Barriers and Facilitators to Accessing and Delivering Chronic Healthcare Services among Rural Areas in Makkah Region of Saudi Arabia: Perspectives of Rural Women and Healthcare Providers

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ABSTRACT

Background: Health disparities exist for rural residents, particularly women, due to multiple, complex barriers to accessing healthcare. Studies from around the world have identified factors influencing women's access to healthcare such as social norms, low education rates, laws, and gender roles. Despite the Saudi Health Ministry's efforts to reduce health disparities and provide comprehensive care for rural regions, Saudi Arabia (SA) still lacks comprehensive healthcare services for rural women. In recent years, the prevalence of chronic diseases has increased significantly in SA and people diagnosed with chronic conditions require continued medical attention and easy access to healthcare services. In SA, very little research has been conducted on the experiences of rural women with chronic conditions and their access to healthcare services.

Aim: The aim of this PhD thesis is to explore barriers and facilitators for accessing, receiving, and delivering healthcare services for rural women diagnosed with chronic diseases (Diabetes Mellitus (DM type 1 & 2) and/or Cardiovascular Diseases (CVD) in rural areas near Taif city in Saudi Arabia.

Methods: A qualitative study, using semi-structured interviews, was conducted remotely. The participants included rural women (n = 13) living with chronic conditions and healthcare providers (n = 15). Participants were recruited from three different primary healthcare centres located in three rural areas and two secondary healthcare facilitates located in Taif city. The responses from participants in the interviews were analysed using inductive-deductive thematic analysis guided by Levesque's conceptual model of access to healthcare from the patient and the providers' sides.

Findings: Several barriers and facilitators were identified including health literacy, language barriers, cultural norms, transportation, and financial constraints which were all found to impact their access to, and experiences of, health services. Healthcare providers identified other barriers including communication difficulties, gender-related cultural norms, resource limitations, and fragmented referral systems. These barriers intersect to make access to healthcare services and management of rural patients' chronic conditions difficult. Barriers can be minimized by a number of facilitators such as family support, maximizing access to two levels of healthcare facilities - Primary Healthcare Centres (PHCCs) and Secondary Healthcare

Facilities (SHCF), long work experience of HCPs, reforming the healthcare system and women's rights.

Conclusion: Despite international efforts to enhance women's health, rural women still struggle to take advantage of improvements in the healthcare system. In the context of rural areas in SA, increasing distribution of PHCCs in rural areas and provision of free services may not necessarily address the healthcare needs of rural women with chronic conditions. Researchers, policymakers, and rural community members need to work collaboratively to develop strategies in order to address barriers and prioritize the rural dwellers' needs. Improving healthcare access for rural women can help meet the country's Vision 2030 objectives which include enhancing accessibility to healthcare services, health quality, and women's empowerment.

ABBREVIATIONS AND ACRONYMS

CVDs - Cardiovascular Diseases

DM - Diabetes Mellitus

HCPs - Healthcare providers

MOH - Ministry of Health

PCAHF- Patient-Centred Access to Healthcare Framework

PHCCs - Primary healthcare centres

SA - Saudi Arabia

SHCF - Second healthcare facility

WHO - World Health Organization

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Finally, completing this thesis represents the culmination of not only my efforts but also the collective support of my family, supervisors and the participants. I'm deeply thankful.

AUTHOR'S DECLARATION

I hereby confirm that this thesis is my original work and all the research presented here has been conducted by me. All sources cited in the thesis has been acknowledged in the references. The thesis has been submitted to the University of Sheffield for a PhD award.

CHAPTER ONE: INTRODUCTION & BACKGROUND

In this chapter, I introduce the general aspects relevant to the research topic. First, I identify the importance of health as a human right, and the relevance of gender and geographic location to access to healthcare and to health disparities. The definition and the importance of accessibility to healthcare is included to provide clarity in relation to rural women's access to healthcare. In the background section, contextual information, including a profile of Saudi Arabia (SA), its demography, culture and religion, and its classification of rural and urban areas is provided. Additionally, this chapter explores the role and position of Saudi women, historically and contemporarily, along with the general status of health and the healthcare system in SA. Chronic diseases and recent management strategies are described in this chapter. Finally, a rationale for undertaking the study is provided.

1. Background

1.1 Health, human rights, and healthcare inequalities

The World Health Organization (WHO) describes the highest standard of mental and physical health as a fundamental human right to be provided without racial, religious, political or social distinctions. It considers the right to health inseparable from, and interdependent on, other human rights (WHO, 2022). This implies that violating the right to health will affect other rights, such as the right to work, education, and freedom, and vice versa. This approach emphasizes that all health facilities should be of good quality and accessible to all age groups, genders, and populations. Some groups, such as women, children and people with disabilities, encounter obstacles in exercising their health rights as a result of discrimination and socioeconomic factors (WHO, 2022). For women, these obstacles are mostly related to limitations on their power over reproductive and sexual health, violating their right to health and freedom, and adversely affecting their health (Sambamoorthi and McAlpine, 2003a, WHO, 2007). The right to access healthcare services is associated with several factors. This PhD study will focus on the barriers and facilitators to accessing and delivering chronic diseases healthcare services for women living in rural areas in Saudi Arabia.

In recent years, there has been increasing interest in the different dimensions of disparity. Health inequalities refer to "the differences and/or gaps in the quality of health and healthcare across racial, ethnic, and socio-economic groups" (Riley, 2012). Health inequalities/disparities affect those who encounter challenges to their health based on their gender identity,

socioeconomic status, religion, and ethnic group or age, amongst other things. International organizations such as the United Nations (UN) have identified the reduction of inequalities including health disparity arising from multifactorial determinants, including access to and quality of care, health status and outcomes, as a critical Sustainable Development Goal (SDG) to be achieved by 2030 (UN, 2023). The following section defines access to healthcare, then discusses gender roles and geographic location as two factors historically linked to health disparity.

1.2 What is access to healthcare services and why is it important?

Different authors have conceptualized health access in various ways. Some authors identify access in terms of ease in reaching required healthcare services, while most define it in terms of the characteristics of healthcare resources, providers, and consumers (Salkever, 1976, Penchansky and Thomas, 1981, Shengelia et al., 2003). A variety of definitions of the term 'access' have been proposed. In this study, I will use a comprehensive definition proposed by Levesque et al. (2013; Pg 4) called patient-centred access to healthcare which is explored in more detail in Chapter three.

"... access as the possibility to identify healthcare needs, to seek healthcare services, to reach the healthcare resources, to obtain or use healthcare services, and to actually be offered services appropriate to the needs for care ..."

Access to health services has a profound impact on personal health outcomes and quality of life. Limited access to healthcare services can lead to high mortality rates, poor health outcomes, and increased rates of chronic diseases (Scheil-Adlung, 2015). Studies have found that rural populations with limited access to healthcare services have higher rates of modifiable health-risk behaviours such as poor diet, smoking, and physical inactivity, and higher rates of preventable conditions such as injuries, obesity, and diabetes (Downey, 2013). By examining a range of variables and health determinants, previous studies have identified high demand for physical and mental healthcare services in rural communities in SA (Abu-Zeid and al-Kassab, 1992, Al-Nuaim et al., 2012, Hussain et al., 2016). In addition, a systemic review found that limited access to healthcare services increased the vulnerability of rural dwellers to chronic diseases (Brundisini et al., 2013).

1.3 The challenges of rural women in accessing healthcare

Evidence collected by the WHO from around 174 countries reveals that 50% of the world's rural population has limited access to effective healthcare services (Scheil-Adlung, 2015). People living in rural areas experience health disparities arising from multiple complex barriers to healthcare access. An examination of geographic differences in the United States found that rural regions scored poorly on various health indicators and women living in rural areas have poorer health outcomes than women in urban areas because of limited access to healthcare (Eberhardt et al., 2001, Chuang et al., 2012). The main obstacles are lack of healthcare facilities, insufficient transportation, and long travel distances. Studies from around the world have identified that the main factors influencing women's access were varied based on the country in which the rural areas were located. This suggests that the differences in the available resources significantly impact the accessibility to healthcare services which is dictated by the geographical location and the cultural factors that are unique to each region and its healthcare system (Bhuiyan et al., 2018, Rechel et al., 2016, Chan et al., 2006).

A study comparing access to, and utilization of, primary healthcare services between the urban and rural regions of the Riyadh province, SA, revealed significant differences between the urban and rural populations (Alfaqeeh et al., 2017). Women in rural areas of SA face more barriers to access healthcare than women in urban areas (Dhaher, 2017, Alanazy et al., 2019). Different strategies have been adopted to help rural residents receive essential care, for example, the Ministry of Health introduced mobile clinics as substitutes for PHCCs. However, rural dwellers stated that the mobile clinics did not provide all desired care, and approximately 93% of participants needed to travel about an hour to a PHCC in another village (Aljasir and Alghamdi, 2010).

In order to provide a better understanding of the SA context where this research was conducted on the barriers and facilitators to access healthcare, the following part provides some background information. It also discusses the changes Saudi women have undergone during the past couple of decades and how these changes have shaped their lives in different aspects.

2. Saudi context

This section is divided into three parts. The first focuses on general information about SA including location, demography, urban and rural areas in SA, and the lives of Saudi women.

The second part outlines the healthcare system, women's health in general, and the impact of the gender gap on women's health. The final part includes a brief overview of chronic diseases and the research aim and objectives. This information helps contextualise the research presented within this thesis.

2.1 Profile of the Kingdom of Saudi Arabia (KSA)

The Kingdom of Saudi Arabia (KSA), a country located in the Middle East, is divided into six main provinces: Eastern, Central, Northern, Northwest, Midwest, and Southwest. The provinces include 13 administrative regions directed by the government (GOV.SA, 2022). Riyadh is the capital city, and the government is monarchical. SA is an Islamic country where two holy mosques are located in Makkah and Madinah, and every year millions of Muslim pilgrims come to Makkah from around the world in the pilgrimage season. Both governmental ministries and private organizations cooperate to provide services for pilgrims (GOV.SA, 2023a). SA has rich and unique cultural traditions and social customs for each region that are mainly affected by a complex interconnection of religion and sociocultural norms (GOV.SA, 2023b). Hospitality, generosity, and family ties are among these. The family in Saudi culture plays an important role and the structure of the community is tribal with a tribe leader who is responsible for upholding tribal traditions and maintaining the unity of the tribe which significantly influences social dynamics within the country (al-Shahri, 2002, Maisel, 2014). However, due to social and economic changes that took place recently in SA, the influence of the tribe and leaders have reduced (Hertog, 2018).

Taif city, where the research was conducted, is located in Makkah province, in western SA (Figure 1.1: Saudi Arabia map) (Yezli et al., 2012). Taif city was selected as there are many rural areas with varied environments and resources surrounding Taif city and a lot of people receiving healthcare from its healthcare facilities, which made it appropriate to investigate the experiences of rural women and healthcare providers in this region. Besides that, it is the city where I lived and worked at healthcare facilities and where I gained my personal nursing experience which allowed me to become familiar with this area.

Figure 1.1: Saudi Arabia map of 13 provinces, and location of Taif city (Yezli et al., 2012)

2.1.1 Demography of Kingdom of Saudi Arabia (KSA)

According to the General Authority for Statistics (GASTAT) of SA, the total population is 32,175,224. Makkah region has the second largest population after the capital city with a population of 8,021,463 (GASTAT, 2022b). Men represent 50.9% of the population, while women represent 49.1%. In terms of age distribution, 24.8% of the population are under 15 years of age, 72% of the population are between 15 and 64, and 3% of the population are 65 or older. The crude birth and death rates per 10,000 are 14 and 2.9, respectively. Life expectancy is 80.9 years for females and 75.3 years for males (GASTAT, 2022a). Makkah region is divided administratively into the capital of the region which is Makkah city and 11 governorates: Jeddah, Taif, Al-Gonfedah, Allaith, Rabigh, Al-Jamoum, Khulais, Al-Kamil, Khermah, Reniya, and Teriba. Jeddah governorate has the largest population, comprising 50.3% of the region's total population. This is followed by Makkah, which makes up 24.2%, and Taif, the third-largest city in the region contributes to 14.1% of the population (667,000) (MOMRA, 2019).

According to the World Bank, the literacy rate for females is 96% and for males is 98% (TheWorldBank, 2022). Among women, 33% are enrolled in the secondary school or equivalent level, while 27% have pursued education in university or college and 2% have achieved higher educational qualifications like postgraduate or doctorate degrees (MOH, 2019). A national survey conducted by the Ministry of Health found that educational

attainment varied significantly across the 13 regions of SA. For example, Riyadh and Makkah have the highest rates of university and college education at 35% and 32% respectively, while in other regions like Najran, Jawf, and the Eastern Province, the rates of university education are lowest at 11%, 16%, and 16% respectively. In general, among males and females, 9% and 5% of the population lack formal education, respectively, while 6% of females and 3% of males are illiterate. In rural areas, 9% of the population lacks formal education compared to 5% in urban areas (MOH, 2019).

2.1.2 Profile of rural and urban areas of SA

The Ministry of Rural and Municipal Affairs (MOMRA) was established in 1975 and is responsible for the development and planning of cities and towns. SA is becoming a highly urbanized country, with approximately 82.1% of the total population living in urban areas and 17.9% living in rural areas (El-Sheikh, 2016). The definition of 'rural' varies internationally, with the United Nations recommending that every country decide its own classification of rural and urban areas based on its circumstances (UN, 2017). The Ministry of Rural and Municipal Affairs is developing guidelines to classify areas within each administrative region into urban and rural based on different indicators. Regions categorized as rural or urban based on population density: those with a high quartile are urban areas while those with a low quartile are rural areas (Al Saffer et al., 2021). In SA, there are about 1718 to 2000 villages and rural areas, and populations living in these areas tend to have local resources with farming as the main source of income (Bassam and Mohammad, 2012, GASTA, 2018). Makkah region is characterized by clusters of sprawling cities, villages, and towns that are situated along valley sides and road corridors. There are 74% of urban clusters in total, and the remaining region is divided among rural clusters (MOMRA, 2019).

2.2 Saudi Arabia's Vision 2030 and its objectives

In 2016, the Saudi Vision 2030 was launched with a strategic plan for different sectors including diversification of the economy, public services, and social and cultural reforms. This vision strives to transform SA's economy from a traditional oil-based economy to a more diverse, innovative, and sustainable economy through tourism, technology, and development of public investment funds. Other service developments include enhancements in infrastructure, education, and health to elevate quality of life. To align with these changes, social reform is needed wherein women's empowerment plays a significant role. It

refers to women's ability to exercise power that allows them to make decisions for their personal and professional matters and influence social change by building self-confidence. It ensures women's participation in all fields: economic, social, political, and cultural and enables women to have equal opportunities as men in education and employment (Chen and Tanaka, 2014, GOV.SA, 2023c). The vision has steadily progressed and created positive impacts on the Saudi citizens and their quality of life by creating employment opportunities, improving public services, and enriching social life. Furthermore, SA became a member of the G20, demonstrating its role as an important contributor to international economic and financial decision-making (G20, 2023).

In light of the focus of this PhD thesis on women's health, the following part is a brief overview of Saudi women from the past to the present as one of the most important aspects of this vision is its focus on women's empowerment and enhancement of women's status (Vision2030, 2023).

2.2.1 Saudi women: past and present

Historically, women in SA have faced cultural and organizational obstacles to participation in education and work (Alamri, 2011). Many polices such as the male guardianship system, gender segregation, and women's driving ban were mostly attributed to gender norms and religious justifications. For example, prior to 2018, women could not drive legally and this restriction was due to societal norms and official policy (Aldosari, 2017). The long history of limited opportunities for women to participate in politics and policymaking has led to their inadequate representation in Saudi Arabia (Aldosari, 2017). Also, there were overlaps between health practices and religious beliefs which affected the health of women especially owing to their subjugation. Thus, the denial of women's rights and persistent marginalization of women has led to increased demands by Saudi women for the reform of those policies that discriminate against women. In response, government leaders have sought to enhance women's rights and empowerment as a part of Vision 2030 which, as mentioned above, aims to bring about social and economic reform in the country (Vision2030, 2016).

Some substantial changes have enhanced women's independence and autonomy in SA. One major change, in terms of women's independence, is that women are now allowed to drive, and adult women above 18 years of age can travel without permission from their husbands or male family members (GASTAT, 2022c). The Women's Labor Force survey indicates that there are improvements in the unemployment rate among Saudi women, which decreased

to 15.7% in the fourth quarter of 2022 compared to 30.8% and 24.4% in 2019 and 2020 respectively (GASTAT, 2023, GASTAT, 2020). Women's education has also undergone tremendous changes, and the traditional role of women in the Saudi workforce has experienced a noticeable shift, with an increasing number of women pursuing diverse careers in various male-dominated fields. It has become more acceptable for women to work in different fields like transportation, finance, and military services. Furthermore, different regulations relevant to women have been changed to guarantee women rights in marriage, divorce, child custody, and inheritance. Marriage for people under 18 years of age is now banned (Kanso, 2019). According to recent statistics, the average age of marriage for both men and women is 20 years. Although these changes can contribute to gender equality and women's empowerment, several challenges remain. As an example, female participation in municipal councils and economic organisations is still lower than male participation (GASTAT, 2022c).

2.3 Healthcare system in KSA

The healthcare system in SA is organized hierarchically and the Ministry of Health (MOH) has divided the health system based on regional health directorates (Al Asmri et al., 2020). Care is provided by three main sectors. The largest provider of healthcare services for the entire population is the Ministry of Health which provides more than 62% of inpatient care through primary healthcare centres and hospitals (Almalki et al., 2011). The second largest sector is government institutions funded by the Ministry of Defence and Aviation Medical Services, National Guard Medical Health Affairs, Ministry of Interior Medical Services, and university hospitals. The third largest is the private health sector (Walston et al., 2008).

In SA, healthcare specialty or secondary care is concentrated in urban areas and primary care is dispersed throughout the country (Al Asmri et al., 2020). As shown in Figure 1.2, there are four levels of care in SA providing primary, secondary, and tertiary services (Al Asmri et al., 2020). The patient has a fixed path through the healthcare system. Primary healthcare centre is the first stop for chronic disease patients to receive basic curative and preventive care, and patients who need higher levels of care are referred by a primary care physician to the second level which provides diagnostic and curative services through outpatient clinics and emergency departments (Walston et al., 2008). For advanced and specialized care, patients are referred to the third and fourth levels. Ministry of Health manages a network of 2121 primary healthcare centres (PHCCs) across the kingdom. In Taif city and its surrounding areas, there are 16

hospitals and 106 PHCCs. In Taif city, there are three main military hospitals and an additional three hospitals operated by the Ministry of Health. These include King Faisal Hospital, which is a second-level medical facility, and King Abdul-Aziz Specialist Hospital, a third-level facility that has a single centre which is the Diabetes and Endocrinology Centre. Additionally, there is a mental health hospital serving the area and one children's hospital (MOH, 2022).

2.3.1 Healthcare system challenges and reforms in SA

Several challenges have been faced by the Ministry of Health to improve the quality of healthcare services at healthcare facilities and improve equitable access for all citizens by offering free services. These challenges include increase in population in SA, increase in healthcare costs beyond allocated budgets, high rates of chronic diseases, inadequate healthcare workforce, and adoption of E-health programmes (Rahman and Alsharqi, 2019). To improve the health sector, both structural and administrative reforms have been applied as a part of the ambitious Vision 2030. Several initiatives have been launched by the SA government and Ministry of Health. For example, the National Transformation Program 2020 (Vision2030, 2021) involves improving quality, increasing access, and enhancing value in the form of insurance coverage for healthcare. Encouraging Public Private Partnerships (PPPs) is one of the strategies adopted to expand healthcare services and increase patient options. Digitalization and use of technology also play an essential role in this transformation. Recently, the Ministry of Health adopted different technological platforms/applications to improve the experience of healthcare services for patients. The majority were launched and actively used during the Covid-19 crisis (Alghamdi et al., 2020). Digital Health Platforms and their launch dates are shown in Figure 1.3. In addition, the government expects all the transferred records to be converted to a unified healthcare record by 2030 (Vision2030, 2021).

WHO ranked SA's healthcare system 26 out of 191 countries (Al-Hanawi et al., 2019). This status was achieved because the Saudi government's Vision 2030 advocated a new strategic plan for restructuring the health sector in three phases (Vision2030, 2016). During the first phase, capacity building and establishment of clinical systems were expected to occur between 2018 and 2020. During the second phase, between 2021 and 2025, the Ministry of Health is targeting polices, the workforce, and digitalizing the healthcare system. The third phase will adopt the National Hospital Insurance (NHI) to provide care for the population, which will be achieved between 2026 and 2030. Recently, it has been noticed that some of these changes

yielded positive in improvements of healthcare indicators and continuation of this transformational approach is hoped to attain progress in the healthcare field in SA (MOH, 2018). Despite this, the system continues to face challenges, including lack of preventive care, shortage of healthcare workers and health disparities between urban and rural areas (Gurajala, 2023).

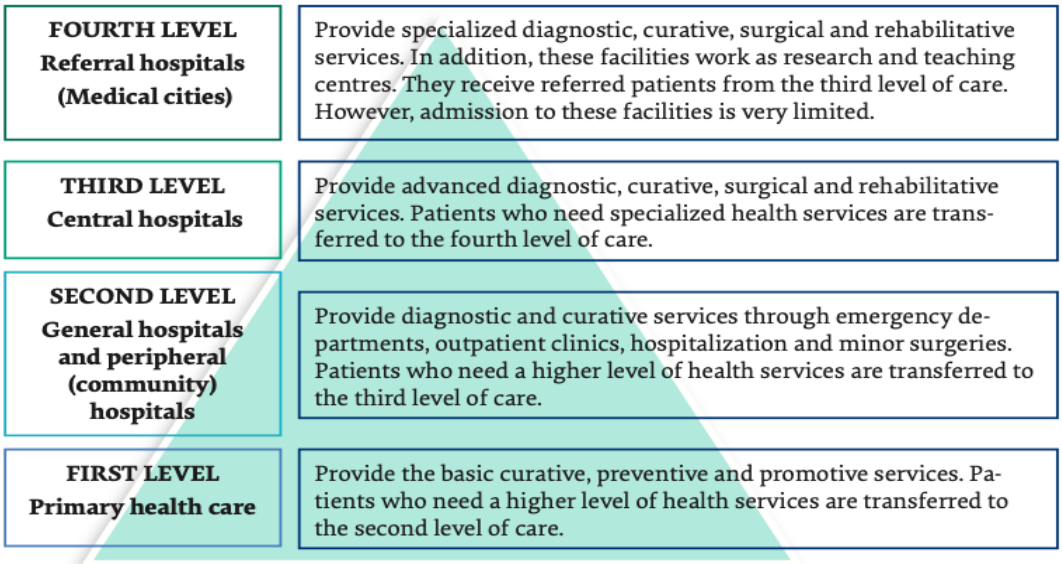


Figure 1.2: Levels of care in Saudi Arabia healthcare system (Al Asmri et al., 2020)

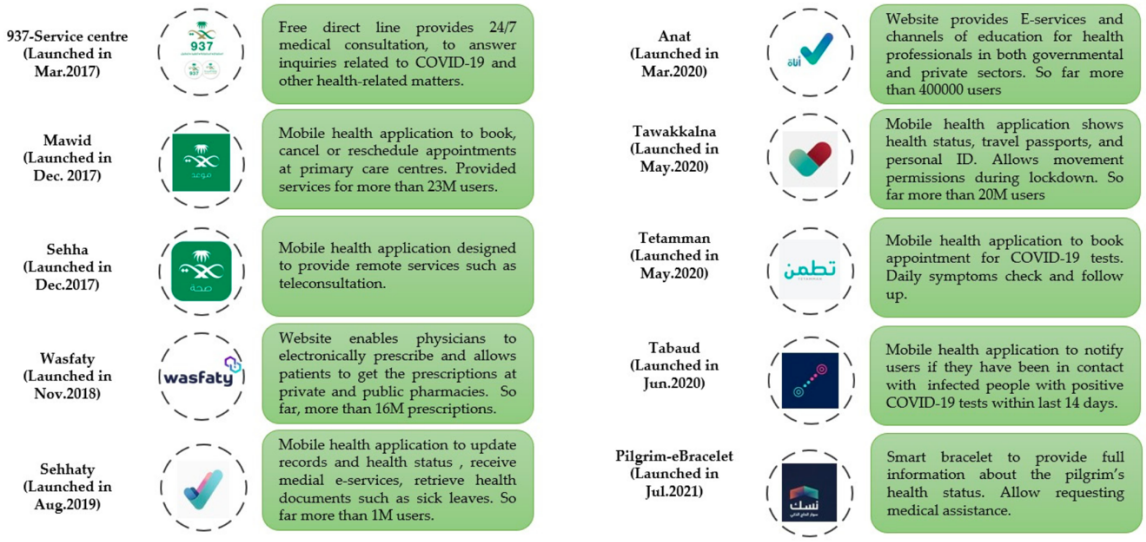


Figure 1.3: Digital Health Platforms and their launch dates (Alghamdi et al., 2021)

2.4 Overview of women's health conditions

The prevalence of chronic diseases has increased significantly in SA. The Saudi Health Interview Survey (SHIS) found diabetes, hypertension, and their risk factors alarmingly widespread among the Saudi population (Alzahrani et al., 2023). Diabetes (DM) and (CVD) are the leading causes of death among women in SA, and the prevalence of chronic diseases among women in the country are dramatically increasing (Daoud et al., 2016). Findings indicated that the prevalence of risk factors of CVD including obesity, hypertension, diabetes, and hypercholesterolemia were higher among women (Daoud et al., 2016, Alshaikh et al., 2016). According to the SA household survey, there is a high prevalence of CVDs among females (GASTA, 2018). Diabetes affects more men than women, with rates of 14.8% and 11.7% respectively, although hypertension affects 8.4% of women compared with 7% of men. However, in terms of maternal health, there have been improvements in women's health, reflected in the maternal mortality ratio per 100,000 live births which has decreased from 15.7 in 1990 to 9.42 in 2022 (Kassebaum et al., 2014, MOH, 2022).

The prevalence of chronic diseases varies by region. For instance, Makkah is one of the regions in SA that has the highest rate of chronic diseases (20.5%), particularly cardiovascular diseases (CVD), hypertension (HTN), and diabetes mellitus (DM) (GASTA, 2018). In terms of differences in health status in the rural and urban areas in SA, a comparative study on obesity and physical activity (PA) among adolescent men and women in urban regions, rural farms, and rural desert settings revealed high levels of obesity among rural desert women (51%) (Al-Nuaim et al., 2012). It was evident that Saudi citizens are not utilising the benefit of free healthcare services, with 75% reporting that they never take a routine medical check-up. Cultural practices, unhealthy eating habits, and low physical exercise all contribute to increased chronic diseases (Al-Nuaim et al., 2012). Also, in a study conducted in rural western SA, it was predicted that rapid socioeconomic development would result in an increase in diabetes prevalence (Fatani et al., 1987). The cost of diabetes alone was estimated at 17 billion Riyals and is expected to rise to 43 billion Riyals (Mokdad et al., 2015). According to a study published by the National Centre for Biotechnology Information (NCBI) which examined the utilization of healthcare resources and healthcare costs associated with cardiovascular and renal complications among diabetic patients, the total cost of diabetes in SA was approximately 67.9 billion US dollars in 2022 (Al-Jedai et al., 2022).

2.4.1 The gender gap and women's health

Despite women having a longer life expectancy, statistics reveal that women have poorer health status compared to men (WHO, 2007). WHO has warned that gender inequality places women's well-being at risk, as a result of barriers faced by them. Social norms, unequal laws, and gender roles are considered influential factors in women's health, as are gender-role conflicts and low education rates (WHO, 2007). A literature review conducted in SA on gender inequality and its association with public health highlighted how differences in basic human rights such as education, marriage, and job opportunities resulted in poor health among Saudi women (Mobaraki and Soderfeldt, 2010). In the past a woman could not receive healthcare that required invasive medical procedures without the signed consent of her husband, or without the accompaniment of a male guardian. In rural areas of SA, which are more conservative than suburban areas, these restrictions are even greater. For example, rural culture forbids women from being examined by a male obstetrician (Mobaraki and Soderfeldt, 2010). A qualitative study found that women's health was negatively affected by mobility restrictions due to not being allowed to drive, as well as due to their care-giving roles as mothers, in most cases without their husbands' support, and due to marital conflicts (Alyaemni et al., 2013). For chronic disease, a study found variations in risk factors, epidemiology, and healthcare provisions for CVDs between men and women due to gender-related factors (Rawas et al., 2012).

The situation in SA indicates the existence of complex and interrelated factors that influence women's health and life in general. The traditional gender roles and power dynamics in Saudi culture ensure male dominance and gender inequality in the region. Also, the overlap of healthcare practice with religious opinions such as provider gender preferences or accompaniment of male guardians restricts women's access to healthcare. This is indicated by the Global Gender Gap report, published by the World Economic Forum, 2023, in which SA was ranked 131st with a score of 0.6370 which is relatively low compared to other countries (Statista, 2023). The low ranking of Saudi Arabia highlights the challenges faced by the country in achieving gender equality and women's empowerment even with the improvements made in women's rights in SA.

2.4.2 Gender roles and women's health literacy

The concept of health literacy was first introduced in the 1970s and it refers to the competence and capability of an individual to maintain and/or promote his/her health in the modern age (Simonds, 1974, Kickbusch and Maag, 2008). Health literacy can be of three types, namely functional, interactive or communicative, and critical health literacy, as defined by (Nutbeam, 2000). Functional health literacy is related to the patients' education level and the ability to read and write, while interactive and critical health literacy result from effective interactions with healthcare providers (Nutbeam, 2000, Liu et al., 2020). While functional health literacy assists in effective management of health-related situations in daily life, interactive health literacy requires cognitive and social skills to extract and comprehend information from various sources. Critical health literacy requires an even more advanced set of cognitive skills to critically analyse available health information and use this information to enhance health outcomes (Nutbeam, 2000). These distinctions are crucial for comprehending the broader implications of health literacy on accessing chronic services and health outcomes, particularly for women.

A study conducted in Saudi Arabia found a significant difference in health literacy between men and women especially regarding reading and understanding health information. There were also significant differences in reading and decision-making based on participants' age. In general, the prevalence of health literacy in Saudi Arabia was found to be only 54.4%, indicating that only this percentage of the population could use the available health services effectively and manage their own health (Alahmadi, 2023). A combination of several factors contributes to a low level of health literacy in Saudi Arabia, including the history of gender inequality and women's position in the Saudi context, women's education levels, and the way these factors interact with each other. Gender inequality, low education, and cultural norms have a pronounced influence on women's health literacy (Clouston et al., 2017). Studies have consistently demonstrated that poor health literacy levels are more prevalent among rural women, and that these levels are inversely related to educational attainment and women empowerment (Lam et al., 2013, Kassim and Ndumbaro, 2021, Andiwijaya et al., 2022). The likelihood of women with higher education levels possessing adequate health literacy is higher which enables them to access, understand, appraise, and effectively apply health information (Maricic et al., 2021, Passi et al., 2023).

Saudi cultural traditions, along with women's gendered status and living in a patriarchal society, have historically disadvantaged women. This has contributed to limited authority of women in their households along with their ability to make decisions related to health and medical treatment which has ultimately impacted their health literacy and health outcomes in general (Aldosari, 2017). In other similar societies too, gender inequalities have restricted women's access to education and employment, affecting their health literacy and health outcomes (Kassim and Ndumbaro, 2021, Nair et al., 2022). According to the WHO, gender gaps in education have a substantial impact on health literacy, emphasising the need to address gender inequalities in education to improve health literacy (WHO, 2021). Although there is educational parity in many countries, females are less likely than males to be educated, employed, or trained, contributing to lower health literacy levels in women. A recent study conducted to evaluate e-health literacy among Saudi women found that their levels of e-health literacy were influenced by their age, education, and income level (Almoajel et al., 2022). In relation to chronic diseases, a study investigated gender differences and its association with health literacy levels. It found that factors impacting health literacy differ by gender. For women, factors such as age, income, education background, and the duration of chronic disease and treatment affected their health literacy level (Sun et al., 2022). In general, it was seen that older women, women with low education and income, and women with a lower duration of chronic disease diagnosis and treatment had low health literacy levels (Sun et al., 2022). It is also important to consider cultural factors when determining which language and communication styles are acceptable for women. Women's health literacy may be further impeded by cultural taboos or the lack of vocabulary to describe specific health conditions, which further limits their ability to speak about health issues (Dimitrov et al., 2022).

2.5 Chronic diseases and management

According to the National Centre for Chronic Disease Prevention and Health Promotion, chronic diseases are health conditions that require ongoing management over a period of several years or lifelong (CDC, 2022). Among the world's leading causes of death are chronic diseases, such as DM, chronic kidney disease (CKD), and CVD (Harris, 2019). A number of risk factors contribute to the development of these diseases, including tobacco and alcohol use, poor nutrition, and inactivity. The likelihood of developing chronic diseases increases with age and is caused by a combination of genetics and lifestyle factors such as diet, exercise, and smoking status. The American Heart Association defines CVDs as a group of

disorders of the heart and blood vessels (AHA, n.d.). Diabetes results in elevated levels of blood sugar and is of two types - type 1 and type 2 of which, type 2 is more common among adults (WHO, 2020). DM is one of the major causes of kidney disease, heart attack, and lower limb amputation (Lavery et al., 2010).

Chronic diseases can be controlled more effectively by enhancing their prevention and management. As a result of a decline in the prevalence of chronic diseases, life expectancy at age 70 has increased (Duncan et al., 2022). Management of chronic diseases has evolved from being completely dependent on healthcare facilities and interventions to being multidisciplinary by including patients, healthcare providers, and the society in general (Huard, 2018). Screening and early prevention of chronic diseases, the patient-centred approach, self-management, and use of e-health are all effective strategies in preventing and managing chronic diseases (Whitehead and Seaton, 2016). Despite this, there are still inequalities between rural and urban areas in terms of access to healthcare services and health outcomes related to chronic diseases (Alhabib et al., 2020). Several significant barriers in access to specialized healthcare services were highlighted in two studies that were conducted in New Zealand for patient groups diagnosed with CVDs and chronic obstructive pulmonary diseases (COPD) (Tane et al., 2022, Stokes et al., 2019). Living with chronic illnesses such as DM and CVD increases many challenges that may be compounded by being rural residents and women who endure socio-cultural constraints that affect their health and quality of life. I selected Taif governorate and its rural areas, located in Makkah province, for this thesis because it is one of the regions in SA that has the highest rate of chronic diseases (GASTA, 2018).

2.6 Research aim and objectives

This PhD thesis aims to explore the barriers and facilitators for accessing, receiving, and delivering healthcare services (primary and secondary) from the perspectives of rural women diagnosed with DM and/or CVD, and healthcare providers in rural areas near Taif city. The primary objectives of this thesis are:

1. To explore personal and organizational barriers to accessing, receiving, and delivering DM and/or CVD healthcare services in rural areas from rural women's and HCPs' perspectives
2. To explore individual and organizational facilitators that help enhance DM and/or CVD healthcare services in rural areas.

3. To identify the interrelated perspectives of rural women and HCPs influencing the accessing, receiving, and delivering of healthcare services for DM and CVD management
4. To identify the differences among rural women's experiences in utilizing the primary and secondary healthcare services

2.7 Significance of the study

Despite the Saudi Health Ministry's efforts to reduce health disparities and provide comprehensive healthcare services, rural regions in SA still lack adequate healthcare services, and there are significant disparities in access to healthcare and health outcomes between rural and urban areas, and between women and men (Alramadan et al., 2018) . To better understand these disparities, further research is needed, particularly on the barriers and facilitators faced by rural women in accessing healthcare services for chronic diseases. Women's health deserves particular attention as they experience more barriers to healthcare than men, because these barriers affect wider family health since women are the primary caregivers. The International Council on Women's Health Issues classified women's health as one of the main determinants of health and well-being throughout the world (Davidson et al., 2011). Therefore, women's health and women empowerment were two of the main objectives of the Saudi 2030 vision. The social transformation of female lives in SA fosters research in different fields, particularly into how this complex shift will impact women's health in the future. The inclusion of healthcare providers' perspectives, which were not covered in previous studies, will provide valuable insights into the gaps in healthcare delivery among rural populations. Finally, identifying the issues and contributing factors will help in the development of care and capacity-building. A social constructivist approach, as adopted in this thesis, is important as it enables us to reflect on the distinct experiences of rural women, providing a deeper reflection of their experiences in accessing healthcare within the social and cultural contexts. This approach will be discussed more in the methodology chapter.

The timeline of the thesis work is given in Appendix 1: Gantt chart.

Conclusion

This chapter provided a brief introduction to the accessibility of healthcare and inequality in healthcare in SA based on gender by focusing on the disparities resulting from

Saudi cultural traditions. The background included in this chapter provided an overview of the context of SA including the demographic profile, healthcare system, and women's health. In the following chapter, I review the existing literature and evidence on rural access to healthcare in SA and synthesise the findings with the help of international evidence.

CHAPTER TWO: SCOPING REVIEW

In order to systematically synthesize the knowledge that exists regarding barriers and facilitators to rural women's accessibility to chronic diseases healthcare services, this chapter presents a scoping review of the published literature. The aim is to present an overview of research evidence on healthcare access among rural residents and healthcare providers in SA. The literature search was conducted using keywords relevant to healthcare access in rural areas and healthcare providers in SA. The retrieved studies were categorized into three main themes and compared with healthcare access barriers and facilitators of rural dwellers outside SA. This comparison helped highlight unique challenges and opportunities in the SA context. The final section of this chapter identifies the research gap and highlights the significance of the contributions of this PhD thesis to the existing body of knowledge.

2. Research method

A scoping review was undertaken utilising the Arksey and O'Malley (2005) methodology framework to guide the process, which has five stages (1) identifying the research question, (2) identifying relevant studies, (3) selecting studies, (4) charting the data, and (5) collating, summarizing, and reporting the results (Arksey and O'Malley, 2005).

2.1 Identifying the research question

Q1: What are the experiences of rural residents, with a focus on rural women, and healthcare providers in accessing and providing healthcare services in rural areas of SA?

Q2: What barriers and facilitators do rural dwellers in SA encounter in accessing healthcare?

2.2 Identifying relevant studies

The scoping review includes published peer-reviewed articles retrieved from the following electronic databases: MEDLINE/PubMed, Google Scholar, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, Saudi Digital Library (SDL), EMBASE, PsychINFO, ASSIA, and Web of Science. Initial research enabled me to determine the inclusion criteria for searching and filtering the relevant sources (Table 2.1 Summary of the inclusion and exclusion criteria for study selection).

2.2.1 Inclusion criteria

- Participants: (i) Adult rural residents, women and men, equal to or greater than 18 years of age. SA classifies adults as 18 years or older. Therefore, limiting the search to a specific age group may produce fewer studies. (ii) Healthcare providers currently working or previously worked at healthcare facilities in SA rural areas.
- Timeframe: 2000 - 2023. From the initial research, it was evident that access barriers were not investigated before 2000. Also, this timeframe helped identify barriers after changes were made to the healthcare system in SA.
- Languages: English and Arabic
- Concepts: Health access disparities; rural areas; barriers and facilitators to access and deliver healthcare; rural women; healthcare providers.
- Context: Healthcare facilities in SA
- Sources and types of evidence: Peer-reviewed studies (qualitative, quantitative, and mixed methods studies)
- Type of publication: Journal articles. Book reviews, editorial articles, conference abstracts, and articles focusing on children and teenagers (individuals younger than 18 years) were excluded.

Tale 2.1: Summary of the inclusion and exclusion criteria for study selection

Criterion	Inclusion	Exclusion
Time period	2000 - 2023	Any study outside these dates
Language of article	English or Arabic	Languages other than English and Arabic
Study focus	Health access disparities; rural areas; rural women and healthcare providers' experiences in accessing and delivering healthcare services	Outside these topics
Type of publication	Research article published in a peer-reviewed journal	Any article that was not a research article and/or unpublished
Health services	Rural healthcare services	No reference to rural healthcare services
Geographical place of study	Saudi Arabia	International studies
Population and sample	Adult rural residents and rural women aged 18 years or above Healthcare providers working or having previous experience in rural healthcare facilities	Articles focusing on children (individuals younger than 18)

2.3 Study selection

A population, exposure, and outcome (PEO) framework was used to identify the fundamental concepts of the scoping review question. PEO is widely used in qualitative research; however, not all its elements apply to the research question. In this review, P (population) and E (exposure) were defined as adult rural people and healthcare providers, and experiences of rural women and HCPs respectively. Outcomes was not relevant to the research question. Two search phases were conducted to find relevant studies: phase I was conducted between 2020 and 2021, and phase II was conducted between 2021 and 2023 to identify updated studies. Both phases were conducted using the same inclusion criteria and strategies.

After determining the review question elements, I used the CINAHL/PubMed Mesh subject headings feature to identify the most relevant search terms. This feature clarifies the definitions for each term used in the search process to determine the accurate meaning of research terms. Broad keywords such as 'rural health', 'rural women', and 'health access disparities' were used

to determine the research that has been carried out in this area for SA, followed by narrower keywords such as 'access', 'healthcare', 'barriers', 'facilitators', and 'enablers' (See Appendix 2: Examples of database search strings). I added some keywords because I noticed that there were differences in the use of specific terms in SA. For example, different studies used different terms such as 'impact on patient satisfaction', 'appointment attendance', and 'compliance rate'. These terms were commonly used to investigate factors related to patient dissatisfaction, which can reveal some important barriers. Flexibility was required in considering how terms may be relevant to the review. In addition, I included all studies that identified barriers experienced by rural populations and rural women, regardless of diagnosis, type of healthcare service, or region of SA, so as to identify the experiences of rural areas in general. Inclusion of various diagnoses would help differentiate barriers relating to specific health conditions or age groups.

The PRISMA flow diagram (Figure 2.1) shows the two phases of the study selection process. In phase I, 965 articles were initially retrieved. After removing duplicates (490) using endnote, 475 articles remained which were screened by scanning their titles. Abstracts of specific articles were screened if they appeared relevant. Articles that did not meet the inclusion criteria 450 were excluded, following which 25 articles remained. To generate more studies, I reviewed the reference lists of included articles; however, no studies were found. After consolidating the results, 25 articles were thoroughly screened, of which 12 were excluded, and 13 remained for charting. Among the 12 excluded studies, four studies focused on patient-provider communication as a barrier. In another four studies, the factors contributing to patient dissatisfaction were not explained. Of the remaining studies, two was interventional and the other two did not include rural residence.

The second phase of the scoping review involved identifying updated studies published between 2021 and 2023. In this way, all relevant studies in this field were retrieved. In total, 300 articles were retrieved from different databases. After removing duplicates (100), 200 studies remained and were screened by scanning their titles. A total of 190 articles were excluded as they did not meet the inclusion criteria. From the 10 remaining studies, four studies were excluded after thorough screening. The remaining six articles were reviewed, and one was excluded from the selection process. All excluded articles were removed because they did not directly address the scoping review research question. At the end of phase II of the study selection process, five studies remained (See Figure 2.1: Study selection PRISMA flowchart).

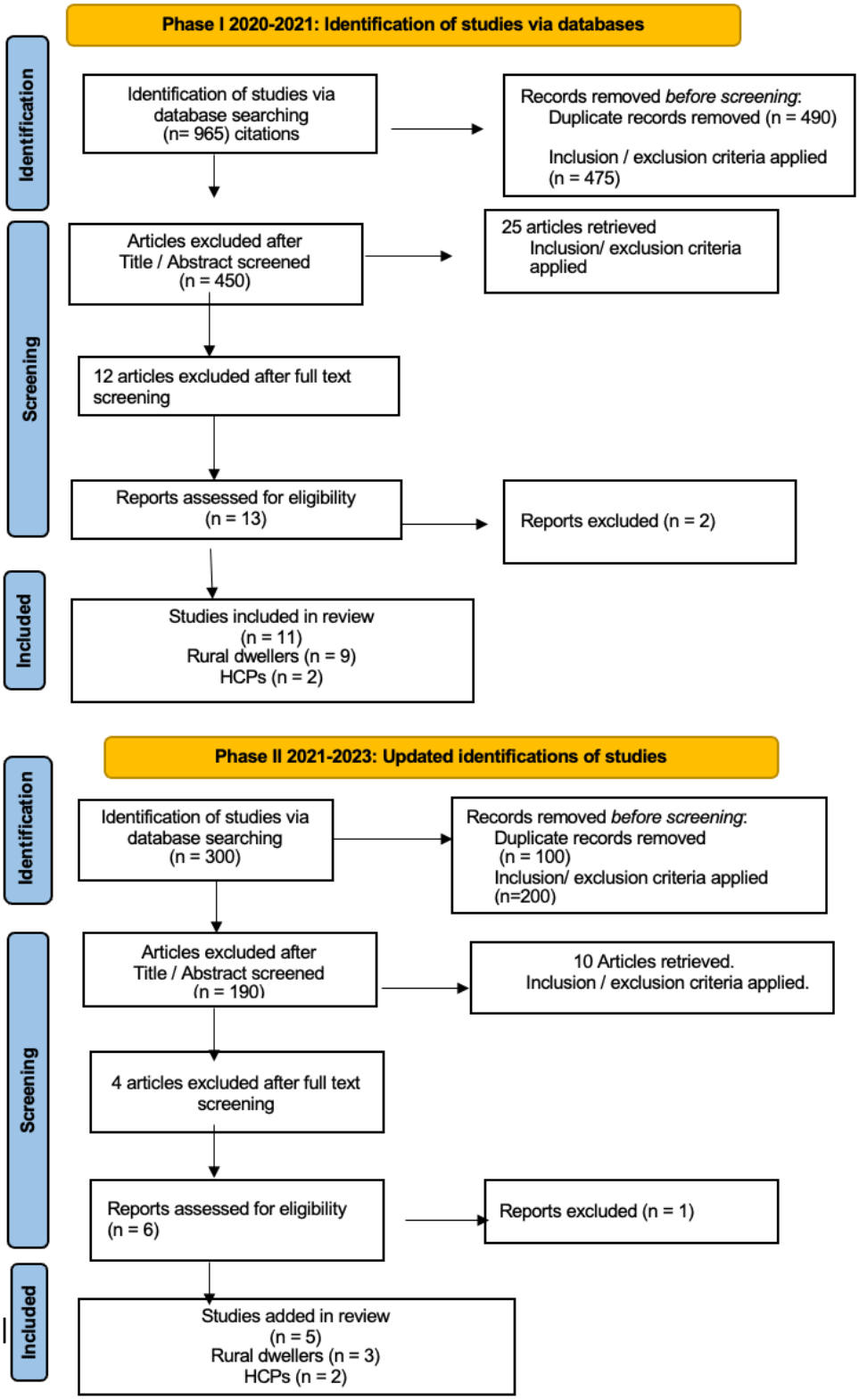


Figure 2.1: Study selection PRISMA flowchart

2.4 Charting the data

To chart the data from the studies, a table/matrix was used. The assessment included citation details; aim; sample and setting; study design and method; measurement and analysis; and the key findings. Assessing the quality of data is not imperative as this is a scoping review, not a systemic review (Grant and Booth, 2009). However, in the context of my PhD thesis, a critical assessment of the relevant existing literature is essential. To accomplish this, I utilized the Mixed Methods Appraisal Tool (MMAT) as a guide for evaluating the quality of the scoping review studies (Hong et al., 2018). Below is a critique of these studies, following the presentation of their findings.

