# SELECTED HEALTH INDICATORS AMONG THE ELDERLY

Findings from the SADHS 2016,
GHS 2016 and MACoD 2016

Report: 03-00-13


THE SOUTH AFRICA I KNOW, THE HOME I UNDERSTAND

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# Thematic report

# Selected health indicators among the elderly: Findings from the SADHS 2016, GHS 2016 and MACoD 2016

Statistics South Africa

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Report No. 03-00-13

Selected health indicators among the elderly: Findings from the SADHS 2016, GHS 2016 and MACoD 2016 / Statistics South Africa

Published by Statistics South Africa, Private Bag X44, Pretoria 0001



Stats SA Library Cataloguing-in-Publication (CIP) Data
Selected health indicators among the elderly: Findings from the SADHS 2016, GHS 2016 and MACoD 2016 / Statistics South Africa. Pretoria: Statistics South Africa, 2019

Report no. 03-00-13
62 pp

ISBN 978-0-621-47168-7

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## Preface

The report focuses on selected non-communicable diseases and causes of death among the elderly based on three data sources, namely the South Africa Demographic and Health Survey (SADHS 2016), General Household Survey (GHS) 2016, and Mortality and Causes of Death (MACoD) 2016. Statistics South Africa (Stats SA) conducted the South Africa Demographic and Health Survey in collaboration with the National Department of Health and the South African Medical Research Council. These three data sources provide a knowledge base on a number of health aspects, and Stats SA draws on the health aspects measured to highlight health conditions that mostly affect senior citizens (persons aged 60 years and older) in South Africa.

Linkages between non-communicable morbidities – such as diabetes mellitus and hypertension – and causes of death among the elderly were explored, and the findings provide insight into the disease burden in the older population in South Africa. Additional analysis on access to health care services was done using a proxy variable: medical insurance. The statistics presented in this report are critical in informing health planners and programmes focussing on health promotion as the country strives to address the disease burden in the older population. Using statistics for evidence-based decision-making, efforts need to be commissioned with regard to prevention programmes and the promotion of a healthy lifestyle, targeted at persons of all ages.

This analytical work will contribute to intellectual debates and discourse on old age and health, which are critical for policy review and interventions.

**Risenga Maluleke**
**Statistician-General**

## List of acronyms and abbreviations

| | |
|---|---|
| AIDS | Acquired immunodeficiency syndrome |
| BMI | Body Mass Index |
| COPD | Chronic Obstructive Pulmonary Disease |
| CVD | Cardiovascular disease |
| DHA | Department of Home Affairs |
| DUs | Dwelling units |
| GHS | General Household Survey |
| ICF | Inner City Fund |
| DHA | Department of Home Affairs |
| DHS | Demographic and Health Survey |
| DPC | Data Processing Centre |
| MACoD | Mortality and causes of death |
| NCD | Non-communicable disease |
| NDoH | National Department of Health |
| NHI | National Health Insurance |
| SADHS | South Africa Demographic and Health Survey |
| SAMRC | South African Medical Research Council |
| SDGs | Sustainable Development Goals |
| Stats SA | Statistics South Africa |
| USA | United States of America |
| WHO | World Health Organization |

# 1. Introduction

## 1.1 Background

Health is a fundamental dimension of well-being and a key component of human development. South Africa has an array of health challenges: both communicable diseases, e.g. the high prevalence of HIV/AIDS, as well as the burden of non-communicable diseases (NCDs). Dr Marlon Cerf, Chief of Staff at a Medical Research Council briefing described the burden of disease in South Africa as: “The quadruple burden of disease in South Africa was a cocktail of four colliding epidemics: maternal, new born and child health; HIV/AIDS and tuberculosis (TB); non-communicable diseases; and violence and injury.” (Burden of Health & Disease in South Africa: Medical Research Council briefing, 2016)

Within the non-communicable diseases the main ones that are, mostly prevalent are diabetes mellitus, cardiovascular diseases, chronic respiratory diseases, cancer and hypertensive diseases. This burden of non-communicable diseases places a huge demand on provision of medical care in the country. When a person perceives himself and herself as having a certain disease or condition, it may motivate that person to take action to seek medical care at a health care facility. This is also referred to as health-seeking behaviour. Non-communicable diseases (NCDs) are medical conditions that are not caused by infectious agents (non-infectious or non-transmissible). They are sometimes referred to as chronic diseases, which progress slowly and last for lengthy periods. NCDs can be preventable through a healthy lifestyle and once they are present, their management includes the detection, screening and treatment as well as palliative care (WHO, 2017). Although all ages of the population are exposed to NCD risk factors such as physical inactivity, unhealthy lifestyle, and contact with tobacco smoke and harmful use of alcohol, older persons are more vulnerable and affected.

Forces such as rapid unplanned urbanisation, globalisation of unhealthy lifestyles and population ageing (WHO, 2017) induce NCDs. Africa is projected to experience a speedy ageing of its population; the percentage of its population aged 60 or older is expected to rise from 5% in 2017 to around 9% in 2050, and to nearly 20% by the end of the century (World Population Prospects, 2017). South Africa has one of the largest ageing populations in Africa. Almost 8% of the current population in South Africa is aged 60 years and older, equating to approximately 4,2 million people, and it is projected to increase further (WHO, 2013). There is an increase in chronic morbidity associated with people living longer and an expanding proportion of older people in the population (Werfalli et al, 2018).

The four main non-communicable diseases are cardiovascular diseases (such as heart attacks and stroke), cancer, chronic respiratory diseases (like chronic obstructed pulmonary disease and asthma), and diabetes (WHO, 2018). Hypertension is a disease on its own, but is also a risk factor co-existing with a number of diseases mentioned above. Hypertension is one of the NCDs that is common among the elderly, and is therefore discussed in this report based on the results from the South Africa Demographic and Health Survey (SADHS 2016).

Hypertension (high or raised blood pressure) is defined as a condition in which the blood vessels have raised pressure, created by the force of blood pushing against the walls of the blood vessels as it is pumped by the heart through the veins. The higher the pressure, the harder the heart has to pump (WHO, 2018). Hypertension has emerged as a significant medical and public health problem and is regarded as one of the continent’s greatest health challenges after HIV and AIDS. In South Africa, hypertension is the single most prevalent cardiovascular disease (CVD) risk factor and the predominant contributor to CVD morbidity and mortality (Byrne, 2016). South Africa has the highest prevalence of hypertension in sub-Saharan Africa, and the largest number of people whose blood pressure is still not controlled, even whilst being on treatment (Gómez-Olivé et al, 2017). The SADHS 2016 revealed that 46% of women and 44% of men aged 15–49 years have

hypertension and it increases steadily with age, with 84% of men and women aged 65 and older having hypertension. Interestingly, hypertension was less prevalent among women and men in the age category 55–64 years (78% and 74%, respectively), contrary to the finding that hypertension increases with age. The pattern of an increase in hypertension with age then follows the general trend, with as much as 84% of the elderly aged 65 and older having elevated blood pressure (SADHS, 2016).

Diabetes mellitus is the second NCD among the elderly to be presented in this report. It is one of the most shared lifelong chronic diseases in the world, and its ratio is increasing among the aging population (Yakaryilmaz et al, 2017). It is defined as a chronic disease caused by inherited and/or acquired deficiency in the production of insulin by the pancreas. It can also be caused by the ineffectiveness of the insulin produced, leading to increased concentrations of glucose in the blood. This in turn damages the body's systems, particularly the blood vessels and nerves (Werfalli et al, 2018).

There are two types of diabetes: Type 1 and type 2. Type 1 diabetes results from the pancreas failing to produce the insulin essential for survival. This type of diabetes develops most frequently in children and adolescents, but is increasingly noted later in life. Type 2 diabetes results from the body's failure to respond properly to the action of insulin produced by the pancreas. Type 2 diabetes accounts for about 90% of all diabetes cases worldwide and is most common in adults, but is being noted increasingly in adolescents as well. In South Africa, type 2 diabetes (diabetes mellitus) is more common among the older population than in younger adults. Diabetes negatively influences quality of life and is increasingly contributing to the disability status of the older South African population (Werfalli et al, 2018).

These two NCDs (hypertension and diabetes mellitus) are part of the management of NCDs on the international agenda. The United Nations Development Programme developed a universal set of goals, targets and indicators called the Sustainable Development Goals (SDGs), to be reached by 2030. South Africa is one of the 192 signatory countries that agreed in 2011 to implement the Global Action Plan to prevent and control non-communicable diseases. The 2030 Agenda for Sustainable Development recognises NCDs as one of the major challenges for achieving/ensuring sustainable development. As part of the agenda, heads of state and governments committed to develop ambitious national responses by 2030, to reduce by one-third premature mortality from NCDs through prevention and treatment of such (SDG target 3.4) (WHO, 2018).

The National Department of Health (NDoH) of South Africa also adopted the Strategic Plan on the Prevention and Control of Non-communicable Diseases. The strategic plan outlines the goal to attain “a long and healthy life for all” through prevention and control of non-communicable diseases. This plan further set out 10 goals and targets to be achieved by 2020. This will be achieved through the implementation of three major components: (i) prevention of NCDs and promotion of health and wellness at population, community and individual levels; (ii) improved control of NCDs through health system strengthening and reform; and (iii) monitoring NCDs and their main risk factors and conducting innovative research (Department of Health, 2013).

The health status of the elderly is compounded by poor nutrition coupled with medical issues (such as communicable and non-communicable diseases). The elderly are more susceptible to malnutrition due to factors such as physiological and physical changes. This is further compounded by increasing age, lack of financial support and inadequate access to nutritious food. A study was conducted in India to assess the nutritional status of the elderly and to study the various epidemiological factors influencing their nutritional status. The study revealed that 15% of the elderly were malnourished, therefore showing the association between nutritional status and the older age group to be significant (Agarwalla, 2015).

A study done in South Africa showed that malnutrition in the elderly could be due to poor dietary practices, but the nutrition transition of communities in South Africa is partially responsible for nutritional problems. Nutritional transition is characterised by the shift to highly refined diets high in fat, salt and caloric sweeteners, and low in fibre. The elderly living in the Umlazi township in KwaZulu-Natal, for instance, are more at risk of malnutrition because of the burden of having to take care of grandchildren and trying to bring stability to their households. This becomes a double burden that puts more strain on their quality of life, further affecting their nutritional status (Mkhize, 2012).

The nutrition and health of the elderly are often neglected. Nutritional interventions could play a part in the prevention of degenerative conditions in the elderly, and to improve their quality of life. It is for this reason that one of the objectives of the Strategic Plan for the Prevention and Control of Non-communicable Diseases 2013–2017 is to reduce the prevalence of obesity in the country (NDoH 2013b).

The evaluation of nutritional status among the elderly is important for the creation of a database to assist with the initiation of important programmes and formulation of policies (Agarwalla, 2015). This is partly why body mass index (BMI) was measured in the SADHS 2016; both self-perceived and measured BMI are presented in this report. Body mass index is an indirect measure of a person's nutritional status. BMI is calculated by using the person's weight in kilograms and dividing the weight by their height in $m^2$ (metres squared). The calculation of BMI is widely used to measure the nutritional status to determine whether a person is underweight, of normal weight, overweight, or obese depending on within which range the value calculated falls. These ranges of BMI vary based on factors such as region and age. The main groups of classifications are: underweight, normal weight, overweight and obese. Some of these categories are sometimes further divided into subcategories such as moderately, severely or very severely obese (NHLB, 2018).

South Africa has the highest level of obesity in sub-Saharan Africa, and the policy is addressed at reducing sugar intake. The government has set out targets to reduce obesity prevalence by 10% by 2020, with a sugar tax being one of the measures to achieve this. The levy falls under the Rates and Monetary Amounts and Revenue Laws Amendment Bill, 2017, as passed in parliament on 5 December 2017 (Revenue Amendment Bill, 2017).

This report presents the perceived (how elderly persons perceive their nutritional status) and the measured BMI (as calculated from height and weight measurement) as obtained from the biomarker questionnaire used in the SADHS 2016.

In South Africa, disease burden places a huge demand on public health sector services due to the fact that the majority of the population cannot afford health services provided by the private sector (National Health Insurance Draft Paper, National Department of Health, 2017). In order to address this challenge, the South African government is planning to implement The National Health Insurance (NHI) model in order to provide services to assist in rendering the required services. The National Health Insurance (NHI) is a financing system that will ensure that all citizens of South Africa (and legal long-term residents) are provided with essential health care, regardless of their employment status and ability to make a direct monetary contribution to the NHI Fund.

Currently, South Africa has a two-tiered health care financing system; a relatively large proportion of health care is paid medical schemes, various hospital care plans and out of pocket payments. This arrangement provides cover to private patients who have purchased a benefit option with the scheme of their choice, or as a result of an added benefit as part of conditions of services offered by an employer. Access to private medical schemes only benefits those who are subsidised by their employer (state and the private sector) to participate in such scheme/s (National Health Insurance Draft Paper, National Department of Health, 2017). Medical schemes are the major purchasers of services in the private sector in South Africa, and they cover 16,2% of the population (CMS, 2009).

The bulk of the remaining portion of the population has to be funded by the government fiscus, accessing health care through the public health sector. This service is free for users who access it, but the service is provided through government funding from income generated through various tax mechanisms.

## 1.2 Purpose of the report

Statistics South Africa, through the Health Statistics component, provides information on health statistics in South Africa in the form of thematic reports. A relevant health theme is selected on an annual basis and a report is compiled from various data sources. With the SADHS 2016 data being available, a decision was made to focus on health indicators among the elderly (persons aged 60 years and older).

The purpose of this report is to profile selected health indicators focussing on the elderly population. Profiled health indicators include nutritional status, prevalent morbidities and causes of death. Mortality is examined in relation to the elderly's overall health.

The report is based on information from three data sources: the SADHS 2016; Mortality and Causes of Death (MACoD) 2016; and the General Household Survey (GHS) 2016. According to the Mortality and causes of death report, non-communicable diseases accounted for 60% of the leading natural causes of death of overall deaths that occurred during 2016 in South Africa. Among the top leading natural causes of death, diabetes was ranked second and hypertensive diseases sixth, indicating that hypertension and diabetes are major contributing factors to the burden of disease in the country. Hypertensive diseases and diabetes mellitus are the only non-communicable diseases recorded in the top ten causes of death in the MACoD, and are included in the report to point out the link between the morbidity found in the SADHS 2016 and mortality.

### 1.3 Objectives of the report

The aim of this report is to profile health indicators of the elderly population in South Africa by using various data sources (SADHS 2016, GHS 2016 and MACoD 2016).

The objectives of the report are:
- To profile the perceived and measured nutritional status among the elderly;
- To profile selected non-communicable diseases prevalent among the elderly; and
- To determine the demographic characteristics of the elderly dying due to diabetes mellitus and hypertensive diseases.

### 1.4 Presentation of the report

The report firstly gives a broad outline of each of the data sources. In section two, the results describe the demographic characteristics of the elderly, as per the SADHS 2016 and GHS 2016 findings. The nutritional health status of the elderly is reported on in section three. Morbidity from hypertension and diabetes are covered based on the SADHS 2016 and GHS 2016 results in sections four and five, respectively. Section six covers the extent of deaths caused by diabetes mellitus and hypertensive disease among the elderly. Section seven reports on the levels of private health cover among the elderly in South Africa. Section eight provides a summary of the report.

## 2. Data sources and methods

This thematic health report uses secondary data from the South Africa Demographic and Health Survey (SADHS) conducted by Statistics South Africa (Stats SA), with technical assistance from the international DHS Program, the General Household Survey done by Statistics South Africa, and administrative data from death notification forms supplied by the Department of Home Affairs (DHA).

### 2.1 South Africa Demographic and Health Survey, 2016

Stats SA partnered with the South African Medical Research Council (SAMRC) in the implementation of the SADHS 2016 at the request of the National Department of Health (NDoH). The International Demographic and Health Survey (DHS) Program provided technical assistance, funded by the Inner City Fund (ICF).

The main objective of the SADHS 2016 was to collect information on demographic, health and nutrition status of the population of South Africa. In addition, the survey was aimed at providing estimates of health-related behaviour indicators, including use of tobacco, alcohol, and codeine-containing medications for adults aged 15 and older. The survey further endeavoured to provide estimates on the prevalence of anaemia among

adults aged 15 and older, and the prevalence of hypertension, high HbA1c levels, and HIV among adults aged 15 and older (refer to the SADHS 2016 full report for more details). The survey was a household-based survey with a sample size of 15 000 households. No adjustment for non-reporting was done in the SADHS 2016, thus there was also no adjustments made for age.

### 2.1.1 Data collection

The survey used five questionnaires to collect data, namely: the Household Questionnaire, the individual Woman's Questionnaire, the individual Man's Questionnaire, the Caregiver's Questionnaire, and the Biomarker Questionnaire. All the sampled dwelling units in the survey were eligible to be interviewed with the Household Questionnaire.

In half of the selected DUs, all households were eligible for interview with the Household Questionnaire, and all women aged 15–49, who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey, were eligible for interview with a standard individual questionnaire.

In the remaining half of the DUs, all households were eligible for interview with the Household Questionnaire, and all women and men aged 15 and older, who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey, were eligible for an individual interview and biomarker collection. In these same households, women aged 15–49 and men aged 15–59 were eligible for the standard individual questionnaire, as well as a South Africa-specific module on adult health; women aged 50 and older and men aged 60 and older were eligible for a few sections of the individual questionnaire and the adult health module. In addition, children aged 0–59 months were eligible for biomarker collection (South Africa Demographic and Health Survey 2016: Key Indicator Report, Statistics South Africa).

The Biomarker Questionnaire was used to record data on biomarkers (anthropometry, anaemia testing, blood pressure measurement, HbA1c testing, and HIV testing) collected from respondents by nurses. In addition, for adults aged 15 and older, information on prescribed medications was recorded. In the subsample of households selected for the male survey and the adult health module, the SADHS 2016 incorporated the following biomarkers: anthropometry, anaemia testing, blood pressure measurement, HbA1c testing, and HIV testing. Refer to the SADHS 2016 main report for further information on data processing, editing and analysis.

