

**Socio-Demographic Determinants of Health-Seeking Behaviour
among the South African Population: An Analysis of NIDS**

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Abstract

The persistent socio-economic and demographic inequalities that exist in the South African population have influenced the health-seeking behaviour of various groups, thereby resulting in health outcomes that can be described as being highly inequitable. This study aimed to evaluate the impact of socio-economic and demographic determinants on the health-seeking behaviour of the South African population in an attempt to add to the limited literature on the topic. A quantitative secondary analysis was conducted using the data from the National Income Dynamics Study Wave 4. Multivariate binomial logistic regressions were used to examine the socio-economic and demographic determinants of health-seeking behaviour. Some of the main findings were that women, the elderly and adults who were affiliated with quintile 5 had the highest odds of ever having visited a healthcare facility in the past year; whilst adults who had completed secondary education or resided on farms had the lowest odds. In relation to the type of healthcare facility last visited, adults who had a post-matric qualification belonged to wealth quintile 5 or who were married had the highest odds of going to a private healthcare facility. In contrast, adults who were unemployed who resided in traditional areas and women had the lowest odds of going to a private healthcare facility. The interaction effects investigated highlighted that in post-apartheid South Africa, gender and racial inequalities moderate the influence of selected socio-economic and demographic characteristics on the health-seeking behaviour of the population. Therefore, the present study concludes that both socio-economic and demographic determinants have a significant overall effect on the health-seeking behaviour of the South African population and suggests that future efforts to reduce health inequities should target the structural mechanisms of the social determinants of health.

Key words: health-seeking behaviour, socio-economic determinants, demographic factors, South Africa

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Acronyms

CSDH	Commission on the Social Determinants of Health
HRQoL	Health-related quality-of-life
HSB	Health-seeking behaviour
LAMI	Low and middle income
NIDS	National Income Dynamics Study
PSU	Primary sampling unit
RDP	Reconstruction and Development Programme
WHO	World Health Organization

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Chapter 1

Introduction

“Of all the forms of inequality, injustice in health care is the most shocking and inhumane”

Martin Luther King

(Zabel and Stevens, 2006, p.146)

1.1 Introduction

South Africa is one of the most unequal countries in the world with a Gini coefficient of 63.4 in 2011 (World Bank, 2016a). This has rendered health as a complex phenomenon to study as it is characterised by deep rooted historical discriminations, whereby the population groups have been segregated according to gender, racial ethnicity and socio-economic status (Coovadia, Jewkes, Barron, Sanders and McIntyre, 2009; Harris et al., 2011; WHO, 2010). Health-seeking behaviour is defined as “any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy” (Ward, Mertens, & Thomas, 1997, p.19). The study of health-seeking behaviour has been described as an instrument that provides an understanding of how different groups of people utilize the health care system from within their unique economic, demographic and socio-cultural milieus, and therefore can be considered an effective tool to use in the study of health inequities (Shaikh, 2008). Therefore, the purpose of this study is to examine the socio-economic and demographic determinants of health-seeking behaviour among the South African population.

1.2 Background to the study

Health-seeking behaviour regulates how the available health care facilities in a region are utilized, which in turn determines the health outcomes for that population and is a central, yet often overlooked entry point for intervention on health inequities (Musoke, Boynton, Butler, & Musoke, 2014). The study of health-seeking behaviour provides a description of the social determinants that either inhibit or promote a group of people to behave in a particular way, when seeking resolutions for health related issues. Therefore, the study of health-seeking behaviour and its determining factors highlights the critical areas that are in need of attention, which can inform the government and policy makers of the health related conduct of its people (Abongile, 2010; MacKian, 2003).

Tipping and Segall (1995) cited in Oluwatuyi (2010) popularised the concept of health-seeking behaviour in the mid-1990s and identified two types of research that a scholar can undertake on the topic. The first type aligns itself with the school of psychology as it focuses on the process of illness response. Studies that fall within this classification attempt to extract the emerging factors that propel individuals to sustain certain health related behaviours, and to seek a particular type of medical care. The underlying assumption is that an individual's perception of their social environment drives these lifestyle decisions. The second approach to research is focused on the utilization of the healthcare system, and assumes that health related decisions are determined mainly by socio-economic and demographic factors, thereby this approach is situated within a deterministic paradigm (Tipping & Segall, 1995 cited in Oluwatuyi, 2010). Although the current study does not oppose either school of thought as both are considered applicable in the study of health-seeking behaviour, it positions itself within the deterministic approach of the utilization of the healthcare system. This is because this study is based on the premise that external socio-economic and demographic determinants are more influential than cognitive factors such as choice in determining health-seeking behaviour, especially in the developing context of South Africa.

Prior to 1994, the inequalities of the Apartheid era shaped the health care systems, which academics have referred to as being “centralised and undemocratic; highly fragmented in structure; inefficiently and inequitably biased towards curative and higher level services; and inequitably biased towards historically white areas” (The Presidency, n.d., p. 4). A repercussion from such inequalities was an inequitable epidemiological profile for South Africa during the late 1980s and 1990s, whereby Black African and Coloured racial groups experienced a higher maternal mortality rate, infant mortality rate and incidences of tuberculosis, as well as decreased life expectancy when compared to the white population group (The Presidency, n.d.).

In 1994, with the advent of the African National Congress (ANC) as the ruling party, South Africa became a democratic state. The new government envisioned a health system defined by national public health care that was accessible to every South African citizen regardless of race or socio-economic status. The National Health Plan of 1994 was developed to manifest this vision, assisted by the Reconstruction and Development Programme (RDP). The RDP involved pro-equity policies and approaches, which addressed the facilitation of the number of publicly funded health care facilities, offerings of free maternal and child health care services, distribution of social grants to economically challenged individuals, and

augmentation of water and electricity accessibility (Kautzky & Tollman, 2008; The Presidency: Republic of South Africa, n.d.).

This vision of the government and subsequent policies yielded significant health returns and improvements in terms of mortality rates, incidence of diseases and life expectancy. Between 1996 and 2002 infant and maternal mortality were at a discerning high which was a consequence of both the rising HIV and AIDS epidemic in South Africa (Bradshaw, Bourne & Nannan, 2013), and the limited knowledge and resources the government had to react to the health crisis (Gow & Desmond, 2002). From 2002 this trend saw an upturn as the under-5 mortality rate and infant mortality rate decreased from 77.2 and 51.2 deaths per 1,000 live births in 2002, to 45.1 and 34.4 deaths per 1,000 live births in 2015 respectively. Furthermore, life expectancy accounting for the impact of AIDS increased from 54.6 years in 2002, to 62.5 years in 2015, and progress was made in the reduction of the incidence of HIV and tuberculosis rates (Statistics South Africa, 2015; The Presidency: Republic of South Africa, n.d.). This decrease in mortality was largely attributable to policies put in place by the government including the HIV/AIDS and STD Strategic Plan (2000–2005) which informed the development of the National Integrated Plan (NIP) for children infected and affected by HIV/AIDS (2002) (Gow & Desmond, 2002). Regardless of these accomplishments, the South African health care system is confronted with numerous diseases and health issues due to the precedence of health inequities resulting from both structural, and socio-economic and demographic inequalities. Structurally, the South African health care system is currently characterised by weak operational management, financial negligence, and differentials in the distribution of resources between the public and private sectors (Kautzky & Tollman, 2008). Recent estimates suggest that up to 63% of the existing medical personnel work in private health facilities, half of the national health budget is allocated to it and yet, it caters for only 17.9% of the population (Kautzky & Tollman, 2008; Stuckler, Basu & McKee, 2011; The Presidency: Republic of South Africa, n.d.). In terms of socio-economic and demographic contributors, evidence has shown that the genealogy of apartheid continues to persist as the disproportionate burden of disease and ill health still reside among those having a lower socio-economic and demographic status. One of the prominent reasons behind this socio-economic inequality is low accessibility of resources such as sanitation, clean drinking water, nutrition, vaccinations, income, transportation, education and poor housing. All these barriers fuelled the incidence and persistence of ill health and diseases among the South African

population, and have been shown in the literature to have the potential to prevent access to healthcare for certain subsets of the population (Harris et al., 2011; Mayosi & Benatar, 2014).

Therefore, it is imperative to investigate the health-seeking behaviour of people in developing countries and South African people in the present context, with specific pertinence to socio-economic and demographic factors. Shaikh and Hatcher (2004) undertook an extensive literature review of studies conducted on health-seeking behaviour in developing countries and found that the utilization of the health care system, whether it is public or private, was largely driven by multiple social determinants. Some of the influential factors highlighted in the review included level of education, the status and autonomy of women, socio-economic status, geographic location and cultural beliefs. Shaikh and Hatcher (2004) concluded that identifying and understanding the determinants of health-seeking behaviour is of utmost importance in the task of developing a policy that seeks to provide health services which are accessible, proficient and inexpensive. Narrowing the scope to South Africa, although much progress has been made in terms of making healthcare facilities more accessible, inequalities in health-seeking behaviour still exist; particularly for previously marginalised groups and for populations from lower socio-economic strata in terms of their access to healthcare and in their likelihood of utilizing private healthcare facilities (McLaren, Ardington and Leibbrandt, 2014). These structural inequalities prevent the country from attaining universal healthcare coverage, a target of the Sustainable Development Goals which South Africa has committed to achieving. Adding to the limited evidence about the barriers the South African population face when accessing general and private healthcare will assist the country in achieving its target (Harris et al., 2011).

1.3 Rationale for the study

Aforementioned in the previous section, the existing literature has identified health-seeking behaviour as being a strong predictor of the health outcomes in a population (Musoke et al., 2014). The persistent inequalities that exist in the South African population have influenced the health-seeking behaviour of various groups, thereby resulting in health outcomes that can be described as being highly inequitable (Harris et al., 2011; Sekhejane, 2016). The challenge facing South Africa of dealing not only with persistent infectious diseases and high infant and maternal mortality, but also the emergence of chronic illnesses and rising injuries that has resulted in the determinants of health-seeking behaviour becoming an important emerging field of study (Coovadia et al., 2009; Mayosi, Flisher, Lalloo, Sitas, Tolman & Bradshaw,

2009). A brief examination of the available literature on the topic shows that there is a scarcity of national studies in the South African context, which measures both socio-economic and demographic determinants of health-seeking behaviour (Chaturvedi & Chaturvedi, n.d.) defined as when last a healthcare facility was accessed, and the type of healthcare facility accessed. This gap of knowledge can be proposed to compromise the ability of the government to act effectively in terms of planning for both the type of healthcare facility visited and the degree of accessibility, Substantial knowledge in this area has the capacity to reduce delays in diagnosis and assist in the planning for the provision of equitable healthcare that all segments of society can access (MacKian, 2003).

1.4 Aims and objectives

This study aims to shed insights into the socio-economic and demographic determinants of the health-seeking behaviour of the South African population, thus contributing to the limited literature in this area. In doing so, this study attempts to provide a comprehensive analysis of the determinants that either inhibit or promote the health-seeking behaviour of the South African population (Abongile, 2010; MacKian, 2003).

The specific objectives of this study are:

- To examine the relationship between socio-economic status and health-seeking behaviour
- To investigate the relationship between demographic variables and health-seeking behaviour
- To determine whether there is an interactive effect between socio-economic status and demographic factors on health-seeking behaviour

The study attempts to answer the following key questions:

- Is there a significant relationship between socio-economic status and health-seeking behaviour?
- What demographic variables are significantly associated with health-seeking behaviour?
- Is there an interactive effect between socio-economic status and associated demographics on health-seeking behaviour?

1.6 The data

The data used for this study accumulates from the National Income Dynamics Study (NIDS) wave four. NIDS is a panel study which was developed by the Southern Africa Labour and Development Unit (SALDRU) in 2006, with the purpose of following and documenting changes in the South African population over time. The base wave was conducted in 2008 which followed a sample of 28 000 individuals within household units excluding the persons residing in correctional facilities, boarding schools, residences and old age homes. In doing so, NIDS collects data that pertains to a wide range of socio-demographic and economic indicators such as economic activity, assets, migration, education, health, demographic indicators, and other aspects of life, thereby providing rich data in relation to both the explanatory variables and health-seeking behaviour (NIDS, 2009).

1.7 Theoretical framework

Health inequities are defined as “avoidable inequalities in health between groups of people within countries and between countries. These inequities arise from inequalities within and between societies” (WHO, 2016a). At the root of health inequities is power and prestige, as those who are considered powerful and prestigious control the distribution of resources in society, thereby socially stratifying different groups in a population according to various socio-economic and demographic characteristics. This social stratification in turn gives rise to the determinants of health status, rendering certain groups more vulnerable to health risks as it reflects the socio-economic positioning of people within social hierarchies (WHO, 2010).

The World Health Organization (WHO) recognises the structure of modern day society and its associated complicated social interactions and phenomenon that influences the health of a population. In order to further explore, and to understand how societal structures influence the health of population, the WHO established the Commission on the Social Determinants of Health (CSDH). To obtain the objectives, CSDH adopted a human-rights-based action framework on the social determinants of health formulated by the Secretariat of the WHO. The framework was derived from various previously published theories on health, where the objectives were to identify the social determinants of health and health inequities and how they relate with each other; to illuminate the pathways through which the social determinants of health lead to health inequities; and to highlight the aspects that are most imperative to address. Therefore, the framework provided CSDH with a formulated guide of intervention levels and policy recommendations. (WHO, 2010)

The framework is positioned within a political and socio-economic context that is composed of all institutions in society that determines the social hierarchy. Some of these institutions include the government and subsequent policies, the educational institute, and the labour market (WHO, 2010). Structural determinants of health refer to the interaction between the political and socio-economic context, and how these interactions generate social stratifications in a society. These structural determinants thereby demarcate socio-economic status, which is defined by an individual's social class, educational attainment, income level, and occupation. The CSDH framework extended this definition to include gender and ethnicity, all of which are considered to define social stratification in a society (WHO, 2010).

Income is acknowledged to be the best indicator of material circumstances and affects health indirectly through the expenditure of money on health promoting services and commodities. Although expenditure directly affects health status, it is not advisable to use this construct as a measurement in health inequity studies due to its limitations. Income is derived from multiple pathways such as occupational income, dividend returns, grants, interest received, and pensions (WHO, 2010).

Education is a good predictor of an individual's future occupational status and income, and there are three reasons that determine education as a contributing factor towards health-seeking behaviour. Firstly, education is related to knowledge, which enables or inhibits an individual's capacity to internalize and act on health messages and available services. Secondly, it can predispose an individual to future health inequities as ill health during childhood may interfere in academic achievement and completion. Lastly, education is an indicator of how family resources in childhood determine access to the type, quality and length of education that an individual is exposed to (WHO, 2010).

Occupation is an indicator of a person's income and social standing, which is influential on health outcomes in the following ways. Firstly, it is directly linked to income, which provides monetary capital to use on health related resources. Secondly, there are certain occupations that award individual's privileges related to their higher social standing such as medical aid and pensions. Thirdly, the type of occupation may expose individuals to specific occupational health risks and psychosocial stress (WHO, 2010). Due to occupation excluding certain groups of people such as students, the retired or economically inactive, this variable will be adapted in the study to refer to employment status, thereby examining the impact of employment status on health-seeking behaviour (WHO, 2010).

Gender is socially constructed, where the role and position of women and men in a specific society is culturally determined. Over the times, gender has resulted in various forms of gender-based discriminations that can affect health outcomes (WHO, 2010). Generally, females are exposed to higher health risks due to a lack of power in accessing health related resources, and are exposed to discrimination in terms of education, HIV, employment, income, nutrition and gender-based violence. Therefore, it has been argued that a focus on the elimination of gender-based health inequities is of paramount importance (WHO, 2012).

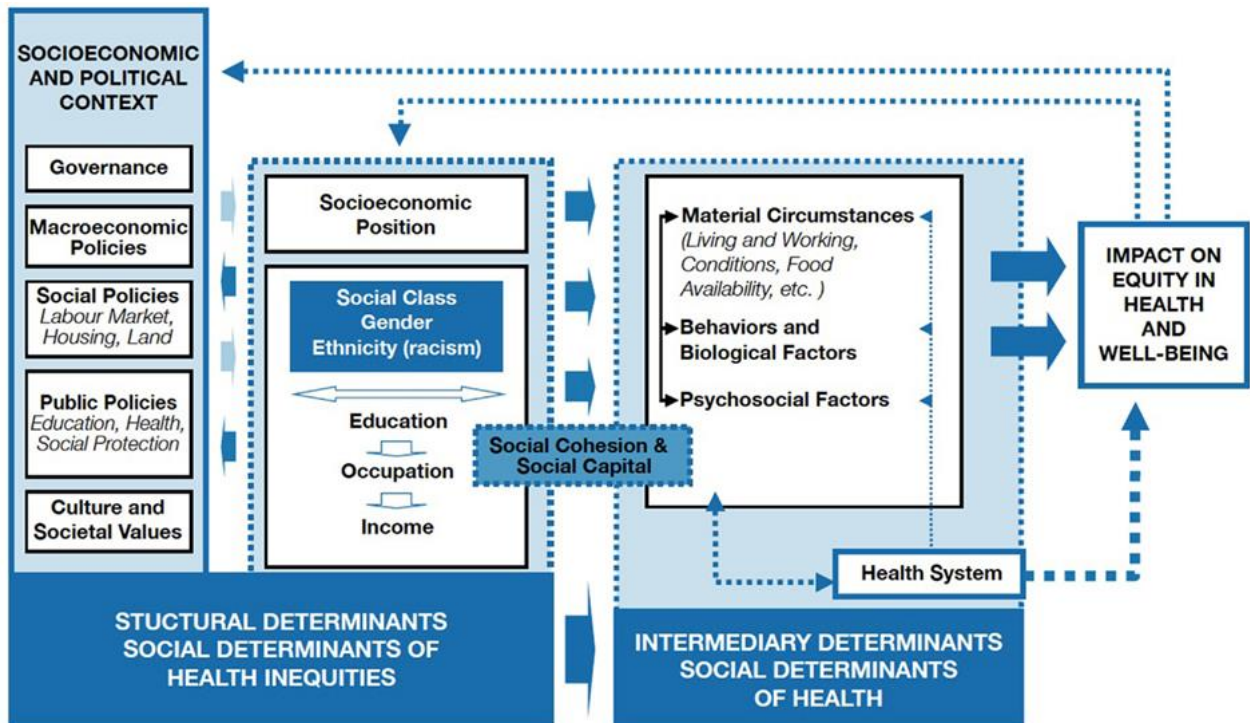
Race and ethnicity are also social constructs that have been used throughout history as a discourse through which power and domination has been exercised. Racial discrimination leads to the exclusion of groups, thereby rendering them in a position with minimal opportunity to develop and achieve. Existing research has shown that the groups who are socially discriminated, based on their ethnicity and race, have poorer health outcomes than their more privileged counterparts (WHO, 2010).

Therefore, the framework conceptualises the structural determinants of health inequities as consisting of the above which include the context, structural pathways and socio-economic position. These structural determinants do not have a direct influence on health equity outcomes, but rather act through the intermediate determinants of health that include the material circumstances, behavioural and biological factors, and psychosocial factors. Therefore, the model is based on the assumption that the above mentioned mechanisms can result in a causal-chain reaction that generates health inequities for specific populations and individuals (WHO, 2010).

This framework as depicted in Figure 1.1 is multidimensional and based on the extensive research of other health related models. A critique of the framework was made by Dr Paul Hunt (2009) who criticised the model for its underdevelopment of the human rights aspect. He based this criticism on the proposition that the CSDH report did not pay tribute to advances made in this area pertaining to health, also, the commission did not use this as an opportunity to rectify misconceptions about human rights, and neither did it demonstrate the possible effectiveness of utilizing a human rights based approach in overcoming health inequities. He further suggested that this neglect came from a difference in the interest between those advocating policy, and those working towards human rights (Hunt, 2009 as cited in Rasanathan, Norenhag & Valentine, 2013). Since the present study is not adopting a human rights-based approach, this shortcoming is largely irrelevant for the purpose of

examining the relationship between socio-demographic factors and human-seeking behaviour (HSB).