After completing the charting of 13 studies retrieved in phase I, two articles were excluded because they were not related to the scoping review aim (articles did not include rural participants with one focusing on the determinants of misconceptions of DM). Thus, in phase I, 11 studies were included in the scoping review. In phase II, six studies were assessed for eligibility and one study was excluded because it did not describe rural dwellers 'experiences of accessing healthcare. Thus, in phase II, five studies were included in the scoping review. See Table 2.2: Summary of selected studies and Appendix 3: Scoping review matrix for more details about the selected studies.

Table 2.2: Summary of studies included in the scoping review

No.	Authors	Year	Study design/sample
1	Alhamad M A, Almulhim M Y, Alburayh A, et al.	2023	A descriptive cross-sectional study; 154 participants
2	Balharith et al.	2022	A quantitative cross-sectional survey; 500 participants
3	Habib, S., Khan, M.A. and Hamadneh, N.N.	2022	A cross-sectional survey, 529 respondents
4	Alanazy ARM, Fraser J, Wark S	2022	Qualitative hermeneutic phenomenology; rural and urban emergency medical services; urban (n = 10) and rural (n = 10)
5	Mastor A.M. Alshahrani et al.	2021	Cross-sectional study; 134 physicians
6	Alanazy, W. and Brown, A.	2020	Cross sectional survey; 242 pregnant women in third trimester
7	Alanazy, W., Rance, J. Brown	2019	Qualitative exploratory study: healthcare professionals who provide care during antenatal and pregnant women
8	Abdel-Aziz, S.B., et al.	2017	Cross-sectional study: 816 adult Saudi women aged ≥ 30 years attending for routine primary health services
9	Alfaqeeh, G. et al.	2017	Quantitative study; 880 patients from the selected urban and rural primary healthcare centres, 56.1% female respondents
10	Dhaher, E. A	2017	Cross sectional survey; 151 Saudi women in their late third trimester at the obstetrics and gynaecology outpatient clinics
11	Waleed Hussain et al.	2016	Retrospective cross-sectional study; 250 adults who attend outpatient clinics in six hospitals; females were 48%
12	El Bcheraoui, C. et al.	2015	10,735 participants completed Saudi Health Interview Survey (SHIS) - a national multistage survey
14	Khan, A. R., Al-Abdul Lateef	2012	Quantitative cross-sectional study; 535 diabetic patients from three chronic disease centres
13	Alghanim, S. A.	2011	Quantitative; all PHC physicians who work at the Ministry of Health PHC Riyadh region
15	Khan, A. et al.	2011	Cross-sectional study; GPs working at different PHCs and 150 physicians working at different PHCs
16	Mahfouz, A.A.	2007	Quantitative; 180 patients who used emergency facilities, 33 from urban PHCCs and 147 from rural PHCCs

2.5 Collating, summarizing, and reporting the results

In total, 16 articles were included in this scoping review. Among them, there were two qualitative studies and 14 quantitative studies. Various studies contributed to identifying gaps. For example, two studies compared access to PHCCs among rural and urban residents; another two investigated the access of rural areas to mobile clinics; four studies focused on the factors that influence patient compliance and covered challenges to access care for rural and urban areas for different diseases such as diabetes, rheumatoid arthritis, and renal diseases; five studies examined the accessibility of healthcare in women and maternal health; and five studies focused on HCPs' working experiences in rural areas.

The results are divided into three main themes based on the scoping review questions. Theme 1: Experiences of rural dwellers in accessing healthcare services – Subtheme: Experiences of rural women. Theme 2: Experiences of healthcare providers in rural areas. Theme 3: Facilitators for accessing/delivering healthcare in rural areas. This helped illustrate the context of rural areas in relation to the accessibility reported by various studies. Results were categorized based on similarities in the findings.

2.5.1 Results

Theme 1: Experiences of rural dwellers to access healthcare services in rural areas

Although the majority of the included studies identified rural-urban participants and did not specifically focus on rural areas, they provided an overview of accessibility from a variety of perspectives and suggested that rural dwellers do struggle to access healthcare. A national multi-stage survey conducted in 2013 in all 13 regions of SA to identify barriers to accessing healthcare found that the barriers mainly included personal behaviour with access and seeking healthcare services. Findings showed that despite the availability of healthcare services, Saudi citizens sought healthcare only when sick or in emergencies (El Bcheraoui et al., 2015). This finding suggests that factors such as beliefs and practices regarding health may have a greater influence on healthcare utilization than physical accessibility to healthcare services. The distance and the geographical location of the rural areas was one of the main challenges for rural dwellers. A study conducted by Alfaqeeh (2017) compared the access and utilization of primary healthcare among rural and urban areas in Riyadh region and found that patients from

all areas (rural and urban) were highly satisfied with PHCCs. However, there were significant differences between respondents from urban and rural areas with respect to income level, education level, timely receipt of blood tests, and opening hours of PHCCs. Additionally, the cleanliness of the centres, and the availability of health prevention and promotion services were primary barriers for rural patients (Alfaqeeh et al., 2017). To improve accessibility to primary care services in rural areas, mobile clinics were employed. The results of a quantitative cross-sectional survey conducted on participants attending nine mobile clinics indicated that 98% of patients were satisfied with their treatment. However, 11% of respondents (N=500) reported having difficulties with the clinic's working schedule (Balharith, 2022).

The challenges faced by specific groups diagnosed with various diseases were defined in some studies. A retrospective cross-sectional study assessing the experiences of rheumatoid arthritis (RA) patients found delayed diagnosis among rural residents. In this study, rural populations faced challenges in timely access to specialized healthcare for RA, which points towards the finding that geographical distribution significantly influences the timeframe for diagnosing RA, with rural patients experiencing greater delays than urban patients (Hussain et al., 2016). One study examined the challenges faced by patients with end-stage renal disease (ESRD) when adhering to haemodialysis treatment, especially rural residents. Rural isolation and a lack of specialized nephrology services were barriers encountered by patients with ESRD which resulted in an increase in hospitalizations and visits to the emergency department (Alhamad et al., 2023).

Upon further investigation of the issues faced by rural dwellers regarding healthcare access, it became evident that the issue was multifaceted. Considering that this scoping review delved deeper into the topic of healthcare access, it was particularly important to focus on the experience of women in this area. The socio-cultural norms, economic constraints, and the specific health needs of women presented additional barriers to accessing healthcare in rural areas. Studies investigating rural women's healthcare access are discussed under the following subtheme.

Subtheme 1.1: Experiences of rural women in accessing healthcare

The majority of the studies included in this scoping review covering rural women's experiences provided insights into the experiences of rural women in accessing healthcare. Most of these studies focused on the accessibility to antenatal and reproductive services. Two

studies assessed factors influencing women's attendance at antenatal care appointments in Riyadh and surrounding rural areas and identified the impacts of health beliefs and seeking health behaviour among women. Alanazy and his colleagues revealed that mothers believe antenatal care is only necessary in emergency situations (Alanazy et al., 2019; Alanazy and Brown, 2020). In addition, mothers often did not attend appointments because they believed God would give them health (Alanazy et al., 2019). Furthermore, the level of health literacy could hinder patients from receiving healthcare (Dhaher, 2017, Alanazy et al., 2019). Both studies, conducted in different settings, found that women had difficulty understanding maternity education material, and that 56% (N=151) did not know about the existence of maternity services. In another study, the same researchers found an association between health literacy and delayed care among women (Alanazy and Brown, 2020). Additionally, through lack of understanding about the importance of attending maternal visits, families and relatives discouraged women from attending appointments. This, to some extent, explains the impact of family on personal decisions in the Saudi culture. All these factors – perceptions of health needs, confidence in making health decisions, and inability to navigate the healthcare system determine the rural women's experiences in accessing healthcare.

An additional factor indicated in these studies was the cultural perspectives and practices that were identified as some of the main barriers to accessing healthcare. Dhaher (2017) noted the impact of cultural and environmental factors preventing women from accessing reproductive healthcare services, arguing that participation in household decisions was one of the variables used to measure women's empowerment and gender autonomy. Such participation is widely used in the literature because it relates to women's decision-making and gender roles in accessing healthcare (Kawaguchi et al., 2014). Surprisingly, 62% of women (N=151) said they had limited power to make household decisions, 25% said they needed their husbands' permission, and 53% needed to be accompanied by male family members. In the same study, 72% (N=151) of women were concerned about the gender of healthcare providers, preferring female providers. A similar barrier is present in breast-cancer screening - women said it was not acceptable to be examined by a male. It has been indicated that such barriers are associated with education levels and economic status of participants (Abdel-Aziz et al., 2017). Participants also said that work and family commitments affected their attendance at maternal visits. These findings reveal significant obstacles for accessing healthcare in the sphere of community culture.

One of the main barriers for women was the availability of transportation. About 51% of women (N= 242) said that transportation hindered their access to healthcare because they were dependent on husbands or fathers to take them to clinics (Alanazy et al., 2019; Alanazy and Brown, 2020). Although some studies were conducted after women were given the legal right to drive, transportation and distance to healthcare were still cited as barriers for women not only in SA, but in different international studies (Stewart et al., 2018, Neely and Ponshunmugam, 2019). Women also faced some organizational challenges in utilizing maternal healthcare services, for example, challenges in communicating with healthcare providers, particularly foreign physicians who did not speak Arabic (Abdel-Aziz et al., 2017, Alanazy et al., 2019). Other participants indicated similar barriers in understanding health professionals (Alanazy and Brown, 2020). In contrast, Alfaqeeh (2017) found no significant association between the residential region, rural or urban, and patient-provider communication. Although all healthcare services can be utilized free of charge, patients preferred the private sector (Alanazy et al., 2019). However, 41% (N= 242) found payment for private hospitals an obstacle. One of the barriers rural women encountered in accessing healthcare was lack of specialist facilities. The location of healthcare facilities, long waiting times, inadequate clinical facilities, poorly trained professionals, and limited essential equipment were reported by women as organizational barriers (Mahfouz et al., 2007, Dhaher, 2017, Alfaqeeh et al., 2017, Abdel-Aziz et al., 2017, Alanazy and Brown, 2020).

A recent study conducted in 2022 by Habib et al. aimed to assess gender differences in the unmet healthcare needs of women and men in SA, concentrating on factors affecting both rural and urban access to healthcare services. This study confirmed that there is a significant difference in healthcare access across gender. Although the study examined gender disparities in healthcare, its findings may have implications for the provision of healthcare in rural areas. It is probable that these disparities are more extreme in rural areas where traditional gender roles are more prevalent and healthcare facilities are more limited (Habib et al., 2022).

Theme 2: Experiences of healthcare providers in rural areas

The barriers to healthcare for rural women were not only limited to personal and organizational factors but were also apparent in challenges faced by healthcare providers in delivering comprehensive care to patients. Lack of specialists and lack of up-to-date professional knowledge were found to impact rural healthcare services. Another study

conducted among rural and urban primary physicians explored the knowledge and continuous education of healthcare providers and their information-seeking practices. The results showed that urban physicians have better access to medical and health information than their rural counterparts. Modern sources, such as internet websites, medical journals, and online databases, were less available to rural providers (Alghanim, 2011). However, healthcare professionals in rural areas used their own resources to seek medical information. This has been confirmed by another study involving 150 primary healthcare physicians, comparing their knowledge, attitude, and practice (KAP) scores towards type 2 diabetes. The analysis showed that rural physicians had a significantly higher score in all KAPs compared with urban physicians. One possible explanation for this may be the lack of specialists, which forces general practitioners to depend on their own knowledge and keep their learning up-to-date (Alghanim, 2011, Khan et al., 2011).limited opportunities for continuing medical education is also barrier was stated by participants (primary healthcare physicians) working in rural areas of Aseer region (Alshahrani et al., 2021). Despite, physicians stated that they were satisfied with their practice and more confident. However, only 34.3% of the physicians (N= 134) had access to continuing medical education, which indicates a significant gap in professional development. Rural physicians reported being satisfied with their professional practice and feeling confident in their ability to practice, but they encountered a number of challenges. Approximately 43.3% (N=134). About of the respondents lived in urban areas, which underscores the difficulty in commuting to their rural workplace. About, 33.6% (N=134) of healthcare workers were satisfied with the medical equipment and resources available to them, and over 50% (N=134) were dissatisfied with their salaries. Social and living issues such as isolation from family and lack of support from the rural community and difficulties with children's schooling were stated by participants. Physicians are also facing financial hardships and dissatisfied with living conditions (Alshahrani et al., 2021). Surprisingly, 16.4% of the physicians (N=134) reported that they were exposed to violence at work. This highlights the concern that exists regarding their work environment.

In the context of emergency services in rural areas, a study was conducted by (Alanazy et al., 2022) among paramedics and technicians to compare organizational factors influencing emergency medical services (EMS) in rural and urban areas. The researchers found that EMS took a longer time to reach rural areas compared to urban areas. The time increased as a result of limited guidance from dispatchers because of the difficulty of finding the location in rural areas. Participants stated that the cases they responded to for emergency services were different

between rural and urban areas; trauma cases were common among rural areas, while in urban areas, the cases were medical. Long time to respond to patients with trauma increased the risks and complications. Shortage of trained paramedics and disparities in the distribution of medical resources in the rural EMS stations and hospitals were main barriers for the HCPs to provide critical care (Alanazy et al., 2022).

To deeply understand the underlying accessibility issues, both barriers and facilitators must be identified. Exploring facilitators will help know about strategies women use to access healthcare, which can minimize barriers and improve healthcare access in the future.

Theme 3: Facilitators for accessing/delivering healthcare in rural areas

There is little research that has explored facilitators or strategies for accessing healthcare in rural areas in SA. Alfaqeeh et al. (2017) was the only study which compared rural and urban enablers. They found the main facilitators among rural residents to be higher education and income levels (Alfaqeeh et al., 2017). Furthermore, their results showed a higher rate of checking blood sugar among rural dwellers, greater satisfaction with their care, and better communication with healthcare providers. Rural residents did say they were less likely to receive health education, but they showed interest in receiving advice, which implied the ability to perceive their own needs (Alfaqeeh et al., 2017). Since there are limitations in studying facilitators, it is important to draw attention to some positive and significant results. For example, compliance among rural diabetic patients and females was significantly higher, 39% and 65% respectively (N= 535) (Khan et al., 2012). Such results raise the question of facilitators that might encourage rural women to be more compliant with their health needs.

2.6 International overview of accessibility to healthcare for rural dwellers

In order to provide a comprehensive understanding of the challenges and solutions pertaining to healthcare accessibility in rural areas, this section extends discussion to include a review of international literature. Many studies conducted internationally have reported various obstacles influenced by locale-specific factors. For example, a systematic review on accessing care for chronic patients in rural areas of western countries summarized the barriers faced by patients into three main categories: availability of healthcare professionals, geography, and rural culture (Brundisini et al., 2013). Another literature review focused on USA rural areas identified that most of the barriers were health insurance coverage, insufficient public transport,

scarcity of health services, and lack of trained physicians (Douthit et al., 2015). Racial minorities struggled more with accessing healthcare services in these countries. There is, for instance, a disparity among Latinas and white women regarding access to preventive healthcare services due to differences in education level, income level, and receiving usual healthcare services (Sambamoorthi and McAlpine, 2003b).

However, in some conservative cultures, these barriers were found to be more relevant to gender and sociocultural factors which play an important role in making health decisions and access to health services. A study conducted with rural Palestinian women found gendered socio-cultural roles and health beliefs, and how they perceived health needs affected their health-seeking behaviour (Majaj et al., 2013). For instance, how women perceive their health needs and limited use of healthcare services is linked to education level, early marriage, and high number of pregnancies. One of the social norms that delay seeking healthcare is self-medication or herbal remedies because it is not expected from women to discuss their illness and express any complaints at the first onset of symptoms. Another study conducted among rural Bangladeshi women to investigate their perceptions and experiences of hypertension management reported that even though some women had knowledge, socio-cultural and economic barriers were obstacles to accessing healthcare. For example, it is not allowed for women to go to the healthcare facility without someone accompanying them, preferably a male person (Jahan et al., 2020). Poor household financial condition was a barrier for travel and medication expenses. A study conducted in two rural areas in Yemen to investigate health-seeking behaviour among women showed that women's preferences for the provider's gender, women's perceived health needs, and limited healthcare services were the main obstacles to accessing healthcare (Hyzam et al., 2020). Another study investigated why the indigenous communities in Attapadi (India) continued to experience limited healthcare access even with financial protection and adequate health services (George et al., 2020a). This ethnographic study explored barriers inside healthcare facilities - patients were treated without providing culturally respectful care, and the power inequality between the community and healthcare services led to discrimination and exclusion of the rural community members. Therefore, rural residents around the world encounter barriers to accessing healthcare.

2.7 A critique of scoping review studies

The findings of this scoping review draw from various studies to provide a holistic view of the literature around rural health, rural women in particular, and healthcare providers. As mentioned above, in this review, different terms were added during the research phase. This is because some studies used compliance or attendance which may impact on how to explain accessibility and its associated factors. These studies provide valuable information regarding the accessibility and experience of healthcare professionals in rural areas; therefore, they are imperative to consider in the scoping review.

As indicated in the description of the studies included in this research, a majority of the published literature in this review were quantitative cross-sectional studies. A quantitative approach as taken by Balharith, 2022; El Bcheraoui et al., 2015; Alhamad et al., 2023; Hussain et al., 2016; and Khan et al., 2012 revealed rurality as one of the main factors impacting accessibility and adherence to treatment and follow-up. However, although this methodology may seem appropriate for answering questions about the factors that affect accessibility to healthcare, it was objective in nature and only established causal relationships rather than providing in-depth insights, which limits our understanding of how variables interrelate. There is a limitation to the depth of the exploration of rural populations' experiences related to access to healthcare and underlying factors as quantitative studies provided objective information rather than narratives of personal experiences of the rural populations. Three studies focused on patients with chronic diseases such as diabetes, rheumatoid arthritis and end stage renal diseases (Khan et al., 2012; Hussain et al., 2016; Alhamad et al., 2023). Although all of these studies identified the sociodemographic factors affecting healthcare access disparities, no study examined in detail the cultural factors (Khan et al., 2012). Using a cross-sectional survey is appropriate for understanding the prevalence of specific diseases within a specific timeframe. Hence, based on the factors that were revealed in these studies as described above, the findings appeared to be valid and reliable within the limitations acknowledged. However, as they were quantitative studies, they did not provide in-depth insights into the factors that were identified.

Alfaqeeh et al. (2017) and Balharith (2022), which were the most comprehensive studies, included rural populations and investigated the accessibility and utilization of PHCCs. Alfaqeeh et al (2017) reviewed the accessibility between rural and urban PHCCs using

the NHS national survey programme with 50 questions. For the Arabic version, back translation was conducted, and the questionnaire was piloted with Saudi postgraduate students in order to ensure that it was reliable and contextually relevant. It should be noted that the authors acknowledged in the limitations section that some sections in the questionnaire were not applicable to the PHCCs so were missed and not asked to the participants, thus affecting the validity of the results. Accordingly, the questionnaire may need to be piloted with patients and modified in order to be applicable to the healthcare system in SA. Furthermore, the Alfaqeeh et al (2017) study discussed sociodemographic factors, including education and income, but did not address cultural aspects and specifically the challenges faced by women when accessing healthcare. The findings of another cross-sectional study (Balharith, 2022) helped provide valuable insights into the accessibility to mobile health clinics in rural areas in nine cities in SA. The validity and reliability of these results were enhanced through the questionnaire being developed in consultation with public health experts, a pilot study, and the use of established statistical methods. However, the moderate response rate of the study raised questions about the results' representativeness which indicate the sample and results may not adequately reflect the entire population. This may because it focused on those who had used remote clinics, and thus excluded individuals who did not have access to mobile clinics leading to potential selection bias which the outcomes/challenges of those with access to mobile clinics may differ from those without.

Four studies focused exclusively on women's health, of which three were quantitative and one was qualitative. Among these, two studies investigated the challenges regarding accessing and attending antenatal care. Both studies were connected and the questionnaires in the (Alanazy and Brown, 2020) study were developed based on the themes found in the previous qualitative study (Alanazy et al., 2019). According to their research objectives, all studies used appropriate methodologies. To gain a deeper understanding of complex behaviours and motivations to attend antenatal appointments, the first study utilized a qualitative approach while the second study utilized a cross-sectional approach to assess the wide range of female participants. However, there are limitations to be considered regarding the potential interpretation bias associated with measures based on self-reporting in the quantitative study. Detailed documentation and agreement in coding enhanced credibility in the qualitative study while the quantitative study used established tools and factor analysis to support its internal validity and reliability. In the third study, structured questionnaires were used to analyse the challenges with accessing reproductive healthcare services, particularly for pregnant women in

the third trimester (Dhaher, 2017). The study examined the social and cultural context of rural communities in southern SA. However, using the structured questionnaire may have limited the researchers from investigating additional barriers that have not been included in the questionnaire. The final study was a cross-sectional study exploring the various barriers to breast cancer screening among Saudi women (Abdel-Aziz et al., 2017) and included 816 participants from eight urban and rural PHCCs in Al Hassa. A significant proportion of participants in this study were rural (36.4%; n = 297). The main limitation of this study is that it was a cross-sectional study which may lead to issues with recall and social desirability bias. Despite this limitation, the study brought to light factors relevant for rural women to access services such as antenatal care or breast cancer screening. This may not apply to other women with different health situations. Similarly, a qualitative descriptive study found gender disparities in healthcare access within the Saudi context (Alhamad et al., 2023). However, it did not explicitly provide significant results relevant to the rural population which might be because the study objective was to investigate gender sensitivity in general among rural and urban women. Thus, it is essential to conduct an in-depth study to explore the nuances of potential factors for rural women.

Another area of critique lies in sample size and inclusion criteria for some of the studies. In most studies, the rural population was included only as a single variable (residence location) (El Bcheraoui et al., 2015; Alanazy and Brown, 2020; Alhamad et al., 2023; Abdel-Aziz et al., 2017; Alanazy et al., 2019). They did not focus on the interrelation between rurality and multiple factors. Despite high female participation in Alfaqeeh et al. (2017)'s study compared to male participants; rural female participation was lower than females from urban regions. Also, in (Balharith, 2022), the majority of the respondents were male (82%) and females (17%) were lesser which may reflect the social norms of rural culture where in women's participation in research may be limited thus indicating potential disparities that need further exploration. Another reason that needs to be considered for the small rural population may relate to the challenges of recruitment or gender of the researcher. This is indicated in the study by (Alfaqeeh et al., 2017) as one of the limitations to reaching women participants. The study was conducted for RA patients and the location of the hospital or department was not explained in detail in the study settings; the absence of such details impact on the interpretation of results and the quality of the research (Hussain et al., 2016). This could limit the understanding of contextual factors of the study such as geographical and environmental influences, which are crucial for assessing the applicability

and relevance of the findings to broader or different populations. The sample size and the selected region in some studies like (Hussain et al., 2016; Alhamad et al., 2023; Alanazy et al., 2019; Alanazy and Brown, 2020; Alfaqeeh et al., 2017; Dhaher, 2017; Khan et al., 2012) focused on only one area of SA. Al-Ahsa City and two western cities were the main sites for research, while three other studies were conducted in Riyadh medical facilities (Alanazy et al., 2019) and Brown (Alanazy and Brown, 2020). The homogeneous sample in these studies may be sufficient for the local context but may not represent the broader population in SA and rural regions that have a variety of socio-demographic characteristics and distribution of healthcare services in the remaining 13 provinces in SA (GASTAT, 2022b, , 2022).

In terms of studies that included HCPs as participants, each addressed the perspectives of healthcare providers regarding accessibility of rural population to healthcare facilities with different research questions and objectives. The findings of one cross-sectional study (Khan et al., 2011) have some limitations such as the absence of analytical methods like statistical regression analysis that would provide insights into the relationships between various factors. In addition, it did not take into account potential confounding factors such as the specialty of the physician, the number of years of experience, or rural experience of the physician, as well as nationality. Alshahrani (2021) and alghanim (2011) both studies were self-reported which posed a risk of self-interpretation bias and no measures were mentioned to minimize this factor. Despite the fact that these studies aligned with literature on knowledge and information needs among health professionals, the results offered specific insights for Riyadh and Al Hasa regions. Khan (2010) provided detailed results with statistical analysis into the Knowledge, Attitudes, and Practices (KAP) of primary healthcare physicians. However, the results only focused on physicians and their knowledge of type 2 diabetes management. The inclusion of other healthcare professionals in research that focus on other chronic diseases such as cardiovascular diseases may lead to valuable findings regarding the knowledge of healthcare providers.

The last two studies provided evaluation of emergency services in Abha (southwestern region of SA) and Riyadh (Alanazy et al., 2022; Mahfouz et al., 2007). Using mixed methods of structured observation and interviews across 30 centres was a suitable method to explore tangible aspects from emergency healthcare services and the experiences of HCPs and patients (Mahfouz et al., 2007). However, some study details are not clearly elaborated, for example, the validity and reliability of the data collection tool and the findings which pose questions

about how reliable the data are, the study limitations, and ethical considerations. Also, the research was conducted in 2007, which only addressed emergency services at that time and was more focused on the barriers to the healthcare system at that time (Mahfouz et al., 2007). The study conducted by Alanazy et al. (2022) was more recent, and it compared the Emergency Medical Services (EMS) between rural and urban areas using qualitative hermeneutic phenomenology which considered the individual lived experiences (Alanazy et al., 2022). This qualitative study provided significant insights into the EMS system in Saudi Arabia, particularly the Riyadh region. The use of semi-structured interviews in this study allowed a balance of guidance and flexibility which led to rich and detailed responses to compare data among rural and urban providers. However, adding researchers' reflexivity regarding their roles, relationships with participants, and biases may enhance the rigor of the research project (Alanazy et al., 2022). Furthermore, 20 participants were included in this study, 10 providers from rural areas and 10 providers from urban areas, which was a sufficient sample size for acquiring insights into emergency medical services and comparing the experiences of providers between rural and urban areas.

To conclude, the scoping review and international studies enabled me to identified gaps in knowledge in rural areas research. Clearly, research is lacking in rural areas, especially qualitative research that addresses the barriers rural women face in obtaining chronic health services within local contexts. Some studies in the scoping review did not focus on specific patients' needs or groups of patients, leading to neglect of barriers relevant to their care. Therefore, the objectives of this doctoral thesis were developed to fill these gaps.

2.8 Research gaps identified from the scoping review

Although this review contributes towards understanding the rural issues in accessing healthcare services, there are ambiguities from this review and there are clear limitations of previous studies conducted in Saudi Arabia. First, SA is a large country with different geographical landscapes that have unique demographic barriers. Second, most studies on rural women were focused on maternal needs, and rural participant samples were relatively small. The majority of studies did not focus exclusively on the special needs of rural women, rather they aimed to cover all rural people. Third, most existing research studies are quantitative, which does not provide a comprehensive or deep understanding of the issue. Fourth, most studies were conducted in Riyadh and eastern regions. Their results may not represent other

SA regions as there variations in resource distribution (Al Saffer et al., 2021). Describing these limitations reveals disparities not only in health access but also in the research.

Despite the high prevalence of chronic diseases in rural areas in SA, previous research has not paid sufficient attention to rural women with chronic conditions. Little is known about the perceptions of rural women who have chronic diseases (DM and/or CVD), about their health needs and health seeking behaviours and how this affects access to healthcare services, what barriers they encounter in attempting to obtain needed services within the healthcare system in SA, what are the type of services or medicines that have limited accessibility for rural women, how sociocultural factors influence access to healthcare services, and how rural women cope with these barriers. From this, it is clear that there are gaps in our understanding about barriers and facilitators of healthcare access for rural women who are diagnosed with (DM and/or CVD). Further, I found that studies conducted in many countries are replete with reporting of rural residents' experiences and less often by rural healthcare providers' perspectives. Hence, I intend to capture the perspectives of rural HCPs as well as rural women in this thesis.

Conclusion

In summary, the scoping review undertaken as part of this thesis provides an in-depth understanding of the challenges rural communities face when it comes to accessing healthcare services. Several perspectives are represented, including those of both users and providers of services. Moreover, this scoping review has highlighted the need for targeted research and policy interventions in order to address the under-served aspects of rural healthcare, emphasizing the need for targeted research and policy interventions.

CHAPTER THREE: METHODOLOGY

This chapter discusses the philosophical underpinnings of the research and the rationale for selecting the methodological approach in this thesis. First, the philosophical assumptions are discussed, including ontological, epistemological, and axiological positions. This is followed by an explanation of why a qualitative methodology and social constructivism is a suitable approach for this research. The three main research designs and the rationale behind the selection of a qualitative approach are explained. The final section including my personal position and how to contribute to influencing on the study including my personal and disciplinary reflexivity.

3.1 Theoretical paradigm and perspectives

A paradigm refers to a philosophical assumption that guides researchers' actions. It consists of four main components: ontology, epistemology, axiology, and methodology (Guba and Lincoln, 1994). Philosophical perspectives must be clearly defined and linked to research. Ontology refers to the researcher's beliefs about the nature of reality (is there a single reality or multiple realities?). The term epistemology explains how and what we can know about reality or knowledge and how it is constructed (Crotty, 1998); axiology refers to the role of values in the study. These philosophical elements (ontology, epistemology, and axiology) guide the researcher's decision about methodology and method which is the process of research (Denzin and Lincoln, 2011; Creswell, 2009). In this study, the ontological stance is that of multiple realities and epistemologically, information about the realities was obtained through evidence collected by the researcher with the participants, thus resulting in a co-construction. This will be discussed further below in relation to social constructivism (SC). Figure 3.1 provides a flowchart of research paradigm elements showing the various elements and the guided questions explaining the process of selecting the suitable paradigm to this research.

Different philosophical assumptions shape the foundational elements of the interpretive framework (beliefs or paradigms) researchers adopt to guide research (Guba and Lincoln, 1994). The common paradigms are positivism, post-positivism, social constructivism, transformative, and pragmatic. Each paradigm suggests a unique view and different perspective to understanding a phenomenon. In comparison to other paradigms, social constructivism is different. SC asserts that reality is multiple and a subjective creation which

is influenced by social and cultural factors and the knowledge developed from participants (qualitative) (Lincoln and Guba, 1985, Berger and Luckmann, 1967, Lincoln, 2005). It is in contrast to positivism which emphasizes that the existence of reality is independent of human beliefs and relies on empirical measurements and hypothesis testing (quantitative) to gain knowledge. A post-positivist viewpoint acknowledges the limitations of positivism, is aware that absolute reality may be beyond human comprehension, and emphasizes that multiple perspectives are necessary to obtain a broad understanding of reality (Phillips and Burbules, 2000). Pragmatism views that the changes in reality depends on the context which advocates for flexibility in selecting the method of inquiry based on the interaction with the world (mixed methods) (Murphy and Murphy, 1990). These are the main and common paradigms, and there are additional paradigms that are selected based on the research question, e.g. transformative worldview including critical theory and community action research. Considering the underpinning concepts of the paradigm of social constructivism and the link between the philosophical assumptions of SC and the assumptions of my study, I selected social constructivism as an interpretive framework to guide my research (Denzin and Lincoln, 2011; Creswell and Poth, 2016). The following part explains SC in detail and how it relates to my research.

3.1.1 Social constructivism (SC)

A philosophical approach is proposed in this study based on the study objectives, which involves both an exploratory individual perspective for rural women and a perspective for healthcare professionals (HCPs). The social constructivist perspective fits with the objective to explore differences in the views of participants through social interaction with them in their natural environment. Social constructivism (SC) is an interpretive framework in which groups of individuals construct knowledge to create a shared meaning from understanding different dimensions of health - social, cultural, and political (Crotty, 1998). As this research involved discussing with participants and encouraging them to share their personal experiences, beliefs, and opinions about accessibility to chronic health services on which further themes can be built, social constructivism was considered a suitable approach. It has been indicated by medical sociologists that SC is a suitable approach to interpret various aspects relevant to health and illness. For example, personal healthcare choices and patterns of distribution of illnesses which can help in expanding the scope of individual experiences and policy decisions (Conrad and Barker, 2010).

The social constructivist approach considers that reality is not objective and inherent; rather, it is a product of social processes and discussions. Foucault, a prominent social constructivist, proposed that knowledge is not neutral or static, but is proposed within specific cultural and historical contexts (Foucault, 1982). He suggested that social discourses determine how we perceive the world and talk about it. Foucault's views hold that what is considered real is subject to change and that different social groups may have different perspectives that reflect their own unique values and interest (Foucault, 1982, Phillips, 2023). This is applicable to my study because the study objectives aim to identify and compare the barriers and facilitators for access to healthcare from the perspectives of rural women and HCPs. This further strengthened the use of social constructivism for my research. Elements of SC and their applicability to my research has been alluded to in the rest of the chapter.

3.1.2 Ontology

The ontological assumption of constructivism is relativism which suggests multiple realities that are socially produced. These ontological assumptions of relativism are not only compatible but essential for understanding complex social phenomena. Thus, the concept of a fixed reality is not typically associated with SC because it would not be able to accommodate the diversity and the complexity of human experience. Believing in multiple realities can contribute to implications on how to conduct research and interpret the findings leading to develop interventions that solve real-world problems. In this research context and position, it was considered that realities are multiple and not objective; rather, realities are the result of interactions between people and their environment. As I was interested in exploring the perspectives of rural women accessing healthcare services, SC was considered to be an appropriate approach that provided insights into how individuals construct meanings of access to healthcare influenced by factors such as socioeconomic status, geographic location, education, and cultural beliefs (Creswell and Poth, 2016).

3.1.3 Epistemology

In constructionist epistemology, knowledge is viewed as subjective and depends on evidence obtained from participants and the researcher's role in constructing the worldview. In this study, I interacted with the participants and obtained data to identify the experiences of rural women and healthcare providers to interpret and make sense of the world. Accessibility to healthcare services remains a complex notion and the realization that patients have a growing

role in chronic disease management led me to revisit the dimensions of access (Levesque et al., 2013). I used my personal experience as a nurse working at a hospital in SA with different types of patients, which guided me to recognize the challenges rural dwellers face in seeking healthcare. Beyond my work experience, I recognized how gender roles, shaped by cultural beliefs, influence women's access to healthcare. From my lived experience, I recognized that multiple complex realities needed to be interpreted, particularly owing to the lack of previous exploration of this issue within Saudi culture and norms. Thus, access to healthcare services must be investigated in relation to individual-level factors, socioeconomic conditions, and the healthcare system. Since reality in SC is constructed and knowledge is subjective, social inquiry is more value-laden (axiology). The SC approach allowed me to embrace my own lived experiences (gender, culture, and education) to co-construct and illustrate both providers' and rural women's experiences within SA. With SC, qualitative design is the common methodology used in attempting to understand humans and their lived experiences. A summary of the three main types of methodology is provided in the next section, followed by discussion of the study design adopted in this research.

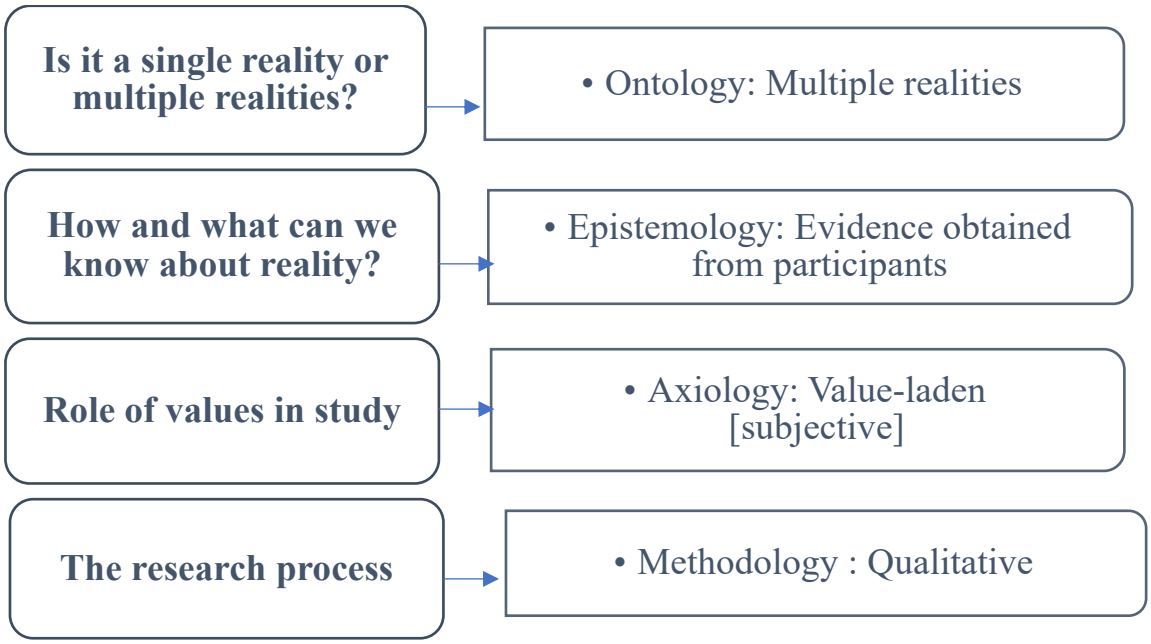


Figure 3.1: Research paradigm elements used in the thesis

3.1.4 Research methodology

There are different scientific approaches used to address research questions. These approaches, termed methodology, are classified as qualitative, quantitative, and mixed methods (Lincoln and Guba, 1985). The qualitative approach is naturalistic and interpretive, which means that the knowledge is generated inductively from human experiences and influenced by the researcher's interpretation. This approach emphasizes the depth of understanding a phenomenon, often involving a small sample of participants, which is not generalized to the wider population. A quantitative approach is positivist, which tests hypotheses (deductive) whilst minimizing bias and the effect of researcher interpretation. This type of research is used in various fields involving larger sample sizes. Mixed methods is a pragmatic approach that uses both qualitative and quantitative methods (Lincoln and Guba, 1985; Denzin and Lincoln, 2011; Creswell et al., 2007). As this social constructivist study aimed to explore participants' perspectives, it required co-construction of participants' views through interaction between the researcher and participants. Accordingly, qualitative methodology, or generic qualitative methodology as it is known in some resources (Kahlke, 2014), was considered a suitable approach for this study.

3.1.4.1 Study design: qualitative research

The major characteristic of qualitative research is exploring perceptions, concepts, uniqueness of personal experiences, and interactions with the world to obtain rich information and develop new insights derived from participants (Denzin and Lincoln, 2011). This approach is naturalistic and interpretive. It uses non-numerical language (text) and attempts to interpret reality from the field where the individual is located (Lincoln and Denzin, 1994). In qualitative research, knowledge is co-constructed by the researcher and participants, which means that the researcher guides the process of raising questions while participants pick up on the cues and explain their experiences with respect to the specific context (Keady and Williams, 2007). As a result, both researchers and participants play a significant role in addressing the research objectives. Qualitative research has been very useful in understanding participants' perceptions towards issues relating to health, women's health in particular, and inequities regarding access to healthcare services (Alyaemni et al., 2013). The quantitative approach is used to study causal relationships between variables, and seems less appropriate for this research, as its structured technique would exclude exploration of underlying reasons and ignore the complex situation

of women in rural areas. In qualitative design, the research process is emergent and flexible and may be adjusted during fieldwork (Creswell and Poth, 2016). Hence, the qualitative methodology was more suitable for filling the gap in the knowledge regarding specific experiences of people with respect to access to healthcare services. Furthermore, a qualitative approach would allow me to explore the study objectives contextually, for instance, the lived experiences of rural women and HCPs, which would not be possible with quantitative research. Thus, it could contribute to understanding and examining Saudi-specific underlying factors.

Within qualitative research, there are five common approaches that share some assumptions (Creswell and Poth, 2016). Each one of these qualitative approaches follow specific and structured strategies to interpret and elaborate on specific situations (Creswell and Poth, 2016). During the planning stage of this thesis, other qualitative approaches such as grounded theory, ethnography, thematic analysis (TA), and phenomenology / interpretative phenomenological analysis (IPA) were considered but not selected because they were not aligned with the aim of this study. For example, the grounded theory (GT) approach is not appropriate because it seeks to develop a theory from the collected data and many frameworks have been developed to help explain the accessibility of patients to healthcare services (Glaser and Strauss, 1967). On the other hand, phenomenology (PH) is mostly used to interpret the experiences of participants. It focuses on unique details of each individual who have experienced the phenomenon. However, my study seeks to develop themes based on data acquired from all participants. Braun and Clarke compared IPA to TA, suggesting that, in contrast to IPA, TA aims to identify personal experiences within a wider socio-cultural context (Braun and Clarke, 2021). Additionally, ethnographic research primarily involves the study of cultural groups through observing their behaviour and practices in daily life. Although this qualitative social constructivist study considers the cultural context of rural environments, it examines how rural culture contributes to accessibility of healthcare services rather than acting as a main determinant.

Many researchers are confronted with study topics that do not fit neatly with a particular established methodology. Hence, researchers prefer to select a qualitative design without following structured approaches (Sandelowski, 2000, Kahlke, 2014). Denzin and Lincoln (2005) indicated that using a generic qualitative approach can maintain the flexibility to identify various types of questions and investigate the topic from different angles (Lincoln, 2005) . The objectives of this study were best achieved by adopting SC as an

interpretive framework and adopting a qualitative methodology that helped make deeper and more meaningful sense of how individuals perceive their experiences within social and cultural contexts. This decision was supported by previous studies which used qualitative and thematic analysis techniques to investigate barriers and facilitators to access healthcare. For example, Chang et al. (2019) conducted a qualitative study to explore challenges regarding hypertension and diabetes management in rural areas. Other studies conducted use qualitative methodology and thematic analysis which revealed substantial findings related to healthcare access experiences (Jahan et al., 2020, Goins et al., 2005). Furthermore, using qualitative research and thematic analysis helped maintain the interpretive nature of qualitative approach with the structured analytical process of TA. The following section describes the types of thematic analysis and the one I adopted in this qualitative social constructivist study and the rationale for selecting reflexive thematic analysis (RTA).

3.2 Thematic analysis approaches

Selecting analysis approaches for qualitative research depends on the researcher's epistemological position, objectives, and method of collecting data. In this study, reflexive thematic analysis (RTA) guidelines described by Braun and Clarke, (2006, 2019) were adopted. RTA is "a method for identifying, analysing, and reporting patterns (themes) within data" (Braun and Clarke, 2006, p.79). It was initially outlined as thematic analysis in psychology in 2006 and later changed to reflexive thematic analysis (RTA). TA is a common term used to describe different data analysis approaches in qualitative research focused on defining the patterns of the meaning. The three main thematic analysis approaches include: 1) Codebook approach, also called template analysis, using a structured codebook as a tool to categorize the data (King and Brooks, 2016), 2) Coding reliability TA used to identify the reliability of coding data and consensus among coders to be measured by Cohen's Kappa (Harper and Thompson, 2011), in both approaches, themes can be developed in the early phase of the analytical process, and 3) Reflexive thematic analysis (RTA) which places the researcher in an active role in the interpretation of data to co-produce knowledge(Braun and Clarke, 2022). The themes are developed through the analytical process. In this study, RTA was used for analysing the data. The following section explains why RTA was selected and how data analysis was conducted.

RTA is a theoretically interpretative approach used for analysing qualitative data. Considering the theoretical assumptions that underpin my study, I believed that RTA was the appropriate

method. Using RTA, I was able to analyse qualitative data with respect to the individual experiences of the participants, while acknowledging my own interpretations as a researcher. This study examined different participants, and its objective was to discover similarities and differences between their experiences. In doing so, my own perspectives and background informed the interpretation of the data. An advantage of RTA is that it can be used for interpreting information acquired from multiple types of participants and large datasets (King, 2004; Braun and Clarke, 2006). Holloway and Todres (2003) argue that thematic analysis is flexible; however, this flexibility can result in inconsistency and incoherence when developing themes. The various stages of RTA, however, provide a systematic and consistent approach to data interpretation. This can be further enhanced by explicit theoretical assumptions (both epistemological and ontological positions) that underpin the study to answer the research question.

3.3 Theoretical framework: Levesque's Patient-Centred Access Healthcare Framework (PCAHF)

As discussed in the introduction chapter (Chapter One), the Levesque Framework of Access to Healthcare was used as a theoretical framework to define rural women's access to healthcare. Patient-Centred Access Healthcare Framework (PCAHF) is a conceptual framework covering the broad scope of healthcare access. It starts with the perception of health needs through to gaining the benefits of receiving care (Figure 3.2 describes the conceptual framework of access to healthcare). This conceptual framework explains the comprehensiveness and complexity of determinants that impact healthcare access. It integrates all factors: health system factors, organizational factors, community factors, and individual factors. Synthesizing all these contributing factors into one framework was developed from the extensive literature review that Levesque conducted on accessing healthcare between 1971 and 2008 (Levesque et al., 2013) which can assist in better understanding and addressing some of the underlying factors that affect access to healthcare.

PCAHF includes two dimensions to determine the sufficiency of healthcare access: a supply side dimension relevant to providers and the healthcare system, and a demand side dimension relevant to patients and the community. From figure 3.2, the supply side dimension located on the upper side of the framework includes approachability, acceptability, availability and accommodation, affordability, and appropriateness of healthcare services. The lower side of

the framework points to the demand side dimension which explains consumer abilities such as the ability to perceive, to seek, to reach, to pay, and to engage in healthcare. Each of these dimensions has a box adjacent to it that encompasses an example of factors/variables that determine the dimension. Successful accessibility of healthcare services is determined by the alignment of these variables. Both sides act as complementary and correlating factors as indicated by the inward arrows. For clarification, as an example, the approachability dimension is influenced by transparency and information provided by the supplier while on the demand side, the ability to perceive is influenced by health literacy and health beliefs. As represented in the middle boxes on the arrow path, the successful access to healthcare process starts from defining the healthcare needs through to the outcomes and patient satisfaction. This leads to the holistic definition developed by PCAHF - "the possibility to identify healthcare needs, to seek healthcare services, to reach healthcare resources, to obtain or use healthcare services, and to actually be offered services appropriate to the needs for care" (Levesque et al., 2013, p4). In this study, I used the PCAHF in the data collection and analysis phases where I considered factors on both the supply side (healthcare providers' perspectives) as well as the demand side (patients' perspectives) for determining the themes from the data collected from the participants. The framework also guided me in writing the findings following data analysis.

