0	57.2	17.2	4.5	100	2,865
Female	23.1	19.2	51.4	21.4	8.0	100	3,437
Marital status							
Never married	20.3	28.7	58.8	7.2	5.3	100	62
Currently married	23.6	17.7	54.9	20.4	7.1	100	4642
Widowed	22.0	25.8	51.7	17.7	4.8	100	1558
Other[1]	21.4	33.8	48.5	14.0	3.8	100	40
Residence							
Urban	24.7	13.4	52.2	24.8	9.6	100	1132
Rural	22.4	22.9	54.9	17.2	5.1	100	5170
Caste							
Scheduled Tribe	21.6	28.4	56.8	13.2	1.6	100	453
Scheduled Caste	22.1	30.5	55.3	12.2	2.1	100	1,046
Other[2]	23.4	17.4	53.6	21.4	7.6	100	4,803
Religion							
Hindu	23.1	20.3	54.0	19.2	6.6	100	5,219
Muslim	22.5	17.6	53.9	22.7	5.9	100	708
Other[3]	24.9	20.5	56.9	16.9	5.7	100	375
Education							
No formal education	22.2	25.9	53.6	15.5	5.0	100	2,798
Less than primary	22.5	21.0	57.5	17.2	4.4	100	1,030
Primary school	23.6	17.7	53.2	21.8	7.3	100	1,147
Secondary school	24.2	12.4	55.4	23.7	8.5	100	564
High school	25.6	9.6	58.2	25.2	7.0	100	410
College and above	24.7	9.8	45.5	30.9	13.8	100	353
Wealth quintile							
Lowest	21.8	35.1	52.8	8.9	3.2	100	1,192
Second	22.1	23.5	59.6	13.9	3.0	100	1,209
Middle	22.5	17.2	59.3	19.7	3.8	100	1,233
Fourth	24.0	16.1	52.3	23.7	7.9	100	1,305
Highest	24.6	11.3	47.9	28.4	12.4	100	1,363
Total	**23.1**	**20.0**	**54.1**	**19.5**	**6.4**	**100**	**6,302**

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.

In urban areas, 34% of older adults were overweight or obese, whereas their rural counterparts accounted for 22%. The prevalence of underweight was notably high among Scheduled Caste and Scheduled Tribe respondents, both among older adults (31% and 28%, respectively) and younger adults (15% and 30%, respectively). Regarding income levels, the percentage of overweight and obesity increased with rising wealth, exhibiting some differences between younger and older adults (Figure 7.2).

Figure 7.2 Prevalence of overweight/obesity by age group and wealth quintile, India (pooled), SAGE Wave 3, 2019-20

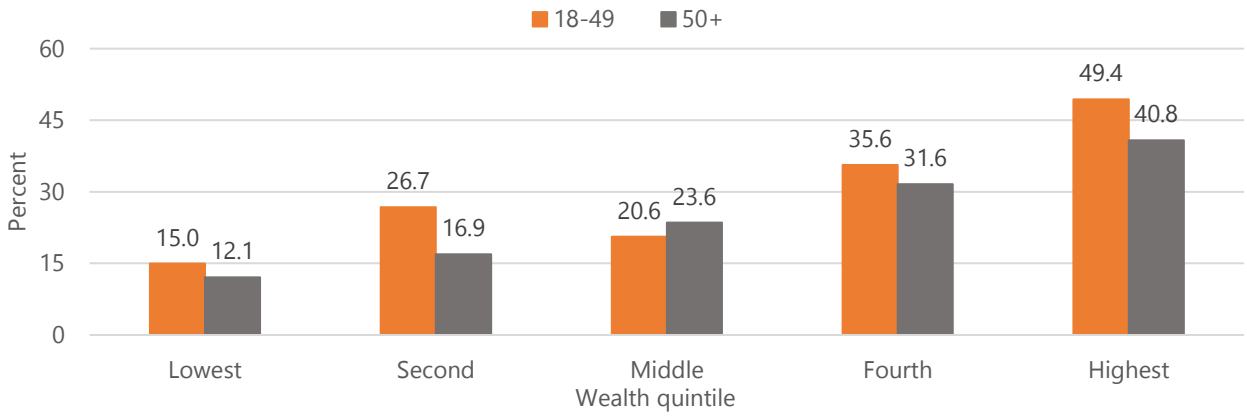


Table 7.1.2 (a & b) presents the percentage distribution of mean BMI for older men and women based on selected background characteristics. It illustrates a steady and steep increase in the proportion of respondents categorized as underweight as age advances, observed in both sexes. Among men, the proportion of underweight respondents rose from 15% (age 50-59) to 32% (age 80+). Similarly, for women, the proportion increased from 15% to 37% in older adults. Concurrently, the prevalence of overweight and obesity declined with advancing age among older men and women.

The positive association between education and wealth with the prevalence of overweight and obesity was notably stronger among older women than among older men. Over two-thirds (67%) of women with a college-level education or higher were overweight or obese, compared to 22% of women with no education. Similarly, more than two-fifths (44%) of women aged 50+ in the highest wealth quintile were overweight or obese, in contrast to 15% in the lowest quintile. The burden of overweight/obesity was prominently concentrated among urban women, especially among those with higher education and higher incomes. Conversely, the prevalence of underweight women was disproportionately concentrated among those residing in rural areas, having no formal education, and belonging to the poorest wealth quintile.

Table 7.1.2 (a) Mean body mass index (BMI, kg/m^2) and risk categories (%) among older men, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+						
	Male						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Age group							
50-59	25.4	14.7	61.6	18.7	5.0	100	873
60-69	22.4	21.6	53.7	18.8	6.0	100	1156
70-79	21.3	25.1	58.4	13.9	2.6	100	621
80+	22.9	32.3	53.7	13.1	1.0	100	215
Marital status							
Never married	19.5	30.3	63.9	5.9	0.0	100	39
Currently married	23.4	19.2	58.3	17.6	4.9	100	2529
Widowed	21.3	33.5	47.6	16.5	2.4	100	283
Other[1]	19.9	50.9	41.9	7.2	0.0	100	14
Residence							
Urban	25.3	13.0	57.4	21.8	7.8	100	500
Rural	22.1	24.5	57.1	15.3	3.1	100	2365
Caste							
Scheduled Tribe	20.8	27.9	58.6	12.7	0.9	100	195
Scheduled Caste	22.2	29.1	60.0	9.6	1.3	100	452
Other[2]	23.4	19.1	56.6	19.0	5.4	100	2218
Religion							
Hindu	23.0	20.9	58.0	16.5	4.7	100	2371
Muslim	22.0	22.2	53.2	21.2	3.3	100	319

Background characteristics	Aged 50+						
	Male						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Other[3]	28.4	21.2	52.7	21.3	4.8	100	175
Education							
No formal education	22.1	29.5	55.9	10.3	4.3	100	687
Less than primary	21.6	22.2	62.3	14.2	1.4	100	561
Primary school	22.9	25.9	53.9	16.9	3.3	100	647
Secondary school	23.5	16.0	60.6	18.9	4.5	100	381
High school	25.8	11.3	59.7	22.8	6.3	100	314
College and above	24.1	11.3	51.3	27.2	10.2	100	275
Wealth quintile							
Lowest	23.4	34.2	57.6	5.5	2.7	100	519
Second	21.1	26.5	61.2	10.5	1.7	100	546
Middle	22.3	16.9	62.2	17.1	3.7	100	532
Fourth	24.1	19.1	57.7	17.5	5.7	100	617
Highest	24.2	12.8	50.2	29.6	7.4	100	651
Total	**23.1**	**21.0**	**57.2**	**17.2**	**4.5**	**100**	**2865**

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.

Table 7.1.2 (b) Mean body mass index (BMI, kg/m^2) and risk categories (%) among older women, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50-plus						
	Female						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Age group							
50-59	24.2	14.7	50.2	24.3	10.9	100	1375
60-69	22.8	19.9	49.9	23.7	6.6	100	1265
70-79	22.2	21.2	57.7	15.0	6.1	100	588
80+	20.6	37.1	50.7	8.2	4.1	100	209
Marital status							
Never married	24.0	22.1	37.5	12.7	27.7	100	23
Currently married	23.7	16.0	50.7	23.7	9.7	100	2113
Widowed	22.2	24.0	52.7	18.0	5.3	100	1275
Other[1]	22.3	24.5	52.1	17.7	5.8	100	26
Residence							
Urban	24.2	13.8	47.9	27.3	11.0	100	632
Rural	22.7	21.6	53.0	18.8	6.7	100	2805
Caste							
Scheduled Tribe	22.2	28.9	55.5	13.6	2.1	100	258
Scheduled Caste	22.0	31.5	51.6	14.2	2.7	100	594
Other[2]	23.4	15.9	51.1	23.5	9.6	100	2585
Religion							
Hindu	23.2	19.9	50.6	21.4	8.1	100	2848
Muslim	23.0	13.6	54.4	23.9	8.1	100	389
Other[3]	21.8	19.8	60.6	13.1	6.4	100	200
Education							
No formal education	22.2	24.8	52.9	17.1	5.2	100	2111
Less than primary	23.5	19.5	51.8	20.7	8.0	100	469
Primary school	24.7	7.3	52.2	28.1	12.4	100	500
Secondary school	25.5	5.5	45.3	33.1	16.0	100	183
High school	24.9	3.1	52.1	34.8	10.0	100	96
College and above	26.3	5.3	27.9	41.9	25.0	100	78
Wealth quintile							
Lowest	20.7	35.7	49.4	11.4	3.6	100	673
Second	23.0	20.9	58.1	16.8	4.2	100	663
Middle	22.7	17.4	57.1	21.7	3.9	100	701
Fourth	23.9	13.1	47.1	29.8	10.0	100	688
Highest	25.1	9.9	45.8	27.2	17.2	100	712
Total	**23.1**	**19.2**	**51.4**	**21.4**	**8.0**	**100**	**3437**

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.

Table 7.1.3 presents mean BMI values and the percentage distribution by BMI risk categories among younger and older adults, categorized by state and for India overall. Overall, the prevalence of overweight and obesity was higher among younger adults (30%) compared to older adults (26%).

The mean BMI value for younger adults was highest in Rajasthan (23.6), and for older adults, it was in Karnataka (24.3) and Maharashtra (24.3), whereas it was lowest for younger adults in Assam (21.9) and for older adults in Rajasthan (22.3). Conversely, the prevalence of underweight was 13% for younger adults and 20% for older adults. This pattern confirms the increasing prevalence of overweight and obesity among both younger and older adults.

Table 7.1.3 Mean body mass index (kg/m^2) and risk categories (%) for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49							Aged 50+						
	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number	Mean BMI	Underweight	Normal	Overweight	Obese	Total	Number
Assam	21.9	13.0	70.2	14.7	2.1	100	171	23.6	21.9	67.3	8.3	2.6	100	752
Karnataka	23.5	20.2	44.1	22.1	13.6	100	130	24.3	13.2	50.3	25.6	10.9	100	809
Maharashtra	23.4	5.2	65.8	24.3	4.7	100	212	24.3	10.1	56.8	24.7	8.4	100	1022
Rajasthan	23.6	22.8	57.8	11.7	7.8	100	164	22.3	21.9	53.8	18.2	6.1	100	1188
Uttar Pradesh	23.5	9.6	52.3	30.2	8.0	100	168	22.6	26.9	50.4	17.2	5.6	100	1215
West Bengal	22.8	14.8	58.0	24.9	2.3	100	277	22.4	19.7	57.0	18.8	4.5	100	1316
India (pooled)	**23.5**	**12.7**	**57.5**	**23.4**	**6.3**	**100**	**1122**	**23.1**	**20.0**	**54.1**	**19.5**	**6.4**	**100**	**6302**

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.

The prevalence of overweight/obesity was as high among older women as it was among older men and was nearly three times higher for respondents with a college education or higher compared to those with no education (Figure 7.3). While the prevalence of overweight/obesity was significantly higher in Karnataka, the prevalence of underweight was notably higher in Uttar Pradesh (Figure 7.4).

Figure 7.3 Prevalence of overweight/obesity among respondents aged 50+ by education level, India (pooled), SAGE Wave 3, 2019-20

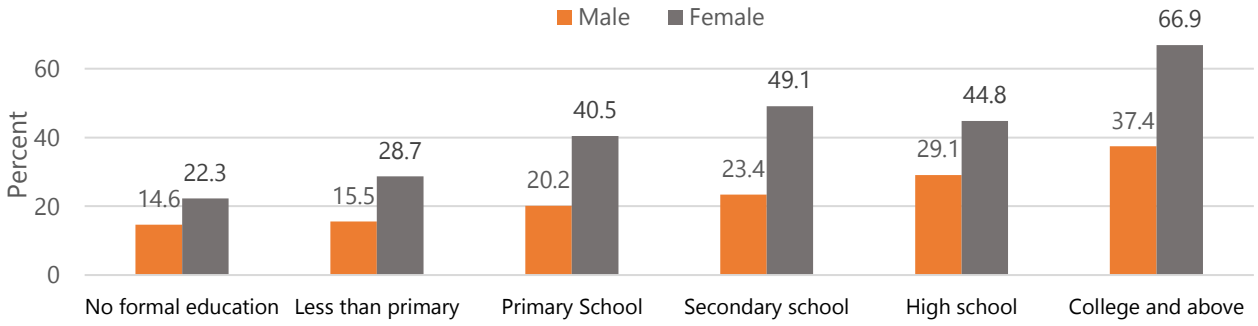
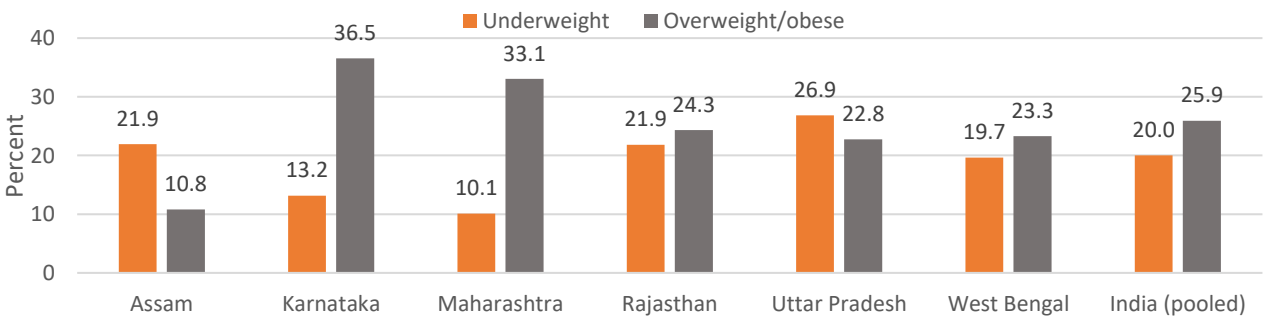


Figure 7.4 Percentage of underweight and overweight/obese respondents aged 50+, states and India (pooled), SAGE Wave 3, 2019-20



7.1.1 Waist circumference

Waist circumference serves as a key indicator of abdominal fat, aiding in the identification of individuals at an increased risk of obesity-related morbidity due to the accumulation of abdominal fat (WHO, 2000a). High waist circumference, caused by the concentration of abdominal fat, is associated with the risk of type 2 diabetes, high cholesterol, high blood pressure, and heart disease. Waist circumference can complement BMI in correcting for the limitations of the latter in assessing weight-related health risks, particularly in individuals with high muscle mass or of advanced age.

Table 7.1.4 (a & b) compares mean waist circumference and the percentage distribution of respondents with high and low-risk waist circumference among younger and older respondents based on background characteristics. The prevalence of high-risk waist circumference decreased with age for respondents aged 50+ but increased with age for younger adults. Pronounced gender differences were observed in high-risk waist circumference: approximately 38% of younger women and 39% of older women had a high-risk waist circumference, compared to only 3% and 9%, respectively, for their male counterparts. High-risk waist circumference was more prevalent among urban older adults (31%) than rural dwellers (22%).

The prevalence of high-risk waist circumference increased with wealth among both younger and older adults. Among those aged 50+, high-risk waist circumference increased from 16% for respondents in the poorest wealth quintile to 35% in the highest quintile. Marital status, caste, religion, and education showed less pronounced differences in the prevalence of high-risk waist circumference.

Trends: *The mean waist circumference increased from 2007 to 2015 and slightly declined in 2020. From 2007 to 2020, the proportion of respondents with high-risk waist circumference increased in both age groups of men, but it declined slightly among women in both age groups in 2020 compared to 2015. Similarly, there has been an increase in the high and moderate-risk metabolic levels (using the Waist-hip ratio) for both younger and older respondents from 2007 to 2020.*

Table 7.1.4 (a) Mean waist circumference (cm) and risk categories (%) among younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Mean waist circumference (cm)	Low risk	High risk	Total	Number
Age group					
18-29	78.7	93.8	6.2	100	257
30-39	82.0	74.7	25.3	100	334
40-49	83.2	70.6	29.4	100	530
Sex					
Male	79.8	97.0	3.0	100	454
Female	83.4	61.7	38.3	100	667
Marital status					
Never married	80.1	89.3	10.7	100	182
Currently married	82.4	73.4	26.6	100	887
Widowed	78.4	91.8	8.2	100	46
Other[1]	72.8	97.5	2.5	100	6
Residence					
Urban	82.6	74.3	25.7	100	217
Rural	81.6	77.5	22.5	100	904
Caste					
Scheduled Tribe	77.4	85.9	14.1	100	109
Scheduled Caste	81.6	80.4	19.6	100	236
Other[2]	82.5	74.3	25.7	100	776
Religion					
Hindu	81.7	76.6	23.4	100	923
Muslim	84.9	71.6	28.4	100	121
Other[3]	78.8	86.4	13.6	100	77

Background characteristics	Aged 18-49				
	Mean waist circumference (cm)	Low risk	High risk	Total	Number
Education					
No formal education	81.6	72.0	28.0	100	256
Less than primary	82.3	66.8	33.2	100	143
Primary school	82.7	81.6	18.4	100	243
Secondary school	82.2	74.4	25.6	100	194
High school	82.1	77.5	22.5	100	159
College and above	80.0	86.3	13.7	100	126
Wealth quintile					
Lowest	79.1	84.1	15.9	100	207
Second	81.6	73.7	26.3	100	251
Middle	80.0	85.0	15.0	100	270
Fourth	83.5	69.6	30.4	100	204
Highest	85.1	70.4	29.6	100	189
Total	**81.9**	**76.5**	**23.5**	**100**	**1,121**

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

Table 7.1.4 (b) Mean waist circumference (cm) and risk categories (%) among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	Mean waist circumference (cm)	Low risk	High risk	Total	Number
Age group					
50-59	83.6	73.2	26.8	100	2,247
60-69	84.1	72.9	27.1	100	2,421
70-79	83.0	79.9	20.1	100	1,208
80+	80.9	82.0	18.0	100	425
Sex					
Male	83.5	91.1	9.0	100	2,865
Female	83.5	61.5	38.5	100	3,436
Marital status					
Never married	80.0	92.0	8.0	100	62
Currently married	83.8	76.6	23.4	100	4,640
Widowed	82.7	69.9	30.1	100	1,559
Other[1]	83.7	67.7	32.3	100	40
Residence					
Urban	85.3	68.6	31.4	100	1,132
Rural	82.7	77.9	22.1	100	5,169
Caste					
Scheduled Tribe	79.7	83.5	16.5	100	453
Scheduled Caste	80.9	79.2	20.8	100	1,047
Other[2]	84.2	73.7	26.3	100	4,801
Religion					
Hindu	83.0	76.0	24.0	100	5,217
Muslim	87.5	66.7	33.3	100	709
Other[3]	81.5	79.7	20.3	100	375
Education					
No formal education	82.2	71.5	28.5	100	2,798
Less than primary	82.1	79.7	20.3	100	1,030
Primary school	84.6	75.8	24.2	100	1,147
Secondary school	83.4	79.7	20.4	100	564
High school	86.1	83.3	16.7	100	409
College and above	88.7	69.1	30.9	100	353
Wealth quintile					
Lowest	79.9	84.0	16.0	100	1,191
Second	80.8	79.8	20.2	100	1,209
Middle	82.5	78.1	22.0	100	1,235
Fourth	84.7	71.6	28.4	100	1,305
Highest	88.1	64.9	35.1	100	1,361
Total	**83.5**	**75.0**	**25.0**	**100**	**6,301**

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

Table 7.1.5 presents the prevalence of high-risk waist circumference among older men and women categorized by background characteristics. Age, residence, marital status, education, and wealth quintile displayed highly pronounced variations. Overall, the prevalence of high-risk waist circumference was notably concentrated among urban, educated, and upper wealth quintile older women. Approximately 41% of women aged 60-69 years had a high-risk waist circumference, compared to about one-third (32%) of women aged 80+.

The prevalence of high-risk waist circumference was higher among older women than among older men (Figure 7.5). Nearly half of the older women (48%) in urban areas exhibited high-risk waist circumferences, in contrast to 34% from rural areas. Furthermore, the prevalence of high-risk waist circumference among older women was considerably higher among respondents from other castes (40%) compared to those from Scheduled Castes (33%) and Scheduled Tribes (26%). Regarding the education level, more than three-quarters (73%) of older women with a college education displayed high-risk waist circumferences, while about 35% were observed among those with no formal education. Additionally, over half of the women (53%) in the upper wealth quintile were found to have high-risk waist circumferences, compared to 25% in the poorest quintile.