Figure 1.1: A summary of the CSDH framework



Source: WHO (2010)

1.8 Structure of the dissertation

This dissertation includes five chapters. The first chapter provides the background of the research, the major aim and objectives, and a summary of the framework that will inform the study. Chapter two includes the literature review of all the relevant previous researches conducted on the topic. Chapter three outlines the methodology describing the included variables and statistical analysis employed to measure the relationship between the mentioned factors and health-seeking behaviour. Chapter four will provide an overview of the results obtained from the analysis, and chapter five will include the discussion and conclusion of the findings, and recommendations for future research.

Chapter 2

Literature Review

“Reducing health inequalities is a matter of fairness and social justice”

(Marmot, 2010a)

2.1 Introduction

Health-seeking behaviour is a complex and multidimensional topic, which is driven by several determinants (Prosser, 2007). Given the history of South Africa and its progression through the demographic and epidemiological transition, it is considered of relevance to examine how both the socio-economic and demographic factors affect the health-seeking behaviour of the population. Therefore, the purpose of this literature review is twofold; to ground the study within existing research and provide the reader with an overview of that literature, and to provide a point of reference for interpreting the results of this study. The first section of this literature review will pertain to the socio-economic determinants of health-seeking behaviour including education, employment status and an asset quintile. The second section will highlight the literature on the demographic determinants including gender, marital status, age, geographic location and population group. The chapter will then conclude with a summary.

2.2 Socio-economic determinants of health-seeking behaviour

The health of a population is influenced by a number of factors that are known as the social determinants of health. The WHO defined the social determinants of health as “the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources” (n.d, para. 1). Therefore, socio-economic status is considered as a central factor in determining health outcomes of a population and holds a greater importance (Rutstein & Johnson, 2004) than the demographic factors, as suggested by few studies (Habibullah & Afsar, 2013). Furthermore, health-seeking behaviour is being acknowledged progressively in the literature as an interconnecting mechanism through which this phenomenon occurs (Stringhini et al., 2010) and is therefore the major focus of this study.

According to the American Psychological Association, socio-economic status is the social positioning of individuals or population group within a milieu that is determined by the socio-economic factors of education level, occupation and income. By examining socio-economic status, inequities are revealed in terms of resource accessibility, as well as the distribution of

power, prestige and domination within a society (APA, 2016). The present study chose to define socio-economic status in accordance with the WHO CSDH framework by using the indicators of education, employment status and income, which are the most common method of measuring the construct in the public health field (APA, 2016; Matthews & Gallo, 2011). Taking account of the limitations highlighted in the literature regarding the use of income as a measure of socio-economic status, this study decided to use multiple correspondence analysis to construct an asset index as a proxy for socio-economic status, as it is assumed that income is required for acquiring assets. This is in alignment with other studies such as the research by Krefis et al (2010), who used principle component analysis to construct an asset index rather than using an income indicator. It is important to highlight that there are other ways that the construct can be measured. For example, Kavosi et al (2011) used expenditure. Each operationalization has its own limitations and advantages and are selected on the basis of personal preference and the type of data available (Rutstein & Johnson, 2004).

2.2.1 Education level

Empirical evidence suggests that education is an important determinant of health (Albert & Davia, 2010) with higher levels of educational attainment associated with improved maternal and infant health outcomes (Chou, Liu, Grossman & Joyce, 2010), adolescent health (Viner et al., 2012), and reduced morbidity and mortality (Baker, Leon, Greenaway, Collins & Movit, 2011). For example, the widely cited Marmot Review in health inequality research reported that obtaining a tertiary qualification is associated with increased health and longevity. Their study conducted in England found that an estimated 202,000 premature deaths could be averted if all of the population achieved a degree (Marmot, 2010a). A pronounced education gradient in health is cited in the literature, suggesting that as level of education increases, so does the likelihood of positive health outcomes (Zimmerman, Woolf & Haley, 2015). Therefore, education can be proposed to be an important component in improving the life trajectories of population groups whilst reducing health inequalities that stem from disparities in health-seeking behaviour.

The dominant findings in the literature from countries in sub-Saharan Africa is that education is an important determinant of health-seeking behaviour with lower levels of education associated with a decreased likelihood of seeking care (Anselmi et al., 2015; Njuki et al., 2014; Zyaambo et al., 2012). In contrast to this view, a study by Frie, Eikemo and Von Dem Knesebeck (2010) examined the health-seeking behaviour of populations in 24 developed

European countries and found the opposite effect. In other words, that lower levels of education was indicative of increased health related activity. A study conducted in Zambia linked education to increased knowledge about ill health, how to recognize symptoms, and increased awareness about where to go when sick. Furthermore, education is a proxy of socio-economic status as educational attainment generally results in better employment and income which allows the individual a broader spectrum of choices when it comes to health care (Zyaambo et al., 2012). The above reasoning could offer as explanations for why this was the dominant finding in the literature.

A study conducted in Burkina Fasa, a low-income country in West Africa found that increased educational attainment improved the likelihood of visiting a formal healthcare service provider (Beogo et al., 2014). A possible explanation for this was provided by Caldwell et al (2014) who found that misconceptions and myths deterred seeking treatment from the formal healthcare sector as uneducated groups tend to perceive western medicine to be too severe for treating their infants, and believed that government health clinics only catered for the reproductive needs of females resulting in distrust and avoidance. Although this study was situated in the urban slums in Bangladesh, it is plausible to believe this to be a barrier in South Africa given its history and general distrust towards western practices by many historically disadvantaged population groups.

South Africa is categorized as a low and middle income country (LAMI) and therefore it is plausible to assume that the findings described above from other LAMI countries are applicable to the context of South Africa. In summation, education has been shown in the literature to be an important and influential determinant of health-seeking behaviour and a perpetuator of inequalities in health. Given the emphasis on educational attainment in recent years, it is considered of relevance to explore this further using the most recent household data from NIDS published in 2016.

2.2.2 Employment status

Employment status is recognized in the literature as one of the most important determinants of health outcomes, particularly in the African context, as shown in a decomposition analysis by Hosseinpoor et al (2012). The researcher found that employment status contributed significantly to health disparities among the various populations who resided in sub-Saharan Africa. Broadly, the literature on the relationship between employment status and health has focused on the effects of either unemployment or employment. Being employed has been

associated with increased physical and mental health, as well as improved quality of life (Hosseinoor et al., 2012; Rueda et al., 2011), whilst being unemployed has been linked to reduced fertility (Del Bono, Weber & Winter-Ebmer, 2012), substance abuse (Henkel, 2011), reduced birth weight of infants (Lindo, 2011), and depression (Jefferis et al., 2011). Possible explanatory factors for these identified outcomes are that unemployment is often accompanied by a loss of monetary and social resources, which in turn can proliferate poor health and mitigate the possibility of acquiring further employment (Ahs et al., 2012).

In relation to the association between employment status and health-seeking behaviour, international literature examining data from both developed and underdeveloped countries including those in sub-Saharan Africa suggest that being employed is a deterrent to seeking healthcare services, particularly among lower socio-economic groups who are fearful of losing employment by taking time off work to go to a clinic or hospital. In some circumstances, this has resulted in people choosing informal healthcare providers such as pharmacies who are open until late (Caldwell et al., 2014). Moreover, as mentioned above, being unemployed can lead to poorer mental and physical health, which would increase the need of seeing a health practitioner (Del Bono et al., 2012; Henkel, 2011; Jefferis et al., 2011) when compared to the employed who have been shown in the literature to experience lower incidences of morbidity (Hosseinoor et al., 2012; Rueda et al., 2011). The empirical evidence that the unemployed utilize the healthcare system more than the employed is not conclusive. A cross-sectional study in Sweden found that being unemployed was associated with a decreased likelihood of going to a healthcare facility regardless of the need (Ahs et al., 2012). Sweden is categorized as a high income country according to the World Bank (2016b) and therefore is not comparable to low and middle income countries, which suggests the effect of socio-economic status on health-seeking behaviour occurs at both a household level and a macroeconomic scale.

Disparities in the utilization of either the private healthcare sector or the public healthcare sector have been shown to exist in the literature, although no current publications were found and the bulk of the literature came from developed countries. Empirical evidence from the United Kingdom, Finland and Saudi Arabia indicated that the employed are more likely to use private healthcare facilities (Propper, 2000; Virtanen, Kivimaki, Vahtera & Koskenvo, 2006) and that the unemployed have a higher probability of utilizing public healthcare facilities (Al-Doghaither, Abderlhman, Wahid & Mogzoub, 2003;; Virtanen et al., 2006), a finding endorsed by a study in Vietnam suggesting that the same trends may be observed in

less developed countries (Lonnroth, Minh Thuong, Linh & Diwan, 2001). A study conducted in Saudi Arabia revealed that the utilization of private and public healthcare facilities for the self-employed group was more evenly distributed as 17.0% of self-employed population group reported visiting the private sector whilst 18.0% reported visiting the public sector. The generalization of this result should be interpreted with caution since the sample size was small, consisting of only 303 respondents (Al-Doghaither et al., 2003).

The economically inactive group includes those who are considered neither employed nor unemployed and therefore both the students and retirees make up part of this population. A study in Vietnam investigated the utilization of the healthcare system among respondents exhibiting symptoms of tuberculosis (TB) and found that the economically inactive groups were less likely to go to a private pharmacy (Lonnroth et al., 2001) and therefore, it could be inferred that they would be more likely to go to public healthcare facilities. A study by Al-Doghaither et al (2003) concluded that the students were more likely to go to the private sector rather than the public sector. This variation in findings could be attributed to the different ways in which the economically inactive group was defined by the selected studies (i.e. including both the students and retirees versus only the student population), as well as the variations in the way that the outcome was measured (i.e. private pharmacy versus broad public sector) and therefore the results are compared cautiously.

In summation, employment status has been shown to be a significant determinant of health-seeking behaviour. Whilst the association between employment status and health has been extensively studied in developed countries, little attention has been given to its effect on health-seeking behaviour in LAMI countries leaving an opportunity to investigate whether the same trends observed in the literature occur in South Africa.

2.2.3 Wealth quintile

Since income is required in order to acquire assets, this section will consider the effects of wealth-related quintiles on health and health-seeking behaviour by exploring studies that have used either income, or assets as a measure of socio-economic status, as the outcome is assumed to be the same. The literature appears to indicate that the effects of wealth on health cannot be examined without adopting an inequality lens. The general consensus in the literature is that the populations from wealthier quintiles exhibit better health outcomes whilst those from the poorest quintiles experience the worst health outcomes. Therefore, a gradient in health emerges where progressing up a quintile equally improves health outcomes

(Braveman, Cubbin, Egerter, Williams & Pamuk, 2010). Moreover, financial capital which is a prerequisite for acquiring assets has been linked to life expectancy, diabetes and coronary heart diseases (Braveman et al., 2010; Vawda, 2011).

In considering the literature pertaining to health-seeking behaviour from LAMI countries, the general consensus is that the population groups from wealthier quintiles have an increased likelihood of utilizing the healthcare system and subsequently have improved health outcomes to those in the poorer quintiles (Amin, Shah & Becker, 2010; Anselmi et al., 2015; Hosseinpoor et al., 2012; Zyaambo et al., 2012). Empirical evidence from less developed countries in Asia and sub-Saharan Africa concur that population groups which experience poverty have poorer health due to the decreased access to healthcare facilities caused by financial barriers (Caldwell et al., 2014; Habibullah & Afsar, 2013; Njuki et al., 2014). Focusing specifically on South Africa, Andersson et al (2013) investigated the prevalence of depression among a sample of 977 persons in the Eastern Cape Province and found that persons in lower income quintiles were less likely to seek help for their depression of which a major determinant was a lack of finances. A finding confirmed by both a nationally representative study and a study in the North West Province of South Africa (Andersson et al., 2013; McLaren et al., 2014; van der Hoeven et al., 2012). Therefore, it can be tentatively proposed that financial resources have an influential role on the accessibility of healthcare and the type of healthcare facility accessed.

Having a higher income and subsequent wealth enables individuals with the freedom of choice in terms of healthcare provider and due to many government healthcare facilities in sub-Saharan Africa being described as congested with long waiting periods and with discourteous staff, given the option, people who can afford to choose go to private healthcare facilities regardless of the increased cost (Beogo et al., 2014). Contradictory evidence from Karachi in Pakistan found that the public sector was the dominant choice when seeking healthcare service, which is highly subsidized as is the case in South Africa (Habibullah & Afsar, 2013). The arguments suggest that by improving the quality of service delivery and care in the public health sector of South Africa, citizens may choose this option over the other types of healthcare. In considering the above literature, wealth is an important determinant of health-seeking behaviour.

2.3 Demographic determinants of health-seeking behaviour

2.3.1 Gender

Gender has been defined as:

“The different socially constructed roles, norms, behaviours, activities, and attributes that a given society considers appropriate for men and women. In many societies, these different social constructions privilege men over women producing gender inequalities, which disproportionately affect the health of women” (Hosseinpoor et al., 2012, p. 1).

Until fairly recently in history, women were largely excluded from health discourse. When they were included, the literature was focused on the reproductive role of a women (Prosser, 2007). Correspondingly, some modern day scholars have shown a concern that the exclusive focus on women has resulted in men’s health and subsequent social determinants of men’s health being ignored in the literature, even though evidence suggests that men experience worse health outcomes than women from similar socio-economic strata in terms of disability, morbidity and mortality (Evans, Frank, Oliffe & Gregory, 2011; Weeks, 2012). Globally, men are reported to experience a lower life expectancy than women of 69.1 and 73.8 years respectively. The premature mortality of men has been attributed to gender-based lifestyle decisions that have led to an increase in chronic illnesses, as well as morbidity and mortality caused by injuries and violence, particularly for male populations in developing countries such as sub-Saharan Africa where civil conflict is high (GBD, 2016; WHO, 2016b; World Bank, 2013). Springer and Mouzon (2011) observed that a gender paradox in mortality existed whereby, regardless of having a higher socio-economic status, the life expectancy of men is still five years less than that of women. The researchers conducted a population-based assessment using the Wisconsin Longitudinal Study and concluded that masculinity was a partial explanatory factor. This was because of the notion that contrary to the popularised SES gradient of health, strong masculinity mitigated the influential effect of education on health-seeking behaviour. Moreover, among masculinised males, increases in socio-economic status was associated with decreases in the likelihood of engaging in health-seeking behaviours (i.e. preventative care), a finding which was corroborated in a study by Lubega, Musinguzi, Omiel and Tumuhe (2015).

Interestingly, when considering the health outcomes of women, apart from being susceptible to reproductive-related mortality and morbidity, women tend to score lower than men in terms of health-related quality-of-life (HRQoL), which has been due to the socio-economic

and demographic based gender inequalities that stem from determinants such as earning a lower salary or acquiring a lower level of education. A study in Tshwane, South Africa examined the influence of patriarchy on women's health related autonomy among a sample of urban Black African women. The study found that gender inequalities still exist in the South African context as 20.7% of the sample population required consent from either a spouse or a male parent before attending to cancer related healthcare needs. 10.4% of the sample did not have autonomy over which healthcare facility they visited as the decision was once again dictated by either their spouse or their primary male caregivers (Maree & Wright, 2010). These socio-economic and demographic factors have been shown in literature from both developed and less developed countries to restrict women's access to healthcare, and in certain situations predispose them to situations where they can incur harm, for example, gender-based violence (Cherepanov, Palta, Fryback & Roberts, 2010; Hosseinpoor et al., 2012).

Therefore, gender has been cited as one of the most important social determinants of health-seeking behaviour in literature from the United States, Europe and sub-Saharan Africa (Evans, Frank, Oliffe & Gregory, 2011; Hosseinpoor et al., 2012) with only a study conducted in Pakistan refuting this as it found no significant relationship between gender and health-seeking behaviour. This contradictory finding can possibly be explained by the weak methodological design of the study which had a small sample of 384 participants, used convenience non-probability sampling, and analysed the data using only the descriptive statistic of the chi-sq test (Habibullah & Afsar, 2013).

In reviewing the literature on health-seeking behaviour, findings were replicated from both developed westernized countries and less developed countries in the LAMI region including South Africa. The consensus in the literature was that more women than men seek healthcare even when female reproductive health concerns are accounted for. This could be explained as women being more open to discuss health related issues, that they have more awareness of health and ill health, are more sensitive to symptoms, and are more observant to health concerns experienced by household members. Moreover, the studies reaching the above conclusion also found that women have a higher response rate than men, which provides further empirical support for the proposed explanations (Ahs, Burell & Westerling, 2012; Beogo et al., 2014; Thompson et al., 2016; van der Hoeven, Kruger & Greef, 2012; Zyaambo et al., 2012). The above unanimity in the literature highlights the importance of gender in health-seeking behaviour as the data was drawn from studies conducted in countries at

different points of both the demographic and epidemiological transition including Sweden, Canada, Zambia, Burkina Faso and South Africa and yet regardless of economic development, the same gender trends were observed.

In many developing countries, gender inequalities are still a cause for concern and can act as a barrier for women to seek out healthcare. This is because in many populations, the male is still considered as the head of the household in charge of making decisions related to finance, health and other important household matters. While the men pursue an occupation in order to care for his family, the women are often left at home in charge of domestic and maternal duties with minimal autonomy and finances. Their agency is therefore restricted, preventing them from engaging freely in health-seeking behaviour regarding themselves and their infants. One consequence of this fact is that they are often forced to seek health related help from the informal sector (Caldwell et al., 2014). Whilst a wealth of literature exists on gender differences in accessing healthcare, the scope is narrower for evidence on the utilization of the private and public healthcare sector. One such example is a longitudinal study in India, which investigated the utilization of HIV healthcare facilities and found that men had an increased likelihood of going to a private healthcare facility in comparison to women (Shet et al., 2011).

In summation, empirical evidence suggests that gender has an influential effect on health-seeking behaviour and therefore should not be overlooked. Gender is particularly relevant in developing countries where gender inequalities still exist, yet this relationship is inadequately examined and explained in the literature (Prosser, 2007).

2.3.2 Marital status

The literature has shown marital status to be an important determinant of health outcomes. Overall, the evidence suggests that the worst health outcomes are incurred by those who are divorced, separated or widowed (Hosseinoor et al., 2012; Perkins et al., 2016), followed by those who have never married (Gomez-Olive, Thorogood, Clark, Kahn & Tallman, 2010). In contrast, those who are married are most likely to report good health and wellbeing (Perkins et al., 2016; Umberson, Crosnoe & Reczek, 2010).

Social relationships are fundamental to the concept of marital status, as being married or cohabiting implies social interaction and dependence whilst being unmarried indicates a lack of social proximity denoting independence and isolation. This is an important factor to consider when examining health-seeking behaviour as having social support has been linked

to an increased likelihood of seeking help for healthcare issues (Ahs et al., 2012). In the early 1990s, it was suggested that the social relationships were a determinant of mortality from which a previously unexplored research area started to flourish (Holt-Lunstad, Smith & Layton, 2010). The literature showed strong evidence towards the hypothesis that social relationships are predictors of increased longevity and quality of life, whilst isolation had the opposite effect. One such example was a meta-analysis, which examined 148 studies and concluded that social relationships were a significant predictor of mortality (Umberson & Montez, 2010). A possible explanation for this effect is that being in a partnership, whether cohabiting or married, offers more economic, social and psychological capital than if never married. Although economic support is mainly derived from being married due to legal laws that aim to protect both partners, in terms of assets and monetary resources, and therefore monetary support would mainly benefit married populations rather than those who are cohabiting (Carr & Springer, 2010). Bringing in a new dimension to the debate, Hosseinpoor et al (2012) conducted a multivariate decomposition among 57 WHO countries including South Africa and found that being married, cohabiting or never marrying had a better health outcome for both the genders than if divorced, widowed or separated. This implies that the psychological and economic effects of losing a partner will have a more severe impact on health outcomes than being unmarried.