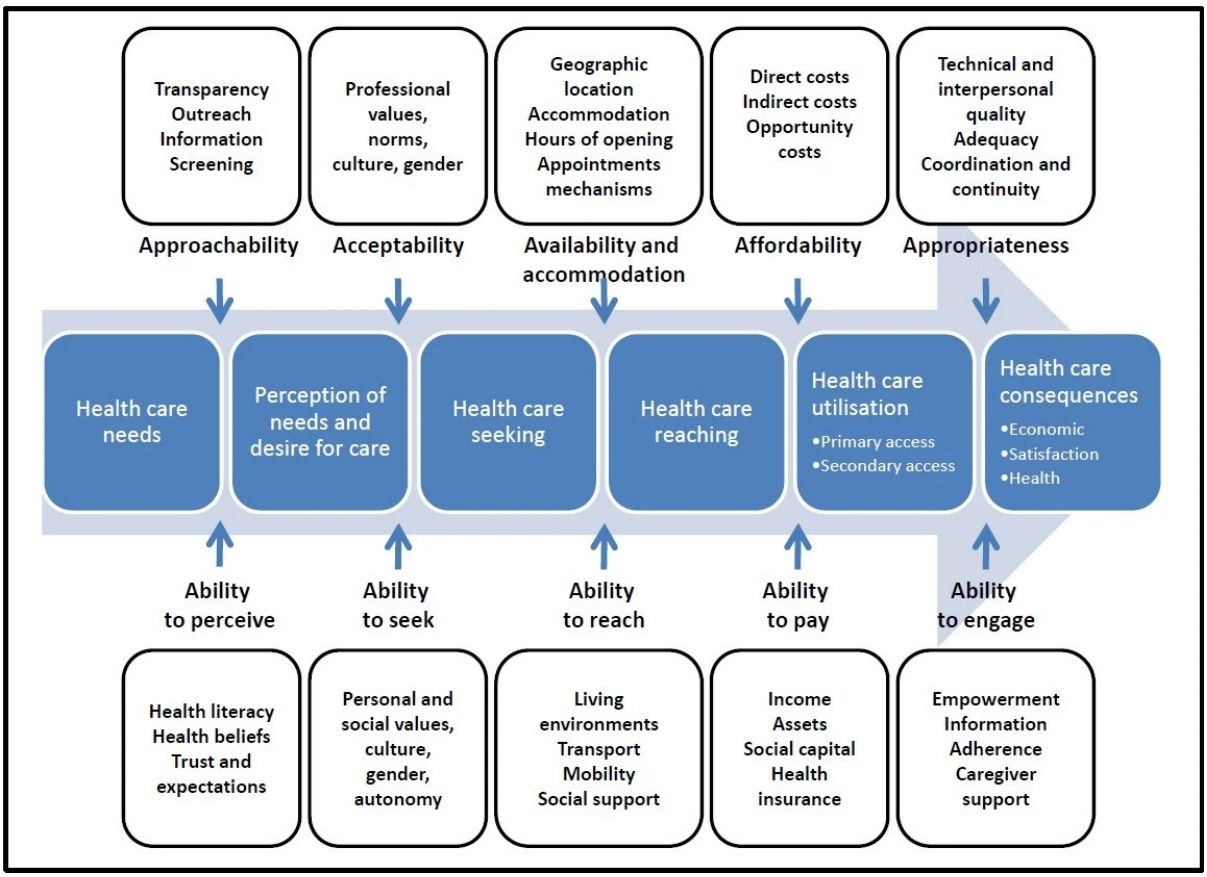


Figure 3.2: A conceptual framework of access to healthcare (Levesque et al., 2013)

Detailed descriptions of each dimension are included below, including the five accessibility dimensions: 1- Approachability; 2- Acceptability; 3- Availability and accommodation; 4- Affordability; 5- Appropriateness, as well as the patient's five corresponding abilities: 1- Perception; 2- Seeking; 3- Reaching; 4- Paying; and 5- Engaging.

- **Approachability and ability to perceive:** Approachability refers to the existence of the healthcare service and the efforts of healthcare facilities and providers to inform the potential users about services through outreach programmes, provide information, and spread knowledge. Ability to perceive, which is on the demand side, refers to the patient beliefs regarding health needs that are influenced by levels of health literacy, prior experience, and patient’s trust in healthcare services.

- **Acceptability and ability to seek:** This dimension is determined by the cultural and social factors that influence the likelihood that people will accept the provided care.

Ability to seek refers to the potential patient capacity to be able to seek healthcare services influenced by cultural beliefs, a sense of autonomy, or societal norms.

- **Availability and accommodation, and ability to reach:** This dimension refers to the availability of healthcare that is physically present and the capacity to perform the actions required to provide services. This includes assessment of the opening hours, qualifications of the providers, wait times, and availability of adequate equipment. Ability to reach refers to patient's resources including transportation availability and travel time to access healthcare facilities.

- **Affordability and ability to pay:** Affordability refers to the capacity of the healthcare system to provide affordable services including direct price of healthcare services and cost of indirect expenses. The ability to pay is defined as the patient being able to pay for healthcare by seeking healthcare services which is influenced by patient income, poverty, and existing debts.

- **Appropriateness and ability to engage:** this last dimension refers to the fit between the provided services in the right setting with the right professional with right inventions. Ability to engage refers to the patient's ability to actively participate in care and decision-making.

In summary, the aim of this study was to explore the factors that determine rural women's access to and provision of healthcare services. The PCAHF was selected since it encompasses both demand factors (rural women) and supply factors (providers and the healthcare system). It is a collaborative framework which considers factors that may serve as barriers and facilitators for both providers and seekers of healthcare which fits well within the social constructivist approach that has been adopted in this thesis. Furthermore, SC considers behavioural motivation to be both intrinsic and extrinsic in nature, and the PCAHF also allows the exploration of both extrinsic factors such as availability of services, and intrinsic factors such as cultural beliefs. In SC, learning is considered an active process and knowledge is constructed through the active discussion between both the researcher and the participant. Application of the Levesque framework will ensure the interpretation of the responses under distinct themes thereby ensuring that all possible barriers and facilitators are explored by the participants.

3.4 Personal contribution and influence on the study

As indicated above, qualitative research focuses on the researcher's role in knowledge production. Personal biases and beliefs may influence the choice of the research problem, the collection of data, and the analysis of data. However, RTA used in data analysis helped me keep in mind the crucial need to reflect on my thoughts throughout the analysis process. The following section describes my position in relation to the research.

3.4.1 Reflexivity

The concept of reflexivity refers to researchers' awareness of their roles and practice of self-awareness. Berger (2015) described reflexivity more clearly as follows:

> *"It means turning of the researcher lens back onto oneself to recognize and take responsibility for one's own situatedness within the research..."*

This means that the researcher self-reflects on their assumptions, values, expectations, and decisions made throughout the study, and understands their influence on the knowledge they co-created. My reflexivity included personal, functional, and disciplinary reflexivity which all described my personal factors and experiences that shaped the construction of the study aims. This allowed me to think about myself in relation to philosophical assumptions and research practices (Wilkinson, 1988). Functional reflexivity is included in the following chapter which reflects on the research process through recruitment, data collection, and data analysis. Also, the discussion chapter includes the reflection on my position and its impact on interpretation of findings and the reflexivity in relation to adopting the framework PCAHF to interpret the findings.

3.4.1.1 Personal reflexivity

This section describes my own perspectives and how they relate to my research including my personal life, my work experience as a nurse and the experience of studying abroad. First, I am 33 years old, a Saudi woman living in an urban area in a conservative Muslim family. A Saudi woman who grew up in a conservative culture influenced by Islamic beliefs and family plays an essential role in personal decisions. Also, gender's role in the family, the way women dress, and the concept of modesty are shaped by religion and culture. As such, I believe that my research reflects my views and explores how culture and religion interact to influence

a woman's personal decisions related to access to healthcare. SA culture has a strong impact on the community and how they act, and the community structure is more tribal particularly in rural areas. Being a tribal person allowed me to gain a deeper understanding of rural communities' construction where they have a strong social network and are tied to their roots and culture. In rural areas, the community tends to be more conservative than in urban areas where populations have more privileges and opportunities.

Professionally, my experience as a nurse, in particular a community health nurse involved in community activities, sparked my interest in women's health, especially that of rural women. Rural women often face greater disadvantages and difficulties than their counterparts in urban areas because of financial issues and marginalization in most community-based initiatives. In my observation, some healthcare providers do not consider the challenges faced by rural populations. Moreover, having relatives living in rural areas made me aware of the obstacles they faced when it came to accessing healthcare services. These patients are sometimes unable to attend their appointments, or their families experience sad stories when they are in an emergency situation and cannot obtain the necessary healthcare. Being a community health nurse has made chronic diseases my primary focus, as they are prevalent in SA and require long-term healthcare.

My decision to study abroad in 2015 played an important role in my perspective on women's rights. The fact that a person belongs to a community may influence his/her recognition of certain local factors. However, studying abroad enabled me to learn and identify cultural roles and regulations that restrict women in SA. For example, I recognized the negative impact of gender inequality on the quality of life of women. Regarding the rural population, I found that the healthcare systems in both the USA and the UK categorize rural populations as special or underserved groups who require more attention due to their specific circumstances. Therefore, I became interested in understanding rural women's experiences in terms of access to healthcare services and sociocultural factors. The 2030 Saudi Vision launched in 2016 prioritized women's rights, which led to a change in regulations. Compared to the past, women now have more freedom, and they can drive and work anywhere, facilitating them to become more independent. This encouraged me to define how these changes impact rural women's lives.

As a result of all the factors discussed above, I became more aware of the situation of rural women. In examining the health needs of rural women with chronic diseases, I began to ask myself: Do healthcare facilities meet their health needs? What healthcare services do they offer that are specifically tailored to their needs? What are rural women's perceptions of their healthcare challenges and how do they respond to these challenges? I was also interested in learning how culture and gender inequality affect rural women's access to healthcare. Are the changes that have taken place in SA impacting rural dwellers on a significant level? What policies or initiatives are in place to improve the access to healthcare for rural women? These are examples of questions that I asked myself during this study and which contributed to determining my research question.

3.4.1.2 Disciplinary reflexivity

This reflexivity involves reflecting on researchers' backgrounds, research experience, and theoretical perspectives that shape the research process and findings. I acknowledge that being a nurse influenced my thinking about producing data or knowledge. My nursing background allowed me to recognize that social factors are just as significant as medical factors when understanding healthcare complexity. Understanding these factors can be achieved through interaction and engagement with people to create meaning. This philosophical stance comes from the perspective of a constructionist, which led me to select a qualitative design to investigate rural women's experiences, and which allowed for an in-depth exploration of their perspectives. Such type of research captures the realities of the participants' lives and experiences.

In terms of research training and experience, I worked as a research assistant for my master's degree. The experience I gained while working on this study involved both quantitative and qualitative aspects, which enabled me to develop my research skills. I worked with a team on a research study involving thematic analysis which allowed me to exchange knowledge with the expert researcher. Thus, I found myself drawn to qualitative research which provided me with the opportunity to explain the uniqueness of SA's context. In this research, I can say that I have a hybrid positionality. My position as a Saudi 'insider' has allowed me to understand SA's sociocultural context. However, I am an urban resident 'outsider' and the participants were more expert in describing their experiences. Overall, my personal and research experiences informed my choices when selecting this

research topic and interpreting the experiences of rural women and maintaining rigor and transparency through continuous reflection on all my research phases (see Functional reflexivity in Chapter four).

To summarize, this section explained the philosophical underpinning of the study and what factors contributed to forming the research question. It guided me to select a suitable methodology to investigate the participants' experience considering my role in the interpretation process through reflexivity.

CHAPTER FOUR: METHODS

This section explains in detail the methods used to carry out the study. It includes how the settings were identified, how participants were approached and recruited, and the method of collecting and analysing data (See Appendix 1: A Gantt Chart outlining the research timeline). The first part describes the situation of SA during the Covid-19 pandemic and restrictions that were in place during this time that had an impact on the research. This information provides insights to the readers regarding the broader environment in which the research was conducted and the constraints that the pandemic imposed on the research activities. The second part describes the settings used to recruit participants. The third part describes the sampling and recruitment processes, including the inclusion and exclusion criteria for participants and the process to reach those participants. It also provides a profile for each selected rural area. The fourth part describes how the data was collected, starting from the rationale for selecting semi-structured interviews, developing the interview protocol, and conducting interviews for two groups. Different strategies were adopted to ensure the quality and rigour of data, which are described in this section. The fifth part describes the data analysis process followed by the ethical considerations. Lastly, the functional reflxvity included reflexivity in recruitment, data collection, and data analysis. Quality and rigor of qualitative research is discussed and the final part provides the chapter summary.

4.1 Conducting research in Saudi Arabia during the Covid-19 pandemic

This research was conducted during the Covid-19 pandemic. During this period, there were protective measures in place that needed to be considered, including travel restrictions, social distancing measures, patient safety, wearing a face mask in public places, and using a tracker app. The original research plan was to conduct the research in the healthcare facilities to collect the data. However, due to the Covid-19 restrictions in SA, the plan had to be reconsidered to ensure safety by following the recommendations of the IRB to conduct all research processes remotely through phone calls and emails.

4.2 Research setting

As this study was focused on the experiences of rural women as well as healthcare professionals, I recruited both these types of participants for data collection. To fulfil the study objectives, it was essential to identify the places which provided chronic care services for rural

women, which also served as centres for recruiting both types of participants. Rural residents utilize local PHCCs and hospitals to seek healthcare services. As described in the background chapter (Healthcare system in KSA), according to the Saudi healthcare referral system, patients with chronic conditions visit the PHCCs for diagnosis and follow-up. The patients are referred if they need more advanced care not provided at primary care centres, for example, uncontrolled diabetes or advanced procedures.

In this study, the recruitment settings were three primary healthcare centres in three rural areas and two secondary healthcare facilities in Taif city. Including different healthcare settings and levels of care ensured that the research explored rural women's experiences of chronic conditions from various sites. Additionally, recruitment from different settings assisted in recruitment of patients as well as providers. To receive initial permission, I contacted the Directorate of Health Affairs at Taif, which has administrative authority over primary and secondary healthcare facilities in Taif city and its rural areas. This initial communication allowed me to understand the referral system at healthcare facilities in Taif and which hospitals receive more patients from rural regions in Taif. The following sections describe the two sites from where I recruited participants (rural women and HCPs).

4.2.1 Secondary healthcare facilities

Two settings (Taif hospitals and rural PHCCs) were selected for participant recruitment which allowed me to identify and recruit appropriately diverse samples for the study. Two hospitals, King Faisal and King Abdelaziz hospitals (KFH & KASH) in Taif city, were selected to recruit participants (rural women and HCPs). King Abdelaziz Specialist Hospital (KASH) is Taif's main secondary healthcare facility, where most rural dwellers are referred to receive advanced care because it provides specialist services. The hospitals were the primary setting where I could find rural women referred to the diabetes centre, CVD outpatient clinics, and HCPs who had provided care to rural patients. For diabetic patients, the DM centre at KASH was the main site to recruit HCPs and rural women diagnosed with DM. This centre is a specialist diabetic centre to which patients from most rural areas are referred. Rural women diagnosed with CVD and providers were recruited from CVD outpatient clinics in KFH and KASH. To ensure that the hospital accepted researchers during the pandemic, I contacted the research departments at each hospital and received initial permission to conduct my study. After completing the ethical

approval process, I started sending emails to the hospital directors. The recruitment process is further described below.

4.2.2 Primary HealthCare Centres [PHCCs] in rural areas

In collaboration with the Directorate of Health Affairs, I used an updated list of all PHCCs of rural regions in Taif city to determine which PHCCs to sample from. I intentionally selected rural areas around Taif city with one PHCC having limited community resources. I contacted the directors of PHCCs of five eligible rural areas, but only three rural areas were interested in participating in the study. These areas were Ashayrah which is a small town, Shear which is a village, and Al Alba which is a farmland (Figure 4.1). These different rural areas were selected because they are located on different sides of Taif city, and each has different environments and communities (rural areas profile and Google maps are given below). Inviting participants from other rural areas helped identify the geographic and resource variations that impact participants' experiences of accessing healthcare. Additionally, these areas were selected because I am familiar with the communities, and I have social networks, which facilitated identifying and recruiting participants. Directorate of Health Affairs facilitated communication with the directors of PHCCs in the selected rural areas. I contacted them by phone and received initial approval after discussing the research. Clinics of chronic diseases at PHCCs were selected as the sites to invite patients with long-term conditions (DM or/and CVD). All selected rural areas were more than 50 kilometres away from the city and about an hour driving distance.

4.3 Rural areas profile

As mentioned above, three rural areas were selected (Table 4.1). The first one is a small town called Ashayrah which is located north of Taif. Ashayrah is located in a desert 54.15 kilometres away from Taif and 54.01 kilometres away from the specialized healthcare facility. There are approximately 14,871 people living in this town (Figure 4.2). The second rural area, Shear, is located northeast of Taif city, and there are approximately 1,018 people living here. It is a small village located 138.65 kilometres from the city, which requires three hours of driving (Figure 4.3). The third rural area is known as Al Alba, a small farmland located to the southeast of Taif. It is estimated that there are approximately 1,405 people living in this area (Figure 4.4). as indicated above in the first chapter, rural areas are characterized by tribal units with the majority of the population belonging to a particular tribe. In each area, there are two compound schools for both males and females at all grade levels. Each of these three rural areas

has a primary healthcare centre, and patients who require advanced care are referred to one of Taif's specialized hospitals. All three rural areas lack a variety of resources such as shops, pharmacies, public transportation, entertainment services, etc. Below is a Google Map which shows the location of the rural areas within Taif city, the distance from the city to the rural area, and the travel time between the city and the rural area (Figure 4.1). According to this map, the land is predominantly deserted with only a small amount of agricultural activity.

Table 4.1: Profile of rural areas

Name of rural areas	Distance from City	NThe nature of land	Population	#PHCCs
Ashayrah (Rural area 1)	54.15 km (Small town)	Desert	14,871	1
Shear (Rural area 2)	138.65 km (village)	Desert	1,018	1
Al Alba (Rural area 3)	114 km (farmland)	Agricultural	1,405	1

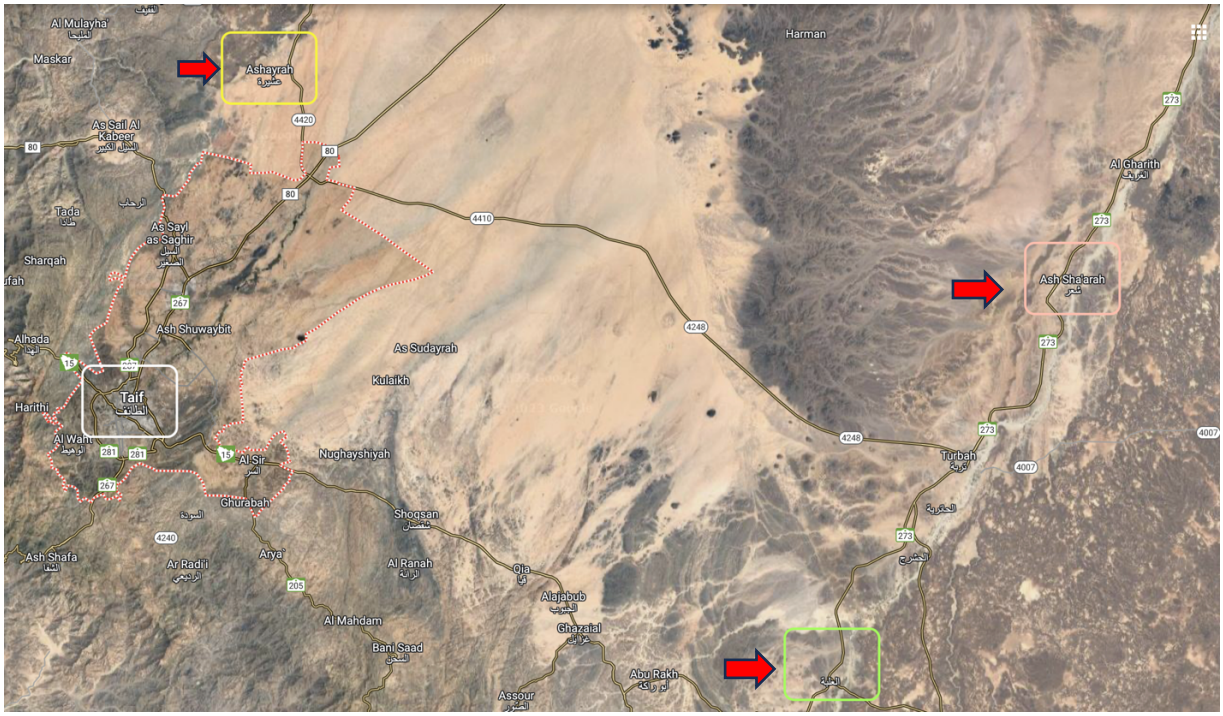


Figure 4.1: Location of Taif city and selected rural areas

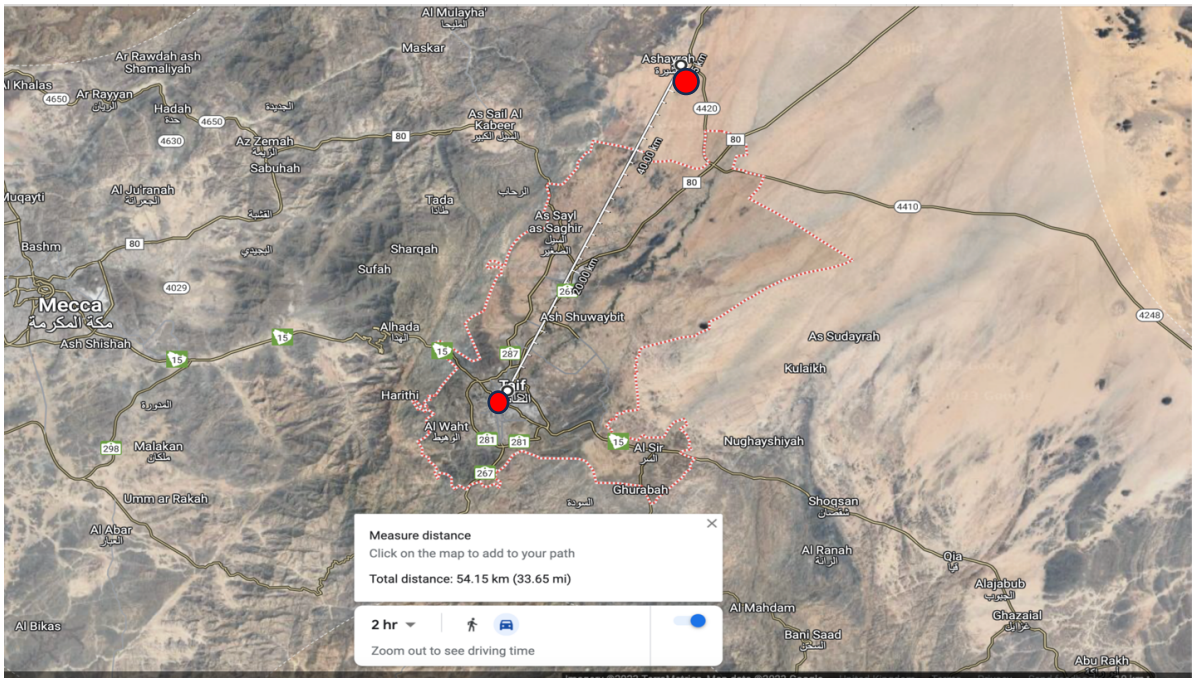


Figure 4.2: Ashayrah (Rural area 1)

Figure 4.3: Sha'arah (Rural area 2)

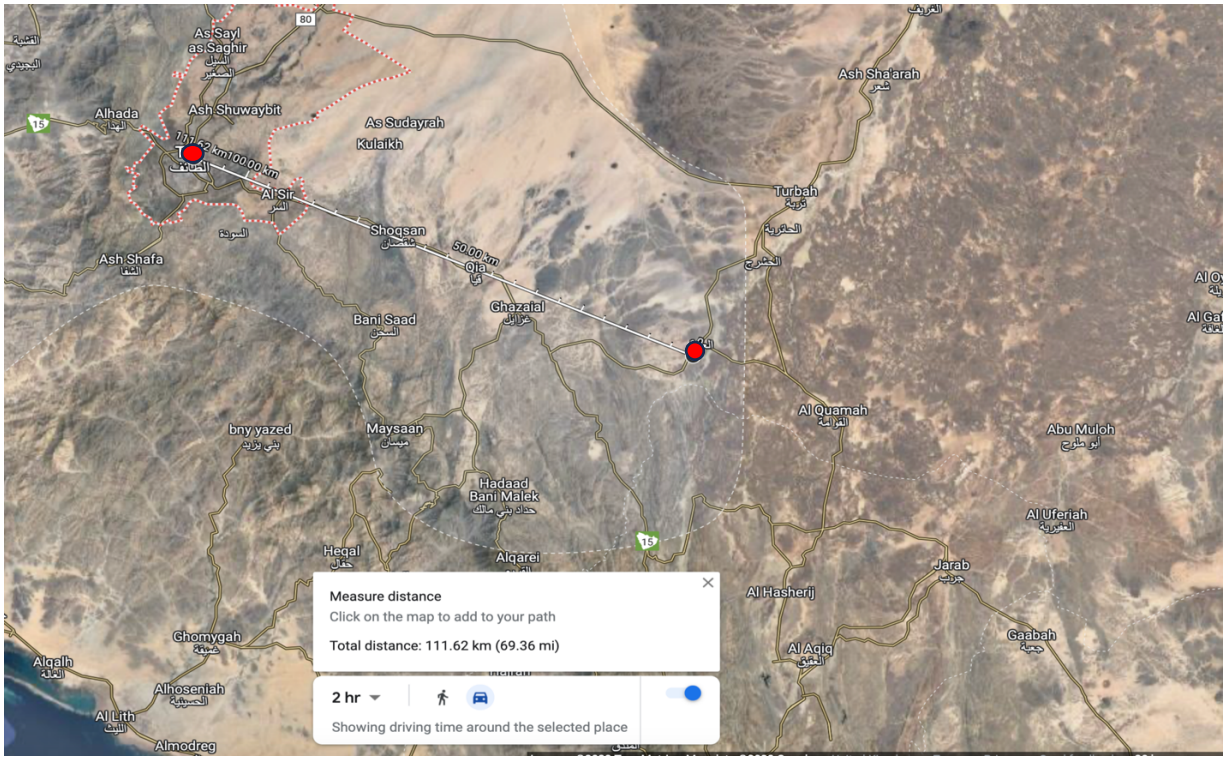


Figure 4.4: Al Alba (Rural area 3)

4.5 Sampling method

Sampling in research refers to selecting a group of people to study and making inferences about specific cases. Different sampling methods can be used based on the research goal and resources. The main types of sampling methods include probability sampling and non-probability sampling (Vehovar et al., 2016). Probability sampling is used in quantitative studies to identify participants randomly, while non-probability sampling refers to selecting non-random participants with specific experiences (Creswell and Poth, 2016). This research investigated the experiences of rural women and healthcare providers within the context of rurality in SA. Thus, non-probability sampling was suitable to select a specific group (rural women and providers) working in specific facilities. Based on the inclusion criteria explained above, participants were recruited using a mix of non-probability methods, including purposive and snowballing sampling (Bryman, 2016).

4.5.1 Purposive and snowball sampling

A heterogenous purposive sampling technique was used to recruit women and providers from all three sites. Purposive sampling refers to selecting a group of people that fits the eligibility criteria of the study to answer the research questions (Rai and Thapa, 2015). Purposive sampling, commonly used in qualitative studies, helps the researcher gain a deep understanding of the experiences by allowing the researcher to recruit participants from different backgrounds and experiences relevant to the research question. This type of sampling can be used to capture the different perspectives and identify common patterns among participants. Recruitment for purposive sampling can be challenging. Finding and convincing individuals with the desired characteristics may require extra effort and time, leading to potential recruitment issues. Therefore, an additional sampling approach called snowball sampling was used to find more subjects through a chain of referrals. For example, one participant referred the researcher to another subject with the same characteristic or experience (Parker et al., 2019). This sampling type proved advantageous in this study since rural samples are difficult to obtain and recruit remotely. Although snowball sampling was not costly and simple to employ, it needed time to follow up with a referred respondent (Creswell et al., 2007).

4.5.1.1 Profile of rural women

Adult women, aged 18+ years, diagnosed with chronic diseases (DM or/and CVD) for at least six months, living in rural areas around Taif city, and receiving care from hospitals at Taif city or/and rural PHCCs were recruited for the study. I was keen to recruit different age groups of women during my recruitment process reflecting different diagnosed conditions, for example, women in the age brackets of (18 - 29), (30 - 49), and (50+) were recruited. Recruiting women from multiple age groups rather than a specific age group helped provide important insights by exploring variations in rural women's experiences based on the level of healthcare facilities, socio-demographic criteria, health needs, and backgrounds. This study specifically targeted rural women diagnosed with chronic diseases for at least six months. Recruitment of women diagnosed with chronic conditions for less than six months would include women recently receiving advanced care who would not have long-term experience as they might only have had one appointment.

Rural women not diagnosed with chronic diseases and living outside rural areas were excluded as they do not have the experiences of women who are permanent rural residents and face these barriers constantly. Local PHCCs and SHCFs were selected because these facilities helped reach patients easily despite Covid-19 restrictions. SHCFs [KASH and KFH] are the main facilities serving rural areas and it was expected that enough participants could be recruited from rural areas through these facilities.

4.5.1.2 Profile of HealthCare Providers (HCPs)

Regarding recruitment of HCPs, women and men who work at DM centres and CVD clinics, and provide care for women diagnosed with chronic conditions at KFH and KASH and selected rural areas, were invited to participate in the study. Saudi and non-Saudi healthcare providers were included in the study. All HCPs' specialities were recruited in this study (e.g., doctors, nurses, physiotherapists, etc.) to identify specific barriers or experiences related to the provider's speciality. Those not working at DM centres and CVD clinics at selected hospitals or PHCCs in rural areas were excluded. Table 4.2 provides the inclusion and exclusion criteria of rural women participants and HCPs.

Table 4.2: Inclusion and exclusion criteria of rural women participants and HCPs

Participants	Inclusion criteria	Exclusion criteria
Rural Women	Age: Adult women (18-50+) Diagnosis: Chronic diseases including DM/CVD for at least 6 months Living in rural areas Receiving care in local PHCCs or selected SHCFs	Less than age 18 Not diagnosed with chronic conditions, DM or CVD, or diagnosed less than 6 months. Participants not living in rural areas. Not receiving care from local PHCCs or selected SHCFs
HCPs	HCPs working in local PHCCs of rural areas. HCPs working in selected SHCFs [KFH and KASH] At least a year of work experience in Saudi healthcare facilities Saudi and non-Saudi healthcare providers	Not working in local PHCCs or selected SHCFs Work experience less than a year

4.6 Recruitment process

After obtaining ethical approval from the University of Sheffield and the Directorate of Health Affairs, I contacted research departments at the hospitals and directors of PHCCs to receive official and local approvals. I received emails from the research departments, including required forms to be completed, and sent them back for both hospitals. Through email, research departments referred me to the director of the medical clinics and diabetic centre, who were considered the gatekeeper of the clinics. During that phase, visiting the hospitals to invite HCPs and rural women directly could facilitate the recruitment process, but it wasn't easy because all facilities during that time were prepared to provide Covid-19 vaccines to the public and did not allow me to visit the facilities. Due to this reason, emails and phone calls were used to contact the research departments at hospitals and directors of PHCCs. Recruitment flyers for patients and healthcare providers were sent to them to be displayed inside facilities.

Research departments and directors of PHCCs were the facilitators to reach participants using different methods. First, they informed HCPs at CVD clinics, DM centres, and rural PHCCs about the study and directly spoke to HCPs if they were interested in participating. Second, providers were selected and assigned to clinics and centres to distribute and display the flyers inside the clinics (see Appendix 6: Invitation Flyers). Additionally, they distributed online flyers and posted them on social media platforms such as WhatsApp. With the help of QR codes on these flyers, participants could access an information sheet and consent form on the University of Sheffield's Qualtrics XM platform (See Appendix 6 for invitation letter with the link of the information sheet and consent forms). I used samples of information sheet and consent form prepared by the University of Sheffield to cover all ethical considerations. Also, I provided information for further enquires. The following sections describe the recruitment process for each group.

4.6.1 Recruitment of healthcare providers (HCPs)

HCPs were the first sample to be recruited as they are the gatekeepers that build a rapport with the patients. They helped identify rural women who fulfilled the selection criteria and invited them to participate. I kept following up with them through the recruitment process. However, it was challenging to identify rural patients at hospitals (CVD clinics and DM centres) due to Covid-19 restrictions because most rural patients preferred receiving care virtually. Due to this, the assigned provider referred me to contact a provider responsible for a virtual clinic to invite the patients to participate. She informed rural women about the study and invited them to participate.

Not being present at the facilities myself and providers being busy during the pandemic delayed the recruitment process. Communicating with colleagues working at the DM centre and CVD clinics in both hospitals (KFH and KASH) was necessary to follow up and acquire updates during this phase. Recruiting HCPs from the DM centre was easier than from the CVD clinics because the assigned facilitator at the DM centre was cooperative and helped accelerate the recruitment process.

4.6.2 Recruitment of rural women

Assigned HCPs (facilitators) were the initial medium used to directly recruit rural women. Besides that, some patients contacted me by phone and were interested in participating

after receiving the invitation flyers. I sent the information sheet for further information and asked if they had any questions before discussing the method and date for the interview. Most rural women participants preferred a phone call over a Zoom meeting as they were not familiar with Zoom. Social connections were also used to reach rural communities. For example, the director of a rural area with connections in the community sent a flyer via a WhatsApp group that included rural residents. The snowball sampling approach was also used to increase participant number.

4.6.3 Participants

The table below shows the number of participants from each facility. Tables 4.3 and 4.4 show the total number of respondents from the rural PHCCs and SHCFs. A total of fifteen HCPs participated including seven from three PHCCs and eight from the hospitals. Thirteen rural women participated in the study including seven from PHCCs in rural areas and six receiving care from SHCFs. Four women who were recruited from KASH were not from the selected rural area, yet they met the inclusion criteria. Figure 4.5 presents a flowchart summarising the recruitment strategy and illustrates the steps and strategies used to recruit HCPs and rural women.

Table 4.3: Number of primary healthcare centre participants (HCPs and rural women)

Primary Healthcare Centres			
Name of rural areas	#PHCCs	HCPs	Rural women
Ashayrah (rural area 1)	1	3	3
Shear (rural area 2)	1	2	2
Al Alba (rural area 3)	1	2	2
Total	3	7	7

Table 4.4: Secondary healthcare facilities participants (HCPs and rural areas)

Secondary Healthcare Facilities		
Name of Facility	HCPs	Rural women
KASH	6	4
KFH	2	2
Total	8	6

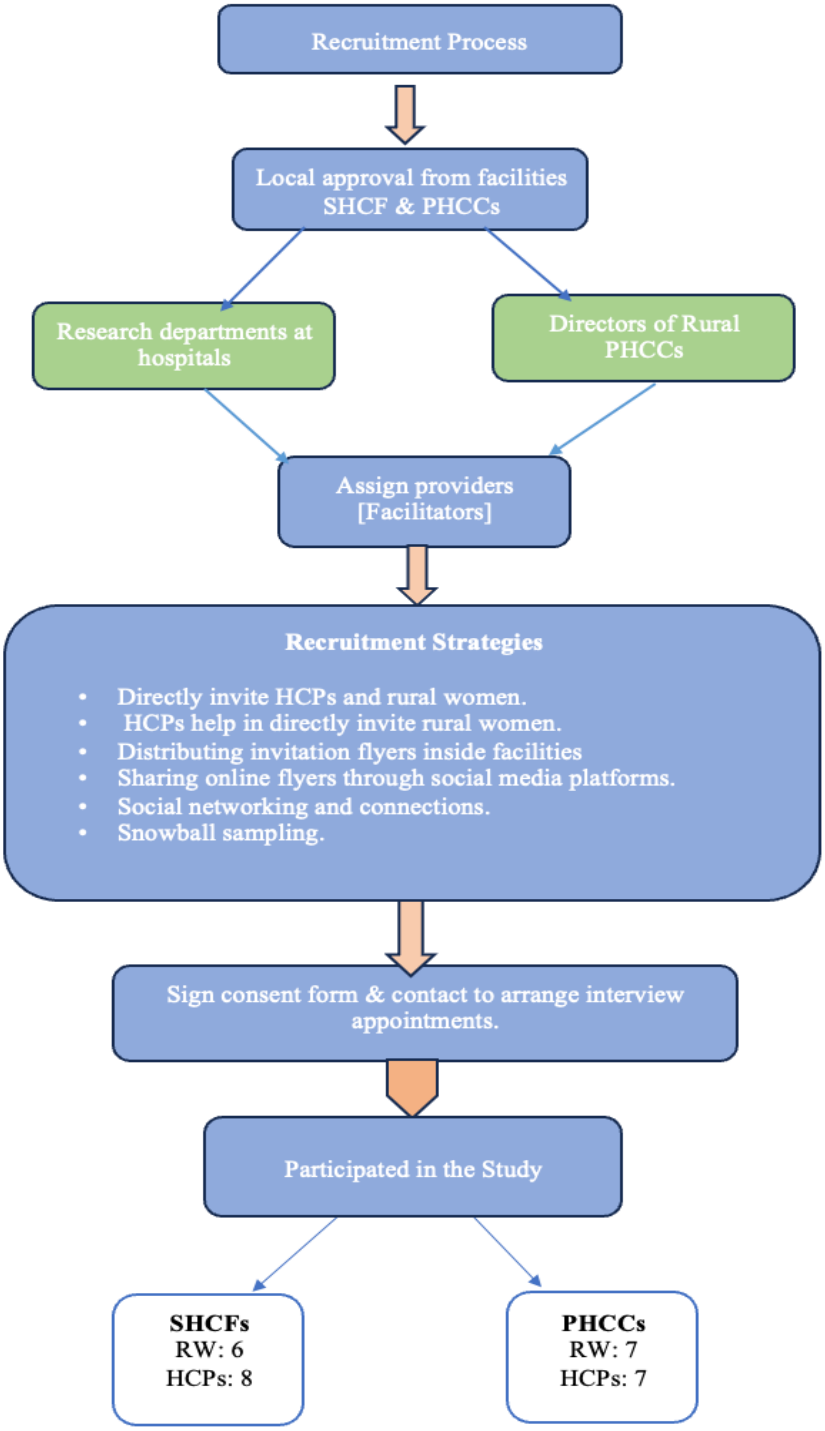


Figure 4.5: Flowchart of the recruitment strategy for rural women and HCPs

4.7 Data collection

Semi-structured one-to-one interviews were conducted. This method was preferred because it focuses on individual experiences, opinions, emotions, and knowledge which was the aim of this study (Creswell, 2003). Besides that, participants' experiences may contain sensitive or personal information that women avoid expressing in groups. This is particularly the case in SA rural communities, which are small, resembling tribal gatherings where families know each other well. This factor could have influenced women's responses if focus groups were used. Interviews were not only suitable for women but also for HCPs because they could be arranged flexibly.

Planning data collection was challenging, due to the uncertainty of the Covid-19 restrictions including social distancing and the possibility of imposing lockdown if the number of Covid-19 cases increased. Due to this, I considered different options to accommodate participants' preferences. First, the interviews were remotely conducted, and participants preferred telephone or Zoom meetings with flexible timings. Second, considering Saudi culture and the importance of women's privacy, using telephone calls as an alternative to video calls was preferable for most women. Also, telephone interviews were more suitable for older participants who were unfamiliar with Zoom or lived in rural areas with poor Wi-Fi. Flexibility in time and place encouraged participants to respond positively. The estimated time for each interview was 25 to 30 minutes.

4.7.1 Advantages and disadvantages of semi-structured interviews

The semi-structured interview was selected because it enabled a balance of flexibility and structure by using pre-determined questions and asking follow-up questions based on interviewee responses (Davies and Hughes, 2014). Through semi-structured interviews I was able to obtain research data that elaborated on the participants' thoughts and explored social and contextual factors that influence rural women's access to healthcare services (Davies and Hughes, 2014).

Despite the flexibility of semi-structured interviews, personal bias may affect the collected data because of the interviewer's questioning style and interpretations across participants. Furthermore, the findings may be influenced by the accuracy and truthfulness of the shared information. This can happen because of participants' memory recall limitations and the

participants' desire to share sensitive information (Harvey-Jordan and Long, 2001). Several strategies were employed to minimize bias, and they are discussed in more detail below in the section on quality and rigour.

4.7.2 Developing an interview guide protocol

In this study, interview guides prepared for the rural women and HCPs first included the sociodemographic information. The initial interview questions were developed based on the literature review and the Levesque conceptual framework of access to healthcare. The questions for rural women covered different aspects that shaped their experiences in accessing healthcare including participant's perception of health needs, behaviour to seek healthcare, sociocultural factors, and the ability to reach the healthcare facility. Organizational barriers and economic factors were additional topics discussed with rural women. The interview questions for HCPs mainly focused on the experiences of delivering care to rural women, and the facilitators and barriers that influenced the provision of healthcare to rural women diagnosed with long-term conditions. Subsequent questions and probes were added to each question to uncover more information. Both interview guides were written in English. The English version was used with HCPs and the patient interview guide was translated to Arabic because most patients did not speak English. The translation process is explained below.

4.7.3 Piloting and revising interview questions

Before interviewing participants, it is recommended to use certain strategies to check the interview questions (Roberts, 2020). For example, I shared the interview guide protocol with supervisors and discussed with them to revise the questions and add probes. Interviews were piloted with two providers and one patient to ensure that questions were clear, organized, and reliably translated from English to Arabic. After conducting pilot interviews, some questions were revised to make them clearer (See Appendix 9 for the interview guide protocol). Data collected in pilot interviews were added to the final dataset because they had good rich data.

4.7.4 Conducting interviews

As a novice researcher, conducting a pilot interview, practicing the interview technique with my supervisors and colleagues, and receiving feedback helped refine my technique and

build my confidence before conducting interviews. After scheduling the interview based on mutual convenience for the interviewer and interviewee, I sent the Zoom link or called the participant directly by phone based on participant preference. I tested the recorder and made sure it was functioning properly. A quiet and private location free of distractions was selected, and I requested that the interviewee be present in a quiet setting as well. Each interview started with a greeting, introducing myself, and having an initial conversation to establish rapport and create a comfortable atmosphere. I briefly summarized the research study and asked the participants if they had read the participant information sheet and if they had any questions. I informed them of their right to withdraw from the study at any time. Also, I reminded them that I had received their consent form, including their permission to record the interviews, and assured them that their responses would be confidential and anonymous.

The interviews lasted between 25 to 30 minutes and were facilitated by showing flexibility and listening attentively to interviewee responses to ask follow-up questions. Probe questions also encouraged participants to elaborate on their experiences. Following the guide helped organize the interview and ensured that all relevant topics were covered. Taking notes during or immediately after the interview by reflecting on the shared information or interview process improved the quality of the collected data (see Functional Reflexivity below). At the end of the interview, I asked the participants if they had anything to add or any questions and thanked them for their interest in participating in the research. After each interview, a post-interview reflection was written, which helped follow up the interview process. This is further explained in the next section.

4.8 Translation in qualitative research

Translation is an important phase for ensuring the accuracy of the meanings in qualitative research. Bilingual researchers indicate that translation in qualitative research can be challenging, particularly in translation to Arabic, as it has a different linguistic structure (Chen and Boore, 2010, Al-Amer et al., 2016). The nature of the constructive approach relies on the whole meaning rather than literal accuracy and does not support using word-for-word translation (Temple, 2002, Nurjannah et al., 2014). This type of translation may influence results and miss vital nuances in social and cultural contexts. Furthermore, researchers have found that translation can be time-consuming and expensive (Chen and Boore, 2010). Thus, it is suggested that the primary researcher who speaks the original language can be a translator-

moderator and cooperate with a professional translator (Van Nes et al., 2010). Also, it is recommended by qualitative researchers that the analysis is conducted in the source language and the translation is carried out at a high level, like at the thematic level (Chen and Boore, 2010, Al-Amer et al., 2016). This will help stay close to the participants' language, decreasing the potential loss of meaning and better describing the uniqueness of the cultural context. In this study, the interview questions, two participants' interviews, themes, and participants' Arabic quotes were translated from Arabic to English. Translation was done using a professional translator and the researcher, as I am fluent in Arabic and English, and familiar with the culture. An expert translator was used to translate only the interview questions for Arabic speakers; then, the researcher completed the translation process. The translation was performed by following structured translation procedure which is described below under the data analysis (*Phase 2: Generating initial codes).*

4.9 Data preparation for analysis

With the participants' consent, I audio-recorded and transcribed the interviews. Data was transcribed verbatim. All interviews were transcribed completely leaving out irrelevant information such as greetings. In order to ensure that the transcripts were anonymous, I assigned two random letters for HCPs and fake names for rural women participants. Although transcribing the interviews was time-consuming, it helped me familiarise myself with the data, which is the first step of data analysis by thematic analysis (Braun and Clarke, 2006). To facilitate the analysis process, MAXQDA software was used for coding. Data were organized separately in two MAXQDA sheets - one for rural women and one for HCPs. In each sheet, documents were categorized based on the recruitment setting, whether the participant was recruited from SHCFs or PHCCs, which helped differentiate the experiences and challenges. Coloured fonts were used for organizing the interview transcript; one colour for the question and another for the participant's answer. Different features of MAXQDA software were used to facilitate data analysis, such as creative coding, memos, and a logbook to write notes and reflections. Before starting coding, two interviews for patients were translated into English and shared with supervisors to read the data collected from rural women.