In the case of both high blood pressure and diabetes there are two elements that will be discussed, namely:
1) the self-reported aspect (being ever told by a health practitioner that one suffers or has the condition; and
2) the measured levels during the survey.

In addition, nutritional status will be discussed by means of the respondent's self-perceived levels as well as the calculated Body Mass Index (BMI), since respondents were measured and weighed as part of the Biomarker Questionnaire.

### 2.1.2 Limitations of the SADHS 2016 data

The SADHS 2016 collected information on the following non-communicable diseases: high blood pressure, heart attack or angina, cancer, stroke, high blood cholesterol, diabetes, chronic bronchitis, emphysema or Chronic Obstructive Pulmonary Disease (COPD) and asthma. Due to the limited number of cases for heart attack or angina, cancer, stroke, high blood cholesterol, chronic bronchitis, emphysema or COPD and asthma, this report will only focus on high blood pressure and diabetes mellitus among the elderly population in South Africa.

Respondents were asked a question on whether they have any cover by means of a private medical aid, medical benefit scheme or hospital plan that assist them in paying for health care, but respondents may still be using government health services despite having private medical cover, so the data might be skewed to a degree.

Due to the sampling size and response rate among the Indian/Asian population group, very few cases were found for certain characteristics of this population group, hence those results should be interpreted with caution.

When reporting on certain variables, e.g. hypertension and diabetes amongst the elderly, lower levels of analysis than provincial are not possible.

### 2.1.3 Sampling and weighting of SADHS 2016 data

A sample is a group of people who have been selected for a survey. In the SADHS, the sample is designed to represent the national population aged 15–49 years. In addition to national data, most countries want to collect and report data on smaller geographical or administrative areas. However, doing so requires a minimum sample size per area. For the SADHS 2016, the survey sample is representative at national and provincial levels, and for urban and non-urban areas only. Furthermore, the total number of women aged 15–49 years old that were interviewed in the SADHS 2016 was 8 514, therefore some weighting had to be done to reflect the different contribution each province made to the sample.

In order to get statistics that are representative of South Africa, the distribution of the women in the sample needed to be weighted (or mathematically adjusted) so that it resembles the true distribution in South Africa. Women from provinces with lower population numbers, like Northern Cape, should only contribute a small amount to the national total. Women from provinces with higher population numbers, like Gauteng, contributed more. Therefore, DHS statisticians mathematically calculated a “weight” to adjust the number of women from each province based on each province’s contribution to the total population.

The data was weighted by the DHS statisticians who took into account the probability that a woman was selected in the sample. If one were to compare the data to the actual population distribution of South Africa, one would see that women in each province contribute to the total sample with the same weight that they contribute to the population of South Africa. The weighted number of women in the survey now, for example, accurately represents the proportion of women who live in Gauteng and the proportion of women who live in Northern Cape.

With sampling and weighting, it is possible to interview enough women to provide reliable statistics at national and provincial level. In general, only the weighted numbers are shown in each of the SADHS tables, so one should not be alarmed if these numbers seem low; they may actually represent a larger number of women interviewed SADHS full report, 2016).

## 2.2 General Household Survey, 2016

The General Household Survey (GHS) is a household survey that has been executed annually by Stats SA since 2002. The survey replaced the October Household Survey (OHS), which was introduced in 1993 and was terminated in 1999. The GHS is a household-based survey aimed at determining the progress of development in the country. It is used to measure, on an annual basis, the performance of programmes and the quality of service delivery in a number of key service sectors in the country. The survey covers six broad areas, namely health, education, social development, housing and households’ access to services and facilities, food security, and agriculture.

The GHS is a multi-stage, stratified random sample that is drawn using probability-proportional-to-size principles. The first-tier stratification is based on province and second-tier stratification on district council basis. Field staff employed and trained by Stats SA visit all the sampled dwelling units in each of the nine provinces. The sample size of the GHS is roughly 30 000 dwelling units. The sample weights were constructed in order to account for the following: the original selection probabilities (design weights), adjustments for PSUs that were sub-sampled or segmented, excluded population from the sampling frame, non-response, weight trimming, and benchmarking to known population estimates from the Demographic Analysis division within Stats SA. For further details, see the GHS 2016 report.

In the section on health in the GHS, the same questions were asked with regard to the self-reported aspect (being ever told by a health practitioner that one suffers or has the condition) in the case of both high blood pressure and diabetes mellitus. This question was asked at the household level and answered on behalf of each individual in the household by a proxy respondent. However, when analysis was done the person weights were applied, making the results comparable with the results in the SADHS 2016.

A similar question on cover in terms of medical fund was asked in the SADHS 2016 and the GHS 2016. In the GHS, no biometric measurements were taken and responses were provided by a proxy respondent. As mentioned above, when analysis was done the person weights were applied, making the results comparable with the results in the SADHS 2016.

### 2.3 Mortality and causes of death, 2016

Data on mortality and causes of death is based on information recorded on the death notification forms collected by Stats SA from the Department of Home Affairs (DHA). Two death notification forms are currently in use in South Africa to register deaths, i.e. form BI-1663, which was introduced in 1998 as well as DHA-1663, which was introduced in 2009 to replace form BI-1663.

Death notification forms are taken to the DHA for registration of a death and for the death certificate to be issued. Stats SA collects all death notification forms from the DHA head office for processing at the Data Processing Centre (DPC). For further details on data processing and analysis of other deaths, refer to “Mortality and cause of death in South Africa, 2016: Findings from death notification” (Stats SA, 2018).

After a death occurred, a medical practitioner, police officer or any authorised person at the scene of the death certifies the person as dead and completes section G of the death notification form. In the event that a medical practitioner could not certify the occurrence of the death, a traditional leader (induna, chief or a headman) completes the DHA-1680 form (also referred to as the death report) to certify the occurrence of the death and to provide a description of the circumstances that resulted in the death.

The mortality and causes of death (2016) data is used to examine if a similar pattern can be observed in the causes of mortality as observed for morbidity that were reported in the SADHS 2016 and the GHS 2016.

## 3. Results

Results presented in this report are descriptive and presented in the form of graphs and tables on selected demographics, e.g. sex, type of residence, population group and province. The mortality and causes of death report contributed some information on deaths due to selected non-communicable diseases. The GHS 2016 provided information on medical aid cover, morbidity from hypertension and diabetes mellitus. The SADHS 2016 covered all sections on the characteristics of respondents, nutritional status, health insurance cover and morbidity from selected non-communicable diseases.

In this report, the focus is placed on analysing the data for the elderly. For the purpose of this report, the elderly are defined as respondents aged 60 years and older.

## 3.1 Characteristics of the elderly, SADHS 2016

This section presents the background characteristics of the elderly by place of residence, population group and province as obtained from the SADHS 2016 survey.

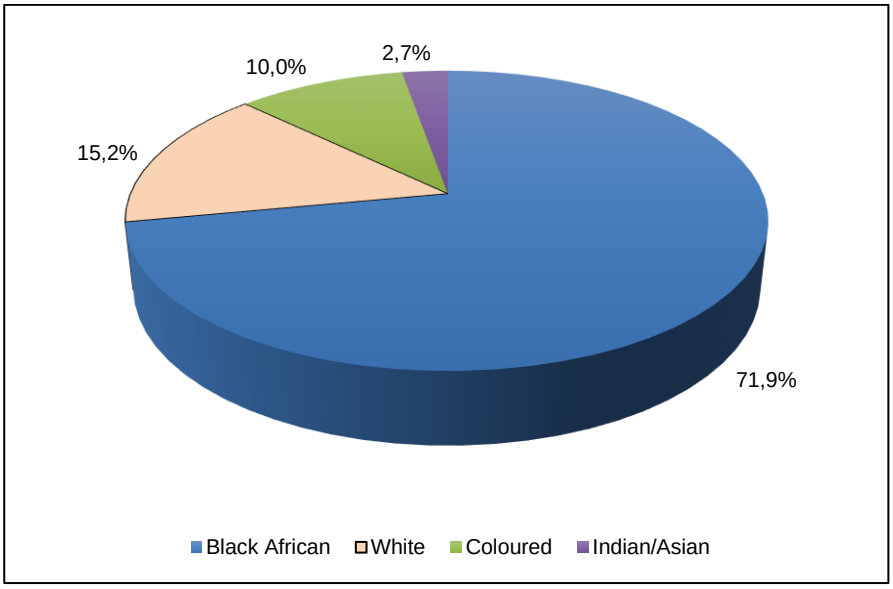
**Table 1: Background characteristics of the elderly, SADHS 2016**

| Variable | Sex | | | | | |
|---|---|---|---|---|---|---|
| | Men | | Women | | Total | |
| | Number | % | Number | % | Number | % |
| **Type of place of residence** | | | | | | |
| Urban | 369 | 64,4 | 586 | 57,2 | 955 | 59,8 |
| Non-urban | 204 | 35,6 | 439 | 42,8 | 643 | 40,2 |
| **Population group** | | | | | | |
| Black African | 378 | 66,0 | 771 | 75,3 | 1149 | 71,9 |
| White | 108 | 18,8 | 136 | 13,2 | 243 | 15,2 |
| Coloured | 66 | 11,5 | 94 | 9,2 | 160 | 10,0 |
| Indian/Asian | 21 | * | 22 | * | 44 | (2,7) |
| **Province** | | | | | | |
| Western Cape | 103 | 18,1 | 155 | 15,1 | 259 | 16,2 |
| Eastern Cape | 69 | 12,1 | 170 | 16,6 | 239 | 15,0 |
| Northern Cape | 13 | 2,3 | 23 | 2,2 | 36 | 2,3 |
| Free State | 27 | 4,7 | 59 | 5,8 | 86 | 5,4 |
| KwaZulu-Natal | 93 | 16,2 | 175 | 17,0 | 267 | 16,7 |
| North West | 45 | 7,9 | 61 | 6,0 | 107 | 6,7 |
| Gauteng | 131 | 22,9 | 175 | 17,1 | 306 | 19,2 |
| Mpumalanga | 29 | 5,1 | 65 | 6,3 | 94 | 5,9 |
| Limpopo | 62 | 10,9 | 142 | 13,9 | 205 | 12,8 |
| **Total** | **573** | **100,0** | **1 025** | **100,0** | **1 598** | **100,0** |

Note: Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. *Other is excluded in the data. Due to rounding, totals may not add to 100%.

Table 1 above indicates that information from a total of 1 598 respondents aged 60 years and older (1 025 women and 573 men) were collected during the SADHS 2016. In addition, the table shows that about 60% (59,8%) of the elderly live in urban areas compared to 40,2% of those living in non-urban areas.

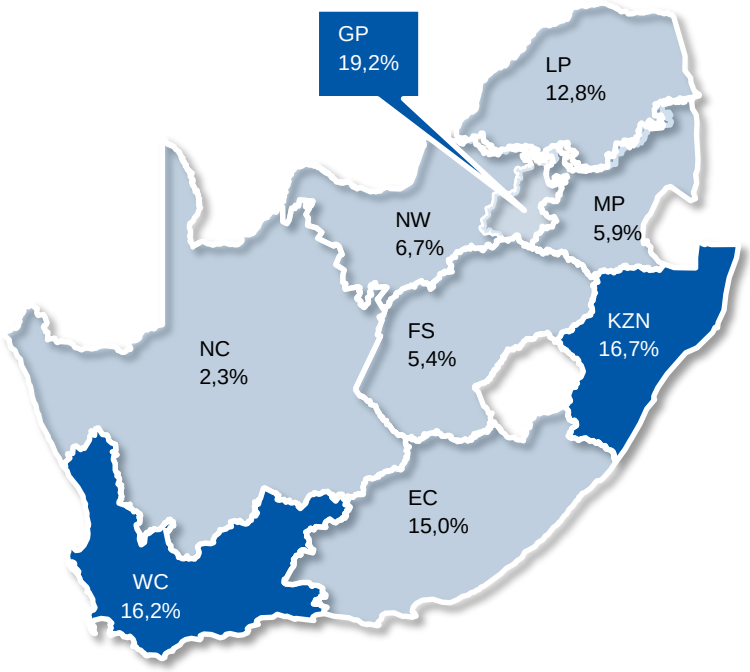
**Figure 1: Percentage distribution of the elderly by population group in South Africa, SADHS 2016**




*Other is excluded from the data. Due to rounding, totals may not add to 100%.

In Figure 1 above, it is depicted that the majority of the respondents in the SADHS 2016 were from the black African population group (71,9%). In addition, Table 1 shows that 66,0% of elderly males were from the black African population group. The same picture emerged with regard to females; 75,3% of elderly females belonged to the black African population group. The second largest proportion of respondents were from the white population group (15,2%); elderly white women accounted for 13,2% and elderly white men for 18,8%. The profile of the elderly coloured population showed that, overall, they constituted about a tenth (10,0%), of which 9,2% were women and 11,5% were men. The least represented population group was the Indian/Asian group. Due to few cases, the figures are indicated in parentheses in the table, and should thus be interpreted with caution.

**Map 1: Proportional distribution of the elderly population by province, SADHS 2016**




*Other is excluded from the data. Due to rounding, totals may not add to 100%.

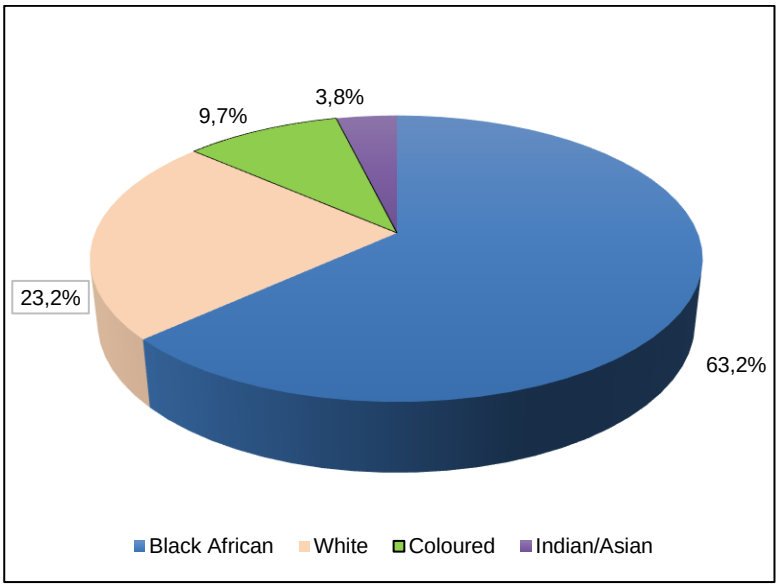
In Map 1 above, the distribution of the elderly per province is depicted as reported in the SADHS 2016. The provincial percentage distribution of the elderly was calculated as a proportion of a specific province relative to the whole country. In Gauteng, the elderly constituted 19,2%, followed by KwaZulu-Natal and Western Cape (16,7% and 16,2%, respectively). Less than 5% of the elderly live in Northern Cape (2,3%).

## 3.2 Characteristics of the elderly, GHS 2016

### Table 2: Background characteristics of the elderly, GHS 2016

| Variable | Sex | | | | | |
|---|---|---|---|---|---|---|
| | Men | | Women | | Total | |
| | Number '000 | % | Number '000 | % | Number '000 | % |
| **Population group** | | | | | | |
| Black African | 1 079 | 60,3 | 1 741 | 65,2 | 2 820 | 63,2 |
| White | 466 | 26,0 | 570 | 21,4 | 1 036 | 23,2 |
| Coloured | 174 | 9,7 | 261 | 9,8 | 435 | 9,7 |
| Indian/Asian | 71 | 4,0 | 98 | 3,7 | 170 | 3,8 |
| **Province** | | | | | | |
| Western Cape | 265 | 14,8 | 325 | 12,2 | 590 | 13,2 |
| Eastern Cape | 251 | 14,0 | 389 | 14,6 | 640 | 14,4 |
| Northern Cape | 45 | 2,5 | 70 | 2,6 | 115 | 2,6 |
| Free State | 94 | 5,3 | 158 | 5,9 | 252 | 5,7 |
| KwaZulu-Natal | 297 | 16,6 | 511 | 19,1 | 808 | 18,1 |
| North West | 150 | 8,4 | 179 | 6,7 | 329 | 7,4 |
| Gauteng | 426 | 23,8 | 596 | 22,3 | 1 022 | 22,9 |
| Mpumalanga | 121 | 6,8 | 177 | 6,6 | 297 | 6,7 |
| Limpopo | 140 | 7,8 | 267 | 10,0 | 407 | 9,1 |
| **Total** | **1 789** | **100,0** | **2 671** | **100,0** | **4 461** | **100,0** |

### Figure 2: Percentage distribution of the elderly by population group in South Africa, GHS 2016

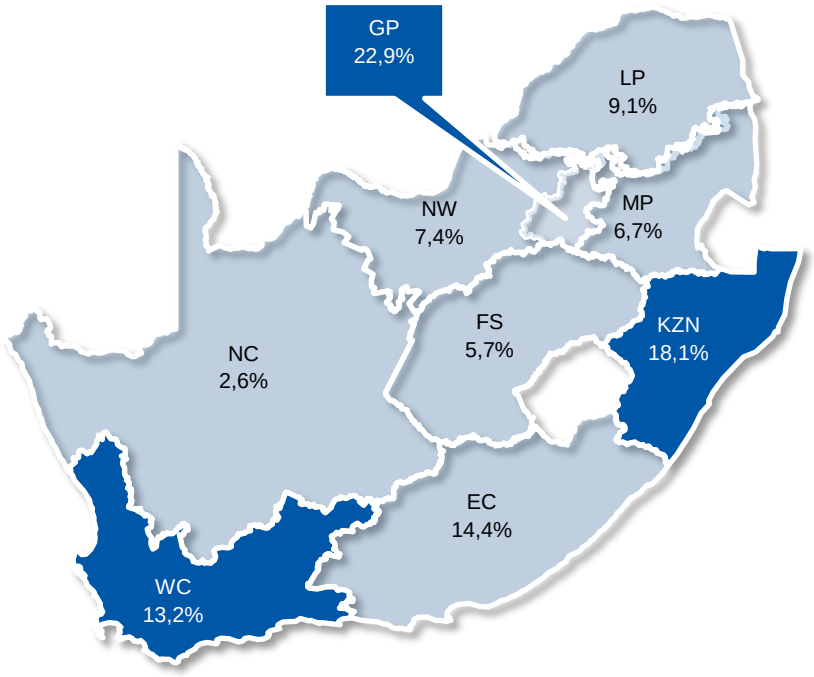



*Other is excluded in the data. Due to rounding, totals may not add to 100%.