The literature on the effects of marital status on health-seeking behaviour is limited, and the available evidence on the topic can be considered to have a weak methodological design due to either small sample sizes or the use of non-probability sampling methods. The existing evidence is contradictory on whether or not a significant relationship exists between marital status and health-seeking behaviour. For example, a study among the elderly population in Northern India found no significant association between the two (Sharma, Mazta & Parashar, 2013), whilst a study in Nepal investigated the health-seeking behaviour of female sex workers in relation to reproductive health services and found that the marital status is a significant predictor (Ghimire, Smith & van Teijlingen, 2011). One possible explanation for the differing conclusions could be that each of the study focused on very different populations and measured a different aspect of health-seeking behaviour. Therefore, due to the lack of evidence on the topic, it can only be tentatively inferred whether an association exists between marital status and health-seeking behaviour. The lack of interest on the effects of marital status on health-seeking behaviour can be hypothesised to be a result of a notion that there is no important relationship between the two variables. However, it is considered as

an important determinant to include in this study based on the notion that patriarchy still exists in the African culture, which comprises of the majority of the population in South Africa. This study therefore, attempts to test these notions whilst adding to the limited literature on the association between marital status and health-seeking behaviour.

2.3.3 Age

Literature from sub-Saharan Africa and Europe has indicated that age has an influential effect on health-related behaviours with increasing age being associated with poorer health outcomes (Beogo et al., 2013; Gama, Fraga, & Dias, 2010; Hosseinpoor et al., 2012; Musoke et al., 2014). Throughout the lifespan, certain age groups are recognized as being more vulnerable to morbidity than the others. For example, the period of birth to five years is known as being a particularly high risk period where the infants are highly sensitive to mortality from illnesses such as diarrhoea and pneumonia and which is further exasperated by situations of poverty (Liu et al., 2012). One factor that makes this age group so vulnerable is that they are unable to direct agency over their own health-seeking behaviour and therefore are completely reliant on their caregivers; an event that has invoked a multitude of research (Aboagye & Agyemong, 2013; Benova, Campbell, Sholkamy, & Ploubidis, 2014; Chomat, Solomons, Montenegro, Crowley & Bermudez, 2014).

Adolescents are defined as those with ages between 15 to 19 years. It is considered as another high risk age group, whereby the youth develop health behaviours that persist into adulthood, and have an increased likelihood of engaging in risky behaviours such as unprotected sex, teenage pregnancy, substance abuse and smoking. Even though this age group is categorized as high risk, minimal focus has been given in the literature to their health-seeking behaviour. In South Africa, an estimated 10.0% of the population are considered adolescents and the main causes for mortality and morbidity among that age group is teenage pregnancy, maternal mortality, HIV/AIDS, sexual and reproductive health issues and chronic diseases (Otwombe et al., 2014). The period of old age is another vulnerable period in the lifespan which is when an individual becomes increasingly susceptible to multiple morbidities and other psychological and degenerative disorders. Provided socio-economic and demographic circumstances allow, biological aging may increase the frequency of use of health facilities by the elderly. Due to the sensitivity of this age period to morbidity and mortality, a plethora of research has been generated on this topic (Sharma et al., 2013; Weeks, 2012).

Age is associated with the utilization of the health care system. A study by Zyaambo et al (2012) concluded that Zambian urban citizens who were between the ages of 30 and 39 years were two times more likely to utilize the health care system than those in the age group of 15 to 19 years old. From the health belief model angle, this trend could be attributed to adults being more aware about the importance of maintaining a healthy state than the youth, whilst if an economic perspective is adopted it could be explained as adults being more financially independent. This was substantiated in a South African study by Ot wombe et al (2014) whose sample only included adolescents. The study found that only 27% sought out medical care in the past six months of which the majority of the sample went to clinics, with the smallest proportion seeking help from homeopaths or traditional healers. In contrast to these views, two studies in developing countries outside of sub-Saharan Africa found no association between age and health-seeking behaviour which could be explained due to the poor methodological design of the study (Habibullah and Afsar, 2013), and sampling a very different target population of migrant workers in urban China who have a tendency to return home when ill thereby distorting the study's findings (Peng, Chang, Zhou, Hu and Liang, 2010). From the literature reviewed, no studies were found which investigated age as a determinant of the type of healthcare facility accessed. Consequently, this study attempts to provide insight into this relationship and contribute to the limited literature.

In summation, although contradictory evidence exists, a review of the literature indicates that a relationship exists between age and health-seeking behaviour. Although certain age groups have been acknowledged to be particularly vulnerable to poor health outcomes, the present study chose to focus on the adult age group as their health behaviours best highlight the independent effects of socio-economic and demographic factors. Moreover, this age transition is relatively unexplored when compared to infant and old age and therefore would possibly benefit from more research as it is a period when incidences of chronic illnesses is more likely, when infectious illnesses such as HIV generally manifest, and people settle down to start a family.

2.3.4 Geographic location

Geographic location refers to the urban and rural areas, where households in urban areas generally being acknowledged as being of a higher socio-economic status than those in rural areas. The literature has linked geographic location to various health outcomes including chronic illnesses, mental health problems, life expectancy and mortality (Marmot, 2010b; Menec, Shooshtari, Nowicki & Fournier, 2010). The prominent finding extracted from the literature is that the urban populations have better health outcomes than the rural populations. For example, the widely acknowledged Marmot review, which examined the social determinants of health among the British population, reported that the people from poorer areas experienced a decreased life expectancy of seven years and increased mortality when compared to the residents from more affluent neighbourhoods (Marmot, 2010b). These inequalities in health could be explained by households in urban areas who generally have access to an increased array of services and resources needed to prevent illness and to enable engagement in health preventative practices (e.g. higher income, sanitation, clean water, housing, proximity to medical care facilities) when compared to the rural area residents who are often less fortunate (Hosseinpour et al., 2012; van der Hoeven et al., 2012).

Certain scholars contest the conclusion that urban populations have better health outcomes than rural populations, and instead argue that a lack of focus has been given to the health challenges encountered by the urban slum residence, particularly in LAMI countries where the urban population do not live equitably and are exposed to a double burden of both, infectious and chronic diseases. Studies conducted in Burkina Faso and Bangladesh compared the rural poor to the urban poor have found that the urban poor actually have poorer health outcomes than the rural poor population (Beogo et al., 2014; Calwell et al., 2014). Poor urban residents have their health compromised by various socio-economic and environmental factors such as air pollution, overcrowding and crime, all of which contribute to an increased epidemiological burden, which is further impacted by an inequitable distribution and access to healthcare throughout the urban populations (Beogo et al., 2014).

Focusing specifically on countries from sub-Saharan Africa, it is observed that rural and urban differentials exist in the health-seeking behaviour of the population that is partially explained by the dissimilarity between the two geographic locations. Mixed evidence exists on the association between geographic location and health-seeking behaviour. The more common finding in the literature from this region is that the urban residents utilize the health

care system more than their rural counterparts which can be partially explained as the rural populations experiencing more barriers to accessing healthcare (Musoke et al., 2014; Njuki, Kimani, Obare & Warren, 2014; van der Hoeven et al., 2012; Zyaambo et al., 2012), whilst the less common finding is that residing in urban areas decreases the probability of going to a healthcare facility (Anselmi, Lagarde & Hanson, 2015). The proposed explanations for these arguments are that the rural populations generally have higher unemployment rates when compared to urban populations. For example, in South Africa this has been attributed to the unemployment rate rising since the first democratic elections in 1994, partially because of incongruence between where employment is available (urban areas) and where the majority of the unemployed populations reside (rural areas). Even considering the mass rural-urban migration that has occurred post-1994, this is still considered to be a factor (van der Hoeven et al., 2012). Another barrier that rural residents in South Africa and the surrounding LAMI region face is that healthcare facilities are more dispersed which can have negative consequences in terms of accessing the healthcare sector. For example, a study in the rural area of Hlabisa, South Africa found that increasing distance from a health clinic was negatively associated with the utilization of the clinic. This finding highlights a serious concern that needs to be focused on in order for South Africa to achieve universal healthcare access as residents of many rural communities such as Hlabisa are often required to travel a great distance in order to access a healthcare facility (McLaren et al., 2014; Tanser, Gijsbertsen & Herbst, 2006). Other barriers to the utilization of the healthcare system in sub-Saharan Africa are that public healthcare facilities are reported to be ill equipped with trained staff, equipment and consumable supplies such as medication than in urban areas which has been highlighted in the literature as a major deterrent to seeking care. Finally, healthcare is often socio-economically inaccessible regardless of being highly subsidized as rural households cannot often afford the costs of transportation to a health care facility and of treatment which act as a further barrier (Musoke et al., 2014; Njuki, Kimani, Obare & Warren, 2014; van der Hoeven et al., 2012).

Minimal attention has been given in the literature to geographic location as a determinant of the type of healthcare facility visited. A study from the Northern Province of South Africa found that urban area residents had substantially higher odds of going to a private healthcare facility than their rural counterparts (van der Hoeven et al., 2012). In summation, a strong motivator for including geographic location as a variable in the present study is that Sub-Saharan Africa is currently undergoing rapid urbanization and it is predicted that by 2030, an

estimated 50% of the African population will be residing in urban areas. In anticipation of this, a strong government emphasis has been placed on improving access to healthcare facilities among the populations (Beogo et al., 2014). Although a wealth of evidence exists on the matter in South Africa, with the country currently undergoing rapid urbanization, and the changes in the demographic and epidemiological profile of the country, it is still an important relationship to consider wherein regular updated research is considered as eminently valuable.

2.3.5 Population group

Race is a social rather than biological construct (WHO, 2010) and is defined as populations who share “common geographic origins, ancestry, family patterns, language, cultural norms and traditions, and the social history of particular groups” (Williams, Mohammed, Leavell, & Collins, 2010, p. 2). Racial discrimination can dictate the life trajectory of a population group by defining the opportunities and circumstances the group may find themselves in (WHO, 2010), which can further dictate health behaviours and health outcomes. Underrepresented population groups in the United States including the Black, Hispanic, American Indian, Asian, and Native Hawaiian are acknowledged to generally experience an earlier onset of disease with increased severity and lower life expectancy when compared to their white counterparts (Williams et al., 2010). One such example is from a longitudinal study conducted in Brazil, which sought to understand the determinants of racial disparities in low birth weight infants and preterm births. The study found that populations from African descent had an increased chance of giving birth to a low weight or preterm infant than population groups from European descent (Nyarko, Lopez-Camelo, Castilla, & Wehby, 2013).

No direct literature was found on the relationship between population group and health-seeking behaviour. Therefore, in order to make inferences of the relationship, it was considered necessary to prescribe a less stringent criteria of topic thereby adopting a broader scope, whilst placing the relationship between race and health-seeking behaviour within the historical context. The Commission on the Social Determinants of Health established that health inequalities are not natural outcomes from society, but rather shaped and formed by ‘structural drivers’ embedded in the fabric of a country’s history, which due to globalization are influenced and further impact the global economy. These structural drivers refer to inequitable politics and policies favouring few as well as discriminatory economic practices,

which in doing so influence the health-seeking behaviour of populations (CSDH, 2008). The Apartheid era in South Africa was characterised by such structural driving forces whereby populations were socially excluded and discriminated on the basis of their skin colour. Access to quality health care was determined by race and a situation emerged whereby non-whites were often refused entry to health care facilities; they were maltreated, and had fabricated medical records (Kon, 2010). These acts of discrimination alongside the other social determinants subjected the minority groups to poorer health outcomes (Williams et al., 2010), which were reflected in the racial discrimination differences in life expectancy. For example, in 1980, the white population had a life expectancy of 70 years whilst for Black Africans it was only 55 years. Moreover, during the same period infant mortality rate was found to be 17.3% higher for the Black African population (Kon, 2010). In contemplation of the above and in light of the reviewed literature, it can be proposed that during the Apartheid era, population group had a direct influence on health-seeking behaviour as the colour of skin determined entry into certain health care centres and the quality and type of treatment received.

After the dissolution of Apartheid, the government made an effort to redress the inequalities of the past with various policies that aimed to provide equitable access to healthcare for previously disadvantaged racial groups and also sought to abolish racial legislation. Williams (2010), who is an expert in this area of research, and colleagues proposed that race influenced health outcomes through various socio-economic status indicators, and was not restricted to a single level of socio-economic status, thus making it a complex phenomenon to study holistically. Even though his research was focused on population groups in the United States, similarities can be observed as both countries have a history of racial segregation and domination. Therefore, in light of his presupposition, it can be tentatively proposed that population group is no longer a direct determinant of health-seeking behaviour but rather a distal factor situated in a history of inequality, and which emerges through the mechanisms of socio-economic status. A notion supported by a study in Pakistan which found no association between identification with a particular population group and health-seeking behaviour (Habibullah & Afsar, 2013); enforcing the argument that race is a distal determinant on health-seeking behaviour. For example, White, Haas and Williams (2012) proposed that the distribution of health care in a society reflects the spatial positioning of race and ethnicity. In doing so, a society unwittingly becomes inequitably segregated in terms of poverty, burden of disease and socio-economic opportunities. Although enforced movement and segregation of

population groups is now outlawed, it still exists due to a genealogical formation of previous racial discrimination. Very few studies consider the relationship between population group and health in isolation while only focusing on its interaction effect on health with other variables (Olshansky et al., 2012; Veenstra, 2011; Viswanath & Ackerson, 2011). In the current scenario, even after the removal of Apartheid laws in South Africa, the Black African population groups still resides in poor areas where access to basic resources and healthcare is limited and of poor quality, and mortality and morbidity is high. A study located in South Africa found that Black African groups in comparison to White groups generally resided in rural areas where healthcare facilities were less accessible. Moreover, they lived in higher poverty all of which contributed to the Black African population group being less likely to have last visited a healthcare facility and of utilizing the private healthcare sector (McLaren et al., 2014).

In summation, after an extensive review of the literature on population group and health-seeking behaviour, it has become clear that the majority of research has been conducted within the American context. Moreover, it is also evident that there is a scarcity of literature on the topic in the South African context, which is surprising given the country's history. The present study will therefore, attempt to address this gap by establishing whether or not a direct association exists between race and health-seeking behaviour and by examining the interactive effect of race with the other socio-demographic variables on health-seeking behaviour.

2.4 Summary

This chapter highlighted the influential role of the selected socio-economic and demographic determinants in the health-seeking behaviour of various populations. The most popular findings were that the socio-economic status has a more influential effect on health-seeking behaviour than the demographic determinants. Also, a higher socio-economic status is defined as increased educational attainment, being employed, and subsequently having a higher income. These factors are generally associated with an increased ability to engage in health-seeking behaviour, thereby producing better health outcomes when compared to lower socio-economic groups. In reference to the demographic factors, increased health-seeking behaviour is predominantly associated with women rather than males, married populations, being older, people residing in urban areas, and being white. In consideration of the literature reviewed, a definite gap in the literature emerges as national quantitative studies on the socio-

economic and demographic determinants of health-seeking behaviour is limited in South Africa. Moreover, certain evidence is non-existent or lacking such as the effects of population group and marital status on health-seeking behaviour. The present study therefore, attempts to address this gap by contributing to the literature on the topic. The following chapter will provide an overview of the methodology employed in the study.

Chapter 3

Methodology

3.1 Introduction

This chapter will provide an overview of the methodology used in this study. Firstly, a brief context of the healthcare system in South Africa will be given so as to provide a backdrop through which the findings can be interpreted and understood. Secondly, the main source of data for this study called the National Income Dynamics study will be discussed. Thirdly, a description of the variables construction, coding and any subsequent weaknesses or strengths associated with each variable will be provided. This will be followed by an overview of the statistical methods used to analyse the data. Lastly, the limitations of the study will be briefly highlighted.

3.2 Context of the study

South Africa had a population of 54.96 million people in 2015 (Statistics South Africa, 2015) which is categorised as an upper middle income country by the World Bank. South Africa had a recorded gross domestic product (GDP) of US\$ 349.873 billion in 2014 (World Bank, 2016c), of which 8.8% was spent on healthcare. In comparing South Africa to other upper middle income countries it becomes apparent that South Africa's expenditure on healthcare is relatively high. For example, Botswana spent 5.4% of their GDP on healthcare, whilst China and Mexico spent 5.5 and 6.3 percent respectively (World Bank, 2016d). Even so, many health indicators such as the infant mortality rate in South Africa are comparatively low (Khaoya, 2015). These poor health comes have been considered a consequences of a range of factors some of which include a rise in the burden of disease, mismanagement of the healthcare sector, insufficient human resources and poor staff conduct which corrode the progress made in the healthcare reform since 1994 (Harrison, 2009).

South Africa has a dual healthcare system consisting of both public and private healthcare facilities. The distribution of expenditure is skewed towards the private healthcare sector which receives just over half of the total healthcare budget, even though, only an estimated 28.0 to 38.0 percent of the population utilize the private healthcare sector, including private dentists and doctors (Econex, 2013; Harrison, 2009; Schellack, Meyer, Gous & Winters, 2011). Private healthcare in South Africa is considered unaffordable to the majority of the population, the costs of which are said to exceed inflation. This excludes those who are most

at need as the burden of disease is most heavily felt in lower-socioeconomic groups who often are unable to afford the high fees of medical aid or of the private facilities (Econex, 2013). This inequality is exasperated by the geographic positioning of healthcare services and the unequal distribution of medical personnel.

The healthcare sector struggles with a shortage of medical personnel as the overall doctor to patient ratio is only 60 doctors per 100,000 of the population, which is low when compared to other countries. For example, Cuba which is renowned for its healthcare delivery has a doctor to patient ratio of 672 per 100,000 of the population (Econex, 2015). Comparing the ratio by healthcare sector it becomes apparent that the distribution of medical personnel is skewed towards the private sector which has 86.5 specialists per 100,000 of the population, whilst the public healthcare sector which serves the majority of the population only has a ratio of 11.4 specialists per 100,000 (Econex, 2015). Moreover, inequality in the distribution of healthcare services is observed by province. The poorest provinces which are most at risk have the lowest number of specialists, whilst the more affluent provinces have the highest number of medical personnel. For example, high poverty provinces such as Limpopo and KwaZulu-Natal only have 1.8 and 8.5 doctors per 100,000 respectively, whilst the more affluent provinces of Gauteng and the Western Cape have 20.5 and 31.3 doctors per 100,000 of the population (Econex, 2015). This inequitable distribution of quality and accessible healthcare has implications for the health-seeking behaviour of the South African population.

Figure 3.1: Map of South Africa



Source: SouthAfrica.Info

3.3 The National Income Dynamics Study

This quantitative study uses secondary data from the National Income Dynamics Study (NIDS) Wave 4, 2014-2015 (Version 1.1). NIDS is unique in two ways; firstly, it is the original national panel study to be conducted in South Africa; secondly, it includes all household members in the study regardless of whether or not they were currently residing within the household at the time of the study. In doing so, NIDS can be considered a more superior survey as not only does it provide insight into both individual and household characteristics, but also provides a more accurate representation of the dynamics within households in comparison to other household surveys. This is because other household surveys measure the response of a household head as a proxy for the entire household which does not allow for individual unit analysis, and generates data that is a less accurate representation of the household under study (NIDS, 2009).

The fieldwork for NIDS Wave 4 was undertaken over the period of October 2014 to August 2015 where 128 field workers conducted interviews with 37,396 household members across the country; of which 21,702 had been a part of the original baseline sample (NIDS, 2016b). NIDS uses a complicated weighting system primarily employing three types of weights including design weights, calibrated weights and panel weights. Design weights are used to account for non-response, as well as changes in the household composition between waves to ensure an unbiased population estimate. Calibrated weights are used to prevent either the overrepresentation or underrepresentation of the population using the latest population mid-year estimates released by Statistics South Africa (NIDS, 2016). Since NIDS is a panel study it is important to correct for attrition between the waves. This is done by calculating the probability of a household appearing again in the next wave, and subsequently calibrating panel versions of Wave 1 and Wave 4 so as to correct for attrition. Since NIDS tracks households every two years it is necessary to recalculate the weights for each wave. Some of the weight revisions for Wave 4 include the calibration of weights according to the mid-year population estimates of 2015, with a particular focus on matching the gender-age-race totals, updating age which is a derived variable, and eliminating certain households from the sample (NIDS, 2016a).