4.10 Data analysis

4.10.1 Reflexive thematic analysis (RTA)

The theoretical flexibility of RTA provided rich and complex data, capturing the most prevalent themes across the data of rural women and providers that linked to the research question. As indicated by Braun and Clarke (2006), themes can be identified both inductively and deductively. The inductive approach is data-driven and is used to identify and develop new codes within SA socio-cultural contexts. In contrast, in the deductive approach, Levesque's Conceptual Framework of Access to Healthcare (Levesque et al., 2013) can be used for coding and sorting categories. Employing both inductive and deductive approaches in data interpretation provides rich data description, enhancing the interpretation's accuracy. Besides that, the richness of the data depends on the level at which themes are identified (semantic or latent themes). Thematic analysis at the semantic level focuses on the general meanings of the data, while the latent level goes beyond what participants said, involving interpretative work to examine the underlying assumptions and meanings. Latent themes are compatible with the philosophy of constructivist paradigms (Braun and Clarke, 2006). Thus, deep analysis was needed to understand all dimensions that impacted rural women's and HCPs' experiences.

The RTA step-by-step guide was followed for each group of participants (rural women and HCPs), which included five phases: (1) familiarising oneself with the data; (2) generating initial codes; (3) searching for themes; (4) reviewing themes; (5) defining and naming themes; and (6) producing the report (see Figure 3.8: Flowchart of thematic analysis process) (Braun and Clarke, 2006). Before starting the coding process, transcribing all the interviews helped me become familiar with the data. In the second phase, I generated the initial codes from the data, which were regularly reviewed and reclassified. Codes were developed to understand participants' experiences by identifying potential barriers and facilitators affecting rural women's access to healthcare and HCPs to deliver care. After identifying the initial list of codes, in the third phase, I sorted and collated the codes into potential categories and themes. In this phase, the codes and categories were related to organizing and synthesizing the general themes. Next, the themes were reviewed which involved combining and refining candidate themes to explain the aspects of data captured in each theme. By the end of this phase, themes were clearly defined and described. Throughout the data analysis process, the cohesiveness was checked by having periodic meetings with supervisors to discuss initial codes and themes that were developed to ensure consistency in the analysis process. The final phase was writing

the report, which told the story of the data by providing sufficient evidence about the themes and data extracts, including an analytical narrative of the participants' experiences (Braun and Clarke, 2006). The next section covers each of these phases in detail.

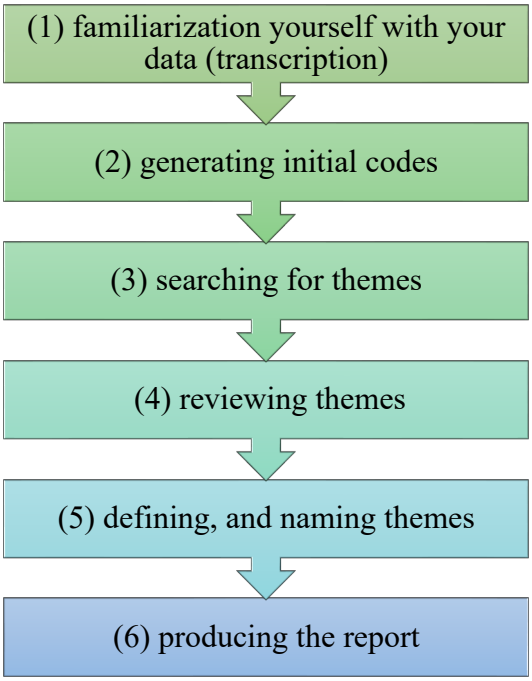


Figure 4.6: Flowchart of thematic analysis process

4.10.2 Phases of data analysis

Phase 1: Familiarizing oneself with the data (transcription)

As mentioned above, I started familiarizing myself with the data by listening to the audio first and then subsequently transcribing the interviews. Transcribing was done immediately after each interview. This phase provided initial insights into the data. The interview transcripts were directly written in the MAXQDA sheet, and I uploaded a copy of each interview on Google Drive. The time for transcription depended on the length of the participant's interview, and most interviews took about 3 to 6 hours.

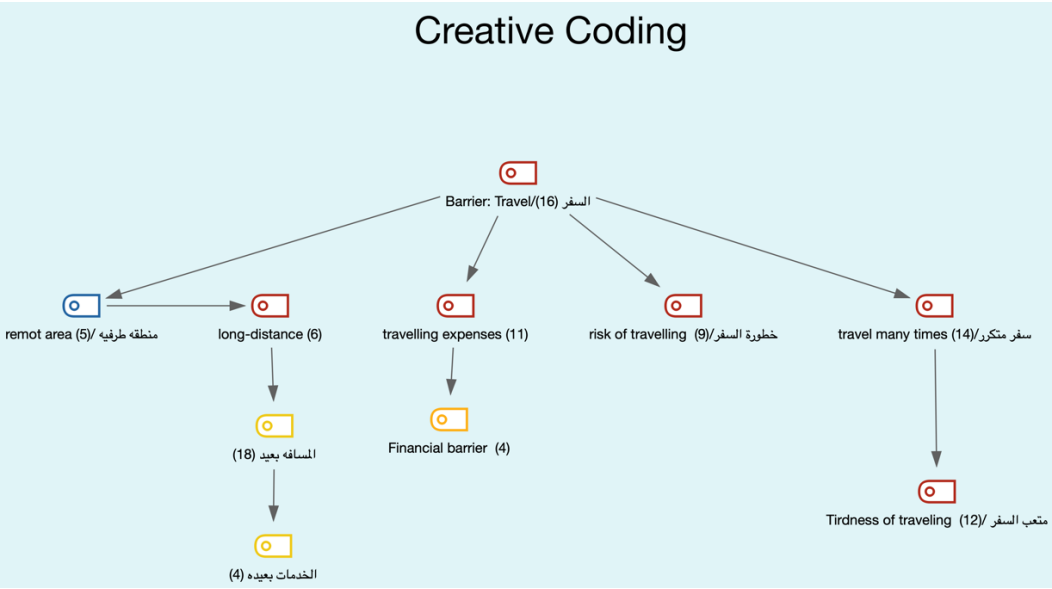
Phase 2: Generating initial codes

After transcribing and completing a few interviews, two interviews were selected randomly from each group of participants for analysis. The researcher and supervisors independently coded two interviews; other transcripts were completed after the discussion and

agreement. Both were analysed using MAXQDA and the codes were discussed with supervisors to get feedback before conducting other interviews. I started with rural women followed by HCPs because I had enough interviews of rural women to start the analysis.

The coding process went through two coding cycles. The first cycle was open coding which is more inductive and allowed to be close to the data without being influenced by the framework. Mixed coding methods were also applied, such as descriptive coding, and *in vivo* coding, including the participant's voice to label the feelings of the participants, emotion and values. Holistic coding helped describe the meaning of one complete unit rather than line-by-line. Sub-coding and simultaneous coding were adopted when data suggested multiple meanings. Attribute coding, such as the participant's age, was used to describe the participant's characteristics or demographics. Most codes were defined and named from the literature and previous studies to minimize confusion; however, new codes were defined in the memo to facilitate the coding process. Some interviews were extended and contained extra and unrelated data. As a result, not all of the content of the transcripts was coded, and only certain portions of transcripts were coded in order to answer the research question.

After completing the rest of the interviews, 500 codes for rural women and 400 codes for providers were retrieved from the first cycle of coding the data. The Creative Coding tool on MAXQDA was used to organise, delete, and merge codes (see Figure 4.7: Creative coding for travel and healthcare services). This tool helped visualise codes and mapped the data to facilitate deleting and merging codes. Also, it helped in the second coding cycle to develop higher level concepts. For the second cycle, I utilized the deductive method using the Levesque framework for revised coding and sorting categories and themes. The analysis process was facilitated by having periodic meetings with supervisors, discussing the codes, and following up on the process of analysis.



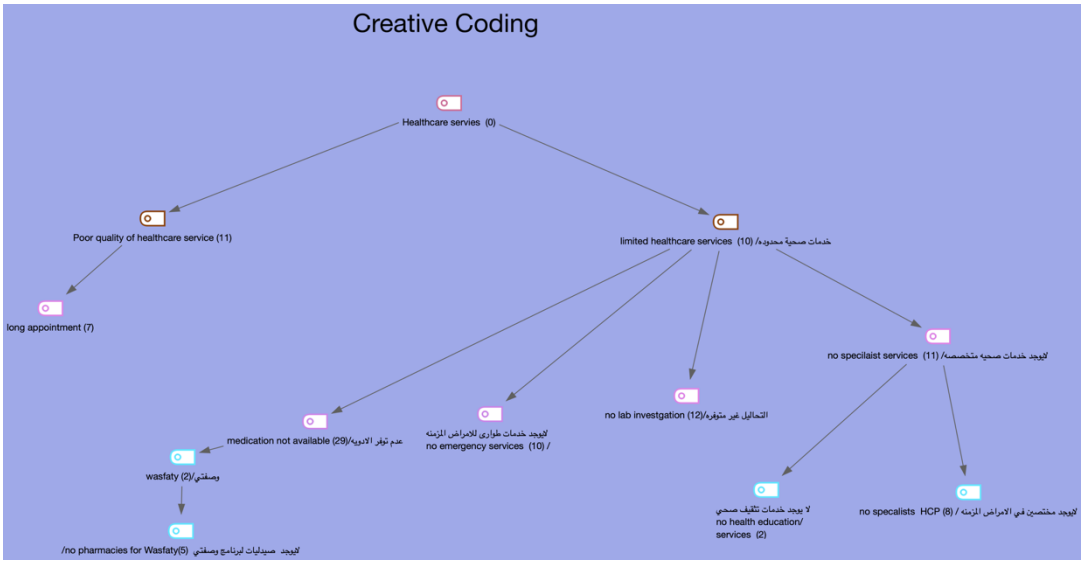


Figure 4.7 Creative coding for travel and healthcare services

Phase 3: Searching for themes

In this phase, categorizing and defining themes was done using smart coding and matrix. Themes were developed inductively from the data and deductively guided by the Levesque framework. The Levesque model was used as a framework for searching and organizing themes. Adding a framework to the analysis helped simplify the process of developing themes and reduced the burden of dealing with large datasets. At this stage, 10 candidate themes and subthemes were initially identified from the rural women's interviews. Seven themes and subthemes were identified from the HCPs'

interviews. To facilitate the next phase (reviewing themes), a data analysis matrix was used to summarise the data, creating one separate matrix for each group. The matrix or table included codes, categories, themes, relevant data extracts, and researcher comments. This matrix was shared with supervisors to facilitate presenting data and discussing initial themes. Figure 4.8 illustrates how the inductive analysis of interview data of rural women and healthcare providers was linked with the deductive analysis of corresponding factors based on Levesque's framework.

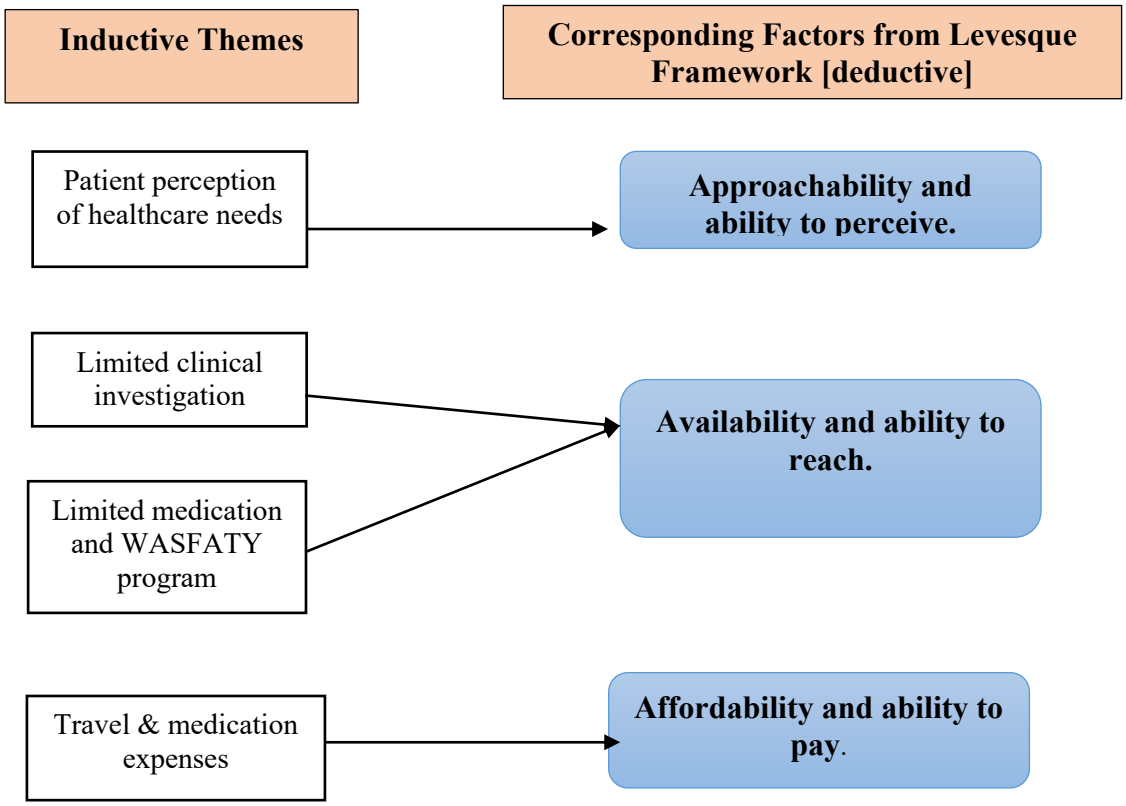


Figure 4.8: link between inductive themes and Levesque's framework

Phase 4: Reviewing themes

Data and themes were reviewed and refined through multiple meetings with supervisors. The first meeting discussed the themes found in rural women's data, including the meaning of terms used in the themes and subthemes and their relevance to the research question. Some themes/subthemes were omitted or merged with another theme. Since no new concepts were identified and themes started to be found, the interviewing of participants was stopped in this phase as saturation/richness was achieved. In this phase, it

was essential to not only consider data saturation, which is commonly used to determine the final themes, and to stop recruiting participants (Guest et al., 2006, Saunders et al., 2018), but also consider the information power, which is a recently developed concept that depends on various factors including the quality and relevance of information provided by participants, sample specificity, established theory, and analysis process which all reflect on the quality of the results (Malterud et al., 2016). By incorporating both concepts, it was ensured that the sample size from both participants (rural women and HCPs) was sufficient to provide the information and capture the richness and depth of the data (information power), and that the collected data was comprehensive enough to identify thematic patterns (data saturation). The next phase was the final step before writing the findings report.

Phase 5: Defining and naming themes

During data analysis, phases 4 and 5 were iterative processes which were repeated through the analysis and review of themes. In this phase, themes were discussed with supervisors and refined until consensus was reached. Six main themes were retrieved from rural women's data including barriers and facilitators. For HCPs, themes were categorized under three main domains, which is explained further in the findings chapter. The procedure used for translation during the analysis phase is described below.

4.10.3 Translation procedure

After the themes and subthemes were identified, I translated them into English. In this phase, I discussed with my supervisors if I faced challenges between what I found in the data and how to explain it in English. Besides that, a professional translator was used to review themes and selected data extracts (participants' quotes) before preparing the final English version. One colleague who spoke Arabic and English fluently and was familiar with the culture and had a nursing background, was asked to translate the final version using the English-back method. These steps were repeated to reduce discrepancies between the original Arabic version and the back-translation version, as well as enhance the quality of translation through consultation with professional translator and continuous discussion with supervisors (see Figure 4.9: Translation procedure).

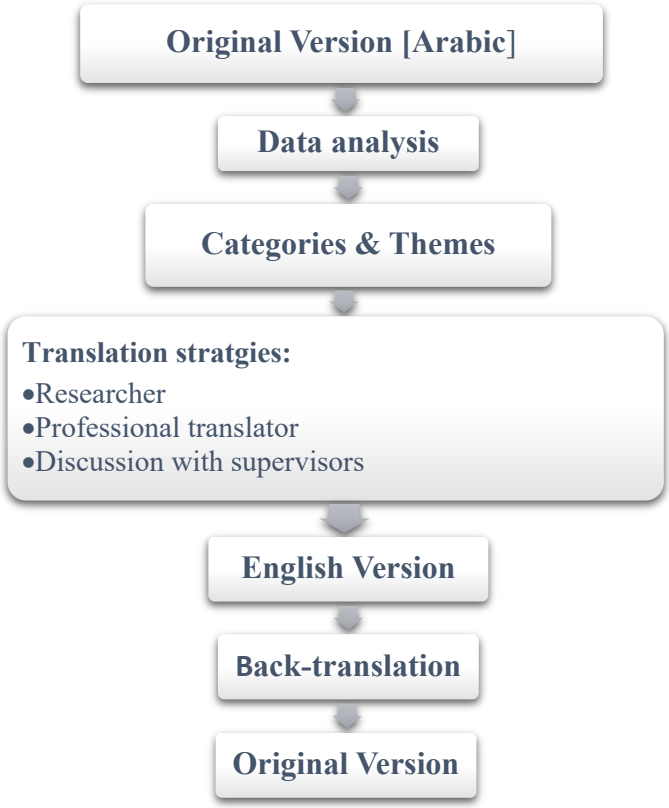


Figure 4.7: Translation procedure

Phase 6: Producing the report (writing phase)

The final step was writing the findings. The writing process in qualitative research is more interwoven throughout the analysis process, in which themes and subthemes change over the writing phase (Braun and Clarke, 2022). While producing the findings, changes were documented using memos and comments were made on the findings in chapter drafts to keep tracking the changes in writing the themes. This helped develop logically connected themes, providing a comprehensive interpretation of the participants' experiences. I divided the findings into three chapters (described in the 'Organization of findings' section below). I started with writing the findings of rural women (Chapter five) and then the HCPs' findings (Chapter six), and one more chapter (Chapter seven) was added to integrate the participants' experiences across both samples. The last chapter focused on the main concepts concluded from rural women's and providers' data. The findings from the rural women and HCPs were discussed together in this chapter in order to provide an integrated view of the barriers and facilitators in

accessing chronic healthcare services, and to identify the differences in the perspectives of rural women and HCPs.

4.11 Organization of findings

Braun and Clarke (2022) suggested that synthesis of data can be included with the findings chapter instead of the traditional method in which results are contextualized in a discussion. However, a PhD thesis must follow the traditional method, which includes separate findings and discussion chapters in order to provide a neutral reporting of the results before discussing the findings in the context of published literature. Chapters five, six, and seven reported the findings of this thesis. Chapter five and six covers patient experiences in accessing chronic disease healthcare services in rural areas. Both chapter starts with the demographic characteristics of rural women and HCPs to consider how their characteristics may contribute towards the themes. Also, there are diagrams and conceptual maps that summarize the findings and main themes for each participant group. Themes in both chapters are categorized according to three main domains: patient-level barriers domain, healthcare system-level barriers domain, and facilitators domain. As previously stated in Section 4.7 (Data Analysis), the analysis encompassed both semantic and latent levels. Chapters five and six predominantly offer a semantic description of the experiences of rural women and healthcare providers (HCPs). In contrast, chapter seven delves into a latent level, providing interpretations that extend beyond the data to offer a comprehensive view. Furthermore, Chapter Seven includes a comparison of the experiences of both participant groups, highlighting integrated findings that define their similarities and differences. At the beginning of each chapter, a summary of participant characteristics is included to provide information on the participants and link to findings.

4.12 Functional Reflexivity

4.12.1 Reflexivity in recruitment, data collection, and data analysis

Since the research study was conducted during the Covid-19 period, it limited my opportunity to conduct research in the field. The research process was disrupted due to travel restrictions, lockdowns, and physical distancing measures leading to delays in all research proceedings. These factors influenced the complete research process, described below, through three phases: recruitment, data collection, and analysis.

Recruitment

Recruitment of the rural population was challenging, as stated by studies conducted before in rural areas, because of the location and the requirement of travelling to reach the participants (Collins, 2016). I anticipated that I would recruit a minimum of 25 rural women and 20 providers. As explained above, the whole process was conducted online, starting from getting permission from the healthcare facilities to recruiting (rural women and HCPs) and collecting the data. Not being present in the research field and recruiting the participants by myself led to a delay in the process, consequently impacting the number of participants and the interview process. The recruitment process during the pandemic made this process harder for many reasons. First, there were delayed responses from the directors of healthcare facilities, and this was due to the Covid-19 situation. Second, all health settings selected for recruiting the participants were prepared for Covid-19 cases and only allowed HCPs to enter the healthcare facility. Not being present in the field as a researcher to accelerate the process amplified the second reason. For this, some strategies were adopted to facilitate the recruitment process. For example, I followed up regularly and explained that I was not permitted to enter the facilities due to safety regulations. Also, building a rapport with HCPs first and conducting interviews with them helped the directors and HCPs to cooperate with me to invite rural women.

The third challenge was that patients did not attend their appointments during Covid-19 because of the fear of infection and were referred to virtual follow-up sessions. Thus, I asked to be directed to the professional responsible for the virtual clinic to invite participants after the appointment. The nurse selected eligible participants from the list. Four rural women were chosen randomly from different rural areas around Taif city. Then the nurse contacted them and sent them my contact information if they were interested in participating. Besides that, using social networks facilitated the recruitment process. Despite these factors slowing down the recruitment process, I found it helpful to have some time between interviews for reading, transcription, and reflection.

Finally, the workload of HCPs at that time increased the challenges to recruit them and conduct the interview. The Covid-19 restrictions, such as travel restrictions from the United Kingdom to Saudi Arabia and between the cities in SA, forced lockdown, and social distancing, decreased the chances of reaching participants. This increased my stress as a researcher because of uncertainty, and as a PhD student, I needed to complete the study within a specific

timeframe. However, conducting interviews and sharing the initial data with supervisors allowed me to understand that the data I collected was rich. Additionally, recruiting a large number of participants was not the target of qualitative research.

While recruiting participants, I noticed that most HCPs were non-Saudi, which might be related to the fact that most providers in rural areas were non-Saudi. To maximize diversity among HCPs, I encouraged research facilitators in the health settings to invite Saudi HCPs to include their perspectives because they were a part of the community, and their views were essential to the topic.

Some personal factors, such as rural women's unfamiliarity with research and interviews, might have hindered the participation of specific patients. On a personal level, my own pre-conceived ideas about how older women may feel about discussing topics related to sociocultural factors influenced who I approached for participation in the study. Some providers hesitated to participate in the study because of their concern that this would influence their job, and conducting interviews was not a common research method. Explaining participant rights in the information sheet and before the interview, being flexible with circumstances, and adapting to remote work helped recruit 25 participants, including 13 rural women and 15 HCPs. Recruiting and conducting interviews was completed within seven months.

Data collection

At the beginning of data collection, it was challenging to focus on the interview, take notes, transcribe, and analyse, but it became easier after a few interviews. Post-interview reflection was written immediately after each interview by answering the following simple questions for the post-interview reflections and was added to each interview (Nardon et al., 2021). See Box 4.1: Example of post-interview reflection.

Box 4.1: Example of post-interview reflection

Participant 5: Post-Interview reflection - HCP - KFH

How do you think the interview went?

I think this is one of the best interviews since I started data collection because the participant shows interest to share experiences. Also indicates that this study is essential as rural population needs more attention. This interview was informative and the long experience he had helped in shaping his experience. Using video call allowed me to have better communication and allowed me to know the body language. Compared to previous interview, I found this more organized and me as interviewer felt I can move smoothly between topics. Also, the long conversation helped to cover important concepts.

Important features of the participant's responses?

The participant was eager about the topic and to understand the question correctly, so if he could not understand the questions, he asked for repeating or clarification. This helped me ensure that the participant comprehended the question before responding. While the time wasn't convenient, I couldn't delay the interview, so I agreed to conduct it at 7:00 PM. Due to his educational background in the United States, the consultant had obviously developed a different perspective. Studying abroad experience made him gain a better understanding of health access disparities and gender inequality, as well as provide reach data on rural women's experiences. However, I felt there might be exaggeration in criticizing the health sector because he might be upset or influenced by something that happened in his day of the interview. To keep the interview on the right track I was careful to not react and be calm or redirect the conversation to the interview questions. As he is working in SHCF he was focused on the barriers that were more related to the high level of healthcare facilities.

Reflect on your personal reaction to the participant

After this interview, I realised that the participant mainly impacted the interviewer's responses. I noticed that I got the chance to ask questions and have more conversations about rural women and his experience in providing healthcare services. This is likely because the participant was very knowledgeable about the topics and provided in-depth answers and explanations. As a result, the interviewer was more open to further conversations on the subjects.

Additional questions added to the subsequent interviews

Nothing added to the interview and all the questions were answered by the interviewee; however, some probing questions were raised from the conversation. For example (what is your opinion about something he stated ...etc.) and how this impacted on delivering care to rural women.

Using interview notes and answering the above questions helped track my skills as a novice researcher and assess the development of interviews. Answering post-reflection questions permitted maintaining neutrality and minimizing unintentional bias thereby improving the quality of interviews.

One of the vital points noticed through the reflection is that among HCP participants, there was a difference between some male and female providers regarding women's challenges, as women HCPs provided more details about the discussed topics considering that women, in general, are more expressive than men. Women professionals provided more details about barriers. I felt that might be relevant to the gender factor because women are more familiar with situations than male providers. Also, the gender dynamic of being a female researcher may be viewed from the perspectives of dominant gender norms. I noticed, some SHCF providers were not fully aware of all challenges and only concentrated on one barrier, such as transportation or low education levels, ignoring the specific case of rural patients. This discrepancy could be attributed to a lack of familiarity with the patients' remote region and culture. Thus, this may have created a gap between caregivers and the patients, leading to a disjunction between provider's health advice and patient's adherence. One of the HCPs referred to care as being provided only in the facility, excluding the entire situation of rural women. Thus, without bias, sub-questions were asked and participants were gently nudged in some essential points for clarification and the experience of delivering care.

During data collection, I faced some challenges in developing in-depth and detailed discussions with rural women. Often, the interviews would be short in duration, sometimes a maximum of 20 minutes, and the women did not always provide long and detailed answers to my questions, despite multiple attempts to prompt and probe. In part this may be due to their limited educational background, language barriers, and low levels of health literacy which may have contributed to difficulties in understanding the questions I was asking of them and their ability to clearly express their thoughts and experiences. Furthermore, the interviews were conducted remotely over the phone because of the restrictions posed by covid lockdown, which may have contributed to a lack of depth in the discussions and perhaps made it more difficult for me to develop rapport with the women. Women who are unfamiliar with discussing personal topics over the phone might have found this mode of communication difficult which may have

contributed further to the brevity and sometimes superficial nature of their responses. As a result, the interviews were not as in-depth and rich as those conducted with healthcare professionals. It is important to note that some of the questions I asked during the interviews may have appeared leading, since I was attempting to encourage the women to elaborate on their responses and provide additional information during their interviews. I ensured that the participants fully understood the questions by asking probing questions, using scenarios (stories) to explain, using active listening techniques, and avoiding judgmental expressions. Despite these efforts, the inherent limitations of the study's findings are evident, necessitating a more nuanced approach in future research. These challenges highlight the importance of adopting research methodologies that are contextually and culturally sensitive. Alternative data collection methods, such as face-to-face interviews or participatory research techniques may prove to be more beneficial for future studies in order to create a more comfortable and familiar environment for participants.

An extensive body of literature indicates that the power imbalance between interviewers and participants may affect the collected data (Finlay, 2002, Rodríguez-Dorans, 2018, Willig, 2013). As an individual who is both urban woman and researcher, I could have been perceived differently by the participants, resulting in a power imbalance, especially in the context of the conservative cultural norms in rural areas where social inequalities and gender roles exist. I feel this may happen more with women compared to healthcare professionals which may be a result of the difference of education level between the interviewer and the participant. It is also important to note that the power dynamic can be influenced by the way rural women and HCPs perceive the authority of the researcher. Therefore, participants feel obligated to participate in research or refuse due to the fear it will affect their healthcare or their jobs (HCPs). Implementation of the ethical research practices including respecting participants' rights, establishing rapport and trust in the beginning of the interview, being respectful of rural cultural norms, and ensuring confidentiality can all contribute to address the power imbalance. Also, I feel being a woman "insider" and the benefit of a woman interviewing women can have a positive impact on collected data as indicated by (Cotterill, 1992). A shared gender identity may have encouraged rural women to share their experiences and discuss sensitive topics in such conservative communities like rural areas which further contributed to provide a richer and more nuanced data collection.

In this study, two interview methods were suggested, video or phone calls, based on the participant's preferences. Only five participants agreed to have video call interviews, and all of them were HCPs. Some HCPs and rural women preferred phone calls because they said it was easier than doing Zoom video calls due to unfamiliarity with Zoom and it was more comfortable for women and their privacy. Comparing the two methods, I found video calls to be better and it gave me a higher chance to connect with and see participants' expressions and body language. I also felt that video-based interviews gave me richer data because looking at the other person while talking encouraged participants to connect and share more about their experiences. On the other hand, the phone call was suitable and better for rural women unfamiliar with video calls. Both ways were working, and participant preferences were my priority to make them comfortable to discuss their experiences.

Data analysis

During the phases of transcribing the interviews and familiarising myself with the data, preliminary findings of the participants' experiences started becoming apparent. During the coding phase of four interviews, I identified some concepts directly. In discussing my findings with my supervisors, some questions were raised that provided alternative interpretations and underpinning insights that changed my method for the remainder of my coding, resulting in a mix of descriptive and interpretive coding. As a novice researcher, I struggled to be more interpretive. I was concerned that my interpretation would have an impact on the meaning of the data. Therefore, to ensure that I was proceeding in the correct direction, I defined each code clearly, wrote memos, and had periodic meetings throughout the analysis process. Reflecting on my thoughts and theoretical assumptions through the analysis helped limit subjectivity and interpretation bias. Using the Levesque framework also facilitated the transition from the coding phase to developing the concepts and themes (See Reflexivity in relation to adopting the framework PCAHF).

The process of coding two groups of participants and dealing with a large dataset was challenging, so following the thematic analysis phases for each group separately helped organize the analysis process. To prevent misinterpretation of HCP data or being influenced by patient results, rural women's findings were written immediately following the analysis. Then I stopped for some time before analysing HCP data.

To summarize, all strategies employed in recruitment, data collection, and data analysis of the research have been aimed at answering the research question with consideration of my role as a researcher, thus improving the quality and integrity of the study. Critically examining my role, biases, and interactions throughout these phases allowed me to ensure a more transparent, ethical, and reflexive research process, which enhanced my understanding and insight regarding the research question. In addition, as I was directly involved in interviewing, interpretation, and writing, it reflected positively on my skills and helped me enhance them through the process. Although the experience was challenging, it gave me the opportunity to become familiar with the personal experiences of rural women and HCPs which gave me a sense of fulfilment in undertaking this study.

4.13 Evaluating qualitative research rigour and trustworthiness

Validity, reliability, and objectivity have been applied to quantitative research, yet there is a debate over the approach and need to assess the 'accuracy' of qualitative findings. Thus, many strategies have been identified for ensuring the quality of qualitative research suggested by different authors (Lincoln and Guba, 1985, Yardley, 2017). Creswell and Poth (2016) state that there are no specific validation criteria, and the researcher could choose the best approach for assessing the 'accuracy' of the results. To maintain the quality of this study, the criteria proposed by (Lincoln and Guba, 1985) were adopted which include four components: "credibility, transferability, dependability, and confirmability". Each of these is described in further detail below.

4.13.1 Credibility

Credibility refers to the accuracy of the study findings and different methods have been utilized to establish the credibility in qualitative research. Data triangulation was adopted in this study to establish credibility. In qualitative research, triangulation can help in developing a more comprehensive understanding of the observed phenomena (Triangulation, 2014). There are four different types of triangulations namely, method triangulation, investigator triangulation, theory triangulation, and data source triangulation (Triangulation, 2014). In this study, the fourth type of triangulation – data source triangulation – was employed by collecting data from different sources (Shenton, 2004, p.66; Lincoln and Guba, 1985, p.305). Different groups of participants were interviewed including rural women and HCPs recruited from different rural areas and two levels of healthcare facilities. Interviewing various

groups offered the benefit of capturing diverse perspectives and experiences which allowed me to compare and verify the participants' viewpoints. Additionally, credibility was enhanced by having regular meetings with my supervisors to provide constructive feedback through all phases of the research process, especially during the interpretation of interview data (Shenton, 2004). Providing a thick, rich description of research findings enabled readers to understand the information and seek external feedback from peers (reader lens). Both methods helped ensure the credibility of the study (Creswell and Poth, 2016).

4.13.2 Transferability

Transferability refers to the level of findings that can be applicable to another context (Creswell, 2009, Korstjens and Moser, 2018). A "thick description" of the research process is the key to enabling the reader to make transferable judgments. This was ensured by providing detailed description of the research methods, including the context of the research and the experiences of rural women and providers. Furthermore, I have clearly stated the process of selecting the settings, reaching participants and conducting data collection, and justified why some strategies were adopted. As a result of providing this information, the reader can make a fully informed assessment of this study and determine whether its findings are applicable in other contexts.

4.13.3 Dependability

The dependability of this study was ensured by completing detailed records of all research processes and decisions made during the study (Lincoln and Guba, 1985). In consideration of this, I provided a comprehensive description and justification for each step of the research process, beginning with the definition of the study's aim and objectives, and moving through to the writing stage. This strategy, known as audit trial, enabled the auditor to assess the transparency of the research phases (Korstjens and Moser, 2018). Receiving feedback during debriefing sessions with my supervisors and peer scrutiny through the research helped me better understand research concepts and interpretations and minimize biases. This allowed me to identify gaps in my understanding of the research and ask questions and advice to make informed decisions (Lincoln and Guba, 1985).

4.13.4 Confirmability

Lincoln and Guba (1995) emphasized the importance of neutrality, which implies that interpretation must be derived from data. Here, different strategies were used to ensure that my interpretation accurately described the participants' experiences. First, I kept a reflection journal though the research study to identify and be aware of my role and perspectives that might have an impact on the research. I reflected on my thoughts, positionality, values, and work experiences to reduce biases. Second, utilizing the Levesque Framework of accessibility to healthcare in my analysis helped keep me on track and not depend only on my own interpretations and preferences. Third, findings presented in Chapters 5 and 6 provide a thorough description supported with illustrations and participants' quotations.

4.14 Ethical considerations

Before conducting the data collection, I obtained ethics approval from three institutions: The University of Sheffield Ethics and Governance Committee, the Institutional Review Board (IRB) for the Ministry of Health, and Taif University in SA. The ethics requirements involved official permission from all facilities, primary and secondary, and the participants. Due to Covid-19 restrictions and since all data collection was conducted remotely, emails and phone calls were used to contact research centres and send the official documents. As mentioned above, during the process of ethical approval, I had provisional from the Directorate of Health Affairs (DHA) at Taif, which has administrative authority over primary and secondary healthcare facilities in Taif city and its rural areas. This initial approval allowed me to understand more about the healthcare system and the requirements needed to be prepared for local facilities. This step helped me accelerate the process of getting ethical approval.

After getting the official approval from three institutions, I contacted the research centres at two hospitals and directors of PHCCs to begin recruiting participants and collecting data. Participant information sheets were sent to both participant groups (rural women and HCPs), outlining the research process, their involvement, and ethical dimensions such as protection from harm and their right to confidentiality and anonymity (Creswell and Poth, 2016).

4.14.1 Safety considerations during Covid-19 pandemic

This study did not expose the participants or any external people to any form of physical harm or pose any personal risk during the research study or after the research had ended. This study was conducted during the Covid-19 pandemic, which increased the risk of exposing participants and me to infection. To manage safety, my PhD study, at all stages, was completed remotely and following health ministry instructions helped minimize risk and enhance safety. For more details regarding the adopted safety strategies, see Appendix 5: Ethics application (reference number: 038782).

4.14.2 Confidentiality and data management

Confidentiality and anonymity were maintained for participants and their data. Participants were recruited directly by HCPs or using flyers without reaching the patients directly in order to maintain anonymity. Consent was obtained using consent forms completed before the interview using Qualtrics XM, a management (XM) software platform provided by the University of Sheffield so that the participants understood that taking part in this research study was voluntary. A link was created for the information sheet and consent form to be attached to the email or sent to the participants' phone numbers after they contacted the researcher. An encrypted digital recorder was used to record the interviews after taking participants' permissions. This was done so that important information would not be missed and I could listen to the audios later as many times as required in order to extract all the information. The files were transcribed and immediately anonymized in the MAXQDA sheets by using code numbers and pseudonyms for participants' quotes instead of their real names, so that their responses would remain anonymous during the coding process and when the findings were disseminated. Transcribed interviews were stored securely in a password-protected laptop, and a copy was uploaded on the university Google Drive. I deposited the data at the end of the study following the University of Sheffield's instructions for data deposition. Steps were taken to ensure confidentiality and data security during the study - See Appendix 5: Ethics application.

Conclusion

To conclude, this chapter covered the entire research process in detail providing all steps followed to conduct the study. The chapter discussed how to collect, analyse, and

interpret data. In the following chapters, I present the findings starting with the experiences of rural women, then the experiences of healthcare providers, and finally a chapter where these findings are merged so that the similarities and differences between the two groups are articulated.

CHAPTER FIVE: RURAL WOMEN'S PERSPECTIVES AND EXPERIENCES

This chapter presents the experiences of rural women regarding access to healthcare services including primary and secondary healthcare facilities. It starts with demographic data for participants followed by a brief overview of themes and a diagram to provide a visual summary for the themes. Six themes have been identified from the data analysis, and they include - personal factors influencing rural women's attitudes in accessing healthcare services, language barriers, cultural factors, physical barriers, poor quality of rural healthcare services for chronic disease management, and the facilitators that enable rural women to overcome existing challenges in accessing healthcare services.

5.1 Demographic data of participants

Thirteen women from three rural areas around Taif city, namely Ashayrah, Shear, and Al-Alba, were recruited for the study through local PHCCs and selected SHCFs. Table 5.1 shows a summary of the demographic characteristics of the participants and Table 5.2 provides a detailed overview of the demographic data. A majority of the participants were in the age range of 51 - 60 years (n = 6), followed by 41 - 50 years (n = 3), and 61+ years (n = 2). The other age ranges (18 - 30 and 31 - 40) had just one participant each. Most of the women were married (n = 10) except for one who was 18 years old and two were widowed. All married and widowed women (n = 12) had one or more children. A majority of the women were illiterate (n = 9) while the remaining four women had received an education: two had received primary school education, another had received intermediate school education, and the fourth was studying in secondary school. Regarding occupation, all participants were unemployed and dependent on their families for their livelihood. The income levels of the families were in the range of 3500 – 7000 SR (700 – 1500 £) per month. Five women were recruited from PHCCs, and six women were recruited from SHCFs, while two women were found to receive care from both PHCC and SHCF. All the participants were diagnosed with diabetes (n = 13) while five women were diagnosed with both diabetes and hypertension.

Table 5.1: Summary table of demographic characteristics of participants

Demographic data of participants	Number of participants (n = 13)
Age 18 – 30 31 - 40 41 - 50 51 - 60 61+	 1 1 3 6 2
Marital status Single Married Widowed	 1 10 2
Family income level	3500 - 7000 SR (700 – 1500 £)/month
Have children No Yes	 1 12
Education level Uneducated Educated	 10 3
Occupation Dependent Self-employed	 13 0
Diagnosis Diabetes Cardiovascular diseases or hypertension Comorbidity (both)	 13 5 5

Table 5.2: Detailed demographic characteristics of participants (names changed for anonymity)

Name	Age	Marital status	Education level	Employment	Diagnosis	Healthcare facilities
Nora	42	Married	Intermediate	Housewife	DM	PHCC
Hala	60	Widow	Uneducated	Housewife	DM, comorbidity	PHCC
Sara	40	Married	Uneducated	Housewife	DM	PHCC
Nouf	55	Married	Uneducated	Housewife	DM, HTN	PHCC
Munira	60	Married	Uneducated	Housewife	DM	PHCC
Jamilah	56	Married	Uneducated	Housewife	DM	PHCC & SHCF
Fatimah	49	Married	Primary	Housewife	DM	PHCC & SHCF
Hayia	50	Married	Primary	Housewife	DM, CVD	SHCF
Mariam	54	Married	Uneducated	Housewife	DM	SHCF
Mona	18	Single	Secondary	Student	DM	SHCF
Ghaliah	59	Married	Uneducated	Housewife	DM	SHCF
Qamra	80	Widow	Uneducated	Housewife	DM, HTN	SHCF
Modi	75	Married	Uneducated	Housewife	DM, CVD	SHCF

5.2 Brief overview of themes

Semi-structured interviews were conducted with the 13 rural women participants to understand their perceptions and experiences of accessing healthcare services, and the data was analysed using thematic analysis. Six broad themes were identified during the analysis, five of which describe the main barriers faced by rural women to access healthcare services for treatment and management of chronic conditions, and the sixth theme describes the facilitators that enable rural women to overcome existing challenges in accessing healthcare services. The first three themes, personal factors influencing rural women's attitudes in accessing healthcare services, language barriers and availability of limited information, and cultural factors, focus on personal and sociocultural factors that impact rural women's and the community's perceptions in accessing healthcare services. The remaining two themes, physical barriers and poor quality of rural healthcare services for chronic disease management, focus on the barriers in accessing healthcare services that are related to the healthcare system. Each of these themes is described in detail below.

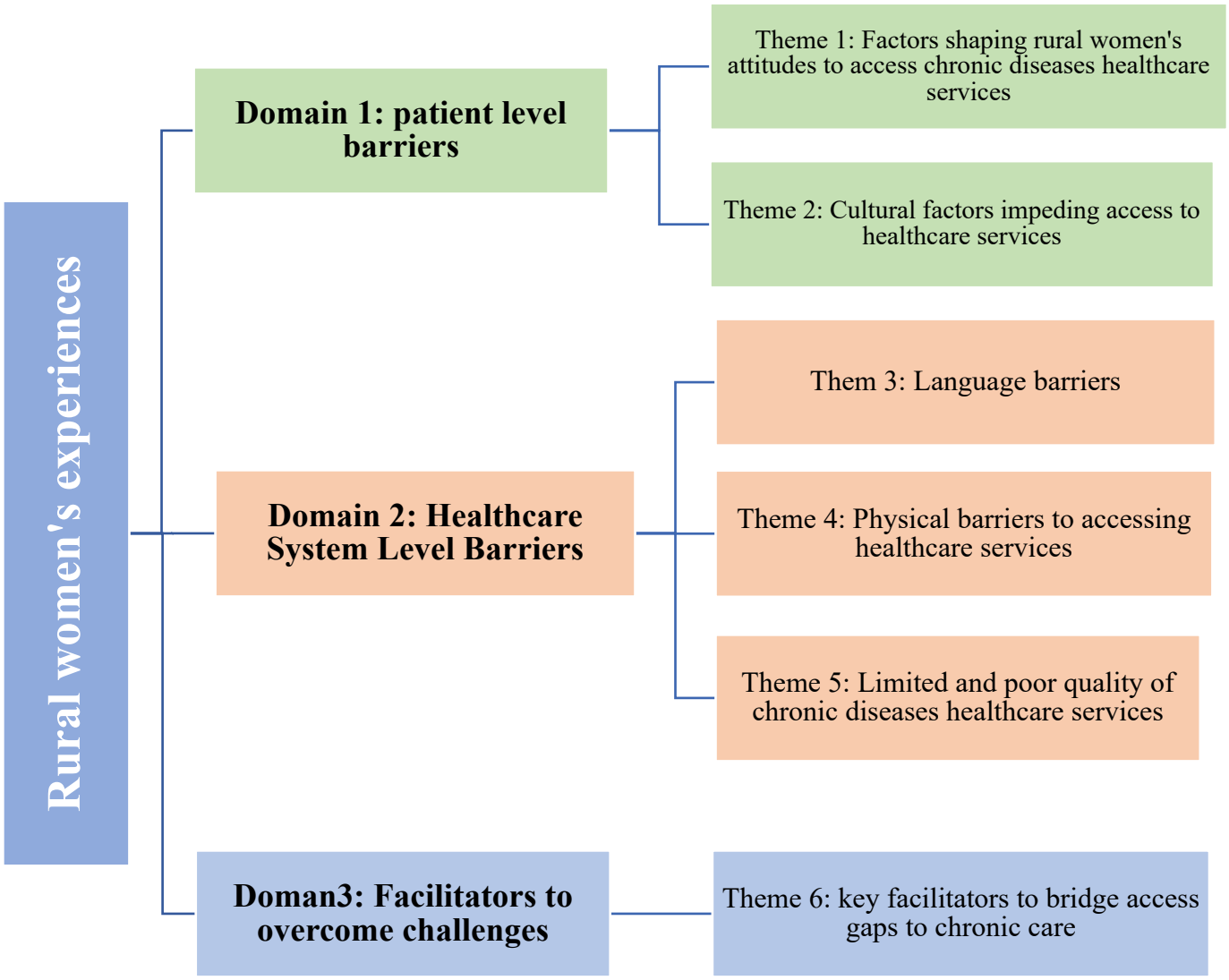


Figure 5.1: Themes of rural women's experiences

Domain 1: Patient-level barriers

Theme 1: Factors shaping rural women's attitudes to access chronic diseases healthcare services

This theme represents the first step in determining a patient's likelihood to access healthcare services based on how patients understand and perceive their health and the need to access healthcare services. The factors that were found to shape the participants' perceptions and likelihood to access healthcare services included health literacy and technology literacy, patient beliefs, and the ability to access the required information. Health literacy refers to a basic knowledge and understanding of the chronic condition diagnosed in the patient, importance and schedule of medications, importance and schedule of regular follow-up visits with the healthcare provider, and self-monitoring the condition and its symptoms. A good level of health literacy could inspire active management of the condition by the patient which will, in turn, contribute to positive health outcomes. Technology literacy refers to knowledge and ease of use of mobile applications for scheduling appointments and use of devices such as glucometer for self-monitoring high blood sugar levels. The data collected from rural women in this study suggest that they face several barriers in accessing healthcare services due to low levels of health and technology literacy which, in turn, influences their attitudes and perceptions in seeking healthcare for managing their chronic conditions.

The participants in this study had very low levels of health literacy as was evident from their poor knowledge about the signs and symptoms of chronic diseases, management, and self-care, which, in turn, led to false health beliefs, and unhealthy practices and behaviours among them. Some of these misconceptions were the result of difficulty in understanding the development and management of their chronic condition, and fear of medications and their side effects. These fears may be due to a lack of knowledge about the chronic disease and its management, and the beneficial effects of medicines, or the dissemination of false health information. The consequences of these fears and/or lack of knowledge led to medications. Several participants stated that they did not take their medication as they believed that the medications would produce adverse effects in their bodies. For instance, one participant stated that she did not adhere to her medications because she believed that it would have a harmful effect on her kidneys, as a result of which she was unable to manage her diabetes properly.