As shown in Figure 2, the majority of the respondents in the GHS 2016, as in the SADHS 2016, were from the black African population group (63,2%). Table 2 further shows that 60,3% of elderly males were from the black African population group. The same applied with regard to females, where 65,2% of elderly females belonged to the black African population group. The second largest proportion of respondents belonged to the white population group (23,2%); white women accounted for 21,4% and 26,0% of elderly men belonged to the white population group. The elderly from both the coloured and Indian/Asian population groups represented less than 10% (9,7% and 3,8%, respectively). Coloured women accounted for 9,8% and 9,7% of elderly men belonging to the coloured population group. The Indian/Asian population group was the least represented among the overall elderly population distribution at 3,8% (3,7% of elderly women belonged to the Indian/Asian population group, and 4,0% of elderly men).

The differences in the proportional distribution of the population groups may be due to the fact that both the SADHS 2016 and the GHS 2016 were household sample surveys with different sampling methodologies (see full SADHS 2016 and GHS 2016 reports for more detail).

**Map 2: Proportional distribution of the elderly population by province, GHS 2016**




*Other is excluded in the data. Due to rounding, totals may not add to 100%.

In Map 2 above, the provincial distribution of the elderly per province as per the GHS 2016 is shown. In line with the 2016 mid-year population estimates (MYPE), the highest percentage of the elderly overall was found to be living in Gauteng (22,9%), followed by KwaZulu-Natal and Eastern Cape (18,1% and 14,4%, respectively) according to the GHS 2016. Less than 5% of the elderly live in Northern Cape (2,6%). On a provincial level, the differences in proportional distribution of the elderly population is less profound between the SADHS 2016 and the GHS 2016. For example, the proportional elderly population from Free State was 5,4% (SADHS) and 5,7% (GHS); for Northern Cape, it was 2,3% (SADHS) and 2,6% (GHS).

## 3.3 Nutritional status of the elderly

Nutritional status is measured by means of the Body Mass Index (BMI), which is a measure of a person's weight with respect to their height. BMI is calculated by dividing weight in kilograms by height in metres squared ($kg/m^2$). BMI provides the most useful population-level measure of overweight and obesity as it is standardised to be the same for both sexes, and for all ages of adults. However, it should be considered a rough guide because it may not correspond to the same degree of fatness in different individuals (WHO, 2012). BMI is categorised as: overweight/obese for an adult who has a score of 25 or higher; normal for a score of between 18,5 to 24,9; and underweight for a score below 18,5 (WHO, 2018).

The literature shows a correlation between high blood pressure (BP) and high body mass index (BMI). (Fortenberry et al, 2013). Being overweight and having high BP have independent fatal health consequences as they increase risk factors for other non-communicable diseases such as heart disease, stroke, type 2 diabetes, and even death (Vuvor, 2017).

The nutritional problems of the elderly are mostly due to dietary inadequacies and over-nutrition associated with the nutrition transition, as seen among certain age groups of the population in some countries in Africa (Karen, 2001). As mentioned earlier, the nutritional transition is characterised by a shift to highly refined diets high in fat, salt and caloric sweeteners, and low in fibre.

This report presents the perceived (how elderly persons perceive their nutritional status) and the measured BMI (as calculated from height and weight measurement), as obtained from the Biomarker Questionnaire used in the SADHS 2016. Perceived BMI refers to the respondent being asked how he or she regarded their weight in relation to their height (no measurements were done for this variable). The measured BMI was obtained from the measurements performed on respondents for weight and height in the anthropometry section of the survey, and then calculated accordingly.

### 3.3.1 Measured nutritional status

Data on height and weight were collected for all women and men aged 15 and older who consented to measurements to be used to calculate the Body Mass Index (BMI). Table 3 presents weight and height recorded among the elderly through anthropometric measurements by place of residence, population group and province. The categories of overweight (25–29) and obese (>30) were merged to create a category named overweight/obese.

## Table 3: Percentage of measured BMI among the elderly by place of residence, population group and province, SADHS 2016

| Variable | Men | | | | Women | | | | All | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Underweight (<18.5) | Normal weight (18.5-24.9) | Overweight and/or obese (>=25) | Number | Underweight (<18.5) | Normal weight (18.5-24.9) | Overweight and/or obese (>=25) | Number | Underweight (<18.5) | Normal weight (18.5-24.9) | Overweight and/or obese (>=25) | Number |
| **Type of place of residence** | | | | | | | | | | | | |
| Urban | 6,6 | 32,9 | 60,5 | **271** | 0,9 | 17,2 | 81,9 | **454** | 3,0 | 23,1 | 73,9 | **725** |
| Non-urban | 7,5 | 45,5 | 47,0 | **165** | 2,5 | 26,4 | 71,1 | **384** | 4,0 | 32,1 | 63,9 | **549** |
| **Population group** | | | | | | | | | | | | |
| Black African | 9,1 | 44,4 | 46,5 | **302** | 1,9 | 20,7 | 77,4 | **667** | 4,1 | 28,1 | 67,8 | **969** |
| White | 0,8 | 16,9 | 82,3 | **75** | 1,0 | 22,3 | 76,7 | **86** | 0,9 | 19,8 | 79,3 | **161** |
| Coloured | 2,2 | 29,1 | 68,7 | **45** | 0,4 | 25,4 | 74,2 | **66** | 1,1 | 26,9 | 72,0 | **111** |
| Indian/Asian | * | * | * | **15** | * | * | * | **17** | * | * | * | **32** |
| **Province** | | | | | | | | | | | | |
| Western Cape | (0,0) | (23,1) | (76,9) | **57** | 0,0 | 22,3 | 77,7 | **100** | 0,0 | 22,6 | 77,4 | **156** |
| Eastern Cape | 8,2 | 43,1 | 48,7 | **63** | 1,9 | 27,0 | 71,1 | **157** | 3,7 | 31,6 | 64,7 | **220** |
| Northern Cape | (9,8) | (35,6) | (54,6) | **11** | 8,2 | 19,6 | 72,2 | **20** | 8,7 | 25,1 | 66,1 | **31** |
| Free State | (9,4) | (40,3) | (50,3) | **25** | 1,0 | 21,0 | 78,0 | **49** | 3,9 | 27,5 | 68,6 | **74** |
| KwaZulu-Natal | 6,4 | 29,9 | 63,7 | **73** | 0,8 | 14,9 | 84,3 | **147** | 2,7 | 19,9 | 77,5 | **220** |
| North West | 18,6 | 30,0 | 51,4 | **40** | 7,3 | 27,8 | 64,9 | **57** | 12,0 | 28,7 | 59,3 | **97** |
| Gauteng | (6,3) | (41,3) | (52,4) | **98** | 0,0 | 11,7 | 88,3 | **137** | 2,6 | 24,0 | 73,3 | **234** |
| Mpumalanga | 7,6 | 38,4 | 54,0 | **21** | 3,6 | 25,6 | 70,8 | **56** | 4,7 | 29,2 | 66,1 | **77** |
| Limpopo | (4,0) | (56,8) | (39,2) | **49** | 1,0 | 28,1 | 70,9 | **116** | 1,9 | 36,6 | 61,5 | **165** |
| **Total** | **7,0** | **37,6** | **55,4** | **436** | **1,6** | **21,4** | **77,0** | **838** | **3,5** | **27,0** | **69,6** | **1 274** |

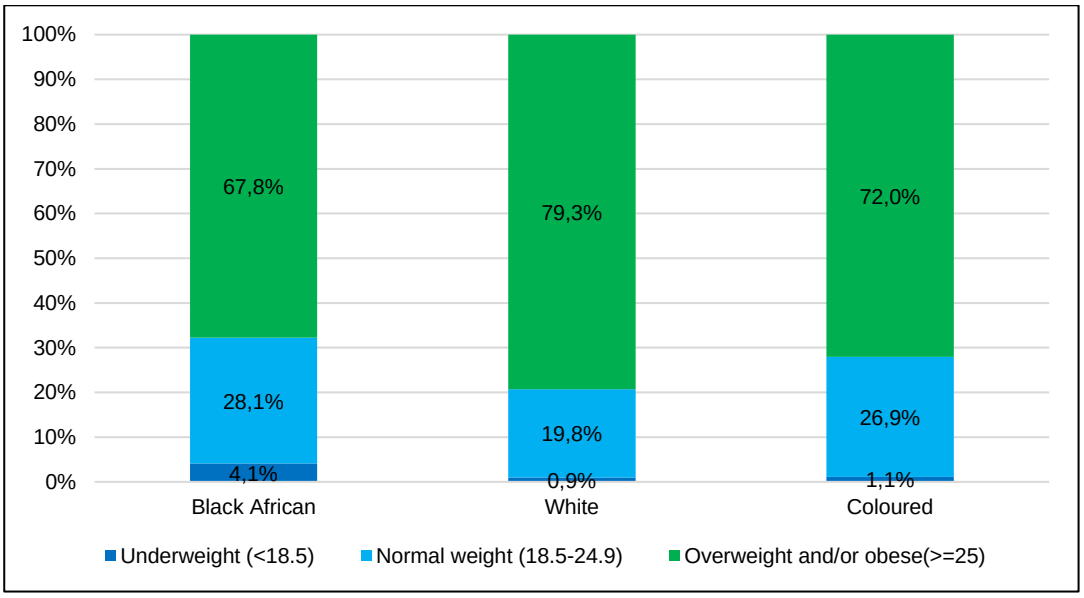
Note: The Body Mass Index (BMI) is expressed as the ratio of weight in kilograms to the square of height in metres (kg/m$^2$). Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

Table 3 depicts that almost seven in ten elderly persons (69,6%) were found to be overweight. In addition, Table 3 shows that among the elderly, only 3,5% of those measured were underweight. However, being underweight was double the national average (7,0%) for men. For women, only 1,6% of women had a BMI measured to be underweight. Roughly, a quarter of the elderly (27,0%) had a normal weight, whilst the majority (69,6%) of the elderly in the country were overweight/obese. Among women, the majority was overweight/obese (77,0%), whilst among men, just more than half (55,4%) of men were obese/overweight.

From Table 3 it is also clear that measured BMI showed that within urban areas, it was found that more than 70% of elderly persons were overweight/obese, whilst non-urban areas recorded about 63,9%. Being overweight/obese was almost double (60,5%) that of men being of normal weight (32,9%) among men in urban areas. A more even distribution between being of normal weight (45,5%) and being overweight/obese (47,0%) among men in in non-urban areas is observed.

Among women, there are large differences in being of normal weight and being overweight/obese in both urban and non-urban areas. For elderly women in urban areas, there is a larger difference in elderly women having a normal weight (17,2%) versus 81,9% being overweight/obese. Although the difference in normal weight (26,4%) versus being overweight/obese (71,1%) among women is smaller in non-urban areas, it is still substantial.

**Figure 3: Measured BMI among the elderly by population group, SADHS 2016**




Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

From Table 3 and Figure 3, three vastly different scenarios emerge for the three population groups for which sufficient measurements for BMI were obtained, namely black Africans, whites and coloureds. The numbers for the Indian/Asian group was not sufficient to make any inferences.

The overall pattern among the black African population group shows a very similar pattern to that of black African women; 28,1% of the elderly population is of normal weight, whilst 67,8% is overweight/obese. Black African men had an almost equal distribution for being of normal weight (44,4%) and being overweight/obese (46,5%). The difference amongst black African women being of normal weight (20,7%) and being overweight/obese (77,4%) is more pronounced. Among the black African elderly, being overweight is more prevalent with 4,1% being underweight and almost one in ten elderly men in this group (9,1%) being underweight.

The elderly from the white population overall have almost four out of every five people being overweight/obese (79,3%), and only about one in five being of normal weight (19,8%). With regard to sex, more elderly white men are overweight/obese (82,3%) as opposed to being of normal weight (16,9%). The majority of elderly white women are overweight/obese (76,7%) as opposed to being of normal weight (22,3%).

The overall trend among the coloured population group is in keeping with the other population groups, where the majority of the elderly are overweight/obese (72,0%) and only 26,9% were of normal weight.

As per Table 3 with regard to provincial distribution, measured BMI was high for the elderly as a whole in South Africa (69,6%); 27% were of normal weight and 3,5% were underweight, as indicated previously. All of the provinces had high levels of the elderly being overweight/obese.

North West (59,3%) was the only province that had less than 60% of their elderly being overweight/obese; an alarming 12% of this province's elderly were underweight. Limpopo had the largest portion of their elderly being of normal weight (36,6%) and the second lowest proportion of their population being overweight/obese (61,5%).

The two provinces that had the highest levels of their elderly being overweight/obese were KwaZulu-Natal (77,5%), followed closely by Western Cape (77,4%).

### 3.3.2 Perceived nutritional status

The SADHS 2016 had three categories of respondents that qualified to answer questions on their perceived weight and height, namely: all men and women 15 years and older and that took part in the survey; women aged 50 years and older; and people who were selected for the household relations module.

Overall, results in Table 4 show that most of the elderly in the country perceive themselves to be of normal weight (74%). There is a nearly equal percentage of the elderly that perceive themselves as being underweight (13,1%) and overweight/obese (11,0%). Almost double the elderly in non-urban areas (18,2%) perceive themselves to be underweight compared to the elderly in urban areas (9,7%). On the inverse, approximately half of the elderly population in non-urban areas perceived themselves as being overweight/obese (7,8%) compared to those in urban areas (13,2%).

As with the measured BMI, and depicted in Figure 4, different pictures emerge about each population group in the way they perceive their own weight. Although the majority of all elderly in all the population groups perceive themselves as having a normal weight (74,0%), the proportions differ among the respective population groups. Overall, 75,2% of the elderly from the black African group indicated that they perceive themselves as having a normal weight. This is followed by the elderly from the white population group, where 71,5% perceive themselves to be of normal weight. For the elderly from the coloured population group, 68,0% indicated that they see themselves as having a normal weight. In the case of perceived weight, a larger number of cases were available than with the measured BMI of the Indian/Asian group. However, the numbers were still based on few cases and should be interpreted with caution. Taking cognisance of this, the Indian/Asian population group had the highest proportion of the elderly indicating that they view themselves as being of normal weight, namely 78,9%.

With regard to the elderly perceiving themselves as either underweight or overweight/obese, approximately double the elderly from the black African group perceived themselves as being underweight (14,3%) versus 7,3% overweight/obese. The elderly from the coloured group had very similar proportions with regard to being underweight (15,0%) and overweight/obese (16,6%). The elderly from the white population had mostly perceived themselves as being overweight (23,5%), and a small proportion had perceived themselves as being underweight (5,0%).

Similarly, with the differences among the population groups for provinces, most of the elderly perceived themselves as being of normal weight but differences occur with regard to the levels in the respective provinces (see Table 3). In all nine provinces, at least 60% of the elderly perceived themselves as having a normal weight.

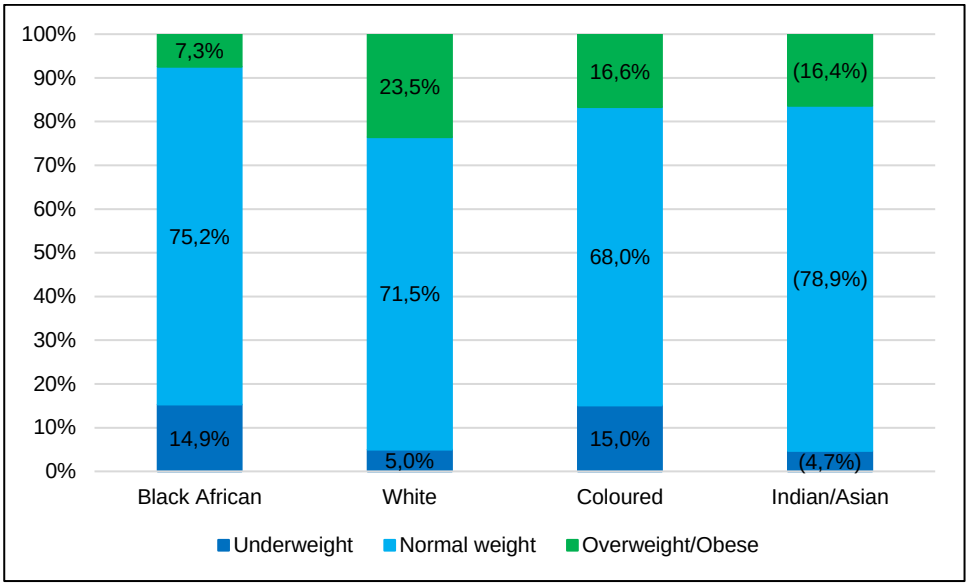
The more pronounced differences occur with how the elderly perceive themselves in terms of being underweight or overweight/obese. About a fifth of the elderly in the Western Cape perceived themselves as overweight/obese, and just more than one in ten (10,8%) see themselves as being underweight. In stark contrast with the Western Cape, almost a third (31,4%) of the elderly in the Eastern Cape perceive themselves as being underweight. In addition, approximately one in five (22,6%) of the elderly in Mpumalanga see themselves as being underweight. In three provinces, more than 80% of the elderly perceive themselves as being of normal weight: KwaZulu-Natal (84,3%); Free State (83,1%); and Gauteng (81,1%). In Gauteng (12,5%) and Free State (12,2%), very similar proportions of the elderly see themselves as having a normal weight.