Post-stratified weights enable the sample population to be nationally representative¹. This study initially set the weights using the Stata command *pweight=w4_wgt*. Thereafter, the

¹ NIDS is not designed to represent the South African population at the provincial level (Leibbrandt et al., 2009)

command *svy* was used before most syntax to account for the increased variability between the sample groups that result from the cluster sample design (StataCorp, 2013). When merging the dataset for this study, 2484 duplicates were dropped. In some cases the same respondent was recorded twice in two different households due to being in a polygamist relationship, this study dropped one count so as to not to include duplicates. Furthermore, only resident members of households were kept. NIDS assigns non-household members a person identifier (PID) number if they were there at the time of the interview but are not permanent members of the household, thereby pre-empting for the possibility that they may be household residents in subsequent waves. Since no data was captured on them the observations were dropped from the dataset. Finally, deceased individuals (total of 5930) were also excluded, giving a final total of 4126 observations left in the dataset.

3.4 Description of the variables

3.4.1 Outcome variables: health-seeking behaviour

The outcome variable is health-seeking behaviour defined as “any action undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy” (Ward, Mertens, & Thomas, 1997, p.19). Two outcome variables are derived from the questions “*J3: when last did you consult someone about your health?*” and “*J4: where did this consultation take place?*” which are used in the analysis and are selected based on the above definition. The former variable is renamed *hsb_time* referring to ever having been to a healthcare facility in the last year, which is subsequently recoded as a binary dummy variable:

0 = No

1 = Yes

NIDS collected data extending the period of 10 years, this study chose to focus on the time frame of 12 months in an attempt to prevent memory recall bias. The later variable of “*where did this consultation take place?*” is renamed *hsb_place* and is also recoded as a binary dummy variable:

0 = Public healthcare facility (public clinics/government hospitals)

1 = Private healthcare facility (private clinics/private hospitals/private doctors)

It is important to note that a consequence of coding this variable as binary is that information is lost. The original variable in the NIDS dataset for “*where did this consultation take place?*” also included the categories of chemist and traditional healer. These coefficients are excluded from the analysis since the number of observations is small, and it was not considered suitable to collapse them into either the private or the public coefficients.

3.4.2 Explanatory variables

The CSDH Framework (2008) informed this study and guided the selection of variables to be included in the regression analyses with the purpose of assessing whether a relationship exists between socio-economic and demographic determinants and health-seeking behaviour. This study chose to group the selected variables into two categories; those that formed socio-economic status, including education level, employment status and wealth quintile; and those that are considered demographic determinants. Only race and gender were included in the CSDH framework, yet after reviewing the literature, this study considered it important to also account for the possible effects of subsequent demographic factors, including marital status, geographic location and age.

Since binomial logistic regression was used to analyse the data, the prefix *i.* was used for all of the categorical explanatory variables. This prefix informs Stata that the categorical predictors should be treated as factor variables, subsequently converting them into binary indicators with only values of 0 and 1. This is to ensure compliance with the requirements of the logistic regression (Stata, n.d.).

3.4.2.1 Socio-economic variables

Education levels

Education is a good predictor of an individual’s future occupational status and income, and it is included as a determinant of health for three reasons. Firstly, education is related to increased cognition and knowledge acquisition, which enables or inhibits an individual’s capacity to internalize and act on health messages and available services. Secondly, it can predispose an individual to future health inequities, as ill health during childhood may interfere in academic achievement and completion. Lastly, education is an indicator of how family resources in childhood determine access to the type, quality and length of education that an individual is exposed to (WHO, 2010).

The derived education variable provided by NIDS was used in the analysis, and is categorised by NIDS according to 25 categories from no education to postgraduate education. This variable is broken down into four categories for the purpose of this study:

0 = No education

1 = Primary education (Grade R/ Grade 1 to 7/ Sub A to Standard 5)

2 = Some secondary education (Grade 8 to 11/ Standard 6 to 9/ NTC 1 to 2/ Certificate or diploma not requiring Matric)

3 = Completed secondary education (Grade 12/ Standard 10/ NTC 3)

4 = Post-matric qualification (Higher diploma requiring grade 12/ Standard 10/Diploma/ Undergraduate degree/ Postgraduate degree including Honours, Masters and Doctorate)

Originally, five education levels were retained differentiating between an undergraduate degree and a postgraduate degree. When this variable was used in the analysis, outliers were observed which distorted the results caused by the small number of observations in the coefficients. Therefore, it was necessary to collapse these coefficients into one coefficient entitled '*post-matric qualification*'. It is important to note the implications of this, which is that valuable information could possibly be lost as there is a big difference between acquiring a higher diploma and acquiring a Doctorate. Subsequently, these differences in education level may be hypothesised to have implications for differences in health-seeking behaviour, which this study was not able to examine.

Employment status

Occupation is an indicator of a person's intellect, income and social standing, and is influential on health outcomes in the following ways. Firstly, it is directly linked to income which provides monetary capital to use on health related resources. Secondly, certain occupations award individual's privileges which are related to their higher social standing such as medical aid and pensions. Thirdly, the type of occupation may expose individuals to specific occupational health risks and psychosocial stress (WHO, 2010). Due to occupation excluding certain groups of people such as students, the retired or the economically inactive, this variable will be adapted in the study to refer to employment status, thereby examining the relationship between employment status and health-seeking behaviour (WHO, 2010).

The International Labour Organization segregated employment status according to three categories that include the employed, the unemployed (strict and broad), and the economically inactive. Employed populations refer to a group of people who are engaged in either paid employment or self-employment during the time of the fieldwork. Unemployed populations include those who are of a working age, yet who are not working even though they are available. Unemployed populations can be further segregated according to whether the variable is strictly defined, including only those who are actively searching for work, or broadly defined, including both those who are searching for work, and those who are not. The economically inactive population refers to groups in the population who are neither employed nor unemployed due to either being unable to work, retired, or engaged in activities that prevent them from finding employment. This study will adopt the broad definition of unemployment (OECD, 2008). NIDS derived an employment status variable following the International Labour Organization definition which was used in the analysis.

Therefore, the categories are:

0 = Employed

1 = Unemployed

2 = Economically Inactive

Wealth quintile

Common methods of measuring socio-economic status include using income, consumption expenditure, or assets (Howe, Hargreaves & Huttly, 2008). Income was specified in the CSDH framework as a component of socio-economic status, but due to the unreliability of the indicator this study selected to use a wealth index. The rationale behind this choice is that income has been acknowledged to have a number of limitations due to the sensitive nature of the question. This can result in high non-response rates as respondents may feel that the question is imposing on their right to privacy. Income may also introduce social desirability response bias as respondents may misreport their income level in an attempt to look more appealing in front of the fieldworker (Krosnick & Presser, 2010). In contrast, a wealth index has been recognized as a more accurate reflection of the wealth status of a household, thereby enabling the researcher to measure relative poverty whilst highlighting poverty inequalities. This is because a wealth index measures long-term wealth, and is therefore a more reliable and accurate proxy for socioeconomic status (Fry, Firestone & Chakroborty, 2014).

Moreover, wealth indexes have been reported to be important indicators of health. For example, owning a television enables a household to receive health information, whilst a lack of access to water is a risk factor for disease (Howe et al., 2008).

Wealth indexes are structured from a combination of variables that are assigned different weights. Various statistical methods can be used to do this including principle component analysis (PCA), latent variable methods, and multiple correspondence analysis (MCA) (Howe et al., 2008). MCA is used in this study to construct a wealth index, and is a generalization of principle component analysis but for discrete data. The method employs geometric methods to differentiate between variables based on the amount of variance that they explain (Ayele, Zewotir & Mwambi, 2014). A disadvantage of MCA is that only the first dimension is retained, thereby leaving a lot of the variance unexplained. It is important to note that it is not advisable to adjust for household size when using wealth indexes as this has been reported to generate improbable results (Howe et al., 2008).

In constructing the wealth index, the four steps suggested by Vyas and Kumaranayake (2006) were followed, but they were adapted for MCA as PCA was used in the paper by Vyas et al (2006). The first step is to select the asset variables to be included in the index, thereafter the MCA is run. The output is then interpreted, after which the weighted dimensions are segregated into wealth quintiles.

Variables pertaining to durable assets, household characteristics and access to basic services are used to construct the wealth index. Section F in the household questionnaire pertains to the question “*F1: Does the household own at least one [...] in good working order?*” which includes a list of 27 durable assets that the residents of a household may own. For example, some of the durable assets include a radio, television, computer, gas stove, washing machine and vehicle. Each item is recoded as a binary variable of either yes or no referring to whether or not the household owns that particular asset or assets.

Household characteristics included type of toilet and type of flooring, and pertained to the questions: “*D26: What type of toilet facility is available for this household?*” and “*D4.3: What is the main material used for the floor of the main dwelling?*”.

The variables are coded as the following categorical variables:

Toilet

0 = Low quality (no toilet facility)

1 = Medium quality (pit latrine with or without ventilation/ pipe/ bucket)

2 = High quality (flushed toilet with onsite or offsite disposal/chemical toilet)

Type of flooring

0 = Low quality (mud/earth)

1 = Medium quality (concrete)

2 = High quality (carpet/tile/wood/linoleum)

Access to basic resources included main water source and electricity, and pertained to the following questions: “D24: *What is this household’s main source of water?*” and “D28: *Does this household have electricity even if currently disconnected?*”. The main water source is coded as a categorical variable, whilst electricity is coded as a binary dummy variable.

Water source

0 = Low quality (water carrier/other)

1 = Medium quality (public tap/borehole off site/stream/well/spring/dam/pool)

2 = High quality (piped water in dwelling or yard/ borehole on site/rainwater tank)

Source of electricity/fuel

0 = No

1 = Yes

The Stata command *mca* was used to run the analysis. To check if the wealth index was correct, a two-way scatterplot was run including the first dimension of scores from the MCA against household log income. The scatterplot showed that both were positively correlated, meaning that as income increased so did a households wealth. MCA does not allow sampling weights (Howe et al., 2008). To overcome this and for ease of interpretation, the first dimension scores of the MCA were converted into 5 quintiles using the command *xtile quint_ses [aw=w4_wgt]=ses, nq(5)* which creates groupings that correspond to quintiles, with each quintile represents 20.0% of the population. Quintile one refers to the poorest household, whilst quintile five refers to the wealthiest households.

3.4.2.3 Demographic variables

Gender

Gender is socially constructed and position women and men in specific culturally determined roles. Gender has over time resulted in various forms of gender-based discriminations that can affect health outcomes (WHO, 2010). Men and females are exposed to different risk factors that impact on their health-seeking behaviour and subsequent health outcomes. Females generally are exposed to health risks that are determined by a lack of power in accessing health related resources, and are exposed to discrimination in terms of education, HIV, employment, income, nutrition and gender-based violence (Caldwell, Rashid & Murthy, 2014; WHO, 2012). On the other hand, men have been identified as risk takers engaging in behaviours that can have consequences for their health (e.g. multiple sexual partners), are reported to have lower coping skills which can lead to unhealthy behaviours (e.g. substance abuse), and are also known to generally be employed in environments with higher occupational risks than women (e.g. mining; manufacturing) (Williams, 2003). Therefore, it has been argued that a focus on the elimination of gender-based health inequities is of paramount importance (WHO, 2012), as the disparities give rise to different health risks for each gender.

Gender was derived from the question “*B2: What is your gender?*” and a dummy variable is created as follows:

0 = Male

1 = Female

Marital status

Marital status is important to consider when examining health-seeking behaviour as it has been linked to differentials in mortality and morbidity outcomes between the different marital statuses. Research suggests that these differences emerge as a result of different health behaviours and eliciting ideologies that individuals pertain to when in a particular marital state (Umberson, 1992; Waldron, Hughes, & Brooks, 1996; WHO, 2007).

Customary marital practices is a common event among the African indigenous populations in South Africa, and involves a lengthy period of illobala negotiations after which the couple engage in a marriage ceremony to mark their union. To register the marital union under

customary law making it a legal marriage may pose as a deterrent to some, resulting in the union being left unregistered. This is because the process involves financial obligations such as paying the stipulated registration fee, and the cost of transportation to home affairs which poorer people may be unable to afford. Furthermore, the marital union must be registered within three months after the ceremony has taken place which may not be known, and limits the time period to access the needed funds. The registration also requires identity documents which the said party may not be in possession of, particularly in cases of illegal immigrants. Illiteracy may prohibit knowledge of these requirements and pose further problems in completing the many forms required by Home Affairs (Budlender, Chobokoane, & Simelane, 2004). The above can lead to misreported cases as unregistered marriages may result in respondents reporting themselves as being married, when they are legally not recognized as such. Although it is important to identify this potential bias, this study is concerned with the question of how marital behaviour affects health-seeking behaviour. Subsequently, the study assumes that if a respondent believes him or herself to be married, then it is assumed that he or she will behave in such a way regardless of whether it is legally recognised.

Marital status in the NIDS dataset is a derived variable which is a result of data collected on the following questions:

“B4.2: Are you formally married or living together? (Include customary or traditional marriages)”

“B6.1: Have you ever been married?”

“B6.2: Are you currently married, widowed, divorced or separated?”. The variable is coded as follows:

0 = Never married

1 = Cohabiting

2 = Married

3 = Divorced, separated or widowed

The marital coefficients of being either divorced, separated or widowed were collapsed into one category for the purpose of this study, as both states refer to having been previously married at a point in time, yet the marital union is no longer in existence.

Age

Age has been related to health-seeking behaviour, as different age groups are synonymous with differences in the type and severity of illness experienced that in turn effect healthcare utilization patterns (Anderson & Newman, 2005). This pattern observed is due to a multitude of factors, such as the period of youth being highly associated with risky behaviour (Jackson, Henderson, Frank & Haw, 2012), whilst old age is related to increased multimorbidity as the body ages (Schafer et al., 2012)

Age is a variable that should remain fairly predictable between waves, increasing at a consistent rate (i.e. NIDS is conducted every two years so the respondent should be two years older in the current wave compared to the previous wave). A highly recognized issue with age in survey data is age misreporting, whereby respondents round off their age, exaggerate their age, or skip a year due to cultural beliefs and superstitions (Palamuleni, 1995). NIDS takes account of this as age is partially derived from the question “*B3: What is your date of birth?*” rather than directly asking respondents how old they are. Accounting for non-response and inconsistencies between waves, NIDS generated a variable called *best_age* which is derived from both the question on date of birth, as well as from the date on which the interview took place. This information is compared between waves for consistency, thereby creating an estimated age based on the best known information (NIDS, 2013).

Information on the age of respondents was obtained from the question “*B1: What is your date of birth?*”. Age is retained as a continuous variable for the purpose of controlling for age group in the descriptive and inferential statistical analysis and ranged from 15 years to 113 years. The categorical age variable is coded as follows:

0 = Young adult (15-34 years)

1 = Adult (35-64 years)

2 = Elderly (65+ years)

Geographic location

South Africa is currently undergoing a transition of urbanisation, and an estimated 62% of the population reside in urban areas (Turok, 2012). The main driver of this transition is rural to urban migration rather than the natural growth rate of the population. Population growth has slowed down considerably since the mid-1990s due to decreased fertility rates, and a rise

in infectious diseases such as HIV/AIDS (Turok, 2012). Urbanisation has been cited as a cause of differentials in health-seeking behaviour which stems from differences in lifestyles, occupations, income levels and population densities between the rural and urban populations. These differentials elicit different morbidity and mortality patterns that are further complicated by historical and current inequalities in the provision of, and access to healthcare services (Beogo, Lui, Chou, Chen, & Huang, 2014).

The geographic location variable in NIDS is labelled *hhgeo2011* and is derived from the Census 2011 new provincial and municipal district boundaries. These boundaries are classified differently to previous waves which used the Census 2001 boundaries. The new geo type classifications include: urban areas, which are defined by built up areas such as cities, towns, townships, small towns and hamlets; traditional areas, which refer to villages and settlements that are under the jurisdiction of traditional leaders; and farms, which include commercial farming land (NIDS, 2014). These classifications are maintained in the present study and are labelled as:

0 = Urban areas

1 = Traditional areas

2 = Farms

Population group

Race and ethnicity are social constructs that have been used throughout history as a discourse through which power and domination has been exercised. Racial exclusion can begin at birth and affect ethnic groups over the life course. In the context of South Africa, racial discrimination has led to the exclusion of certain groups, thereby positioning them in a context with minimal opportunity to develop and achieve to their full potential. Depending on the developmental level of a country, racial identity can either directly affect marginalised groups, or indirectly through an interaction effect with other social determinants of health (e.g. income, education). Research has shown that groups who are socially discriminated against based on their ethnicity and race have poorer health outcomes than their more privileged counterparts (WHO, 2010).

The population group variable pertains to the question “*B3: What population group do you belonging to?*”. The response options used by NIDS are maintained and are recoded as follows: 0 = Black African

1 = Coloured

2 = Asian/Indian

3 = White

3.5 Data analysis

This study is a secondary data analysis of the NIDS dataset with the objective of measuring the relationship between socio-economic and demographic determinants and health seeking behavior. This is done using the statistical software Stata 13.0. The data was first examined meticulously by conducting univariate and bivariate analyses. The purpose of this was to provide a description of each variable in the study, and to gain an understanding of the association between the independent variables with the outcome variables. This allowed for the attainment of preliminary diagnostics of the candidates for the multivariate analysis (Bursac, Gauss, Williams, and Hosmer, 2008; Starkweather & Moske, n.d.). To identify outliers, boxplots were generated due to the categorical characteristics of the outcome variables. In order to determine if any multicollinearity existed in the bivariate analysis, a spearman-rank correlation coefficient was run (The University of Sydney, 2010).

Binary logistic regression is used to predict whether a significant relationship exists between the socio-economic and demographic determinants and health-seeking behavior. Logistic regression is selected as the method of analysis since both the outcomes of *'ever having been to a healthcare facility in the past year'* and *'whether the respondent goes to a private healthcare facility relative to a public healthcare facility'* are dichotomous, limiting the predicted values to either 0 or 1 (Newsom, 2015). The logistic regression was developed in response to frustrations with the limitations of the ordinal least squares (OLS) regression and has gained popularity in various disciplines, including in the social sciences and epidemiology since its conception in the 1970s. Logistic regression predicts the association with a dichotomous outcome variable by estimating the natural logarithms of the predicted odds using the maximum likelihood method. Therefore, one of its strengths is that it attempts to gain as much data as possible from a specified parameter (Peng & So, 2002).

Bivariate logistic regressions are conducted to predict the unadjusted odds of each socio-economic and demographic predictor with both health-seeking behaviour variables for adults over the age of 15 years. After which, multivariate logistic regressions are conducted to investigate the adjusted odds of health-seeking behaviour. Therefore, two main effects are

produced pertaining to each health-seeking behavior variable. The *linktest* command in Stata is used to test whether or not the models are correctly specified and to ensure that no relevant predictors are omitted. Since the *hat_sq* values were insignificant ($p < 0.05$) for both multivariate models, both were considered to have a good fit due to adequate specification. To ratify this, the Hosmer-Lemeshow goodness-of-fit test was run using the command *estat gof* which confirmed that the models fit the data well and passed the test as $p > 0.05$.

Examining interaction effects adds a further layer of depth to the analysis. Whilst logistic regression is useful in predicting the effect of dependent variables on an outcome, adding interaction terms enables further insight into whether this effect is modified by a covariate/s. In other words, whether or not the observed outcome is dependent upon the interaction of two or more predictor (Fitzmaurice, 2000). To test whether there is an interaction effect between the socio-economic and demographic factors and health-seeking behaviour, interaction terms are added into the logistic regression equations using the prefix *xi* before the syntax, and a # between the hypothesised interactions is used to inform Stata of the proposed effect. The selection of interactions are driven by theory using the CSDH framework as a frame of reference. If an interaction is significant then their relationship is further examined using margins and margin plots. A disadvantage of this method is that the Stata *xi* and *margin* commands do not allow for weighting so the results are not representative of the South African population.