"I am a diabetic patient, and I am always sick because I do not know how to maintain it, sometime it comes low or high because I do not adhere to my medication because I am afraid that will affect my kidneys" (Sara, PHCC).

Another woman refused to take insulin injections as she believed that they would make her gain weight.

"The doctor said, I need to take injection (insulin) but I refused because I will gain weight" (Hayia, SHCF)

As a result, these participants had difficulty in managing their chronic conditions as they were not taking their medications. This finding shows a link between mismanagement of chronic conditions with low health literacy wherein participants' lack of knowledge about the necessity and benefits of medications led to their non-adherence to the medications leading to poor management of their diabetes.

One participant was not consistent in monitoring her blood glucose because her blood sugar always appeared high and this added to her anxiety about her condition. She also stated that she found it difficult to independently use her glucometer device and she wasn't sure if that was the reason for the high blood sugar levels that were shown on the device.

"My sons are busy and I do not know how to use the device (the glucometer) and when I sometimes do it, I have anxiety and fear because it is high so I stop monitoring my blood sugar" (Hala, PHCC)

Another woman stated:

"Honestly, I do not check my blood sugar level, it comes high or low by its self" (Hayia, SHCF)

This indicates that participants did not have a complete understanding of the importance of monitoring blood sugar levels, and the relationship between blood sugar levels and disease management.

Based on statements by some participants, their fears were related to a lack of knowledge about their chronic condition, which contributed to their stress levels and anxiety. For example, one participant stated:

> ***"Sometimes makes me tired and dizzy and I do not know if it is high or low (blood sugar) and this is let me tired and worried more" (Sara, PHCC)***

Another participant indicated her lack of knowledge regarding the medication.

> ***"I have challenges in understanding the medication and how to use it and sometimes I am afraid of the medication and the low blood sugar" (Jamilah, PHCC)***

Based on these findings, knowledge of diabetes and its outcomes are adversely affected by functional health literacy, which was clearly prevalent among rural women.lower levels of health literacy were common among older participants who had lower levels of education. It was noticed across the interviews that older women had more difficulty in understanding the necessity of adherence to their medication and management of their condition. Moreover, differences were also present in the availability of health education sessions carried out by expert educators for specific chronic conditions. Such sessions were carried out in SHCFs, but not in PHCCs. Therefore, participants who were receiving care from SHCFs were better able to understand healthcare information compared to participants receiving care from PHCCs. Some participants who were referred from PHCC to SHCF noticed the difference in the provision of specialized health education services. Participants who were accessing care in SHCF were more likely to have a higher level of satisfaction as SHCFs provided patient-centred care.

Some participants also showed low technology literacy, wherein they faced difficulties in navigating healthcare systems for booking appointments, and checking details of their appointment and medications using mobile applications. Recently, healthcare systems in SA have implemented new technology to facilitate providing care; however, some participants indicated that they faced challenges in using these technologies. Booking appointments using mobile applications was difficult for older women and those who were not familiar with technology despite having access to these applications. Such participants were dependent on their family members to make appointments, which was an issue for them as sometimes their

family members might not be available to make appointments. For example, one participant stated:

> ***"I do not know how to refer me to the hospital, and I do not know how to book an appointment I do not know how do it through the phone, my daughters do it for me" (Nouf, PHCC)***

This factor may act as a barrier for women scheduling and keeping up their appointments for routine check-up of their health condition. Further, some participants received medications based on previous prescriptions from the pharmacy without consultation or they bought over-the-counter medications using previous prescriptions. One reason for this was difficulty in making appointments along with lack of understanding of the importance of appointments which led participants to not prioritize follow-up visits with their healthcare providers and physical barriers in reaching the healthcare facility (discussed in detail below). The healthcare system contributes to this issue by allowing patients to receive medication by rewriting prescriptions when the medications are over. For example, one participant stated:

> ***"I am taking my medication without appointments. Appointments are not available or take a long time and in addition I cannot go to the city because of the long distance, so I stop going and do not follow-up, my son brings medication from the governmental hospital" (Munira, PHCC)***

To conclude, low levels of health and technology literacy serve as barriers for accessing healthcare services for chronic disease management because understanding of health information is paramount to making positive health-related decisions. The women in this study have lower education levels and exposure to technology, which, we have seen in the findings above, affects the ease with which they can access and assimilate health information. The women in this study tend to be dependent on their male family members for their most basic needs and so, they find it difficult to take charge of their health and make their own health-related decisions. This, in turn, makes rural women more vulnerable to adverse health outcomes.

Theme 2: Cultural factors impede access to healthcare services

The cultural foundation of SA is based on the tenets of Islam, and this foundation is even stronger for rural women communities. People living in urban areas have had exposure to education and employment, which has led them to become more broad-minded; however, as people in rural areas have not had the same opportunities, it is difficult for them to adapt to culturally different customs especially related to their health. Some of the cultural factors that emerged in this study included gender roles and autonomy to make decisions, how women express themselves and their health needs, and level of independence enjoyed by women. A variety of perspectives were expressed by participants regarding their cultural backgrounds indicating that rural culture can both hinder and enhance access to chronic healthcare services. The opinions of participants differed regarding whether women's limited autonomy or family support were barriers or facilitators. These differences were often influenced by the age of participants and their education level. For example, older patients believed that the existence of family members (in most cases, children) is an important factor in helping them maintain their health. For example, children can book appointments for their mothers, drive their mothers to appointments, and help them take medications. One participant expressed how grateful she was for her sons who helped her and bought her medications:

> ***"I am dependent on my sons; they explain to me and give me the medication". The same participant added: "It is so expensive [medication] and my son bought it and bring it to me, God bless them" (Modi, SHCF).***

Another woman stated that she needed her sons to monitor her blood sugar levels:

> ***"When I get tired my blood sugar become high and, in this case, I need to make it low and I know it needs monitoring at home but sometimes I am tired as much as I cannot do anything, I need my sons to help me because I am old" (Ghaliah, SHCF)***

The findings demonstrate the importance of family in rural culture and the belief that women must be dependent on men. This concept is shaped from the cultural and religious perspective that the man is responsible for their family, and women are dependent on male members of their family for all their financial and health needs.

While some felt that the role of family is an important positive factor contributing towards the maintenance of health, there were some participants who contradicted this view. In general, the younger participants spoke about the negative impact of rural culture on women's autonomy and decision making. The statement below illustrates the conservative culture of the rural community that has not allowed women to ask or express their needs. A woman said:

> ***"I feel the woman in particular, it is shame for her to ask for something. Driving is allowed but mmm (thinking) there is thing here like, it is shame that woman doing anything or if she wants to get a job, why?! (she is questioning)" (Mona, SHCF)***

This feeling of shame that women are made to feel whenever they try to make independent decisions for themselves negatively impacts their active role in managing their health. It encourages health-seeking behaviours in women and does not allow them to meet their health needs. Being dependent on male members of their family increases constraints on women as they need to wait for their husband or son to drive them to the facility or buy medication for them. Lack of autonomy in having control and deciding what is best for their health has a negative impact on their quality of life and limits their chances of receiving high quality healthcare services. Another participant stated that a woman was unable to go to appointments or buy medications if she did not have any male family members to help her:

> ***"Woman is poor (weak), not drive and she cannot go anywhere unless if her husband or her son with her and this is a barrier because some of them they do not have anybody to drive them" (Modi, SHCF)***

This indicates that in rural areas, women have limited role in their health. Male family members may sometimes be extremely helpful (as mentioned above); however, in some cases, they may not take as good care of their women leading to adverse health outcomes and poor maintenance of their chronic conditions. This is especially true if the woman is uneducated and/or does not have a job. This fact was asserted by a participant that the barriers encountered by women increased if she was financially dependent on her husband and had not completed her educational degree so that she could get a job. As one interviewee put it:

> ***"Yes, barriers are existing especially if she cannot drive, not having her own income, and not having [certificate] educational degree" (Sara, PHCC)***

In addition to the above factor, the role of a woman as a mother can sometimes have an impact upon her access to healthcare services especially if she lacks support from her family and husband. The results revealed that there are barriers related to the gender role of "woman" in the family as the "nurturer" or the "care-taker". In rural culture, women are totally responsible for their families, and they have a lot more domestic commitments compared to men. For example, sometimes women cannot attend their health appointments because they need to take care of their children. Without the husband's support and willingness to share this responsibility, it leads to an increased burden for the woman who cannot take out the time to care for her own health due to household duties as a wife and mother. This barrier was found to be particularly enhanced among women who were receiving care in SHCF and need to travel. Also, women who had children and were unable to find someone to take care of their children when they travelled to the city. One participant commented:

> ***"The family commitments, woman is caring more about the household, and she has more responsibilities than the man; consequently, this impact on her health and attendance to the appointments, for example my sister when she goes to her appointments she tries to find a place to keep them (her children) which is the opposite for a man who can go any time" (Hayia, SHCF)***

Another factor that is important in the Saudi culture, and especially in rural communities, is the gender of the healthcare provider, which was expected to have a strong impact on rural women accessing healthcare services for chronic conditions. However, interestingly, findings from this study revealed that the gender of the healthcare provider was not a priority, while having highly qualified healthcare providers was considered more important. This was unexpected given the cultural influences within the rural community. To sum up, participant experiences indicated that cultural norms play a vital role in women's decision-making. Cultural factors contributed directly and indirectly to increasing constraints on rural women and shape their roles and lifestyle influencing accessibility to chronic healthcare services.

<u>Domain 2: Healthcare system-level barriers</u>

Theme 3: Language barriers

The importance of access to good health information is only superseded by being able to comprehend that information. In this study, a majority of participants who were receiving

care in PHCCs indicated that they faced language barriers in conversing with their healthcare professionals. This issue was further complicated due to the absence of interpretation services which made communication between the participants and their healthcare providers extremely difficult. As a result, even though the healthcare providers were communicating the necessary information to their patients, the patients were not able to understand it, which contributed to their lack of understanding of their condition. Participants who were receiving care in SHCFs did not face this issue as most providers there were Saudi nationals who spoke Arabic fluently.

Most participants stated that their healthcare providers did not speak Arabic, which affected their ability to understand what the professionals were saying. The providers at the healthcare facilities were not Saudi nationals and they only spoke in English. Also, there were no interpreters at the facilities to translate the providers' instructions into Arabic for the rural women. As a result, the rural women were not able to understand what their providers were telling them about their condition, their medications, self-monitoring their symptoms, and when to return for their next follow-up visit. Also, the participants were unable to voice their concerns and/or ask doubts to their providers regarding their symptoms and medications as the providers could not understand their questions and there were no interpreters available to translate the participants' queries. For example, one participant reported how she could not understand her HCP's instructions:

> ***"They do not speak Arabic, sometimes I do not even understand their talking (healthcare providers) and what they say, and I tried to listen carefully or try to find someone helps me to understand because they are not Saudi and they are talking in English and there is no interpreter so sometimes it takes time to understand their instructions they gave to me" (Nora, PHCC)***

Poor communication increases the possibility of misunderstanding and confusion, potentially influencing patient safety and impeding shared decision-making. This issue was more prominent in PHCCs as these facilities mostly employed non-Saudi providers who did not speak Arabic. Although the non-Saudi providers tried to explain in Arabic, most of the time the patients were unable to understand them clearly, which increases the risk of transfer of misinformation between the provider and the patients. According to one participant:

"They are non-Saudi (healthcare provider), and they are trying to talk Arabic and we try to understand them, but there is no Saudi HCP, all of them do not speak Arabic" (Fatimah, PHCC & SHCF)

Another participant stated:

"There is a problem, the language is a barrier because there is a provider from Nigeria he do not speak Arabic and we do not understand him" (Nouf, PHCC)

Language barriers were even more prominent due to a lack of interpreter services available at the facilities. Most of the time, participants were unable to understand what their providers were telling them, and they could not find someone to interpret their instructions for them. In order to overcome this, participants sometimes asked another HCP who spoke Arabic or a nurse to act as an interpreter and assist them in understanding their provider's instructions. In response to a question regarding communication with non-Arabic speaking healthcare professionals, one interviewee stated:

"Some of them are talking in Arabic [HCP] and others I cannot understand what they are saying because they are not talking in Arabic and also they do not understand us and sometime I faced difficulties in understanding their health instructions because of the language and I tried to find another HCP who was talking in Arabic to explain that, repeat that. Also they do not understand our lives and culture" (Hayia, SHCF)

Another participant stated that:

"Oh God… I had many situations I do not understand the doctor I need to ask a nurse who understand English to explain to me what he said" (Hala, PHCC)

A provider who is bilingual may be able to help in communication; however, they will not be able to provide the same level of quality interpretation services as a specialist interpreter. Furthermore, as pointed out by the participant, non-Saudi providers do not tailor information based on the cultural backgrounds of their patients, which further complicates communication between the providers and patients. The difference between Saudi and non-Saudi providers is apparent not only in addressing the language barriers, but ensuring a cultural understanding of the condition and its management from both sides. As one participant explained, increasing the

number of Saudi healthcare professionals in local PHCCs is essential, especially for the elderly and uneducated women, as they could bridge the language as well as cultural gap between the providers and patients, and ensure ease of communication and clear understanding on both sides. The statement by this participant was:

> ***"I swear, the Saudi nurses will be better because they can understand us and we can understand them, but non-Saudi needs someone who talking their languages and for my age and older than me and who are not educated is difficult, HCP from your country is better and understands more" (Hala, PHCC)***

This statement clearly captures the need to have Saudi healthcare providers especially in facilities that treat rural women who are uneducated, do not speak English, and have very limited understanding of their condition. Non-Saudi providers are not familiar with the local culture and beliefs and are therefore unable to relate to the backgrounds of their patients, which makes it difficult for the patients to accept information given by their providers. In contrast, Saudi providers will ensure that they communicate culturally sensitive information to their patients which will increase their chances of adhering to their medication and follow-up visits. Additionally, communicating with the patients in Arabic will ensure a perfect flow of information which will enhance the understanding of the patients. Furthermore, the patients will feel comfortable in voicing any doubts or concerns they may have regarding their symptoms and receive appropriate guidance.

One participant also indicated that she would prefer a female nurse who was a Saudi national at her healthcare facility:

> ***"I mean I wish I can find Saudi female nurses when go to local PHCCs, I feel it is necessary to see there is a Saudi female nurse" (Qamra, SHCF)***

Factors that exacerbate language barriers for patients include older age, lower level of education, and presence of special needs such as hearing impairments and poor vision. Elderly women who are uneducated face more difficulty in understanding the information given by their providers. One of the participants mentioned this based on her observations at her facility:

"In the local healthcare centre, I feel older people are struggling more in this (language) because they cannot understand them they're not clear when speaking but for me for example I can ask and understand" (Jamila, PHCC & SHCF)

Participants receiving care from SHCFs did not face these language barriers as most providers at SHCFs are Saudi nationals or fluent in Arabic. Therefore, these participants were able to communicate better with their providers and address their concerns satisfactorily. As one interviewee said:

"Honestly, in the diabetes centre in Taif city (SHCF), most of healthcare providers are Saudis or Arabs so the language was not an issue there" (Jamila, PHCC & SHCF)

Based on the participants' responses, it can be concluded that the language barrier acts as a gap in provider-patient communication. Managing chronic diseases requires long-term follow-up and mostly relies on clear communication between the patient and provider regarding self-management and lifestyle. The presence of language barriers may inhibit patients from asking questions and raising concerns effectively, resulting in poor health outcomes and lower levels of satisfaction with the quality of healthcare services.

Theme 4: Physical barriers to accessing healthcare services

There was concern expressed by women regarding the distance to healthcare facilities. The demographics of rural areas and the location of healthcare facilities contributed to this barrier. The findings revealed that proximity to healthcare services, road accidents, and limited transportation have an impact on access to healthcare services for rural women with chronic conditions. Patients requiring care at SHCF report that it is difficult for them to travel long distances to access hospital facilities. PHCCs, on the other hand, were located within 1 - 2 kilometres of their homes, so they did not present such a problem. Limited public transportation like buses or trains in rural areas serve as an additional barrier for chronic disease management for patients and their families. The majority of the participants discussed how they needed to travel long distances to reach the SHCF centre in the city for their appointments, which is at least 100 km away for most women. The distance varied based on the location of the rural areas, with some participants travelling up to 400 km and back. This barrier was compounded by the need to visit the facility multiple times; one for diagnostic tests and the

other to meet the specialist after receiving the test results. For example, one interviewee described her experience of undertaking multiple trips stating that the distance was too great and travelling made her tired:

> ***"My son drives me long distances because it is dangerous, it is about 200 km which is too exhausting to travel this distance twice a week, this is more than 400 km and I am an old woman and get tired from travelling" (Fatemah, SHCF)***

One participant also mentioned the amount of time required to reach the healthcare facilities in her statement:

> ***"For example, if I get out of my house 4:00 am in the morning; this is what I do when I want to go to Taif; I'll arrive 7:30 am" (Qamar, SHCF)***

Participants frequently mentioned fatigue during travel, which was to be expected since chronic disorders can vary in severity and cause severe symptoms that may have debilitating effects on patients. Also, multiple appointments made it challenging for the rural women to follow-up appropriately with their provider leading to irregularity and delays in keeping up the appointments. Talking about this issue, an interviewee said:

> ***"They (refers to HCPs in hospitals) have many appointments one for blood investigation, then another appointment to meet the doctor. So, this makes me travel many times and this is very hard and makes me tired" (Modi, SHCF)***

Therefore, if a participant had more than one health problem, she would need to schedule follow-up visits separately for each condition making it more difficult to manage her health appropriately. However, if the facility made arrangements for scheduling all appointments for a patient in a single day, the patient would be encouraged to visit the healthcare facility with the knowledge that all her health-related concerns would be addressed in a single trip to the facility. Additionally, participants' statements revealed that the healthcare facilities did not offer alternative solutions to minimize the issues of patients related to travelling. For example, providers could suggest consultations through the virtual clinic for follow-up appointments that do not require patient attendance to the clinic or suggest home-visit services for old patients. Travel and transport-related challenges were also faced by women who could not find their medications in the local PHCCs. One participant stated that she did not just face problems in

travelling for appointments, but also of finding the prescribed medications as they were sometimes not available in the pharmacies in her area:

> ***"Sometimes I cannot find the insulin in the pharmacy in Shear (refers to rural area she lived in), so I need to go to the pharmacies in areas around our location so I must travel" (Sara, PHCC)***

Travelling was also associated with a high risk of road accidents due to poor road infrastructure. The harsh environmental conditions in SA such as extremely high temperatures and the experience of living in a desert could limit rural communities' access to the required healthcare services. For instance, some rural regions are located in isolated regions where it is necessary to drive on unpaved roads to reach main roads.

An interviewee stated that:

> ***"Here, there are many remote areas where they are away from our area, it is about 20 or 30 km and there is no transportation and in their situation, it is hard to even reach the local healthcare services" (Hala, SHCF)***

Commenting on the risk of road accidents, the same participant added that the road was only single carriageway and some animal-related accidents had occurred before:

> ***"The road is just only one way and there are camels, there are many times accidents have happened and it causes many problems" (Hala, SHCF)***

Such circumstances make it difficult for people to travel out of their areas into the main city and dissuade them from following up with their providers for their health conditions. This is also the reason that women are not encouraged to travel alone and they need to rely on their husband or children to accompany them to the healthcare facility. Furthermore, lack of suitable transport options further limits their mobility and acts as a barrier in accessing chronic healthcare services. Another interviewee, when asked about her experience in traveling to the SHCF, stated:

> ***"Travelling is dangerous and the road is dangerous, one day when I had appointments, we could have accidents" (Ghaliah, SHCF)***

Limited transportation was mentioned by women who were receiving care from SHCFs as well as local PHCCs, adding to their challenges of reaching the healthcare facilities. Findings revealed that for participants attending referral appointments, arranging transportation was one of the patients' responsibilities. Organizing transportation for each appointment was a source of stress for the patients and their families. The reason was that most women depended on husbands or sons to drive them to the facility, which was challenging because each time the driver would have to take time off from his work especially if he was working in another town. Several participants said that each time they scheduled an appointment, they were worried because their sons were employees and it was difficult to apply for leave from their jobs. Such factors may lead to a decrease in women's willingness to attend the appointments as demonstrated by the response below:

> ***"Long distance, the risk of the travel, and my son is working sometimes he has issue with his boss and there is no opportunity to take me to the hospital" (Ghaliah, SHCF)***

Due to this reason, some participants do not keep up their appointments and find alternative solutions to their travel-related problems.

> ***"I have not gone to the centre, my son is employee and he does not have a chance and he will be late and the distance is too far so he takes me to the private centre here" (Modi, SHCF)***

While the availability of public transportation can address these issues, in SA, public transport services are very limited, and the only option is to travel by private vehicle. Furthermore, although driving is allowed for women now in SA, it is still a barrier for rural women to drive for long distances because it is dangerous to travel along isolated roads at a stretch for around 200 km. Despite the existence of these barriers related to the accessibility of SHCFs, it is important to mention that some women prefer SHCFs because of the poor state of local dispensaries. Thus, they specifically ask for a referral to SHCFs in order to receive good quality healthcare services. As one participant said:

> ***"Honestly, the accurate and good investigations are too limited here (rural PHCC) and the quality of services is too bad, for this I asked for referral, and I am tired of traveling every three months but this is to receive services meet my health needs" (Jamila, SHCF & PHCC)***

This statement reinforces the trust and expectations of patients towards secondary healthcare facilities and how chronic healthcare services in these facilities are expected to provide good quality services. Asking for a referral and showing preference towards SHCFs despite the challenges faced by women regarding travel and transportation is indicative of the poor healthcare services in local PHCCs which will be described further in the subsequent theme.

Subtheme 1.4: Healthcare-associated expenditure

Given the restrictions faced by rural women in traveling for their appointments and/or finding medications, they need to bear the expenses associated with this extensive healthcare-associated travel. Although the government of SA provides free healthcare services, several participants reported that medication and travel expenses were still required to be covered by the patients. One participant responded to a question raised on this issue by providing a statement as to how much her medication costed each time she purchased it.

> ***"When my medication is almost finished, I call my son to bring it which cost me monthly 1500 SR (335 GBP) and I cannot bring it from the hospital because it is too far and not available in the local PHCC" (Modi, PHCC)***

A discussion with participants about the reasons they had to pay for their medications which were supposed to be free for them revealed two main reasons: the WASFATY program and limited availability of medications in local PHCCs. The WASFATY program was designed to facilitate access to medication through public pharmacies. However, one disadvantage of this program is that the prescription expires after two weeks, and the patient must travel in order to renew it. Therefore, patients prefer to pay for their medications rather than travel. In one case, the participant described her experience with WASFATY as follows:

> ***"If the medication is available, we receive a text message and sometimes we missed it and not paid attention to the message, the prescription has limited time" (Ghaliah, SHCF)***

The other reason is limited availability of medications at the local pharmacy. The cost of medication varies depending on their type; for instance, some medications are too expensive to be affordable for most people, while others are reasonably priced. Medication for chronic diseases is one of the main interventions which contributes to enhanced disease management

and needs to always be accessible and affordable for chronic patients. High-priced medications could increase the stress and financial burden on patients as they are needed to be taken for a long period of time.

In addition to medication-related expenses, the participants also spoke about financial constraints related to travel expenses. Participants who received care from SHCFs needed to arrange for travel every time they had an appointment. The fuel cost for transportation and the payment for accommodation to stay overnight proved to be major expenses for the participants. One participant described travel expenses as follows:

> ***"There are expenses for accommodation, oil cost to go there and back so if there is no money I will not go to my appointments and this will impact the disease I have, this is the problem" (Hayia, SHCF)***

The financial difficulties that women are facing contribute significantly to their stress level, which further aggravates their chronic condition. One patient expressed her concern as follows:

> ***"Now you can see I have an appointment and I am concerned if I will have the money or not, I had an appointment on 17/04 and I missed it because of this" (Qamra, SHCF)***

The family income level is another factor that may contribute to the financial stress experienced by rural women. Demographic data indicate that the majority of participants are neither financially independent nor employed and are mainly dependent on their families. The patients' low-income status and dependency on their families may increase their stress and frustration, reducing their willingness to seek healthcare. The income level of a rural family is relatively low, affecting their accessibility to quality healthcare services. This factor emphasizes the point that providing healthcare services must encompass more than just medical aspects and must include all social determinants that influence access to healthcare services.

Theme 5: Limited and poor quality of chronic diseases healthcare services

With respect to the quality of healthcare services offered by the facilities, participants identified several limitations based on their personal experiences. As chronic patients requiring long-term management, the majority of women claimed that the local PHCCs lacked enough equipment and specialists to meet their needs. The most frequent barriers were reported from

participants receiving care from local PHCCs. In general, healthcare providers at these centres were general physicians and there were no specialists for diabetes or cardiovascular diseases, as stated by one interviewee:

> ***"The local centre has very limited resources and there is no specialist for chronic patients" (Modi, SHCF)***

Furthermore, women expressed a desire to have chronic disease specialists at their healthcare centres as well as a variety of other experts, including dietitians, health educators, and ophthalmologists, to help them maintain their overall health. For example, one participant found that there were differences between the health education services offered at the local PHCCs and SHCFs after she was referred to the specialist centre. She said:

> ***"I do not understand the medications, I mean health educations is too limited which is different in the specialist centres, here [local PHCC] the doctor is a family doctor not a specialist and there is no diabetologist or dietician, DM foot clinic all of them in the DM centre" (Nora, PHCC)***

Based on this statement, it shows that participants are interested in learning more about their health conditions and are eager to understand how to manage their health for a better quality of life. However, the lack of health educators and/or specialists at local PHCCs act as a barrier in empowering participants to take charge of their health needs.

Aside from the lack of specialist healthcare professionals, most participants were frustrated with the poor quality of healthcare services provided by the PHCCs. For example, routine blood tests as well as one of the most common tests to manage diabetes, the A1C test (glycated haemoglobin) or HbA1c test, are not available at the local PHCCs. The availability of medication was also indicated as an issue by participants in light of the newly developed prescription system developed by the health ministry, known as WASFSATY. This system is currently used to receive medications from specific public pharmacies. In rural areas where there are few public pharmacies, some interviewees argued that this method would not be suitable as the selected pharmacies that have contracts with the health ministry are not available in rural areas. As a result, patients may have to travel to a nearby city to obtain medications which acts as a barrier for them in managing their health. Furthermore, one participant brought up the vital point that the online prescription received by the patient expired one week after the

patient's appointment which required the patient to renew the prescription. Limited options and the inflexibility of the healthcare system in providing medications increase challenges for chronic patients in rural areas. This is exemplified by the participant's statement:

> ***"Honestly, not all pharmacies are available, so we need to go to another place to buy the medication because the new system we need to get it (medication) from external pharmacies not from inside the centre, so we cannot find the medication" (Nouf, PHCC)***

There were two other issues that were highlighted by some participants; one was limited emergency healthcare services and the second was lengthy duration of appointments which affected patient access to healthcare services. An interviewee stated that appointments were not available immediately and there was often a long wait involved in scheduling appointments, which discouraged patients from accessing healthcare services:

> ***"Appointments take a long time and I cannot find the routine investigation and then I gave up and I do not go to them" (Hayia, PHCC)***

As PHCCs serve many remote areas, participants expressed their concerns about the scarcity of emergency healthcare services, affecting the ability to respond to serious health-related situations. The number of ambulances available is not enough, which makes it difficult for patients to be transferred for treatment within the first critical period, resulting in complications and the worsening of life-threatening conditions. In terms of issues related to the lack of emergency transport for healthcare services, one participant commented:

> ***"Sometime there is one ambulance and another urgent patient come and cannot find ambulance where they can go, there is no services for them" (Hala, PHCC)***

Chronic diseases require long-term commitment to management from both healthcare providers as well as patients. Therefore, adhering to a long-term care plan is essential. However, participants' experiences demonstrated the limitations of local healthcare centres in providing chronic disease services, which affects patient access to healthcare as well as patient health outcomes and satisfaction. Limitations of chronic disease services in the local healthcare centres forces patients to make a choice between asking for referral to SHCF in the nearest city at the expense of lengthy travel or accepting the poor quality of care available at PHCCs. A

participant summarized the experience of dealing with chronic diseases while living in a rural location:

> ***"To conclude, living in rural areas and being diagnosed with chronic disease you always will suffer because the services are not within reach and you need to travel looking for services" (Jamila, PHCC & SHCF)***

Despite the difficulties associated with healthcare in rural areas, rural residents with chronic diseases displayed tolerance and acceptance for healthcare barriers. One participant stated this as follows:

> ***"Honestly, I wish the local PHCC would get better and have all needed services and provide diabetologists and cardiologists and all medications …. people here not talking and complained even I know a lot of them have diabetes and hypertension, but they chose to go to the hospital because the services there is better" (Fatemeh, SHCF & PHCC)***

In order to overcome the issue of limited healthcare services at local centres, participants were willing to pay more for their medications or incur travel expenses for receiving care at SHCFs. They were also willing to make time commitments for scheduling and waiting for their appointments and spending hours in travel to visit the healthcare facility. The consequence of the poor condition of local dispensaries forces patients to obtain referrals to the SHCF; participant said:

> ***"I got no benefit from the local PHCC (so) I decide to go to another doctor (specialist centre) in the hospital" (Modi, SHCF)***

Findings indicated that some women participants found a referral to the SHCF was the best option to receive effective healthcare services. However, due to external circumstances such as unavailability of a family member to accompany them or poor road infrastructure, they sometimes were unable to keep up their commitments which led to negative health outcomes for these patients.

<u>Domain 3: Facilitators to overcome challenges</u>

Theme 6: key facilitators to bridge access gaps to chronic care

The above five themes described the different barriers that rural women faced in accessing quality chronic healthcare services. This theme describes the strategies that helped facilitate access of rural women to chronic healthcare services. The facilitators included the rural community culture, the flexibility of accessing two levels of healthcare facilities (PHCC and SHCF), and finally, the fact that healthcare facilities were starting to adopt technologies such as consultations through virtual clinics.

First, despite the conservative culture of rural communities which played an important role in shaping the rural women's experiences, family support allowed participants to access, pay for, and maintain healthcare. There is a crucial role played by the family in improving access to healthcare, by providing transportation, accompanying the elderly and patients with limited education, and paying for their medications. Rural communities tend to have stronger family bonds than urban communities. On participant describe her situation said:

> ***"Thanks God, for my family, as you know I'm older women and diabetic patient and without my sons and daughters my life will be hard, they help me a lot" (Munira, PHCC)***

Thus, considering the family role when providing medical care can significantly improve the experiences of rural women and result in better health outcomes.

Second, participants who were dissatisfied with healthcare services at their local PHCCs stated that they had the option of getting a referral to the SHCF where they could consult a specialist for their health problems. Furthermore, some participants stated that they kept their health records or files in both the PHCC as well as the SHCF and visited the local centre if they needed to or if they had an emergency situation. This flexibility in utilizing medical facilities of their choice enables women to receive services whenever and wherever necessary. However, this could potentially lead to an inefficient use of resources and increase the burden on specialized facilities. Hence, it is necessary to improve healthcare services in local PHCCs in order to reduce the number of referrals and keep specialist services available for those with more serious chronic conditions.

Third, due to the lockdown and travel restrictions imposed during COVID-19, several technological implementations were made to reach patients and ensure that they continued to receive quality healthcare services during this period. A virtual clinic SHCF initiated during that time, was a good experience for rural women and assisted them to communicate with healthcare professionals through online consultations.

One participant commented on her positive experience using a virtual clinic:

> ***"Very excellent, and I am so happy when I have my appointments online, thank God. Literally sometimes they (HCPs) help me and feel that I cannot go to the clinic, and they changed to be online. it is excellent, you can see them and talk to them voice and video, it is like you are in the clinic" (Qamra, SHCF)***

In addition, one participant mentioned that SHCF started a WhatsApp group as a peer support group, which informed patients about the availability of healthcare services. This peer support group was for individuals with diabetes to learn more about living with diabetes from others who had the same diagnosis. In addition, this support group established an informal network which was mediated by trained facilitators under the supervision of SHCF. As one interviewee stated:

> ***"There is a WhatsApp group used to inform us about the available services and sometimes I asked the group member and (they) helped me; if we have this service in the local centre I'll not go to the city" (Jamila, SHCF & PHCC)***

Adding such a service in the local PHCC could contribute to substantial changes in accessing healthcare services for rural communities.

Conclusion

Findings from interviews with rural women participants revealed the complexity of access to healthcare and identified the main barriers as personal, cultural, and organizational. All barriers were found to be connected and involved in shaping the experiences of rural women to access chronic healthcare services. These challenges varied among the women, based on their perceptions, family structure and income level, and from where they received care, namely the primary or secondary healthcare facilities. Personal factors were related to the socio-cultural aspects of the rural community, including education, religious influences, gender

role, and how patients defined their healthcare needs. For the healthcare system, lack of specialist chronic healthcare services and poor quality of healthcare services in local PHCCs were the main concerns stated by the participants. In addition, utilizing a new prescription system for medication without considering the difficult circumstances of rural areas was another obstacle. These challenges contributed to poor compliance and treatment failure and thereby to poor patient satisfaction. All these factors led rural women to find alternative solutions to facilitate accessing chronic healthcare services.

CHAPTER SIX: HEALTHCARE PROVIDERS' PERSPECTIVES AND EXPERIENCES

This chapter presents HCPs' experiences of delivering healthcare services to rural women. It starts with the demographic characteristics of the HCP participants including their specialties and the healthcare facilities they work in. Then a brief overview of themes is given along with a diagram to provide a visual summary of the domains and themes. Nine themes are categorized under three main domains: patient-level barriers, healthcare system-level barriers, and facilitators to deliver healthcare services. Under each domain there are themes and subthemes identified from the data and explained and supported using participants' quotations.

6.1 Healthcare providers' demographic characteristics

Fifteen HCP participants were recruited in the study according to the process described in Chapter four: Methods. Eight participants were working in secondary healthcare facilities (SHCFs) and were recruited from two specialist hospitals in Taif city. They comprised of diabetologists, consultant diabetologists, consultant cardiologists, family doctors, and nurses. The remaining seven participants were working in local PHCCs and were recruited from three rural areas. They included two general physicians, one medical doctor, one general practitioner, and three nurses (Table 6.1). The professional experience of the healthcare professionals varied with a minimum of two years' experience in the field. All participants recruited from the PHCCs were working in chronic disease clinics. The participants belonged to different nationalities and comprised of five Sudanese, three Saudis, two Filipinos, two Indians, one Nigerian, one Egyptian, and one Pakistani. The majority were originally employed in their countries and then moved to work in SA. Three of them had worked in the UK and one had experience of working in the USA. Five providers were male and ten were female.

Table 6.1: Data of healthcare providers

HCPs	Gender	Specialties	Healthcare facility
Participant 1- BS	Female	Nurse	SHCF – KASH
Participant 2 – AL	Male	Diabetologist	SHCF -KASH
Participant 3 – LZ	Female	Nurse	SHCF - KFH
Participant 4 – MK	Male	Consultant Cardiologist	SHCF - KFH
Participant 5 – MA	Male	Consultant Cardiologist	SHCF -KFH
Participant 6 – AM	Female	Consultant Diabetologist	SHCF - KASH
Participant 7 – MD	Female	Diabetologist	SHCF- KASH
Participant 8 – FA	Female	Family Physician	SHCF - KASH
Participant 9 – ES	Male	General Physician	PHCC
Participant 10 – MR	Female	Nurse	PHCC
Participant 11 – UM	Female	General practitioner	PHCC
Participant 12 – BL	Female	General Physician	PHCC
Participant 13 -SA	Male	Medical doctor	PHCC
Participant 14 – CH	Female	Nurse	PHCC
Participant 15 – AN	Female	Nurse	PHCC

6.2 Brief overview of themes

Semi-structured interviews were conducted with the recruited HCPs to collect data regarding their perceptions about rural women challenges to access healthcare services and their experiences of providing healthcare services to rural women. The findings were divided into three primary domains, which are: patient-level barriers, healthcare system-level barriers, and facilitators. The experiences of both HCPs working in local centres (PHCCs) and specialist facilities (SHCFs) are described under each domain. Figure 6.1 below shows the domains and the themes that were determined from the findings.

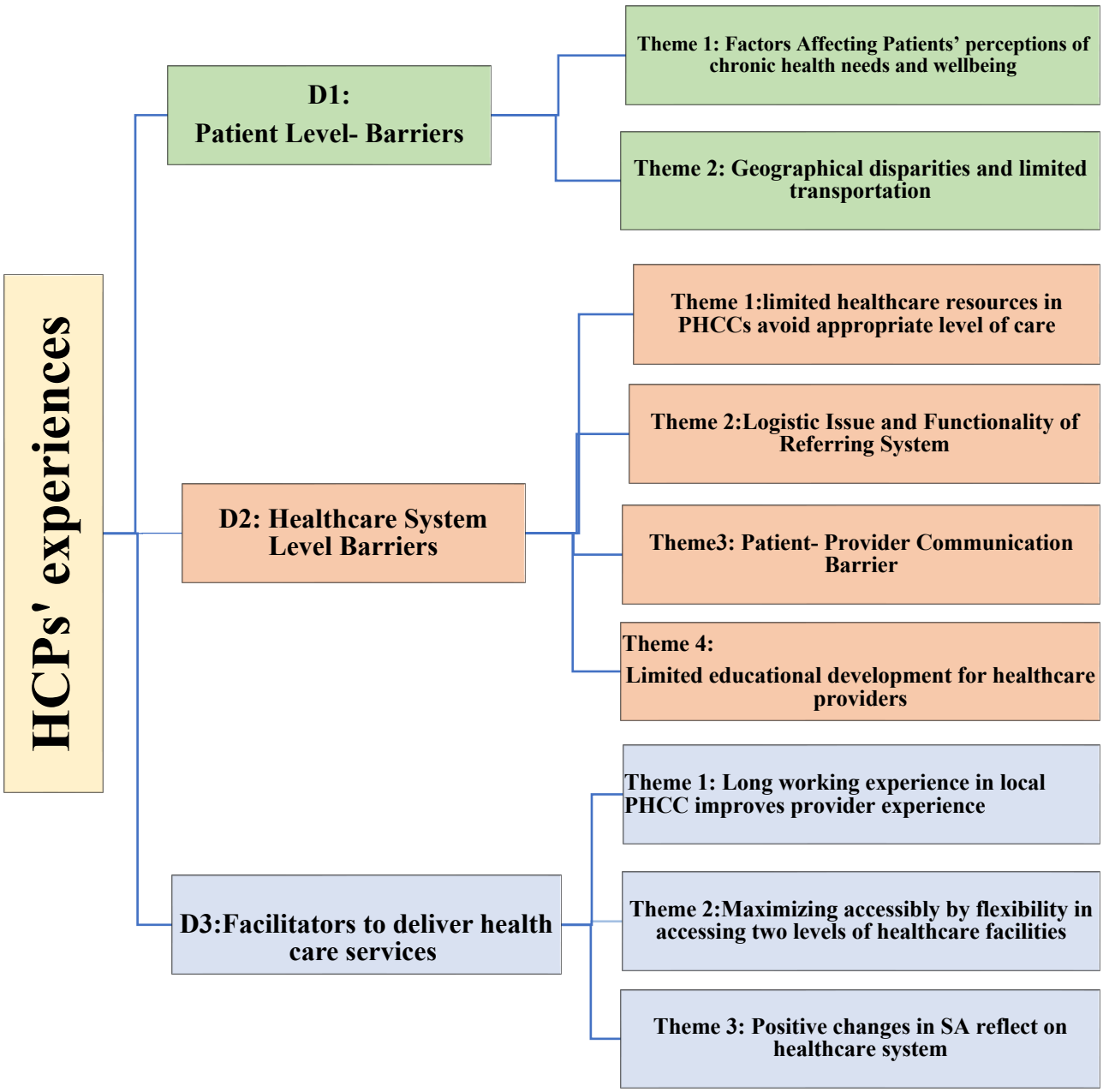


Figure 6.1: Themes of HCPs' experiences

Domain 1: Patient-level barriers

The first domain describes the barriers that were present at the level of patients in accessing chronic healthcare services according to the HCPs' perspective. Two themes were identified from the data which explain patient-related barriers including socio-cultural factors and physical barriers that shape the delivery of care experiences. The first theme describes HCPs' perception of the barriers for rural women identifying their healthcare needs which include their education level and cultural contexts. The second theme focuses on the practical aspects of transportation obstacles which prevent patients from reaching care facilities.

Theme 1: Factors affecting patients' perceptions of chronic health needs and well-being

Subtheme 1.1: Low health literacy among rural women

Findings from HCP interviews indicated that chronic disease management and health seeking behaviour of rural women were influenced by a combination of factors. The majority of healthcare professionals, working in both local PHCCs or SHCFs, agreed that providing care for rural patients is challenging as a result of socio-cultural factors. A variety of perspectives were expressed by HCPs related to low education level, age, and rural culture which they found to directly and indirectly influence rural women's ability to access health services and HCPs' ability to deliver chronic disease services to rural women.

Findings indicated that HCPs perceived a lack of knowledge about chronic diseases among rural women, which contributed to their illness perceptions, seeking care behaviour, and possibly, poor disease management. HCPs working in SHCFs identified education level as a factor when providing care to rural women, confirming that rural women with less education have difficulty in perceiving health needs leading to not giving importance to their chronic diseases and complications. Missing appointments and not adhering to medications or not understanding the importance of medications were some behaviours reported by HCPs among rural women which they attributed to their low education level. In addition, HCPs suggested that seeking chronic disease services was usually associated with an embodied sense of well-being or pain. This means that rural women approached their healthcare providers only when their symptoms became severe. On the other hand, if they felt that their symptoms were manageable, they did not give a lot of importance to keeping up appointments and taking medications. However, chronic diseases usually remain dormant for a long period before pain

or any adverse complications develop, by which time it becomes too late to effectively manage the condition. One HCP explained this attitude of rural women as follows:

> ***"I think if the patient has no serious issue or serious problem she will not believe. For example, if you will give health education regarding how to prevent the patient from getting diabetes or hypertension. I feel they are not interested but if the patient she had actual diseases, and we are talking about a diet restriction they will care and carefully listen" (Participant 8 FA - Family Physician - SHCF)***

Some HCPs remarked that rural women did not prioritize their health needs as they were always in a hurry and failed to derive the complete benefit from their appointments. Different reasons were mentioned by providers from different facilities, relating to the behaviour of women being in a hurry during the visit. A provider at SHCF explained that this might be related to the long distance and travel hours which were about 2 - 3 hours to reach their home. Also, as someone had to drive them to the centre, they were not able to spend a long time at their appointments and were in a hurry to get back home. A provider at PHCC stated that this behaviour was related to not giving enough importance to their health, which made them perform a mechanical task of visiting their provider but not asking questions or raising concerns during these visits. One HCP stated:

> ***"I see. People overhear, sometimes they just want to take the medicines and just go, sometimes they don't want to know why it happened or prevention, they're not trying to do some prevention. Instead of that, I feel that patients are depending on the medicines. They just want to take medicines" (Participant 15 AN – Nurse- PHCC)***

This statement demonstrates that rural women were not interested in listening to or interacting with their provider regarding preventative lifestyle changes. Rather, they just wanted to get their prescriptions and leave as soon as they could.

One provider suggested that how a patient perceives ageing and health can play an important role in their health-seeking behaviour. Some HCPs suggested that a few patients regard chronic diseases such as diabetes and hypertension as age-related diseases and not preventable health conditions. This means that these patients have false beliefs about the prevention of chronic diseases, which prevents them from making use of chronic healthcare services to effectively manage their conditions. In fact, they mistakenly believe that there is nothing that can be done

to manage their condition and that they just need to accept it and tolerate their symptoms. For example, one HCP said:

> ***"I faced rural women who do not know what diabetes is, they do not know what hypertension is. they take it as guaranteed; like any woman who is above 50 years old it is natural to have diabetes, natural to have hypertension; this is what they think and they feel" (Participant 5 MA - Consultant Cardiologist - SHCF)***

One possible explanation for perceiving chronic diseases as an age-related phenomenon is that it is related to religion and a belief in fatalism, which holds that diseases are pre-destined and brought by God, and that no individual has any responsibility or capability to manage their health condition. By adopting such a view, prevention measures and lifestyle changes are neglected by patients. The following quote describes the influence of religion on patient perspectives:

> ***"They are simple people. They (rural women) said God with us and the medication or treatment will not do anything to have an effect without God, this is what they believe" (Participant 4 MK - Consultant Cardiologist - SHCF)***

Recently, social media has also contributed to forming and influencing the perceptions of patients. It was asserted by some providers that rural women tended to believe false information of chronic diseases, their medications and management, that they apparently acquired from social media. This led to unwillingness to take medication and/or non-adherence to the medication regime, eventually affecting the outcomes of their chronic conditions.

> ***"They (rural women) sometimes took their information from social media and they said that they have heard many talks about Metformin as affecting the kidney, so I stop it. As to medications, for example, the patient told me that the insulin kills one of the kids because of hypoglycaemia, so do not use it." (Participants 2 AL – Diabetologist - SHCF)***

Regarding technology literacy, findings revealed that adopting technology and using mobile apps for booking appointments were challenging for rural women especially if they were older and/or living alone. Living with family members who were educated could help the patient make appointments using mobile applications.

"Old rural women sometimes living alone in their houses, they cannot know how to make appointments by using Mawid (app used to make an appointment) as not dealing with these electronics." (Participant 8 FA- Family Physician- SHCF)

Therefore, low levels of health and technology literacy in rural women affected their accessibility and utility of chronic healthcare services that were available to them.