## Table 4: Perceived BMI among the elderly by place of residence, population group and province, SADHS 2016

| Variable | Men | | | | Women | | | | All | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Underweight | Normal weight | Overweight and obese | Number of men | Underweight | Normal weight | Overweight and obese | Number of women | Underweight | Normal weight | Overweight and obese | Number of elderly |
| **Type of place of residence** | | | | | | | | | | | | |
| Urban | 9,2 | 79,4 | 10,2 | **369** | 10,0 | 73,9 | 15,0 | **586** | 9,7 | 76,0 | 13,2 | **955** |
| Non-urban | 21,2 | 68,7 | 7,3 | **204** | 16,8 | 72,0 | 8,0 | **439** | 18,2 | 70,9 | 7,8 | **643** |
| **Population group** | | | | | | | | | | | | |
| Black African | 15,6 | 77,2 | 4,7 | **378** | 14,6 | 74,2 | 8,5 | **771** | 14,9 | 75,2 | 7,3 | **1 149** |
| White | 4,5 | 71,8 | 23,7 | **108** | 5,4 | 71,2 | 23,4 | **136** | 5,0 | 71,5 | 23,5 | **243** |
| Coloured | 20,4 | 72,6 | 6,4 | **66** | 11,2 | 64,8 | 23,8 | **94** | 15,0 | 68,0 | 16,6 | **160** |
| Indian/Asian | * | * | * | **21** | * | * | * | **22** | (4,7) | (78,9) | (16,4) | **44** |
| **Province** | | | | | | | | | | | | |
| Western Cape | 13,2 | 77,6 | 9,1 | **103** | 9,1 | 62,4 | 27,5 | **155** | 10,8 | 68,5 | 20,1 | **259** |
| Eastern Cape | 26,3 | 66,8 | 6,9 | **69** | 33,4 | 57,6 | 8,5 | **170** | 31,4 | 60,3 | 8,0 | **239** |
| Northern Cape | 17,5 | 77,8 | 1,4 | **13** | 14,0 | 79,8 | 5,5 | **23** | 15,2 | 79,0 | 4,0 | **36** |
| Free State | (7,9) | (81,5) | 8,5 | **27** | 17,4 | 68,8 | 13,8 | **59** | 14,4 | 72,7 | 12,2 | **86** |
| KwaZulu-Natal | 7,3 | 80,5 | 12,2 | **93** | 10,6 | 84,4 | 4,5 | **175** | 9,5 | 83,1 | 7,2 | **267** |
| North West | 5,7 | 92,4 | 1,8 | **45** | 14,5 | 78,3 | 7,1 | **61** | 10,8 | 84,3 | 4,9 | **107** |
| Gauteng | 7,2 | 78,1 | 12,1 | **131** | 1,5 | 83,3 | 12,7 | **175** | 3,9 | 81,1 | 12,5 | **306** |
| Mpumalanga | 39,7 | 52,0 | 8,3 | **29** | 15,0 | 74,8 | 8,2 | **65** | 22,6 | 67,8 | 8,2 | **94** |
| Limpopo | 17,0 | 65,2 | 8,7 | **62** | 5,7 | 74,0 | 12,0 | **142** | 9,2 | 71,3 | 11,0 | **205** |
| **Total** | **13,5** | **75,6** | 9,2 | **573** | **12,9** | **73,0** | 12,0 | **1 025** | 13,1 | 74,0 | 11,0 | **1 598** |

Notes: The Body Mass Index (BMI) is expressed as the ratio of weight in kilograms to the square of height in metres ($kg/m^2$). Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

**Figure 4: Perceived BMI among the elderly by population group, SADHS 2016**

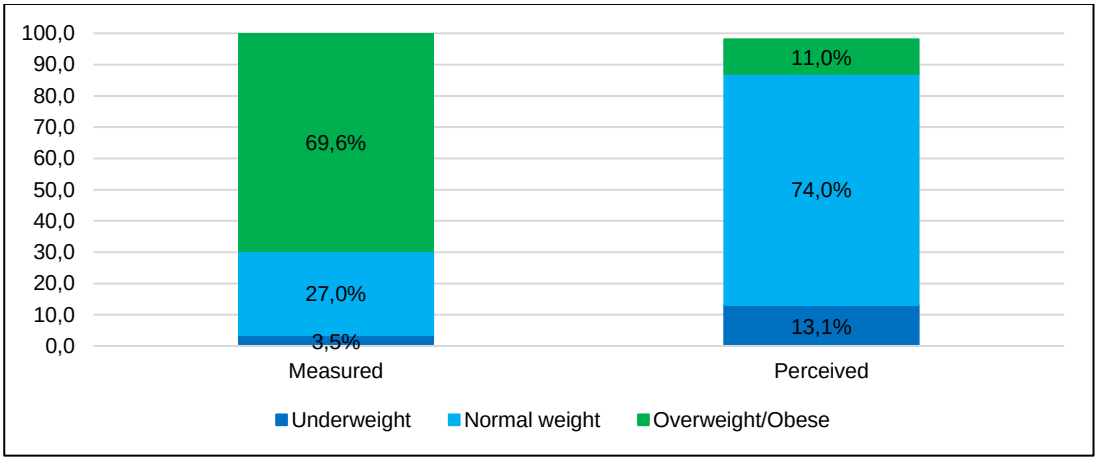



Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

### 3.3.3 Comparison between measured and perceived nutritional status

This sub-section presents a comparison between measured and perceived BMI. During the analysis of the SADHS 2016 data on perceived (or self-reported) and the measured BMI, interesting differences presented themselves, which led to the inclusion of this section.

**Figure 5: Comparison of measured and perceived BMI among the elderly, SADHS 2016**




Due to rounding, totals may not add to 100%.

Figure 5 highlights pronounced differences between measured and observed BMI among the elderly. Whilst almost three-quarters (74%) of the elderly perceived themselves as being of normal weight, the majority of the elderly (69,6%) whose BMI was measured during the SADHS 2016 survey was indeed overweight. It is interesting to note that a very small proportion (11,0%) of the elderly perceived themselves as being overweight during the survey. The inverse is shown with regard to measured (27,0%) and perceived (74%) BMI in the case of being of normal weight. Almost three times more elderly perceived themselves as being underweight (13,1%) than those found to be underweight (3,5%) when measured.

A comparison between measured and perceived BMI among the elderly in urban and non-urban areas as shown in Tables 3 and 4 indicates a total disjuncture between how the elderly perceive themselves against what was found when they were measured during the SADHS 2016. Firstly, three times as many of the elderly in urban areas perceive themselves as being underweight (9,7%) compared to the actual percentage of those found to be underweight when measured (3,0%). Three-quarters of the elderly in urban areas (76,0%) perceived themselves as being of normal weight, whilst almost three-quarters of the elderly in urban areas (73,9%) were indeed overweight/obese when measured. A similar trend is observed with regard to the elderly residing in non-urban areas, but at different levels than those in urban areas. The elderly living in non-urban areas perceive themselves more as being underweight (18,2%) than what was found when they were measured; only 4,0% was found to be underweight. Roughly one in three elderly in non-urban areas (32,1%) was found to be of normal weight as opposed to 70,9% of those who perceived themselves as having a normal weight. A small proportion (7,8%) of the elderly in non-urban areas perceived themselves as being overweight, whilst the majority (63,9%) were indeed overweight when measured. Such gaps between perceived health and empirical data in this regard are not unusual or surprising.

A comparison of perceived and measured weight among population groups had to exclude the Indian/Asian population group. As pointed out before, there was not a sufficient number of the elderly in this group from which measurements could be obtained. Hence, this section will only focus on comparing measured and perceived BMI for the three remaining population groups: black African, whites and coloureds.

More of the elderly from the coloured (15,0%) and black African (14,9%) population groups perceived themselves as being underweight than what was found when BMI was measured. Empirical evidence found that only 1,1% of coloureds and only 4,4% of black Africans were indeed underweight. On the contrary, less than one per cent (0,9%) of elderly whites were underweight whilst 5,0% perceived themselves as being underweight.

When comparing measured and perceived BMI by province, the elderly in all provinces were perceiving themselves as being of normal weight. On the contrary, the measured BMI for the elderly in all provinces indicated that they were mostly overweight/obese. The provincial variations showed that eight in ten elderly persons in KwaZulu-Natal and Gauteng perceived themselves as being of normal weight. However, empirical evidence depicts a different picture, with more than 70% of the elderly in these provinces being obese/overweight.

In Limpopo, 71,3% of the elderly perceived themselves as being of normal weight, but only 36,6% had a normal weight when measured; in KwaZulu-Natal, only 19,9% had a normal weight but 83,1% of the elderly perceived themselves as being of normal weight.

In the Eastern Cape, almost a third (31,4%) of the elderly perceived themselves as being underweight whilst only about a tenth (3,7%) were underweight when measured.

# 4. Morbidity from high blood pressure (hypertension)

Persons suffering from hypertension are more prone to heart disease and strokes, since high blood pressure can damage the blood vessel and artery walls over time. This section of the report focuses on the information on the prevalence of hypertension among the elderly.

## 4.1 High blood pressure from SADHS 2016 and GHS 2016

Male and female respondents aged 15 years and older who completed the individual questionnaire during the SADHS 2016 were asked whether a doctor, nurse, or other health worker ever informed them that they had any of these conditions: cancer, stroke, high blood pressure, diabetes, etc. A similarly phrased question was asked during the GHS 2016, although it was answered by a responsible adult on behalf of all the members of the household (proxy). In the SADHS 2016, a follow-up question was asked to establish if respondents received treatment for the specific condition diagnosed at the time that they were diagnosed.

As mentioned before, the GHS does not cover type of place of residence, hence only results from the SADHS 2016 for this variable will be reported on.

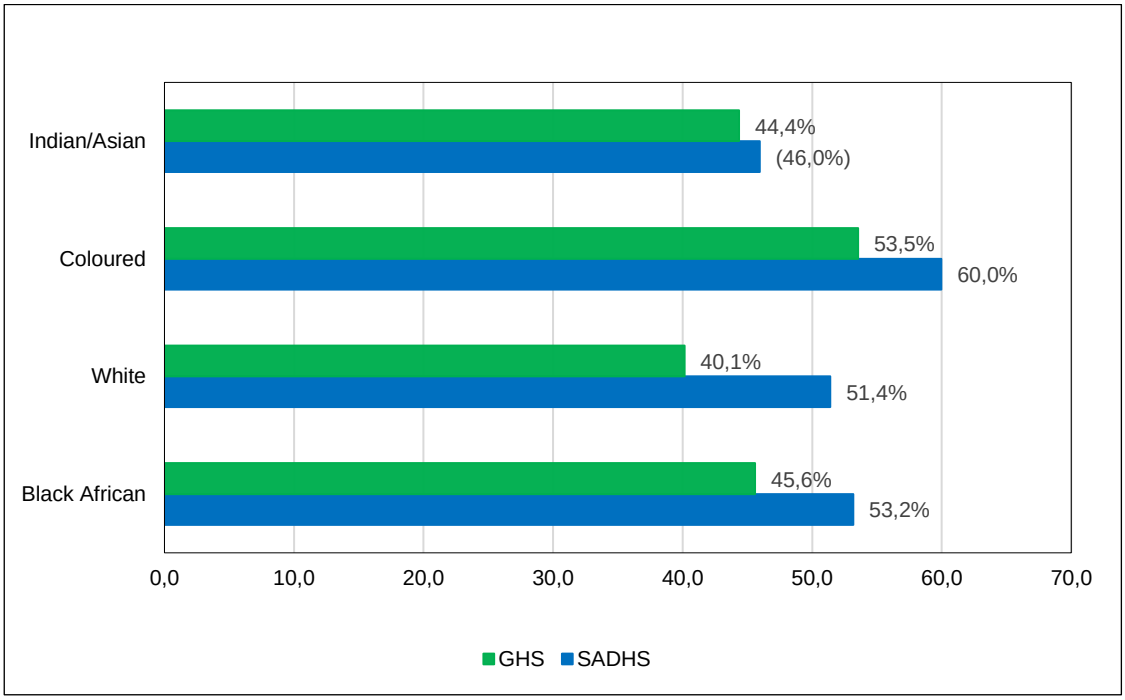
Table 5 below presents the results from the SADHS 2016 on people aged 60 years and older who reported that they have high blood pressure. Overall, more than half (53,6%) of the elderly population have high blood pressure. Differentials by place of residence showed that the elderly staying in urban areas are more likely to be hypertensive (58,2%) as opposed to those living in non-urban areas (46,7%). Results also revealed that hypertension was more prevalent among elderly women (56,7%) than elderly men (48,0%) in South Africa.

**Table 5: Percentage of elderly reported being diagnosed with high blood pressure by place of residence, population group and province, SADHS 2016**

| Variable | Men diagnosed with high blood pressure | | Women diagnosed with high blood pressure | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Type of place of residence** | | | | | | |
| Urban | 369 | 54,4 | 586 | 60,5 | 955 | 58,2 |
| Non-urban | 204 | 36,2 | 439 | 51,6 | 643 | 46,7 |
| **Population group** | | | | | | |
| Black African | 378 | 42,4 | 771 | 58,5 | 1 149 | 53,2 |
| White | 108 | 55,5 | 136 | 48,1 | 243 | 51,4 |
| Coloured | 66 | 62,7 | 94 | 58,1 | 160 | 60,0 |
| Indian/Asian | 21 | * | 22 | * | (44) | (46,0) |
| **Province** | | | | | | |
| Western Cape | 103 | 58,7 | 155 | 60,5 | 259 | 59,8 |
| Eastern Cape | 69 | 41,3 | 170 | 58,7 | 239 | 53,7 |
| Northern Cape | 13 | 41,2 | 23 | 61,4 | 36 | 54,1 |
| Free State | 27 | 48,7 | 59 | 63,8 | 86 | 59,1 |
| KwaZulu-Natal | 93 | 55,0 | 175 | 54,0 | 267 | 54,4 |
| North West | 45 | 37,2 | 61 | 73,3 | 107 | 58,0 |
| Gauteng | 131 | 52,5 | 175 | 58,9 | 306 | 56,1 |
| Mpumalanga | 29 | 40,4 | 65 | 57,1 | 94 | 52,0 |
| Limpopo | 62 | 29,9 | 142 | 39,6 | 205 | 36,7 |
| **Total** | **573** | **48,0** | **1 025** | **56,7** | **1 598** | **53,6** |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

**Figure 6: Comparison of reported hypertension between SADHS and GHS among the elderly by population group**




Figures in parentheses for SADHS are based on 25–49 unweighted cases. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

Results from the SADHS 2016 and GHS 2016 on the prevalence of hypertension among the different population groups are shown in Figure 6 and Table 5. As highlighted previously, only a small number of Indian/Asian elderly participated in the SADHS 2016. Hence, only results for the remaining three population groups, i.e. black African, whites and coloureds, will be reported on in this part of the report.

The elderly population from the coloured population group (60,0%) reported that they were informed by health workers that they had high blood pressure. As can be seen in Table 5, the highest prevalence of hypertension was reported for the coloured population group; elderly men (62,7%) from the coloured population group were more likely to have high blood pressure than their female counterparts (58,1%).

The elderly from the black African population (53,2%) had the second highest prevalence of hypertension. However, in the black African population group, more women (58,5%) had high blood pressure than men (42,4%). The elderly from the white population group (51,4%) had the lowest prevalence of hypertension, but followed the same pattern as the coloured group where more elderly white men (55,5%) had blood pressure than the women (48,1%).

As mentioned before, a similar question was posed to a proxy respondent (responsible adult) during the GHS 2016 as in the SADHS 2016, namely, if a doctor/nurse/other health worker at the clinic/hospital/practice ever told any of the individual members of the household that they had high blood pressure. During analysis, however, the person weights were applied to the data thus results from the SADHS and GHS 2016 are comparable.

Results obtained from the GHS 2016 (see table 6) below are confirming the general patterns found in the SADHS 2016 with regards to the prevalence of reported hypertension, although at slightly different levels. This might be due to the fact that the individual (proxy respondent) might not be sure if a specific member of the household was diagnosed with hypertension, whilst in the SADHS 2016 each individual respondent was asked if they had the condition.

The overall results from the GHS (Table 6 below) show that 45,1% of the elderly reported ever being told by a health professional that they had high blood pressure versus 53,6% in the SADHS 2016. As with the results shown in the SADHS 2016, fewer men (36,4%) had ever been told that they had hypertension than women (50,9%) according to the findings of the GHS 2016.

**Table 6: Percentage of the elderly diagnosed with high blood pressure by population group and province, GHS 2016**

| Variable | Men diagnosed with high blood pressure | | Women diagnosed with high blood pressure | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Population group** | | | | | | |
| Black African | 1 078 856 | 34,6 | 1 741 228 | 52,4 | 2 820 084 | 45,6 |
| White | 465 648 | 37,7 | 570 306 | 42,2 | 1 035 955 | 40,1 |
| Coloured | 173 590 | 42,4 | 261 138 | 60,9 | 434 729 | 53,5 |
| Indian/Asian | 71 362 | 41,0 | 98 421 | 46,8 | 169 784 | 44,4 |
| **Province** | | | | | | |
| Western Cape | 264 971 | 40,4 | 324 608 | 52,3 | 589 579 | 46,9 |
| Eastern Cape | 251 081 | 38,5 | 389 016 | 53,6 | 640 097 | 47,7 |
| Northern Cape | 45 059 | 46,9 | 70 168 | 63,3 | 115 227 | 56,9 |
| Free State | 94 088 | 42,2 | 158 097 | 63,1 | 252 185 | 55,3 |
| KwaZulu-Natal | 297 264 | 31,4 | 510 655 | 52,1 | 807 919 | 44,5 |
| North West | 149 591 | 40,1 | 179 098 | 60,4 | 328 689 | 51,2 |
| Gauteng | 426 458 | 37,8 | 595 621 | 50,1 | 1 022 079 | 45,0 |
| Mpumalanga | 120 765 | 37,9 | 176 709 | 48,8 | 297 473 | 44,4 |
| Limpopo | 140 181 | 19,1 | 267 121 | 28,7 | 407 302 | 25,4 |
| **Total** | **1 789 457** | **36,4** | **2 671 094** | **50,9** | **4 460 551** | **45,1** |

The prevalence of hypertension in the elderly population is shown in Figure 6 above for the SADHS 2016 and the GHS 2016.