Table 7.1.5 Mean waist circumference (cm) and risk categories (%) for older men and women, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+									
	Male					Female				
	Mean waist circumference (cm)	Low risk	High risk	Total	Number	Mean waist circumference (cm)	Low risk	High risk	Total	Number
Age group										
50-59	83.2	92.7	7.3	100	873	83.9	60.6	39.4	100	1374
60-69	84.0	88.6	11.4	100	1156	84.2	58.6	41.4	100	1265
70-79	83.7	91.1	8.9	100	620	82.1	67.4	32.6	100	588
80+	81.2	97.6	2.4	100	216	80.6	67.7	32.3	100	209
Marital status										
Never married	79.3	100.0	0.0	100	39	82.6	58.1	41.9	100	23
Currently married	83.5	91.2	8.8	100	2529	84.3	59.0	41.0	100	2111
Widowed	84.7	88.0	12.0	100	283	82.2	65.6	34.4	100	1276
Other[1]	82.7	95.4	4.7	100	14	84.2	52.7	47.3	100	26
Residence										
Urban	84.9	88.8	11.2	100	500	85.7	51.9	48.1	100	632
Rural	82.9	92.0	8.0	100	2365	82.5	65.8	34.2	100	2804
Caste										
Scheduled Tribe	79.2	96.7	3.3	100	195	80.1	73.8	26.2	100	258
Scheduled Caste	81.3	95.1	4.9	100	453	80.6	66.7	33.3	100	594
Other[2]	84.2	90.0	10.1	100	2217	84.3	59.6	40.4	100	2584
Religion										
Hindu	83.1	91.1	8.9	100	2371	83.0	63.3	36.8	100	2846
Muslim	86.6	91.2	8.9	100	319	88.2	45.3	54.7	100	390
Other[3]	83.2	88.8	11.2	100	175	80.0	71.8	28.2	100	200
Education										
No formal education	82.5	91.5	8.5	100	688	82.2	65.5	34.5	100	2110
Less than primary	80.9	94.8	5.2	100	561	83.5	61.8	38.2	100	469
Primary school	83.6	91.2	8.9	100	647	85.8	56.4	43.6	100	500
Secondary school	83.2	91.0	9.0	100	381	83.9	57.9	42.1	100	183
High school	85.2	92.2	7.8	100	313	89.7	47.0	53.0	100	96
College and above	87.8	82.8	17.2	100	275	91.3	27.3	72.7	100	78
Wealth quintile										
Lowest	80.1	96.3	3.7	100	519	79.7	75.1	24.9	100	672
Second	80.0	95.3	4.7	100	546	81.6	66.7	33.3	100	663
Middle	83.2	92.7	7.3	100	533	82.1	67.4	32.6	100	702
Fourth	84.1	90.7	9.3	100	617	85.2	52.9	47.1	100	688
Highest	88.1	83.8	16.3	100	650	88.1	46.9	53.1	100	711
Total	**83.5**	**91.1**	**9.0**	**100**	**2865**	**83.5**	**61.5**	**38.5**	**100**	**3436**

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

Figure 7.5 Percentage of respondents with high-risk waist circumference by sex and age group, India (pooled), SAGE Wave 3, 2019-20

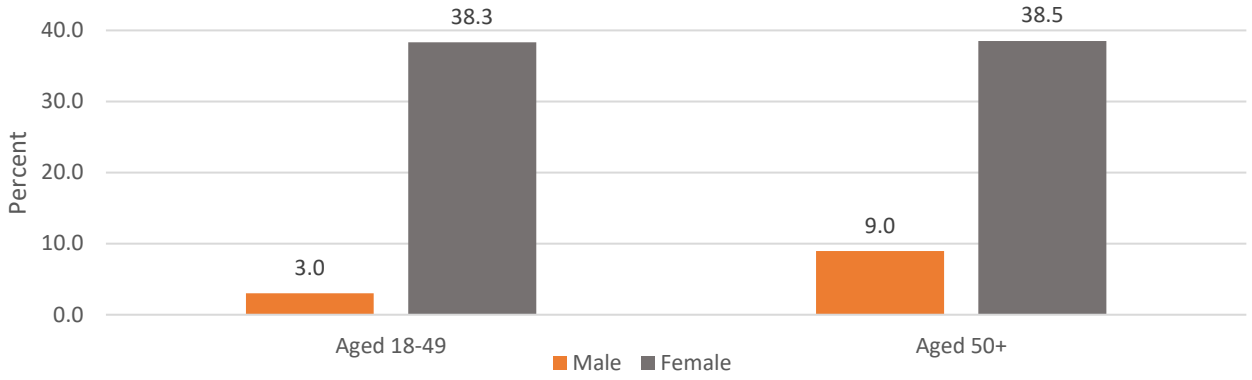


Table 7.1.6 presents mean waist circumference and the percentage distribution of low and high-risk waist circumference categorized by state and for India overall. The prevalence of high-risk waist circumference was higher among older adults (25%) than among younger adults (24%). Additionally, the risk increased with rising wealth for both older men and women, although the risk was notably higher in women (Figure 7.6).

Figure 7.6 Percentage of high-risk waist circumference among respondents aged 50+, by sex and wealth quintile, India (pooled), SAGE Wave 3, 2019-20

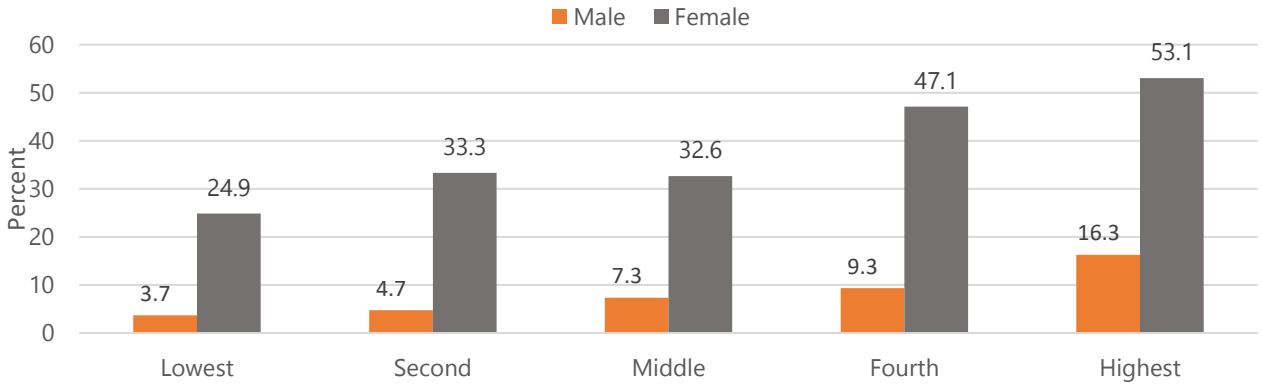


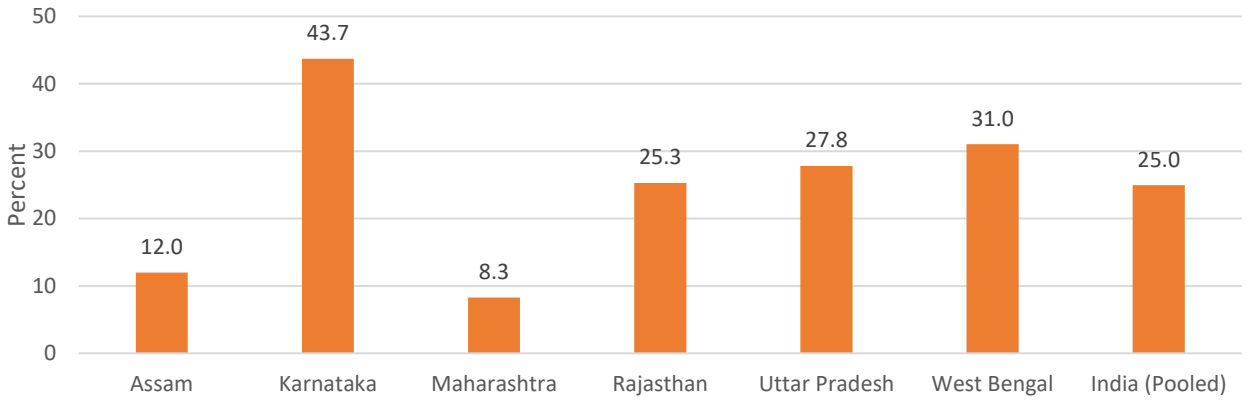
Table 7.1.6 Mean waist circumference (cm) and risk categories (%) for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Mean waist circumference (cm)	Low risk	High risk	Total	Number	Mean waist circumference (cm)	Low risk	High risk	Total	Number
Assam	78.7	84.1	16.0	100	171	79.1	88.0	12.0	100	752
Karnataka	88.3	62.9	37.1	100	130	90.9	56.3	43.7	100	808
Maharashtra	72.7	90.9	9.1	100	212	73.9	91.7	8.3	100	1,022
Rajasthan	81.8	80.5	19.5	100	164	84.5	74.7	25.3	100	1,187
Uttar Pradesh	86.3	67.6	32.4	100	168	85.8	72.2	27.8	100	1,215
West Bengal	84.3	74.2	25.8	100	276	86.0	69.0	31.0	100	1,317
India (pooled)	**81.9**	**76.5**	**23.5**	**100**	**1121**	**83.5**	**75.0**	**25.0**	**100**	**6301**

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.

In Karnataka, 44% of older adults had high-risk waist circumferences, while Maharashtra had the lowest proportion at 8.3%. Furthermore, the percentage of older adults with high-risk waist circumference was higher in Karnataka and West Bengal compared to Maharashtra and Assam (Figure 7.7).

Figure 7.7 Percentage of respondents aged 50+ with high-risk waist circumference, states and India (pooled), SAGE Wave 3, 2019-20



7.1.3 Waist-hip ratio

Central body obesity, measured by the waist-hip ratio (WHR), is considered a predictor of cardiovascular risks and metabolic alterations, contributing to a higher risk for hypertension and diabetes. The waist-hip ratio, calculated by dividing waist circumference by hip circumference, was suggested as an additional measure of body fat distribution. This ratio can be measured more precisely than skin folds, providing an index of both subcutaneous and intra-abdominal adipose tissue (Bjorntorp, 1987). WHO standard limits for categorizing the waist-hip ratio are as follows: 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, while 53% had a high-risk WHR (Table 7.1.7). In comparison, 20% of younger adults had a moderate-risk WHR, and 50% had a high-risk WHR. In summary, approximately three-quarters (74%) of older adults and more than two-third (70%) of younger adults were assessed with moderate to high-risk WHR. Among older adults, West Bengal had the highest proportion of respondents (64%) with high-risk WHR. For younger adults, Maharashtra had the lowest proportion with high-risk WHR (39%), whereas West Bengal had the highest (61%).

Table 7.1.7 Percent distribution of metabolic risk levels (using waist-hip ratio) for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Low risk	Moderate risk	High risk	Total	Number	Low risk	Moderate risk	High risk	Total	Number
Assam	30.0	15.3	54.7	100	171	31.2	13.9	54.9	100	752
Karnataka	35.2	13.8	51.1	100	130	27.5	18.7	53.8	100	808
Maharashtra	30.3	31.0	38.7	100	212	29.0	27.0	44.0	100	1022
Rajasthan	38.7	18.1	43.2	100	164	28.1	21.3	50.7	100	1187
Uttar Pradesh	31.6	14.0	54.4	100	168	25.8	19.9	54.3	100	1215
West Bengal	20.1	18.7	61.1	100	276	20.5	15.6	63.9	100	1317
India (pooled)	**30.2**	**19.5**	**50.4**	**100**	**1121**	**26.4**	**20.3**	**53.3**	**100**	**6301**

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 7.1.8 (a & b) presents the percentage distribution of respondents with low, moderate, and high-risk WHR categorized by background characteristics. With increasing age, the percentage of respondents with a moderate-risk WHR also increased. For example, it rose from 18% (18-29 years)

to 23% (70-79 years). Pronounced differences by sex were observed in the prevalence of high-risk WHR (Figure 7.8). In the 50+ group, more than four in five (82%) women had a high-risk WHR, compared to only 20% of men; among younger women, the figure was 79%, contrasting with only 11% of men.

Irrespective of age, the prevalence of high-risk WHR markedly declined with education. Among older respondents, the prevalence of high-risk WHR decreased from 66% for those with no education to 37% for those with a college education or above. Among younger respondents, a similar decline was observed, dropping from 61% to 35%. This pattern stands in marked contrast to the strong positive gradient of education and wealth quintile for the prevalence of overweight and obesity.

Table 7.1.8 (a) Percent distribution of metabolic risk levels (using waist-hip ratio) for younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Aged 18-49				
	Low risk	Moderate risk	High risk	Total	Number
Age group					
18-29	51.2	18.1	30.7	100	257
30-39	25.1	22.7	52.2	100	334
40-49	25.0	17.8	57.3	100	530
Sex					
Male	61.2	28.2	10.7	100	454
Female	7.7	13.1	79.1	100	667
Marital status					
Never married	48.7	15.5	35.8	100	182
Currently married	27.6	20.7	51.7	100	887
Widowed	16.4	9.2	74.3	100	46
Other[1]	40.2	19.4	40.4	100	6
Residence					
Urban	25.1	25.1	49.8	100	217
Rural	32.5	16.8	50.6	100	904
Caste					
Scheduled Tribe	43.8	15.7	40.5	100	109
Scheduled Caste	28.8	21.4	49.8	100	236
Other[2]	29.2	19.3	51.6	100	776
Religion					
Hindu	30.3	19.0	50.7	100	923
Muslim	29.7	19.3	51.1	100	121
Other[3]	29.1	26.8	44.1	100	77
Education					
No formal education	20.7	18.6	60.8	100	256
Less than primary	23.5	12.4	64.2	100	143
Primary school	23.5	23.2	53.3	100	243
Secondary school	33.6	17.3	49.2	100	194
High school	37.7	27.5	34.8	100	159
College and above	50.7	14.2	35.2	100	126
Wealth quintile					
Lowest	34.7	14.9	50.4	100	207
Second	24.2	19.5	56.4	100	251
Middle	36.2	18.9	45.0	100	270
Fourth	29.8	27.0	43.1	100	204
Highest	26.0	15.9	58.1	100	189
Total	**30.2**	**19.5**	**50.4**	**100**	**1121**

[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.

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 7.1.8 (b) Percent distribution of metabolic risk levels (using waist-hip ratio) for older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Aged 50+				
	Low risk	Moderate risk	High risk	Total	Number
Age group					
50-59	24.1	20.0	55.9	100	2247
60-69	28.2	19.1	52.7	100	2421
70-79	27.6	23.3	49.2	100	1208
80+	24.1	20.4	55.5	100	425
Sex					
Male	51.2	29.1	19.7	100	2865
Female	5.3	13.0	81.7	100	3436
Marital status					
Never married	66.5	16.5	17.0	100	62
Currently married	29.9	22.4	47.8	100	4640
Widowed	14.7	14.8	70.5	100	1559
Other[1]	20.6	18.4	61.0	100	40
Residence					
Urban	21.2	24.9	53.9	100	1132
Rural	28.6	18.4	53.0	100	5169
Caste					
Scheduled Tribe	28.5	20.4	51.1	100	453
Scheduled Caste	29.0	18.8	52.2	100	1047
Other[2]	25.7	20.7	53.7	100	4801
Religion					
Hindu	27.1	20.6	52.3	100	5217
Muslim	18.8	19.0	62.2	100	709
Other[3]	33.9	18.2	47.9	100	375
Education					
No formal education	17.5	16.5	66.0	100	2798
Less than primary	29.6	19.3	51.1	100	1030
Primary school	30.5	21.2	48.3	100	1147
Secondary school	33.4	27.3	39.3	100	564
High school	40.6	28.6	30.8	100	409
College and above	37.7	25.2	37.1	100	353
Wealth quintile					
Lowest	30.1	15.6	54.3	100	1191
Second	28.3	18.7	53.0	100	1209
Middle	23.1	24.1	52.9	100	1235
Fourth	28.3	17.8	53.9	100	1305
Highest	23.1	24.2	52.7	100	1361
Total	**26.4**	**20.3**	**53.3**	**100**	**6301**

[1] Includes divorced, separated or cohabiting.

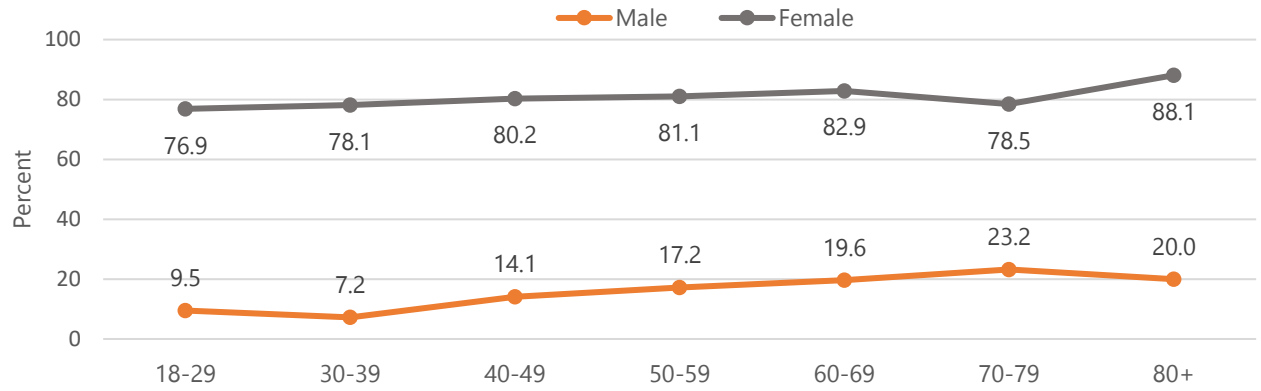
[2] Includes non-Scheduled Caste or tribe and no caste or tribe.

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

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*

Figure 7.8 Prevalence of high-risk waist-hip ratio by sex and age group, India (pooled), SAGE Wave 3, 2019-20



7.2 Grip strength

Healthy ageing implies maintaining good functioning as a person grows older. Muscle strength significantly impacts functional ability and the physiological processes of body organs. Grip strength, specifically, measures muscular strength or the maximum force/tension generated by one's forearm muscles. It serves as a screening tool to assess upper body and overall strength, and grip strength testing has been a standard method for decades to evaluate functional grasp strength. This test is initially used and in periodic retests to track improvements in grasp strength. Grip strength is measured in both hands, with the mean of the best result in each hand considered as the final result in kilograms.

Table 7.2.1 displays the mean grip strength values by state and for India (pooled). Among older respondents, the mean grip strength was 17 kg (left hand) and 19 kg (right hand). For younger adults, the mean grip strength was 22 kg (left hand) and 25 kg (right hand). The lowest mean grip strength was observed in Assam for both younger and older respondents.

Trends: *Between 2007 and 2020, the mean grip strength of the left and right hand declined among younger and older respondents, irrespective of sex. Conversely, the meantime taken for a 4m rapid and normal walk has marginally increased from 2007 to 2015 and has remained consistent from 2015 to 2020.*

Table 7.2.1 Mean grip strength (kg) for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Left hand	Number	Right hand	Number	Left hand	Number	Right hand	Number
Assam	18.5	173	21.8	173	15.4	738	18.5	742
Karnataka	22.8	131	26.0	131	17.2	815	18.8	818
Maharashtra	18.7	209	21.7	209	15.1	1004	17.6	1009
Rajasthan	24.4	169	26.9	170	18.1	1223	20.0	1220
Uttar Pradesh	20.3	169	23.1	169	15.3	1236	17.8	1235
West Bengal	26.0	276	28.5	275	20.1	1312	22.5	1306
India (pooled)	**21.8**	**1127**	**24.6**	**1127**	**16.6**	**6328**	**18.9**	**6330**

Table 7.2.2 (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 steep decline among respondents aged 70+. Mean grip strength was higher for female respondents from rural areas compared to 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 7.2.2 (a) Mean grip strength (kg) among younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49			
	Male		Female	
	Left hand	Right hand	Left hand	Right hand
Age group				
18-29	30.7	33.6	18.4	20.8
30-39	27.2	31.2	18.5	21.2
40-49	25.2	28.4	16.8	19.2
Marital status				
Never married	30.5	33.3	19.1	21.4
Currently married	26.7	30.1	17.4	19.9
Widowed	35.4	39.7	17.1	19.5
Other[1]	31.0	36.0	17.6	21.1
Residence				
Urban	26.2	30.1	17.8	20.0
Rural	28.2	31.2	17.5	20.1
Caste				
Scheduled Tribe	31.4	33.9	18.3	21.0
Scheduled Caste	27.7	30.5	18.3	20.7
Other[2]	27.0	30.6	17.3	19.8
Religion				
Hindu	27.6	30.9	17.3	19.8
Muslim	28.0	31.6	19.7	21.6
Other[3]	25.1	27.9	17.9	21.7
Education				
No formal education	26.5	28.9	16.9	19.4
Less than primary	28.2	31.8	17.9	20.4
Primary school	26.9	29.5	17.9	20.0
Secondary school	28.3	31.6	17.6	20.1
High school	26.5	29.9	17.3	20.5
College and above	29.4	33.9	19.2	21.7
Wealth quintile				
Lowest	26.8	29.3	17.4	19.9
Second	26.5	28.9	16.8	19.5
Middle	27.4	30.5	18.9	20.7
Fourth	28.3	32.8	17.4	20.4
Highest	28.3	31.9	17.5	20.0
Total	**27.5**	**30.8**	**17.6**	**20.1**

[1] Includes divorced, separated or cohabiting.

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

Table 7.2.2 (b) Mean grip strength (kg) among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+			
	Male		Female	
	Left hand	Right hand	Left hand	Right hand
Age group				
50-59	23.2	26.0	14.8	17.1
60-69	21.0	23.6	13.3	15.5
70-79	17.7	20.1	10.7	12.4
80+	14.2	16.7	9.5	11.4
Marital status				
Never married	21.4	24.1	14.8	17.8
Currently married	20.7	23.3	14.0	16.2
Widowed	18.1	21.1	11.9	13.9
Other[1]	15.1	20.1	15.2	17.8
Residence				
Urban	20.1	23.0	12.9	14.7
Rural	20.5	23.1	13.4	15.6
Caste				
Scheduled Tribe	22.1	24.6	14.6	16.9
Scheduled Caste	19.6	22.3	13.0	15.2
Other[2]	20.5	23.1	13.2	15.3

Background characteristics	Aged 50+			
	Male		Female	
	Left hand	Right hand	Left hand	Right hand
Religion				
Hindu	20.5	23.0	13.3	15.3
Muslim	19.8	22.8	13.2	15.6
Other[3]	20.9	24.2	12.8	14.9
Education				
No formal education	19.1	21.7	12.8	14.8
Less than primary	19.9	22.2	12.8	14.8
Primary school	20.7	23.1	14.1	16.4
Secondary school	21.0	23.8	15.0	17.5
High school	20.9	23.8	13.7	15.7
College and above	21.6	24.9	16.7	18.8
Wealth quintile				
Lowest	18.4	20.9	12.4	14.6
Second	19.8	22.8	12.7	14.7
Middle	19.6	22.1	13.0	15.1
Fourth	21.8	24.1	14.0	16.1
Highest	21.6	24.5	14.0	16.2
Total	**20.4**	**23.1**	**13.3**	**15.4**

[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.

7.3 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), the actual distance walked varies with individual physical ability and fitness, encumbrances, and 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 outcomes such as hospitalization, falls, dependence, and mortality.

Recently, there has been a growing interest in examining the relationship between walking speed and the decline in cognitive functioning, as slow gait often precedes cognitive decline. SAGE measured the time taken (in seconds) for normal and rapid walking to cover a four-meter distance for all respondents.

Table 7.3.1 presents the average time taken to walk four meters. The national average time taken for older adults was 5.4 seconds at a normal walking pace and 3.8 seconds at a rapid pace. For younger adults, the average time was 4.4 seconds at a normal walking pace and 3.0 seconds at a rapid pace. The longest average time taken for both normal and rapid walking paces was observed in West Bengal, while the shortest was in Assam for older adults.

Table 7.3.1 Mean time (seconds) taken for 4m walk at normal and rapid pace among younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Normal walk		Rapid walk		Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number	Mean (seconds)	Number	Mean (seconds)	Number
Assam	4.0	171	2.8	171	5.0	745	3.6	744
Karnataka	4.1	128	3.3	128	5.4	782	4.2	780
Maharashtra	4.2	211	3.0	211	5.1	989	3.8	987
Rajasthan	4.2	164	3.0	163	5.2	1159	3.7	1126
Uttar Pradesh	4.7	166	2.9	165	5.5	1188	3.4	1150
West Bengal	4.6	276	3.1	276	5.8	1305	4.4	1304
India (pooled)	**4.4**	**1116**	**3.0**	**1114**	**5.4**	**6168**	**3.8**	**6091**

Table 7.3.2 (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 6.9 seconds at a normal pace and from 2.7 seconds to 5.0 seconds at a rapid walking pace. For respondents aged 50+, education showed a noticeable negative impact. Gender, marital status, residence and religion, however, did not indicate strong gradients with the timed walk (Figure 7.9).