Subtheme 2.1: Cultural factors

The findings of this study suggest that rural culture has a significant impact on health beliefs and lifestyle habits of rural communities. Poor dietary habits, for example, the excessive consumption of dates and rice coupled with a lack of physical activity, were commonly cited by HCPs. This issue was exacerbated by cultural norms whereby women are expected to stay at home and take care of their children and are less likely to exercise or walk outdoors. This leads to rural women being discouraged from maintaining a healthy lifestyle as they do not exercise or perform activities that have a positive influence on their well-being. An interviewee explained the perceived difference between the dietary and lifestyle habits of people in rural areas as opposed to people in cities:

"Regarding culture here, especially women in rural areas there are more restrictions. For example, in cities, women they can do walking freely on exercise go to gym like this but here culturally, they have more restrictions, and also the eating habits, they are eating more rice more dates negatively affect chronic diseases like diabetes If I will tell you have to do you have to eat for example a little bit of rice but they will not accept this idea because this is their main food." (Participant 11UM - General practitioner- PHCC)

Similarly, another HCP referred to how restrictions associated with rural culture led to low levels of physical activity:

"Women in rural areas, including those with chronic diseases, due to lack of self-reliance, with regards to moving or walking freely, have been a major obstacle to walking and exercise as a major part in treating and preventing chronic diseases complications" (Participant 9 ES - General Physician -PHCC)

Another cultural factor that has impacted the accessibility of chronic care services, rural women preferring to be treated by female care providers. HCPs suggested that it causes patients to feel uncomfortable when receiving care from providers of the opposite gender. The gender preferences of healthcare providers shape patient-provider experiences. A few male professionals in our study have observed that sometimes women prefer to be examined by female providers which becomes a barrier to providing care to rural women. The comment below illustrates this cultural factor that shapes the experiences of a family doctor working at one of the local PHCCs and how he struggled with this issue when he started working in the local centre:

> ***"Before, when I started, I found it is difficult treating females, they are shy and stick to culture, so some of them (women) cannot open up and talk well, because they are shy. But with time I realized they are improved and most of them they can at least talk to you, despite that they (women) prefer to come to a woman than a male (HCP) because females they can talk to females compare to male and this is another factor" (Participant 13 SA* - Medical doctor - *PHCC)***

Therefore, from the healthcare providers' experiences, sociocultural contexts of rural areas have adverse effects on how illness is perceived, how self-care is managed, and how healthcare services are utilized. There was a consensus among participants that these challenges were increased in older and uneducated women. To manage chronic diseases, a combination of medical intervention and healthy lifestyle habits must be employed, providing a coordinated effort between the patient and the healthcare provider.

Theme 2: Geographical disparities and limited transportation

Providing optimal care in rural areas can be challenging due to the geographical location of the healthcare facility and/or the patient's home location. Based on the type of facility in which HCPs worked, whether SHCFs or PHCCs, different experiences and opinions were expressed by the HCPs. For example, HCPs who worked in SHCFs indicated that the distance to the health facilities was a factor contributing to missed appointments among rural women. It was felt that lack of transportation and traveling long distances made it difficult for rural residents to receive care on a regular basis. It took about five months to get a new appointment increasing the gap between follow-up appointments. HCPs also stated that women receiving care at SHCFs said that they could not tolerate traveling long distances because it

was uncomfortable and an increased stress due to road accidents. The situation was different in the local PHCCs where the centre was closer and so, traveling was not an issue for their patients. The effect of lack of transportation on the accessibility of chronic care services was described by one HCP as follows:

> ***"Going to healthcare facilities to get any kinds of medical care, I noticed that, for example, I can give you a real example some women they cannot come regularly for follow up of chronic disease even coming for checking up blood pressure or whatever because they do not have someone son or husband who can bring them in regular bases to health facilities and this one of the main barriers for women to get proper healthcare and regular and continuous care" (Participant 12 BL -*** **General Physician -** ***PHCC)***

HCPs working in both PHCCs and SHCFs agreed that availability of transportation was a frequent issue among rural women because they depended on their family to drive them wherever they wanted to go. Limited transportation increases the gap between patients' visits, leading to not following the treatment plan properly. This is a barrier to receiving quality healthcare services because chronic diseases require ongoing care and multiple clinic visits. Hence, elderly women living in rural areas are more vulnerable to mismanagement of their chronic condition than their urban counterparts as a result of limited access to services caused by poor transportation resulting in long gaps between visits. One HCP specifically stated the reason for not keeping up appointments was the absence of someone to drive the patients to the clinic as follows:

> ***"One mostly the reason they are telling nobody will take them. There's no driver. Their husband and their sons not here and nobody will take them, so even yes, they want to come, but they will tell no car. I think this is the most why they do not come" (Participant 15 AN - Nurse- PHCC)***

Comparing rural and urban women, HCPs suggested that limited accessibility to chronic healthcare services is clearly related to the availability of transportation options. A variety of transportation options are available in the city, including taxis and Ubers. Furthermore, women also have the option of driving in urban areas, while rural women have fewer options because driving is less common and they are not able to travel long distances. Such factors can hinder women from being self-reliant and independent. As one HCP stated:

"I think because the transportation, may be transportation they cannot reach the hospital on time they all depend on their family members to go there but in cities they can use Taxi but in rural areas not available like Taxi. they are also not willing to go with other people so that the problem. (Participant 10 MR- Nurse - PHCC)

Findings also revealed that travel and transportation were not included in the conversation with patients to find alternative solutions. In contrast, one interviewee stated that the government provides financial support for travel expenses. However, this not mentioned by the rural women which indicated that they are not familiar with this service. living in remote areas fosters isolation which, along with a lack of resources, significantly impacts the way in which health services are accessed and delivered.

In the next section, the barriers related to the health system have been explored to provide a complete picture of provider experience.

Domain 2: Healthcare system-level barriers

Theme 1: Limited healthcare resources in PHCCs

Subtheme 1: Limited availability of clinical investigation and medication

Healthcare professionals expressed various challenges related to the healthcare system. According to the findings, local health centres faced more barriers than specialist centres. HCPs who worked in local dispensaries claimed that they struggled due to a lack of resources. There are limited clinical investigations for chronic diseases, limited availability of medicines, and a shortage of staff. All three points will be explained in detail below.

HCPs in local centres reported that limitations in investigations prevented chronic disease patients from performing annual blood tests which is a requirement for monitoring the chronic condition. While the basic investigations for chronic diseases were available, such as fasting blood sugar, other essential blood tests like liver and renal function tests were not offered at the centre. Limited availability of clinical investigations resulted in the HCP failing to perform essential follow-up tests, resulting in delayed investigation and influencing the provision of optimal care. Also, HCPs were forced to refer patients to specialist centres where advanced investigations were available and a lot of rural women found it difficult to arrange for transportation and travel to the specialist centres for investigations.

For example, one HCP talked about the limitation of investigations in the local dispensaries:

> ***"Regarding chronic diseases like diabetes we do basic things like blood sugar check-up which are available on a regular basis for regular check-ups. For blood pressure we have only equipment like a blood pressure machine, crash cart for urgent cases only the basic things but a lab we do not have or x-ray we do not have" (Participant 12 BL- General Physician - PHCC)***

Another HCP stated how this affected the health outcomes of rural women because a few of the patients who were referred to specialist centres did not keep up their appointments leading to negative outcomes of their chronic diseases:

> ***"We have also limited materials do not like in the city, for example. So sometimes medicine not available compared to the city and the materials like laboratory, we don't have laboratory here and X ray, but here in our place we don't have so we have to refer them. And then they some will not go and cannot complete the treatment" (Participant 10 MR – Nurse-PHCC)***

Due to limited availability of equipment and a laboratory for the necessary blood investigations, this delayed their intervention, leading to increased disparities in healthcare between rural and urban women who could easily access healthcare services:

> ***"I can say the women in rural areas, they have difficulty to reach the necessary investigations at the right time, so this is one of the challenges. In the main city they have the investigations which urban woman can reach and can get them without difficulties; women in rural areas they have to come to the main city and leave their home to get this investigation done. You see this is another challenge of one hour or maybe two hours to get this investigation because she needs these (investigations) for follow up (Participant 14 CH- Nurse -PHCC)***

As a result, rural women are unable to take advantage of specialist chronic healthcare services as they are not available in their local PHCCs. This results in inadequate follow-up and management of chronic conditions which places them at a major disadvantage as stated by one HCP as follows:

"The limited availability of lab test and technicians have a significant impact on the patient situation as this can help to discover early complications and start intervention at the right time" (Participant 12 BL - General Physician- PHCC)

To address this issue, HCPs in rural areas send the blood samples of their chronic patients to the nearest hospital to have the results of the investigation. One interviewee stated:

"There is annual blood test examination. So, in our dispensary we cannot do it, we have to extract the blood samples and send them to the city to the hospital." (Participant 15 AN- Nurse- PHCC)

In addition to limited availability of clinical investigations, another barrier is limited accessibility to medication. The availability of medication is one of the most significant factors in the management of chronic conditions. According to HCPs, there was a limited supply of medications in the local centres in rural areas. The health ministry supplied drugs to public healthcare facilities. However, local PHCCs in rural areas often encountered drug shortages. Not all types of chronic medications were available in the local centres. Therefore, HCPs sometimes referred patients to a specialist hospital in the city in order to obtain the necessary medications. To enhance accessibility to the medication for patients and avoid any complications, the healthcare system allowed patients to request repeat prescription of their medications. This led patients to continue their medication and not schedule an appointment only for medications.

HCPs expressed two different opinions related to the new system of E-prescribing medication called WASFATY. A few participants believed that this was an alternative option to acquire medications for chronic patients, while another commented that it was not feasible in rural areas. Even though WASFATY pharmacies are not located in rural areas, they felt that it could be an effective alternative solution to help patients obtain drugs. Women or their families could access drugs from any WASFATY pharmacy located near them or they could travel to any part of the city to get their medication. HCPs suggested that they found this was better than referring patients to the SHCF only to get their medication. However, on the other hand, some healthcare professionals suggested that the WASFATY program was not applicable to rural areas due to health ministry contracts with comparatively few public

pharmacies. In order to acquire benefit from this programme, rural women would have to travel and find a community pharmacy using WASFATY in the city, similar to getting their medication from a specialist centre in the city.

> ***"Some programs like WASFATY are not well established in rural area, as I mentioned earlier some drugs are not available in PHCC and through WASFATY they can get these medications. So, in rural areas still there is no established pharmacies to get these drugs but in the urban area they are available. So WASFATY is a very important development for drugs in terms of drug distribution, but it is not available in rural areas; but if these pharmacies were available in rural areas it will be much better." (Participant 13 SA- Medical doctor - PHCC)***

In contrast, another participant had a different perspective:

> ***"Not all pharmacies just [named two pharmacies] I think ministry of health have contract with them and they are not available in rural areas, but I think another option maybe patients passing by Makkah, Jeddah or Taif [near cities] can get their medication. (Participant 6 AM- Consultant Diabetologist - SHCF)***

In summary, these responses highlight a gap in the system that influences the prescribing of medication for rural women, increasing barriers to access medications. HCPs' experiences describe the complexities of the health system in prescribing medications and depriving rural women of access to adequate resources.

Subtheme 1.2: Workforce shortage at PHCCs

The quality of chronic disease services can also be determined by the numbers and qualifications of the workforce that provide these services. HCPs in the local PHCCs reported that shortages of healthcare professionals in the centre were one of the main barriers to providing care to rural chronic patients. Among providers, nurses specifically expressed their frustration about staff shortages as they were responsible for various clinics inside the centre. For example, nurses were involved in chronic disease clinics, mother and child health clinics, vaccinations, and emergency care clinics. At all the PHCCs, there was one general or family physician; in two PHCCs, there was one nurse, and in the third PHCC, there were two nurses. There was a shortage of administrative staff and lab technicians as well. One provider

mentioned that dentists sometimes visited the centre two days a week. In each PHCC, there was one director. The effect of the shortage of different types of staff members was commented upon by one participant:

> ***"There is only one doctor and one staff nurse, they are the one giving the medicines to the patients and giving vaccination and checking vital signs and doing all these services" (Participant 10 MR – Nurse – PHCC)***

The shortage of staff members placed a huge burden on providers by extending their roles to fill the missing gaps in the healthcare team. For example, a nurse expressed her frustration on having to do administrative work such as organizing patients' files and filling papers which sometimes interfered with providing care.

> ***"The administration, in the reception. There's no one (administrator). So, we are also doing that work, we have to do paperwork or files, which is supposed to be done by somebody who should do the registration of patient, but we are doing it. So, this is an issue and increasing our workload and burden" (Participant 14 CH- Nurse- PHCC)***

Furthermore, a physician highlighted that when there were urgent cases that needed to be referred to the hospital, she needed to accompany the patient in the ambulance. Sometimes, this forced the centre to close because there was no other HCP to cover in her absence. In some cases, there would be patients waiting until the physician returned from the hospital. For example, a physician described the challenges faced when an emergency case occurred in the centre:

> ***"The dispensary is far from the hospital and if I have a patient with ischemic heart disease. The patient has come in with a heart attack. I am alone, covering the dispensary. This means, I will go with the patient, and another nurse by ambulance to the hospital. Other patients in the dispensary cannot be seen because they are waiting for the doctor to be seen" (Participant 12 BL- General Physician- PHCC)***

With regards to chronic conditions, the findings revealed that there were limited physicians in rural PHCCs who were specialized in DM or CVD conditions. All physicians in all three PHCCs were family doctors who did not specialise in chronic diseases. This contributed to the limited access of rural women to specialist chronic disease services. In addition, as explained

above, it was felt by HCPs that women preferred female providers and some HCPs highlighted a shortage of female providers in the local PHCCs. This factor sometimes caused challenges to male providers to have open conversations with female patients and to provide comprehensive care, as the excerpt below exemplifies:

> ***"I think there is need for adequate numbers, especially for females; of course, Saudi is an Islamic country where the female is comfortable with a female provider. Providing more females will be better because, as I mentioned earlier, to cover the female side it will be better. Sometimes if there is no female to cover the female patient, they feel shy to come to consult a male doctor" (Participant 13 SA- Medical doctor- PHCC)***

This issue acts as a barrier to provide comprehensive care to rural patients as stated by providers. As a result of excessive workload, HCPs in local centres raised their concerns with regards to the quality of care they provided and the limited time they spent with their patients. Some HCPs stated that it was hard to provide health education while also serving other patients with different conditions. In addition, not all HCPs who worked at the centre were Saudi nationals; indeed, most of the HCPs were non-Saudi and some faced language barriers. All these factors influence the quality of care.

A comparison between primary and secondary healthcare facilities revealed that the availability of chronic healthcare services and shortage of staff were not issues mentioned by HCPs in the secondary facilities. Patient-centred care was provided in the SHCFs which increased both patient and provider satisfaction. The better quality of services offered in the SHCFs increased patient trust and led rural women to sometimes refuse to be discharged and referred back to the local PHCC for follow-up. As one interviewee put it:

> ***"Patients have this belief in some rural areas that "I want to be referred to the centre (diabetic centre); I do not want to be followed up there (in the local centre)". Although it is a burden for them to come and go, they will feel more trustful to be here (SHCF) or thinking this is specialized centre, they know more, they will be care for us more and they provide medicines" (Participant 6 AM - Consultant Diabetologist - SHCF)***

One reason that came up for the shortage of staff members in local PHCCs is that most healthcare professionals do not prefer to work in these places. HCPs usually prefer to work at SHCFs which contributes to the shortage of specialists in local PHCCs. As a result, rural women are unable to consult qualified specialists unless they visit the secondary facilities:

> ***"You know that the problem of shortage of nurses around all healthcare facilities, this issue is common in the rural health centre because many providers not preferred to work in rural areas." (Participant 3 LZ – Nurse- SHCF)***

The poor condition of the local PHCCs owing to the lack of supplies and shortage of professionals indicated that healthcare seeking behaviour among rural women may not only be influenced by patients' perceptions and cultural barriers, but also by the poor quality of care in local centres. HCPs' statements confirmed that rural women receiving care from the local centres were deprived of quality chronic healthcare services compared with patients who were receiving care in the SHCFs. Furthermore, insufficient resources in local PHCCs in rural areas led to an increase in patient referrals to secondary facilities to receive comprehensive care, and HCPs in SHCFs asserted that poor quality of services in the local PHCCs extended their work by increasing the number of referred patients. Limited availability of resources in PHCCs placed an additional strain on SHCF providers due to the increasing numbers of referrals of rural women patients. Patients with urgent conditions such as DKA, uncontrolled diabetes, or cardiac attacks were also referred to receive advanced care. Consequently, the high number of patients increased the workload of SHCF providers, affecting their work experience. There was only one specialist DM centre and two CVD clinics in the SHCF hospitals, which were the main facilities for treating patients in the city and its surrounding areas. For example, one HCP stated:

> ***"Sometimes patients with chronic diseases suffer emergency like patient with diabetes mellitus developed diabetic ketoacidosis and need to refer to emergency, sometimes also patient come with a heart attack as a complication of chronic diseases diabetes or hypertensive patient. Hypertension emergency cases also referred through the ambulance near hospital." (Participant 9 ES - General Physician-PHCC)***

HCPs in SHCF struggled sometimes to make decisions when patients meet discharge criteria and should be referred back to PHCC. This is due to two reasons; first, patients' preferences

to complete their treatment and follow up with specialists as their health improves. Second, HCPs are concerned that rural patients may develop complications because of the limitations of services and medications in local PHCCs. For this, HCPs tend to keep patients for follow-up to prevent any complications and still patients are struggling with travelling to get to the services. Consultant Diabetologist said:

> ***"Patients refuse to be discharged especially patients from faraway places where there are no services; some rural areas are located in the middle of the desert and for this they prefer to receive care in the SHCF. I do not blame them because may be there are no facilities." (Participant 6- AM -Consultant Diabetologist- SHCF)***

While referral services facilitate rural women's access to chronic disease care, health care providers reported poor communication and connections between clinicians at both levels. The following theme discusses this issue in detail and how it affects healthcare delivery.

Theme 2: Logistics issues and functionality of the referral system

HCPs working at different levels of healthcare facilities agreed that there was a lack of coordination and communication between the two levels of healthcare facilities. Lack of transfer of feedback between providers was one of the main barriers affecting the efficiency of the referral process. In both primary and secondary care levels, HCPs stated that it was difficult to track the progress of a patient's condition due to a lack of feedback and information exchange. Taking the example of a patient who was referred from a PHCC provider to have a blood test, after receiving treatment and completing the medication, there was no feedback available to the PHCCs regarding the patient's condition. In most cases, the only source of information was the patient, and sometimes, the information was inaccurate and lacked detail, making it difficult for providers to follow-up. A diabetologist at an SHCF reported the experience of lack of information when receiving patients from rural areas:

> ***"There is no connection between them [PHCCs & SHCF], this is much dependent on the doctors themself, for example, when referring a patient from there (PHCC), sometimes the referral is by paper and there might be deficient information about the patient. You have to ask the patient about the full history from the start and you might miss something because the patient did not know (about the) lab test and***

regarding her past medical history. I don't have the background about it because there is no referral report." (Participant 2 AL - Diabetologist -SHCF)

Another interviewee, when asked about the referral process, commented about the lack of feedback as follows:

"The only problem of the referral system is that there is no feedback, this is only problem, we can prepare our patient easily, we have system, good system for referral, only no feedback." (Participant 9 ES - General Physician- PHCC)

A major contributing factor to this issue is the lack of a unified health records system or an electronic patient file that can provide easier access to updated patient information. Provider interaction and coordination between the two levels of healthcare facilities influence the efficiency and effectiveness of a referral system. Having limited access to significant information can impact the entire patient care process and health outcomes. Insufficient coordination between HCPs results in duplicate work and unnecessary waste of resources in health settings, which ultimately results in decreased quality of healthcare services for chronic conditions.

One provider indicated that an essential and additional service that must be considered as part of the referral system for the older patients in rural areas is home care. Home care can be an alternative solution for patients who cannot visit the SHCF for investigation or consultation. However, home care has a distance limit of 70 km, wherein the providers will only travel up to 70 km to visit the patient at home, which excludes rural patients from this service. The participant's quote below describes this in detail:

"The problem here also is that home care is difficult for older rural women because for any patient living 70KM away from Taif city, the home care will not go there; this service could let the home care at least do the blood tests and the patient will come to the clinic for the appointment, but more than 70KM they will not provide the service for her. for example, there was a patient living 71KM away and the home care refused to go there; even the home care does not serve us in this issue." (Participant 7 MD-Diabetologist- SHCF)

Therefore, the referral system is not useful for rural women who cannot travel long distances, because even if they acquire a referral to SHCF for advanced care, they are unable to make use of it as they cannot visit the centre. Furthermore, they cannot even avail the home care service for blood investigations at home if they live beyond a distance of 70 km. Hence, home care service is not useful and accessible for older women living in rural areas.

Theme 3: Patient-provider communication barrier

The findings of this study revealed that language barriers were found to be one of the most significant factors affecting patient-provider communication. HCPs in healthcare facilities came from a variety of nationalities and spoke a variety of languages. English was the most common language among HCPs; however, patients encountered three types of HCPs with respect to communication: SA dialect speakers, providers who were not Saudi and spoke another Arabic dialect, and non-Arabic speakers.

The first category was SA dialect speakers who could speak Arabic fluently and understood most of the Saudi dialects. However, providers in SHCFs who were more familiar with urban dialects sometimes faced difficulty in understanding rural and elderly residents because of their local accent. Despite this, most Saudi providers indicated that they were able to understand most of what the rural patients told them, and if not, they asked for clarifications. The excerpts below illustrate the experiences of providers who worked at the DM centre:

> ***"I think some accent, ahhh (thinking) there are different accents for rural communities who speak their local dialect but still we can know what they said and even we could not understand sometime we can ask for clarification but as I told you I do not think (language) is an issue for a Saudi (person) as we know the accent but this is a barrier for a non-Saudi doctor." (Participant 6 AM - Consultant Diabetologist - SHCF)***

The second category was providers who were not Saudi but spoke in an Arabic dialect like Sudanese or Egyptian. These providers sometimes had difficulty in understanding the Saudi dialect, particularly when communicating with rural women who did not speak the modern or common dialect of Saudi. However, as speakers of Arabic with cultural and linguistic similarities, they were able to understand patients from rural areas to a certain extent which

served to reduce the communication gap. The following situation described by a consultant cardiologist occurred with one of the patients as follows:

> ***"One time a patient told me a word, I cannot remember the exact word, but that word means I cannot breathe but that time when the patient said it I was trying to get it, until I asked someone from the nursing team (Saudi) about the meaning of the word and what the patient meant by it." (Participant 4 MK - Consultant Cardiologist - SHCF)***

The same professional further explained the need to make sure that they understood what the patient wanted to say because the patient may explain a serious symptom in a different dialect or use words that could help an accurate diagnosis:

> ***"Some patients say something and you as a doctor you have to stay with your patient till you understand what she meant because the patient may say something serious and you as a doctor may not understand immediately as the patient uses a different word which is not a common one." (Participant 4 MK - Consultant Cardiologist - SHCF)***

The third category of providers were those who struggled with communication due to language barriers, such as Indians, Filipinos, and Nigerians. During their work experience, these professionals found it challenging to communicate with rural women as they could not speak Arabic nor were there interpretation services provided in the facilities. Among these providers, nurses specifically described the challenges they faced in rural areas and the difficulties they encountered in educating their patients. Despite the language barrier, HCPs stated that their long work experience in rural areas and their knowledge of the Arabic language enabled them to better understand the language and culture. A nurse stated the following regarding how language barriers prevent them from providing health education to their patients:

> ***"I'm saying that being a nurse, it is very difficult for us to give any health education awareness or even if we want to talk to them properly like to provide good care, we are not able to do because of the language problem." (Participant 15 AN – Nurse - PHCC)***

This view was echoed by another nurse working in rural areas and how she struggled when she started working in local PHCCs:

> ***"Actually first thing the language is the main problem for me, because in rural areas they are talking in Arabic not like in the city where some can speak English. So, for first days I cannot understand them [rural women] totally and nowadays I can understand a little and I know how I ask for help from doctors who know Arabic." (Participant 10 MR- Nurse -PHCC)***

In summary, all professional experiences described above have highlighted the issue of limited communication between non-Arabic speaking providers and patients that prevents them from exchanging information. Furthermore, there were no interpreters available at the facilities that could aid discussions between providers and rural patients. Language barriers may limit the patient's involvement in discussions and decisions regarding chronic diseases, as well as the consideration of their preferences.

Theme 4: Limited educational development and experience of healthcare providers

Continuing education of HCPs promotes high quality care for chronic patients. The participants in this study revealed that the local PHCCs lacked educational opportunities, while SHCFs regularly offered courses and conferences to promote learning of HCPs. A lack of learning resources and difficulty attending conferences in the city were the main reasons for limited professional development of HCPs in rural areas. Moreover, the shortage of providers at local PHCCs prevented them from attending conferences because in their absence at the centres, there was no one to cover their duties.

Many resources and learning opportunities were available at the SHCFs, for example, a medical library where updated books and computers facilitated access to up-to-date medical information related to chronic diseases. However, one provider pointed out that there were no courses that covered the rural population's needs, factors, and barriers related to their health, and how these may contribute to enhancing the provision of care for this group of patients:

> ***"To be honest I did not receive any courses related to rural population's needs but if this is available I will be happy to take it and I will be more professional to deal with them, I feel like I need to have more information about the culture, more information***

about how to deal with rural patients, if this available, I will not hesitate to take them (courses)." (Participant 2 AL – Diabetologist - KASH)

Compared to the SHCFs, these resources were limited in PHCCs which made it difficult for them to update their knowledge and healthcare practices. Sometimes, the local centres provided sessions to inform the HCPs of any updated policy and procedures as described below:

"Rarely have some classes, if there are any updates in policy, they conduct classes for us and describe these new regulations." (Participant 14 CH - Nurse - PHCC)

Additional indirect factors that impacted the PHCC providers' learning experiences included lack of experience in the field because of limited availability of clinical investigations. This was not only detrimental to the delivery of care to patients, but it also extended to the experience of healthcare professionals by affecting the learning experiences available to them. Rural patients who did face complications were referred to specialist centres due to lack of resources at the PHCCs, which took the case out of the PHCC providers' hands thereby affecting their knowledge and skill development. As an example, one HCP described how this affected their work experience below:

"I can say one more disadvantage is the experience may be as a doctor will be less because we don't have for example a lab in our centre, we do not have x-ray so this mean you will have less experience in dealing with different cases and investigations and the number of patients is not so many and this plays a part in making your experience less than seeing a lot of people and being exposed to more cases." (Participant 9 ES - General Physician - PHCC)

All barriers explained above identify the complex factors that affect rural women's access to healthcare services. Limited development opportunities among providers at local PHCCs may be associated with the poor quality of care in rural areas.

Domain 3: Facilitators enhancing access to chronic healthcare services

Earlier themes have described the challenges encountered by HCPs along with their consequences when providing care to rural women. It covered the patient-level factors such as their education level and cultural background which were found to negatively influence chronic disease management, followed by the health system-level factors that further affected the

quality of chronic healthcare services offered to rural women. This domain focuses on the facilitators that promote access to chronic healthcare services for rural women patients.

Theme 1: Long work experience at local PHCCs improves provider experience

HCPs working at local PHCCs found that long work experience facilitated understanding of their patients and the social determinants of their health. Long-term relationships with patients allowed HCPs to become more familiar with rural residents and their environment as well as the structures and language of rural communities. This helped build trusting relationships with patients and reflected positively on delivering care. The following statements from HCPs illustrate how long work experience enabled them to become familiar with the needs of rural women:

> ***"Actually, working many years here helps a lot because I already know patients for a long time, almost six years the same patient. So, I know a lot, I know the way they're thinking, or I know what they would accept, what they will not accept, also I know how to communicate with them very easily. So, this helps a lot." (Participant 11 UM - General practitioner - PHCC)***

Another general physician said:

> ***"Doctors working in small areas know all their patients, because they contact them monthly or sometimes less than one month; there is a good relationship between the doctors and patients in a small area because patients come repeatedly to a dispensary, so there's a good communication, we saw them for a long time with the same health problem." (Participant 9 ES - General Physician - PHCC)***

Understanding the rural culture through working at local PHCCs led HCPs to value the family role as one of the factors influencing patient care which needed to be considered in decision-making. HCPs found that the role of the family could facilitate delivering care to rural women. Family can enhance patients' eating habits, encouraging them to take medication as well as attending appointments. Thus, an educated family can bring about changes in patient care, supporting the patient to follow provider instructions. Commenting on the family role in patient care, one of the interviewees said:

"Some rural women have educated people in their family who can get education from their son or daughters, because I feel this can do something better for the patient." (Participant 4 MK - Consultant Cardiologist - SHCF)

Many providers believed that long work experience facilitated learning of Arabic for those who did not speak Arabic. Through enhanced communication between provider and patient, a better quality of care was achieved. A long-term relationship also ensured that the patients became comfortable with the accent and way of speaking of non-Saudi providers helping them to communicate better and address their health-related concerns. One Indian nurse was satisfied with her progress in learning Arabic through working at the local PHCCs and communicating with the local community:

"Yes, we have known the patients for long time, and it is very helpful for us to learn their language because they also will feel free to talk to us. And we also can talk to them, sometimes through my experience I can tell that I don't know much Arabic language, but I like to say what I know what I can talk, they understand my language (she meant her accent) because they have been used to seeing me for the last three years." (Participant 14 CH – Nurse - PHCC)

As a result of working in rural areas on a long-term basis, the providers were able to develop the essential communication skills that facilitated providing care to the residents. They could effectively understand and respond to the needs of the community, which allowed them to develop a strong relationship with the patients.

Theme 2: Maximising accessibility by providing options and flexibility to access healthcare facilities

As described above, the limited availability of healthcare services in local PHCCs decreases access to healthcare services. There are alternative solutions used to facilitate access to chronic disease services in local PHCCs. To compensate for the limited resource availability and maximize access to chronic healthcare services for rural patients, both health facilities improved their flexibility in referring and accepting patients. A rural woman, for example, can visit the PHCCs in her area for maintenance consultation, while she may be referred to the SHCF when she requires advanced care or a specific clinical investigation. Some SHCF providers reported that they sometimes merged patient appointments with another clinic

visit, so that a patient would only need to travel once for all appointments. Healthcare professionals working in SHCFs have also considered and implemented other ways to facilitate access to healthcare, such as requesting a blood test to be completed at a PHCC clinic in the local area if available. Recently, there has been a cooperation between rural centres wherein the nearest hospitals where rural patients can be referred to provide an annual routine examination for chronic diseases which can used by the rural patients for their annual check-up.

> ***"Chronic patient can come any time from 8am -4 pm, patient can come to PHCC during these hours and patient can come without difficulty and she can arrange whenever she want, she finishes work and come to the centre and get the attention and the care she needs." (Participant 13 SA - Medical doctor - PHCC)***

Initiating a virtual clinic during the period of lockdown and restrictions related to COVID-19 was a second method reported by the HCPs. It proved that virtual clinics facilitated the delivery and access of healthcare services for rural women. While this has only recently been introduced to patient care, healthcare professionals believed that this could be a promising method for chronic patients living in remote areas. A particular benefit of these services was for those who required continuous insulin dose adjustments and were unable to travel long distances. A nurse stated:

> ***"Virtual clinic is good especially for educator to see the insulin adjustment, for example the patient cannot come from faraway and they already did the lab test here and we just see the results because as you know also the prescription came from WASFATY which is another system to take the medication from an outside pharmacy and not only from our pharmacy; this can be helpful for them." (Participant 1 BS – Nurse - SHCF)***

According to these findings, some strategies adopted by healthcare facilities may assist rural women in accessing chronic care services by offering flexible options that are suitable for their circumstances. HCPs reported that despite the introduction of some of these strategies that have been implemented recently, rural women diagnosed with chronic diseases still required more attention and effort compared to their urban counterparts. Transformation in the healthcare system in SA that is directed at the Saudi population in general and chronic diseases

in particular may improve rural health. The next theme elaborates on these changes and how they can enhance rural women health.

Theme 3: Healthcare-related changes in SA influencing provider-patient experience

In recent years, many positive changes have been implemented within the healthcare system for chronic disease patients. One of these changes identified by HCPs working at local PHCCs was community involvement through cooperation between local centres and community leaders such as religious leaders, police officers, and school managers. They act as mediators who cooperate with HCPs to facilitate communication with community members. Furthermore, they help organize community-based health education sessions and inform community members about new services at the centre. Involving community members can enhance community empowerment and fill the gap between the healthcare system and community members to improve the quality of healthcare services. The following excerpt illustrates the role of community members and the coordination between them and the local PHCCs.

> ***"We have one committee, this committee between the dispensary of our manager and the main people in the area like the school managers. So, there is meeting every three-months regarding, for example, if we have a new service like now we have influenza vaccine. So, we are giving notification. So, through these main leaders they are giving information to people in the area so they will come and receive the vaccine. So, this facilitates the communication between the dispensary and the community through this committee." (Participant 11UM - General practitioner – PHCC)***

The second change is the national transformation which took place in SA for women's rights and health policy. Providers reported that improvements happened in SA at various levels, which contributed to improvements in providing chronic disease care and patients' health outcomes. Women driving, for instance, enabled women to be independent, which allowed them access to health services more easily and improved their overall quality of life. Moreover, the participants believed that this could empower women in their households and communities, giving them a greater sense of autonomy. While some health professionals have noted that driving is not common among rural women, as described above, and transportation remains a barrier, the legalization of driving for women represents a significant step forward in achieving

gender equality. A comment below illustrates the positive impact that women driving has had on society:

> ***"I think this percentage has decreased in my experience since I started working, it was there that women used to miss the appointment, saying that nobody was there to pick them up etc. But I think this has changed. I can see females walking up to the clinic or to the hospital. Forget about the clinic and hospitals, if they can just drive all the way to Jed from Tif by themselves. So, coming to the clinic will not be an issue for them, or accessing healthcare because they're doing it." (Participant 5 MA - Consultant Cardiologist - SHCF)***

The new changes extend to the health settings as well as healthcare policy. For instance, in the past, a woman had to be accompanied by her husband or father to a healthcare facility. This has changed now, and women are allowed to visit clinics without being accompanied by a male family member. Additionally, a few HCPs mentioned an important change occurring in healthcare facilities, which is the elimination of gender segregation (males and females access healthcare in the same departments). This is not only happening inside healthcare facilities, but also in most sectors of SA. The shift in Saudi society has impacted the way healthcare providers deliver care to patients by influencing the way they think about women's rights and cultural restrictions. This shift has led to more efficient care delivery and more respect for patient autonomy. It has also resulted in better healthcare access for women, since they can now access the same departments as men without restrictions, which has improved the situation with respect to decision-making.

> ***"Current status of women in Saudi Arabia is better if we compared to women previously, women get more of their rights for decisions, no need for the husband or father to accompany them and this is really affecting our decisions as well. Before it is hard but now the patient (woman) has more rights and she can decide" (Participant 6 AM - Consultant Diabetologist - SHCF)***

Another professional talked about the national-level changes inside and outside the healthcare settings, reflecting on society and women's life overall:

> ***"Nowadays there are no separate sections for male and female. They are going together in all, here (in the centre) only one side, no more separate sections in most***

of the healthcare facilities, this may contribute to improve the male-female interactions and influence some cultural restrictions that constrained women." (Participant 10 MR – Nurse - PHCC)

Conclusion

The findings presented in this chapter provide significant insights into the experiences of delivering care to rural women in different healthcare facilities. Even though providers' experiences varied based on their facility and geographical area of work, they were all aware of certain obstacles in treating rural patients. In SHCFs, for example, access to blood tests and medication was not an issue, but in remote areas it was a major concern. The majority of providers found a strong association between the approach of rural women towards their health, and their personal perceptions and cultural factors. In addition, language barriers between non-Saudi professionals and their patients hindered effective communication. A lack of clear communication between the two levels of healthcare facilities influenced the effectiveness of the referral process. An additional barrier impacting provision of care was the limitation of educational development among local PHCC providers. These barriers impacted rural women's access to healthcare and provider practice. Consequently, patients and providers may eventually become demoralized to seek and provide healthcare services.

According to the healthcare providers, these challenges could be minimized by a number of factors, including having long work experience in treating local women which enabled providers to become familiar with the local community. Furthermore, changes in some policies, such as the involvement of community leaders facilitated cooperation between HCPs and rural communities. By improving women's rights, society transformation could also be viewed as a positive change for rural women.

Both chapters above have presented the experiences of rural women and HCPs in accessing and delivering chronic healthcare services. They identified some agreements and differences among perspectives. The next chapter will integrate and compare patient and provider perspectives to provide a comprehensive understanding of both their perspectives.

CHAPTER SEVEN: INTEGRATED FINDINGS OF RURAL WOMEN & HCPS

The findings of both rural women and providers are integrated in this chapter to provide a holistic view of the experiences of accessing healthcare services in rural areas. The chapter also reveals the similarities, differences, and connections among the perspectives of the participants which is one of the research objectives (See Aim & objectives of study - Chapter one). These factors are interrelated and organized in accordance with the findings of the study based on integrated experiences of rural women and providers. The first section provides a closer look at the challenges of accessing chronic disease care including those highlighted in relation to different domains such as intrapersonal and interpersonal factors, the context of community resources, communication and interaction at many levels, and finally, health policy and organizational barriers. The conceptual map below (Figure 7.1) provides a visual representation of the connection of themes and findings among rural women and HCPs along with their relation to the main concepts (blue squares). Facilitators from both participants findings were added and explained in this chapter.

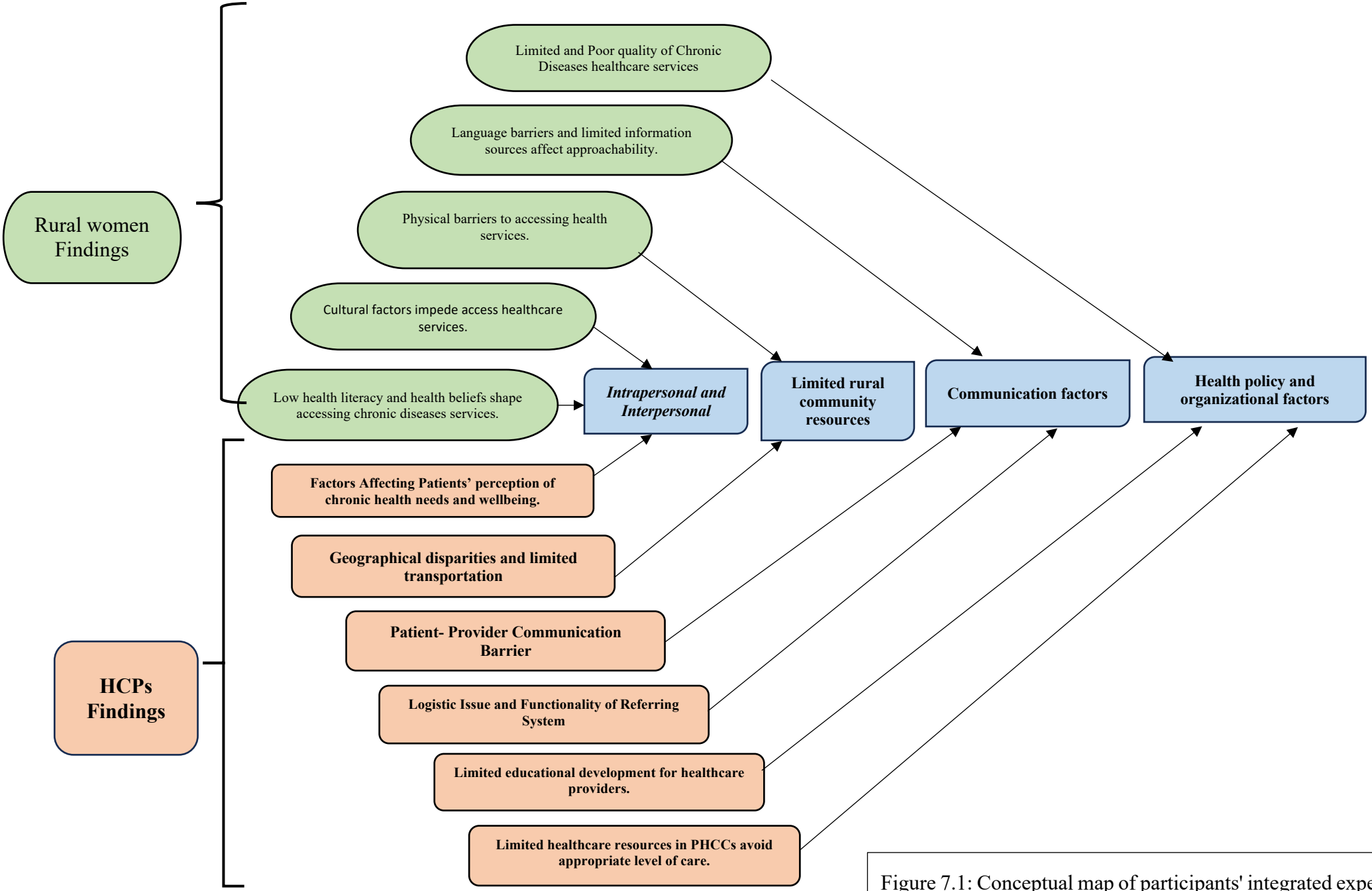


Figure 7.1: Conceptual map of participants' integrated experiences

7. Integrated experiences and perspectives of rural women and HCPs

7.1 Intrapersonal and interpersonal factors

The findings suggest a number of sociocultural factors which present as barriers for women accessing healthcare services. As shown in Figure 7.1 'Conceptual map of participants' integrated experiences, three themes integrated from the experiences and views of rural women and HCPs indicated that these factors are closely related to the Saudi culture, Saudi norms, and the religious context. In this study, similarities were found between findings from rural women and HCPs with regards to their health behaviours. The experiences of rural women are largely determined by sociocultural factors including education, culture, gender, and religious beliefs. Culture and education, for instance, are interconnected. The study findings highlighted low levels of education among rural women and HCPs asserted that this was the main factor that contributed to their low health literacy. Rural women showed some confusion about, and, in some cases, little knowledge of how to manage their chronic disease and they were unable to understand the necessity and mechanism of action of their medication, as described in Chapters five and six. This was exacerbated by misconceptions about medications and fear of taking some of these medications due to false information obtained from untrustworthy sources. For example, some rural women stated that they believed that one of the drugs used to treat diabetes, metformin, had a negative effect on kidneys, as a result of which they did not take the medication as prescribed by their provider. Low levels of health literacy can promote false beliefs and unhealthy behaviours among rural women which lead to complacency in scheduling appointments and follow-up visits, taking medications, and monitoring their condition. Therefore, there were concerns among healthcare providers that these false beliefs could interfere with the management of disease and its interventions. HCPs have an additional factor which attributed these 'erroneous' beliefs which is the dissemination of false information on social media and shared among them. Information dissemination issues are exacerbated in rural communities, particularly those living in isolated areas with limited connectivity to larger towns and no local healthcare centre. Having limited access to reliable healthcare resources means that they have fewer opportunities to verify the information they receive. Thus, misinformation can spread quickly and be accepted as truth, particularly when aligned with existing beliefs or offering solutions to complex health problems.

An additional barrier is the widespread adoption of technology in the healthcare system increases challenges for rural women. In particular, the findings from HCPs and rural women suggest that older rural women struggle to comprehend their healthcare needs, navigate the changing healthcare systems, and use technology or emerging apps. Several factors may intersect to contribute to low levels of health literacy among rural women. These factors include their age, education level, limited availability of health education in PHCCs, and their physical accessibility to information and language barriers. These factors are interconnected and can create significant barriers for rural women in accessing and understanding important health information. In rural areas, women may have fewer access to formal sources of health information, such as patient education materials, brochures, or online health information portals, so they may turn to social media for information. However, social media is often not a reliable source of health information, and it can be easily manipulated to perpetuate false information.

Taking into account the findings in this thesis, it is possible that rural women's anxiety and health beliefs may be related to a lack of understanding of appropriate management of their condition as well as limited knowledge of blood sugar parameters and how the glucometer is operated. Patients with low health literacy may find it difficult to seek clarification or ask questions, leading to a reluctance to seek medical assistance when necessary. Rural women diagnosed with chronic diseases are particularly vulnerable to this problem because they may be hesitant to admit their lack of understanding for fear of being judged by their HCP for not understanding their condition. Due to a lack of understanding, the women in this study were not confident in managing their health and because of this feel vulnerable, which may result in unhealthy behaviours and outcomes, including inadequate management of chronic diseases. On the HCPs side, they adopted a paternalistic approach, making decisions on behalf of patients rather than involving them in their care. This can lead to decreased patient autonomy and hinder the development of a collaborative and patient-centred approach to care. These findings raise questions about the effectiveness of health education provided in primary healthcare centres, as well as the accessibility and clarity of the information provided suggesting that better strategies are needed to deliver health education to rural women, See chapter nine where I discuss the recommendations for practice (Priority area 1: Empowering rural women to support health and wellbeing, Priority area 2: Strengthening healthcare system for quality and inclusive care).

Some differences were found between rural women and providers when interpreting the reasons for missed appointments. For example, some rural women mentioned that they could not attend their appointments due to various barriers related to travelling long distances and limited public transportation as described previously. On the other hand, HCPs pointed out that limited transportation was not the only reason; rural women's healthcare seeking behaviour was also a contributing factor. Not prioritising their follow-up appointments and using healthcare services only when they had serious symptoms and complications was noted by HCPs among rural women. This was supported by rural women's behaviour in that they requested repeat prescriptions or preferred paying for their medication without having to attend follow-up appointments. It was observed that most patients were only interested in the prescription and did not discuss their health needs with their providers at consultations. The healthcare providers considered this behaviour to be due to the poor perceptions of rural women regarding their health needs. This behaviour can be reinforced by the religion which was another factor that came to light in the findings. HCPs considered religious beliefs to be a possible barrier that discouraged rural women from taking preventative action and actively managing their health. For example, the rural women believed that disease occurs due to the will of God, and its prevention and treatment is destined without understanding their own roles in managing their health by modifying their lifestyles. Not only that, observance of religious practices, such as fasting during Ramadan, a holy month for Muslims, can affect health and medical treatment. The restriction of food and drink during daylight hours may affect the individual's attendance at appointments, as well as the timing and dosage of medication.
These differing opinions are illustrated in the following quotes:

A rural woman said:

> ***"All the disease comes from God, and we cannot refuse that, can we? So we have to accept, nothing we can do about it, thanks to God for everything." (Mariam, SHCF)***

An HCP stated:

> ***"(They believe) the disease comes from Allah (the name of God in Islam) and the patient has nothing to do with it and doesn't have control over salt intake or sugar intake; they believe Allah is responsible about everything without any efforts from them." (Participant 2 – Consultant Cardiologist - SHCF)***

The findings from rural women and HCPs indicated that rural culture plays a crucial role in rural life and health. HCPs and rural women commended the role of family members in providing patients with access to healthcare and helping them manage chronic conditions through the provision of transportation and assistance with medication management which considered as a facilitator that help rural women to access healthcare services (Theme 6: Facilitators to overcome challenges in accessing healthcare services). Yet, HCPs and some rural women contended that cultural barriers and reliance on men may hinder women's independence and self-management of their condition. They added that the structure of rural communities, which has considerable social control, could interfere with women's sense of freedom and autonomy, and increase stress for the women and their families. Another potential factor is the traditional and patriarchal dynamics of the relationships and gender roles which purport that the man is responsible for their house and the woman is expected to stay at home and take care of the children. This dynamic not only imposes an additional burden on women but also reinforces gender disparities in healthcare access. Several rural women and providers discussed that women always had more family obligations, and this could hinder their access to the necessary healthcare services. Consequently, women often do not prioritise their own health needs or they are not considered a priority by their wider family network, resulting in delays in seeking health care and managing chronic conditions in an effective manner. Furthermore, traditional roles and expectations mean that even when healthcare is available, women may not feel empowered to seek it due to societal pressures and expectations. The limited availability of healthcare resources in rural areas further complicates this situation, making it even more difficult for women to break free from these cultural constraints and seek appropriate medical attention.