It was found that 46,0% of the Indian/Asian population group reported being told that they had hypertension. The proportion of prevalence of hypertension as shown in Figure 6 for the GHS 2016 (44,4%) is very similar for this population group.

Results from the SADHS 2016 and GHS 2016 for the black African, white and coloured population groups show the same patterns.

In the SADHS 2016, slightly more of the elderly from the coloured population group (60,0%) reported that they were informed by health workers that they had high blood pressure compared to the 53,5% reported in the GHS 2016. The patterns are very similar for the two data sources, albeit at different levels. The same pattern emerged within the population groups, showing that the elderly from the coloured population had the highest prevalence of hypertension in both the SADHS (60,0%) and the GHS (53,3%).

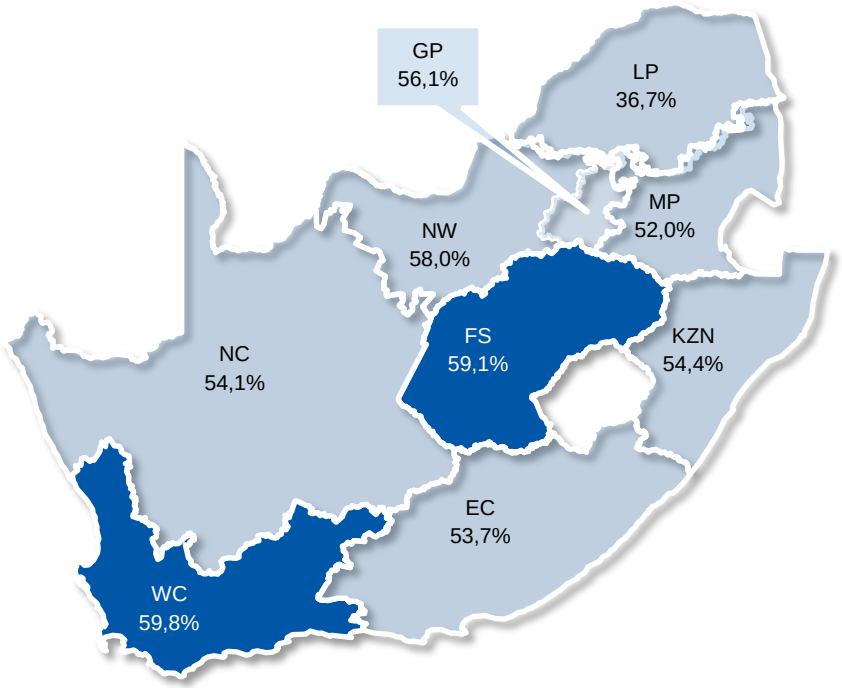
With regard to the elderly from the white population group, a consistent pattern was again found between the two data sources; this population group had the lowest reported level of prevalence of hypertension (51,4% in the SADHS and 40,1% in the GHS 2016).

The two data sources showed consistency in the pattern with regard to the black African population group, namely that more women (58,5%) than men (42,4%) had high blood pressure in the SADHS 2016. The same

pattern was shown for the black African population group in the GHS 2016, where more women (52,4%) than men (34,6%) had hypertension.

Map 3 presents the provincial variations in reported hypertension. It is noted that elderly persons that have ever been told by a health worker that they had high blood pressure were more prevalent in Western Cape and Free State, whilst Limpopo had the lowest prevalence rates (59,8%, 59,1% and 36,7%, respectively).

**Map 3: Reported hypertension among the elderly by province, SADHS 2016**




Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

A follow-up question was asked in the SADHS 2016 from elderly respondents if they reported that they had ever been told that they had high blood pressure, to establish if they received any medication after they were informed that they had high blood pressure. Overall, nine out of ten (90,7%) of all the elderly in South Africa did receive treatment for high blood pressure following their diagnosis. 92,5% of elderly males indicated that they were given medication for treatment of hypertension after they were diagnosed. A smaller proportion of women (89,9%) indicated that they received medication after they were diagnosed with hypertension.

In addition to respondents being asked if they were ever told that they had hypertension, respondents who were eligible for the Biomarker Questionnaire and those who consented to their blood pressure being measured had a qualified nurse take their blood pressure measurements.

Three blood pressure measurements were taken, and the average of the second and third measurements was used to classify respondents according to internationally standardised recommended categories (WHO 1999). Respondents were classified as having hypertension if they had a systolic blood pressure level of 140 mmHg or above or a diastolic blood pressure level of 90 mmHg or above at the time of the survey, or were currently taking antihypertensive medication to control their blood pressure. In the Biomarker Questionnaire, the readings were captured and elderly respondents who had their blood pressure taken were advised to consult a health care provider to have the readings checked. Those elderly who were found to have blood pressure levels that were mildly elevated, moderately elevated and severely elevated, were advised to have their blood pressure checked within a month, one day/immediately and immediately, respectively.

For the purpose of the SADHS 2016 analysis of the measured blood pressure level to establish the prevalence of elevated blood pressure levels, those individuals who had mildly elevated, moderately elevated and severely elevated blood pressure levels as well as those who had been diagnosed before and are taking medication to control their blood pressure levels, were grouped together.

The levels of high blood pressure among the elderly as measured during the SADHS 2016 will only be reported on at national, urban and non-urban level. It is not possible to report on population group and provincial levels due to the small number of respondents diagnosed with elevated blood pressure levels.

Overall levels of measured elevated blood pressure for the elderly in the country showed that 81,4% had hypertension, with slightly more females (81,9%) than males (80,4%) who had hypertension. Approximately half of all elderly were already taking medication to treat their hypertension (53,0%); 48,2% of males and 55,4% of females (see Appendix B).

The elderly staying in urban areas are more likely to be hypertensive (84,1%) as opposed to those living in non-urban areas (77,9%). More elderly women (56,7%) were diagnosed with hypertension than men (48,0%) in South Africa. In urban areas, 57,5% of the elderly were taking medication whereas 47,1% of the elderly in non-urban areas were receiving treatment for their hypertension.

## 5. Morbidity from diabetes mellitus

In a study conducted in South Africa, it was found that diabetes mellitus impacts negatively on the disability status and quality of life in older adults (Werfalli et all, 2018). This could partly be due to trends in obesity, poor diet, high fasting blood glucose levels and low physical activity levels (Werfalli, 2018). The prevalence of diabetes mellitus among adults in South Africa nearly doubled between 2000 (5,5%) and 2009 (9%) (Manyema, 2015).

This section of the report presents information on the levels of diabetes mellitus that was reported by respondents in the SADHS 2016 questionnaire. As part of the health module completed by males and females, respondents were asked if they were ever told by a doctor, nurse or health worker that they have diabetes mellitus (self-reported).

As with the section on hypertension, a similar question was asked in the GHS 2016. The same situation applies as with the question on hypertension, where a responsible adult (proxy) was interviewed and answered on behalf of all household members to indicate whether a specific person was ever told that they had diabetes mellitus by a health worker. No clinical testing was performed during the GHS 2016, the proxy respondent was only asked if a doctor/nurse/other health worker at the clinic/hospital/practice ever told respective household members that they had diabetes mellitus.

### 5.1 Diabetes mellitus from SADHS 2016

Table 7 shows that, overall in the SADHS 2016, 15,3% of the elderly indicated that they were told by a health worker that they had diabetes mellitus. In the case of elderly male respondents, 16,4% indicated that they had been told that they had diabetes; for women respondents, 14,6% indicated that they had diabetes mellitus.

Because the GHS does not cover type of place of residence, only results from the SADHS 2016 for this variable will be reported on.

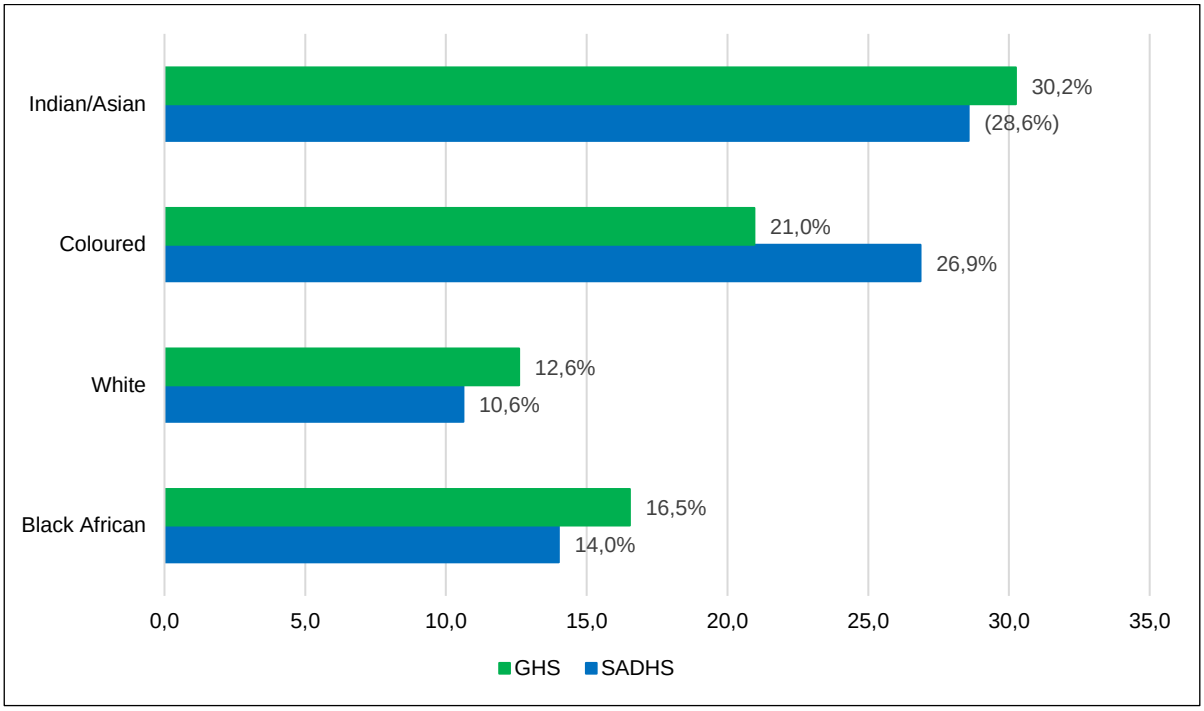
Diabetes mellitus was more prevalent among elderly men residing in urban areas (19,4%) as opposed to 11,1% of those who resided in non-urban areas. Similarly, diabetes mellitus was more prevalent among elderly women residing in urban areas (16,2%) versus 12,5% of those who resided in non-urban areas in the SADHS 2016.

Table 8 shows that, overall during the GHS 2016, 16,6% of the elderly reported that they were told by a health worker that they had diabetes mellitus. Approximately 2,5% more women (17,6%) had been diagnosed with diabetes mellitus than men (15,0%) as per the GHS 2016.

Again, looking at Table 7 and Figure 7, it shows that with regard to population group, elderly persons from the Indian/Asian group (28,6%) had the highest proportion being told by a health worker that they had diabetes mellitus in the SADHS 2016. Among the remaining three population groups, 26,9% of the elderly from the coloured population group reported that they were told by a health worker that they had diabetes mellitus; 14,0% of the black African and 10,6% of the white population group were told that they had diabetes mellitus.

In the GHS 2016, 30,2% of the elderly from the Indian/Asian population group reported that they were told by a health worker that they had diabetes mellitus; 21,0% of the elderly belonging to the coloured population group reported that they had been diagnosed with diabetes mellitus; and 16,5% of black Africans reported having diabetes mellitus. The elderly reporting the lowest level of diabetes mellitus were from the white population group, where only 12,6% had elevated blood sugar levels (see Table 8).

**Figure 7: Comparison of prevalence of diabetes mellitus between SADHS and GHS among the elderly by population group**



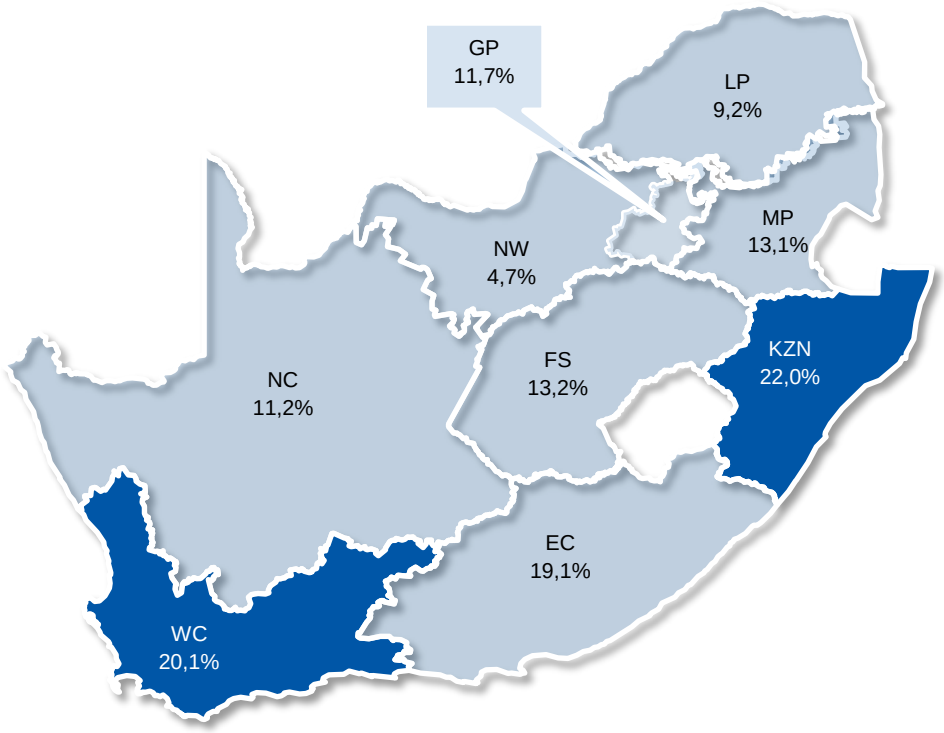

Figures in parentheses for the SADHS are based on 25–49 unweighted cases. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

**Table 7: Percentage of the elderly reporting being diagnosed with diabetes mellitus by place of residence, population group and province, SADHS 2016**

| Variable | Men diagnosed with diabetes mellitus | | Women diagnosed with diabetes mellitus | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Type of place of residence** | | | | | | |
| Urban | 369 | 19,4 | 586 | 16,2 | 955 | 17,4 |
| Non-urban | 204 | 11,1 | 439 | 12,5 | 643 | 12,1 |
| **Population group** | | | | | | |
| Black African | 378 | 12,4 | 771 | 14,8 | 1 149 | 14,0 |
| White | 108 | 16,6 | 136 | 5,9 | 243 | 10,6 |
| Coloured | 66 | 32,8 | 94 | 22,7 | 160 | 26,9 |
| Indian/Asian | 21 | * | 22 | * | 44 | (28,6) |
| **Province** | | | | | | |
| Western Cape | 103 | 25,1 | 155 | 16,9 | 259 | 20,1 |
| Eastern Cape | 69 | 23,0 | 170 | 17,4 | 239 | 19,1 |
| Northern Cape | 13 | 8,8 | 23 | 12,6 | 36 | 11,2 |
| Free State | 27 | 12,3 | 59 | 13,6 | 86 | 13,2 |
| KwaZulu-Natal | 93 | 20,6 | 175 | 22,7 | 267 | 22,0 |
| North West | 45 | 2,4 | 61 | 6,4 | 107 | 4,7 |
| Gauteng | 131 | 11,7 | 175 | 11,8 | 306 | 11,7 |
| Mpumalanga | 29 | 19,4 | 65 | 10,3 | 94 | 13,1 |
| Limpopo | 62 | 10,8 | 142 | 8,5 | 205 | 9,2 |
| **Total** | **573** | **16,4** | **1 025** | **14,6** | **1 598** | **15,3** |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

**Map 4: Percentage of the elderly reporting being diagnosed with diabetes mellitus by province, SADHS 2016**




Due to rounding, totals may not add to 100%.

According to the results from the SADHS 2016 as shown in Table 7, the percentage of the elderly ever been told by a health professional that they had diabetes mellitus was 15,3%, and 16,6% for the elderly in the GHS 2016. For elderly men, 16,4% in the SADHS 2016 were informed by a health professional that they had diabetes mellitus; 15,0% of elderly men reported in the GHS 2016 that they were informed by a health professional that they had diabetes mellitus. In the case of elderly women, 14,6% (SADHS) and 17,6% (GHS) were informed by a health professional that they had diabetes mellitus. For the elderly belonging to the Indian/Asian population group, almost one in three (28,6%) reported being told that they had diabetes mellitus; in the GHS 2016 the elderly from the same population group (30,2%) had been told by a health professional that they had diabetes mellitus.