Figure 7.9 Mean time taken for 4m walk (seconds), by age group, India (pooled), SAGE Wave 3, 2019-20

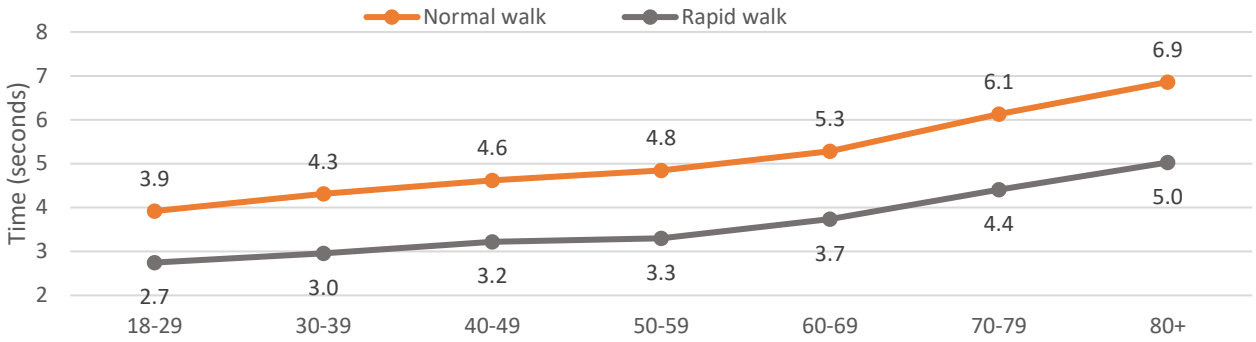


Table 7.3.2 (a) Mean time (seconds) taken for 4m walk at normal and rapid pace among younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49			
	Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number
Age group				
18-29	3.9	257	2.7	257
30-39	4.3	334	3.0	332
40-49	4.6	525	3.2	525
Sex				
Male	4.0	451	2.8	450
Female	4.6	665	3.2	664
Marital status				
Never married	3.9	183	2.8	183
Currently married	4.4	881	3.1	879
Widowed	4.7	46	3.5	46
Other[1]	4.2	6	3.1	6
Residence				
Urban	4.3	215	3.1	214
Rural	4.4	901	3.0	900
Caste				
Scheduled Tribe	4.5	109	3.2	109
Scheduled Caste	4.4	235	3.0	235
Other[2]	4.4	772	3.0	770
Religion				
Hindu	4.4	918	3.0	916
Muslim	4.5	121	3.2	121
Other[3]	4.2	77	2.9	77
Education				
No formal education	4.7	235	3.3	235
Less than primary	4.6	142	3.1	142
Primary school	4.4	241	3.1	241
Secondary school	4.2	195	2.9	194
High school	4.3	158	3.0	157
College and above	3.9	127	2.8	127
Wealth quintile				
Lowest	4.6	206	3.1	206
Second	4.3	250	3.0	250
Middle	4.5	269	3.1	268
Fourth	4.3	203	3.0	202
Highest	4.3	188	3.0	188
Total	**4.4**	**1116**	**3.0**	**1114**

Table 7.3.2 (b) Mean time (seconds) taken for 4m walk at normal and rapid pace among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+			
	Normal walk		Rapid walk	
	Mean (seconds)	Number	Mean (seconds)	Number
Age group				
50-59	4.8	2220	3.3	2211
60-69	5.3	2380	3.7	2357
70-79	6.1	1169	4.4	1146
80+	6.9	399	5.0	377
Sex				
Male	5.1	2807	3.5	2768
Female	5.7	3361	4.0	3323
Marital status				
Never married	5.0	59	3.4	59
Currently married	5.2	4556	3.6	4515
Widowed	6.1	1516	4.3	1480
Other[1]	5.7	37	4.2	37
Residence				
Urban	5.3	1096	3.9	1084
Rural	5.4	5072	3.7	5007
Caste				
Scheduled Tribe	5.2	444	3.8	438
Scheduled Caste	5.4	1026	3.8	1019
Other[2]	5.4	4698	3.8	4634
Religion				
Hindu	5.3	5107	3.8	5038
Muslim	5.8	696	3.9	689
Other[3]	5.6	365	3.9	364
Education				
No formal education	5.6	2731	4.0	2686
Less than primary	5.5	1012	3.9	1009
Primary school	5.1	1124	3.6	1115
Secondary school	5.3	551	3.5	544
High school	5.0	404	3.4	396
College and above	5.0	346	3.5	341
Wealth quintile				
Lowest	5.5	1162	3.8	1152
Second	5.2	1185	3.7	1171
Middle	5.5	1211	3.9	1201
Fourth	5.3	1277	3.8	1259
Highest	5.4	1333	3.7	1308
Total	**5.4**	**6168**	**3.8**	**6091**

[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 Measured blood pressure

Essential or primary hypertension, the 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. 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 measured in millimetres of mercury (mmHg), representing the pressure of blood in the arteries (blood vessels). Systolic blood pressure (SBP) measures blood pressure while the heart is beating, and diastolic blood pressure (DBP) measures 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. It's a significant 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. Moreover, an elevated pulse rate may be an independent risk factor for cardiovascular disease.

7.4.1 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 the standard critical limits classification recommended by WHO in 2003. The WHO classification system for blood pressure includes:

- Normal: systolic <120 mmHg; diastolic <80 mmHg
- Pre-hypertension: systolic 120-139 mmHg; diastolic 80-89 mmHg
- Hypertension: systolic ≥140 mmHg; diastolic ≥90 mmHg.

Table 7.4.1 demonstrates that 45% of older respondents and 26% of adults aged 18-49 had hypertension based on measurements. Four-fifths (80%) of older adults and slightly more than two-thirds (70%) 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 Maharashtra (54%), followed by West Bengal (49%), and lowest in Rajasthan (30%). Among young adults, the prevalence of hypertension was highest in Maharashtra (34%) and lowest in Rajasthan (17%).

Trends: *From 2007 to 2015, the proportion of respondents aged 18-49 years with measured pre-hypertension increased from 32% to 45%, remaining unchanged from 2015 to 2020. Pre-hypertension among 50+ respondents increased from 33% to 40% during the same period but declined to 36% in 2020 from 2015.*

The mean systolic and diastolic blood pressure and pulse rate have marginally increased among respondents of all ages. The proportion of respondents with diastolic hypertension decreased from 16% and 24% to 13% and 20% among younger and older respondents, respectively, during the same period of 2007 to 2015.

Table 7.4.1 Percent distribution of younger and older adults by measured hypertensive status (systolic and/or diastolic blood pressure), states and India (pooled), SAGE Wave 3, 2019-20

States	Aged 18-49				Aged 50+			
	Normal	Pre-hypertension	Hypertension	Number	Normal	Pre-hypertension	Hypertension	Number
Assam	23.9	44.5	31.6	172	15.4	31.5	53.1	758
Karnataka	24.6	43.4	32.1	130	16.9	38.3	44.8	834
Maharashtra	21.1	45.0	33.9	212	11.6	34.1	54.3	1,023
Rajasthan	39.6	43.6	16.7	165	28.4	41.8	29.9	1,220
Uttar Pradesh	36.8	45.6	17.6	169	23.0	35.7	41.3	1,245
West Bengal	30.7	44.5	24.8	278	17.6	33.8	48.6	1,332
India (pooled)	**29.9**	**44.6**	**25.5**	**1126**	**19.6**	**35.9**	**44.5**	**6412**

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 7.10 Prevalence of hypertension for younger and older respondents, states and India (pooled), SAGE Wave 3, 2019-20

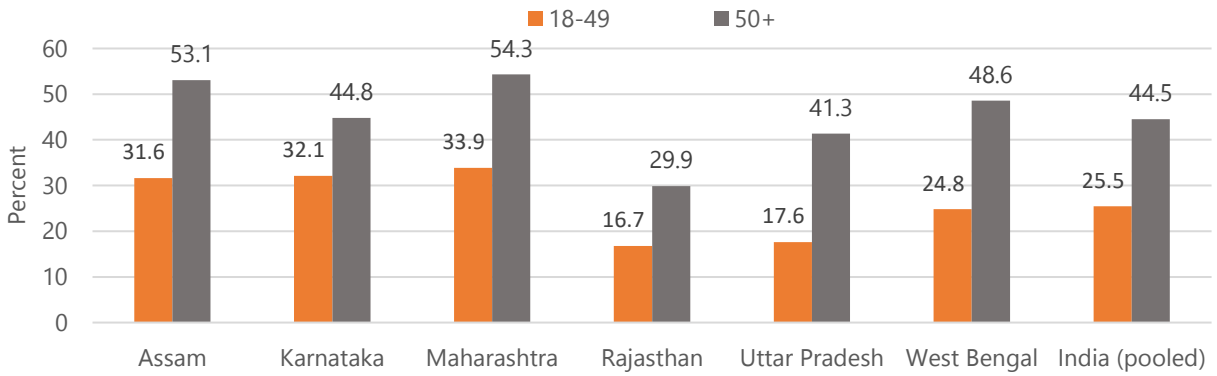


Table 7.4.2 (a & b) presents the overall prevalence of hypertension among older and younger adults categorized by background characteristics. The prevalence of hypertension among both older and younger adults increased with age (Figure 7.11). Among older adults, the prevalence of hypertension was higher in women (47%) compared to men (41%). Additionally, more than two-thirds (73%) 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 to rural areas. Regarding caste, differences in the prevalence of hypertension among older adults were less pronounced.

Figure 7.11 Prevalence of hypertension by age groups, India (pooled), SAGE Wave 3, 2019-20

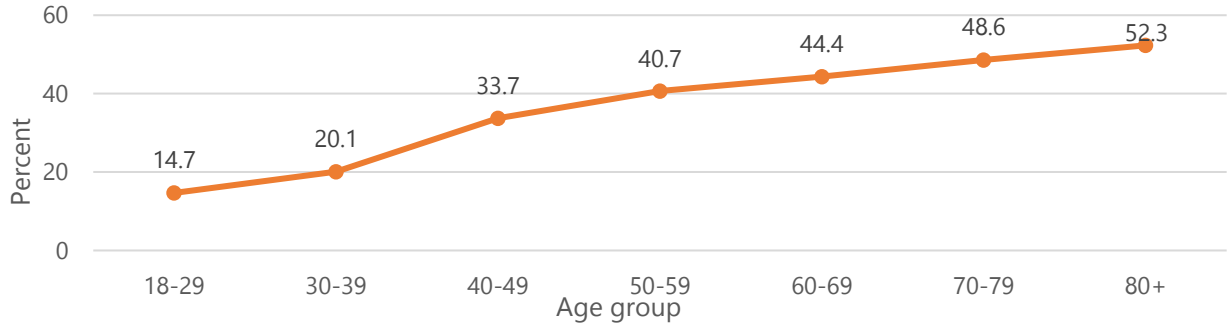


Table 7.4.2 (a) Percent distribution of younger respondents, by hypertensive status and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49			
	Normal	Pre-hypertension	Hypertension	Number
Age group				
18-29	42.9	42.5	14.7	259
30-39	29.2	50.7	20.1	335
40-49	24.9	41.4	33.7	532
Sex				
Male	24.0	51.0	25.0	455
Female	34.1	40.1	25.8	671
Marital status				
Never married	40.6	41.3	18.1	184
Currently married	27.5	45.9	26.6	889
Widowed	32.8	34.5	32.7	47
Other[1]	75.6	24.4	0.0	6
Residence				
Urban	23.6	44.9	31.5	220
Rural	32.8	44.5	22.7	906
Caste				
Scheduled Tribe	26.3	45.2	28.5	110
Scheduled Caste	35.3	43.6	21.1	236
Other[2]	28.6	44.9	26.5	780

Background characteristics	Aged 18-49			
	Normal	Pre-hypertension	Hypertension	Number
Religion				
Hindu	31.0	44.7	24.3	928
Muslim	25.6	44.8	29.6	121
Other[3]	21.0	43.7	35.3	77
Education				
No formal education	33.7	37.4	28.9	257
Less than primary	37.2	41.0	21.8	144
Primary school	30.0	40.4	29.7	243
Secondary school	26.3	49.8	23.9	196
High school	24.2	49.9	25.9	159
College and above	28.5	54.3	17.1	127
Wealth quintile				
Lowest	34.1	46.0	19.9	209
Second	35.0	35.4	29.5	252
Middle	35.9	39.2	25.0	270
Fourth	25.0	50.9	24.1	205
Highest	18.9	53.4	27.7	190
Total	**29.9**	**44.6**	**25.5**	**1126**

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.

Table 7.4.2 (b) Percent distribution of older respondents, by hypertensive status and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+			
	Normal	Pre-hypertension	Hypertension	Number
Age group				
50-59	20.7	38.6	40.7	2259
60-69	21.4	34.3	44.4	2444
70-79	15.0	36.4	48.6	1254
80+	17.5	30.2	52.3	455
Sex				
Male	21.6	37.0	41.4	2920
Female	17.8	35.0	47.2	3492
Marital status				
Never married	42.7	30.1	27.1	66
Currently married	20.7	37.5	41.8	4700
Widowed	15.1	32.0	52.9	1604
Other[1]	27.1	30.7	42.1	42
Residence				
Urban	13.4	34.4	52.2	1147
Rural	22.3	36.6	41.2	5265
Caste				
Scheduled Tribe	16.4	36.0	47.6	459
Scheduled Caste	22.3	32.4	45.3	1062
Other[2]	19.2	36.7	44.2	4891
Religion				
Hindu	19.8	36.1	44.1	5312
Muslim	18.7	35.4	45.9	720
Other[3]	16.9	33.2	49.9	380
Education				
No formal education	21.0	34.7	44.3	2849
Less than primary	15.0	36.5	48.5	1052
Primary school	22.9	35.4	41.7	1165
Secondary school	16.4	35.2	48.4	571
High school	17.0	41.6	41.4	416
College and above	18.8	38.4	42.7	359
Wealth quintile				
Lowest	22.7	36.4	40.9	1212
Second	20.8	32.8	46.4	1229
Middle	19.1	34.1	46.9	1259
Fourth	17.8	37.5	44.7	1328
Highest	18.1	38.3	43.6	1384
Total	**19.6**	**35.9**	**44.5**	**6412**

7.4.2 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 conducted. The European Society of Cardiology and European Society of Hypertension has categorized 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 et al., 2007).

Table 7.4.3 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, 17% of older respondents and 6% of younger respondents were in the critical range (including moderate and severe hypertension). Among older adults, Maharashtra and Karnataka had only 58% and 51%, respectively, requiring urgent medical attention (Figure 7.12). Among young adults, Maharashtra had the highest proportion (50%) needing medical attention. Assam also had the highest proportion (10%) of younger adults with critical hypertension.

Table 7.4.3 Percent distribution of younger and older adults, by the severity of hypertension (HPT), states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49							Aged 50+						
	Optimal	Normal	High normal	HPT mild	HPT moderate	HPT severe	Number	Optimal	Normal	High normal	HPT mild	HPT moderate	HPT severe	Number
Assam	23.9	19.6	24.9	21.4	9.2	1.1	172	15.4	15.6	15.9	31.6	14.9	6.6	758
Karnataka	24.6	20.8	22.5	19.2	12.0	1.0	130	16.9	18.8	19.6	31.7	9.0	4.1	834
Maharashtra	21.1	24.1	20.9	28.8	4.6	0.5	212	11.6	15.3	18.8	39.0	14.4	1.0	1023
Rajasthan	39.6	27.9	15.7	11.9	3.8	1.1	165	28.4	21.2	20.6	21.2	6.9	1.8	1220
Uttar Pradesh	36.8	24.4	21.2	12.8	3.6	1.3	169	23.0	19.1	16.6	22.4	12.1	6.9	1245
West Bengal	30.7	20.5	24.0	19.7	2.8	2.3	278	17.6	13.8	20.0	29.1	15.5	4.0	1332
India (pooled)	**29.9**	**23.2**	**21.5**	**19.1**	**5.1**	**1.2**	**1126**	**19.6**	**17.6**	**18.4**	**28.0**	**12.2**	**4.3**	**6412**

Note: Standard measure of blood pressure for adults (based on European Society of Cardiology and European Society of Hypertension).

Systolic BP (mmHg)

<120	*Optimal*	*}Normal*
120-129	*Normal*	
130-139	*High-normal*	*}Need attention(need medical attention)*
140-159	*HPT-mild*	
160-179	*HPT-moderate*	*}Critical condition(need urgent medical attention)*
≥ 180	*HPT severe*	

Figure 7.12 Percentage of respondents with critical (Grade 2 or Grade 3) hypertension by age group, states and India (pooled), SAGE Wave 3, 2019-20

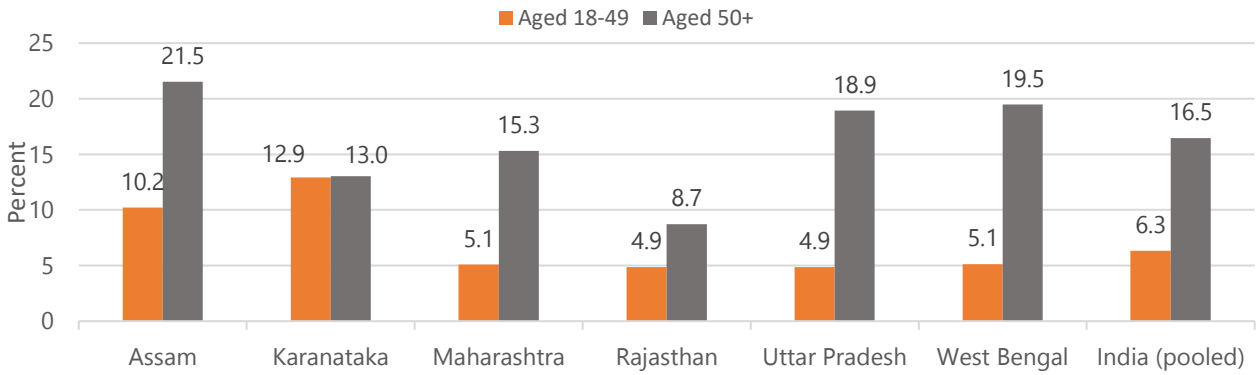
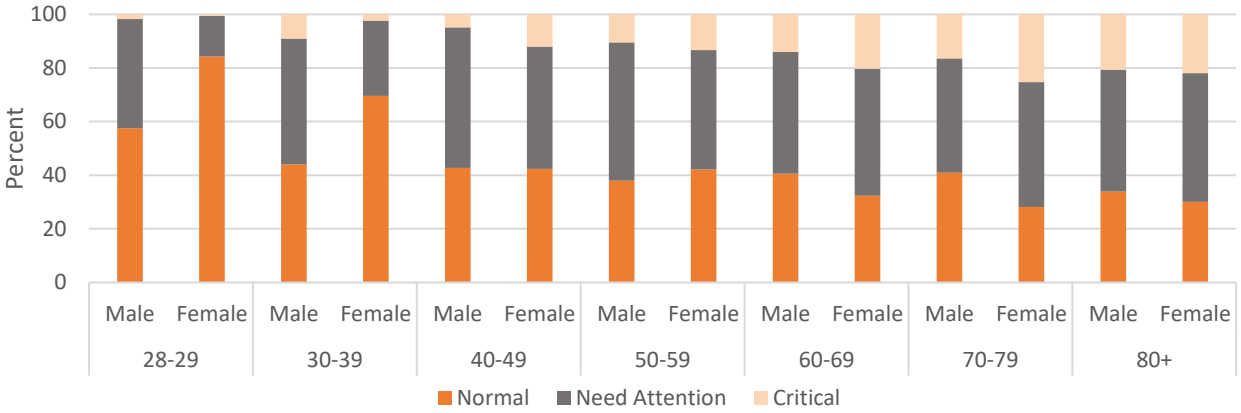


Figure 7.13 presents the percentage distribution of respondents categorized by the need for medical attention and by age. The proportion of respondents with normal blood pressure decreased with age, a trend that was more consistent among females. Similarly, the percentage of respondents needing medical attention for high blood pressure did not change significantly 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 7.13).

Figure 7.13 Percent distribution of respondents by different risk conditions of hypertension according to age and sex, India (pooled), SAGE Wave 3, 2020



7.4.3 Systolic and diastolic blood pressure

For older respondents, the mean SBP and DBP were highest in Assam. Conversely, the mean SBP and DBP were lowest in Rajasthan (Table 7.4.4). The average SBP in younger respondents was 125 mmHg, while the DBP was 82 mmHg. Among older respondents, the mean pulse rate was highest (83) in Uttar Pradesh and lowest in Maharashtra (78). Overall, for older respondents, the mean SBP was 136 mmHg, and the mean DBP was 83 mmHg. For younger respondents, the mean pulse rate was highest (85) in Uttar Pradesh and lowest in Maharashtra (76).

Table 7.4.4 Mean blood pressure and pulse rate for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49						Aged 50+					
	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	127.9	172	85.0	172	81.4	172	139.1	758	85.2	758	80.2	758
Karnataka	126.1	130	84.8	130	81.8	130	135.2	834	83.8	834	79.2	834
Maharashtra	127.8	212	78.8	212	76.2	212	137.7	1023	82.2	1023	78.2	1023
Rajasthan	120.2	165	81.0	165	83.1	165	128.6	1220	81.0	1220	80.5	1220
Uttar Pradesh	121.0	169	81.3	169	84.7	169	135.5	1245	82.4	1245	82.9	1245
West Bengal	125.6	278	83.3	278	83.2	278	138.4	1332	82.7	1332	80.9	1332
India (pooled)	**124.5**	**1126**	**81.8**	**1126**	**81.7**	**1126**	**135.7**	**6412**	**82.5**	**6412**	**80.8**	**6412**

Table 7.4.5 (a & b) displays the mean SBP and DBP by background characteristics of respondents. Mean SBP increased with age, from 121 mmHg for respondents aged 18-29 to 142 mmHg at age 80 and above similar increase was seen in DBP. The gender differential in SBP and DBP at age 50+ was higher among women than men, while it was less pronounced for adults aged 18-49. Respondents from urban areas had higher mean blood pressure compared to their rural counterparts among both younger and older respondents. Mean SBP increased with the wealth quintile for respondents aged 18-49. However, mean DBP showed much less variation by wealth quintile.