Along with these conservative cultural norms, there is an emphasis on privacy and modesty of women in the Saudi culture. Although rural women in this study did not explicitly express their discomfort with their provider's gender, this can be an inhibiting factor, as demonstrated in the findings with HCP participants. This finding may be attributed to the fact that chronic diseases do not require examination of sensitive parts of the body, and so, rural women may not prefer female healthcare providers for their consultation. It is also possible that the disparity in findings between rural women and HCPs may be due to a difference in perspective: healthcare providers are more sensitive to subtleties in communication as a result of their training and experience, so they may be more able to recognize when patients are withholding information or are uncomfortable, even if they do not explicitly indicate it. Male HCPs in this study

highlighted how they often had difficulty communicating with rural women, suggesting that the women were shy and did not discuss their health concerns openly, which may be due to gender differences or cultural norms or both. Furthermore, the long history of tradition has imposed on women that they must not express their opinions openly, and this affects how they express their health needs as well. Thus, women may feel hesitant discussing health matters with male providers, particularly around sensitive topics such as sexual or mental health, which are impacted by chronic health conditions. In addition, this may lead to providers feeling less competent in providing care for patients of the opposite gender, resulting in poor quality of care. However, increasing patient-provider trust through long-term consultation may improve rural women's acceptance of male providers.

7.2 Limited rural community resources

Limited resources, in general, can encompass different aspects beyond healthcare resources. Among the economic challenges faced by rural women and their families, low-income levels and limited employment opportunities contributed to the difficulty in accessing healthcare services. Without sufficient infrastructure and services, residents have to travel long distances to access basic necessities, resulting in increased costs and reduced quality of life. This increased financial constraints, making it difficult for women to be able to afford medication, transportation, and travel costs in order to reach healthcare facilities. This was supported by the findings from the HCPs where it was clear that rural women struggled with inadequate transportation. Despite the modern-day changes in SA, which allow women to drive, transportation remains particularly problematic in rural areas where there is no, or limited, public transportation network. Also, it is dangerous to drive because of poor road infrastructure, often making women dependent on their families. Poor transportation meant that both rural women and HCPs were affected by missed appointments by patients as the providers were unable to follow up with patients on a regular basis. The following quote were from rural woman to support this point:

A rural women stated:

"Living in rural areas is not like in the city where everything are close, hospital and all services nearby, but here (rural areas) everything are so far, we have to go to reach for what we need." (Mona, PHCC).

Findings also revealed the poor condition of rural infrastructure and technological resources, including the transportation network, roads, and telecommunications network. According to a majority of the participants, all three rural areas included in this study had limited resources. Due to the absence of adequate infrastructure, rural women stated that they struggled to access healthcare facilities. In turn, health providers found that limited technology impacted their practice, for example, poor telecommunications in rural areas, in addition to limited or no access to electronic medical records, made systems such as telemedicine problematic for providers and service users. In rural areas, the availability of virtual consultations, remote monitoring, and telemedicine services is limited due to a lack of reliable and accessible telehealth infrastructure. In this case, HCPs identified the importance of expanding healthcare service options for rural women, as discussed in Domain 3: Facilitators enhancing access to chronic healthcare services particularly under Theme 2: Maximising accessibility by providing options and flexibility to access healthcare facilities

As described in the HCPs findings presented in Chapter five, scarcity of resources was mainly emphasised by providers who worked at PHCCs. This is because providers who worked in local centres were more familiar with rural women's socioeconomic constraints. This was due to their previous work experience and residence in the same community which gave them insights into rural community resources. The providers' familiarity with rural community resources allowed them to better understand the specific challenges faced by rural women and tailor their healthcare services accordingly. The findings from HCPs working in the SHCF, however, differed and indicated that appointments may not be scheduled to take into consideration the challenges faced by rural patients regarding distance and time, as well as the availability of a family member to accompany them. A lack of understanding of the patient's living and cultural context can interfere with the provision of quality patient care, resulting in not taking into consideration all the patient's needs and obstacles to accessing healthcare and managing their chronic condition. Additionally, this can contribute to a negative perception of the healthcare system among rural women and can be associated with decreased motivation to seek healthcare and missed follow-up appointments, since rural women may feel their needs are not being met and the obstacles to receiving appropriate care are insurmountable. In order to improve access to healthcare services in rural areas and ensure that patients feel supported

and motivated, it is important to address these barriers (See 9.1 Research implications, 9.1.1 Implications for policy and practice). Based on the findings from the women and the HCPs, it is suggested that the limited resources and poor infrastructure in rural areas can be attributed to a lack of cooperation between different sectors such as governmental agencies, healthcare organisations, and community development organisations. In the absence of collaboration between several departments and agencies, resource allocation and service delivery are fragmented. Furthermore, redundant efforts are created, and opportunities are missed for comprehensively addressing the needs of rural communities. This inefficiency is particularly evident when investigating health policy-related factors and organisational factors that affect the availability of resources in rural communities and shape rural women's experiences which are discussed in the following sections.

7.3 The impact of communication on the quality of received healthcare services

The study findings from both rural women and HCPs suggested that there were challenges in communication on three levels: patient-provider (interpersonal communication), provider to provider (intraprofessional communication), and among healthcare facilities (organisational communication) (Figure 7.2).

Figure 7.2: The levels of communication between patients and providers

The first level is interpersonal communication which refers to direct communication between the patient and the provider. Both rural women and healthcare providers had different experiences of communication depending on the type of healthcare facility. In PHCCs, providers and patients agreed on the language issues that limited their effective communication which is one of the key factors in providing care to chronically ill patients. In contrast, rural women receiving care in the SHCFs were not affected by language barriers. Therefore, this discrepancy could increase the disparity between the SHCFs and the PHCCs in terms of providing health education to the patients. The reason for this disparity is that there are a number of Arabic-speaking providers in the SHCFs, which facilitates communication between the patient and the provider compared to the rural PHCCs where the majority of healthcare professionals do not speak Arabic. One reason for this is that most Saudi providers prefer to work at SHCFs. As a consequence, foreign providers who do not speak Arabic are recruited at local PHCCs making it difficult for them to communicate effectively with the rural patients. According to the findings none of the HCPs mentioned whether they had received any educational lectures and training, which indicated that healthcare facilities did not provide any introductory courses or supporting materials to assist providers in understanding the basics of the Arabic language or learning medical terms in Arabic. This makes it difficult for healthcare providers to fully comprehend the needs, feelings, and values of their patients due to language barriers. Additionally, this prevents providers and patients from building trust and it may prevent the patient from sharing essential health information with the provider. One provider from PHCC stated that due to this barrier, she avoided providing health education to the patient:

> ***"The main problem that I feel is the language barrier. Because we are from India, and we are not able to communicate with the patients in a proper way. Even if we want to give health education to them, we are not able to do that because of the language barrier. That is the main problem I face here." (Participant 14 CH – Nurse - PHCC)***

Considering these findings, it can be concluded that both participant groups (patients and providers) believed that the recruitment of Saudi providers, who are Arabic speakers and understand the local culture, and are therefore able to communicate with patients whose main or only language is Arabic, can lead to positive changes and improvements in the PHCCs.

The second level of communication is intraprofessional communication, which refers to the communication among healthcare professionals. Communication challenges at this level are primarily due to difficulties resulting from communication at level one interpersonal. For example, providers who do not speak Arabic use English to communicate with other providers. As described above, the Arabic-speaking providers agreed that their non-Arabic-speaking colleagues find it difficult to communicate with patients. Due to a lack of interpreter services in both facilities, providers must ask their Arabic-speaking colleagues for assistance in explaining or translating the patient's needs. For instance, in a case where a patient is exhibiting unusual symptoms, the provider may need to turn to a colleague for help in understanding what the patient is trying to communicate. An inconsistent use of professional interpreters may result in miscommunication, which may compromise patient safety and lead to misdiagnosis or inappropriate treatment. In addition, it can be challenging to translate cultural nuances and medical terminology accurately and meaningfully, which may result in misunderstandings. Such a situation, and without direct communication between provider and patient, as well as communicating in another language in front of the patient, may result in the patient feeling excluded and increase patients' fears and anxiety by avoiding being involved in the process. HCPs may experience frustration and burnout from the challenges of overcoming language barriers and trying to ensure quality care. Poor knowledge about health conditions among rural women may be exacerbated by language barriers, and potentially prevent them from receiving proper health education. The findings of this thesis confirm long-term experience in local facilities enhance HCP's ability to communicate with rural women as discussed in (Chapter six Theme1: Long work experience at local PHCCs improves provider experience). However, providers should not rely solely on experience; they must be adequately prepared from the start to engage effectively without encountering communication difficulties.

The third level of communication that influences access to chronic healthcare services, the lack of which became apparent in this study, is the gap in communication among local/rural healthcare centres and the secondary healthcare facilities (organisational communication). Many factors contribute to this gap, such as limited resources, the lack of standardised communication protocols, and the geographic isolation of rural areas. Moreover, lack of an interconnected and well-functioning electronic medical system, which impacts on the referral process between PHCCs and SHCFs. The findings indicated that providers in both SHCFs and PHCCs believed that the lack of communication among healthcare facilities on two levels, primary and secondary, affected the referral process of rural women. Although referring patients from PHCCs to SHCFs improved access to healthcare, communication gaps between facilities and the absence of shared electronic medical records posed challenges for patients and healthcare providers. Contrary to expectations, as previously mentioned, there was no central electronic medical record to connect all healthcare facilities with technology availability. This may be due to limited technology in the centres in rural areas. Although each hospital had its own electronic system to access patient information, this system was internal, and was not linked with other facilities. Thus, this interfered with the patient's follow-up and comparison of progress because providers had no access to the medical history and previous investigations. For instance, chronic diseases, in particular diabetes mellitus, depend on the monitoring of haemoglobin A1c (HbA1c) to make adjustments to the insulin dosage during treatment. In the absence of the availability of previous records of HbA1c, it is difficult for the provider to decide how to proceed with treatment of the patient. Rural health centres were more affected by the lack of electronic systems for saving and accessing patient information. This issue was raised mainly by providers working in the PHCCs who asserted that they had not received any updates on the patient’s condition after the patient was discharged from the SHCF. Insufficient follow-up after discharge implied that providers in the SHCFs did not consider any alternative follow-up strategies to ensure that rural patients were transferred and receiving appropriate care. Follow-up could be done by telephone or by directly communicating with the local provider. This demonstrated that there were no clear strategies for referral between these two levels of facilities. Paper-based reports could be considered and could be helpful in such cases. Chronic disease patients often require coordinated care from multiple healthcare providers. These discrepancies can lead to fragmented patient information, unnecessary repetition of diagnostic tests, treatment delay and inconsistent care plans increasing patient

burden and healthcare costs (See 9.1 Recommendations, Priority area 2: Strengthening healthcare system for quality and inclusive care).

7.4 Health policy and organizational factors

The findings from the HCPs illustrated that medical resources were limited in PHCCs, thus affecting the quality of care they could provide. Similarly, rural women complained about the limitations of services in local centres. HCPs attributed poor knowledge among rural women of their health status to limited health education services in remote PHCCs. Likewise, rural women confirmed that this service needed to be developed in the local centres. Insufficient medical equipment, shortages of healthcare professionals, and inadequate infrastructure can lead to delayed diagnoses, substandard treatment, and poor patient outcomes. Taken together, this means that women are unable to receive personalised and comprehensive chronic healthcare services, which can prevent them from effectively implementing self-management strategies and rely on their own skills to manage their health conditions. On the other hand, for HCPs, insufficient support and resources can undermine providers' confidence in their clinical intervention. This can lead to a feeling of powerlessness and helplessness, which can further complicate the decision-making process. It is important for providers to have access to the right resources and support, so they can make the best decisions for their patients and their families. This could explain why rural women preferred care from SHCFs and refused to be referred back to local PHCCs. The following quote illustrate how rural women viewed this issue:

> ***"If you want the true answer, there are limitations in healthcare services, they do not have services like medication, investigations and there are no specialists in DM and the chronic diseases." (Fatemeh, SHCF)***

Rural women and HCPs expressed concerns about the lack of availability of medications in PHCC pharmacies, caused by low supplies of medication and the use of new programmes like WASFATY in less resourced areas. Due to insufficient funding, rural healthcare systems frequently face a shortage of resources, outdated medical equipment, and understaffing. These challenges result in limited access to specialised healthcare, leading to significant disparities between rural and urban healthcare services. Without regular and convenient access to medication, the rural women participants often experienced poor medication adherence. This

issue is compounded by their domestic commitments and dependence on family members, ultimately impacting their overall health. Additionally, this led rural women to purchase medications from private pharmacies due to non-availability which increased medication costs and financial stress on patients as patients suffering from chronic diseases need long-term access to their medications at an affordable price. Rural women mentioned that they could get their medication directly from the pharmacy if they had repeat prescriptions or their medication was in stock, and they could pay for over-the-counter medication. HCPs, on the other hand, had a different opinion in that they believed that patients would not attend appointments for regular check-up of their condition if they were allowed to receive medication on repeat prescription. Differences in opinion stem from each group's distinct perspectives and priorities. For example, due to the difficulties of travel and time constraints, rural women prioritise convenience and accessibility. The ability to obtain medications directly from the pharmacy saves them from frequent visits to healthcare facilities. Additionally, cost considerations play an important role: it might be more affordable to obtain medication over the counter rather than attending regular medical appointments, which would include travel costs. Healthcare providers, however, emphasise the importance of regular monitoring and check-ups in managing chronic conditions. In their view, rural women who rely solely on repeat prescriptions without regular medical supervision may lead to inadequate management of their conditions, deteriorating health outcomes, and potentially serious complications.

In terms of referral process, findings revealed that the two main factors that impacted a referral system were the waiting period for an appointment, and clarity of the referral system. A long wait time for referral appointments was cited by both PHCC providers as well as rural women as a barrier to accessing specialized consultations in a timely manner. Patients usually had to wait about four to five months to get an appointment and this delay impacted the health outcomes as these visits were essential to monitor the patient health status and review the treatment plan and adjust if necessary. When comparing PHCCs and SHCFs, it seemed that there was no coordination and no clear criteria for referring patients. For instance, PHCC providers reported that limitations in the investigations available at their centre was a major reason for referring patients, which considerably increased the number of referrals. However, SHCFs only accepted patients with acute complications such as uncontrolled diabetes. Without a unified referral plan, there were delays in the referrals and long waiting times for appointments. Further, ineffective communication and lack of cooperation led to fragmented care and inefficient utilization of resources, such as unnecessary referrals to

hospitals. Conversely, patients who required advanced care also experienced delays in receiving appropriate referrals, according to rural women. In addition, referrals were also influenced by the age of the patient and the living arrangements of women. Travelling to appointments for elderly people was hard, especially if they lived alone, whereas most women who lived at home with their families could be driven by a family member. Chronic patients are more likely to develop severe life-threatening symptoms, such as diabetic ketoacidosis or a heart attack, and timing is crucial for managing them successfully. Thus, to facilitate patient referrals between primary care centres and hospitals, it is vital that clear guidelines and protocols are established considering rural women's challenges.

The findings indicated that providers in PHCCs have limited access to educational and professional development opportunities, which contributes to the difficulty of providing chronic care services. More specifically, providers in local centres had limited opportunities to develop their educational skills, which affected their ability to deliver high quality services. The low level of satisfaction among rural women regarding the services they received suggests that their trust in local providers is low compared with their trust in specialist practitioners in SHCFs. Since local centres lack specialist services, education is necessary to provide services that meet patients' needs. Without access to educational and professional development opportunities, these providers may struggle to stay up to date with the latest medical research, how to communicate effectively with patients, and how to make informed decisions about patient care. Despite the MOH providing educational sessions for HCPs, most of these training programs are held in hospitals in urban areas. Travel distances, costs and time constraints can be significant barriers for rural healthcare workers to attend training sessions or conferences. Furthermore, these educational sessions tend to be designed with urban healthcare settings in mind, where resources and infrastructure are more robust which does not address the unique challenges faced by rural healthcare workers. It is important to note that without facilitating access to educational development for rural HCPs, they will not have the opportunity to network with peers and exchange experiences leading them to remain isolated from other practitioners. This suggests that to provide high-quality care, clinicians at local centres should develop their skills such as evidence-based medicine and effective communication. Further, providers in local health centres should develop critical thinking skills, problem-solving skills, and the ability to collaborate across disciplines in order to provide comprehensive and holistic care to their patients. The acquisition of these skills is critical to addressing the complex healthcare needs of rural communities and ensuring the highest quality of care for patients.

Conclusion

In summary, the findings described above are interconnected and a combination of one or more factors are involved in contributing to the experiences of rural women patients. Despite some differences between the experiences of rural women and the perceptions of the HCPs, both rural women and healthcare providers agreed that there were several factors that led women to be less motivated to seek and access healthcare services, which may be related to their initial perceptions of their health and health services as well as the barriers they encountered in obtaining healthcare. Rural women specifically, and rural communities in general, continue to face these barriers due to the lack of advocacy for their communities' rights. The absence of advocacy can play a significant role in enhancing chronic health care services in rural healthcare centres as rural communities remain unaware of their health needs and available services. Additionally, it seems that the policymakers remain uninformed about the specific challenges faced by rural populations. In order to raise awareness, influence policy, secure funding, and address the unique needs of rural populations, advocacy is crucial **(See 9.2 Recommendations, Priority area 3: Bridging research and policy for evidence-based decision making).** The next chapter discusses the dimensions of accessing and delivering healthcare services in relation to the wider body of literature by using the Levesque framework.

CHAPTER EIGHT: DISCUSSION

In this chapter, I discuss the thesis findings in connection with the wider body of published literature in this area. The chapter begins by discussing the key findings followed by a comprehensive discussion of the study findings in relation to the research aims and objectives and connecting the findings with the dimensions of Levesque's conceptual framework on patient centred health access framework (Levesque et al., 2013). Following this, the facilitators are discussed which have been concluded from the experiences of rural women and providers. It then summarises the contributions to knowledge this thesis makes which focuses on barriers and facilitators for accessing, receiving, and delivering healthcare services (secondary and primary) from the perspectives of rural women diagnosed with (DM or/and CVD) and healthcare providers in rural areas near Taif city. These contributions include: 1)- An unveiling of the complex factors that affect rural women's and HCPs' experiences, 2)- Determinants of access to healthcare in the specific context of Saudi rural women, 3)- Rural research fields. Furthermore, there will be a discussion of the advantages and disadvantages of applying PCAHF in the Saudi context and its suitability in understanding the healthcare-associated barriers and facilitators in the rural health context. The final part discusses the limitation including the research design and its boundaries to understand the scope of the study as well as strength of the study.

8. Key findings

To identify the barriers and facilitators of rural women's access to chronic healthcare services in SA, a qualitative approach was chosen. This thesis specifically focused on the experiences of rural women who were suffering from chronic conditions namely diabetes and cardiovascular diseases, and those of HCPs providing healthcare services to rural women. The findings, presented in Chapters four and five, then integrated in Chapter six, are explored below for the contributions to knowledge they make. In this section, intrapersonal and interpersonal factors are discussed related to the themes relevant to sociocultural barriers and how they influence rural women's and providers' experiences. Second, the issue of limited resources in the rural community is highlighted and three levels of communication themes are discussed in the third part. Finally, all health policy and organizational barriers are discussed. All the above four main concepts are visually represented in the 'Conceptual Map of Integrated Participants' Experience' in the previous chapter. Considering that all themes are

interconnected and influenced by one another, I categorized and discussed them in two main categories which meet the study objectives: 1)- barriers to accessing and delivering chronic healthcare services in rural areas, and 2)- facilitators of access to and delivery of chronic healthcare services. Findings are discussed following the PCAHF framework summarizing both participant group's experiences and compared them to the relevant literature.

8.1 Barriers to accessing and delivering chronic healthcare services in rural areas

Access to chronic health services is influenced by multidimensional factors on both the demand and supply sides. According to the findings of this thesis, rural women diagnosed with chronic conditions face a multitude of barriers that impede them from accessing and utilizing healthcare services. These findings concur with those of other studies which found that rural populations still have difficulty in accessing healthcare services due to geographic distance from healthcare facilities, lack of availability of transport, limited availability of healthcare professionals, and cultural marginalization (George et al., 2020b, Haldane et al., 2021, Golembiewski et al., 2022). However, one difference is that these barriers vary according to the rural context, gender, healthcare condition, and the local healthcare system. Based on the characteristics of the rural women participants, the barriers and facilitators to accessing chronic healthcare services identified in this thesis are most relevant to elderly women with low educational levels who live in the rural community and are diagnosed with chronic diseases such as diabetes mellitus and cardiovascular diseases.

8.1.1 Approachability and ability to perceive health needs

This dimension of Levesque's framework refers to HCPs' and rural women's abilities to provide information by HCPs and perceived by rural women which means opportunities for chronic diseases (DM & CVD) services that exist and can be reached (Levesque et al., 2013), which is determined by patient level of health literacy. In the context of the different types of health literacy – functional, interactive, communicative, and critical - it is found in this research that poor functional health literacy levels were associated with the participants' age and education level, both of which are found in various studies to be barriers to the ability to perceive healthcare services among rural and chronic disease patients (Schwarz et al., 2022, Jafar et al., 2020). This has also been found in a systematic review comparing health literacy among rural and urban populations asserting that rurality and sociodemographic factors

both contributed to poor health literacy (Aljassim and Ostini, 2020). Similarly, a study conducted across SA found that 46% of respondents had low health literacy, associated with older age, education level, and income level (Almubark et al., 2019). In relation to chronic diseases in particular DM and CVD, perceiving the disease, defining the necessary healthcare services, beliefs about the medications, and initiative for self-management have been studied as essential factors influenced by the level of health literacy of the patient (Chen et al., 2014, Cajita et al., 2016, Shiyanbola et al., 2018) and described as some of the barriers to understanding the disease and navigating the healthcare system (Haldane et al., 2021). Individuals with low health literacy levels have been shown to have a lower ability to recognize their symptoms, lower adherence to medications and treatment recommendations, and difficulty in performing calculation-based tasks such as adjusting calories or medication doses to manage their health conditions (Shiyanbola et al., 2018). Such individuals may also have trouble in understanding information related to the management of their condition such as that found on medication labels and appointment slips (Cajita et al., 2016).

The consequences of low health literacy for the rural women in this research include false health beliefs that led to fear and non-adherence to medication, getting prescription refills without attending follow-up appointments, and not voicing their queries with their providers at their appointments. Other studies that have explored the relationship between health literacy and health outcomes have found that low health literacy is linked to lower self-assessment of health, prevalence of disability and obesity, low physical activity, poor dietary habits, higher frequency of hospitalizations (Duplaga, 2020), lower rates of vaccinations and mammography screening, non-adherence to medication, lower ability to comprehend health labels and messages, and higher mortality (Berkman et al., 2011). Low levels of technology literacy were also identified among the rural women in this research, which acted as a barrier for them while booking appointments for consultation. Ease of use of technology is important in the twenty first century where a lot of activities take place through electronic devices. However, several studies have reported that elderly people living in rural areas do not have sufficient knowledge and access to technology, which hinders the advantage they might receive from health-related logistics and educational applications. For example, a study conducted in rural areas of India found that only 27% of the people had sufficient health literacy and 11% had technology literacy. Around 50% of the people owned mobile phones and only 10% were able to use the internet for health services (Rasekaba et al., 2022). Another study carried out in Iran with both rural and urban residents revealed that rural residents had lower functional health literacy

compared to urban residents (Golboni et al., 2018). There is a strong association between health and technology literacy, gender, education, and perceived health status, and people with poor health status are more likely to have low health and technology literacy (Goldner et al., 2013). Therefore, the poor levels of health literacy and technology literacy identified among rural women in this research may be linked to their suboptimal health status, especially with respect to their chronic conditions.

While healthcare systems must improve health literacy among rural women, it is apparent from rural women's experiences that chronic disease health education services are limited in the local PHCCs. Education services at the local healthcare facilities are an important source of health education for patients, and a lack of such services contribute to low levels of knowledge among rural patients regarding their chronic conditions. One reason for this may be the shortage of staff at local healthcare facilities as revealed in this research, which limits the possibility of them educating their patients about their health condition and explaining the need for and method of taking their medications. Another reason for poor health literacy can be attributed to the gaps in provider-patient communication (language barriers) which pose a challenge for both patient and provider in effectively communicating about symptoms, health-related concerns, medications, and follow-ups. These interconnected factors have been described in a study by Stars (2018), which identified links between poor health literacy and the provision of effective health education. Health education and health communication activities have been shown to improve health literacy by providing individuals with the knowledge, skills, competencies, and attitudes required to take care of their health (Stars, 2018). Language barriers and communication gaps indicated in this thesis are consistent with previous research that has shown that language influences patient perceptions and access to healthcare services (Javanparast et al., 2020, Karjawlly et al., 2020, Khin et al., 2021). In SA, language barriers have been highlighted as one of the major challenges in the hospitals due to a diverse workforce leading to difficulties in communication (Aljuaid et al., 2016, Abdel-Aziz et al., 2017, Al Shamsi et al., 2020, Alhamami, 2022). A study conducted in the Armed Forces Hospital located in Taif city revealed that 49% of nurses encountered language barriers when handling patients (Al-Harasis, 2013). An integrative review aligns with the study findings underscoring that both culture and language have a profound impact on nurse-patient communication in Saudi Arabian health care settings (Alshammari et al., 2019). It is not surprising, therefore, that a lack of health education services plus the language barriers were contributing factors for low health literacy among rural women participants in this thesis. By

investigating communication barriers between rural women and healthcare providers this thesis has identified critical areas for improvement in health literacy and patient-provider interaction. See Chapter 9 (Recommendation, Priority area 2: Healthcare system and Healthcare providers). In light of all the factors discussed above, it is clear that patient perceptions and health literacy levels are influenced by both the patient and the health information made available by the healthcare system. Therefore, to improve health and accessibility for rural women, patients need to be equipped with a comprehensive set of skills that enable them to access, communicate, comprehend, and act upon health information (Poureslami et al., 2017). Furthermore, these factors are embedded within a socio-cultural context that inhibit women's empowerment and autonomy around their own health.

8.1.2 Acceptability and ability to seek healthcare services

The acceptability of a service to the target audience is influenced by cultural and social factors. The findings from this thesis highlighted specific socio-economic and cultural factors that impede access to chronic health care. One of the significant findings of this thesis reveals how the sociocultural context of rural society impacts the access to, and delivery of, healthcare services. For centuries, women have been viewed as the 'care-giver' of the family and have traditionally not prioritized their health needs over family responsibilities. Traditional gender roles limit women's autonomy and healthcare decision making. Several factors are important to consider in light of the thesis findings, including the imbalance of gender power in decision making which is connected to the long history of gender norms and the dynamics of marital relationships that shape women's behaviour in households in Saudi Arabia, and indeed many other cultural contexts (Aldosari, 2017). One example is the need to obtain permission from male family members (father or husband) to seek medical treatment (Aldosari, 2017, Dhaher, 2017). Such policies within healthcare facilities and cultural norms both foster gender inequality and constrain women's rights. For example, it was found in a study by Alshahrani (2014), that evaluated the prehospital delay among Saudi females with myocardial infarction that lack of information about acute myocardial infarction and delay in availing ambulance services held a strong influence on women's access to healthcare.

In addition, being financially dependent on the male can limit women's options and their ability to cover expenses, such as transportation, specialist healthcare services, and medications, leading to most expense-related decisions being made by men. A similar finding has been

identified in other studies conducted in Pakistan and Nigeria where gender roles in decision making and financial status owing to the patriarchal nature of the societies influence women's access to healthcare (Yaya et al., 2019, Asim et al., 2021, Habib et al., 2021). Furthermore, women reported that their involvement in family responsibilities limited their use of health services which traditionally, in many societies, in particular Arab norms, women are expected to prioritize their role as mothers and caregivers over their own health (Gottlieb et al., 2011, Majaj et al., 2013, Alshahrani et al., 2014). In the absence of support from a partner, managing motherhood and family obligations can be very challenging, resulting in increased stress and burden as well as a lack of time for their own healthcare visits (Gottlieb et al., 2011). Consequentially, rural women need to balance their family needs and health needs, with the family needs demanding more time leaving little time for taking care of their health. HCPs raised their concerns about the impact of rural culture, which not only influences access to healthcare but also the whole chronic disease management as a result of restriction to exercise which can decrease women's motivation to adopt a healthy lifestyle (Ali et al., 2010, Al-Nuaim et al., 2012, Alyaemni et al., 2013). Similar themes were identified in this thesis which threw light on the restrictions of rural lives, especially those of women, who are bound by traditional gender roles of "caregiver" which tie them to their houses, preventing them from exercising outdoors, modifying their diet, and driving to their appointments.

The gender norms in rural culture extended to the provider practice as well according to the findings in this thesis. It has been claimed that gender preference of the provider is a fundamental requirement for access to healthcare in a number of studies, as reported by (Matthews et al., 2019, Javanparast et al., 2020, Khin et al., 2021). However, the findings from this research do not necessarily align with these findings as most of these other studies primarily addressed reproductive and maternal healthcare needs. Rural women diagnosed with chronic diseases did not raise explicit concerns regarding the gender of the provider possibly because chronic conditions like diabetes and cardiovascular diseases does not normally involve sensitive body parts check-up. However, the cultural sensitivity identified among male providers in our study may be the result of awareness of gender dynamics and rural norms in SA. The different opinions among rural women and providers regarding this point suggest that HCPs may be making assumptions about gender preferences that can make them more cautious during consultation to avoid situations that may be perceived as culturally inappropriate. Such perceptions can result in stereotyping all women from a particular culture (rural community) to share the same beliefs about gender norms. This corroborates with the ideas of (Kleinman

and Benson, 2006) who suggested that cultural sensitivity may contribute to presumptions about patients of a certain ethnicity or group. This presumption may also develop from the way women wear their hijab / niqab or burqa [traditional veil worn by Muslim women] and communicate with male providers keeping in mind the restrictions imposed by the religion of Islam (Attum et al., 2018, al-Shahri, 2002). Providers who are non-Saudi with different cultural context and a gap in communication due to the language barrier may have limited understanding of the cultural context of the rural community in SA (Anderson et al., 2003, Grandpierre et al., 2018, al-Shahri, 2002). Effective communication and balancing cultural sensitivity through cultural humility to recognize the patient's unique needs contribute to ensuring cultural competence when providing healthcare services to patients (Henderson, 2003, Lekas et al., 2020).

As indicated in the findings of this thesis, rural women do not openly discuss their challenges and concerns with their providers. One possible explanation for this behaviour in a sociocultural context might be that women feel uncomfortable because they fear being judged and stigmatized by providers because they belong to a rural background (Coombs et al., 2022). The complex cultural and sociodemographic factors identified in this thesis and discussed above can all contribute to disempowerment of women. Other contributing factors may include language barriers and cultural mismatch between the provider and patients, which may serve to increase the distance between the provider and rural women patients. This thesis confirmed the impact of women empowerment in relation to access to healthcare services, which not only influences the provision of healthcare services, but also the recognition of the underlying sociocultural factors (Chitra and Malarvizhi, 2011, Ahmad et al., 2021). Limited ability of rural women to access education, gender dynamics and being excluded from making decisions, inadequate job opportunities, and being financially dependent on men are all important and relevant sociocultural factors that impact women empowerment reflecting on their ability to access healthcare services. This finding broadly supports those of other studies in this area linking women empowerment indicators with accessing and seeking healthcare services (Yaya et al., 2019, Htun et al., 2021). Women disempowerment can be attributed to the lack of self-confidence and an adequate support system which discourages them from advocating for their right to access healthcare services for themselves (Sambala and Ngoasong, 2014, Ahmad et al., 2021).

8.1.3 Availability and ability to reach healthcare facilities

Despite much global research identifying geographical location has been cited extensively around the world as a barrier for rural areas to access health care services, this thesis highlighted the specific Saudi geographic challenges of rural areas to access healthcare (Awoyemi et al., 2011). As indicated in the Maps in the methods chapter, all three rural areas are located at a considerable distance from the main city "Taif". Living in isolated areas with limited healthcare resources in local PHCCs forces women to travel long distances to access specialists' services. This finding aligns with the result of previous studies conducted in different rural areas with patients suffering from different chronic conditions (Jafar et al., 2020, Brundisini et al., 2013, Schwarz et al., 2022). A study conducted in SA compared rural-urban access to healthcare and found that the distance of rural residence from healthcare facilities was a barrier to access/utilize healthcare services (Alfaqeeh et al., 2017). Women in rural areas of SA usually struggle more with travelling long distances due to the limitation of transport options as they are dependent on men to take them to the facility and/or they have financial constraints (Statz and Evers, 2020, Majid et al., 2019). Similar results were found in another study where women in rural areas faced the same issue (Alshahrani et al., 2014). Furthermore, older age and the existence of special needs or disabilities which may or may not be a consequence of their chronic condition can make travelling worse for the patients (Dassah et al., 2018, Stewart et al., 2018). For this, the existence of good public transportation can facilitate the accessibility to healthcare services. However, in SA, there is a lack of public transportation, especially in rural areas, and most people depend on their private vehicles (Alfaqeeh et al., 2017). This finding is contrary to a previous study conducted in Riyadh which suggested that the availability of transportation was not a barrier in accessing healthcare services for rural patient. This inconsistency may be due to the assumption that most Saudi citizens travel using their private vehicle or the location in which the study was conducted had other options of transportation (Alfaqeeh et al., 2017). Despite women being legally able to drive now in SA, travelling long distances in rural locations may not be safe. Infrastructure of the road and the hot climate compound these challenges for rural women (Brundisini et al., 2013). The infrastructure of the road in rural areas of SA is poor which predisposes people travelling on these roads to serious road accidents (Jamal et al., 2020). Due to this reason, it is not safe for women to drive on these roads despite being allowed to do so. Also, male family members do not permit the women to drive on these roads out of concern for their safety. As a result, women need to wait for a family member to be free to drive them to the facility, thereby

acting as a barrier in accessing healthcare services. Additionally, travel expenses complicate the issue particularly for low-income families (Haldane et al., 2021).

Another important finding highlighted in this thesis was limited specialist healthcare services for chronic conditions (DM & CVD) and poor quality of services in local PHCCs as one of the main barriers according to rural women's and HCPs' experiences. This finding broadly supports other studies that asserted that the rural population is always struggling with scarcity of health resources in general and not only for chronic patients (Neely and Ponshunmugam, 2019, Alharbi and Alzghool, 2019, Al Saffer et al., 2021, Schwarz et al., 2022). Several factors can explain these findings. Inequality of resources allocation leaves PHCCs in rural areas with limited resources and poor healthcare infrastructure (Alharbi and Alzghool, 2019, Al Saffer et al., 2021). A study conducted in SA at the national level to evaluate the capacity of primary healthcare facilities indicated that there is a wide variation in the number of PHCCs between rural and urban areas with more PHCC facilities in rural areas (56 %) (Al Saffer et al., 2021). Despite this positive result, poor quality of healthcare services in PHCCs and challenges to provide chronic specialist services for rural women in these centres persist. The same study asserted that specialist services are only provided in hospitals located in urban areas and there are limitations in the availability of medications, which was confirmed by both rural women and HCPs in this thesis (Al Saffer et al., 2021). Another study evaluated the accessibility of rural communities in India to chronic kidney diseases services and found that lack of provision of medical supply and specialised skilled professionals acted as barriers for patients in gaining access to healthcare (Jafar et al., 2020).

Shortage of staff, particularly specialist providers for chronic diseases in local PHCCs, was a major concern expressed by both rural women and HCPs. Most HCPs working at the local PHCCs in SA were usually general physicians or family doctors providing general services for different patients. A qualitative meta-analysis found that staff shortage was a barrier that was frequently cited in studies for different chronic conditions (Brundisini et al., 2013). Unequal distribution of HCPs and low recruitment of specialist providers in rural areas were the main reasons for staff shortage in these areas as revealed in the case of emergency healthcare providers (Alanazy et al., 2022). Also, a study conducted by Bakhsh et al. (2012) assessed medical students' willingness to work in rural areas and found that about 51% of the students were willing to work in rural healthcare centres if they received financial incentives. Female providers were less likely to work in small cities and rural areas. This could be because rural

areas may be less attractive for providers to work because they are isolated with limited amenities (Bakhsh et al., 2012). Additionally, over the last three years, SA has become a more urbanized country and most of the better services are located in the cities (Almulhim and Cobbinah, 2023). low salary and insufficient financial incentives, limited training opportunities, and workload can all contribute to the staff shortage in rural areas (Almalki et al., 2011). Non-Saudi health workers take this as a job opportunity and accept work in rural PHCCs (Al Saffer et al., 2021). However, limited number of Saudi providers poses challenges to rural women which increases gap in communication and language barriers and impedes cultural understanding. Besides that, this issue leads to expanding HCP roles and responsibilities to compensate the gap of staff shortage impacting on their actual roles (Chipp et al., 2011). On the patient side (rural women). a study investigated this factor for management of chronic diseases (diabetes and hypertension) and found that limitation of staff members specialising in these diseases and their workload limits access of patients to the necessary health education (Chang et al., 2019). Therefore, to address staff shortage at rural PHCCs, reforms need to made to the employment plan through targeted strategies including improved facilities infrastructure, financial incentives, and involving rural community members in the training medical courses, which can further help overcome the shortage of providers, enhance job opportunities for rural women, and improve services in the local PHCCs (Al Saffer et al., 2021).

8.1.4 Affordability and ability to pay for healthcare services

Rural women and HCPs from all three study sites reported that some barriers may not be adequately addressed by government policies if they are established without considering the rural context and financial constraints of rural people. The limitation of specialist services in rural PHCCs forces rural women with chronic conditions to obtain referral to the SHCFs leading to extra expenses for them. For example, to the best of my knowledge, travel expenses have not been investigated as a barrier to access healthcare. However, this thesis sheds light on travel expenses which includes the driving fuel costs and accommodation which is in line with the findings of previous studies that travel expenses increase financial stress, particularly for low-income families. However, it has been indicated in another study that some providers do not take into consideration the long distances that patients need to travel to avail healthcare services (Caldwell and Arthur, 2009). The cost of medication is another expense that rural women experience as a result of the limitation of availability of their medications. Similarly,

Jafar et al. (2020) and Legido-Quigley et al. (2019) have reported that the limited availability of medications have resulted in patients having to pay for their medications which has added to their medical expenses.

The socioeconomic barriers are compounded by a lack of supportive community resources such as community and social support, women's care centres, and non-profit organizations, which make it difficult for individuals to receive financial aid for the extra expenses, and assistance with transportation (Almujadidi et al., 2022). On the other hand, in some countries, there are community organizations in rural areas, such as the Rural Community Assistance Corporation (RCAC) and the National Rural Health Association (NRHA). Rural residents can benefit from outreach activities, education, and financial assistance provided by these organizations, as well as improved access to healthcare and other essential services (RCAC, 2020, NRHA, 2023).

8.1.5 Appropriateness and ability to engage with healthcare services

According to the Levesque framework, the last dimension of accessibility is to denote the fit between provided services and patient needs reflecting on patient satisfaction and health outcomes (Levesque et al., 2013). This thesis contributes to a better understanding of the policies, highlighting that certain services are not suitable for rural areas. For example, the e-prescribing medication program, WASFATY posed challenges for rural women to access medication as a result of limited community pharmacies in rural areas. Similar findings were found in a different cross-sectional study conducted to assess patient satisfaction toward using WASFATY by evaluating different variables (ease of access, medication safety, availability of medications, etc). Although there were advantages and positive feedback for receiving the medication prescription through WASFATY, two studies highlighted low satisfaction among patients, particularly patients with chronic illnesses (Alsahali et al., 2023, Alotaibi et al., 2021). Another qualitative study conducted in the Saudi community found that one of the challenges of WASFATY was the number and location of the community pharmacies that provided this service (Al Aloola et al., 2020). While these studies did not focus on rural areas, the results align with what rural women experience and their dissatisfaction because community pharmacies are not located in rural areas, which forces them to travel to urban centres to receive their medications. A study conducted in Makkah primary healthcare centres indicated that there is an association between the sociodemographic factors and patient satisfaction with the e-

prescription system. Interestingly, rural residents were found to be satisfied with this service (Alfadli, 2022). It should be noted, however, that the rural sample in the Alfadli (2022) study was relatively small and not representative of the entire rural population of SA. Moreover, rural areas selected for this thesis may have better access to community pharmacies which may explain the differences in findings between their study and this research. A study conducted in Poland to assess patients' opinions and satisfaction regarding e-prescriptions found that there are inequalities in accessing medication between rural and urban residents due to limited community pharmacies in rural areas (Wrzosek et al., 2021).

Another barrier in rural areas compared to urban healthcare facilities, according to the HCPs, is that electronic medical records (EMR) are used at urban centres while rural PHCCs rely primarily on paper-based medical records. This has been confirmed by a study that found that 78.3% of healthcare facilities in rural areas in SA use paper-based medical records (Al Saffer et al., 2021). Although Ministry of Health has been committed to the adoption of electronic health records since launching the National E-Health Strategy in 2011, there are still various obstacles in the way of implementing EMR in some healthcare facilities especially in rural areas including technical and organizational obstacles (Khalifa, 2013). As indicated in the findings chapter, the lack of integration of EMR in rural healthcare facilities (PHCCs) may exacerbate the gap in coordination between the urban and rural healthcare facilities (SHCFs and PHCCs) and hinder the effectiveness of the referral process. As the primary and secondary healthcare facilities are unable to communicate seamlessly about a patient that has been referred between the facilities, fragmentation can occur in the delivery of patient care. The fragmentation of the healthcare system decreases the quality of care as a result of lack of coordination, inadequate mechanisms for referral, and follow-up (Seyed-Nezhad et al., 2021). In such a scenario, secondary care specialists may make treatment decisions without a full understanding of the patients' medical background and ongoing primary care interventions (La Rocca and Hoholm, 2017). An inefficient communication process can result in an inefficient delivery of healthcare, result in a longer wait for appointments, and lead the patient to travel longer distances and make multiple trips between primary and second-level facilities. Such barriers are influenced by policy and administration as indicated by a systematic review conducted to evaluate the quality of care of university hospitals which found that efforts are needed at the leadership and management level to ensure delivery of patient-centred care (Aljuaid et al., 2016). Such results are applicable for the rural PHCCs where additional efforts are needed to meet the rural women's needs.

Consequently, these inefficiencies in the healthcare system negatively impact the satisfaction of patients in the use of healthcare resources. All discussed barriers can impact on patients' adherence to treatment and satisfaction which can lead to decreased motivation of rural women in utilizing healthcare services. When the healthcare-associated needs of rural women patients are not adequately met by the healthcare system, they are less motivated to attend their healthcare appointments and have decreased satisfaction of the received services. For example, they miss appointments, but repeatedly request for medications or pay for over-the-counter medications. According to a study conducted in three large cities in SA to evaluate inadequate glycaemic control and its contributing factors, living in remote areas is associated with higher rates of poor glycaemic control (Alramadan et al., 2018). Although HCPs indicated that this behaviour is mostly related to low health literacy and poor perceptions of disease management, it might not be the only reason, and it may also be attributed to self-reliance to compensate for the limitation of healthcare services. Similar findings in a systematic review indicated that self-reliant behaviour was noticed among rural patients to fill the gaps and overcome the challenges for accessing healthcare. Despite this, the ability of self-reliance may inhibit seeking care, but it can also provide a sense of personal strength to foster the self-management of chronic conditions (Brundisini et al., 2013, Sav et al., 2015). For this, the researcher and HCPs need to redirect efforts and resources, and encourage self-reliance/self-management in the women to positively impact their management of the chronic condition (Bailie et al., 2015, Harris et al., 2020, Sav et al., 2015).

All interrelated barriers discussed above indicate that there are still areas that need more investigation and plans to improve. Clinics that provide chronic healthcare services in the SHCFs could cooperate with rural facilities to demonstrate some of the strategies that have been applied in SHCFs. In the following section, I discuss the facilitators identified in our study which facilitate rural women's access to healthcare services.

8.2 Facilitators to access chronic healthcare services

The findings of this thesis highlighted several facilitators that can assist in managing the barriers so that the rural population's experiences are enhanced in the future. For example, rural culture, family relationships, and shared care responsibilities are all significant factors in the management of chronic diseases that contribute to ongoing care and assistance, particularly for the elderly. This has been emphasised by other studies conducted to evaluate family role

in chronic patient health outcomes that family has a positive effect in access to care and treatment adherence (Fry et al., 2016, Carrillo-Balam et al., 2020). Furthermore, it should be recognized that family roles and dynamics are important for adjustment of care delivery approaches to accommodate and respect the cultural differences between providers and patients. Long experience of healthcare providers make them more familiar with the cultural context of rural areas which was stated by HCPs working at PHCCs for a long period of time (Chipp et al., 2011). This enables them to tailor the management and treatment approaches for rural patients keeping in mind their cultural roots, so that the rural women are more likely to accept the instructions given by their providers.

Activating virtual clinics helps bridge the gap in access to healthcare for rural women. Rural women and SHCF providers in this thesis described how the virtual clinic that was operated during the COVID-19 pandemic facilitated access to healthcare. As a result of the lockdown restrictions that were imposed, this tool was effectively implemented and used during the pandemic (Alghamdi et al., 2020). However, virtual consultation can be challenging for elderly which is found among elderly women residing in Canada and suffering from chronic diseases one study (Nguyen et al., 2022), and so, healthcare facilities should provide educational sessions for patients who are not familiar with online consultation and related applications so that they can use it effectively for management of their health. There has been evidence that the use of telehealth can improve patient health outcomes, reduce unnecessary travel over long distances, and save time and money (Butzner and Cuffee, 2021). However, a study conducted in SA found that there are still challenges associated with telehealth, which depend on the type of health facility (SHCF, PHCC, private) and its location. Facilities located in rural areas have more barriers to the adoption of telehealth due to lack of basic facilities and limited information and communications technology (ICT) infrastructure (Alaboudi et al., 2016).