3.6 Limitations

Every study has a certain number of limitations that are imposed by various elements of the research process. For example, limitations emerge from employing a particular study design, from the type of variables used, and subsequent statistical methods of analysis. This study is a secondary analysis of preexisting data which limits the possible selection of variables to what is available in the dataset. Therefore, to a certain extent, the design of the study is informed by the existing data, contrary to primary research where the objectives of the study informs the data. Secondary research also has its advantages as there is an extensive amount of good quality data publicly available that would benefit from further analysis. Moreover, secondary analysis is cost-effective and less time consuming method than primary research (Cheng & Phillips, 2014). NIDS was selected as it offers comprehensive, quality data which enables the inclusion of multiple appropriate indicators to analyze the topic under study. A limitation of

using survey data is that bias may be introduced into the results as survey data relies on self-reporting (Neuman, 2011).

This is a cross-sectional study using Wave 4 of NIDS. In other words, this study attempts to provide a picture of the health-seeking behavior of the population at one point in time. This means that although the associations between variables can be determined, the causality cannot be explained (Rafferty, 2011). In order to overcome this limitation, the existing literature on the topic is used to authenticate the findings, from which tentative inferences are made about the population.

In terms of the limitations of the variables themselves, the outcome variable of *'ever having been to a healthcare facility in the past year'* is susceptible to recall bias as the question asked of the respondents relies on memory recall about a past event which can be prone to error. To minimize the extent of this error, NIDS has decomposed the question into time intervals of months which can reduce recall error as it does not require the respondent to remember an exact date (Hassan, 2005). To comply with the specifications of logistic regression, this interval variable was recoded as a dichotomous dummy variable with values of 0 = Not in the past year; 1 = In the past year, which allows for a wider bandwidth for errors in memory recall. A final possible limitation is that this study did not take into account the illness or disease that caused the respondent to seek medical help which may have important implications for the findings. The rationale behind this exclusion is that this study is focused on the socio-economic and demographic determinants that either inhibit or promote the utilization of the healthcare system, not the reason for seeking care.

3.7 Summary

NIDS is a high-quality source of quantitative data that provides a wealth of information on a diverse number of indicators made accessible to the public. All of the socio-economic and demographic variables are coded as categorical variables. The exception being age which is coded as both a categorical and continuous variable for the purpose of analysis. The wealth index is constructed using MCA from which quintiles are generated. Data is analysed using a number of descriptive statistics. Binary logistic regression is used to predict whether there is a significant relationship between the socio-economic and demographic determinants and the health-seeking behaviour of the South African population. Theory informs the selection of hypothesised interactions terms to be investigated.

Chapter 4

Results

4.1 Introduction

The purpose of this chapter is to outline the main findings of this study. The overall objective of this study is to identify the socio-economic and demographic determinants of health-seeking behaviour for the South African population aged 15 years and above. A secondary analysis is conducted using the data from the National Income Dynamics Study conducted in South Africa. This chapter begins with a description of the characteristics of the sample. It looks at health-seeking behaviour, and in particular the utilization of health services. This is followed by a section on the results from the bivariate and multivariate logistic regression analysis for the two models which examines the relationship between socio-economic and demographic predictors and health-seeking behaviour. The findings are weighted so as to be representative of the South African population.

4.2 Profiling the South African adult population (2014-2015)

4.2.1 Socio-economic profile

Table 4.2 displays the distribution of the South African population according to selected socio-economic characteristics for adults over the age of 15 years. The data show that the largest proportion of the population has not completed secondary education (45.9%). In other words, they have not obtained a matric certificate which suggests high drop-out rates in South African schools. These figures mirror those published by the Department of Basic Education (2016). A total of 5.6% of the population have no education, with a higher proportion of girls (6.9%) than boys (4.2%) falling into this category. It is of interest to note, that in the lower school grades (no education to some secondary education), boys constitute a larger portion of the population than girls. From completed secondary education to post-matric qualification, this trend reverses as girls constitute a larger portion of the sample population. Possible determinants for the high drop-out rates among boys in South African secondary schools include poverty, high grade repetition rates, and leaving school in search of employment (Branson, Hofmeyr & Lam, 2013).

The population characteristics for employment status indicate that the employed account for the largest group (46.2%), followed by the economically inactive (40.9%), and then the unemployed (12.9%). More men than women are employed, accounting for 55.0 and 38.2

percent of the employed population respectively. In contrast, women account for the majority of the economically inactive group (48.0%) in comparison to men (33.0%), highlighting gender inequalities in the employment sector. Gender differences are less distinct in the unemployed group with women accounting for a slightly higher proportion of the unemployed population (13.6%) than men (12.0%). Wealth quintiles are not included in this section as the variable denotes the equal distribution of the population into quintiles approximately 20.0% in size. Therefore, negligible information would be obtained regarding the population characteristics by wealth quintile.

Table 4.1: Distribution of socio-economic sample characteristics (15 years+)

<i>Characteristic</i>	<i>Male</i> (<i>n = 10,120</i>) (%)	<i>Female</i> (<i>n = 13,464</i>) (%)	<i>Total</i> (<i>n = 23,584</i>) (%)
<i>Education level</i>			
No education	4.2	6.9	5.6
Primary education	16.3	14.5	15.4
Some secondary education	46.7	45.1	45.9
Completed secondary education	16.9	17.1	17.0
Post-matric qualification	15.9	16.4	16.1
<i>Employment status</i>			
Employed	55.0	38.2	46.3
Unemployed	12.0	13.6	12.9
Economically inactive	33.0	48.0	40.9

Source: NIDS 2016a (weighted)

4.2.2 Demographic profile

Table 4.2 represents the demographic characteristics of adults over the age of 15 years by gender in South Africa. In terms of marital status, the largest proportion of the adult population account for the never married group (55.0%). Age at first marriage is increasing in developing countries as a consequence of the demographic transition. Over half (51.8%) of the never married population are women which has positive implications for gender equality in South Africa as early marriage is synonymous with equivalently early childbearing, and is a deterrent for women to seek independence perpetuating gender inequalities (Weeks, 2012). Married adults account for the second largest proportion of the population (28.4%), of which

29.5% are men and 27.4% are women. This is followed by adults who are divorced, separated or widowed and account for 10.6% of the population. A trend in the demographic transition is not only later age at first marriage and lower fertility, but also an increase in divorce rates for both genders and widowhood for women who generally have a longer life expectancy than men (Weeks, 2012). This trend is observed in the South African population as a substantially higher percentage of women (14.8%), than men (6.0%) fall into this category. The lowest proportion of the adult population is cohabiting (6.0%) which is equivalent between men and women.

The distribution of the South African population by age group reflects the shape of a traditional population pyramid, with the bulk of the population aged 15 to 34 years (51.2%), followed by adults aged 35 to 64 years of age (41.0%) whilst the smallest proportion of the population are over the age of 65 years (7.8%). In considering the age distribution by gender, it is observed that men make up a slightly higher proportion than women in both the young adult and adult age groups. This trend reverses in the elderly age group where women make up the largest proportion of the South African population. The age distribution therefore reflects that of a relatively young population with a higher proportion of men to women in the younger age groups (Weeks, 2012). As South Africa becomes more developed and mortality rates continue to decrease, this population structure will change as more people live till older ages due to medical and technological advances (Weeks, 2012).

The data shows that South Africa is currently undergoing an urban transition as 64.5% of the adult population reside in urban areas. Of this, a slightly higher percentage of the urban population are men (66.3%) compared to women (62.8%). The opposite trend is observed in traditional areas which account for 31.1% of the total population, of which 33.3% are women whilst 28.8% are men. A partial explanation for this trend is that more men than women migrate to urban areas to find employment whilst leaving their wives and children back home in the more traditional and informal rural areas (Posel, 2001; Shatz, Madhavan & Williams, 2011). The smallest proportion of the population resides in farms (4.4%), with men accounting for 4.8% of the population and women accounting for 4.0% of the population. With regard to population group, the Black African group constitute the majority of the population (77.9%), followed by the White population group (10.1%), and then the Coloured group (9.2%). The Asian and Indian group account for the smallest proportion of the population (2.8%). Each population group is equivalent in size for both genders. These figures reflect those published by Statistics South Africa (2015).

Table 4.2: Distribution of demographic sample characteristics (15 years+)

<i>Characteristic</i>	<i>Male</i> (<i>n</i> = 10,120) (%)	<i>Female</i> (<i>n</i> = 13,464) (%)	<i>Total</i> (<i>n</i> = 23,584) (%)
<i>Marital status</i>			
Never married	58.5	51.8	55.0
Cohabiting	6.1	6.0	6.0
Married	29.5	27.4	28.4
Divorced, separated or widowed	6.0	14.8	10.6
<i>Age</i>			
Young adult (15 to 34 years)	52.9	49.7	51.2
Adult (35 to 64 years)	41.0	41.0	41.0
Elderly (65 years+)	6.1	9.4	7.8
<i>Geographic location</i>			
Urban areas	66.3	62.8	64.5
Traditional areas	28.8	33.3	31.1
Farms	4.8	4.0	4.4
<i>Population group</i>			
Black African	77.7	78.0	77.9
Coloured	9.3	9.2	9.2
Asian/Indian	2.8	2.8	2.8
White	10.1	10.0	10.1

Source: NIDS 2016a (weighted)

4.3 Distribution of the population by health-seeking behaviour outcomes

Table 4.3 presents the distribution of the population by ever having visited a healthcare facility in the last year for adults aged 15 years and above. The data shows that 53.3% of the population had visited a healthcare facility in the last year, whilst 46.7% had not.

Table 4.3: Ever visited a healthcare facility in the last year

<i>Ever visited a healthcare facility in the last year</i>	<i>%</i>
Yes (<i>n</i> = 11,539)	53.3
No (<i>n</i> = 10,371)	46.7

Source: NIDS 2016a (weighted)

Table 4.4 presents the distribution of the population in relation to the type of healthcare facility last visited. The data shows that the majority of the population utilized the public healthcare sector (57.5%), whilst a smaller proportion of the population utilized the private healthcare sector (41.6%).

Table 4.4: Type of healthcare facility last visited

<i>Type of healthcare facility last visited</i>	<i>%</i>
Public (<i>n = 8,019</i>)	57.5
Private (<i>n = 3,524</i>)	41.6

Source: NIDS 2016a (weighted)

4.4 Logistic Regression Analysis I

A logistic regression is conducted to examine the association between selected socio-economic and demographic predictors and ever having visited a healthcare facility in the last year for South African adults aged 15 years and above. The dependent variable is coded as ‘1’ if the respondent had visited a healthcare facility in the past year and as ‘0’ if they had not. A bivariate and multivariate analysis is conducted to examine the above. The bivariate analysis first presents a cross-tabulation of selected predictors and the outcome variable, followed by the bivariate logistic regression which shows the effects of the selected predictors on the odds of going to a healthcare facility without accounting for controls. Lastly, a multivariate logistic regression analysis is conducted which examines the same relationship after adding controlling factors. The reference or base categories include adults with no education, the employed, those in the lowest SES quintile, men, adults who had never married, youth adults aged 15 to 34 years, and the Black/African population group. Significance levels are reported within 95% confidence intervals.

4.4.1 Ever visited a healthcare facility in the last year across socio-economic characteristics

Table 4.5 presents the population proportions of ever visited a healthcare facility in the last year across socio-economic indicators. Adults with no education (69.0%), a primary education (56.7%), and a post-matric qualification (58.8%) accounted for the majority who reported ever having visited a healthcare facility in the last year. This trend is reversed for adults with some secondary education (50.2%) and adults who have completed a secondary education (50.9%) as the majority reported that they had not visited a healthcare facility in

the last year. This implies that adults with no education and a post-matric qualification are more likely to visit a healthcare facility than adults with a secondary education.

Overall, more adults reported ever having gone to a healthcare facility in the last year than not having gone across all employment statuses. The economically inactive groups (54.8%) account for the largest proportion of the adult population who had ever visited a healthcare facility in the last year, followed by employed adults (52.9%), and then unemployed adults (50.0%). It is important to acknowledge that medically bordered adults and the elderly fall under the economically inactive population, which may inflate the overall percentage of ever having visited a healthcare facility for the other economically inactive groups such as students. Overall, the proportion of the population to have ever visited a healthcare facility in the last year increases with wealth quintile. The largest proportion of the population to have ever visited a healthcare facility in the last year were adults from quintiles 4 and 5 (56.5% and 63.1%, respectively), whilst the lowest proportion of the population to have ever visited a healthcare facility in the last year were adults from quintile 1 and 2 (46.2% and 47.3%, respectively). This implies that lower socio-economic groups are the least likely to have ever visited a healthcare facility, whilst those in the higher socio-economic groups are the most likely to have ever visited a healthcare facility in the last year.

Table 4.5: Ever visited a healthcare facility in the last year across socio-economic characteristics

<i>Characteristic</i>	<i>Yes</i> (<i>n = 11,539</i>) (%)	<i>No</i> (<i>n = 10,371</i>) (%)
<i>Education level</i>		
No education	69***	31***
Primary education	56.7***	43.4***
Some secondary education	49.8***	50.2***
Completed secondary education	49.1***	50.9***
Post-matric qualification	58.8***	41.2***
<i>Employment status</i>		
Employed	52.9*	47.1*
Unemployed	50*	50*
Economically inactive	54.8*	45.2*
<i>Wealth quintile</i>		
Quintile 1	46.2***	53.8***
Quintile 2	47.3***	52.7***
Quintile 3	52.9***	47.1***
Quintile 4	56.5***	43.5***
Quintile 5	63.1***	36.9***

Source: NIDS 2016a (weighted)

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

4.4.2 Ever visited a healthcare facility in the last year across demographic characteristics

Table 4.6 presents the population proportions of ever having visited a healthcare facility in the last year across demographic indicators. Almost 63.0% of women reported ever having visited a healthcare facility in the last year. In contrast, only 42.3% of men reported having ever visited a healthcare facility in the last year. This highlights the finding in the literature that women are more likely than men to seek help for health related concerns (Ahs, Burell & Westerling, 2012; Beogo et al., 2014; Thompson et al., 2016; van der Hoeven et al., 2012; Zyaambo, Siziya & Fylkesnes, 2012). In relation to marital status, adults who are divorced separated or widowed (71.9%) accounted for the largest proportion of the population to have

ever visited a healthcare facility in the last year. Married adults accounts for the second largest proportion (62.5%), followed by adults who are cohabiting (53.6%). The smallest proportions of the population to have reported ever having been to a healthcare facility in the last year are adults who have never married (44.8%). Overall, the data indicates that as age increases, the time interval between visits to healthcare facilities shortens. The elderly (79.3%) account for the largest proportion of the population to have ever visited a healthcare facility in the last year, followed by adults (59.9%), and then young adults (44.0%).

In terms of geographic location, 55.1% of residents from urban areas reported ever having visited a healthcare facility in the last year, followed by adults residing in traditional areas (51.7%). Only 38.8% of adults residing on farms reported ever having visited a healthcare facility in the last year. The data also shows that 72.3% of the White adult population reported ever having visited a healthcare facility in the last year, followed by Coloured adults (58.5%), Black African adults (50.8%), and then Asian and Indian adults (44.0%) recounted ever having visited a healthcare facility in the last year. This implies that the White population group are most likely to have ever visited a healthcare facility in the last year.

Table 4.6: Ever visited a healthcare facility in the last year across demographic characteristics

<i>Characteristic</i>	<i>Yes</i> (n = 11,539) (%)	<i>No</i> (n = 10,371) (%)
<i>Gender</i>		
Male	42.3***	57.7***
Female	63***	37***
<i>Marital status</i>		
Never married	44.8***	55.2***
Cohabiting	53.6***	46.4***
Married	62.5***	37.5***
Divorced, separated or widowed	71.9***	28.1***
<i>Age</i>		
Young adult (15 to 34 years)	44***	56***
Adult (35 to 64 years)	59.9***	40.2***
Elderly (65 years+)	79.3***	20.7***
<i>Geographic location</i>		
Urban areas	55.1***	44.9***
Traditional areas	51.7***	48.3***
Farms	38.8***	61.2***
<i>Population group</i>		
Black African	50.8***	49.2***
Coloured	58.5***	41.5***
Asian/Indian	44***	56***
White	72.3***	27.7***

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

4.4.3 Bivariate logistic regression analysis across socio-economic and demographic characteristics

This section pertains to the results from the bivariate logistic regression analysis. *Table 4.7* presents the odds of ever visiting a healthcare facility by the selected socio-economic predictors of education level, employment status and wealth quintile. The analysis highlights a statistically significant negative relationship between educational attainment and the odds of ever having visited a healthcare facility. Comparing the education coefficients, the results suggest that adults with no education (which forms the reference category) have the highest odds of ever having visited a healthcare facility, followed by adults with a post-matric qualification (OR: 0.64; $p < 0.001$), and then adults with a primary education (OR: 0.59; $p < 0.001$). Adults with some secondary education and completed secondary education have nearly equivalent significant odds of ever having visited a healthcare facility at 0.45 and 0.43, respectively. In terms of employment status, adults who are economically inactive have the highest odds of ever having visited a healthcare facility (OR: 1.08; $p > 0.05$), whilst adults who are unemployed have the lowest odds of ever having visited a healthcare facility (OR: 0.89; $p > 0.05$).

Overall, the results show that as wealth quintile increases so does the odds of ever having visited a healthcare facility. Adults in quintile 5 have approximately two times the odds of ever having visited a healthcare facility than those in quintile 1, followed closely by adults in quintile 4 (OR: 1.51; $p < 0.001$). Adults in quintiles 2 and 3 have the lowest odds (OR: 1.05; $p > 0.05$ and OR: 1.31; $p < 0.001$, respectively) of ever having visited a healthcare facility when compared to those in quintiles 4 and 5 (OR: 1.31; $p < 0.001$; OR: 1.51; $p < 0.001$).

Table 4.7: The odds of ever having visited a healthcare facility in the last year by selected socio-economic characteristics for adults aged 15 years and above

<i>Education level</i>	<i>Odds Ratio</i>
No education	1.00
Primary education	0.59*** (0.49-0.70)
Some secondary education	0.45*** (0.37-0.53)
Completed secondary education	0.43*** (0.35-0.54)
Post-matric qualification	0.64*** (0.51-0.81)
<i>Employment status</i>	
Employed	1.00
Unemployed	0.89 (0.77-1.03)
Economically inactive	1.08 (0.97-1.20)
<i>Wealth quintile</i>	
Quintile 1	1.00
Quintile 2	1.05 (0.90-1.21)
Quintile 3	1.31*** (1.13-1.51)
Quintile 4	1.51*** (1.28-1.78)
Quintile 5	1.99*** (1.62-2.45)
<i>Gender</i>	
Male	1.00
Female	2.32*** (2.10-2.55)
<i>Marital status</i>	
Never married	1.00
Cohabiting	1.42*** (1.17-1.72)
Married	2.05*** (1.80-2.33)
Divorced, separated or widowed	3.15*** (2.63-3.78)
<i>Age</i>	
Young adult (15 to 34 years)	1.00
Adult (35 to 64 years)	1.89*** (1.69-2.12)
Elderly (65 years+)	4.87*** (3.86-6.13)
<i>Geographic location</i>	
Urban areas	1.00
Traditional areas	0.87* (0.77-0.98)
Farms	0.52*** (0.37-0.73)

<i>Population group</i>	
Black African	1.00
Coloured	1.37** (1.12-1.66)
Asian/Indian	0.76 (0.41-1.40)
White	2.53*** (1.82-3.51)

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

Parenthesis indicate 95% confidence intervals

In terms of the effects of selected demographic characteristics on the odds of ever having visited a healthcare facility for adults over the age of 15 years, the analysis indicates that women have 2.32 times the odds of ever visiting a healthcare facility when compared to men. The analysis indicates that overall, marital status has a significantly positive effect on whether or not an adult will ever visit a healthcare facility. The results indicate that adults who are divorced, separated or widowed, have approximately three times the odds (OR: 3.15; p<0.001) of ever having visited a healthcare facility when compared to adults who have never married. Adults who are married, have two times the odds (OR: 2.05; p<0.001) of ever having visited a healthcare facility. Cohabiting adults have the smallest odds of ever having visited a healthcare facility (OR: 1.42; p<0.001), when compared to the other marital coefficients relative to the never married group.