Provincial variations, as shown in Map 4, indicate that the proportions of the elderly told by a health professional that they had diabetes mellitus varied from 4,7% in North West to 22,0% in KwaZulu-Natal. In three provinces during the SADHS 2016, approximately one in five elderly reported that they were told that they had diabetes, namely: KwaZulu-Natal (22,0%), Western Cape (20,1%), and Eastern Cape (19,1%). Elderly men in Western Cape (25,1%) and Eastern Cape (23,0%) had the highest proportions of ever been told by a health professional that they had diabetes mellitus. KwaZulu-Natal (22,7%) was the only province where more than 20% of women were ever told that they had diabetes mellitus during the SADHS 2016. The GHS 2016 showed very similar patterns concerning the elderly reporting that they had ever been told by a health professional that they had diabetes mellitus as with the SADHS 2016. There are only slight differences on a provincial level between the SADHS 2016 and the GHS 2016; for example, in KwaZulu-Natal, 22,0% versus 22,3% of the elderly were informed that they had diabetes. In Eastern Cape, a small percentage more elderly in the GHS (19,7%) were told that they had diabetes mellitus than in the SADHS (19,1%).

**Table 8: Percentage of the elderly reporting being diagnosed with diabetes mellitus by population group and province, GHS 2016**

| Variable | Men diagnosed with diabetes mellitus | | Women diagnosed with diabetes mellitus | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Population group** | | | | | | |
| Black African | 1 078 856 | 13,5 | 1 741 228 | 18,4 | 2 820 084 | 16,5 |
| White | 465 648 | 15,0 | 570 306 | 10,6 | 1 035 955 | 12,6 |
| Coloured | 173 590 | 20,0 | 261 138 | 21,6 | 434 729 | 21,0 |
| Indian/Asian | 71 362 | 26,4 | 98 421 | 33,1 | 169 784 | 30,2 |
| **Province** | | | | | | |
| Western Cape | 264 971 | 18,9 | 324 608 | 16,0 | 589 579 | 17,3 |
| Eastern Cape | 251 081 | 15,0 | 389 016 | 22,7 | 640 097 | 19,7 |
| Northern Cape | 45 059 | 15,6 | 70 168 | 13,9 | 115 227 | 14,6 |
| Free State | 94 088 | 16,5 | 158 097 | 20,7 | 252 185 | 19,1 |
| KwaZulu-Natal | 297 264 | 17,5 | 510 655 | 25,0 | 807 919 | 22,3 |
| North West | 149 591 | 10,6 | 179 098 | 14,2 | 328 689 | 12,6 |
| Gauteng | 426 458 | 15,7 | 595 621 | 15,1 | 1 022 079 | 15,3 |
| Mpumalanga | 120 765 | 11,8 | 176 709 | 12,0 | 297 473 | 11,9 |
| Limpopo | 140 181 | 6,5 | 267 121 | 8,8 | 407 302 | 8,0 |
| **Total** | **1 789 457** | **15,0** | **2 671 094** | **17,6** | **4 460 551** | **16,6** |

A follow-up question was asked in the SADHS 2016 to elderly respondents if they reported that they had been told before by a health practitioner that they had elevated blood sugar levels, to establish if they received any medication at the time of being informed that they had diabetes mellitus. Overall, 88,5% of all the elderly in South Africa were receiving treatment for diabetes directly following their diagnosis. A slightly higher proportion of elderly women (88,8%) than men (87,9%) indicated that they received medication at the time they were diagnosed with diabetes mellitus (see Appendix C). Lower levels of analysis are not possible, especially with regard to reporting of receiving medication see Appendix C).

In addition to respondents being asked if they were ever told that they had diabetes mellitus, respondents who were eligible for the Biomarker Questionnaire and who consented to their blood being tested, had a sample (dry blood spot) taken, which was dried overnight. The samples collected the previous day were sent to the laboratory the next day for storage and analysis. After the glycated haemoglobin (HbA1c) testing of dried blood spot (DBS) specimens, the results were captured in a data base at the laboratory and later sent to ICF, who merged the data set into the household data base of the SADHS. These results were used to estimate the measured diabetes prevalence.

Standard HbA1c measurement is usually based on blood samples rather than DBS specimens. To account for this difference in specimen type, a calibration factor was applied. However, the calibration factor used has not been validated, and therefore caution must be applied in interpreting the results of the HbA1c testing (refer to the full report for explanation of the methodology). An adjusted HbA1c level of 6,5% or above indicated that the respondent had elevated blood sugar levels and could be diabetic.

**Table 9: Percentage of elderly diagnosed with diabetes mellitus after measurement by place of residence, population group and province, SADHS 2016**

| | Adjusted diabetes | | | | | |
|---|---|---|---|---|---|---|
| | Men | | Women | | All | |
| | Diabetic | Number | Diabetic | Number | Diabetic | Number |
| **Residence** | | | | | | |
| Urban | 24,1 | 198 | 26,6 | 352 | 25,7 | 550 |
| Non-urban | 22,5 | 145 | 34,4 | 328 | 30,8 | 473 |
| Population group | | | | | | |
| Black African | 20,5 | 248 | 32,7 | 558 | 28,9 | 806 |
| White | (22,5) | 53 | 9,5 | 61 | 15,5 | 114 |
| Coloured | (40,1) | 33 | 28,7 | 49 | 33,3 | 82 |
| Indian/Asian | * | 9 | * | 11 | * | 20 |
| **Province** | | | | | | |
| Western Cape | (25,1) | 45 | 18,4 | 81 | 20,8 | 126 |
| Eastern Cape | 31,6 | 54 | 35,5 | 126 | 34,3 | 180 |
| Northern Cape | (10,6) | 6 | (28,7) | 12 | 22,7 | 18 |
| Free State | (26,1) | 23 | 29,7 | 46 | 28,5 | 69 |
| KwaZulu-Natal | 26,1 | 65 | 43,3 | 121 | 37,3 | 186 |
| North West | 8 | 34 | 21,3 | 53 | 16,1 | 87 |
| Gauteng | (19,3) | 66 | (26,4) | 102 | 23,6 | 168 |
| Mpumalanga | (27) | 16 | 30,5 | 50 | 29,7 | 66 |
| Limpopo | 25,3 | 34 | 26,6 | 89 | 26,2 | 123 |
| **Total** | 23,4 | 343 | 30,3 | 680 | 28,0 | 1 023 |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

Table 9 presents variations in levels of elevated blood sugar levels by place of residence and population group. The results showed that overall, 28% of the elderly that had a blood sample taken in the SADHS 2016 were found to have elevated blood sugar levels. Fewer elderly men (23,4%) had elevated blood sugar levels than their female counterparts (30,3%).

The elderly residing in non-urban areas (30,8%) had higher levels of elevated blood sugar levels than those staying in urban areas (25,7%). In terms of population group, the elderly from the coloured population (33,3%) had the highest prevalence of elevated blood sugar levels; the elderly from the white population group (15,5%) had the lowest prevalence of elevated blood sugar levels. Provinces varied between 16,1% in North West (lowest) and 37,3% in KwaZulu-Natal (highest). About one in every three elderly had elevated blood sugar levels in Mpumalanga (29,7%), Eastern Cape (34,3%) and KwaZulu-Natal (37,3%). Four provinces had roughly one in every five of their elderly having elevated blood sugar levels (Western Cape, 20,8%; Northern Cape, 22,7%; Gauteng, 23,6%; and Limpopo, 26,2%).

# 6. Mortality due to selected non-communicable disease

The literature shows that hypertension and cerebrovascular diseases are closely linked, since high blood pressure is a major risk factor for cerebrovascular disease. Hypertensive diseases and cerebrovascular disease occurs when the increase in blood pressure damages the walls of the brain's blood vessels, increasing the risk of a blood clot forming or an artery rupturing (splitting). Both of these can lead to a person suffering a stroke. If a person has high blood pressure, they are four times more likely to have a stroke than someone with healthy blood pressure. However, hypertension is still common even in people who have a healthy lifestyle, and treatment with medication is usually required (Your.MD, 2018).

The findings about the prevalence of non-communicable diseases among the elderly population in both the SADHS 2016 and the GHS 2016 motivated an analysis of the mortality and causes of deaths (MACoD) 2016 data, in order to compare the results of the two surveys and MACoD to establish if there are any links between prevalent diseases among the elderly and what type of diseases the elderly generally die from.

According to the mortality and causes of deaths 2016 report, the two non-communicable diseases discussed thus – diabetes mellitus and deaths related or being caused by hypertension – were among the top 10 leading underlying natural causes of death in the general population. Diabetes mellitus was ranked as the second leading natural cause for deaths that occurred in 2016 (MACoD, 2016). It was the leading cause of death among females (7,2%) and the sixth natural cause of deaths for males (4,0%) for all deaths that occurred in 2016. Deaths due to hypertensive diseases were in the sixth position for all causes of death in 2016. It was ranked ninth for males (3,2%) and fourth for females (5,8%) for all deaths that occurred in 2016 (MACoD, 2016).

Since the focus of the report is on health-related aspects among the elderly, further analysis on the occurrence of deaths related to NCDs among the elderly was done by sex, population group and province. This report focuses on NCDs such as diabetes and hypertension. However, the report reflects the top ten leading natural causes of death in South Africa as recorded in the MACoD 2016 data.

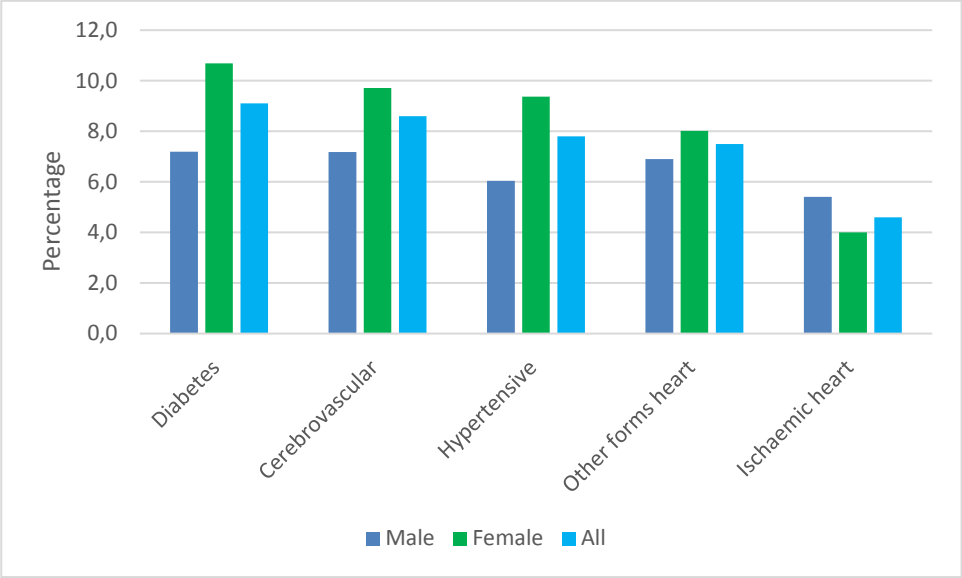
## 6.1 Leading underlying natural causes of death by sex for the elderly

Table 10 shows the distribution of the ten leading underlying natural causes of death among the elderly (60 years and older) by sex, whilst Figure 8 highlights the top five underlying natural causes of death among the elderly by sex from the MACoD 2016 data.

**Table 10: The ten leading underlying natural causes of deaths among persons aged 60 years and older by sex, 2016 MACoD**

| | All | | | Female | | | Male | | |
|---|---|---|---|---|---|---|---|---|---|
| **Underlying broad group** | **Rank** | **Number** | **%** | **Rank** | **Number** | **%** | **Rank** | **Number** | **%** |
| Diabetes mellitus (E10-E14) | 1 | 18 103 | 9,1 | 1 | 11 567 | 10,7 | 1 | 6 527 | 7,2 |
| Cerebrovascular diseases (I60-I69) | 2 | 17 047 | 8,6 | 2 | 10 519 | 9,7 | 2 | 6 517 | 7,2 |
| Hypertensive diseases (I10-I15) | 3 | 15 630 | 7,8 | 3 | 10 140 | 9,4 | 4 | 5 480 | 6,0 |
| Other forms of heart disease (I30-I52) | 4 | 14 967 | 7,5 | 4 | 8 683 | 8,0 | 3 | 6 272 | 6,9 |
| Ischaemic heart diseases (I20-I25) | 5 | 9 252 | 4,6 | 6 | 4 335 | 4,0 | 6 | 4 909 | 5,4 |
| Chronic lower respiratory diseases (J40-J47) | 6 | 8 759 | 4,4 | 7 | 3 459 | 3,2 | 5 | 5 293 | 5,8 |
| Influenza and pneumonia (J09-J18) | 7 | 8 272 | 4,2 | 5 | 4 378 | 4,0 | 8 | 3 886 | 4,3 |
| Malignant neoplasms of digestive organs (C15-C26) | 8 | 6 622 | 3,3 | 8 | 3 065 | 2,8 | 9 | 3 551 | 3,9 |
| Tuberculosis (A15-A19) | 9 | 6 149 | 3,1 | … | | | 7 | 3 983 | 4,4 |
| Malignant neoplasms of respiratory and intrathoracic organs (C30-C39) | 10 | 4 313 | 2,2 | … | | | … | | |
| Malignant neoplasms of female genital organs (C51-C58) | … | | | 9 | 2 397 | 2,2 | … | | |
| Renal failure (N17-N19) | … | | | 10 | 2 198 | 2,0 | … | | |
| Malignant neoplasms of male genital organs (C60-C63) | … | | | … | | | 10 | 2 987 | 3,3 |
| Other natural causes | | 84 046 | 42,2 | | 45 001 | 41,6 | | 37 843 | 41,7 |
| Natural causes | | 6 074 | 3,0 | | 2 518 | 2,3 | | 3 547 | 3,9 |
| **Total** | | **199 234** | **100,0** | | **108 260** | **100,0** | | **90 795** | **100,0** |

**Figure 8: The five leading underlying causes of death among the elderly by sex, MACoD 2016**




As shown in Figure 8 above, both diabetes mellitus and hypertensive diseases were among the top five leading natural causes of deaths among the elderly for deaths that occurred in 2016. Diabetes mellitus (9,1%) was the overall leading natural cause of death for the elderly in 2016. Similarly, diabetes mellitus was the leading natural cause of death for both elderly males (7,2%) and elderly females (10,7%); the level was higher for females than for males.

Hypertensive diseases were major contributors to natural causes of death among the elderly population, and ranked as the third leading natural cause of all deaths (7,8%) among the elderly. Among elderly females, hypertensive diseases were ranked as the third leading natural cause, whilst hypertensive diseases were ranked as the fourth leading natural cause for males (9,4% and 6,0%, respectively).

## 6.2 Leading underlying natural causes of death by population group

This section of the report presents information on the leading underlying natural causes of death among the elderly (60 years and older) by population group.

Diabetes mellitus was the leading natural cause of deaths for the black African (10,3%), coloured (12,3%) and Indian/Asian (17,6%) groups. The white population group had ischaemic heart diseases as their leading cause of death. Diabetes mellitus as cause of death among the Indian/Asian population group was at the highest level among all the population groups (above 17%). Diabetes mellitus as cause of death was 4,6 % among the white population group.

Hypertensive diseases were ranked as the second underlying natural cause of deaths for the elderly black African population group (10,0%). Hypertensive diseases were the fourth underlying natural cause of deaths for the coloured population group (7,6%) and the fifth underlying natural cause of deaths for Indians/Asians (4,3%). Deaths from hypertensive diseases were ranked as the ninth underlying natural cause of death for whites (3,4%).

These results are in line with those results as seen in black African, Indian/Asian and coloured population groups. The results of this link are shown in Table 11. The relation between hypertension and cerebrovascular diseases is more pronounced amongst the coloured, black African and Indian/Asian population groups. Deaths from cerebrovascular diseases were the second underlying natural cause of deaths among the coloured population group (8,9%), the third underlying natural cause of deaths for the black African population group

(9,9%), and the fourth leading underlying natural cause of deaths for both the Indian/ Asian and white population groups (6,5% and 6,3%, respectively).

Ischaemic heart diseases were the second underlying natural cause of deaths for the elderly among the white population group (11,9%), and the second underlying natural cause of deaths for the elderly from the Indian/Asian population group (14,3%).