Table 7.4.5 (a) Mean systolic and diastolic blood pressure and pulse rate among younger respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49					
	Systolic blood pressure		Diastolic blood pressure		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number
Age group						
18-29	120.6	259	78.1	259	80.5	259
30-39	121.7	335	79.6	335	80.7	335
40-49	128.0	532	84.8	532	82.8	532
Sex						
Male	126.1	455	81.9	455	79.8	455
Female	123.3	671	81.7	671	83.0	671
Marital status						
Never married	122.5	184	79.9	184	81.4	184
Currently married	124.6	889	82.0	889	81.6	889
Widowed	131.2	47	86.2	47	84.1	47
Other[1]	105.0	6	72.2	6	83.9	6
Residence						
Urban	126.4	220	81.4	220	79.9	220
Rural	123.6	906	82.0	906	82.5	906
Caste						
Scheduled Tribe	129.5	110	86.2	110	80.3	110
Scheduled Caste	122.2	236	81.3	236	82.9	236
Other[2]	124.7	780	81.5	780	81.4	780
Religion						
Hindu	124.3	928	81.6	928	81.6	928
Muslim	125.8	121	82.1	121	81.7	121
Other[3]	125.6	77	84.8	77	82.9	77
Education						
No formal education	124.8	257	83.4	257	84.0	257
Less than primary	121.0	144	80.9	144	83.9	144
Primary school	125.8	243	83.2	243	80.3	243
Secondary school	124.2	196	81.2	196	80.7	196
High school	126.3	159	80.7	159	81.3	159
College and above	123.3	127	79.8	127	79.4	127
Wealth quintile						
Lowest	120.5	209	81.4	209	82.7	209
Second	124.0	252	82.5	252	81.1	252
Middle	124.9	270	81.3	270	84.2	270
Fourth	125.8	205	82.6	205	80.1	205
Highest	126.4	190	81.1	190	80.0	190
Total	**124.5**	**1126**	**81.8**	**1126**	**81.7**	**1126**

[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 7.4.5 (b) Mean systolic and diastolic blood pressure and pulse rate among older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+					
	Systolic blood pressure		Diastolic blood pressure		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number
Age group						
50-59	132.2	2259	83.6	2259	81.7	2259
60-69	135.7	2444	82.4	2444	80.7	2444
70-79	139.2	1254	81.9	1254	80.0	1254
80+	142.1	455	79.5	455	79.6	455
Sex						
Male	133.6	2920	82.1	2920	79.2	2920
Female	137.4	3492	82.9	3492	82.2	3492
Marital status						
Never married	126.6	66	78.2	66	79.4	66
Currently married	133.9	4700	82.4	4700	80.5	4700
Widowed	141.0	1604	83.0	1604	81.9	1604

Background characteristics	Aged 50+					
	Systolic blood pressure		Diastolic blood pressure		Pulse rate	
	Mean	Number	Mean	Number	Mean	Number
Other[1]	135.4	42	81.4	42	80.3	42
Residence						
Urban	139.1	1147	83.1	1147	81.0	1147
Rural	134.2	5265	82.3	5265	80.7	5265
Caste						
Scheduled Tribe	137.4	459	84.6	459	79.3	459
Scheduled Caste	135.7	1062	83.6	1062	80.9	1062
Other[2]	135.5	4891	82.2	4891	80.9	4891
Religion						
Hindu	135.1	5312	82.3	5312	80.8	5312
Muslim	138.8	720	83.0	720	81.8	720
Other[3]	138.1	380	85.4	380	79.1	380
Education						
No formal education	136.1	2849	82.6	2849	81.6	2849
Less than primary	137.3	1052	83.3	1052	81.1	1052
Primary school	133.5	1165	82.5	1165	81.1	1165
Secondary school	137.4	571	82.6	571	79.4	571
High school	133.8	416	81.6	416	79.5	416
College and above	134.5	359	81.2	359	78.3	359
Wealth quintile						
Lowest	135.5	1212	82.3	1212	80.4	1212
Second	135.9	1229	82.7	1229	81.7	1229
Middle	135.2	1259	83.8	1259	81.7	1259
Fourth	135.5	1328	82.2	1328	80.6	1328
Highest	136.1	1384	81.7	1384	80.0	1384
Total	**135.7**	**6412**	**82.5**	**6412**	**80.8**	**6412**

[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.

7.4.4. Prevalence of isolated systolic or diastolic hypertension

Table 7.4.6 and Figure 7.14 compare the prevalence of systolic and diastolic hypertension between older and younger adults by state. For people aged 50 and above, the prevalence of systolic hypertension (pre-hypertension and hypertension) was highest in Maharashtra (85%), whereas diastolic hypertension (pre-hypertension and hypertension) was highest in Assam (72%). Among young adults, Karnataka had the highest prevalence of systolic hypertension (67%), and diastolic hypertension was highest in Assam (71%).

Table 7.4.6 Percentage of younger and older adults with systolic and diastolic pre-hypertension and hypertension, states and India (pooled), SAGE Wave 3, 2019-20

States	Aged 18-49					Aged 50+				
	PH systolic	H systolic	PH diastolic	H diastolic	Number	PH systolic	H systolic	PH diastolic	H diastolic	Number
Assam	39.1	25.8	46.7	23.8	172	32.9	46.8	38.9	31.2	758
Karnataka	50.6	16.7	36.5	31.1	130	38.4	39.4	40.9	25.4	834
Maharashtra	40.0	27.2	34.3	13.7	212	37.4	47.8	32.9	27.2	1023
Rajasthan	40.9	8.5	30.4	16.7	165	40.4	24.6	34.4	19.1	1220
Uttar Pradesh	37.0	11.9	45.6	14.5	169	36.9	36.6	31.1	25.4	1245
West Bengal	47.3	15.5	38.7	21.5	278	33.3	45.6	36.2	24.9	1332
India (pooled)	**42.0**	**17.3**	**38.8**	**18.7**	**1126**	**36.8**	**39.5**	**34.1**	**25.1**	**6412**

PH= pre-hypertension; H= hypertension

Figure 7.14 Percentage of older and younger respondents with systolic and diastolic hypertension, states and India (pooled), SAGE Wave 3, 2019-20

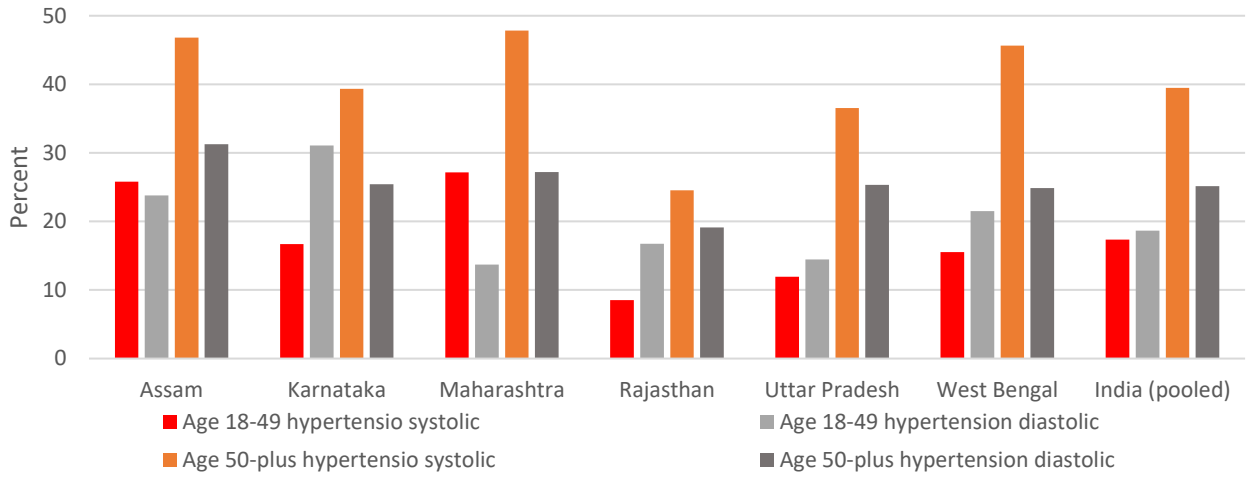


Table 7.4.7 (a & b) compares the prevalence of both systolic and diastolic pre-hypertension and hypertension in older and younger adults by background characteristics. Overall, the prevalence of both systolic hypertension increased with age (Figure 7.15). By sex, the prevalence of hypertension was slightly higher in men than in women among older adults and similar 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 to other castes. Between older and younger adults, education and wealth showed varying effects on the prevalence of hypertension.

Table 7.4.7 (a) Percentage of younger respondents with systolic and diastolic pre-hypertension and hypertension, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Aged 18-49				
	PH systolic	H systolic	PH diastolic	H diastolic	Number
Age group					
18-29	37.6	12.4	36.3	4.1	259
30-39	44.0	13.3	42.7	12.4	335
40-49	42.5	22.2	37.1	29.1	532
Sex					
Male	50.2	18.1	44.9	15.3	455
Female	36.2	16.8	34.3	21.1	671
Marital status					
Never married	35.7	15.2	37.0	10.1	184
Currently married	44.1	17.2	39.6	20.0	889
Widowed	25.4	28.8	33.1	25.2	47
Other[1]	21.9	0.0	2.5	0.0	6
Residence					
Urban	47.1	20.5	38.4	20.7	220
Rural	39.6	15.9	38.9	17.7	906
Caste					
Scheduled Tribe	36.9	23.8	40.7	23.7	110
Scheduled Caste	40.5	15.3	43.8	14.1	236
Other[2]	43.0	17.3	37.0	19.5	780
Religion					
Hindu	41.6	16.7	39.1	17.1	928
Muslim	46.6	18.1	33.6	26.4	121
Other[3]	38.0	25.9	44.5	27.2	77

Background Characteristics	Aged 18-49				
	PH systolic	H systolic	PH diastolic	H diastolic	Number
Education					
No formal education	36.0	18.9	35.2	25.6	257
Less than primary	33.7	13.9	34.6	17.1	144
Primary school	40.5	21.0	39.4	20.7	243
Secondary school	46.3	15.7	38.5	16.8	196
High school	45.8	19.6	41.8	17.1	159
College and above	52.1	10.8	44.5	8.7	127
Wealth quintile					
Lowest	36.0	10.6	43.6	16.5	209
Second	37.4	19.0	30.2	25.8	252
Middle	37.7	20.2	36.5	14.8	270
Fourth	49.0	18.6	48.2	17.2	205
Highest	49.7	16.1	37.0	19.0	190
Total	**42.0**	**17.3**	**38.8**	**18.7**	**1126**

[1] Includes divorced, separated or cohabiting.

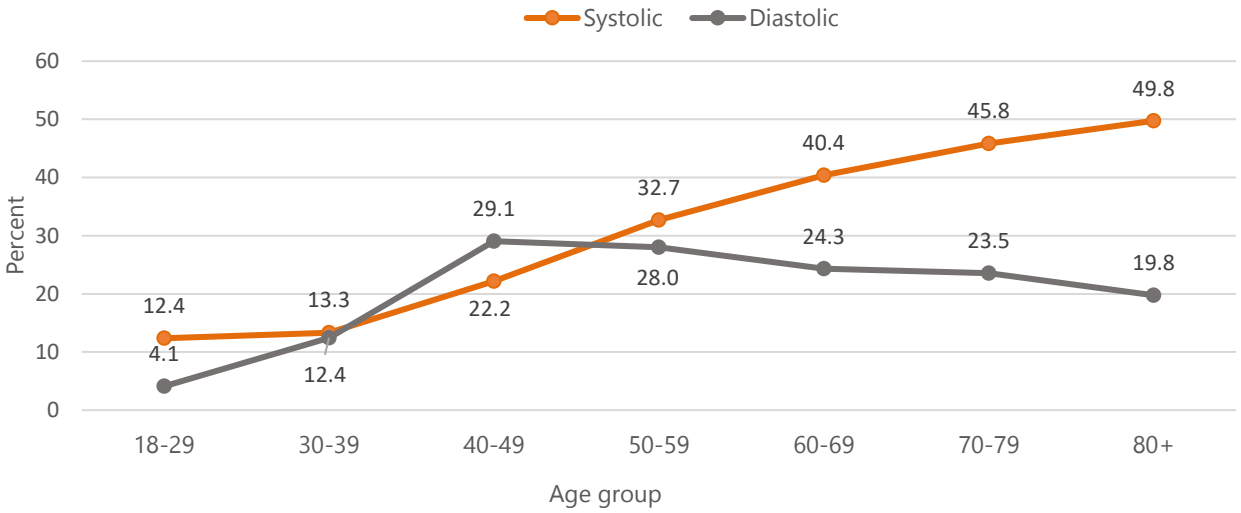
[2] Includes non-Scheduled Caste or tribe and no caste or tribe.

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

Table 7.4.7 (b) Percentage of older respondents with systolic and diastolic pre-hypertension and hypertension, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background Characteristics	Aged 50+				
	PH systolic	H systolic	PH diastolic	H diastolic	Number
Age group					
50-59	39.8	32.7	38.2	28.0	2259
60-69	34.6	40.4	33.6	24.3	2444
70-79	37.4	45.8	30.1	23.5	1254
80+	32.5	49.8	28.5	19.8	455
Sex					
Male	37.9	36.2	33.8	23.6	2920
Female	35.9	42.2	34.4	26.5	3492
Marital status					
Never married	25.2	26.4	33.1	13.9	66
Currently married	38.4	36.1	35.3	24.4	4700
Widowed	33.1	49.4	30.9	27.9	1604
Other[1]	30.6	40.8	30.5	18.9	42
Residence					
Urban	35.3	48.4	37.6	26.5	1147
Rural	37.5	35.6	32.6	24.5	5265
Caste					
Scheduled Tribe	35.4	41.4	34.5	30.6	459
Scheduled Caste	34.0	38.8	33.9	27.6	1062
Other[2]	37.5	39.5	34.2	24.3	4891
Religion					
Hindu	37.0	38.9	34.6	24.3	5312
Muslim	36.2	42.2	30.7	28.0	720
Other[3]	34.3	45.0	33.9	34.5	380
Education					
No formal education	35.7	39.2	32.5	25.3	2849
Less than primary	38.6	43.0	32.8	28.1	1052
Primary school	35.1	37.4	34.5	25.9	1165
Secondary school	37.7	42.0	34.7	26.2	571
High school	42.3	36.0	38.9	21.9	416
College and above	37.3	39.8	40.3	18.0	359
Wealth quintile					
Lowest	36.9	36.6	31.1	24.6	1212
Second	33.2	40.8	33.1	26.4	1229
Middle	36.2	40.6	34.3	29.0	1259
Fourth	37.9	39.7	35.3	23.6	1328
Highest	39.3	39.5	36.2	22.6	1384
Total	**36.8**	**39.5**	**34.1**	**25.1**	**6412**

Figure 7.15 Prevalence of systolic and diastolic hypertension by age group, India (pooled), SAGE Wave 3, 2019-20



7.5 Cognition: Verbal Fluency (VF), Verbal Recall (VR), Forward Digit Span (FDS) and Backward Digit Span (BDS)

To assess cognitive ability, SAGE included tests of verbal fluency, and verbal recall, as well as forward and backward digit tests. A composite score was created using these individual tests. The mean cognitive test scores are presented by state in Table 7.5.1. Older respondents scored lower than their younger counterparts on every test and in every state. The overall cognition score for older respondents was 51, nearly 10 points lower than that of younger respondents. Younger adults scored 12.6, 6.4, 4.6, and 4.1 for tests of verbal fluency, verbal recall, and forward, and backward digit tests, respectively, with an overall cognition score of 61. There was minimal variation between states, but respondents in Rajasthan generally scored lowest, whereas those in Assam scored highest among older adults.

Trends: *The overall mean cognition score increased from 58 to 61 among younger respondents and from 50 to 54 among older respondents in the period 2007-2015. There was no change among younger respondents during 2015-2020, and there was a slight decline to 51 percent in 2020 among older adults. Mean scores for verbal fluency, verbal recall, and backward digital span increased, except for the forward digit span, during 2007-2015. However, these scores declined among older adults from 2015 to 2020, except for the backward digit span. Verbal fluency slightly declined during the same period among younger adults.*

Table 7.5.1 Mean score for verbal fluency (VF), verbal recall (VR) and digit span (FDS and BDS) tests, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49						Aged 50+					
	Mean cognition scores				Overall score	Number	Mean cognition score				Overall score	Number
	VF	VR	FDS	BDS			VF	VR	FDS	BDS		
Assam	15.2	6.6	5.2	4.7	64.9	173	12.3	5.9	4.5	4.0	56.9	759
Karnataka	12.0	6.7	4.0	3.5	61.4	132	10.9	5.8	3.7	3.2	54.5	843
Maharashtra	14.4	6.9	4.4	4.5	64.9	212	12.0	5.7	3.9	4.1	55.0	1049
Rajasthan	11.6	5.8	4.6	3.7	56.5	171	10.5	4.8	4.0	2.9	47.5	1260
Uttar Pradesh	11.2	5.8	4.5	4.2	56.2	173	9.2	5.0	3.9	3.5	48.3	1303
West Bengal	12.2	6.6	4.9	3.9	62.5	278	10.9	5.5	4.4	3.2	53.3	1331
India (pooled)	**12.6**	**6.4**	**4.6**	**4.1**	**60.7**	**1139**	**10.5**	**5.3**	**4.0**	**3.5**	**51.4**	**6545**

Cognition scores are presented by selected background characteristics in Table 7.5.2 (a & b). Scores for all four tests decreased progressively with age. The overall cognition score was 67 in the 18-29 age group, dropping to 43 in those aged 80+. Women scored lower than men on all tests. The overall cognition score at ages 18-49 for women was 5 points lower than for men in the same age group, and 5 points lower at age 50+. Cognition in women also declined much more with age: women aged 50+ scored 10 points lower than those aged 18-49, compared with a 10-point difference 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 older persons being widowed. Respondents in urban areas scored higher on all four tests than their rural counterparts. Across all respondents, those aged 50+ scored 10 points lower than their younger counterparts on overall cognition. Respondents from Scheduled Tribes scored the lowest, followed by those from Scheduled Castes.

All four cognition tests showed a positive relationship between education and wealth: regardless of age, sex, residence, religion, or caste, college-educated individuals secured the highest scores. For those aged 50+, the overall cognition score increased from 46 for those with no formal education to 62 for college-educated persons. Similarly, the overall score increased from 48 in the lowest wealth quintile to 55 in the highest. However, cognitive ability deteriorates with age regardless of education or economic status.

Table 7.5.2 (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 3, 2019-20

Background characteristics	Aged 18-49					
	Mean cognition scores				Overall score	Number
	VF	VR	FDS	BDS		
Age group						
18-29	13.7	7.0	5.1	4.7	67.1	262
30-39	12.7	6.6	4.4	4.2	62.2	340
40-49	12.0	5.9	4.4	3.8	57.1	537
Sex						
Male	13.5	6.6	4.8	4.5	63.7	458
Female	11.9	6.2	4.4	3.8	58.7	681
Marital status						
Never married	14.1	7.1	5.1	4.7	68.3	186
Currently married	12.4	6.3	4.5	4.0	59.8	899
Widowed	10.8	5.5	3.9	3.3	51.8	48
Other[1]	10.7	6.9	4.3	3.9	63.3	6
Residence						
Urban	13.6	6.7	4.6	4.2	63.9	220
Rural	12.1	6.2	4.6	4.0	59.3	919
Caste						
Scheduled Tribe	10.9	5.6	4.5	3.7	54.6	113
Scheduled Caste	12.5	6.3	4.5	4.1	60.2	237
Other[2]	12.8	6.5	4.6	4.1	61.5	789
Religion						
Hindu	12.7	6.3	4.5	4.1	60.2	938
Muslim	11.8	6.6	4.7	4.1	62.1	123
Other[3]	12.6	7.1	5.0	4.4	66.8	78
Education						
No formal education	10.5	5.4	4.0	3.2	51.7	260
Less than primary	11.4	5.8	4.1	3.5	55.4	145
Primary school	12.8	6.5	4.6	4.4	62.0	247
Secondary school	13.3	6.7	4.9	4.5	64.3	197
High school	13.7	6.8	4.9	4.6	65.5	161

Background characteristics	Aged 18-49					
	Mean cognition scores				Overall score	Number
	VF	VR	FDS	BDS		
College and above	14.5	7.2	5.1	4.6	68.6	129
Wealth quintile						
Lowest	11.9	5.8	4.4	3.7	56.2	210
Second	11.9	6.2	4.3	3.8	58.9	256
Middle	13.0	6.3	4.6	4.1	60.7	270
Fourth	12.5	6.6	4.8	4.3	62.6	211
Highest	13.5	6.8	4.6	4.5	64.5	192
Total	**12.6**	**6.4**	**4.6**	**4.1**	**60.7**	**1139**

[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 7.5.2 (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 3, 2019-20

Background characteristics	Aged 50+					
	Mean cognition scores				Overall score	Number
	VF	VR	FDS	BDS		
Age group						
50-59	11.0	5.7	4.2	3.8	54.4	2301
60-69	10.6	5.4	4.0	3.5	52.1	2504
70-79	10.0	4.9	3.8	3.3	47.7	1276
80+	8.8	4.4	3.4	2.8	42.5	464
Sex						
Male	11.2	5.5	4.2	3.8	53.7	2992
Female	9.9	5.2	3.8	3.2	49.3	3553
Marital status						
Never married	11.8	5.2	4.4	3.9	51.7	66
Currently married	10.9	5.5	4.1	3.6	53.1	4805
Widowed	9.4	4.8	3.7	3.1	46.6	1632
Other[1]	9.0	4.7	3.3	2.6	44.6	42
Residence						
Urban	11.1	5.6	4.1	3.7	54.1	1167
Rural	10.2	5.2	4.0	3.4	50.1	5378
Caste						
Scheduled Tribe	10.9	5.0	4.0	3.3	49.1	464
Scheduled Caste	10.0	5.1	3.9	3.2	48.9	1077
Other[2]	10.6	5.4	4.0	3.6	52.0	5004
Religion						
Hindu	10.5	5.3	4.0	3.5	51.3	5425
Muslim	10.1	5.3	3.9	3.3	50.8	737
Other[3]	11.2	5.8	4.4	3.8	55.5	383
Education						
No formal education	9.4	4.8	3.6	2.9	46.2	2905
Less than primary	10.5	5.3	4.1	3.6	51.3	1068
Primary school	11.0	5.6	4.2	3.7	53.9	1193
Secondary school	11.6	5.8	4.3	4.1	56.1	577
High school	12.0	6.1	4.5	4.1	58.7	431
College and above	13.1	6.4	4.7	4.5	61.6	371
Wealth quintile						
Lowest	9.9	4.9	3.8	3.2	47.6	1228
Second	10.0	5.2	3.8	3.3	49.8	1256
Middle	10.3	5.2	3.9	3.5	50.4	1280
Fourth	10.9	5.4	4.0	3.5	52.2	1354
Highest	11.2	5.8	4.3	3.9	55.4	1427
Total	**10.5**	**5.3**	**4.0**	**3.5**	**51.4**	**6545**

[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.

7.6 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.