Age, categorized as young adults (15-34 years of age), adults (35-64 years of age), and the elderly (65+ years) all have a significant positive effect on the odds of an adult ever having visited a healthcare facility. As expected, the elderly have nearly five times the odds (OR: 4.87; p<0.001) of ever having visited a healthcare facility when compared to young adults, whilst the adults have nearly two times the odds (OR: 1.89; p<0.001). Overall, the results show that geographic location is a significant predictor of health-seeking behaviour. The analysis highlights a negative relationship as residents of both traditional areas (OR: 0.87; p<0.05), and residents of farms (OR: 0.52; p<0.001), both have significantly lower odds of ever having visited a healthcare facility when compared to residents of urban areas. The analysis of population group shows that White adults have the highest significant odds (OR: 2.53; p<0.001) of ever having visited a healthcare facility when compared to the other population groups, whilst Coloured adults have a lower odds ratio of 1.37. The analysis also shows that Asian and Indian adults have lower odds (OR: 0.76; p>0.05) of ever having visited a healthcare facility when compared to Black African adults.

4.4.4 Multivariate Analysis

Table 4.8 presents Model I of the multivariate binomial logistic regression analysis by each socio-economic and demographic predictor for adults over the age of 15 years. A negative relationship is observed for the effects of education level on ever having visited a healthcare facility. This means that adults with no education have higher odds than those with an education of ever having visited a healthcare facility. In reporting on the results for those with an education, only the two secondary education related coefficients of some secondary education and completed secondary education had a significant effect on the outcome (OR: 0.75; $p < 0.05$; OR: 0.68; $p < 0.01$). This implies that secondary education, whether completed or not has some statistical influence on the odds of an adult ever having visited a healthcare facility.

Overall, the analysis highlights that as wealth quintile increases, so does the odds of ever having visited a healthcare facility. This implies that if adults were to progress to higher wealth quintiles, than their odds of ever going to a healthcare facility would increase as well. Adults in quintile 5 have the greatest odds of ever having visited a healthcare facility (OR: 1.62; $p < 0.001$), followed by adults in quintile 4 (OR: 1.40; $p < 0.001$). Adults in quintile 3 have 1.32 times the odds of ever having visited a healthcare facility when compared to adults in quintile 1.

Table 4.8: The odds of ever having visited a healthcare facility in the last year by selected socio-economic characteristics for adults (15 years+): results from the multivariate analysis

<i>Education level</i>	<i>Odds Ratio</i>
No education	1.00
Primary education	0.86 (0.71-1.05)
Some secondary education	0.75* (0.60-0.94)
Completed secondary education	0.68** (0.52-0.89)
Post-matric qualification	0.78 (0.58-1.05)
<i>Employment status</i>	
Employed	1.00
Unemployed	1.00 (0.87-1.15)
Economically inactive	0.93 (0.82-1.05)
<i>Wealth quintile</i>	
Quintile 1	1.00
Quintile 2	1.03 (0.89-1.20)
Quintile 3	1.32*** (1.13-1.54)
Quintile 4	1.40*** (1.17-1.68)
Quintile 5	1.62*** (1.27-2.07)
<i>Gender</i>	
Male	1.00
Female	2.27*** (2.05-2.52)
<i>Marital status</i>	
Never married	1.00
Cohabiting	1.26* (1.03-1.54)
Married	1.27** (1.08-1.49)
Divorced, separated or widowed	1.42** (1.13-1.78)
<i>Age</i>	
Young adult (15 to 34 years)	1.00
Adult (35 to 64 years)	1.49*** (1.29-1.73)
Elderly (65 years+)	3.12*** (2.32-4.19)
<i>Geographic location</i>	
Urban areas	1.00
Traditional areas	1.00 (0.88-1.13)

Farms	0.56*** (0.42-0.76)
Population group	
Black African	1.00
Coloured	1.22 (0.98-1.50)
Asian/Indian	0.68 (0.41-1.13)
White	1.57* (1.07-2.29)
Constant	0.000
F-statistic	35.75
n:	21 815
N:	33 583043

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

Parenthesis indicate 95% confidence intervals

In analysing the odds across demographic predictors, the results show that women have significantly higher odds (OR: 2.27; p<0.001) than men of ever having visited a healthcare facility. The analysis shows that overall, marital status has a significant positive relationship on ever having visited a healthcare facility for adults over the age of 15 years. The results suggest that divorced, separated or widowed adults have the highest odds (OR: 1.42; p<0.001) of ever having visited a healthcare facility. Married and cohabiting adults have equivalently greater odds (OR: 1.27; p<0.01 and OR: 1.26; p<0.05, respectively) of ever having visited a healthcare facility relative to adults who have never married. The analysis highlights that there is a statistically significant positive relationship between age and the odds of ever having visited a healthcare facility. Elderly adults have approximately three times higher odds (OR: 3.12; p<0.001) of ever having visited a healthcare facility when compared to young adults; whilst adults have 1.48 times higher odds than young adults of ever having visited a healthcare facility. This implies that as individuals get older they need to visit a healthcare facility more frequently.

The analysis on geographic location shows that farm residents have a lower odds (OR: 0.56; p<0.001) of ever having visited a healthcare facility when compared to urban residents. In terms of population group, the analysis suggests that the White population group have significantly higher odds (OR: 1.57; p<0.05) of ever having visited a healthcare facility when compared to the Black African group.

The *test* command in Stata is used to assert whether or not a significant relationship exists between the socio-economic and demographic determinants and the health-seeking behaviour of ever having visited a healthcare facility. All of the results indicated that an overall significant effect exists and therefore it can be concluded that socio-economic and demographic factors are significant determinants of health-seeking behaviour in this model.

4.5 Logistic Regression Analysis II

A logistic bivariate regression analysis is conducted to examine the association between selected socio-economic and demographic predictors and the odds of going to a private healthcare facility for adults aged 15 years and above. Firstly, cross-tabulations are conducted to investigate the type of healthcare facility last visited by selected socioeconomic and demographic variables. A bivariate and multivariate analysis is then conducted to examine the above. The bivariate analysis presents the effects of the selected predictors on the odds of going to the private sector relative to the public sector without accounting for controls, whilst the multivariate analysis examines the same relationship after adding controls. The reference or base categories used in the previous logistic regression model are maintained. Significance levels are reported within 95% confidence intervals.

4.5.1 Type of healthcare facility last visited across socio-economic characteristics

Table 4.9 presents the population proportions of type of healthcare facility last visited across socio-economic indicators. Overall, adults with no education to some secondary education visited public healthcare facilities, whilst adults with a completed secondary education to a post-matric qualification visited private healthcare facilities. The proportional distribution of the utilization of the type of healthcare facility is almost equal for adults with no education in comparison to adults with a post-matric qualification, the only difference being that the trend is reversed (no education, 83.5% last utilized a public healthcare facility; post-matric qualification, 79.8% last utilized a private healthcare facility). In relation to employment status, the bulk of unemployed adults (77.3%), and economically inactive adults (67.1%) last visited a public healthcare facility. In contrast, only 44.7% of employed adults last visited a public healthcare facility. As expected, increases in wealth quintile are associated with a higher proportion of the South African population having visited a private healthcare facility previously. Only 20.2% of adults in quintile 1 reported last visiting a private healthcare facility, which increased to 24.1% for adults in quintile 2. Quintile 3 demonstrates a further increase as 28.1% of adults reported last visiting a private healthcare facility. A big leap in

the proportion of the population to report having last visited a private healthcare facility is observed between adults in quintile 4 (44.7%) and quintile 5 (78.8%), nearly doubling in the percentage of adults to have last visited a private healthcare facility.

Table 4.9: Type of healthcare facility last visited across socio-economic characteristics

<i>Characteristic</i>	<i>Private Healthcare</i> (n = 3,524) (%)	<i>Public Healthcare</i> (n = 8,019) (%)
<i>Education level</i>		
No education	16.5***	83.5***
Primary education	21.3***	78.7***
Some secondary education	33.4***	66.6***
Completed secondary education	56.3***	43.7***
Post-matric qualification	79.8***	20.2***
<i>Employment status</i>		
Employed	55.3***	44.7***
Unemployed	22.7***	77.3***
Economically inactive	33.0***	67.1***
<i>Wealth quintile</i>		
Quintile 1	20.2***	79.8***
Quintile 2	24.1***	75.9***
Quintile 3	28.1***	71.9***
Quintile 4	44.7***	55.3***
Quintile 5	78.8***	21.2***

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

4.5.2 Type of healthcare facility last visited across demographic characteristics

Table 4.10 presents the proportions of the population in terms of the type of healthcare facility last visited across demographic variables. More men (47.6%) than women (38.6%) last visited a private healthcare facility. Subsequently, more women (61.4%) than men (52.4%) last visited a public healthcare facility. Adults who are married accounted for the largest proportion of the population to have last visited a private healthcare facility (55.4%), followed by adults who are divorced, separated or widowed (40.4%). Interestingly, a higher percentage of adults who have never married (34.6%) reported having last visited a private

healthcare facility than adults who are cohabiting (27.4%). Therefore, the opposite trend is observed for the utilization of public healthcare facilities, whereby adults who have never married (65.4%) and adults who are cohabiting (72.6%) account for the largest proportion to have last visited a public healthcare facility. Not much difference is observed between the age groups and the proportional distribution of the population in relation to the type of healthcare facility last visited. Equivalent proportions are observed between young adults (40.4%) and the elderly (40.7%) in relation to last having visited a private healthcare facility, whilst there is a slight increase in the proportion of the adult population (43.7%) to have last visited a private healthcare facility. Therefore, the data suggests that the bulk of the population for all age groups last visited a public healthcare facility (young adult, 59.6%; adult, 56.3%; and elder, 59.3%).

Nearly half of the urban adult population (51.0%) last visited a private healthcare facility, whilst 49% of the urban adult population last visited a public healthcare facility. The majority of both residents from traditional areas (76.3%) and farms (70.0%) last visited a public healthcare facility implying that the private sector is predominantly utilized by urban adults. In terms of population group, the cross-tabulation shows that White adults (82.1%) accounts for the largest proportion to have last visited a private healthcare facility, followed by Asian and Indian adults (69.2%). The health-seeking behaviour of the Black African adults and Coloured adults is relatively similar as 35.4% and 41.0% respectively, reported last visiting a private healthcare facility. This highlights racial inequalities in socio-economic status, as the cross-tabulation suggests that the private healthcare facility is principally dominated by White and Indian adults, whilst the public healthcare sector is predominantly frequented by Black African and Coloured adults.

Table 4.10: Type of healthcare facility last visited across demographic characteristics

<i>Characteristic</i>	<i>Private Healthcare</i> (n = 3,524) (%)	<i>Public Healthcare</i> (n = 8,019) (%)
<i>Gender</i>		
Male	47.6***	52.4***
Female	38.6***	61.4***
<i>Marital status</i>		
Never married	34.6***	65.4***
Cohabiting	27.4***	72.6***
Married	55.4***	44.6***
Divorced, separated or widowed	40.4***	59.6***
<i>Age</i>		
Young adult (15 to 34 years)	40.4	59.6
Adult (35 to 64 years)	43.7	56.3
Elderly (65 years+)	40.7	59.3
<i>Geographic location</i>		
Urban areas	51***	49***
Traditional areas	23.7***	76.3***
Farms	30.0***	70.0***
<i>Population group</i>		
Black African	34.5***	65.5***
Coloured	41.0***	59.0***
Asian/Indian	69.2***	30.8***
White	82.1***	18.0***

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

4.5.3 Bivariate logistic regression analysis across socio-economic and demographic characteristics

This section pertains to the results from the bivariate logistic regression analysis for the health-seeking behaviour of type of healthcare facility last visited. *Table 4.11* presents the logged odds for each socio-economic predictor on the dependent variable. The analysis highlights a statistically significant positive relationship between level of education and the odds of going to a private healthcare facility. In other words, as education increases so does the odds of going to a healthcare facility in the private sector. In terms of employment status, the analysis suggests that adults who are unemployed (OR: 0.24; $p < 0.001$), and adults who are economically inactive (OR: 0.40, $p < 0.001$) have significantly lower odds of going to a private healthcare facility than the employed which is an unexpected finding. The results show that as wealth quintile increases, so does the odds of going to a private healthcare facility. Adults in quintile 5 have higher odds (OR: 14.68; $p < 0.001$) than those in quintile 4 (OR: 3.20; $p < 0.001$), quintile 3 (OR: 1.55; $p < 0.01$) and quintile 2 (OR: 1.25; $p > 0.05$) of going to a private healthcare facility when compared to those in quintile 1. Medical insurance could plausibly be a significant contributor to the observed differences in the odds of going to a private healthcare facility by wealth quintile. Even though the NIDS questionnaire has a question pertaining to whether or not a respondent has medical aid cover, this study chose to exclude this variable as medical aid insurance can be argued to be an effect of socio-economic status, and therefore cannot be defined strictly as a socio-economic determinant which is the focus of this study. Therefore, this study tentatively assumes that most adults in higher wealth quintiles are more likely to be covered by medical aid than adults in lower wealth quintiles.

In investigating the demographic determinants of the dependent variable, it is observed that women have significantly lower odds of going to a private healthcare facility than men highlighting the existence of gender inequalities. The analysis of marital status shows that married adults have approximately two times (OR: 2.35; $p < 0.001$) the odds of going to a private healthcare facility than the adults who have never married; whilst adults who are divorced, separated or widowed have 1.28 times the odds of going to a private healthcare facility relative to never married adults. The analysis also highlights that adults who are cohabiting with a partner have a decreased odds (OR: 0.71; $p < 0.05$) of going to a private healthcare facility in comparison to adults who have never married. Age was reported to have an overall insignificant effect on the dependent variable. A plausible explanation for this

finding is that as per the cross-tabulation, there is a relatively equal number of observations between the private and public healthcare sector which could be proposed to have impeded the ability of the logistic regression to detect differences between the groups. Even so, adults and the elderly having similarly higher odds (OR: 1.14; $p>0.05$; OR: 1.01; $p>0.05$, respectively) of going to a private healthcare facility when compared to young adults.

The analysis shows a statistically significant negative relationship between geographic location and the odds of going to a private healthcare facility. Adults residing in both traditional areas (OR: 0.30; $p<0.001$), and on farms (OR: 0.41; $p<0.001$) have significantly lower odds of going to a private healthcare facility in comparison to urban area residents. The investigation into racial inequalities shows that White adults have significantly higher odds (OR: 8.69; $p<0.001$) of going to a private healthcare facility in comparison to Black African adults. Finally, Asian and Indian adults have higher odds (OR: 4.27; $p>0.05$) of going to a private healthcare facility than Coloured adults (OR: 1.31; $p>0.05$) in comparison to Black African adults. This finding reflects those from the General Household Survey of 2011 which reported large racial disparities between White and Black African adults in relation to how they utilized the healthcare sectors (Statistics South Africa, 2011).

Table 4.11: The odds of going to a private healthcare facility by selected socio-economic and demographic characteristics for adults aged 15 years and above

<i>Education level</i>	<i>Odds Ratio</i>
No education	1.00
Primary education	1.37* (1.01-1.86)
Some secondary education	2.53*** (1.95-3.29)
Completed secondary education	6.50*** (4.82-8.77)
Post-matric qualification	19.90*** (14.53-27.25)
<i>Employment status</i>	
Employed	1.00
Unemployed	0.24*** (0.18-0.31)
Economically inactive	0.40*** (0.34-0.47)
<i>Wealth quintile</i>	
Quintile 1	1.00
Quintile 2	1.25 (0.95-1.66)
Quintile 3	1.55** (1.18-2.03)
Quintile 4	3.20*** (2.46-4.15)
Quintile 5	14.68*** (10.50-20.52)
<i>Gender</i>	
Male	1.00
Females	0.69*** (0.60-0.80)
<i>Marital status</i>	
Never married	1.00
Cohabiting	0.71* (0.53-0.96)
Married	2.35*** (1.92-2.87)
Divorced, separated or widowed	1.28 (0.98-1.67)
<i>Age</i>	
Young adult (15 to 34 years)	1.00
Adult (35 to 64 years)	1.14 (0.95-1.38)
Elderly (65 years+)	1.01 (0.72-1.41)
<i>Geographic location</i>	
Urban areas	1.00
Traditional areas	0.30*** (0.24-0.38)
Farms	0.41*** (0.28-0.60)

<i>Population group</i>	
Black African	1.00
Coloured	1.32 (0.91-1.90)
Asian/Indian	4.27 (0.90-20.33)
White	8.69*** (4.88-15.46)

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

Parenthesis indicate 95% confidence intervals

4.5.4 Multivariate analysis

A binomial logistic regression is conducted to analyze the socio-economic and demographic determinants of the type of healthcare facility visited by the South African adult population aged 15 years and above in 2014 to 2015. *Table 4.12* shows the odds of going to a private healthcare facility for adults by each socio-economic and demographic predictor. The analysis on education shows that as level of education increases, so too does the odds of going to a private healthcare facility for South African adults. Overall, the results show that adults with a post-matric qualification have significantly higher odds (OR: 5.05; p<0.001) of going to a private healthcare facility than adults with lower levels of education. Moreover, adults who have completed a secondary education have nearly three times the odds (OR: 2.72; p<0.001) of going to a private healthcare facility in comparison to those with no education. Lastly, adults with some secondary education have 1.49 times the odds of going to a private healthcare facility, whilst those with no education have the lowest odds. The analysis of employment status indicated that both the unemployed and economically inactive groups have significantly lower odds (OR: 0.29; p<0.001; OR: 0.42; p<0.001, respectively) of going to a private healthcare facility in comparison to adults who are employed.

The findings suggest that overall, as wealth quintile increases, so too does the odds of an adult going to the private healthcare sector relative to the public sector. Specifically, adults in quintile 4 and quintile 5 (OR: 1.85; p<0.001; OR: 5.14; p<0.001, respectively) have the highest odds of going to a private healthcare facility.

Table 4.12: The odds of going to a private healthcare facility by selected socio-economic and demographic characteristics for adults (15 years+): results from the multivariate analysis

<i>Education level</i>	<i>Odds Ratio</i>
No education	1.00
Primary education	1.02 (0.74-1.41)
Some secondary education	1.49** (1.10-2.03)
Completed secondary education	2.72*** (1.89-3.91)
Post-matric qualification	5.05*** (3.53-7.22)
<i>Employment status</i>	
Employed	1.00
Unemployed	0.29*** (0.21-0.41)
Economically inactive	0.42*** (0.32-0.55)
<i>Wealth quintile</i>	
Quintile 1	1.00
Quintile 2	1.05 (0.80-1.38)
Quintile 3	1.08 (0.80-1.46)
Quintile 4	1.85*** (1.41-2.43)
Quintile 5	5.14*** (3.45-7.66)
<i>Gender</i>	
Male	1.00
Females	0.51*** (0.39-0.66)
<i>Marital status</i>	
Never married	1.00
Cohabiting	1.01 (0.72-1.41)
Married	1.74*** (1.37-2.22)
Divorced, separated or widowed	1.63*** (1.23-2.16)
<i>Age</i>	
Young adult (15 to 34 years)	1.00
Adult (35 to 64 years)	0.66** (0.51-0.85)
Elderly (65 years+)	0.63* (0.40-0.98)
<i>Geographic location</i>	
Urban areas	1.00
Traditional areas	0.63*** (0.51-0.78)

Farms	0.66 (0.41-1.06)
<i>Population group</i>	
Black African	1.00
Coloured	0.47*** (0.31-0.71)
Asian/Indian	0.81 (0.17-3.82)
White	0.51 (1.17-1.54)
<i>Interaction terms</i>	
Education*population group	1.22** (1.07-1.40)
Employment status*gender	1.26** (1.08-1.46)
Gender*age	1.28* (1.01-1.63)
Constant	0.000
F-statistic	36.78
n:	11 491
N:	17 889599

Source: NIDS 2016a (weighted)

*p < 0.05 **p<0.01 ***p<0.001

Parenthesis indicate 95% confidence intervals

Reporting on the findings for the demographic determinants, women have significantly lower odds (OR: 0.51; p<0.001) of going to a private healthcare facility in comparison to men highlighting the existence of gender inequalities in South Africa. In terms of marital status, married adults over the age of 15 years have significantly higher odds (OR: 1.74; p<0.001) of going to a private healthcare facility in comparison to adults who have never married; whilst divorced, separated or widowed adults have a significantly lower odds of 1.63 than married adults.