**Table 11: The ten leading underlying natural causes of deaths for the elderly by population group, 2016 MACoD**

| Causes of death | Black African | | | White | | | Indian/Asian | | | Coloured | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rank | Number | % | Rank | Number | % | Rank | Number | % | Rank | Number | % |
| Diabetes mellitus (E10-E14) | 1 | 12 420 | 10,3 | 6 | 1 492 | 4,6 | 1 | 958 | 17,6 | 1 | 1 830 | 12,3 |
| | | | | | | | | | | | | |
| Hypertensive diseases (I10-I15) | 2 | 12 046 | 10,0 | 9 | 1 108 | 3,4 | 5 | 232 | 4,3 | 4 | 1 126 | 7,6 |
| Cerebrovascular diseases (I60-I69) | 3 | 12 035 | 9,9 | 4 | 2 046 | 6,3 | 4 | 353 | 6,5 | 2 | 1 326 | 8,9 |
| Other forms of heart disease (I30-I52) | 4 | 10 176 | 8,4 | 2 | 2 522 | 7,7 | 3 | 498 | 9,2 | 8 | 583 | 3,9 |
| Influenza and pneumonia (J09-J18) | 5 | 5 628 | 4,6 | 7 | 1 476 | 4,5 | 10 | 131 | 2,4 | … | … | … |
| Tuberculosis (A15-A19) | 6 | 5 120 | 4,2 | … | … | … | … | … | … | 9 | 443 | 3 |
| Chronic lower respiratory diseases (J40-J47) | 7 | 4 158 | 3,4 | 3 | 2 106 | 6,5 | 6 | 228 | 4,2 | 3 | 1 270 | 8,5 |
| Malignant neoplasms of digestive organs (C15-C26) | 8 | 3 233 | 2,7 | 5 | 1 897 | 5,8 | 7 | 217 | 4 | 7 | 761 | 5,1 |
| Renal failure (N17-N19) | 9 | 2 733 | 2,3 | 10 | 809 | 2,5 | 8 | 184 | 3,4 | … | … | … |
| Ischaemic heart diseases (I20-I25) | 10 | 2 669 | 2,2 | 1 | 3 885 | 11,9 | 2 | 777 | 14,3 | 5 | 1 107 | 7,4 |
| Malignant neoplasms of respiratory and intrathoracic organs (C30-C39) | … | … | … | 8 | 1 279 | 3,9 | 9 | 133 | 2,4 | 6 | 895 | 6 |
| Malignant neoplasms of male genital organs (C60-C63) | … | … | … | … | … | … | … | … | … | 10 | 355 | 2,4 |
| Other natural | | 47 276 | 39,1 | | 12 646 | 38,8 | | 1 541 | 28,4 | | 4 793 | 32,2 |
| Non-natural | | 3 562 | 2,9 | | 1 325 | 4,1 | | 178 | 3,3 | | 380 | 2,6 |
| **All cases** | | **121 056** | **100** | | **32 591** | **100** | | **5 430** | **100** | | **14 869** | **100** |

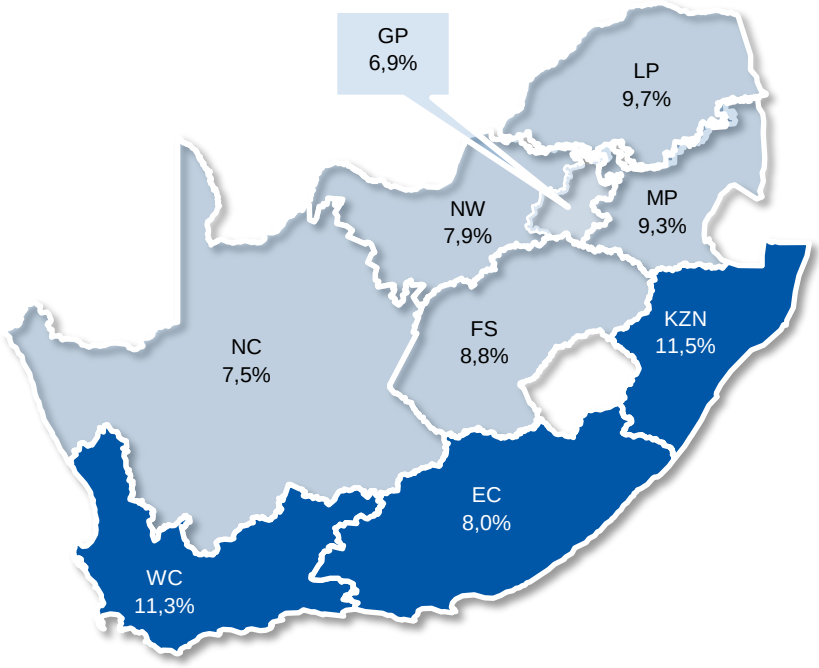
## 6.3 Leading causes of death by province

### Table 12: The ten leading underlying natural causes of deaths for the elderly by province, MACoD 2016

| Causes of death | Western Cape | | | Eastern Cape | | | Northern Cape | | | Free State | | | KwaZulu-Natal | | | North West | | | Gauteng | | | Mpumalanga | | | Limpopo | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % | Rank | No | % |
| Diabetes mellitus (E10-E14) | 1 | 2 632 | 11,3 | 1 | 2 425 | 8,0 | 4 | 432 | 7,5 | 3 | 1 185 | 8,8 | 1 | 4 172 | 11,5 | 3 | 1 150 | 7,9 | 2 | 2 724 | 6,9 | 3 | 1 234 | 9,3 | 2 | 2 057 | 9,7 |
| Ischaemic heart diseases (I20-I25) | 2 | 2 078 | 9,0 | 9 | 795 | 2,6 | 6 | 364 | 6,3 | 7 | 550 | 4,1 | 5 | 1 743 | 4,8 | 8 | 390 | 2,7 | 5 | 2 197 | 5,6 | 5 | 677 | 5,1 | 10 | 360 | 1,7 |
| Cerebrovascular diseases (I60-I69) | 3 | 1 924 | 8,3 | 2 | 2 329 | 7,6 | 2 | 522 | 9,0 | 2 | 1 247 | 9,2 | 3 | 3 853 | 10,6 | 4 | 1 118 | 7,7 | 4 | 2 475 | 6,3 | 1 | 1 380 | 10,3 | 1 | 2 114 | 9,9 |
| Chronic lower respiratory diseases (J40-J47) | 4 | 1 576 | 6,8 | 5 | 1 687 | 5,5 | 5 | 401 | 6,9 | 6 | 571 | 4,2 | 8 | 1 118 | 3,1 | 5 | 617 | 4,3 | 6 | 1 811 | 4,6 | 8 | 417 | 3,1 | 8 | 506 | 2,4 |
| Malignant neoplasms of respiratory and intrathoracic organs (C30-C39) | 5 | 1 432 | 6,2 | 10 | 528 | 1,7 | 10 | 177 | 3,1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 10 | 863 | 2,2 | ... | ... | ... | ... | ... | ... |
| Hypertensive diseases (I10-I15) | 6 | 1 409 | 6,1 | 3 | 2 203 | 7,2 | 1 | 590 | 10,2 | 1 | 1 316 | 9,8 | 4 | 2 582 | 7,1 | 1 | 1 605 | 11,1 | 3 | 2 477 | 6,3 | 2 | 1 359 | 10,2 | 3 | 2 021 | 9,5 |
| Malignant neoplasms of digestive organs (C15-C26) | 7 | 1 400 | 6,0 | 7 | 1 106 | 3,6 | 8 | 207 | 3,6 | 9 | 315 | 2,3 | 9 | 1 096 | 3 | 9 | 324 | 2,2 | 8 | 1 472 | 3,7 | 10 | 268 | 2 | ... | ... | ... |
| Other forms of heart disease (I30-I52) | 8 | 982 | 4,2 | 4 | 2 036 | 6,7 | 3 | 435 | 7,5 | 4 | 1 065 | 7,9 | 2 | 3 960 | 10,9 | 2 | 1 239 | 8,5 | 1 | 3 145 | 8 | 4 | 984 | 7,4 | 5 | 1 005 | 4,7 |
| Influenza and pneumonia (J09-J18) | 9 | 565 | 2,4 | 8 | 922 | 3,0 | 7 | 248 | 4,3 | 5 | 845 | 6,3 | 6 | 1 301 | 3,6 | 7 | 522 | 3,6 | 7 | 1 692 | 4,3 | 6 | 674 | 5,1 | 4 | 1 458 | 6,8 |
| Malignant neoplasms of male genital organs (C60-C63) | 10 | 528 | 2,3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Tuberculosis (A15-A19) | ... | ... | ... | 6 | 1 607 | 5,3 | 9 | 177 | 3,1 | 8 | 382 | 2,8 | 7 | 1 225 | 3,4 | 6 | 527 | 3,6 | ... | ... | ... | 7 | 534 | 4 | 7 | 517 | 2,4 |
| Renal failure (N17-N19) | ... | ... | ... | ... | ... | ... | ... | ... | ... | 10 | 257 | 1,9 | 10 | 902 | 2,5 | 10 | 265 | 1,8 | 9 | 1 011 | 2,6 | 9 | 322 | 2,4 | 6 | 528 | 2,5 |
| Intestinal infectious diseases (A00-A09) | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | … | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 | 474 | 2,2 |
| Other natural | | 8 003 | 34,5 | | 13 906 | 45,7 | | 2 077 | 35,8 | | 5 374 | 39,9 | | 13 166 | 36,3 | | 6 334 | 43,6 | | 18 352 | 46,5 | | 5 077 | 38,1 | | 9 663 | 45,3 |
| Non-natural | | 688 | 3,0 | | 910 | 3 | | 167 | 2,9 | | 378 | 2,8 | | 1 176 | 3,2 | | 426 | 2,9 | | 1 264 | 3,2 | | 410 | 3,1 | | 606 | 2,8 |
| **All cases** | | **23 217** | **100** | | **30 454** | **100** | | **5 797** | **100** | | **13 485** | **100** | | **36 294** | **100** | | **14 517** | **100** | | **39 483** | **100** | | **13 336** | **100** | | **21 309** | **100** |

This section presents the top leading natural causes of deaths among the elderly by province. As shown in Table 12 and Map 5, information on the provincial variations in the leading natural cause of death among the elderly are depicted. Diabetes mellitus was the leading natural cause of death among the elderly in the following three provinces: KwaZulu-Natal (11,5%), Western Cape (11,3%), and Eastern Cape (8,0%). These provinces also had the second, third and fourth largest proportions of the elderly residing in them according to the SADHS 2016 results: KwaZulu-Natal (16,7%), Western Cape (16,2%), and Eastern Cape (15,0%). Diabetes mellitus was the second leading natural cause of death in Limpopo (9,7%) and Gauteng (6,9%). In three of the provinces [Mpumalanga (9,3%), Free State (8,8%), and North West (7,9%)], diabetes mellitus was the third leading natural cause of death among the elderly. The Northern Cape (7,5%) was the only province where diabetes mellitus was the fourth leading natural cause of death among the elderly. Diabetes mellitus was among the four leading natural causes of death among the elderly in all nine provinces, although at different rankings and levels.

**Map 5: Diabetes mellitus as underlying cause of death among the elderly by province, MACoD 2016**




As shown in Table 12, hypertensive diseases were the leading natural cause of death among the elderly in North West (11,1%), Northern Cape (10,2%) and Free State (9,8%). It was the second leading cause of death in Mpumalanga (10,2%).

There seems to be an association between hypertension and cerebrovascular diseases, which will be presented in this section by province. Cerebrovascular disease was the leading cause of death in Mpumalanga (10,3%), while hypertensive cerebrovascular diseases were second with 10,2%. Limpopo also had a high percentage of deaths from hypertensive cerebrovascular disease (9,9%) and cerebrovascular diseases (9,5%). In the provinces where hypertensive diseases were the leading cause of death (Northern Cape, Free State and North West), cerebrovascular diseases were second in Northern Cape and Free State, but fourth in North West. In Northern Cape, deaths from hypertensive diseases were 10,2% and those from cerebrovascular diseases were 9,0%, while Free State had 9,8% of deaths from hypertensive diseases and 9,2% of deaths from cerebrovascular diseases.

## 7. Health insurance cover

The responsibility of providing health services, as with education and other services, lies predominantly with the government of South Africa. The country has a history of unequal access to these types of services. In order to determine the extent to which the government is fulfilling its mandate of providing services, some questions on access to medical insurance were asked in the SADHS 2016. The extent to which people have access to private health services through some means of health insurance in the form of medical aid, medical benefit scheme, provident scheme, or hospital plan that helps them pay for their health care, gives an indication as to whether health services are accessible to the public.

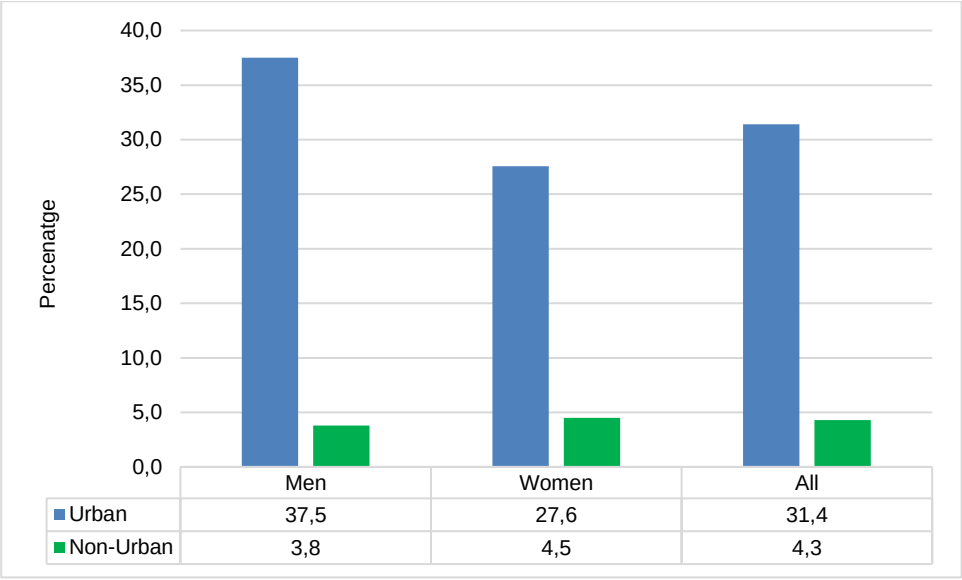
This section presents health insurance cover among the elderly from the SADHS 2016. A question was posed to respondents to indicate if they have any form of private health insurance cover in the form of medical aid, medical benefit scheme, provident scheme, or hospital plan that helps them pay for their health care.

In the GHS, a similar question is asked on an annual basis as to whether members of the household are covered by medical aid, medical benefit scheme or other private health insurance see Appendix D). A comparison of the findings with regard to medical health insurance cover between the SADHS and GHS was done and the results of the two surveys in terms of specific demographics, i.e. population group and province, are presented in this section of the report.

The GHS does not cover type of place of residence; hence, only results from the SADHS 2016 for this variable will be reported.

### 7.1 Medical insurance cover from the SADHS

**Figure 9: Medical insurance cover among the elderly by sex and type of residence, SADHS 2016**




| | Men | Women | All |
|---|---|---|---|
| Urban | 37,5 | 27,6 | 31,4 |
| Non-Urban | 3,8 | 4,5 | 4,3 |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

Figure 9 above shows that overall, the elderly living in urban settings (31,4%) were more inclined to be covered by some form of private medical health insurance than their non-urban counterparts, where only 4,3% has any private health cover.

Cover by some form of private health insurance is higher among elderly males (37,5%) living in urban residences than for males living in non-urban settings (3,8%). A similar pattern was observed for elderly females, but at different levels (27,6% for urban residents and 4,5% for non-urban residents).

**Table 13: Health insurance cover among the elderly by place of residence, population group and province, SADHS 2016**

| Variable | Men covered for health insurance | | Women covered for health insurance | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Type of place of residence** | | | | | | |
| Urban | 369 | 37,5 | 586 | 27,6 | 955 | 31,4 |
| Non-urban | 204 | 3,8 | 439 | 4,5 | 643 | 4,3 |
| **Population group** | | | | | | |
| Black African | 378 | 6,3 | 771 | 6,2 | 1 149 | 6,2 |
| White | 108 | 82,4 | 136 | 75,2 | 243 | 78,4 |
| Coloured | 66 | 32,4 | 94 | 24,2 | 160 | 27,6 |
| Indian/Asian | 21 | * | 22 | * | 44 | (44,1) |
| **Province** | | | | | | |
| Western Cape | 103 | 57,2 | 155 | 34,6 | 259 | 43,6 |
| Eastern Cape | 69 | 16,2 | 170 | 13,9 | 239 | 14,6 |
| Northern Cape | 13 | 10,0 | 23 | 5,5 | 36 | 7,2 |
| Free State | 27 | (17,6) | 59 | 13,2 | 86 | 14,5 |
| KwaZulu-Natal | 93 | 22,8 | 175 | 12,6 | 267 | 16,2 |
| North West | 45 | 5,9 | 61 | 9,4 | 107 | 7,9 |
| Gauteng | 131 | 27,7 | 175 | 28,0 | 306 | 27,9 |
| Mpumalanga | 29 | 17,8 | 65 | 5,5 | 94 | 9,3 |
| Limpopo | 62 | 7,2 | 142 | 10,3 | 205 | 9,4 |
| **Total** | **573** | **25,5** | **1 025** | **17,7** | **1 598** | **20,5** |

Figures in parentheses for SADHS are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

Table 13 above shows that overall, only one in five (20,5%) of the elderly population was covered by some type of private health insurance as recorded in the SADHS 2016. The sex profile shows an almost eight percentage point difference between elderly males (25,5%) being better off in terms of their level of medical aid cover than their female counterparts (17,7%).

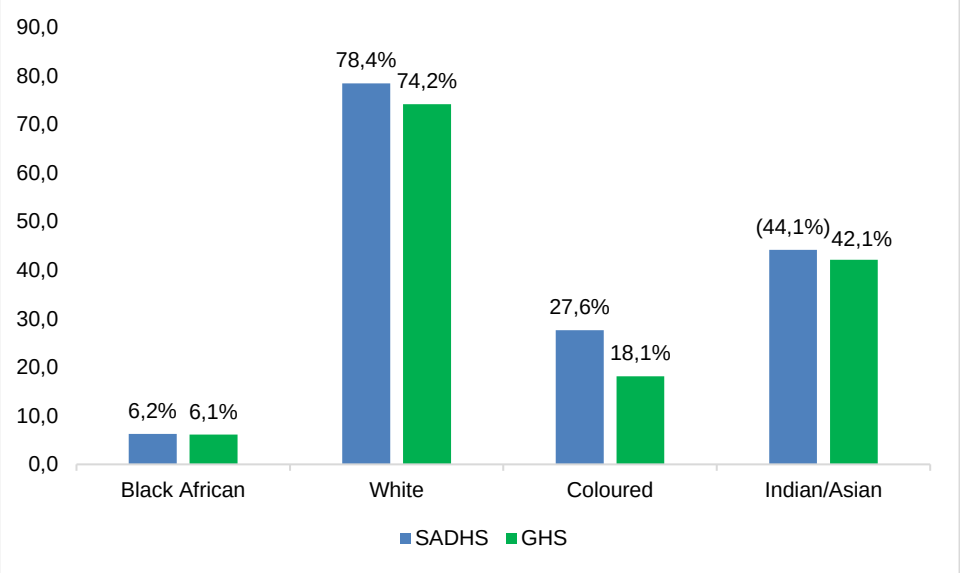
Table 14 below presents information on medical aid cover among the elderly from the GHS 2016. According to results from the GHS 2016, 24,5% of all the elderly are covered by private medical aid. As with the SADHS 2016, elderly men had higher levels of cover (28,0%) than elderly women (22,1%).