7.6.1 Self-reported versus measured hypertension

Figure 7.16 compares the prevalence of self-reported hypertension against measured hypertension by the age and sex of respondents in different states. The four possible classifications are:

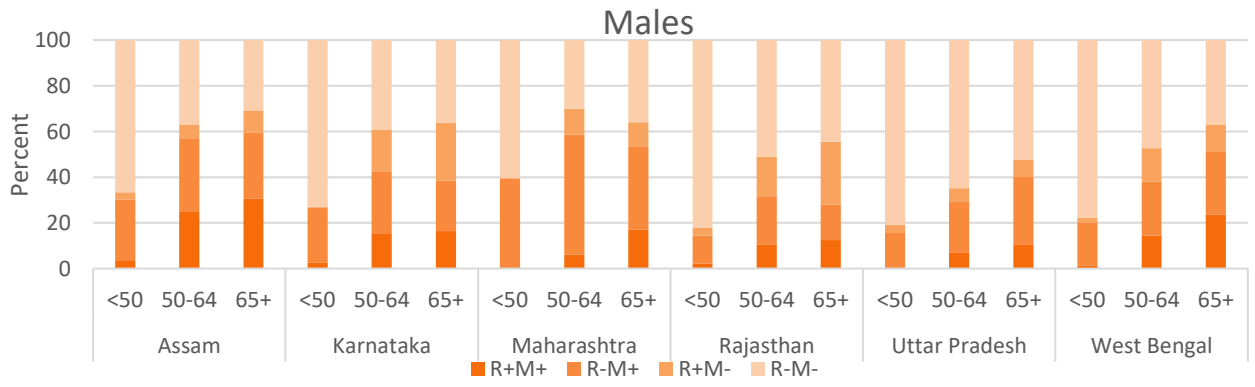
a) Persons who reported a hypertension diagnosis and were hypertensive on measurement (R+M+)
b) Persons who reported no hypertension diagnosis but were hypertensive on measurement (R-M+)
c) Persons who reported hypertension diagnosis but were not hypertensive on measurement (R+M-)
d) Persons who reported no hypertension diagnosis and were not hypertensive on measurement (R- M-)

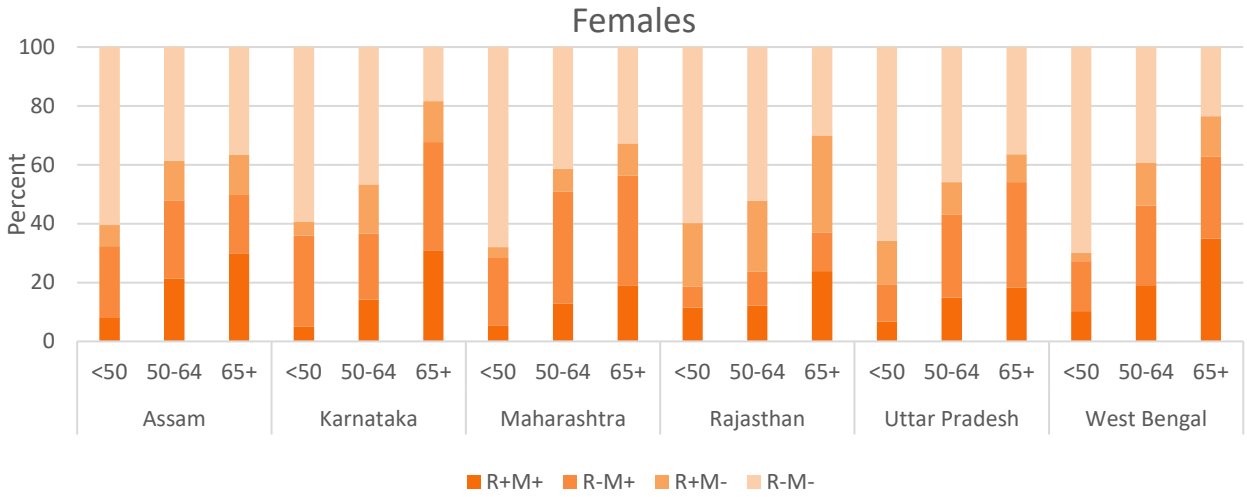
The comparative results offer insights into understanding the prevalence levels and variations in hypertension. Firstly, age demonstrates a strong positive correlation for hypertensive respondents based on measurement, regardless of their reporting, across all states and by sex. Measured hypertension tended to be relatively higher for women than men among the 50+ population in West Bengal and Uttar Pradesh. The highest prevalence of measured hypertension was observed in West Bengal, Assam, and Maharashtra.

Secondly, among adults aged 50+, the prevalence of self-reported negatives but measured positives for hypertension varied from 16-37% between sexes and states. In older adults, the category of reported negatives but measured positives for hypertension represented 90% of the true positives of measured hypertension. The prevalence of both reported and measured positives for hypertension varied in a narrow range of 11-30% among states and between sexes. The total prevalence of true positives ranged from 27-57%, and among these, more than half of the older adults had medically treatable hypertension but remained undiagnosed due to lack of awareness and access to healthcare. In contrast, those who reported a hypertension diagnosis but were normotensive on measurement (R+M-), and also reported being on treatment, suggest a positive outcome for individuals and the health system.

The prevalence of undiagnosed self-reported negatives but measured true positives for hypertension was relatively higher in West Bengal. Respondents in Uttar Pradesh had the highest levels of both reported negatives and measured negatives for hypertension.

Figure 7.16 Self-reported vs. measured prevalence of hypertension by age, sex and state, SAGE Wave 2, 2019-20





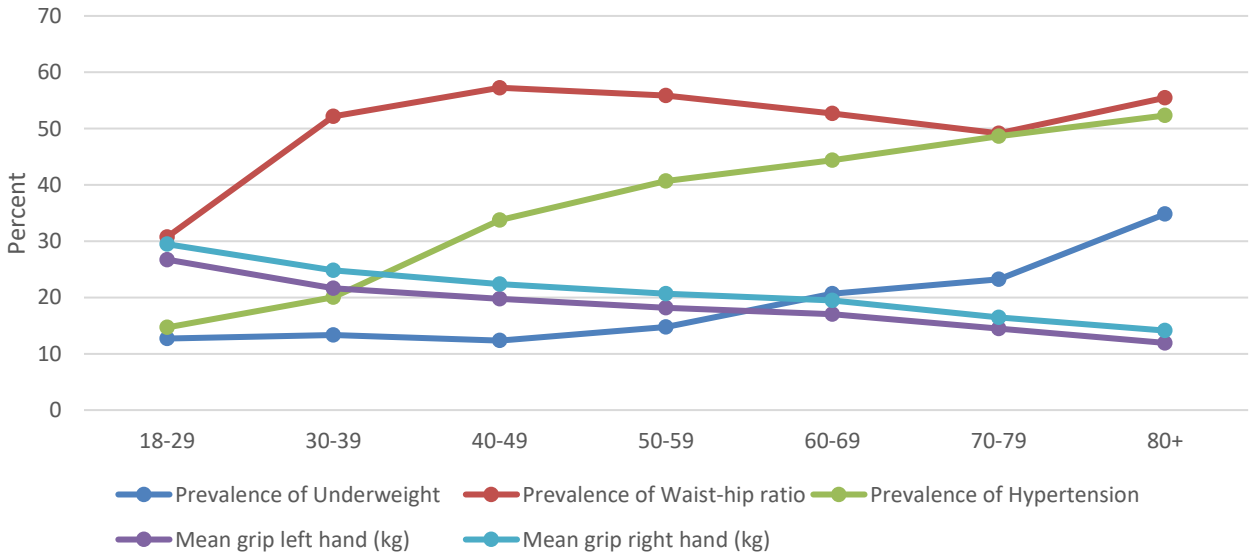
Legend:

- **R+M+:** Persons who reported hypertension diagnosis and hypertension 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

7.7 Comparative trends in biomarkers by age

Figure 7.17 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 observed for each health risk/condition, confirming increasing health risks with advancing age for each biomarker. The prevalence of hypertension and low visual acuity increased rapidly with age, implying an age-related impact on these two high-risk chronic health conditions. This comparison also highlights the close association among the various biomarkers of health.

Figure 7.17 Biomarkers of health by age group, India (pooled), SAGE Wave 3, 2019-20



8. 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 that are accessible to all, equally distributed, and treat 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 health outcomes, as well as increase 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, and institutional and organizational 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.

8.1 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 8.1.1 and Figure 8.1. Among adults aged 50+, the proportion who had needed health care during the previous year ranged from 59% in Assam to 91% in Rajasthan, with 70% for India as a whole. Notably, about 15% of 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, 65% needed health care during the previous year, and approximately one-fifth (21%) of the respondents reported not having needed care.

Trends: *There has been a slight increase in the proportion of respondents needing health care in the previous year with a subsequent decline in the proportion of respondents who needed health care more than a year ago in the period 2015-2020. Among younger respondents, the need for health care in the last year has declined from 79% in SAGE-1 to 61% in SAGE-2 and increased to 65% in SAGE-3. Similarly, among older respondents, this has declined from 81% in SAGE-1 to 62% in SAGE-2 and increased to 70% in SAGE-3.*

Table 8.1.1 Percent distribution of health care needs for younger and older adults, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	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	34.4	34.7	31.0	100	169	59.2	24.5	16.3	100	748
Karnataka	78.2	18.0	3.8	100	132	83.7	11.9	4.4	100	855
Maharashtra	54.5	12.0	33.5	100	218	67.7	13.3	19.0	100	1075
Rajasthan	86.5	7.5	6.0	100	182	91.0	5.6	3.3	100	1338
Uttar Pradesh	57.4	12.6	30.0	100	176	53.5	22.7	23.8	100	1312
West Bengal	75.9	11.5	12.6	100	281	82.9	13.0	4.1	100	1347
India (pooled)	**65.1**	**13.7**	**21.1**	**100**	**1158**	**69.5**	**15.9**	**14.5**	**100**	**6675**

Figure 8.1 Percentage of respondents who reported never needing health care by age group, states and India (pooled), SAGE Wave 3, 2019-20

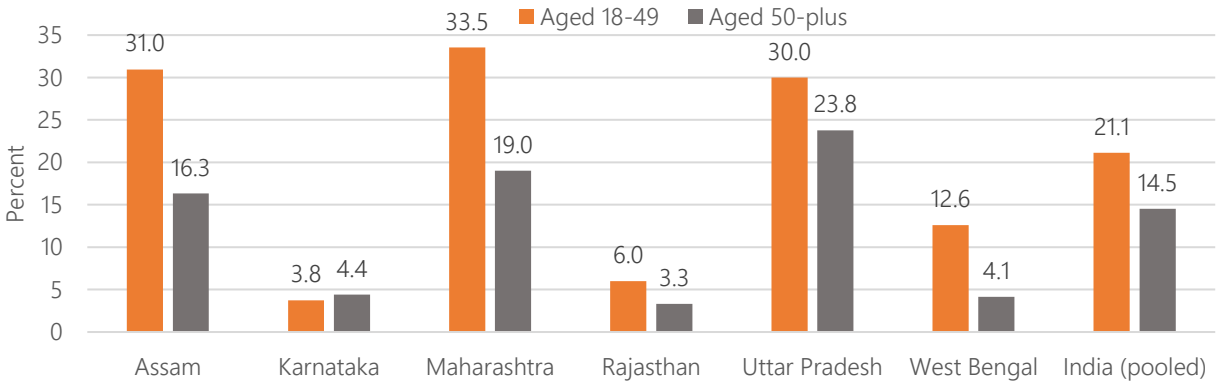


Table 8.1.2 (a & b) presents the results for younger and older adults by selected background characteristics. The need for health care services tended to increase with age among older adults, except in the age group 80+. Men in both older and younger age groups were more likely to have needed health care during the year before the survey than women. Among older respondents, there was little difference between rural and urban areas.

Table 8.1.2 (a) Percent distribution of younger respondents needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	68.5	12.7	18.9	100	263
30-39	55.2	19.7	25.1	100	349
40-49	70.5	10.1	19.4	100	546
Sex					
Male	64.4	13.9	21.7	100	464
Female	65.6	13.7	20.7	100	694
Marital status					
Never married	60.1	15.8	24.2	100	188
Currently married	64.8	14.0	21.2	100	913
Widowed	84.1	3.6	12.3	100	51
Other[1]	97.5	2.5	0.0	100	6
Residence					
Urban	64.6	15.5	19.9	100	232
Rural	65.4	12.9	21.7	100	926
Caste					
Scheduled Tribe	62.7	15.7	21.7	100	112
Scheduled Caste	66.0	15.2	18.9	100	242
Other[2]	65.1	13.1	21.8	100	804
Religion					
Hindu	66.7	11.9	21.5	100	959
Muslim	54.7	24.0	21.3	100	123
Other[3]	62.5	22.7	14.8	100	76
Education					
No formal education	72.4	9.0	18.6	100	265
Less than primary	67.8	11.8	20.4	100	147
Primary school	66.4	16.0	17.7	100	247
Secondary school	54.4	23.3	22.3	100	203
High school	62.8	13.1	24.1	100	164
College and above	66.1	7.0	26.9	100	132
Wealth quintile					
Lowest	59.1	12.5	28.4	100	213
Second	65.8	13.4	20.9	100	254
Middle	72.9	13.9	13.2	100	271
Fourth	71.4	8.9	19.7	100	215
Highest	53.8	19.9	26.4	100	205
Total	**65.1**	**13.7**	**21.1**	**100**	**1158**

Table 8.1.2 (b) Percent distribution of older respondents needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
50-59	69.8	14.8	15.4	100	2,344
60-69	68.3	16.8	15.0	100	2,557
70-79	71.5	15.5	13.0	100	1,299
80+	69.2	18.4	12.4	100	475
Sex					
Male	68.3	15.8	15.9	100	3,049
Female	70.6	16.1	13.3	100	3,626
Marital status					
Never married	56.6	19.6	23.8	100	64
Currently married	68.6	16.4	15.0	100	4,913
Widowed	72.9	14.5	12.6	100	1,655
Other[1]	55.0	21.4	23.6	100	43
Residence					
Urban	74.8	14.0	11.3	100	1,228
Rural	67.2	16.8	16.0	100	5,447
Caste					
Scheduled Tribe	66.5	16.6	16.9	100	463
Scheduled Caste	68.0	19.5	12.4	100	1,100
Other[2]	70.0	15.2	14.8	100	5,112
Religion					
Hindu	68.2	16.4	15.4	100	5,551
Muslim	77.9	12.9	9.3	100	744
Other[3]	74.1	15.6	10.3	100	380
Education					
No formal education	71.2	16.5	12.3	100	2,971
Less than primary	73.3	14.7	12.1	100	1,082
Primary school	67.2	15.3	17.6	100	1,214
Secondary school	68.2	13.5	18.3	100	592
High school	64.1	19.6	16.4	100	434
College and above	65.7	15.9	18.4	100	382
Wealth quintile					
Lowest	63.0	19.3	17.7	100	1,245
Second	66.6	17.8	15.6	100	1,278
Middle	73.3	14.4	12.3	100	1,290
Fourth	70.0	16.0	14.0	100	1,383
Highest	73.2	13.2	13.6	100	1,479
Total	**69.5**	**15.9**	**14.5**	**100**	**6,675**

Table 8.1.3 presents the results of men needing health care by state and overall. About 64% of younger men and 68% of older men said they had needed health care during the year before the survey. Among younger men, the need had been highest in Karnataka (90%) and lowest in Assam (28%). Among older men, the need had been highest in Rajasthan (92%) and lowest in Uttar Pradesh (52%).

Table 8.1.3 Percent distribution of younger and older men needing health care, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	In previous year	More than 1 year ago	Never needed	Number	In previous year	More than 1 year ago	Never needed	Number
Assam	28.0	43.4	28.6	63	62.1	23.9	14.0	359
Karnataka	89.9	2.2	7.9	47	79.8	15.2	5.0	379
Maharashtra	50.9	10.3	38.8	105	68.1	13.8	18.0	507
Rajasthan	79.7	11.8	8.5	80	91.8	5.1	3.1	587
Uttar Pradesh	63.0	17.9	19.1	68	52.4	20.6	27.0	622
West Bengal	71.2	13.0	15.9	101	81.5	13.0	5.5	595
India (pooled)	**64.4**	**13.9**	**21.7**	**464**	**68.3**	**15.8**	**15.9**	**3049**

Table 8.1.4 (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 67% at age 18-29 to 75% among the oldest men aged 80+. Younger men's health care needs differed by caste and wealth quintile when compared to older men.

Table 8.1.4 (a) Percent distribution of younger men needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	66.8	14.5	18.7	100	174
30-39	55.7	13.5	30.9	100	109
40-49	68.8	13.6	17.6	100	181
Marital status					
Never married	59.1	14.3	26.6	100	122
Currently married	65.5	13.9	20.6	100	339
Widowed	100.0	0.0	0.0	100	2
Other[1]	100.0	0.0	0.0	100	1
Residence					
Urban	70.4	8.3	21.3	100	89
Rural	61.6	16.5	21.9	100	375
Caste					
Scheduled Tribe	44.5	27.9	27.6	100	53
Scheduled Caste	64.5	17.4	18.1	100	106
Other[2]	66.7	10.9	22.4	100	305
Religion					
Hindu	64.9	14.7	20.4	100	384
Muslim	64.7	4.8	30.6	100	46
Other[3]	56.7	20.6	22.7	100	34
Education					
No formal education	68.2	22.2	9.6	100	48
Less than primary	74.5	12.7	12.8	100	38
Primary school	73.8	13.1	13.1	100	103
Secondary school	53.7	17.5	28.8	100	102
High school	59.5	11.0	29.5	100	100
College and above	62.8	10.2	27.0	100	73
Wealth quintile					
Lowest	59.7	13.8	26.5	100	84
Second	62.7	23.7	13.6	100	95
Middle	65.5	15.1	19.4	100	105
Fourth	75.6	7.2	17.3	100	87
Highest	55.1	11.1	33.8	100	93
Total	**64.4**	**13.9**	**21.7**	**100**	**464**

Table 8.1.4 (b) Percent distribution of older men needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
50-59	68.0	15.5	16.6	100	922
60-69	67.7	16.6	15.8	100	1219
70-79	67.6	15.8	16.6	100	659
80+	75.4	12.3	12.3	100	249
Marital status					
Never married	56.7	20.1	23.2	100	42
Currently married	68.6	16.0	15.4	100	2687
Widowed	69.0	11.7	19.3	100	303
Other[1]	43.0	38.1	18.9	100	17
Residence					
Urban	72.5	14.6	12.9	100	544
Rural	66.5	16.3	17.3	100	2505
Caste					
Scheduled Tribe	67.1	17.3	15.6	100	200
Scheduled Caste	68.3	17.4	14.3	100	481
Other[2]	68.4	15.3	16.3	100	2368
Religion					
Hindu	67.1	15.8	17.1	100	2532
Muslim	75.7	14.7	9.5	100	338
Other[3]	72.5	17.2	10.3	100	179
Education					
No formal education	72.2	15.8	12.1	100	738
Less than primary	72.5	14.8	12.7	100	591
Primary school	67.8	15.4	16.8	100	688
Secondary school	67.3	11.7	21.0	100	402
High school	63.1	19.9	17.1	100	334
College and above	63.0	17.8	19.2	100	296
Wealth quintile					
Lowest	62.9	16.6	20.5	100	544
Second	64.5	17.7	17.9	100	579
Middle	72.6	15.7	11.7	100	564
Fourth	68.8	15.5	15.7	100	649
Highest	71.2	14.1	14.8	100	713
Total	**68.3**	**15.8**	**15.9**	**100**	**3049**

[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 8.1.5 and 8.1.6 (a & b) provide the same information for women. Of the six states, older women in Rajasthan had the highest (91%) and Uttar Pradesh reported the lowest health care need in the previous year (55%). Among younger women, the need was highest in Rajasthan (91%) and lowest in Assam (38%).

Table 8.1.5 Percent distribution of younger and older women needing health care, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	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	37.9	29.9	32.2	100	106	56.6	25.0	18.4	100	389
Karnataka	70.0	29.2	0.9	100	85	87.3	8.9	3.9	100	476
Maharashtra	58.1	13.6	28.3	100	113	67.4	12.8	19.9	100	568
Rajasthan	91.4	4.4	4.2	100	102	90.5	6.1	3.5	100	751
Uttar Pradesh	53.5	8.7	37.8	100	108	54.5	24.7	20.8	100	690
West Bengal	78.4	10.7	10.9	100	180	84.0	12.9	3.1	100	752
India (pooled)	**65.6**	**13.7**	**20.7**	**100**	**694**	**70.6**	**16.1**	**13.3**	**100**	**3626**

On average, 71% of older women and 66% of younger women said they had needed health care in the previous year (Table 8.1.6 (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+ (see Figure 8.2). Marginal differences were observed based on residence, religion, education, and wealth quintiles.

Table 8.1.6 (a) Percent distribution of younger women needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
18-29	71.7	9.0	19.3	100	89
30-39	54.8	23.4	21.8	100	240
40-49	71.5	8.2	20.3	100	365
Marital status					
Never married	61.5	18.0	20.5	100	66
Currently married	64.3	14.1	21.6	100	574
Widowed	83.5	3.7	12.8	100	49
Other[1]	97.2	2.9	0.0	100	5
Residence					
Urban	60.6	20.6	18.9	100	143
Rural	68.0	10.4	21.6	100	551
Caste					
Scheduled Tribe	78.0	5.3	16.7	100	59
Scheduled Caste	67.3	13.0	19.6	100	136
Other[2]	64.1	14.6	21.3	100	499
Religion					
Hindu	67.9	9.9	22.2	100	575
Muslim	47.1	38.7	14.2	100	77
Other[3]	68.3	24.8	7.0	100	42
Education					
No formal education	73.4	5.9	20.7	100	217
Less than primary	65.4	11.5	23.1	100	109
Primary school	59.5	18.6	21.9	100	144
Secondary school	55.0	27.7	17.4	100	101
High school	67.9	16.5	15.6	100	64
College and above	70.4	2.7	26.9	100	59
Wealth quintile					
Lowest	58.7	11.8	29.5	100	129
Second	67.4	7.8	24.8	100	159
Middle	79.6	12.9	7.6	100	166
Fourth	68.1	10.3	21.6	100	128
Highest	52.9	25.7	21.4	100	112
Total	**65.6**	**13.7**	**20.7**	**100**	**694**

[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.