The analysis of age shows that both adults and the elderly have significantly similarly lower odds (OR: 0.66; p<0.01; OR: 0.63; p<0.05, respectively) of going to a private healthcare facility in comparison to young adults. This finding can most likely be explained as being a consequence of negligible differences in the distribution of the age groups by public and private healthcare facilities as shown in the cross-tabulation. When two groups are equivalent to one another sometimes the logistic regression struggles to compute accurate odds as no differences are observed. In terms of geographic location, residents of traditional areas (OR: 0.63; p<0.001) were found to have similarly lower odds of going to a private healthcare facility in comparison to residents from urban areas.

The findings on the effect that population group has on the odds of going to a private healthcare facility reveals that Black African's have the highest odds (reference category) in comparison to other population groups which appears incorrect to what was previously hypothesised and found in the literature. Therefore, the results from the interaction model are compared to the main effects multivariate model from which a different pattern emerges where the White population group have the highest statistically significant odd (OR: 2.25; $p < 0.01$), approximately twice that of the Black African population group. Although no multicollinearity was detected in either overall model, the sensitivity to changes in the model exhibited by the population group variable indicates the existence of multicollinearity. Investigating this further, population group is regressed individually against other covariates after which a moderate amount of multicollinearity is detected. This study chose not to drop the population group variable as it is considered important given the unique context of South Africa. Therefore, the results are interpreted with caution in light of some of the possible consequences of multicollinearity including inflation in the variance which may reduce the accuracy with which the results can be interpreted. In summation, an overall significant effect was found between the socio-economic and demographic predictors and the health-seeking behaviour of type of healthcare facility visited

4.6 Investigating interaction effects

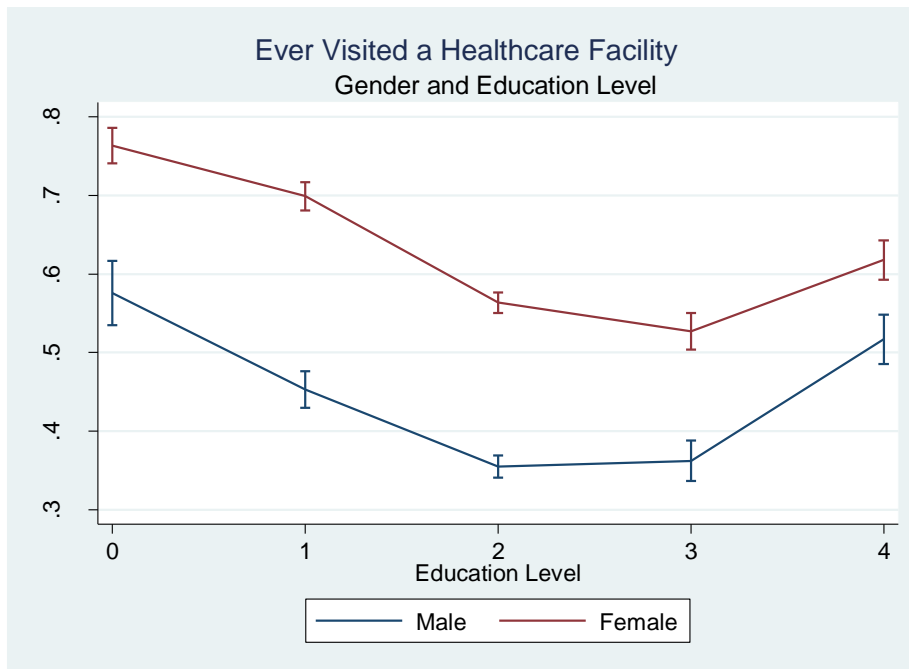
An objective of this study was to determine whether or not an interaction effect exists between the socio-economic and demographic factors on health-seeking behaviour. This study defined an interaction as the effect of an independent variable being dependent on another predictor coefficient (Grace-Martin, 2000). In hypothesising which variables had an interaction effect, the CSDH framework, the literature and comparisons between the results of the unadjusted and adjusted model is made. In consideration of space limitations, not all the interaction effects will be included². Results are reported as predicted probabilities so as to enable the generation of graphical illustrations of the relationships using the *margins* command.

² Excluded interaction effects include gender and age; geographic location and education; employment status and age; population group and wealth quintile (as certain coefficients did not have enough observations)

4.6.1 Interactions between selected socio-economic and demographic determinants and ever having visited a healthcare facility

Figure 6.1 presents the margins plot for the interaction effect between gender and employment status on ever having visited a healthcare facility for adults aged 15 years and above. The graph shows that women have a higher probability than men of ever having visited a healthcare facility for all levels of education. The gap in the probabilities of ever having visited a healthcare facility by gender is not consistent. The gap widens for adults with a primary education, as the probabilities increase for women and decrease for men of ever having visited a healthcare facility. This gap narrows as adults progress from having a primary education to having some secondary education. Subsequently, the gap in the probability of ever having gone to a healthcare facility by gender becomes even smaller for adults who have completed secondary education, with the probabilities increasing slightly for men whilst decreasing more noticeably for women. The pattern trends upwards from completed secondary education to a post-matric qualification, with a particularly sharp increase in the probabilities of men ever having visited a healthcare facility. This implies that obtaining a post-matric qualification has a strong influence on men's health-seeking behaviour. The gender gap becomes very small for those with a post-matric qualification, indicating that the differences in ever having visited a healthcare facility for men and women diminish with a post-matric qualification. Overall, the graph indicates that the effects of gender on the probabilities of ever having visited a healthcare facility is moderated by level of education, particularly for men; and that higher levels of education is associated with less gender inequalities in ever having visited a healthcare facility.

Figure 6.1: Ever having visited a healthcare facility by gender and employment status

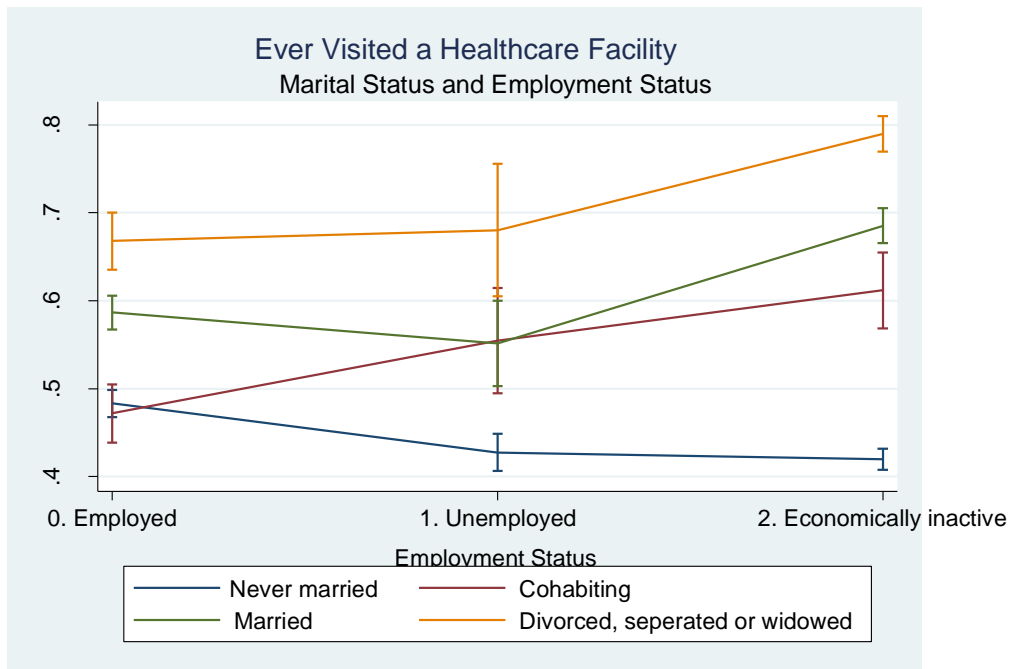


Source: NIDS 2016a (not weighted)

Figure 6.2 presents the margins plot for the interaction effect between marital status and employment status on ever having visited a healthcare facility for adults aged 15 years and above. Overall, the plot indicates that divorced, separated or widowed adults have the highest probabilities of ever having visited a healthcare facility across all employment coefficients; whilst never married adults have the lowest probability of ever having visited a healthcare facility. Interestingly, the only marital status coefficient not to increase with the transition from an unemployed state to an economically inactive state is the never married coefficient, which implies that being economically inactive decreases the probability of ever having gone to a healthcare facility for never married adults. The plot lines representing never married adults and cohabiting adults are touching for the employed coefficient indicating negligible differences in ever having gone to a healthcare facility between the two groups, after which the gap becomes increasingly larger as the lines trend further apart in the unemployed coefficient. This implies that the probability of cohabiting adults having ever visited a healthcare facility increases when adults are unemployed, whilst the probabilities decrease for never married adults when unemployed. This pattern continues for the economically inactive adults. A second instance when the lines touch is for adults who are married and who are cohabiting in the unemployed coefficient, this implies that there are no differences between married adults who are unemployed, and unemployed adults who are cohabiting in terms of

ever having visited a healthcare facility. In summation, the margins plot suggests that the health-seeking behaviour of ever having visited a healthcare facility is moderated by employment status.

Figure 6.2: Ever having visited a healthcare facility by marital status and employment status



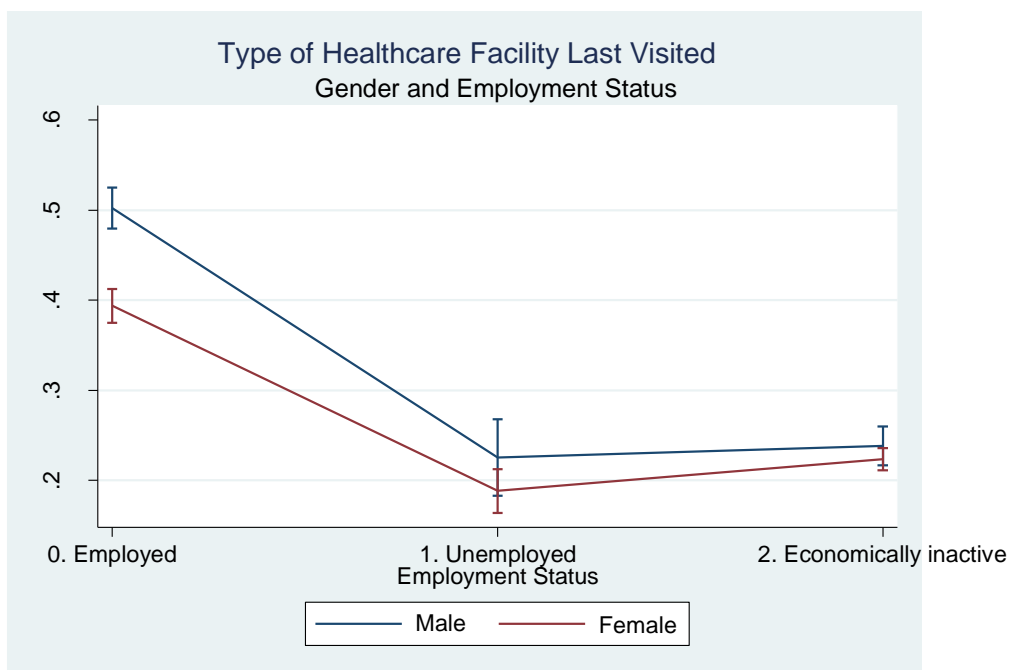
Source: NIDS 2016a (not weighted)

4.6.2 Interactions between selected socio-economic and demographic determinants and type of healthcare facility last visited

Figure 6.3 presents the margins plot for the interaction effect between gender and employment status on the probabilities of going to a private healthcare. The graph shows that men have a higher probability than women of visiting a private healthcare facility across all employment status coefficients. The pattern declines sharply for both genders between the employed coefficient and the unemployed coefficient. This implies that transitioning from being employed to being unemployed negatively affects the probabilities of going to a private healthcare facility for both genders, although the sharper decline for women indicates that this transition would affect their probabilities of going to a private healthcare facility more than men. It is interesting to note, that for the employed, there is a wider gap between women and men and their probabilities of going to a private healthcare facility insinuating heightened

gender inequality; whereas, for the unemployed, this gap and subsequent gender inequality becomes less noticeable. The transition from being unemployed to economically inactive sees a slight increase in the probabilities of going to a private healthcare facility for both genders, although the pattern suggests that this transition influences women more than men. The graph shows a small gap in the economically inactive group which suggests that the effects of employment status on the probability of adults going to a private healthcare facility is negligible for those in the economically inactive groups.

Figure 6.3: Type of healthcare facility last visited by gender and employment status

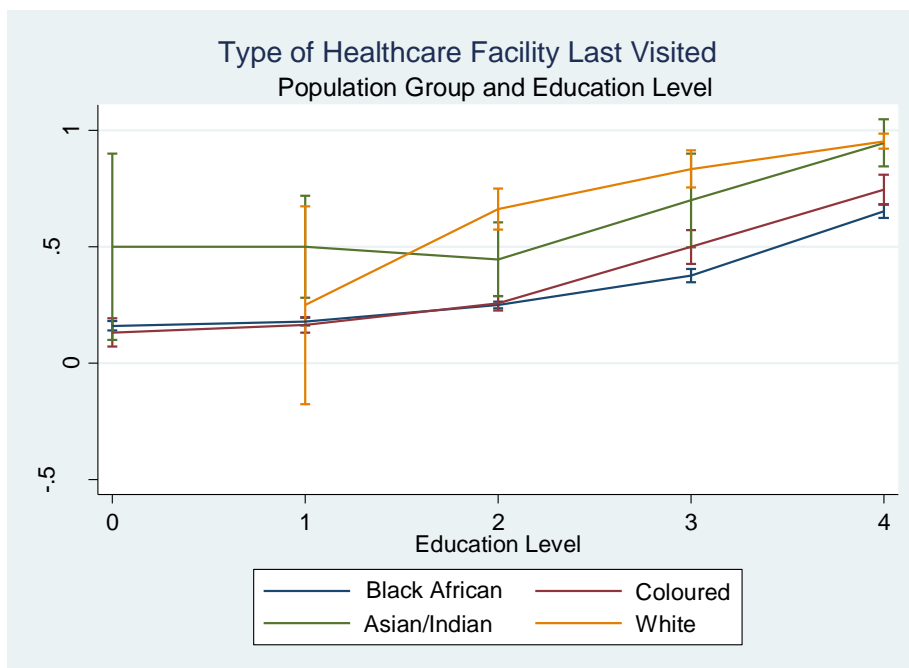


Source: NIDS 2016a (not weighted)

Figure 6.4 present the margins plot for the interaction effect between population group and education level on the probabilities of going to a private healthcare. The graph only shows a trend for White adults from the primary education coefficients as there were not enough observations of White adults without any education to calculate probabilities. Interestingly, the plot shows that Asian and Indian adults with a primary education have the highest probabilities of going to a private healthcare facility in comparison to all other population groups. This trend changes between the interval of primary education and some secondary education as the lines intersect for the White and Asian/Indian population groups, whereby the probability of going to a private healthcare facility increases for the White population group, whilst decreasing for the Asian and Indian group. For the White population group, the trend goes upwards from primary education until post-matric qualification indicating that this

group has the highest probability of going to a private healthcare facility. The plot shows that there is virtually no dissimilarities in the probabilities of going to a private healthcare facility for the Coloured and Black African population groups who have no education, a primary education and a secondary education, after which the Coloured group have increasingly higher probabilities of going to a private healthcare facility in comparison to the Black African population groups across all education levels. The smallest gap between the population groups is observed for adults with some secondary education. Overall, the pattern shows an upward trend for all population groups from some secondary education to post-matric qualification. The gaps between the population groups steadily decrease, implying that increased educational attainment has the potential to reduce socio-economic inequalities between the population groups in terms of the probability of going to a private healthcare facility.

Figure 6.4: Type of healthcare facility last visited by population group and education level



Source: NIDS 2016a (not weighted)

4.7 Summary

This chapter presented the main findings of this quantitative secondary analysis. The data used is Wave 4 (2016) of the National Dynamics Income Study which was weighted. Both socio-economic and demographic determinants have a significant overall effect on the health-seeking behaviour of the South Africa population. Some of the most significant findings highlight that adults in higher wealth quintiles, who are women, the elderly, and adults residing in urban areas have the highest odds of ever having visited a healthcare facility. For the outcome of type of healthcare facility visited, some of the main findings include that adults with a post-matric qualification, who are employed, are affiliated with a higher wealth quintile, are male, married or reside in urban areas have the highest odds of going to a private healthcare facility relative to a public healthcare facility. This study also investigated possible interaction effects including; the effects of gender on ever having been to a healthcare facility when moderated by level of education; that the influence of marital status on ever having been to a healthcare facility is dependent on employment status; that the effect of employment status on going to a private healthcare facility is moderated by gender; and lastly, that the influence of education on going to a private healthcare facility is dependent upon population group.

Chapter 5

Discussion and Conclusion

5.1 Introduction

Health-seeking behaviour is important to study as it plays a role in the reduction of health inequities, and has the capacity to guide policy makers in effective intervention (Shaikh, 2008). South Africa is a unique case to examine given its history, and limited literature exists on this topic to inform knowledge dissemination and future policy decisions. This study aims to provide insight into how the socio-economic and demographic determinants influence the health-seeking behaviour of the South African population. This discussion is structured so as to answer the main research questions of this study which include: whether there is a relationship between socio-economic and demographic characteristics and health-seeking behaviour; which demographic variables are significantly associated with the outcome; and finally if there is an interactive effect between socio-economic status and demographic characteristics on health-seeking behaviour.

5.2 Socio-economic determinants

Overall, the findings show a significant relationship between socio-economic status and health-seeking behaviour. In the multivariate analysis, adults with no education or a post-matric qualification had the highest odds of ever having visited a healthcare facility in the previous year, whilst those with a secondary education whether completed or not had the lowest odds. This finding contradicts the conclusions drawn from studies conducted in other sub-Saharan African countries such as Mozambique (Anselmi et al., 2015), Kenya (Njuki et al., 2014) and Zambia (Zyaambo et al., 2012), which were in consensus that adults with no education were less likely to go to a healthcare facility. Interestingly, the findings replicated those from a study that drew data from 24 European countries (Frie et al., 2010), suggesting that South Africa is progressing on the demographic transition and that the health-seeking behaviour of the South African population reflects more that of populations in developed countries than populations in less developed countries. According to the CSDH framework, education is a structural determinant of health inequities and affects health outcomes through intermediary determinants such as behaviour, occupation and mental state (WHO, 2010). It is commonly acknowledged that a lack of education, particularly in the context of South Africa often results in unemployment or low paying employment (Branson, Garlick, Lam & Leibbrandt, 2012). A consequence of this is often a poor diet that lacks nutrition,

psychological stress, as well as possible occupational health hazards from harmful pathogens or injury from using mechanical equipment. This would lead to poorer health outcomes and subsequently an increased need to visit a health facility (Del Bono et al., 2012; Henkel, 2011; Jefferis et al., 2011; Pampel, Krueger & Denney, 2010; WHO, 2010).