**Table 14: Health insurance cover among the elderly by population group and province, GHS 2016**

| Variable | Men with medical aid cover | | Women with medical aid cover | | All | |
|---|---|---|---|---|---|---|
| | Number | % | Number | % | Number | % |
| **Population group** | | | | | | |
| Black African | 1 078 856 | 8,2 | 1 741 228 | 4,8 | 2 820 084 | 6,1 |
| White | 465 648 | 74,4 | 570 306 | 73,9 | 1 035 955 | 74,2 |
| Coloured | 173 590 | 17,5 | 261 138 | 18,5 | 434 729 | 18,1 |
| Indian/Asian | 71 362 | 49,3 | 98 421 | 36,9 | 169 784 | 42,1 |
| **Province** | | | | | | |
| Western Cape | 264 971 | 46,6 | 324 608 | 44,6 | 589 579 | 45,5 |
| Eastern Cape | 251 081 | 16,3 | 389 016 | 11,7 | 640 097 | 13,5 |
| Northern Cape | 45 059 | 23,5 | 70 168 | 19,6 | 115 227 | 21,1 |
| Free State | 94 088 | 23,3 | 158 097 | 22,6 | 252 185 | 22,9 |
| KwaZulu-Natal | 297 264 | 23,8 | 510 655 | 14,8 | 807 919 | 18,1 |
| North West | 149 591 | 19,8 | 179 098 | 19,6 | 328 689 | 19,7 |
| Gauteng | 426 458 | 41,4 | 595 621 | 34,9 | 1 022 079 | 37,6 |
| Mpumalanga | 120 765 | 16,2 | 176 709 | 12,8 | 297 473 | 14,2 |
| Limpopo | 140 181 | 5,4 | 267 121 | 3,6 | 407 302 | 4,2 |
| **Total** | **1 789 457** | **28,0** | **2 671 094** | **22,1** | **4 460 551** | **24,5** |

Although the overall levels of cover reported for the GHS (24,5%) were slightly higher than those reported in the SADHS 2016 (20,5%), the general pattern remains the same.

**Figure 10: Health insurance cover among the elderly by population group, SADHS and GHS 2016**

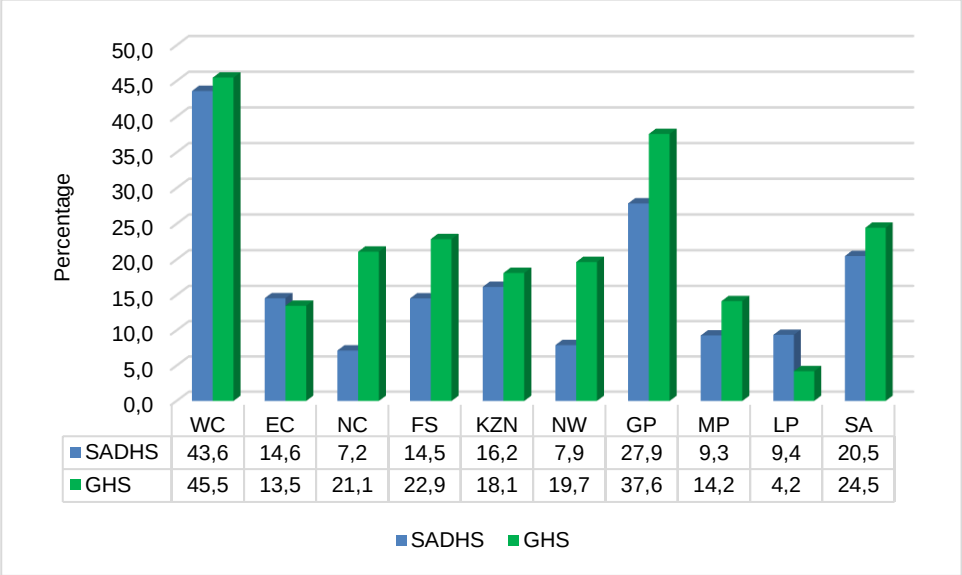



Figures in parentheses for SADHS are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

As shown in Figure 10 above, in terms of population group, the white population group had the highest levels of cover in terms of having some form of private medical scheme; 78,4% in the SADHS 2016 and 74,2% in the GHS. Levels where a bit higher for the SADHS than for the GHS. As mentioned before, there were very few cases of Indian/Asian elderly who participated in the SADHS 2016, which makes inferences risky. However, the levels of cover by some form of private medical scheme for SADHS 2016 (44,1%) and that of the GHS (42,1%) were very similar.

The black African group had the lowest levels of cover by some form of private medical scheme, and the difference between the level found in the SADHS 2016 (6,2%) and the GHS 2016 (6,1%) was very small. There was a nine percentage point difference in the levels of cover by some form of private medical aid scheme for the SADHS 2016 (27,6%) and the GHS (18,1%) in the case of the coloured population group.

**Figure 11: Health insurance cover among the elderly by province, SADHS and GHS 2016**




| | WC | EC | NC | FS | KZN | NW | GP | MP | LP | SA |
|---|---|---|---|---|---|---|---|---|---|---|
| SADHS | 43,6 | 14,6 | 7,2 | 14,5 | 16,2 | 7,9 | 27,9 | 9,3 | 9,4 | 20,5 |
| GHS | 45,5 | 13,5 | 21,1 | 22,9 | 18,1 | 19,7 | 37,6 | 14,2 | 4,2 | 24,5 |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

As shown in Figure 11 above, there are vast inter-provincial differences concerning the elderly being covered by some type of private medical health scheme for both the SADHS 2016 and the GHS 2016.

The Western Cape had the highest levels of cover in both the SADHS and the GHS (43,6% and 45,5%, respectively), followed by Gauteng with 27,9% in SADHS and 37,6% in GHS, albeit at different levels for the two surveys. It is worth noting that both these provinces are more urbanised; this is also confirmed by the fact that for the SADHS 2016, cover by some form of private medical aid scheme was 31,4% in urban settings. The results from the SADHS 2016 show that the elderly in the Northern Cape (7,2%) had the lowest level of being covered by a private medical aid scheme, followed by North West (7,9%), Mpumalanga (9,3%) and Limpopo (9,4%). These four provinces’ levels of cover were all below 10%. These provinces are also more non-urban in nature, which is again in keeping with what is observed for the non-urban areas where overall cover is as low as 3,4%.

## 8. Conclusion

The findings presented in this report drawn from three different data sources (SADHS 2016, GHS 2016, and MACoD 2016), confirm each other for the majority of the aspects covered. It is, however, alarming to find that non-communicable diseases have such a large impact on both the morbidity and mortality levels among the elderly population in South Africa. This is confirmed by other literature sources on the subject.

Although this report focussed on the elderly, both hypertension and diabetes mellitus are diseases that are linked to an unhealthy lifestyle and diet. These diseases are more likely to have been diagnosed in the elderly in their late forties or early fifties, leaving the person with a long period of having to live with the disease/s. These conditions have a long period of treatment, which can be very costly since the treatment requires the person to take medication on a chronic basis.

Diabetes mellitus, when not controlled and treated properly, can lead to all types of other health-related problems. Diabetes mellitus can for example have a severe impact on the eyesight of a patient, which could ultimately lead to blindness. Similarly, problems with the circulatory system can lead to amputation of certain limps, leading to further debilitating consequences for a patient, e.g. having to use crutches or a wheelchair. The provision of these assistive devices places a larger burden on the cost of health care provision. With such a low proportion of the elderly having access to any form of medical cover in the form of a medical aid, medical benefit scheme, provident fund or hospital plan (20,5%), the majority of the elderly population (almost 80%) depend on government-funded related services. In future, this may become a fiscal challenge as life expectancy in South Africa is increasing.

It seems that a link exists between the levels of elderly people being diagnosed with diabetes mellitus in the three provinces where diabetes mellitus is also the leading cause of death, with almost one in five elderly people diagnosed with diabetes mellitus [KwaZulu-Natal (22,0%), Western Cape (20,1%), and Eastern Cape (19,1%)]. The levels of morbidity and mortality due to diabetes mellitus is a concern that will have to be addressed by the NDoH.

The South African government – through the NDoH – has already instituted a sugar tax in order to discourage the excessive intake of sugar through sweets and sugar-containing soft drinks.

The findings from the SADHS – which places the levels of the elderly having diabetes in the country very high – will require that the National Department of Health place more emphasis on addressing this health concern. Efforts will have to be commissioned, especially with regard to prevention programmes focussing on a healthy lifestyle and healthy eating among the population. This will place an extra burden on the already stretched government health budget of the country.

The high proportion of the elderly suffering from hypertension (53,6%) found to be reported in the SADHS 2016 is equally concerning. This means that almost every second person among the 60 years and older group has hypertension. In as much as hypertension is a disease on its own, it is the debilitating effect/s that it can have on a person's health that is of concern. Having high blood pressure can result in having a heart attack or other heart diseases, as well as having a stroke. Therefore, it is equally important that persons diagnosed with hypertension receive treatment as soon as possible and again; this is long-term treatment that has huge financial and service delivery implications for the public health sector, specifically since low proportions of the elderly have access to some sort of private medical care.

It is concerning that such a high proportion of the elderly population (almost 70%) are either overweight or obese. Women are more prone to be overweight/obese when compared to their male counterparts. Being overweight or obese often results in a person being diagnosed with diabetes mellitus as a result of their eating habits, with intake of a lot of refined foods, sugar-containing soft drinks and snacks.

This report highlighted the seemingly similar trends between non-communicable diseases (diabetes mellitus and hypertension) and the causes of mortality among the elderly. Information on deaths from the Mortality and causes of death 2016 report (MACoD 2016) shows that the top five leading natural causes of deaths for people aged 60 years and older were all non-communicable diseases for both sexes.

Mortality and causes of death data further show that diabetes mellitus is the main underlying natural cause of death among the elderly, followed by cardiovascular diseases. Hypertensive diseases, of which hypertension forms a part, is the third leading underlying cause of death among the elderly, overall.

In conclusion, the results with regard to the elderly reporting if they were ever informed by a health worker, doctor or nurse that they had high blood pressure or diabetes mellitus in either the SADHS 2016 or the GHS 2016, show the same patterns. The levels of the results differ slightly, but that may be due to the difference in sample size and methodology.

Both the SADHS 2016 and GHS 2016 results place diabetes mellitus and hypertensive diseases under the top five non-communicable diseases, is confirmed in the MACoD 2016 results. In the analysis of the MACoD 2016 data, it became evident that diabetes mellitus and hypertensive diseases are among the five leading causes of death in South Africa.

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# Appendix A

Prevalence of self-reported diagnosis with high blood pressure, and treatment received at time of diagnosis among the elderly (SADHS 2016).

| | Men | | Women | | Total | |
|---|---|---|---|---|---|---|
| **Type of place of residence** | **Number** | **%** | **Number** | **%** | **Number** | **%** |
| Urban | 201 | 93,7 | 355 | 92,6 | 556 | 93,0 |
| Non-urban | 74 | 89,2 | 226 | 85,4 | 300 | 86,3 |
| **Population group** | | | | | | |
| Black African | 160 | 93,9 | 451 | 88,3 | 451 | 88,3 |
| White | 60 | (91,6) | 65 | 96,0 | 125 | 93,9 |
| Coloured | 41 | (89,6) | 55 | 95,3 | 96 | 92,8 |
| Indian/Asian | 13 | * | * | 86,3 | (24) | * |
| **Province** | | | | | | |
| Western Cape | 61 | (93,3) | 94 | 95,5 | 94 | 95,5 |
| Eastern Cape | 29 | (91,0) | 100 | 87,8 | 128 | 88,5 |
| Northern Cape | 5 | * | (14) | 97,7 | (20) | 96,1 |
| Free State | 13 | (84,9) | 38 | 88,6 | 51 | 87,6 |
| KwaZulu-Natal | 51 | (88,2) | 94 | 88,1 | 145 | 88,1 |
| North West | 17 | (94,5) | 45 | 95,6 | 62 | 95,3 |
| Gauteng | 69 | (94,2) | 103 | (89,1) | 172 | 91,1 |
| Mpumalanga | 12 | * | (37) | (87,9) | (49) | 89,5 |
| Limpopo | 19 | (100,0) | 56 | 83,5 | 75 | 87,6 |
| **Total** | **275** | **92,5** | **581** | **89,8** | **856** | **90,7** |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

# Appendix B

Measured prevalence of hypertension and taking medication for hypertension by the elderly (SADHS 2016).

| | Male | | | Female | | | All | | |
|---|---|---|---|---|---|---|---|---|---|
| **Type of place of residence** | **Prevalence of hypertension** | **Taking medicine to lower blood pressure** | **Number** | **Prevalence of hypertension** | **Taking medicine to lower blood pressure** | **Number** | **Prevalence of hypertension** | **Taking medicine to lower blood pressure** | **Number** |
| Urban | 84,5 | 54,8 | 276 | 83,9 | 59,1 | 461 | 84,1 | 57,5 | 737 |
| Non-urban | 74,0 | 37,9 | 175 | 79,5 | 51,2 | 398 | 77,9 | 47,1 | 573 |
| **Population group** | | | | | | | | | |
| Black African | 78,7 | 43,3 | 316 | 82,1 | 54,2 | 689 | 81,0 | 50,8 | 1 005 |
| White | 79,5 | 59,5 | 76 | 81,4 | 57,1 | 86 | 80,5 | 58,2 | 162 |
| Coloured | (90,6) | (58,9) | (45) | 81,7 | 63,0 | 65 | 85,3 | 61,3 | 110 |
| Indian/Asian | * | * | * 15 | * | * | * 17 | * | * | (32) |
| **Province** | | | | | | | | | |
| Western Cape | (91,1) | (63,7) | 57 | 83,8 | 67,0 | 100 | 86,5 | 65,8 | 157 |
| Eastern Cape | 81,4 | 42,5 | 65 | 82,2 | 56,3 | 157 | 82,0 | 52,2 | 222 |
| Northern Cape | (82,1) | (32,5) | (11) | (83,7) | (46,5) | (20) | (83,2) | (41,5) | (31) |
| Free State | (86,0) | (44,3) | (25) | 91,4 | 66,0 | 50 | 89,6 | 58,7 | 76 |
| KwaZulu-Natal | 83,9 | 51,8 | 82 | 84,2 | 58,0 | 154 | 84,1 | 55,9 | 237 |
| North West | 67,7 | 43,6 | (41) | 89,5 | 73,3 | 58 | 80,6 | 61,2 | 99 |
| Gauteng | (84,5) | (55,3) | 101 | 81,3 | 54,0 | 139 | 82,6 | 54,5 | 240 |
| Mpumalanga | (73,5) | (42,1) | (19) | 80,4 | 46,3 | 56 | 78,6 | 45,2 | 76 |
| Limpopo | 62,7 | 29,6 | 49 | 70,5 | 36,3 | 124 | 68,3 | 34,4 | 173 |
| **Total** | **80,4** | **48,2** | **451** | **81,9** | **55,4** | **859** | **81,4** | **53,0** | **1 310** |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

## Appendix C

Prevalence of self-reported diagnosis with elevated blood sugar levels, and treatment received at time of diagnosis among the elderly (SADHS 2016).

| | Men | | Women | | All | |
|---|---|---|---|---|---|---|
| **Type of place of residence** | **Number** | **%** | **Number** | **%** | **Number** | **%** |
| Urban | 71 | 88,0 | 95 | 91,7 | 166 | 90,1 |
| Non-urban | 23 | (87,7) | 55 | 83,8 | 78 | 85,0 |
| **Population group** | | | | | | |
| Black African | 47 | (94,0) | 114 | 85,3 | 161 | 87,9 |
| White | 18 | * | 8 | * | 26 | * |
| Coloured | 22 | * | 21 | * | 43 | 100,0 |
| Indian/Asian | 8 | * | 5 | * | 12 | * |
| **Province** | | | | | | |
| Western Cape | 26 | * | 26 | * | 52 | 87,3 |
| Eastern Cape | 16 | * | 30 | (81,3) | 46 | 85,9 |
| Northern Cape | 1 | * | 3 | * | 4 | * |
| Free State | 3 | * | 8 | * | 11 | * |
| KwaZulu-Natal | 19 | * | 40 | (94,1) | 59 | 89,4 |
| North West | 1 | * | 4 | * | 5 | * |
| Gauteng | 15 | * | 21 | * | 36 | * |
| Mpumalanga | 6 | * | 7 | * | 12 | * |
| Limpopo | 7 | * | 12 | * | 19 | * |
| **Total** | **94** | **87,9** | **150** | **88,8** | **244** | **88,5** |

Figures in parentheses are based on 25–49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. “Don’t know” and/or “other” cases are excluded. Due to rounding, totals may not add to 100%.

# Appendix D

Phrasing of questions with regard to medical health cover.

### South Africa Demographic and Health Survey

| | | |
|---|---|---|
| 1402 | Are you covered by Medical Aid, Medical Benefit Scheme, Provident Scheme, or Hospital Plan that helps you pay for health care or drug services? | YES ..... 1<br>NO ..... 2 |

### General Household Survey

**SECTION 2 : HEALTH AND GENERAL FUNCTIONING**

***Ask for all household members. Read out: Now I am going to ask you health-related questions for eac***

| | | 01 | 02 | 03 | 04 |
|---|---|---|---|---|---|
| **2.1** | **Is …… covered by a medical aid or medical benefit scheme or other private health insurance?** *If the person is a dependent and covered by someone else's scheme, the answer is "Yes".*<br>1 = Yes<br>2 = No<br>3 = Do not know | ☐ 1<br>☐ 2<br>☐ 3 | ☐ 1<br>☐ 2<br>☐ 3 | ☐ 1<br>☐ 2<br>☐ 3 | ☐ 1<br>☐ 2<br>☐ 3 |
| **2.2** | **How would you describe ….'s health in general? Would you say it is...** | | | | |

ISBN: 978-0-621-47168-7