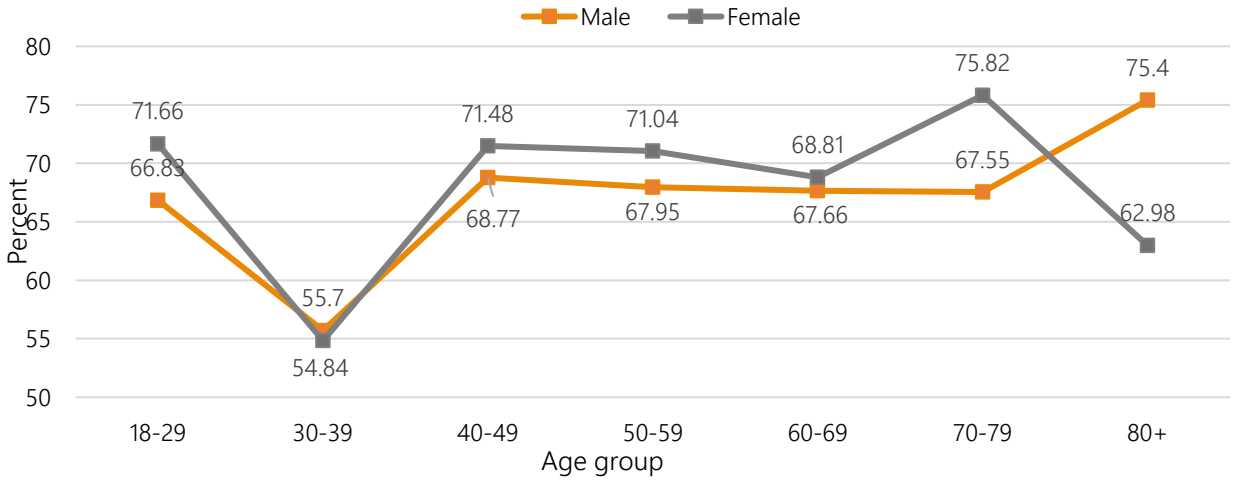
Table 8.1.6 (b) Percent distribution of older women needing health care, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	In previous year	More than 1 year ago	Never needed	Total	Number
Age group					
50-59	71.0	14.4	14.6	100	1,422
60-69	68.8	17.0	14.2	100	1,338
70-79	75.8	15.1	9.1	100	640
80+	63.0	24.5	12.5	100	226

Background characteristics	Aged 50+				
	In previous year	More than 1 year ago	Never needed	Total	Number
Marital status					
Never married	55.9	16.9	27.2	100	22
Currently married	68.6	16.8	14.6	100	2,226
Widowed	73.9	15.2	10.9	100	1,352
Other[1]	63.8	9.2	27.0	100	26
Residence					
Urban	76.6	13.5	9.9	100	684
Rural	67.8	17.3	14.9	100	2,942
Caste					
Scheduled Tribe	66.1	16.0	17.8	100	263
Scheduled Caste	67.9	21.2	10.9	100	619
Other[2]	71.4	15.0	13.6	100	2,744
Religion					
Hindu	69.1	16.8	14.0	100	3,019
Muslim	79.8	11.2	9.0	100	406
Other[3]	75.5	14.2	10.3	100	201
Education					
No formal education	70.9	16.8	12.4	100	2,233
Less than primary	74.2	14.5	11.3	100	491
Primary school	66.3	15.1	18.6	100	526
Secondary school	70.0	17.3	12.7	100	190
High school	68.2	18.3	13.6	100	100
College and above	73.7	10.2	16.1	100	86
Wealth quintile					
Lowest	63.1	21.2	15.7	100	701
Second	68.4	17.9	13.6	100	699
Middle	73.8	13.5	12.7	100	726
Fourth	71.1	16.5	12.4	100	734
Highest	75.3	12.3	12.4	100	766
Total	**70.6**	**16.1**	**13.3**	**100**	**3626**

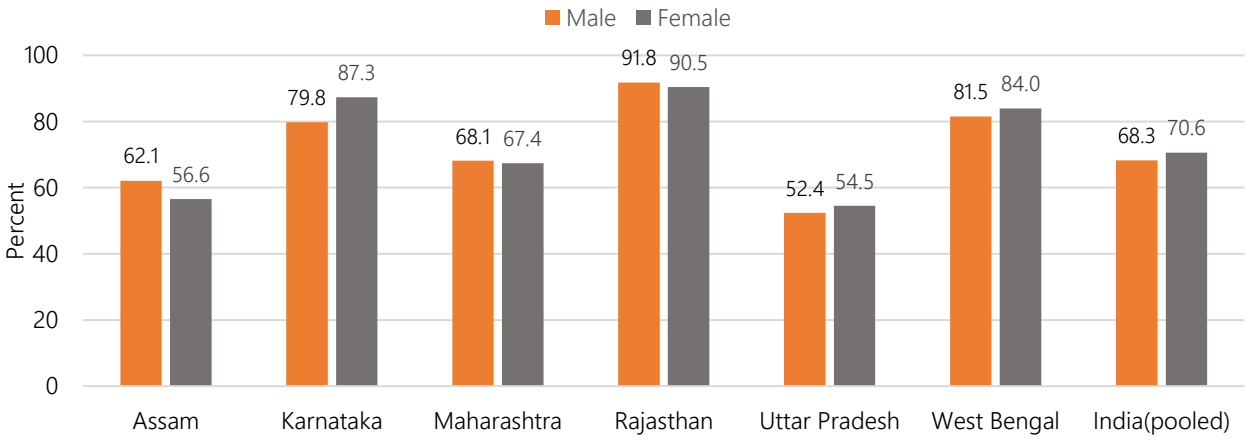
[1] Includes divorced, separated or cohabiting.
[2] Includes non-scheduled caste or tribe and no caste or tribe.
[3] Includes Buddhism, Christianity, Jainism, Sikhism and other religions.

Figure 8.2 Percentage of respondents reporting health care needs in the previous year, by age group, India (pooled), SAGE Wave 3, 2019-20



Patterns of reported health care need by state and overall, for those aged 50+, reveal a higher overall need for older women than older men, except in the case of Rajasthan (Figure 8.3). The reported health care need was higher in Karnataka and Rajasthan and lower in Uttar Pradesh and Assam.

Figure 8.3 Percentage of adults aged 50+ who needed health care in the last year by sex, state and India (pooled), SAGE Wave 3, 2019-20



8.2 Use of inpatient and/or outpatient care

Information on the types of health care received in the year before the survey is presented by state and overall, in India, in Table 8.2.1. Inpatients are those who have stayed in a 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+, around 62% of respondents reported receiving outpatient care, and 23% received inpatient care. The percentages of older respondents receiving inpatient care varied considerably across the states, from 14% in Assam to 37% in Maharashtra.

Trends: *Overall, there has been an increase in the proportion of respondents needing inpatient health care, with a slight decline in the proportion of respondents who said that they have not received any health care in the last year from SAGE-2 to SAGE-3. Among older respondents, the percentage of respondents who reported that they have not received any health care has decreased from 16% to 15% since 2015. In the same period, this has decreased from 27% to 21% among younger respondents.*

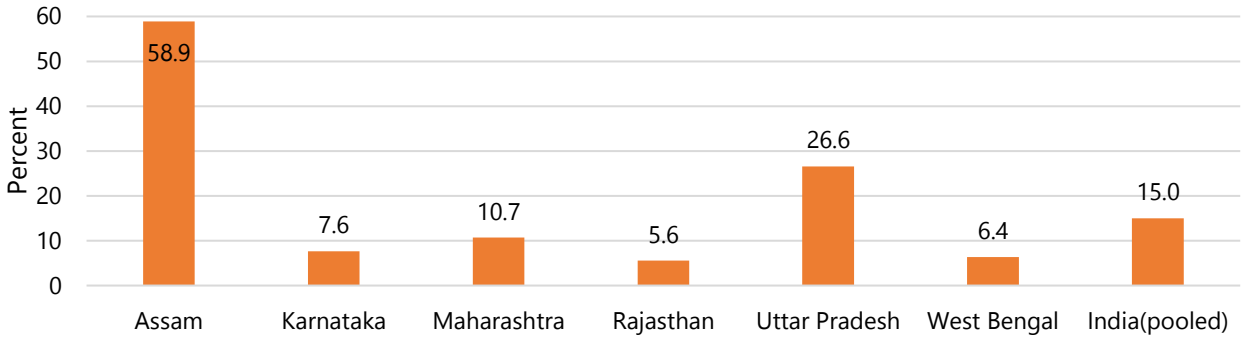
Table 8.2.1 Percent distribution of respondents who required health care in the last year by the type of health care received*, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	15.0	16.7	68.3	100	67	13.7	27.4	58.9	100	473
Karnataka	18.3	73.0	8.7	100	109	24.6	67.7	7.6	100	728
Maharashtra	29.5	52.3	18.3	100	113	36.6	52.8	10.7	100	669
Rajasthan	20.5	75.7	3.8	100	152	20.9	73.5	5.6	100	1201
Uttar Pradesh	9.9	41.0	49.1	100	103	19.7	53.7	26.6	100	697
West Bengal	14.3	76.2	9.5	100	225	18.0	75.6	6.4	100	1115
India (pooled)	**17.9**	**61.0**	**21.2**	**100**	**769**	**23.1**	**61.9**	**15.0**	**100**	**4883**

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 15%-21% of all respondents. The percentage not receiving care when needed was slightly higher in younger respondents and considerably higher in Assam than in other states in younger age groups (69%) and lower in Rajasthan (4%). For older adults, the rate (59%) was highest in Assam and lower in Rajasthan (6%) (Figure 8.4).

Figure 8.4 Percentage of adults aged 50+ who did not receive health care when needed, states and India (pooled), SAGE Wave 3, 2019-20



For those who received health care, there was little variation among older adults by caste, religion, education, and wealth quintile (Table 8.2.2 (a & b)). Younger men were less likely to have reported using inpatient care (14%) than younger women (21%). Older women were slightly more likely to have reported using outpatient care and slightly less likely to have reported using inpatient care than older men. Never-married younger and older adults were more likely to have received outpatient health care.

Table 8.2.2 (a) Percent distribution of younger respondents by type of health care received* in the last year, by background characteristics India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	12.2	61.2	26.6	100	166
30-39	20.0	60.7	19.4	100	216
40-49	19.0	61.1	19.9	100	387
Sex					
Male	14.0	59.7	26.3	100	283
Female	20.6	61.9	17.6	100	486
Marital status					
Never married	11.6	72.3	16.1	100	105
Currently married	18.2	59.2	22.6	100	616
Widowed	24.4	60.9	14.7	100	43
Other[1]	38.9	61.1	0.0	100	5
Residence					
Urban	18.2	59.9	22.0	100	148
Rural	17.7	61.5	20.8	100	621
Caste					
Scheduled Tribe	14.0	67.9	18.1	100	66
Scheduled Caste	14.2	59.4	26.4	100	177
Other[2]	19.3	60.8	19.9	100	526
Religion					
Hindu	19.1	60.7	20.2	100	637
Muslim	7.7	66.7	25.6	100	81
Other[3]	16.0	54.1	29.9	100	51
Education					
No formal education	14.5	63.0	22.5	100	198
Less than primary	24.4	51.8	23.8	100	103
Primary school	20.6	58.6	20.9	100	166
Secondary school	20.1	59.3	20.6	100	121
High school	14.5	61.0	24.5	100	104
College and above	15.0	71.7	13.3	100	77
Wealth quintile					
Lowest	9.6	57.4	33.0	100	124
Second	21.2	63.4	15.4	100	171
Middle	17.6	62.6	19.8	100	202
Fourth	20.0	63.8	16.2	100	148
Highest	18.1	54.6	27.3	100	124
Total	**17.9**	**61.0**	**21.2**	**100**	**769**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.*

Table 8.2.2 (b) Percent distribution of older respondents by type of health care received* in the last year, by background characteristics India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	19.7	62.3	18.1	100	1707
60-69	23.5	63.3	13.2	100	1875
70-79	29.3	57.9	12.8	100	944
80+	20.5	64.1	15.4	100	357
Sex					
Male	25.9	59.9	14.2	100	2196
Female	20.9	63.5	15.7	100	2687
Marital status					
Never married	11.1	78.6	10.4	100	38
Currently married	24.0	61.9	14.2	100	3563
Widowed	21.6	61.1	17.3	100	1257
Other[1]	8.2	76.6	15.2	100	25
Residence					
Urban	25.7	60.9	13.5	100	904
Rural	21.9	62.4	15.7	100	3979
Caste					
Scheduled Tribe	16.9	65.8	17.3	100	312
Scheduled Caste	20.1	63.0	16.9	100	814
Other[2]	24.1	61.4	14.5	100	3757
Religion					
Hindu	22.8	62.2	15.0	100	3997
Muslim	24.2	65.0	10.9	100	599
Other[3]	27.4	42.9	29.7	100	287
Education					
No formal education	20.5	63.7	15.9	100	2240
Less than primary	22.1	62.6	15.3	100	809
Primary school	28.9	61.2	9.9	100	862
Secondary school	25.9	52.9	21.2	100	402
High school	25.9	60.6	13.4	100	292
College and above	21.1	63.9	15.1	100	278
Wealth quintile					
Lowest	20.5	57.0	22.5	100	862
Second	24.1	56.8	19.1	100	914
Middle	18.5	66.9	14.6	100	982
Fourth	25.4	64.2	10.4	100	1037
Highest	26.1	62.9	11.0	100	1088
Total	**23.1**	**61.9**	**15.0**	**100**	**4883**

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 8.2.3 presents the type of health care received results for men in the selected states and India. About 14% of men aged 18-49 and 26% of men aged 50+ reported receiving inpatient care. Among older men, those in Assam had the lowest reported use of inpatient care (13%), while those in Maharashtra reported the highest use (38%).

West Bengal also had the overall highest proportion of outpatient care (73% for younger men and 77% for older men). In addition, Assam had the highest proportions of individuals who had not received any health care among younger respondents (86%).

Table 8.2.3 Percent distribution of younger and older men by type of health care received* in the last year, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	12.0	2.2	85.8	100	20	13.2	26.3	60.5	100	233
Karnataka	16.4	72.3	11.3	100	36	33.6	57.9	8.5	100	311
Maharashtra	17.8	56.3	26.0	100	45	38.4	51.4	10.2	100	316
Rajasthan	18.8	75.3	5.9	100	64	21.5	72.1	6.4	100	530
Uttar Pradesh	6.1	40.9	53.0	100	39	24.5	54.2	21.3	100	322
West Bengal	14.0	72.5	13.5	100	79	16.5	77.0	6.5	100	484
India (pooled)	**14.0**	**59.7**	**26.3**	**100**	**283**	**25.9**	**59.9**	**14.2**	**100**	**2196**

*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 8.2.4 (a & b). Large differences were seen between older men in the use of inpatient care in urban and rural areas. Younger men belonging to scheduled tribes (23%) 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. Men aged 50+ from the lowest wealth quintiles were less likely to report using inpatient care in comparison to men from the highest wealth quintile.

Table 8.2.4 (a) Percent distribution of younger men by type of health care received* in the last year and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	11.9	57.1	31.0	100	106
30-39	11.0	67.0	22.1	100	64
40-49	17.3	57.5	25.3	100	113
Marital status					
Never married	15.9	72.0	12.1	100	66
Currently married	13.7	56.6	29.7	100	214
Widowed	0.0	76.2	23.8	100	2
Other[1]	0.0	100.0	0.0	100	1
Residence					
Urban	13.4	55.4	31.2	100	51
Rural	14.3	62.0	23.8	100	232
Caste					
Scheduled Tribe	22.8	66.4	10.9	100	26
Scheduled Caste	9.3	58.8	31.9	100	77
Other[2]	14.9	59.5	25.6	100	180
Religion					
Hindu	15.4	59.2	25.5	100	229
Muslim	5.1	63.8	31.1	100	33
Other[3]	11.5	59.0	29.5	100	21
Education					
No formal education	10.7	39.8	49.5	100	35
Less than primary	31.5	49.0	19.4	100	27
Primary school	13.5	54.6	31.9	100	64
Secondary school	21.1	61.7	17.2	100	58
High school	5.0	67.4	27.6	100	64
College and above	12.8	74.8	12.4	100	35
Wealth quintile					
Lowest	8.2	57.6	34.3	100	46
Second	15.7	71.5	12.8	100	55
Middle	17.9	52.1	29.9	100	70
Fourth	15.1	65.7	19.2	100	58
Highest	8.5	52.3	39.2	100	54
Total	**14.0**	**59.7**	**26.3**	**100**	**283**

*Note: *Listed under inpatient care if reported receiving both inpatient and outpatient care*

Table 8.2.4 (b) Percent distribution of older men by type of health care received* in the last year and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	18.9	62.0	19.2	100	652
60-69	28.5	60.2	11.3	100	889
70-79	33.8	53.8	12.5	100	465
80+	16.9	68.3	14.9	100	190
Marital status					
Never married	11.5	79.8	8.7	100	27
Currently married	26.5	59.5	14.0	100	1943
Widowed	23.7	59.5	16.9	100	217
Other[1]	0.0	95.7	4.4	100	9
Residence					
Urban	29.5	59.7	10.8	100	383
Rural	24.2	60.0	15.8	100	1813
Caste					
Scheduled Tribe	19.2	63.2	17.6	100	133
Scheduled Caste	21.4	64.0	14.6	100	351
Other[2]	27.1	59.0	13.9	100	1712
Religion					
Hindu	25.0	60.8	14.2	100	1793
Muslim	30.9	58.7	10.4	100	269
Other[3]	26.8	46.0	27.2	100	134
Education					
No formal education	25.6	60.2	14.3	100	568
Less than primary	25.2	66.8	8.1	100	439
Primary school	30.7	58.6	10.6	100	478
Secondary school	23.0	48.4	28.6	100	274
High school	27.1	58.8	14.1	100	226
College and above	19.7	66.5	13.8	100	211
Wealth quintile					
Lowest	23.5	55.2	21.2	100	372
Second	28.3	53.2	18.5	100	409
Middle	21.8	64.4	13.8	100	426
Fourth	27.9	62.3	9.9	100	475
Highest	26.9	62.2	10.9	100	514
Total	**25.9**	**59.9**	**14.2**	**100**	**2196**

Note: Listed under inpatient care if reported receiving both inpatient and outpatient care.

Tables 8.2.5 and 8.2.6 (a & b) present health care utilization information for women. Among women aged 50+, 64% had received outpatient care in the previous year, 21% had received inpatient care, and around 16% had not received any health care.

The proportion of older women who had not received any health care was highest in Assam (57%) and lowest in Rajasthan (5%). Among women aged 18-49, about 18% had not received any health care. The proportion of younger women who had not received any health care was highest in Assam (61%) and lowest in Rajasthan (3%) (Figure 8.5).

Table 8.2.5 Percent distribution of women by type of health care received in the last year, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number	Inpatient care	Outpatient care	Did not receive	Percent	Number
Assam	16.2	22.5	61.3	100	47	14.2	28.5	57.3	100	240
Karnataka	20.0	73.6	6.4	100	73	17.2	75.9	6.9	100	417
Maharashtra	39.6	48.8	11.6	100	68	35.0	53.9	11.1	100	353
Rajasthan	21.6	76.0	2.5	100	88	20.4	74.7	5.0	100	671
Uttar Pradesh	13.1	41.0	45.9	100	64	15.4	53.3	31.2	100	375
West Bengal	14.4	77.9	7.7	100	146	19.1	74.6	6.3	100	631
India (pooled)	**20.6**	**61.9**	**17.6**	**100**	**486**	**20.9**	**63.5**	**15.7**	**100**	**2687**

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 8.2.6(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 quintiles had higher levels of inpatient care in comparison to women from lower wealth quintiles.

Table 8.2.6 (a) Percent distribution of younger women by type of health care received in the last year and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
18-29	12.7	68.5	18.8	100	60
30-39	25.3	57.0	17.8	100	152
40-49	19.9	62.9	17.2	100	274
Marital status					
Never married	5.6	72.8	21.7	100	39
Currently married	21.4	60.9	17.7	100	402
Widowed	25.5	60.2	14.3	100	41
Other[1]	44.9	55.1	0.0	100	4
Residence					
Urban	22.1	63.5	14.5	100	97
Rural	19.9	61.2	18.9	100	389
Caste					
Scheduled Tribe	9.8	68.6	21.6	100	40
Scheduled Caste	18.7	60.0	21.3	100	100
Other[2]	22.2	61.6	16.2	100	346
Religion					
Hindu	21.5	61.8	16.8	100	408
Muslim	10.6	69.6	19.8	100	48
Other[3]	19.6	50.1	30.3	100	30
Education					
No formal education	15.3	68.1	16.6	100	163
Less than primary	21.5	52.9	25.6	100	76
Primary school	28.7	63.1	8.2	100	102
Secondary school	19.3	57.5	23.2	100	63
High school	27.7	52.1	20.2	100	40
College and above	17.7	67.9	14.4	100	42
Wealth quintile					
Lowest	10.4	57.3	32.3	100	78
Second	24.0	59.3	16.7	100	116
Middle	17.4	70.5	12.1	100	132
Fourth	24.3	62.2	13.5	100	90
Highest	24.8	56.2	19.1	100	70
Total	**20.6**	**61.9**	**17.6**	**100**	**486**

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.

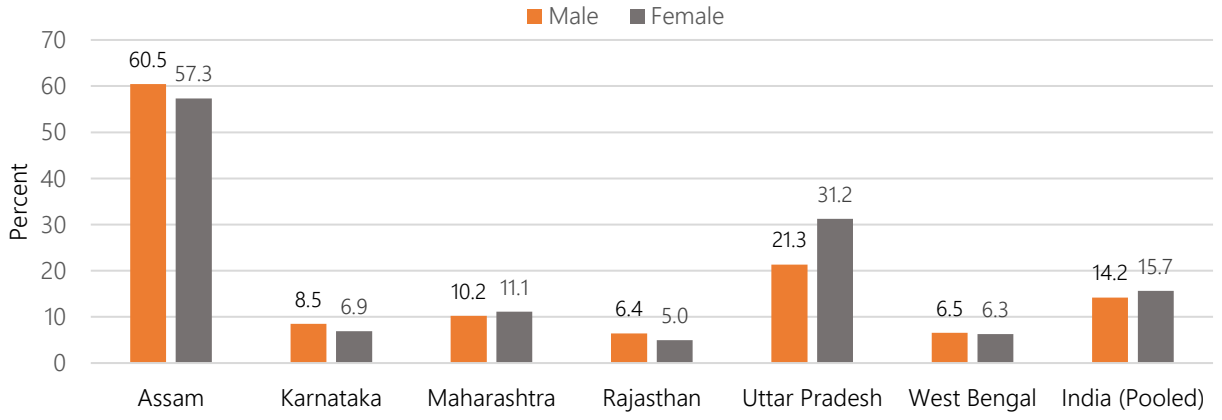
Table 8.2.6 (b) Percent distribution of older women by type of health care received in the last year and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Age group					
50-59	20.2	62.4	17.4	100	1055
60-69	18.8	66.2	15.0	100	986
70-79	24.9	62.0	13.2	100	479
80+	25.0	59.0	16.0	100	167
Marital status					
Never married	8.7	71.2	20.1	100	11
Currently married	20.8	64.8	14.4	100	1620
Widowed	21.1	61.5	17.4	100	1040

Background characteristics	Aged 50+				
	Inpatient care	Outpatient care	Did not receive	Percent	Number
Other[1]	12.3	67.3	20.4	100	16
Residence					
Urban	22.6	61.8	15.6	100	521
Rural	20.0	64.4	15.7	100	2166
Caste					
Scheduled Tribe	15.2	67.8	17.0	100	179
Scheduled Caste	19.0	62.3	18.7	100	463
Other[2]	21.6	63.5	15.0	100	2045
Religion					
Hindu	20.9	63.4	15.6	100	2204
Muslim	18.4	70.3	11.3	100	330
Other[3]	28.0	40.1	31.9	100	153
Education					
No formal education	18.9	64.8	16.4	100	1672
Less than primary	18.6	57.9	23.6	100	370
Primary school	26.3	64.7	9.0	100	384
Secondary school	31.6	61.7	6.7	100	128
High school	21.6	67.7	10.8	100	66
College and above	24.7	57.1	18.2	100	67
Wealth quintile					
Lowest	18.3	58.3	23.5	100	490
Second	20.7	59.7	19.6	100	505
Middle	16.1	68.8	15.2	100	556
Fourth	23.2	66.0	10.8	100	562
Highest	25.2	63.6	11.2	100	574
Total	**20.9**	**63.5**	**15.7**	**100**	**2687**

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 8.5 Percentage of adults aged 50+ who did not receive any health care in the last year by sex, states and India (pooled), SAGE Wave 3, 2019-20



8.2.1 Reasons for needing inpatient care

A total of 21% of respondents had sought inpatient health care during the year before the survey. Their need for inpatient care was analyzed by the self-reported reason for admission. Information was collected for 18 different types of diseases/treatments, including communicable diseases, nutritional deficiencies, maternal and prenatal conditions, chronic pain, diabetes or related complications, problems related to heart and chest, high blood pressure/hypertension, cancer, depression/anxiety, occupational and other injuries, or other reasons. For analysis, these were categorized into four broad groups as presented in Tables 8.2.7 and 8.2.8 (a & b). The four groups were a) maternal and prenatal 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 prenatal conditions, was not tabulated for respondents aged 50+.