Initially, this study expected that increased levels of education would be associated with a higher frequency of visits to a healthcare facility (Anselmi et al., 2015; Njuki et al., 2014; Zyaambo et al., 2012). The findings of this study did not support this expectation as the results indicated that those with no education and those with a post-matric qualification had the highest odds of ever having visited a healthcare facility. Upon reflection, an explanation for this perplexing finding was found. On the one hand, adults with no education have the highest need to visit a healthcare facility as they are most at risk for morbidity outcomes (Braveman et al., 2010). On the other hand, adults with high levels of education have an increased amount of knowledge about health related risk factors and the importance of engaging in preventative care (Zimmerman et al., 2015; Zyaambo et al., 2012). Adults with some secondary education and completed secondary education have the lowest odds of ever having gone to a healthcare facility which can be inferred from the literature to be because this group neither experiences the need that adults with no education encounter, nor possess the knowledge that adults with a post-matric qualification have, and therefore are least likely to have ever gone to a healthcare facility. This highlights a need to provide incentives, or to reinforce the importance of engaging in preventative and curative care for school leavers. The findings preliminarily indicate that an effective point of intervention to address this is to target the grade 12 learners as school leavers have the lowest odds of ever having gone to a healthcare facility. Moreover, if they do not enrol in a post-graduate institution, this behaviour may continue into adulthood affecting their later life health outcomes. Future research should be conducted to examine this further.

Education was also found to be a significant predictor the type of healthcare facility last visited. The findings suggest that adults with a post-matric qualification have the highest odds of going to a private healthcare facility, whilst those with no education having the lowest odds. This reflects the general findings and theory in the literature that education is a proxy for socio-economic status as higher levels of educational attainment increase the employability of individuals in speciality occupations and therefore enable those individuals to be able to afford private healthcare (WHO, 2010; Zyaambo et al., 2012). Considering the dissatisfaction with the services in the public healthcare sector in South Africa (Beogo et al.,

2014), it is unsurprising that given the opportunity, those who can elect to go to the private healthcare sector.

The multivariate analysis found that the relationship between employment status and ever having gone to a healthcare facility was not significant. Moreover, the analysis showed that employed adults and unemployed adults had equal odds of ever having gone to a healthcare facility whilst the economically inactive group had the lowest odds. This finding is not inconceivable as public health facilities are not only subsidized by the government, but are also highly accessible by the majority of the South African population. Therefore, it is plausible that no significant differences were observed between the employment groups in terms of their access to a healthcare facility. However, in investigating access to private healthcare, differences were expected and confirmed between the various employment groups. The study found that adults who are employed had the highest odds of going to a private healthcare facility, whilst adults who were unemployed had the lowest odds. These findings replicate and therefore endorse the conclusions drawn in previous studies on the topic (Al-Doghaither et al., 2003; Lonroth et al., 2001; Propper, 2000; Virtanen et al., 2006). Private healthcare in South Africa is expensive and largely unaffordable to the majority of the population and financial support in the form of medical aid³ is often required in order to access private healthcare services (OECD, 2016). Unemployed adults receive neither remuneration nor company medical aid benefits and therefore the affordability of private healthcare is not a reality.

The findings show that adults in the wealthiest quintiles have the highest odds of ever having been to a healthcare facility as well as going to a private healthcare facility, whilst adults in the poorest quintiles have the lowest odds for both health-seeking behaviours. Poverty has been shown in the literature to be a major barrier in accessing healthcare regardless of whether or not the healthcare is subsidized (Caldwell et al., 2014; Habibullah & Afsar, 2013; Macha et al., 2012; Njuki et al., 2014) which has been attributed to other social and economic costs that are needed. Examples of these costs provided by the literature include transportation and taking time off work which is a deterrent for adults employed in casual labour where there is high competition for that position. This mitigates the affordability of

³ This study did not investigate the effects of medical aid and instead only assumed that adults who are employed would have some type of healthcare coverage.

accessing healthcare for the poorest quintiles (Caldwell et al., 2014; Habibullah & Afsar, 2013; Macha et al., 2012; Njuki et al., 2014). Unfortunately, a consequence of this is the perpetuation of the cycle of poverty as due to contextual circumstances (i.e. lack of nutrition, overcrowding), and the inability to afford healthcare, poorer groups not only experience worse health outcomes in comparison to their wealthier counterparts, but also have a lower chance of improving their health. These causal mechanisms decrease the likelihood of the poor escaping poverty and proliferate existing health inequities (Harris et al., 2011; Mayosi & Benatar, 2014; Sverdlik, 2009; WHO, 2010). This calls for a scrutiny of the existing healthcare system with a particular focus on the coverage and the effectiveness of mobile and rural clinics, whilst aiming to make them more accessible to the poor as the findings suggest that there are still access barriers in healthcare for the poor. Moreover, further research should be conducted on the formalizing of the casual sector so that adults can feel more job security.

This study found that as wealth quintile increases so does the odds of going to a private healthcare facility. As mentioned previously, private healthcare is very expensive in South Africa and therefore it makes sense that according to these results only the wealthier quintiles can afford it, a conclusion that confirms the findings of a previous study (Beogo et al., 2014; OECD, 2016). Without decreasing the unemployment rate, and increasing incomes to reflect the current economic climate, this trend is unlikely to change in the near future.

5.3 Demographic determinants

Overall, the study found that gender, marital status, age, geographic location and population group are all significantly associated with health-seeking behaviour. The results show that gender is a strong predictor of health-seeking behaviour even after controlling for other demographic factors. Women have substantially higher odds of ever having visited a healthcare facility when compared to men which confirms the main findings in the literature as women have been acknowledged to be more responsive to healthcare needs and more receptive to receiving help for health-related concerns (Ahs, Burell & Westerling, 2012; Beogo et al., 2014; Evans et al., 2011; Hosseinpoor et al., Thompson et al., 2016; van der Hoeven et al., 2012; Zyaambo, Siziya & Fylkesnes, 2012). In relation to why men were found to have lower odds of ever having been to a healthcare facility, a plausible explanation drawn from the literature is that many men may reject the notion of seeking healthcare due to dominant notions of masculinity beliefs (Lubega et al., 2015; Springer & Mouzon, 2011). An

implication of this finding is that an increased focus should be given to making healthcare more attractive and less of a threat to male masculinity.

In terms of private healthcare, men have significantly higher odds of going to a private healthcare facility when compared to women although this difference is small. This finding mirrors the findings of a study conducted in India and a gender statistics report by Statistics South Africa (Macha et al., 2012; Statistics South Africa, 2013a). The CSDH framework included gender as an important factor when examining health inequities, a notion which the findings of this study support. Gender inequalities still exist in many societies across the world, particularly in developing countries. Gender inequalities can cause disparities in access to healthcare as women encounter multiple social and economic discriminations in terms of employment, education and income (WHO, 2010), all of which have been shown to influence health-seeking behaviour. Therefore, it can be assumed that gender discrimination still exists in terms of education, employment and income as the findings suggest that men who are in higher socio-economic positions are more likely to be able to afford private healthcare in comparison to women (Orr & van Meelis).

The study found that adults who are divorced, separated or widowed had the highest odds of ever having visited a healthcare facility in the last year, whilst never married adults had the lowest odds. Subsequently, it can be implied that losing a partner whether through death or separation has heightened psychological and economic effects that impact on health outcomes and require more medical attention than if never married, cohabiting or married (Hosseinoor et al., 2012). The findings suggest that adults who are either cohabiting or married had nearly equal odds of ever having visited a healthcare facility in the past year, whilst adults who have never married had the lowest odds. The literature suggests that marriage is a protective factor for good health and that the transition from being single to married coincides with improved health related behaviours (Johnson, Backlund, Paul & Catherine, 2000; Perkins et al., 2016; Rohrer, Herman, Merry, Naessens & Houston, 2009; Umberson et al., 2010). When adults are single, they often adopt behaviours synonymous with the 'single life' such as promiscuity, substance abuse and smoking that act as risk factors for their health, whilst disregarding the consequences of these behaviours and are therefore unlikely to frequent a health facility (Umberson et al., 2010). This highlights an underlying need to emphasise the importance of curative care to young adults in an attempt to increase attendance. In contrast, marriage is associated with improved health outcomes as it introduces a sense of self-control and the motivation to abstain from risky behaviours.

Subsequently a strong emphasis is placed on health and wellbeing by the marital couple which is particularly driven by the women, and can lead to increased visits to healthcare facilities for both curative and preventative care (Umberson et al., 2010). No literature was found to compare this finding with directly and therefore it can be tentatively proposed to be a unique contributor to the subject area. Future research should be conducted so as to expand on this finding, and to enhance understanding of the relationship between marital status and health-seeking behaviour. Furthermore, based on these results it can be tentatively proposed that the CSDH framework could be strengthened by the inclusion of marital status as a structural determinant of health inequities as the findings suggest that it influences both socio-economic position and the intermediary social determinants of health.

Married adults exhibited the highest odds of going to a private healthcare facility. This finding was expected since previous research has associated being married with increased financial security (Carr & Springer, 2010). Divorced, separated or widowed adults had slightly lower odds than married adults of going to a private healthcare facility. Legal laws which govern marital unions are acknowledged to provide increased economic protection in the case of a divorce or separation (Carr & Springer, 2010). Moreover, the majority of married couples take out life insurance as they have an increased incentive to provide financial security to their spouse and children in the case of death (Leibenberg, Carson & Dumm, 2012). This would provide adults who is married, divorced, separated or widowed with the financial security to afford private healthcare. Subsequently, adults who are either never married or cohabiting have the lowest equivalent odds of going to a private healthcare facility. According to the NIDS data the majority of this group are situated in the lower wealth quintiles and are young adults. Therefore, it can be tentatively proposed that adults who have never married are still proving themselves economically and have not yet achieved the financial security to afford private hospital fees or medical aid.

In terms of age, the elderly had the highest odds of ever having gone to a healthcare facility in the past year, whilst the young adults had the lowest odds. This pattern concurs with the literature (Otwombe et al., 2014; Zyaambo et al., 2012). Across the lifespan, different age groups are associated with different vulnerabilities to health risks that are determined by both aging and lifestyle choices. This study focused on adults over the age of 15 years and therefore it can be assumed that the health of the adults gradually decreases across the trajectory with old age associated with the worst health outcomes (Sharma et al., 2013; Weeks, 2012). South Africa is undergoing a change in age structure and the elderly

population is gradually increasingly predicted to make up 19.0% of the population in 2030 (Gomez-Olive et al., 2010). This calls for policy planning in order to enable wider coverage and access to specialised care for the unique health needs of the elderly population as the healthcare system is increasingly put under pressure. The odds of going to a private healthcare facility by age will not be discussed here as the findings were perplexing and considered a result of negligible differences between the age groups.

Interestingly, adults residing in both urban areas and traditional areas had equivalent odds of ever having visited a healthcare facility in the last year. This finding is unexpected since the general consensus in the literature from sub-Saharan African countries including South Africa is that urban adults frequent the healthcare sector more than those who reside in rural areas (Musoke et al., 2014; Zyaambo et al., 2012; Njuki, Kimani, Obare & Warren, 2014; van der Hoeven et al., 2012). The apparent increase in the utilization of the healthcare system in recent years by residents of traditional areas can be partially explained as a consequence of the severe drought that has been occurring in South Africa. Rural communities in South Africa are already considered highly vulnerable in terms of resources and disease, and are ill equipped to manage with the water and food insecurity exasperated by the drought. These contextual factors increase the incidence and prevalence of morbidity through dust related diseases, foodborne illnesses, and an acceleration of the onset of AIDS in HIV positive adults due to a weakened immune system from a lack of nutrition (Austen, 2016; Ebi & Bowen, 2016) which could be argued to increase the need for healthcare. Considering the government focus on the roll-out of healthcare initiatives for rural residents in the form of mobile clinics and government clinics, a plausible rise in attendance at healthcare facilities can be assumed.

Adults residing on farms had the lowest odds of ever having visited a healthcare facility when compared to adults residing in both urban and traditional areas. Most of the commercial farm residents would be employees, and the literature has documented farms being associated with harsh socio-economic living conditions, low levels of education, exposure to occupational health risks, insufficient nutrition and isolation. These distal determinants act as risk factors for the development of disease and ill health (Holtman, Shelmerdine, London & Fisher, 2011; Pahwa et al., 2012). Unfortunately, healthcare facilities are often very far from the farms, which are further made inaccessible by a lack of transport routes and high poverty which decreases the likelihood of farm employees utilizing healthcare facilities (Holtman et al., 2011; Zweigenthal et al., 2009). The data highlights that the majority of farm residents are Black African's, and therefore it can be assumed that this situation perpetuates health

inequities for the population group who are already disadvantaged. This gap in the coverage of healthcare accessibility should therefore be placed on the agenda for future healthcare initiatives.

Adults residing in urban areas have the highest odds of going to a private healthcare facility, whilst adults residing in either traditional areas or farms have equivalently lower odds. This finding was expected and reflects the conclusions drawn in a study conducted in the Northern Province of South Africa (van der Hoeven, et al., 2012). The distribution of private healthcare in South Africa is unequal, positioned mostly in wealthier urban areas such as Johannesburg (McIntyre, 2010) where there is a higher employment rate, higher income capacity, and higher standards of living, all of which increase accessibility to private healthcare facilities. In contrast, private healthcare facilities are neither geographically accessible nor financially affordable for adults who reside in traditional areas and farms (Musoke et al., 2014; Njuki, Kimani, Obare & Warren, 2014; van der Hoeven et al., 2012).

The findings from the model without controls showed that White adults had nearly nine times the odds of going to a private healthcare facility in comparison to Black African adults. This result was hypothesised since access to private healthcare is skewed towards the wealthier groups (Beogo et al., 2014). There are noticeable differences in quality of care between the private healthcare sector and the public healthcare sector which translates into health inequities (Macha et al., 2012). In considering possible courses of action, subsidizing medical aid for the poor would be unfeasible at this current time in South Africa (Macha et al., 2012). A more plausible option would be to improve the quality of care and service delivery in the public healthcare sector thereby reducing the health inequities.

5.4 Interaction effect

South Africa is a highly unequal country in terms of the distribution of resources and opportunities that are a result of a history of gender and racial-based discrimination. (Coovadia, Jewkes, Barron, Sanders and McIntyre, 2009; Harris et al., 2011; WHO, 2010). This history can be argued to have shaped the genealogy of different social groups over the life course, impacting their access to resources and opportunities to progress (Bharmal, Derose, Felician & Weden, 2015). The study found that there is there an interactive effect between socio-economic status and demographic determinants on the health-seeking behaviour of the South African population. The interactions selected to be discussed in this section were chosen in consideration of the CSDH framework which attempts to explain the

complex causal pathway through which the social determinants of health influence health inequity outcomes (WHO, 2010).

The findings indicate that both gender and racial inequalities still persist in South Africa. In terms of gender, these inequalities are shown to moderate the health-seeking behaviour of the population in one of two ways. Firstly, the relationship can be moderated through the constraints placed on access to education and employment. Secondly, the effects of education on health related behaviours can be mitigated by the social norms and behaviours expected of each gender (Hosseinpour et al., 2012). The findings suggest that women have a higher probability of ever having visited a healthcare facility for all education levels, whilst the direction of the effect was equivalent for both genders. The literature proposes that as education increases so should engagement in health-seeking behaviour, which is a result of improved cognition and the ability to possess and interpret health-related information (Anselmi et al., 2015; Njuki et al., 2014; Zyaambo et al., 2012). This apparently simple causal pathway is made complicated by the introduction of gender into the equation.

Springer and Mouzon (2011) suggested that the effects of education for men were mitigated by masculinity beliefs. In other words, men often feel the need to represent themselves as macho men according to societal norms and a part of being a masculine male is not to be seen as vulnerable. This theory provides an explanation for the observed interaction as regardless of the level of education, men may refrain from going to a healthcare facility in an effort not to appear weak. Research on gender equity in South Africa has been argued to be one dimensional focusing only on the hegemonic aspect of masculinity (Morrell, Jewkes & Lindegger, 2012). This calls for a new discourse to be developed which addresses how hegemonic masculinity is a barrier to proactive health-related behaviours.

The study also found that being a woman mitigates the effects of employment status on the odds of going to a private healthcare facility through multiple pathways. The literature highlights the presence of gender inequalities in the South African employment sector (Orr & van Meelis, 2014). More men than women are employed in the labour market, whilst women are more likely to either be employed in lower quality jobs with subsequently lower salaries. Moreover, women are most likely to be defined as economically inactive or unemployed, and if employed many choose to pursue a feminised occupation such as a teacher or a nurse. Unfortunately, even though South Africa has made progress in improving equality between the genders through the formulation of gender-based policies, this progress can be argued to

occur only on the surface level as little change has been observed in the actual economic positioning of women (Orr & van Meelis, 2014). Therefore, gender inequalities in the employment sector can be perceived as barriers for women in accessing private healthcare.

The literature reports that stark racial inequalities still exist in post-Apartheid South Africa that mitigate the trajectory of socially marginalized groups through complex causal mechanisms which position these groups at socio-economic disadvantages (Branson et al., 2012; Orr & van Meelis, 2014; WHO, 2010). The interaction effect indicates that racial identity moderates the effects of education on the health-seeking behaviour of previously marginalised groups. It is important to note that this study examined only simple interactions and therefore this interpretation is tentative. Investment in education has the potential to accrue substantial social and economic returns for both the individual and the economy. This return to investment is mitigated by racial inequalities, which are experienced most acutely by Black African adults who obtain a poorer quality of education and tend to complete less years of schooling than White adults (Branson et al., 2012; Spaull, 2015). This education inequality gap can be proposed to have a cascade effect ultimately positioning them at a disadvantage when entering the labour force in terms of employment status and income (Branson et al., 2012). Therefore, the educational equality gap effectively excludes the majority of Black Africans from accessing private healthcare.

5.5 Recommendations and future research

Gender inequality was shown to be an important predictor of health-seeking behaviour. The current dominant hegemonic masculinity discourse in South Africa prevents men from seeking healthcare, indirectly contributing to gender inequalities in health outcomes. This calls for research to be conducted on developing a new multidimensional masculinity discourse which will have the capacity to circumvent the effect of the current discourse (Morrell et al., 2012).

In this study, only socio-economic and demographic determinants were included. Future studies which extend on this model by incorporating the moderating effects of morbidity would be interesting. This was a cross-sectional descriptive study which limits the ability to infer causality from the results. Since this is a unique study in the South African context it would be of interest to replicate it as a longitudinal study. Moreover, the design of the study and the simplistic analysis techniques used also limits the robustness of the findings for the

interaction effects. A more comprehensive understanding would be achieved if examining the effects of interactions over time using a more complex model.

Policy makers can intervene at various points on the social determinants of health. In accordance with the Commission on the Social Determinants of Health, the present study highlighted the importance of targeting the structural mechanisms (i.e. racial, income, gender inequality) when intervening which could be proposed to result in a ripple effect that positively influences health behaviours, and reduces the gaps in health inequities (WHO, 2010). Also, low socio-economic status is highlighted as a deterrent in accessing healthcare. This poses a challenge for public policy as it calls for an increased investment in the healthcare sector with an agenda of reforming the public healthcare sector in terms of quality and accessibility. Such a reform requires a larger budget in the allocation of tax revenue which is a complex matter since the tax base in South Africa is relatively small (Macha et al., 2012).

5.6 Summary

Both socio-economic status and demographic determinants were found to be significantly associated with the health-seeking behaviour of the South African population. Underlying the identified causal relationships are multiple structural inequalities which negatively prevent social groups from receiving healthcare, as well as their accessibility to quality private healthcare. South Africa is unique to the rest of the world due to its history of Apartheid and the inequalities created during that era are shown to still influence the health-seeking behaviour and health outcomes of previously marginalized groups. This study contributed to the limited literature on this topic by providing a descriptive picture of the current situation and identifying those groups most at risk. Finally, even if this contribution can be considered small, it is still relevant nevertheless.

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