Trends: *Overall, there has been a substantial increase in inpatient care for acute diseases among older and younger respondents. Inpatient health care needs for acute diseases have increased from 22% to 41% among younger respondents in the period 2015-20. Among older respondents, this has increased from 14% to 21%. Inpatient care for maternal health has declined from 14% to 3% from SAGE-2 to SAGE-3.*

Among respondents aged 50+, 30% had received inpatient care for non-communicable and chronic diseases, and 21% for acute diseases during the previous year. Treatment for non-communicable and chronic diseases was more common among men (31%) than women (28%), and somewhat more common in urban areas (38%) than rural areas (26%) among older respondents.

Table 8.2.7 Percent distribution of respondents who received inpatient care during the last year by main reason for care need, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+			
	Maternal health	Non-communicable and chronic diseases	Acute diseases	Other diseases	Number	Non-communicable and chronic diseases	Acute diseases	Other diseases	Number
Assam	0.0	47.8	0.0	52.2	4	19.7	8.9	71.4	30
Karnataka	6.1	20.7	34.1	39.1	8	46.1	20.8	33.1	105
Maharashtra	0.0	8.3	54.2	37.5	25	17.3	19.7	63.0	121
Rajasthan	7.2	0.0	38.1	54.7	11	36.1	17.3	45.0	144
Uttar Pradesh	0.0	0.0	15.6	84.4	6	35.0	20.5	44.6	64
West Bengal	3.2	14.8	45.8	36.2	21	23.3	33.3	43.4	106
India (pooled)	**2.6**	**9.9**	**41.1**	**46.5**	**75**	**29.6**	**21.3**	**48.8**	**570**

Note: - Maternal health is not tabulated for adults aged 50+.

Table 8.2.8 (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 3, 2019-20

Background characteristics	Aged 18-49					
	Maternal health	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Age group						
18-29	9.1	18.3	37.9	34.7	100	9
30-39	5.9	4.9	65.4	23.9	100	22
40-49	0.0	11.5	28.3	60.2	100	44
Sex						
Male	0.0	14.5	28.9	56.6	100	20
Female	3.5	8.4	45.1	43.0	100	55
Marital status						
Never married	0.0	25.6	36.1	38.3	100	3
Currently married	3.2	11.3	41.6	43.9	100	64
Widowed	0.0	0.0	33.5	66.5	100	6
Other[1]	0.0	0.0	57.7	42.3	100	2
Residence						
Urban	0.0	8.8	42.4	48.8	100	13
Rural	3.6	10.3	40.6	45.6	100	62
Caste						
Scheduled Tribe	10.5	16.1	43.0	30.5	100	9

Background characteristics	Aged 18-49					
	Maternal health	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Scheduled Caste	0.0	8.1	43.4	48.5	100	15
Other[2]	2.7	9.9	40.1	47.3	100	51
Religion						
Hindu	2.9	11.0	36.3	49.9	100	67
Muslim	0.0	0.0	70.2	29.8	100	6
Other[3]	0.0	0.0	100.0	0.0	100	2
Education						
No formal education	8.6	5.1	36.0	50.3	100	18
Less than primary	0.0	0.0	61.8	38.2	100	8
Primary school	2.1	19.1	16.5	62.3	100	23
Secondary school	0.0	0.0	61.1	38.9	100	11
High school	0.0	16.0	49.9	34.1	100	10
College and above	0.0	0.0	89.4	10.6	100	5
Wealth quintile						
Lowest	0.0	13.5	66.2	20.3	100	10
Second	8.4	10.2	45.4	36.0	100	22
Middle	0.0	23.2	27.7	49.1	100	16
Fourth	0.0	4.7	33.2	62.1	100	16
Highest	0.0	0.0	42.9	57.1	100	11
Total	**2.6**	**9.9**	**41.1**	**46.5**	**100**	**75**

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

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

Table 8.2.8 (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 3, 2019-20

Background characteristics	Aged 50+				
	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Age group					
50-59	28.9	24.8	46.3	100	160
60-69	33.1	19.7	47.2	100	243
70-79	27.4	19.3	52.1	100	120
80+	20.9	21.6	57.5	100	47
Sex					
Male	31.1	19.9	49.0	100	290
Female	28.0	22.7	48.6	100	280
Marital status					
Never married	0.0	0.0	100.0	100	1
Currently married	28.3	23.0	48.7	100	420
Widowed	33.2	16.5	49.1	100	147
Other[1]	0.0	100.0	0.0	100	2
Residence					
Urban	37.4	11.9	49.9	100	107
Rural	25.6	26.2	48.2	100	463
Caste					
Scheduled Tribe	30.7	12.2	48.7	100	26
Scheduled Caste	28.4	25.5	46.2	100	81
Other[2]	29.7	21.1	49.2	100	463
Religion					
Hindu	28.4	20.0	51.2	100	463
Muslim	36.3	23.6	40.2	100	79
Other[3]	26.1	36.9	37.1	100	28
Education					
No formal education	27.3	26.7	45.2	100	255
Less than primary	28.3	20.1	51.6	100	97
Primary school	33.3	15.8	50.9	100	96
Secondary school	35.0	18.4	46.7	100	53
High school	25.3	14.7	60.0	100	35
College and above	30.4	22.0	47.7	100	34

Background characteristics	Aged 50+				
	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Wealth quintile					
Lowest	25.9	23.6	50.5	100	94
Second	31.5	25.0	43.5	100	116
Middle	19.7	23.9	56.4	100	103
Fourth	31.0	18.3	49.1	100	135
Highest	36.7	17.6	45.7	100	122
Total	**29.6**	**21.3**	**48.8**	**100**	**570**

Note: Maternal health is not tabulated for adults aged 50+.

[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.

8.2.2 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+ varied considerably across the states, from a high of 49% in Uttar Pradesh to a low of 37% in Assam (Table 8.2.9).

Table 8.2.9 Percent distribution of respondents who received outpatient care during the last year by main reason for care need, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49					Aged 50+				
	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number	Non-communicable and chronic diseases	Acute diseases	Other diseases	Total	Number
Assam	20.7	67.7	11.6	100	9	23.5	53.1	23.4	100	93
Karnataka	28.9	47.5	23.7	100	61	29.4	50.6	19.0	100	395
Maharashtra	2.7	72.9	24.2	100	46	19.3	61.4	19.3	100	283
Rajasthan	14.1	60.0	26.0	100	112	27.8	52.1	19.7	100	798
Uttar Pradesh	16.6	57.1	26.3	100	46	25.4	58.7	15.9	100	320
West Bengal	16.0	62.6	21.4	100	152	33.1	48.6	18.1	100	707
India (pooled)	**15.7**	**60.3**	**24.0**	**100**	**426**	**27.3**	**54.1**	**18.3**	**100**	**2596**

Note: Maternal health is not tabulated for adults aged 18-49 and 50+.

Nationally, 54% of older adults received outpatient care for acute diseases and 27% for non-communicable and chronic diseases in the year before the survey (Table 8.2.10 (b)). About 60% of younger respondents aged 18-49 had received outpatient care for acute diseases, and 16% for non-communicable and chronic diseases.

Outpatient care for non-communicable and chronic diseases increased from 4% for adults aged 18-29 to 33% for persons aged 70-79. As with inpatient care, outpatient care for non-communicable and chronic diseases was more common among older men (29%) than older women (26%) and was also higher in urban (30%) than in rural areas (26%) for persons aged 50+. The percentage of older respondents who received health care for non-communicable diseases increased with age (Figure 8.6).

Figure 8.6 Percentage of respondents who received outpatient health care for non-communicable and chronic diseases by age, India (pooled), SAGE Wave 3, 2019-20

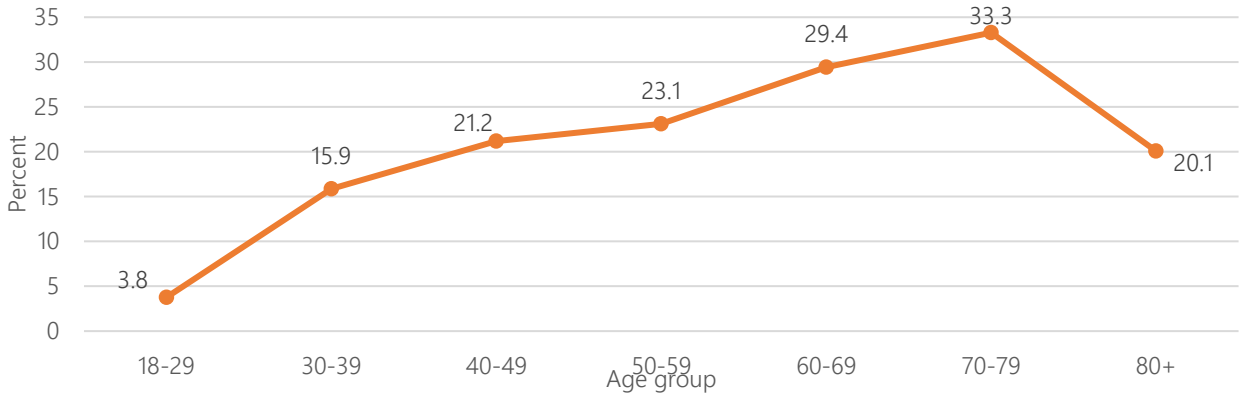


Table 8.2.10 (a) Percent distribution of younger respondents who received outpatient care during the last year by reason for care need and background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49				
	Non-communicable & chronic diseases	Acute diseases	Other diseases	Total	Number
Age group					
18-29	3.8	79.5	16.8	100	108
30-39	15.9	65.6	18.4	100	130
40-49	21.2	48.0	30.8	100	188
Sex					
Male	11.4	65.5	23.1	100	166
Female	18.9	56.5	24.6	100	260
Marital status					
Never married	2.6	78.0	19.4	100	76
Currently married	18.1	57.1	24.8	100	329
Widowed	27.3	47.4	25.3	100	18
Other[1]	0.0	67.5	32.6	100	3
Residence					
Urban	25.2	48.5	26.3	100	81
Rural	11.3	65.8	22.9	100	345
Caste					
Scheduled Tribe	16.1	64.8	19.1	100	34
Scheduled Caste	11.2	70.8	18.0	100	97
Other[2]	16.9	57.0	26.1	100	295
Religion					
Hindu	16.7	59.0	24.3	100	361
Muslim	11.6	69.2	19.2	100	52
Other[3]	2.6	67.7	29.6	100	13
Education					
No formal education	25.3	60.3	14.5	100	109
Less than primary	11.8	58.9	29.3	100	49
Primary school	12.4	50.7	36.9	100	89
Secondary school	9.3	61.2	29.3	100	67
High school	6.2	71.7	22.1	100	59
College and above	22.8	62.4	14.9	100	53
Wealth quintile					
Lowest	2.9	70.8	26.3	100	70
Second	16.6	46.5	36.9	100	83
Middle	16.2	72.7	11.2	100	113
Fourth	26.2	55.4	18.5	100	89
Highest	9.0	57.2	33.6	100	71
Total	**15.7**	**60.3**	**24.0**	**100**	**426**

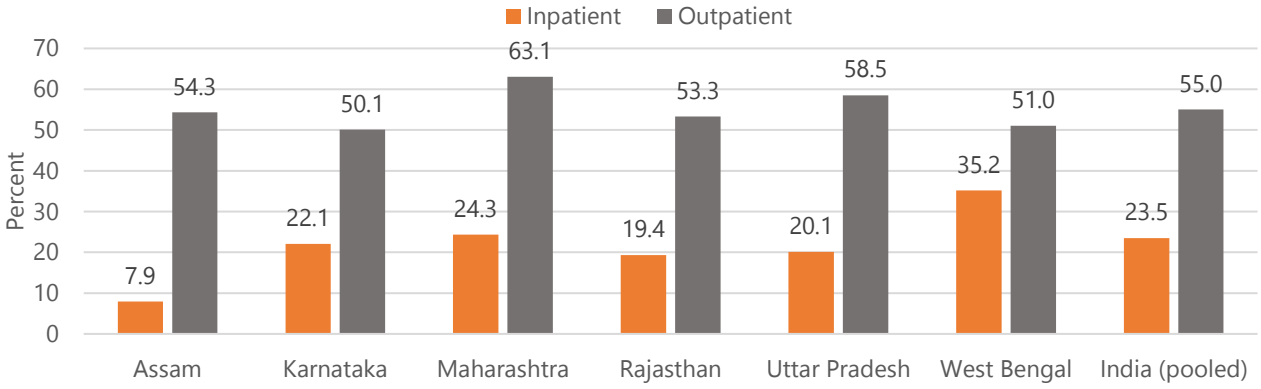
Note: Maternal health not tabulated for adults aged 18-49.
Responses broadly classified under: 1) maternal health; 2) non-communicable and chronic diseases (diabetes or related complications, heart problems including unexplained pain in the chest, problems with mouth, teeth or swallowing, problems with 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 8.2.10 (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 3, 2019-20

Background characteristics	Aged 50+				
	Non-communicable & chronic diseases	Acute diseases	Other diseases	Total	Number
Age group					
50-59	23.1	59.4	17.1	100	924
60-69	29.4	50.3	19.9	100	1,006
70-79	33.3	49.9	16.8	100	490
80+	20.1	60.0	20.0	100	176
Sex					
Male	28.7	54.6	16.7	100	1,178
Female	26.2	53.7	19.7	100	1,418
Marital status					
Never married	5.4	76.7	17.9	100	27
Currently married	28.7	53.0	18.0	100	1,898
Widowed	24.7	55.6	19.7	100	658
Other[1]	18.6	78.8	2.7	100	13
Residence					
Urban	30.2	50.1	19.1	100	487
Rural	25.9	56.0	18.0	100	2,109
Caste					
Scheduled Tribe	23.6	59.5	15.6	100	172
Scheduled Caste	19.0	64.1	16.8	100	457
Other[2]	29.3	51.6	18.8	100	1,967
Religion					
Hindu	27.8	53.9	18.0	100	2,185
Muslim	23.9	56.5	19.6	100	331
Other[3]	27.1	50.1	22.8	100	80
Education					
No formal education	22.3	60.3	17.2	100	1,210
Less than primary	22.8	62.2	15.1	100	420
Primary school	31.7	46.6	20.9	100	443
Secondary school	32.5	41.4	26.1	100	208
High school	32.0	49.5	18.5	100	164
College and above	46.8	36.7	16.5	100	151
Wealth quintile					
Lowest	21.1	64.7	14.2	100	448
Second	21.6	59.5	18.9	100	447
Middle	19.5	58.0	22.3	100	545
Fourth	30.8	52.6	15.5	100	558
Highest	38.5	42.5	19.0	100	598
Total	**27.3**	**54.1**	**18.3**	**100**	**2,596**

Note: Maternal health not tabulated for adults aged 50+.
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).

Figure 8.7 Percentage of respondents who received health care for acute diseases, states and India (pooled), SAGE Wave 3, 2019-20



8.3 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 8.3.1 for the states and India. Ratings for outpatient care services varied widely across the states than for inpatient services (see Figure 8.8).

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 8.3.1). However, younger adults scored inpatient treatment (68), on average as more responsive than outpatient care (64).

Table 8.3.1 Health system responsiveness score for hospitals or long-term care facilities, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49				Aged 50+			
	Inpatient		Outpatient		Inpatient		Outpatient	
	Mean score	Number	Mean score	Number	Mean score	Number	Mean score	Number
Assam	55.9	11	57.2	20	56.8	67	62.0	147
Karnataka	70.1	11	71.0	97	71.2	133	68.7	671
Maharashtra	71.3	37	68.1	103	66.6	168	64.4	649
Rajasthan	71.9	13	60.4	145	62.9	153	58.2	1145
Uttar Pradesh	66.2	6	64.9	60	68.3	90	60.5	595
West Bengal	60.2	23	58.9	203	68.0	114	58.8	1027
India (pooled)	**67.8**	**101**	**64.0**	**628**	**66.8**	**725**	**61.6**	**4234**

Figure 8.8 Health system responsiveness score of adults aged 50+, states and India (pooled), SAGE Wave 3, 2019-20

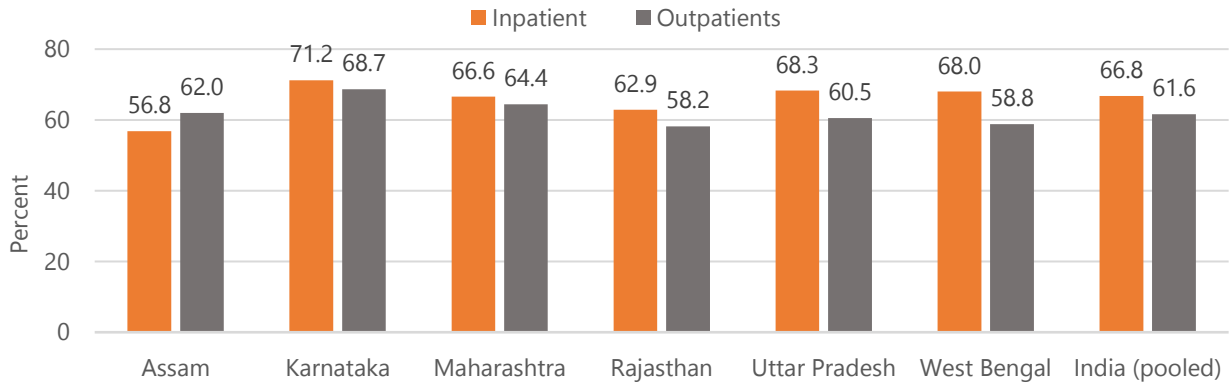


Table 8.3.2 (a & b) presents the health system responsiveness scores by younger and older respondents' background characteristics. Scores were higher in urban than in rural areas in both categories of treatment. With an increase in wealth quintile, the responsiveness score increased considerably. In 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 are usually more patient-friendly and better equipped in terms of infrastructure.

Table 8.3.2 (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 3, 2019-20

Background characteristics	Aged 18-49			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Age group				
18-29	68.6	15	64.2	137
30-39	65.2	28	62.5	179
40-49	69.1	58	64.8	312
Sex				
Male	73.3	35	66.5	219
Female	64.6	66	62.5	409
Marital status				
Never married	68.9	8	64.3	95
Currently married	67.9	85	64.4	498
Widowed	66.7	6	60.0	30
Other[1]	66.5	2	49.1	5
Residence				
Urban	73.7	17	66.2	124

Background characteristics	Aged 18-49			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Rural	65.0	84	62.9	504
Caste				
Scheduled Tribe	68.5	9	61.9	50
Scheduled Caste	61.9	18	62.5	143
Other[2]	69.2	74	64.6	435
Religion				
Hindu	68.5	89	64.4	531
Muslim	57.6	10	61.1	71
Other[3]	70.3	2	61.9	26
Education				
No formal education	59.2	23	60.3	160
Less than primary	64.4	15	62.1	79
Primary school	69.9	27	67.0	131
Secondary school	71.9	16	65.2	98
High school	72.8	12	62.8	87
College and above	73.5	8	67.1	73
Wealth quintile				
Lowest	61.1	16	62.5	90
Second	64.4	28	64.8	138
Middle	64.9	18	62.9	168
Fourth	75.1	21	63.2	128
Highest	71.4	18	66.9	104
Total	**67.8**	**101**	**64.0**	**628**

[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) 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 3, 2019-20

Background characteristics	Aged 50+			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Age group				
50-59	68.7	208	60.9	1442
60-69	66.4	292	61.8	1655
70-79	65.0	165	61.7	836
80+	65.7	60	63.4	301
Sex				
Male	68.0	359	63.1	1873
Female	65.5	366	60.4	2361
Marital status				
Never married	68.9	3	59.0	31
Currently married	67.4	531	61.9	3105
Widowed	64.8	188	61.0	1078
Other[1]	68.8	3	60.8	20
Residence				
Urban	69.7	133	63.8	794
Rural	65.3	592	60.5	3440
Caste				
Scheduled Tribe	66.8	30	58.0	246
Scheduled Caste	61.5	106	58.9	735
Other[2]	67.6	589	62.3	3253
Religion				
Hindu	66.2	593	61.4	3545
Muslim	70.4	92	62.6	527
Other[3]	64.9	40	62.8	162

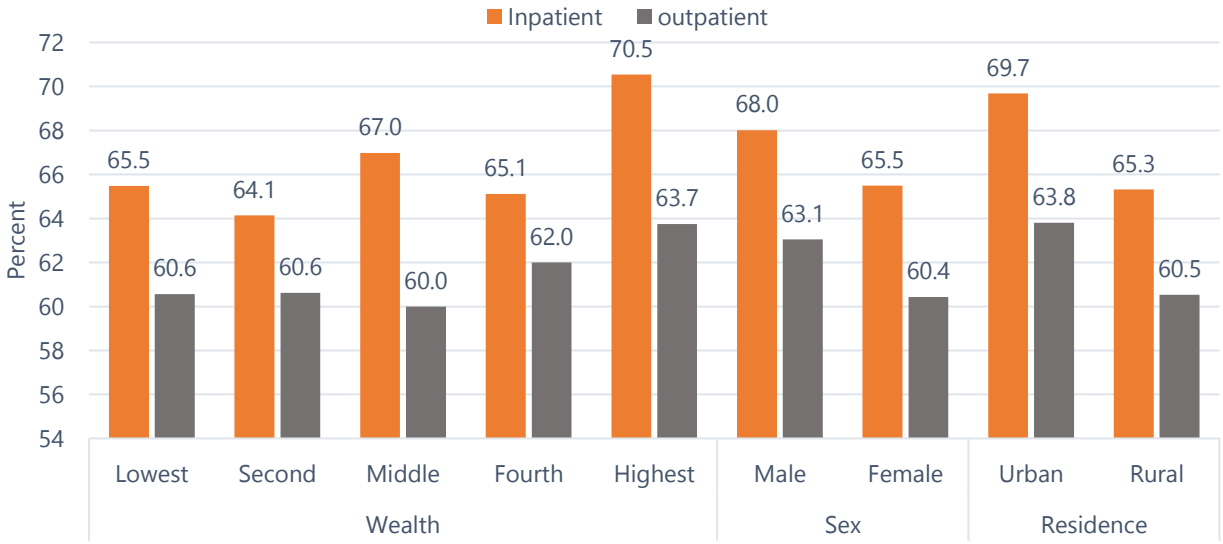
Background characteristics	Aged 50+			
	Inpatient		Outpatient	
	Mean score	Number	Mean score	Number
Education				
No formal education	64.4	316	59.6	1989
Less than primary	63.3	127	59.4	675
Primary school	71.7	133	63.6	759
Secondary school	67.0	63	65.0	333
High school	67.6	45	63.3	252
College and above	72.0	41	69.2	226
Wealth quintile				
Lowest	65.5	116	60.6	708
Second	64.1	149	60.6	791
Middle	67.0	128	60.0	833
Fourth	65.1	179	62.0	935
Highest	70.5	153	63.7	967
Total	**66.8**	**725**	**61.6**	**4234**

[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 8.9 Health care responsiveness score for adults aged 50+ according to wealth quintile, sex and residence, India (pooled), SAGE Wave 3, 2019-20



8.4 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 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 8.4.1 shows the state-level variation in mean monthly household consumption expenditure, the percentage of poor households, and the effects of OOP health payments on household economic conditions. Nationally, the mean household expenditure was Rs. 18,019 per month, and the mean OOP health care expenditure was Rs. 3,658. On average, OOP health care expenditure was 17% of total household expenditure, and 25% of non-subsistence spending. 54% 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. 23,422 in Rajasthan to a low of Rs. 12,992 in Assam. By the same token, the proportion of poor households was highest in Assam (20%) and lowest in Rajasthan (2%). Households in Maharashtra spent over Rs. 4,537 on health, while those in West Bengal spent only Rs. 2,519. OOP expenditure on health varied across the states from 12-21% of household expenditure and 17-31% of non-subsistence expenditure, with the lowest levels consistently in Rajasthan. Around one-third (28% and 30%) of households in Maharashtra and Karnataka incurred catastrophic expenditure on health care, as around two-fifth (16%) of households in Rajasthan. While 2-20% of households were poor to begin with, another 2-8% became impoverished due to health care expenditure.

Trends: *Mean monthly household expenditure has increased from Rs. 11,998 in 2015 to Rs. 18,019 in 2019. Similarly, mean out-of-pocket expenditure has also doubled in the period (Rs. 1,956 in 2015 and Rs. 3,658 in 2019). Although the percentage of poor households and the percent impoverished due to health care spending has barely changed between SAGE-2 and SAGE-3, the proportion of households incurring catastrophic health payments has remained same at 30 in 2015 and in 2019. Out-of-pocket expenditure as a percentage of household expenditure has increased from 13 percent to 17 percent in the period, whereas OOP as a percentage of non-subsistence spending has increased to 25 percent, which was around 23 percent in 2015.*

Table 8.4.1 Mean monthly household consumption and health payments (Rs.) and impoverishment (%), states and India (pooled), SAGE Wave 3, 2019-20

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	12992	20.0	8.4	26.2	15.5	22.9	2749
Karnataka	17366	4.9	3.9	28.2	18.8	25.7	3546
Maharashtra	17712	8.2	4.0	29.8	17.5	24.8	4537
Rajasthan	23422	2.0	1.7	15.9	11.8	17.2	2837
Uttar Pradesh	18974	8.8	6.2	40.0	21.1	31.0	4258
West Bengal	15277	6.0	3.7	25.7	13.4	22.6	2519
India (pooled)	**18019**	**7.6**	**4.6**	**30.2**	**17.2**	**25.4**	**3658**

**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 8.4.2 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. Nearly 30% of households faced catastrophic health costs.

Table 8.4.2 Mean monthly household consumption and health payments (Rs.) and impoverishment(%) by background characteristics, India(pooled), SAGE Wave 3, 2019-20

Background characteristics	Mean household expenditure	Percent poor	Percent impoverished	Percent incurrng catastrophic health payments	OOPE as a percentage of household expenditure	OOP as percentage of non-subsistence spending	Mean OOP health payments (Rs.)
Catastrophic							
No	17595	8.8	1.5	-	8.1	13.4	1539
Yes	19008	4.9	11.8	-	41.7	57.9	9333
Poor							
No	19230	-	5.0	31.1	17.8	26.0	3934
Yes	3369	-	0.0	19.5	9.4	17.9	306
Insurance							
No	17377	7.9	4.8	31.0	17.5	25.8	3689
Yes	23439	4.9	3.4	23.2	14.8	21.9	3398
Residence							
Urban	20123	4.8	3.0	30.4	18.2	25.7	4278
Rural	16936	9.1	5.4	30.0	16.7	25.2	3339
Wealth quintile							
Lowest	9464	23.9	9.7	33.9	16.2	27.5	2028
Second	12629	9.7	7.4	34.0	19.0	27.9	3319
Middle	15794	4.6	4.0	35.6	18.4	26.7	3257
Fourth	20528	1.4	2.1	27.2	16.8	23.8	4093
Highest	29222	0.6	0.9	21.8	15.8	21.8	5226
Member of household 50+							
No	14082	9.3	2.9	23.0	14.0	21.0	2408
Yes	18625	7.4	4.9	31.3	17.7	26.1	3850
Total	**18019**	**7.6**	**4.6**	**30.2**	**17.2**	**25.4**	**3658**

**OOP = out-of-pocket.*

The mean monthly consumption expenditure of non-poor households was Rs. 19,230 compared to Rs. 3,369 for poor households. OOP health payments constituted 18% of monthly consumption expenditure for non-poor households and 9% for poor households. Households with any insured members spent Rs. 23,439 on monthly consumption, compared to uninsured households, which spent Rs. 17,377. Impoverishment due to catastrophic health expenditure was 5% among uninsured households, which spent Rs. 3689 on OOP health payments; only 3% of insured households experienced a similar fate, despite a higher monthly health expenditure of Rs. 3,398. OOP health

payments equalled 26% and 22% of non-subsistence spending for uninsured and insured households.

Monthly consumption expenditure rose with economic status, from Rs. 9,464 in the lowest wealth quintile to Rs. 29,222 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. 2,028 in the lowest quintile to Rs. 5,226 in the highest.

8.4.1 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 8.4.3 shows results by state for different categories of OOP health payments. Payment for medications was the largest category in all states but varied from 62% in West Bengal down to 29% in Karnataka. More was spent on outpatient care than inpatient care in all states. West Bengal was far ahead of the rest of the states in health payments for traditional medicine—10% of OOP health payments, compared to a national average of 6%. Payment for diagnostic tests accounted for 7% of OOP health payments in all six states. Karnataka and Maharashtra had the highest payments for inpatient treatment, and Karnataka had the highest payment for long-term care.

Table 8.4.3 Percent distribution of out-of-pocket payments by different items of health care, states and India (pooled), SAGE Wave 3, 2019-20

State	Inpatient	Outpatient	Traditional	Diagnostic	Medications	Health aids	Long term care	Others	Total
Assam	7.0	25.2	5.7	6.0	46.0	2.3	1.6	7.4	100
Karnataka	13.8	21.2	6.4	6.5	29.1	5.6	15.2	2.9	100
Maharashtra	11.6	29.1	3.6	7.0	29.4	6.1	6.6	6.6	100
Rajasthan	11.1	13.1	1.2	7.1	53.7	3.2	7.6	4.0	100
Uttar Pradesh	8.8	26.1	10.4	6.5	35.1	1.7	9.0	4.2	100
West Bengal	6.7	15.3	2.0	5.8	62.2	3.5	2.0	2.6	100
India (pooled)	**9.8**	**22.7**	**5.7**	**6.5**	**40.8**	**3.6**	**7.4**	**4.4**	**100**

Table 8.4.4 shows the nature of OOP payments by household characteristics. The largest component of OOP costs (41%) was medications. Households incurring catastrophic health payments spent 14% on inpatient care and 10% each on diagnosis and 8% on long-term care, compared with 8% on inpatient care, 5% on diagnosis, and 7% on long-term care for households without catastrophic expenditure. Poor households spent more on medications (46%) than non-poor households (41%). Outpatient health care accounted for 23% of payments in both urban and rural areas. Rural households spent 43% on medications compared to 37% in urban areas.

Table 8.4.4 Percent distribution of out-of-pocket payments by different items of health care by background characteristics, India (pooled), 2019-20

Background characteristics	Inpatient	Outpatient	Traditional	Diagnosis	Medications	Health aids	Long term care	Others	Total
Catastrophic									
No	8.0	21.4	5.3	5.1	44.2	4.8	7.1	5.1	100
Yes	13.8	25.6	6.5	9.7	33.3	0.9	8.2	3.0	100
Poor									
No	9.9	22.7	5.4	6.7	40.5	3.7	7.6	4.5	100

Background characteristics	Inpatient	Outpatient	Traditional	Diagnosis	Medications	Health aids	Long term care	Others	Total
Yes	8.1	22.0	10.7	3.0	46.2	2.6	4.5	3.5	100
Insurance									
No	9.9	23.6	5.8	6.5	39.4	3.7	7.4	4.6	100
Yes	8.6	14.7	4.6	6.8	51.9	3.1	7.7	3.4	100
Residence									
Urban	10.1	22.7	5.7	7.3	37.3	4.9	8.9	4.4	100
Rural	9.6	22.7	5.7	6.1	42.7	2.9	6.7	4.5	100
Wealth quintile									
Lowest	8.5	23.7	5.8	4.7	46.8	1.6	6.8	3.0	100
Second	12.6	21.3	7.2	5.7	36.9	5.4	6.9	4.8	100
Middle	9.8	22.1	5.9	6.6	40.9	3.1	7.2	4.9	100
Fourth	9.8	20.8	4.9	7.3	42.3	3.8	7.2	4.6	100
Highest	8.5	25.1	4.9	7.8	38.1	3.9	8.7	4.7	100
Member of household 50+									
No	11.4	24.2	3.2	6.5	41.9	3.6	6.1	3.6	100
Yes	9.6	22.5	6.0	6.5	40.6	3.6	7.6	4.6	100
Total	**9.8**	**22.7**	**5.7**	**6.5**	**40.8**	**3.6**	**7.4**	**4.4**	**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.

8.4.1 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 hospitalizations, coming not from current incomes but from savings, debt, and the sale of assets. Table 8.4.5 shows that current income was the major source of finance across all states, followed by savings. In Karnataka, Rajasthan, and West Bengal, over three-fourth relied on current income, while 23% in Maharashtra and 77% in Assam drew on their savings. Borrowing from relatives was the third major source of health care financing, varying from 12% in Assam to 9% in West Bengal. Around 15% of all households sold assets such as furniture, cattle, or jewelry to finance health care. Only 4% paid for health care through insurance.

Table 8.4.5 Percentage of households by sources of health care financing, states and India (pooled), SAGE Wave 3, 2019-20

State	Current income	Savings	Borrowed from relatives	Borrowed from others	Sold items	Health insurance	Other
Assam	38.7	76.7	12.1	8.7	19.1	1.6	2.2
Karnataka	78.3	24.5	44.0	19.4	8.6	8.6	10.1
Maharashtra	46.5	22.5	14.6	6.0	13.6	1.5	6.1
Rajasthan	77.3	37.5	27.9	5.6	21.5	7.3	1.4
Uttar Pradesh	58.3	44.7	22.3	7.2	20.0	5.0	10.3
West Bengal	90.7	39.0	9.2	6.4	4.5	2.6	0.6
India (pooled)	**65.1**	**37.6**	**21.1**	**8.1**	**14.8**	**4.3**	**6.2**

Table 8.4.6 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. Among households with insurance, 77% used their current income, and 40% used savings to pay for health care. Urban households were more likely than rural households to use current income, 67% and 64%, respectively. Households in the lowest and highest wealth quintiles drew on different sources to finance health care.

Table 8.4.6 Source of Health care financing by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Current income	Savings	Borrow from relatives	Borrow from others	Sold items	Health insurance	Other
OOP as a percentage of non-subsistence spending							
Less than 0-10%	67.9	34.5	15.2	5.4	12.1	4.1	3.4
11-20%	65.1	37.2	16.1	8.1	12.1	4.7	6.5
21-40%	65.3	40.7	20.5	7.6	16.8	6.0	7.7
More than 41%	62.7	37.7	29.7	10.7	17.2	2.9	7.0
Insurance							
No	63.7	37.3	21.0	8.2	15.3	4.1	6.6
Yes	76.7	40.0	22.0	7.8	10.1	6.7	2.8
Residence							
Urban	66.9	33.5	20.4	6.5	12.2	5.1	6.2
Rural	64.1	39.8	21.4	9.0	16.1	4.0	6.2
Wealth quintile							
Lowest	57.5	35.5	23.9	7.3	17.4	2.7	6.4
Second	64.7	35.1	27.9	8.3	19.2	3.3	5.8
Middle	67.2	32.4	20.2	9.0	12.2	3.3	4.9
Fourth	69.8	42.5	21.4	8.0	11.0	4.5	5.1
Highest	65.0	41.2	14.1	8.0	14.8	7.1	8.4
Member of household 50+							
No	63.1	40.7	24.3	9.0	13.7	4.2	4.3
Yes	65.3	37.1	20.6	8.0	14.9	4.4	6.5
Total	**65.1**	**37.6**	**21.1**	**8.1**	**14.8**	**4.3**	**6.2**

**OOP = out-of-pocket.*

9. Subjective Well-being and Quality of life

Ageing well in later life is a crucial strategy of public health policy in many developed as well as developing countries. The process of ageing is associated with deprivation in various psycho-social roles and a decline in physical health. Thus, later life as a phase is considered 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, subjective well-being (SWB) as a domain is considered for its measurement and assessment (WHO, 2015).

Most gerontological literature focused and illustrated that subjective well-being contributes immensely to overall health in old age as well as longevity (Brummett et al., 2005; Koopmans, Geleijnse, Zitman & Giltay, 2010; Ju, Shin, Kim, Hyun & Park, 2013). 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 (Myers & 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 older adults (Peterson, Chatters, Taylor & Nguyen, 2014). Existing literature corroborated that various personal and contextual factors were strongly allied to the subjective well-being of older adults.

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 fully 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, the science is still nascent, and there are controversies 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 (Sekher, et al., 2024; Mishra and Sekher, 2022).

The relationship that 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 for 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 evaluative well-being (a global assessment of an individual's satisfaction with their entire 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.

9.1 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 neighborhood. 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 have been developed that help to conceptualize and measure these multiple domains and explain 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 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 a better quality of life.

Table 9.1.1 presents the quality of life scores (WHOQoL) by the states for older and younger adults. Overall, the mean WHOQoL score of respondents was 60, with West Bengal (52.5) scoring lower and Maharashtra (67.1) scoring highest. The mean WHOQoL score of older respondents was around 59, with West Bengal and Assam (mean WHOQoL scores 51.5 and 52.8 respectively) scoring lower compared to the other states. Compared with those aged 50+, younger respondents reported a better quality of life (mean WHOQoL score 65.3); however, the pattern of mean WHOQoL scores by the states for younger adults was similar to that for older adults, with West Bengal and Assam having the lowest (57.1 and 58.8 respectively) and Maharashtra and Karnataka displaying the highest scores (73.5 and 67.7 respectively).

Trends: *The mean WHOQoL scores for younger and older adults across men and women have significantly increased from the year 2007 to 2020. Among younger respondents, mean WHOQoL scores have increased from 55 in the year 2007 to 65 in the year 2020, and it has increased from 49 in the year 2007 to 59 in the year 2020 among older respondents. Overall, this change was more pronounced among men compared to women in both younger and older age groups.*

Table 9.1.1 Mean WHOQoL scores for younger and older respondents, states and India (pooled), SAGE Wave 3, 2019-20

State	Aged 18-49		Aged 50+		Overall	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number	Mean WHOQoL score	Number
Assam	58.8	173	52.8	768	54.0	941
Karnataka	67.7	132	61.6	856	62.6	988
Maharashtra	73.5	218	65.8	1079	67.1	1297
Rajasthan	66.0	182	58.6	1339	59.6	1521
Uttar Pradesh	64.9	180	59.1	1328	59.8	1508
West Bengal	57.1	281	51.5	1349	52.5	1630
India (pooled)	**65.3**	**1166**	**59.1**	**6719**	**60.0**	**7885**

** 0 = worst quality of life, 100 = best quality of life.*

Table 9.1.2 presents mean WHOQoL scores by state and sex for both younger and older respondents. Overall, respondents in Assam and West Bengal consistently had lower WHOQoL scores than respondents from other states. Among younger women, the mean WHOQoL score was around six points lower than that of younger men, and it was four points lower among older women compared to their counterparts (older men). Older women respondents in West Bengal (50) and Assam (52) reported the lowest scores. The patterns by state were similar for older men (54) in both Assam and West Bengal. Similar patterns were observed in younger adults; there were sex and state differentials in mean WHOQoL scores.

Table 9.1.2 Mean WHOQoL scores for younger and older men and women, states and India (pooled), SAGE Wave 3, 2019-20

State	Males 18-49		Females 18-49		Males 50+		Females 50+	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number	Mean WHOQoL score	Number	Mean WHOQoL score	Number
Assam	61.7	64	57.3	109	53.7	370	52.0	398
Karnataka	70.7	47	65.5	85	64.2	379	59.3	477
Maharashtra	74.3	105	72.8	113	68.2	510	63.7	569
Rajasthan	71.1	80	62.3	102	60.2	587	57.4	752
Uttar Pradesh	68.0	69	62.7	111	61.0	632	57.4	696
West Bengal	59.4	101	55.9	180	53.9	596	49.7	753
India (pooled)	**68.7**	**466**	**63.0**	**700**	**61.2**	**3074**	**57.3**	**3645**

** 0 = worst quality of life, 100 = best quality of life.*

Tables 9.1.3 and 9.1.4 (a & b) present mean WHOQoL scores varying across sex, residence, caste, religion, marital status, education, and income for both younger and older respondents. Quality of life deteriorated progressively with age: the mean score dropped from 70 in the 18-29 age group to 54 in the 80+ age group. The gender gap in mean WHOQoL score was six points between the 18-29 years and 40-49 years age groups, compared to 5 points in the youngest-old (50-59) and the oldest-old (80+) age groups. Quality of life was worse in rural areas than in urban areas for both the 18-49 and 50+ age groups (Table 9.1.3). The mean quality of life gap between the oldest and youngest women was 17 points, compared with 14 for men (9.1.4 (a & b)).

Table 9.1.3 Mean WHOQoL scores for younger and older respondents, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Aged 18-49			Aged 50+	
	Mean WHOQoL score*	Number		Mean WHOQoL score*	Number
Age group					
18-29	70.4	267	50-59	61.2	2360
30-39	66.7	353	60-69	59.4	2569
40-49	62.2	546	70-79	56.5	1311
			80+	54.4	479
Sex					
Male	68.7	466		61.2	3074
Female	63.0	700		57.3	3645
Marital status					
Never married	69.7	191		61.0	66
Currently married	65.0	918		60.4	4943
Widowed	56.9	51		55.3	1667
Other[1]	57.4	6		55.3	43
Residence					
Urban	67.5	233		61.8	1235
Rural	64.3	933		57.9	5484
Caste					
Scheduled Tribe	59.8	113		55.6	472
Scheduled Caste	63.4	245		56.8	1106
Other[2]	66.5	808		59.8	5141
Religion					
Hindu	65.7	963		59.7	5578
Muslim	64.6	124		55.7	751
Other[3]	60.8	79		55.8	390
Education					
No formal education	60.5	266		56.1	2984
Less than primary	58.4	148		57.2	1090
Primary school	65.8	250		59.8	1222
Secondary school	67.9	204		63.7	599
High school	67.4	164		64.3	440
College and above	73.1	134		67.2	384

Background characteristics	Aged 18-49			Aged 50+	
	Mean WHOQoL score*	Number		Mean WHOQoL score*	Number
Wealth quintile					
Lowest	60.6	214		54.7	1254
Second	62.4	258		56.9	1283
Middle	64.1	272		58.1	1300
Fourth	67.3	216		60.3	1391
Highest	71.4	206		63.8	1491
Total	**65.3**	**1166**		**59.1**	**6719**

** 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 9.1.3 and 9.1.4 (a & b) depict positive socioeconomic gradients in the mean WHOQoL score for both sexes among older and younger adults, with respondents with no education and lower education levels or lower wealth status registering lower mean quality of life scores.

Table 9.1.4 (a) Mean WHOQoL scores for younger men and women, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Males 18-49		Females 18-49	
	Mean WHOQoL score*	Number	Mean WHOQoL score	Number
Age group				
18-29	71.5	176	68.4	91
30-39	69.6	109	65.0	244
40-49	65.7	181	60.4	365
Marital status				
Never married	69.9	124	69.4	67
Currently married	68.3	339	62.8	579
Widowed	66.9	2	56.5	49
Other[1]	67.6	1	55.9	5
Residence				
Urban	71.3	89	64.8	144
Rural	67.4	377	62.1	556
Caste				
Scheduled Tribe	63.2	53	57.0	60
Scheduled Caste	68.5	106	58.7	139
Other[2]	69.4	307	64.6	501
Religion				
Hindu	69.0	386	63.4	577
Muslim	68.5	46	61.7	78
Other[3]	64.5	34	57.3	45
Education				
No formal education	66.2	48	59.2	218
Less than primary	54.9	38	59.6	110
Primary school	69.3	103	62.6	147
Secondary school	69.9	102	66.4	102
High school	69.3	100	64.3	64
College and above	72.6	75	73.8	59
Wealth quintile				
Lowest	64.1	84	58.5	130
Second	65.3	96	60.8	162
Middle	66.3	105	62.2	167
Fourth	73.6	88	62.1	128
Highest	72.6	93	70.5	113
Total	**68.7**	**466**	**63.0**	**700**

** 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 9.1.4 (b) Mean WHOQoL scores for older men and women, by background characteristics, India (pooled), SAGE Wave 3, 2019-20

Background characteristics	Males 50+		Females 50+	
	Mean WHOQoL score	Number	Mean WHOQoL score	Number
Age group				
50-59	63.5	932	59.7	1427
60-69	61.3	1224	57.6	1349
70-79	59.4	668	53.4	648
80+	57.2	250	51.6	230
Marital status				
Never married	62.3	42	55.4	24
Currently married	61.5	2708	59.2	2235
Widowed	59.0	307	54.4	1360
Other[1]	62.0	17	50.4	26
Residence				
Urban	64.7	549	59.4	686
Rural	59.7	2525	56.3	2959
Caste				
Scheduled Tribe	56.4	204	55.1	268
Scheduled Caste	58.0	483	55.9	623
Other[2]	62.1	2387	57.7	2754
Religion				
Hindu	61.8	2548	57.9	3030
Muslim	57.9	343	53.6	408
Other[3]	57.3	183	54.4	207
Education				
No formal education	57.0	742	55.8	2242
Less than primary	58.7	594	55.5	496
Primary school	60.1	694	59.5	528
Secondary school	63.6	408	63.9	191
High school	64.7	338	62.5	102
College and above	68.0	298	64.9	86
Wealth quintile				
Lowest	56.5	547	53.4	707
Second	58.2	583	55.8	700
Middle	59.4	568	57.1	732
Fourth	62.2	656	58.5	735
Highest	66.6	720	61.0	771
Total	**61.2**	**3074**	**57.3**	**3645**

** 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.

Conclusions

Our results for SWB reveal very clear patterns in the evaluative component of well-being. The social gradient in SWB is striking, showing 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 one hand and SWB on the other has indeed 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 indicating that increasing age or physical health are not the definitive or sole causes of the lower level of SWB among the older cohort. Older people can expect a high level of SWB. People in older cohorts can expect to have higher SWB of different forms than those who are younger when accounting for their poorer health and greater likelihood of being 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.

In today's ageing societies, assessing 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 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.

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.

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 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 that 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, expenditures 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 health risk. 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. The 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 the inability to move one or more limbs on one side of the body, the inability to understand or formulate speech, or the 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 that 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 the 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 the 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, was 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.

SAGE

Study on global AGEing and adult health

Wave 3

International Institute for Population Sciences, Mumbai

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 SAGE Wave 3. More information is available at: www.who.int/healthinfo/sage and https://lipsindia.ac.in/SAGE

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बेहतर भविष्य के लिए क्षमता निर्माण
Capacity Building for Better Future

STUDY ON GLOBAL AGEING AND ADULT HEALTH
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