The positive changes in SA's healthcare system and women empowerment on a national level significantly impacted, not only healthcare, but the total quality of life of women. The recent transition and reform of the healthcare system as part of the 2030 vision became more inclusive and enhanced the accessibility to healthcare through the realization of one of its objectives which is "Ease the access to healthcare services" (Vision2030, 2021). Towards achieving this objective, one of the initiatives aimed at improving the infrastructure of rural residential areas which included improving remote services, particularly healthcare coverage by increasing the quality of care, expanding the use of digital and e-health services, and adhering

to accreditation standards. Some of these changes have been observed according to a study which found that rural areas have a greater percentage of PHCCs 56%; (Al Saffer et al., 2021). Furthermore, it was also seen that PHCCs with accreditation provide better healthcare services than PHCCs without accreditation which was similar to findings by (Al Saffer et al., 2021, Alkhenizan and Shaw, 2011). Besides, recent improvements in women's empowerment policies and initiatives can have significant impact on women and the society as a whole (Alhawsawi and Jawhar, 2023). These initiatives cover different aspects including education, financial and work opportunities, and equality in healthcare, one of which is women's health programs that aims to prevent chronic diseases and its causes. According to the World Bank report, SA has made tremendous progress in women's rights policies reflecting positively on women's quality of life (TheWorldBank, 2022). These transitions that were brought about by the government related to women's rights which also reflected on women empowerment in the rural areas.

To conclude the discussion, the evidence shows that women with chronic conditions require regular treatment and check-ups, which is complicated by personal barriers and geographic dispersion of healthcare resources (Schwarz et al., 2022, Brundisini et al., 2013, Sullivan et al., 2003). Facilitators may not address all barriers to access healthcare but can assist in managing these barriers and make future promises to enhance rural population's experiences.

8.3 Application of the Patient-Centred Access to Healthcare Framework (PCAHF) to the rural context in SA

The (PCAHF) framework has been successfully applied to research examining, assessing, and measuring healthcare access across a variety of settings and services (Song et al., 2019, George et al., 2020b, Cu et al., 2021). The conceptual framework is explained in detail in (Chapter 3: Section 1.6: Theoretical framework: Levesque's Patient Centred Access to Healthcare Framework). The Healthcare Access Pathway: Conceptual model of accessing and delivering chronic healthcare services for rural women and HCPs (Figure 8.1) is a conceptualization of the Levesque's framework adopted to demonstrating the accessibility and delivery of chronic healthcare services in the rural context in SA. These dimensions affect accessing and delivering chronic healthcare services for rural women and HCPs based on the findings and with reference to PCAHF conceptual framework. Rural women and HCPs experience barriers hindering rural women's access to healthcare including perception,

seeking, reaching, paying for, and engaging with healthcare services. Low health literacy, cultural norms, transportation, and financial constraints all impact women empowerment and compliance. While the supply side (HCPs), as indicated previously in Chapter three, is affected by approachability, acceptability, availability, affordability, and appropriateness of services. Communication barriers, gender-related cultural norms, resource limitations, extra costs, and referral systems are all crucial factors for understanding how services are delivered to rural women. The framework demonstrates the interaction between the demand and supply sides which shapes the general scenario of accessing and delivering chronic healthcare services for rural women.

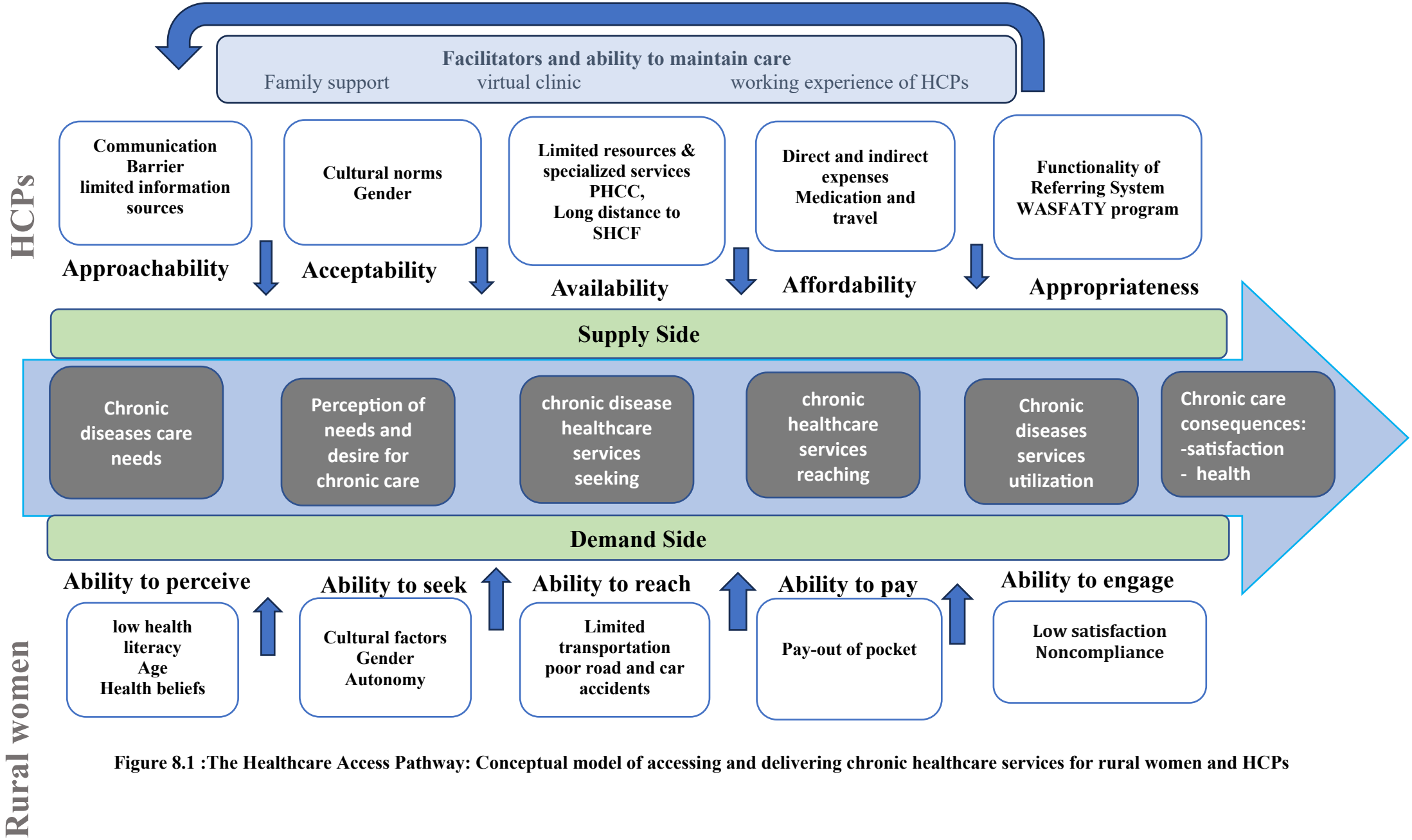


Figure 8.1 :The Healthcare Access Pathway: Conceptual model of accessing and delivering chronic healthcare services for rural women and HCPs

The application of the Levesque's PCAHF in this thesis revealed interrelated and complex dimensions of access to healthcare. The framework provides a comprehensive description of the experience on the demand side (rural women) and on the supplier side (healthcare providers). Adopting the framework helped identify specific barriers in the rural context that have not been addressed comprehensively in other studies such as cultural and social norms, way of life of women in rural areas where they are heavily dependent on their male family members, and issues of transportation resulting in the inability to physically access the healthcare facilities (See Section 4: Thesis Contributions to Knowledge). Social and cultural determinants of health are acknowledged in the framework as they play a crucial role in rural women's health. Also, the major dimensions that enhance access to healthcare are provided in this framework which help to categorize participant statements and understand the findings in the right context. As a research tool, I was able to identify barriers through providing a logical and interconnected explanation of the accessibility dimensions. The findings of this study have been distributed among the dimensions of the Levesque's framework as much as possible while acknowledging its limitations in its applicability to the rural context of SA in the following section (3.2 Reflexivity in relation to adopting PCAHF).

8.4 Reflexivity

8.4.1 My position in relation to interpretation of findings

Reflecting upon the journey taken in conducting this research, it is paramount that I acknowledge the intricate ways in which my personal and professional identities have been woven into the fabric of the study, influencing its results in significant ways. As a Muslim, a Saudi woman, and a nurse, my experiences and cultural background have shaped the research process, from developing the concept of the study to the interpretation of its findings. Linked to the reflexivity section in the methods chapter, these reflections emphasize the need to navigate personal and professional identities through interpretation of findings and writing the report.

Following the discussion on reflexivity in Chapter three (methodology), my nursing background and being a Saudi woman influenced my research. In terms of interpretation of the findings, my nursing background and interaction with the patients allowed me to view the data through a lens of practical experience recognizing the health needs of the chronic disease patients and the difficult experiences the rural women go through to access these chronic

healthcare services, and what the professionals missed in delivering care to be not satisfied about the care they provide. In particular, the shortage of nursing staff based on my past experiences enabled me to identify this as one of the main issues influencing the nursing job. In addition to my working experience, my religion as a Muslim and a Saudi woman who is familiar with the impact of religion and cultural norms, facilitated a more profound understanding and articulation of the sociocultural aspect of the Saudi context on healthcare access, for example, the approach in interpreting the role of family and the contradiction between the older participants and the young women based on age, generation, and the education level. The combination of my identity and backgrounds has provided a more nuanced understanding of the research findings, as well as open my eyes to exploring options for implementing practical and impactful solutions to enhance chronic healthcare accessibility and delivery in rural communities.

During the early phases of data analysis, I felt empathy which led to sometimes interpreting women's experiences through a feminist perspective, questioning their lives of being dependent on men and gender inequality. This barrier was one of the core aspects of my thesis, although, women did not consider the imbalance problematic, my interpretation of their accounts disclosed a desire to resolve it. This empathy, stemming from a deep understanding and shared context as a woman in Saudi society, illuminated the gender-specific barriers and inequalities in healthcare access faced by underserved groups like rural women. This was addressed by taking notes on the transcript, expressing my thoughts in my reflexive diary, and discussing with my supervisors to ensure that my interpretations remain grounded in the data, while simultaneously maintaining an empathetic and feminist perspective.

Moving to the writing-up phase, I was concerned about how close I could remain to the original meanings of the women's accounts and being interpretive without losing the meaning. For this, it was noticed that some of the themes described directly by participants like long distances and the availability of transportation did not need to be interpretive as opposed to the obstacles to physically access healthcare facilities. However, on the other hand, the sociocultural and the gender role factor which tended to be more complex and interpretive to capture its impact on accessibility, required me to delve deep into the participants' responses. This allowed me to interpret the findings not simply as abstract data but as insights based on the lived experiences of rural women and HCPs.

Overall, this research has enhanced my analytical skills, providing me with a deeper understanding of the nuanced realities of rural healthcare provision and access. This was achieved through adopting SC and incorporating the concept of multiple realities which acknowledges that there is no single "correct" way to experience or interpret the world and values human diversity. Such thinking has tangible effects on how I conducted research, interpreted data, and interacted with my thoughts and others. The following part reflects on the adoption of the theoretical framework - PCAHF.

8.4.2 Reflexivity in relation to adopting PCAHF

Despite advantages of using the Levesque framework, I encountered several challenges when applying the PCAHF framework in this thesis in two areas: the complexity of the framework and its application within the Saudi community and healthcare system. First, the framework can be quite complex due to its multifaceted nature. Despite providing a holistic view as I mentioned, it was difficult to isolate the relationships among the various dimensions in this framework. Possibly, this reflects the complexity of the concept of healthcare access and the anticipated overlap and interaction among the dimensions of access. Another reason may be the context in which the research was carried out (here, rural areas in SA) and the specific and unique challenges faced by the participants in this thesis. To address this issue, it was suggested to refer to the framework and correlate it with the data during the analysis phase. Additionally, I found, as a researcher, that it was better to focus on a specific element of the framework, for example, the approachability and ability to perceive, which could provide concise and focused insights leading to a deep understanding of the issue and how it could have an impact on the access to healthcare services.

The Levesque framework is generalized in nature and was developed keeping in mind the general dimensions encompassing accessibility to healthcare. However, some dimensions and their interrelationships may not be a perfect fit for all research contexts, for instance, the rural context in this study. As a consequence, the second challenge was to define some of the dimensions of the PCAHF within the Saudi healthcare system and community context. For example, the ability to engage, which referred to patient involvement in treatment decision-making which was determined by patient-provider communication and health literacy. Several aspects of these were specific to the rural context of SA, for instance, the presence of non-Saudi professionals who did not know Arabic and were unable to connect to the cultural context

of their rural women patients. Hence, I could not interpret this as a barrier or a facilitator since patient engagement is influenced by policy and an imbalance of power in the relationship between patient and provider. It is possible that this imbalance of power is due to limitations in shared decision-making. The doctor-patient relationship in SA is based on respect for the doctor's expertise and authority. A doctor in SA is generally regarded as a powerful, authoritative figure, who can be trusted. Therefore, the patient may not share their opinions, concerns, or barriers with the physician freely, which can be construed as a problem, in the western healthcare system while it is considered a normal part of patient perception and policy in the Saudi context. As a result, this issue could not be assigned suitably in the Levesque framework. Alternatively, on the basis of the findings of this study, I have introduced an additional dimension/component to the framework for accessing care, particularly relevant to rural women and chronic disease treatment (CVD and DM). The concept of "Facilitators and ability to maintain care" emerged given that facilitators such as family support and virtual services, long working experience of HCPs as contributing factors that can help to maintain accessibility and influence the adoption of measures aimed at enhancing the quality of healthcare for chronic diseases in rural areas. In addition to this dimension, categorizing time required for travelling long distances as a barrier was also uncertain as this factor is related to availability and accommodation, and the time related to waiting for an appointment was categorized under appropriateness. Thus, adding time as an additional dimension in the Levesque framework may help researchers describe this factor. This has also been suggested in a review involving studies that used the framework, which found that time is a significant factor which needs to be added to the framework (Cu et al., 2021).

In summary, the PCAHF conceptual framework offered a valuable approach to understanding rural women's and providers' experiences of accessing and providing chronic healthcare services. This model is well suited to the complexity of rural healthcare access due to its comprehensive nature, as well as its consideration of social determinants. Nevertheless, policymakers and researchers should be aware of its potential limitations, including multidimensionality, data requirements, and complexity, and be prepared to adapt its use to meet regional healthcare's specific needs.

8.5 Thesis contributions to knowledge

The contributions to knowledge that this thesis has made are: 1)- An unveiling of the complex factors that help us understand rural women's and HCPs' experiences, 2)- Determinants of access to healthcare in the specific context of Saudi rural women, 3)- Rural research fields. All these contributions are vital for policy formulation, healthcare delivery, and further academic inquiries. Each of these contributions is discussed below.

8.5.1 Unveiling complex factors that affect rural women and HCPs experiences

In addition to what was found in previous studies conducted in different rural areas around the world, the findings of this thesis confirmed that the interaction between the gender of the patient and the region of residence still has a significant effect on access to healthcare. This thesis examined how the identities of being a woman and living in a rural community increased barriers to accessing and providing healthcare services. As a result of the investigation of this complex subject, I addressed the gaps in knowledge outlined in (Chapter two) by providing a comprehensive and nuanced understanding of rural women and HCPs experiences.

Through this thesis, several interrelated factors were identified at different levels: rural women, healthcare providers and healthcare services, and rural community health. Acquiring and analysing the perspectives of rural women offered valuable insights into how gender roles might influence Saudi women's well-being. Rural women were able to share their experiences and shed light on the specific rural context, which can be the first step towards empowering rural women. Apart from gender roles, the specific context of the rural community also complicates access to healthcare services such as poor road infrastructure, unavailability of medications and healthcare services in rural areas, and limited sources of information and health education.

Secondly, the contributions were relevant to healthcare providers and healthcare services by providing a holistic view of disparities among healthcare facilities. A comparison of perspectives from healthcare professionals at two levels (PHCC and SHCF) representing five different healthcare facilities illustrated the differences in barriers of access to healthcare based on the type of healthcare facility. Through exploration of knowledge and lessons learned from experienced rural HCPs, findings in this thesis are insightful for policymakers, future

practitioners, and educators to develop and maintain rural workforce by training, recruiting, and maintaining a strong workforce across multiple healthcare domains. Findings such as those in the present study can contribute in the development and maintenance of a sustainable rural workforce. In the context of rural community health, the fact that healthcare disparities influence health outcomes suggests that the well-being of people in rural areas is critical to the promotion of Saudi public health. Taking a closer look at accessibility can contribute to public health by shedding light on the disparities in healthcare access and influencing local and national policy decisions.

8.5.2 Determinants of access to healthcare in the specific context of Saudi rural women

This thesis helped determine the specific barriers faced by rural women in accessing healthcare so that these specific factors can provide a foundation for enhancing healthcare access for rural communities in the future. The findings shed lights on the intricate factors of social, cultural, economic, and logistic determinants that shaped their decisions to access chronic diseases healthcare services in primary and high-level facilities. Additionally, this thesis provided an opportunity to advance our knowledge in one of the Saudi regions with the highest rate of chronic diseases (Makkah province). There are several chronic diseases that result in poor health outcomes among Saudis in rural and urban areas, and the barriers for patients with chronic diseases have been outlined in this thesis within a rural context. Investigating accessibility within three different rural areas including a small town, a farmland, and a remote area helped identify gaps in existing services and resources. Thus, investigating wider determinants of access to healthcare services from local residents helped determine some of these health indicators in rural areas. Due to the cultural context of the rural community, especially women, most of them are unable to voice their concerns regarding their health, medications, and related problems.

The findings in this thesis point towards the interplay of intersecting factors that limit rural women's access to healthcare. This includes gender roles, especially the traditional gender norms found in rural communities and how these affect beliefs and behaviour around health including health literacy. The traditional gender roles identified in the Saudi rural context in this study mean that women are expected to lead a very protected life and are not permitted to go out for personal work or take responsibilities outside the house, which in turn limits their ability to move from one place to another or take decisions regarding their body and health. As

a consequence, women have become accustomed to depending on their male family members for taking them for health check-ups and buying their medications, which can result in not being able to meet their health objectives every time due to other commitments of their family members. Specific cultural and religious beliefs of rural women mean that they may have specific views about their illness which might present as an obstacle to engaging in health behaviours.

8.5.3 Rural research fields

Finally, in terms of theoretical contribution, this thesis was based on a qualitative social constructivist approach and patient-centred access to healthcare framework. It focused exclusively on rural women, thereby providing results grounded in data gathered from Saudi rural women and healthcare providers, which contributed to the growing field of rural research in SA. As mentioned above, application of the PCAFH in this thesis helped incorporate additional contextual factors obtaining a more nuanced understanding of this issue. A further contribution is that it falls within the scope of Saudi MOH's research priority areas for 2023, which aims to direct research to enhance access to healthcare and prevent chronic diseases. Furthermore, applying the Levesque framework to the Saudi healthcare setting and rural context resulted in different perspectives that prioritized the patients' and providers' experiences and needs. This thesis demonstrated that the application of this framework in the context of SA was able to reveal several barriers and facilitators according to the universal healthcare access model, which can pave the way for empowering rural women and creating a foundation for future studies in the areas of rural healthcare access and chronic disease management.

8.9 Strengths and limitations of the research conducted in this thesis

Strengths

A particular strength of this thesis is that it contributed to the body of knowledge on rural populations' access to healthcare in general and women health in particular. Findings of earlier studies focusing on rural health are no longer relevant in the current dynamic healthcare system which evolves continually and changes constantly. Therefore, this thesis contributed to the body of knowledge on rural populations' access to healthcare in general and women health in particular. Also, it is demonstrating its strength by reporting new findings developed from the rural context of SA by collecting data from both rural women and HCPs. Using a qualitative

approach was one of the advantages of this thesis which sheds light on the specific rural women barriers identified from long work experiences of HCPs. Recruitment of women belonging to different age-groups and backgrounds from three different rural areas helped define the similarities and differences in the experiences of the participants based on the sociodemographic factors. This thesis involved both rural women and HCPs thereby promoting understanding of the multidimensionality of access and delivery of chronic healthcare services. As this participant group (rural women) is especially underserved in terms of healthcare and is a less explored community for health promotion and education, this thesis served to contribute to current literature by trying to understand their barriers and facilitators for accessing healthcare. In addition, this helped enhance the trustworthiness of the findings (triangulation) through verification of barriers and facilitators from both participant groups.

A further strength of this thesis was the utilization of the patient-centred healthcare access framework for defining and categorizing the experiences of rural women. To the best of my knowledge, this is the first study that has used the Levesque framework to characterize the accessibility of rural women diagnosed with chronic diseases on the demand side and the HCPs on the supply side providing comprehensive explanation for both sides. This allowed me to investigate the barriers and facilitators from different perspectives. On the level of applying this research, one of its strengths was being transparent throughout the research process by following ethical requirements and providing justifications for any decision made in the research, including the philosophical underpinnings, selecting qualitative methodology, and the data collection method. Despite the fact that this research was conducted during the Covid pandemic which may have resulted in some limitations, I learned how to adapt to these challenges and conduct the research remotely which is one of the strengths of this thesis. This learning experience contributed to my skill development as a researcher to conduct studies during specific challenging circumstances and this can also be a good example for another researcher.

Limitations

In addition to the strengths of the study, there are some limitations that will be mentioned here to understand potential factors that influenced the study. Although, the data were collected from three rural areas, and rural populations generally share common traits and challenges, focusing on one region (Taif/western area) may not make the findings transferable

to other rural areas in 13 regions in SA as they may have differences in the availability of resources and the environment. Another limitation is that this thesis focused on one group of the rural community (women) diagnosed with specific chronic diseases (DM and CVD); however, other groups or people with other diseases may have other specific barriers that need further investigation. Additionally, the time of conducting the research was during the Covid-19 pandemic and the restrictions meant I had to assign a facilitator to recruit participants. Not undertaking the recruitment, myself may have affected the process wherein some rural women may have been excluded by facilitators introducing a selection bias in the study. It is also possible that rural women who do not have access to the technology may not be able to participate in the study. This could result in a lack of representation of their perspectives and experiences in accessing healthcare.

Conclusion

In summary, the discussion chapter offers explanations and engages extensively with the existing literature in order to position the research topic within a broader academic context in addition to what have been discussed in the three findings chapters. Through explaining the study's limitations, strengths, and implications for policy, practice, and research, this chapter offers a deeper understanding of the study. In light of these considerations, the following chapter will present comprehensive recommendations and conclusions derived from the thesis.

CHAPTER NINE: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

This final chapter contains three parts – implications, recommendations, and conclusion. First, the implications for policy and practice are presented followed by implications for future research. Next, the recommendations are discussed which focus on three priority action areas: Priority area 1: Empowering rural women to support the health and wellbeing, Priority area 2: Strengthening healthcare system for quality and inclusive care, Priority area 3: Bridging research and policy for evidence-based decision making. Finally, the conclusion closes the thesis and summarises the main points.

9.1 Research implications

9.1.1 Implications for policy and practice

There are a number of policy and practice implications that can be derived from this thesis. The findings indicate that accessing healthcare in rural areas is a responsibility of many stakeholders starting from the patient and moving to the wider community and the healthcare system. The findings of this thesis can be used by policy makers and decision makers, providers, and community members to prioritize strategies to improve healthcare access experiences for rural women. It provides essential knowledge regarding access of patients to chronic healthcare services considering both barriers and facilitators. Through this thesis, rural women's and HCPs' perspectives revealed important gaps at the policy and organizational level. Participants (rural women & HCPs) identified multiple healthcare policies which acted as barriers to access and utilize chronic healthcare services, such as limited availability of medical resources and workforce, referral process, and medical records access. For this, policy and decision makers need to address these issues and its contributing determinants. The findings pointed towards the necessity of decision makers and rural community leaders to advocate for healthcare infrastructure in rural areas including specialized clinics for chronic diseases (DM and CVD), workforce, as well as availability of medications. Decision-making authorities in the healthcare sector need to consider the special circumstances of rural areas when developing healthcare services.

As well as the implications for policy development, there are several implications for practice in the area of women's health. Discussion and dissemination of these findings can enable providers to focus on the complexity and stress faced by rural women when accessing / seeking healthcare services. This may help enhance their efforts in delivering care by focusing on the

needs of rural women. Also, HCPs' findings indicated that there is a need to consider the barriers and circumstances of patients residing in rural areas in totality, especially their sociodemographic characteristics, when adopting strategies for enhancing healthcare access in rural areas. Another implication for practice is the need to recruit healthcare providers from different specialties for working in rural areas to overcome the staff shortage barriers. For example, in rural areas, nurses struggle with shortage of staff which impacts their efforts in delivering care to rural women and therefore, specific actions need to be taken to address this issue. The study findings also support the importance of educating future professionals about the challenges rural population faced and the need to enhance their access to healthcare.

9.1.2 Implications for future research

Using the Levesque framework to investigate the accessibility and delivery of care to rural women offers various directions that need to be investigated further in future studies. Future studies can be directed to focus on the cultural dimensions of rural communities targeting social norms, gender roles, and women empowerment, and how these factors shape women health and well-being. Poor health literacy has been an issue among rural women and rural populations in general. Action research, which is problem-solving research, is needed to introduce interventional action to assess and improve health literacy in the rural population. This can be carried out through community involvement in the form of community participatory research as applied in many studies for rural dwellers that enable them to define the local issues and possible solutions based on their community resources and preferences (Statz and Evers, 2020). For example, studies may be carried out to measure the impact of poor road infrastructure and transportation issues to inform policy changes. In addition, future studies could evaluate healthcare access and health outcomes by exploring the rural patients' role in health decision making and help tailor the services to their preferences. Future studies may also evaluate the effectiveness of the healthcare system's initiatives and policies in relation to the rural context, for example, technology adoption, and its acceptance and challenges. This thesis focused on rural women with chronic diseases; further research is recommended for other rural groups with different diagnoses, age-groups, and special needs such as rural men suffering from chronic conditions, rural children suffering from childhood disorders, and rural people who are physically and/or mentally challenged. Comparative studies across the various rural regions of SA can help assess the regional differences and variations among rural areas as well as urban-rural disparities. This can be achieved by employing different research strategies

which can provide rich evidence about rural populations contributing to their positive health outcomes.

9.2 Recommendations

There are several recommendations for policy makers, healthcare providers, healthcare authorities, and society in general that have been derived from the findings of this study, but some of these have a higher significance and reflect not only the accessibility to healthcare, but also the health of rural women and the society in general. Sharing my experiences and research findings with the directorate of health in Taif city in order to raise awareness among the policymakers and researchers regarding rural health issues can be the first step to introduce the following recommendations. These recommendations focus on the three priority action areas described below.

Priority area 1: Empowering rural women to support health and wellbeing

1. Women empowerment is a long-term goal required for different initiatives including increasing rural women's awareness of their rights, ensuring women's access to education, enhancing job opportunities, and encouraging their participation in decision making.
2. In rural context, women empowerment not only depends on changing policies and laws, but it is crucial to shift to recognizing the social norms and attitudes to ensure that women's empowerment is approached in a culturally sensitive manner.
3. Improvement of rural women's health literacy by using tools at local healthcare facilities to assess the level of patient health literacy, minimizing language barriers, and conducting health education programs and workshops with continuous follow-up especially for patients with comorbidities and complex treatment plans.
4. Raising awareness among men and the rural community leaders regarding the importance of women's health to reinforce the idea of the importance of women's well-being.
5. Coordination with non-profit organizations in order to provide financial assistance to low-income families and to improve community services in rural areas.

Priority area 2: Strengthening healthcare system for quality and inclusive care

1. Facilitation of accessibility to chronic healthcare services by considering and discussing special circumstances when providing care for rural women (culture, gender, travel challenges, time, financial barriers, patient preferences).
2. Enhancement of the experience of rural women by encouraging the healthcare facilities to adopt strategies such as providing interpretation services or providing HCPs with the necessary language skills to facilitate communication and involving patient in health decision-making.
3. Provision of additional support to the patient by engaging family members in the care process.
4. Improvement in policies and processes for the referral service by establishing guidelines for referring, and facilitation of interactions between the rural physician referee and referral centre (SHCF) to improve quality of care and provide cost-effective services.
5. Development of effective solutions which requires coordination between rural PHCCs, SHCFs, and medical suppliers to assess the limited medical resources in local PHCCs and the training needs of healthcare providers.
6. Provision of training to HCPs about the barriers faced by rural women and equipping them with knowledge and skills that can help them overcome these barriers and provide care considering the rural context and gender sensitive care.
7. Reduction of workforce shortage in rural PHCCs by increasing financial incentive for healthcare professionals or developing an effective recruitment process to encourage members of the rural community to pursue training in medical fields by collaborating with the education sector.

Priority area 3: Bridging research and policy for evidence-based decision making

1. Activate researcher roles to be advocates for the rural population through additional research in rural areas and for different rural groups.
2. Support research on gender disparities in rural communities, as well as exploring the role of male family members to provide insights into understanding the cultural context of gender in rural settings.

3. Collaboration with expert researchers from different disciplines including public health specialists, healthcare professionals, and academic experts to evaluate the existing healthcare policies, identify areas for improvement.
4. Conducting community research, adopting community health needs assessment by engaging the rural community to identify specific needs and priorities based on the needs of the rural community, and fostering collaboration between the healthcare facilities, governmental agencies, and non-governmental agencies to provide supportive services for the rural community.
5. Establishment of a local supportive organization for rural areas like Rural Community Assistance Corporation (RCAC) and National Rural Health Association (NRHA) aimed at promoting quality of life and health in rural areas.
6. Ongoing mentoring to evaluate the effectiveness of the policies such as use of the virtual clinic or any new healthcare services.

Conclusion

Despite international efforts to enhance women's health, there are still communities of women struggling to access healthcare and take advantage of improvements in the healthcare system. One such group of women, rural women suffering from one or more chronic conditions in SA, was the focus of this study which aimed to understand the barriers and facilitators of accessing and delivering chronic healthcare services (Secondary and Primary) from the perspectives of rural women and the HCPs. The objectives of this thesis were: To explore personal and organizational barriers to accessing, receiving, and delivering DM and/or CVD healthcare services in rural areas from rural women's and HCPs' perspectives, to explore individual and organizational facilitators that help enhance DM and/or CVD healthcare services in rural areas, to identify the interrelated perspectives of rural women and HCPs influencing the accessing, receiving, and delivering of healthcare services for DM and CVD management, and to identify the differences among rural women's experiences in utilizing the primary and secondary healthcare services. This doctoral study was a qualitative exploratory study which recruited rural women patients and HCPs from PHCCs (local centres) and SHCFs (specialist centres), carried out semi-structured interviews to collect data, and performed data analysis using thematic analysis following the Levesque framework. Several barriers and

facilitators were identified, most of them specific to the rural context, which impacted the patients' accessibility to healthcare services.

From rural women's perspective, most barriers pertained to the rural context, cultural and religious influences. For instance, in accordance with the rural context, the rural women participants in our study belonged to low-income families, had low education levels, and were dependent on their male family members to take them to appointments and acquire medications for them. As a result of low education levels, they also had low health and technology literacy and this linked to non-adherence to medications, irregularity with follow-up appointments, and inability for self-management of their chronic condition. Their dependence on male family members also acted as a barrier as they did not independently take charge of their health. They also faced language barriers with their HCPs as most of them were non-Saudi professionals who did not speak Arabic and/or did not understand the rural Arabic dialect, further complicating their self-management of their chronic condition. Cultural influences also acted as barriers which included poor dietary habits, low physical activity as a woman's role is primarily at home.

At the level of the healthcare system, PHCCs in rural areas employed only general physicians and did not employ specialists, which was a barrier for rural women seeking chronic care services. In order to obtain quality healthcare, these women were referred to SHCFs located in the city. Although a positive step in the management of chronic conditions for rural women, the participants in this study were unable to travel long distances to reach the SHCFs for several reasons, including financial constraints, lack of public transportation, health issues, poor road infrastructure, and unavailability of someone to drive them to the SHCF. Government initiatives such as WASFATY were also not completely utilized by rural women which result the objective for which the programme was intended was not fulfilled for rural participants. From HCPs' perspective, several patient-level and healthcare system-level barriers and facilitators were revealed through this thesis. The findings demonstrated that HCPs also agreed with the women that low health literacy was one of the main barriers which consequentially led to skipping follow-up appointments, not adhering to the medication and treatment strategies. They further identified that acting on false health information available on social media and religious beliefs which directed them to not take any action to manage their diseases. Cultural influences were perceived as almost insurmountable barriers for the management of chronic conditions as patients were often reluctant to change their dietary habits and levels of

physical activity. HCPs also recognized the travel-related issues faced by patients such as time required for travelling long distances to reach SHCFs. HCPs were able to give a comprehensive description of healthcare system-level barriers from their perspective based on their experiences of working in the system and delivering care.

The most common barrier mentioned by the HCPs was limited healthcare resources at the rural facilities. This included limited clinical investigations and limited availability of medication, both of which caused rural women patients to travel. There was also a workforce shortage at rural centres which placed the burden of additional administrative tasks on the single physician and nurse on duty at these centres. This used up their time and skills for work not directly related to the healthcare of patients. Also, as no specialists were available at the rural facilities, most women with chronic diseases were referred to SHCFs which increased the burden on these secondary centres. Furthermore, there was a lack of coordination and feedback between providers at the PHCC and SHCF. This caused a gap in the delivery of quality healthcare services to rural women. Although the simple solution of workforce shortage at PHCCs is hiring more providers at these centres, it was noted that most providers were unwilling to work at PHCCs because of the lack of educational and professional development opportunities for the providers. Dependence on family members was a facilitator for some patients who had husbands and/or sons. Referrals to SHCFs was viewed as a facilitator for some patients who did not mind travelling to the centre and who were genuinely interested in taking advantage of specialist healthcare services for their chronic condition.

By following the qualitative and exploratory approach, this study was able to provide an in-depth comprehensive description of the barriers and facilitators faced by rural women with chronic diseases in accessing healthcare from the perspective of both rural women patients as well as HCPs at PHCCs and SHCFs. In such a complicated context, increased distribution of PHCCs in rural areas and provision of free services may not necessarily address the healthcare needs of rural women with chronic conditions in SA. In order to address the healthcare challenges faced by rural women with chronic diseases and rural community members at large, researchers, policymakers, and rural community members need to work collaboratively to implement the recommendations and prioritize the identified areas. By improving healthcare access for rural women, SA can meet the 2030 vision goal by not only recognizing the challenges, but also advocating for women's empowerment through hearing their voices (Vision2030, 2016). As indicated by Bain and Adeagbo (2022), there is still need for further

research in the field of health for rural population. Therefore, this study can be used as a foundation for conducting further studies in the field with women (including different health areas), and different groups of participants, a greater number of healthcare facilities, and patients with special needs residing in rural areas.

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APPENDICES

Appendix1: Gantt chart

Appendix 2: Database Search strings

Appendix 3: Scoping Review Matrix

Appendix4: Ethics Approve Letter

Appendix 5: Ethics application

Appendix 6: Recruitment flyers & invitation letter

Appendix 7: Information sheet & Consent form [rural women]

Appendix 8: Information sheet & Consent form [Healthcare providers]

Appendix 9: Interview guide protocol for participants [rural women]

Appendix 10: Interview guide protocol for HCPs

Appendix 1: Gantt chart

	Jun 2021	July 2021	Aug 2021	Sep 2021		Oct 2021		Nov 2021		Dec 2021		Jan 2022		Feb 2022		Mar 2022		Apr 2022		May 2022	
Ethical Approval	University of Sheffield		Ethical approval DHA & Taif university																		
Recruitment of participants																					
Secondary healthcare facilities (KASH & KFH)																					
Primary healthcare centers (PHCCs) Rural areas																					
Data collection																					
Pilot interviews 2-3 (women + HCP)																					
Interview: HCPs																					
Interview: Rural women																					
Translation Interviews (Rural women)																					
Data analysis																					
Interview data: HCPs																					
Interview data: Rural women																					
Periodic Meetings & discussion findings																					
Annual progression review																					
Report Finding and writing up	**May 2022 to 2023**																				

Appendix 2: Database search strings

Database	Research strings
PubMed	Search: rural women AND access healthcare AND Saudi Arabia Filters: Full text (("rural"[All Fields] OR "ruralities"[All Fields] OR "rurality"[All Fields] OR "rurally"[All Fields] OR "ruralness"[All Fields] OR "rurals"[All Fields]) AND ("womans"[All Fields] OR "women"[MeSH Terms] OR "women"[All Fields] OR "woman"[All Fields] OR "women s"[All Fields] OR "womens"[All Fields]) AND (("access"[All Fields] OR "accessed"[All Fields] OR "accesses"[All Fields] OR "accessibilities"[All Fields] OR "accessibility"[All Fields] OR "accessible"[All Fields] OR "accessing"[All Fields]) AND ("delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR "healthcare"[All Fields] OR "healthcare s"[All Fields] OR "healthcares"[All Fields])) AND ("saudi arabia"[MeSH Terms] OR ("saudi"[All Fields] AND "arabia"[All Fields]) OR "saudi arabia"[All Fields])) AND (fft[Filter]) Translations rural: "rural"[All Fields] OR "ruralities"[All Fields] OR "rurality"[All Fields] OR "rurally"[All Fields] OR "ruralness"[All Fields] OR "rurals"[All Fields] women: "womans"[All Fields] OR "women"[MeSH Terms] OR "women"[All Fields] OR "woman"[All Fields] OR "women's"[All Fields] OR "womens"[All Fields]

	access: "access"[All Fields] OR "accessed"[All Fields] OR "accesses"[All Fields] OR "accessibilities"[All Fields] OR "accessibility"[All Fields] OR "accessible"[All Fields] OR "accessing"[All Fields] healthcare: "delivery of health care"[MeSH Terms] OR ("delivery"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "delivery of health care"[All Fields] OR "healthcare"[All Fields] OR "healthcare's"[All Fields] OR "healthcares"[All Fields] Saudi Arabia: "saudi arabia"[MeSH Terms] OR ("saudi"[All Fields] AND "arabia"[All Fields]) OR "saudi arabia"[All Fields]
Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - MEDLINE; CINAHL	(health access or health inequities or healthcare access or access to healthcare) AND (rural areas or rural communities) AND (saudi arabia or kingdom of saudi arabia or ksa)
Psych INFO	((health care providers) OR (health care profession)) OR (practitioner)) OR physician OR nurse AND "rural" OR "remote" OR "village" AND "Saudi Arabia- 50 Health access disparities OR health care utilization AND barriers OR challenges OR facilitators AND rural OR remote OR village AND SAUDI ARABIA

Appendix 3: Scoping Review Matrix

Citation	Aims	Sample & Setting	Measurement & Analysis	Design & Method	Key Findings
1-Alhamad M A, Almulhim M Y, Alburayh A A, et al. (October 09, 2023) Factors Affecting Adherence to Haemodialysis Therapy Among Patients With End-Stage Renal Disease Attending In-Centre Haemodialysis in Al-Ahsa Region, Saudi Arabia. Cureus 15(10): e46701. doi:10.7759/cureus.46701	This research aims to identify factors influencing adherence to haemodialysis sessions among rural ESRD patients, addressing travel, healthcare infrastructure, and socioeconomic factors.	A cross-sectional study of 154 participants was conducted from July 06 to September 10, 2023 at Al-Jaber Dialysis Centre in Al-Ahsa, Saudi Arabia.	All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS)	A descriptive cross-sectional study Data was collected through patients' interviews during their haemodialysis sessions using a structured questionnaire.	good adherence was more likely among females factors such as gender, education level, and transportation means significantly influenced adherence. Adequate family and social support were associated with better adherence
2-Balharith, Manea1; Alghalyini, Baraa1; Al-Mansour, Khalid2; Tantawy, Mohammad Hanafy3; Alonezi, Mnwer Abdullah4; Almasud, Anas4; Zaidi, Abdul Rehman Zia1. Physical accessibility, availability, financial affordability, and acceptability of mobile health clinics in remote areas of Saudi Arabia. Journal of Family Medicine and Primary Care 12(9): p 1947-1956, September 2023. | DOI: 10.4103/jfmpc.jfmpc_567_23	This study aims to assess the accessibility of MHCs in rural areas of Saudi Arabia measuring four dimensions of access from the patient's perspective: physical accessibility, availability, financial affordability, and acceptability.	Nonprobability sample. Five hundred participants were interviewed in nine mobile clinics in the nine cities of the SA. Most respondents were male (82.4%), Saudi (92.4%), and had no physical disabilities (92.6%). Most of participants ages fell within 30–	descriptive analysis described the study participants' demographic characteristics. Mann–Whitney U tests were used in determining access levels between beneficiaries with different demographic characteristics.	A quantitative cross-sectional survey in the form of an interviewer-administered questionnaire was performed on patients who attended mobile clinics between August and October 2020.	physical accessibility: Most common modes of transportation to designated MHCs were found to be through a private car (77%) and walking (22.2%) Majority of participants were satisfied with the location of the MHC The needed services were available and there was not any cost for receiving service [affordability]

		59 years. The majority of patients were from Mecca (13.6%) followed by Medina (12.2%) and Jizan (12%). Diabetes was the most prevalent disease in our studied population, with 25.6%, hypertension was the second most prevalent disease found among 23% of respondents			There were no significant differences in levels of access to MHC by gender 98.3% of respondents were satisfied 11.4% of the participants had difficulties with the mobile clinics' work schedules.
3-Habib, S., Khan, M.A. and Hamadneh, N.N., 2022. Gender Sensitivity in Accessing Healthcare Services: Evidence from Saudi Arabia. Sustainability, 14(22), p.14690.	To examine the factors affecting the healthcare system in the Kingdom through access to and use of primary healthcare centres in urban and rural areas and whether there is a gender gap in access to healthcare services.	529 respondents, the population of the study includes both male and female citizens of Makkah city of the KSA. Nonprobability sampling Both online and line methods were used to collect the required data. Some responses were collected personally by visiting the local area market,	self-administered questionnaire was prepared to cover different dimensions of gender discrimination factors affecting gender discrimination, healthcare compliance behaviour, and delay in accessing different healthcare services. Descriptive statistics and CFA were	A descriptive research design using survey instruments.	Age, gender, marital status, education, monthly income, and level of education of respondents are considered very important factor to access healthcare. accessibility are still being affected by the patriarchal family setup, resulting in gender inequality and discrimination in its approach. factors such as availability, ability to engage, socioeconomic factors, noncompliance with health advice, and delay in healthcare

		hospitals, and individual residences after taking a prior appointment from the respondents	calculated with the help of SPSS 22 software. One-way ANOVA and regression analysis were carried out to investigate the link between factors		services differ significantly across the gender categories of respondents.
4-Alanazy ARM, Fraser J, Wark S. Emergency medical services in rural and urban Saudi Arabia: A qualitative study of Red Crescent emergency personnel' perceptions of workforce and patient factors impacting effective delivery. Health Soc Care Community. 2022 May 30. doi: 10.1111/hsc.13859. Epub ahead of print. PMID: 35634803.	To examine the lived experiences of Saudi Arabian EMS personnel, defined as emergency medical technicians, paramedics and local station	Rural and urban EMS (emergency medical services) personnel residing in the Riyadh region in the Kingdom of Saudi Arabia.	Semi-structured interview approach used to collect data from 20 interviews (10 each with rural and urban personnel)	Qualitative hermeneutic phenomenology research methodology.	Three thematic categories impacting EMS delivery; two of these, personnel factors and patient factors. The participant noted a number of key issues, including a lack of appropriate local training and limited resources in rural areas of concern regarding the wider EMS staff demographic makeup and poor public awareness about the exact role of the EMS.
5-Mastor A.M. Alshahrani et al. Difficulties and Barriers of Primary Health Care Physicians in Rural Areas of Aseer Region, Saudi Arabia. World Family Medicine.	To identify barriers facing primary health care physicians in rural areas of Aseer	Cross-sectional study was conducted at primary healthcare centres (PHCCs) belonging to the	A validated study questionnaire Descriptive statistics were applied (frequency and	Cross-sectional study. A validated study questionnaire was adapted and	Female physicians constituted 43.3% of respondents place of residence of 43.3% was in urban areas.

2021; 19(1): 44-48 DOI:10.5742/MEWFM.2021.93982	Region, Saudi Arabia.	Saudi Ministry of Health, in rural areas of Aseer Region. A total of 134 physicians partici-pated in the study.	percentage for qualitative variables	used for data collection.	33.6% were satisfied with medical equipment and resources, and 50% were dissatisfied with their salary. Internet service was present for 83.6% of participants The social life of 83.6% was negatively affected, and 16.4% were exposed to violence at the workplace. Participants were less satisfied regarding several social factors, such as internet connectivity, iso- lation from family and relatives; received support from rural people, difficult schooling for children, but were not satisfied regarding PHCC infrastructure, their residential facilities, or earning more money.
6- Alanazy, W. and Brown, A. (2020) 'Individual and healthcare system factors influencing antenatal care attendance in Saudi Arabia', BMC Health Services Research, 20(1), p. 49. doi: 10.1186/s12913-020-4903-6.	to understand what are the individual & health care system contributed factors that are associated with antenatal appointment attendance in SA.	242 pregnant women in third trimester completed questionnaire which include (demographic background, personal barrier, health literacy, staff communication,	Data were analyzed using SPSS version 22.	A cross sectional questionnaire study.	Findings of this study revealed the individual and health care system factors influenced on attendance of pregnant women in SA. Barrier themes: The demographic factor was associated with the attendance. Personal barriers were high such as (health literacy

		health care factors), age group 18-35+, mean age 30.			associated with delay care, lack of transportation, perception of the importance of antenatal health care) Health System Barrier: Poor clinical facilities Long waiting time lower perceptions of information that provided by staff
7- Alanazy, W., Rance, J. and Brown, A. (2019) 'Exploring maternal and health professional beliefs about the factors that affect whether women in Saudi Arabia attend antenatal care clinic appointments', Midwifery, 76, pp. 36–44. doi: 10.1016/j.midw.2019.05.012.	to understand the beliefs of pregnant women and health professionals about the factors leading to these low attendance rates.	1-Pregnant women at any trimester aged 18+ and had missed one or more appointments. Excluded all any pregnancy with complications and inability to consent (Sample N: AH= 7, KFMC=10 , KKH=4) Age: 19-45+ 2-health care professionals who provide care during antenatal (obstetricians)	Initial transcription was conducted in Arabic and then translated, with 10% of transcripts checked by a further bilingual reviewer. Transcripts were read and re read to identify smaller themes,	A qualitative exploratory study- using semi structured face-to-face interviews	Main themes with subthemes: Maternal attitudes and beliefs regarding the importance of care Many appointments unnecessary 'ANC appointments as something to attend only in an emergency' Care is for emergencies Influence of others personal issues, (Transport, Employment, Family commitments, Childcare) ANC clinic facilities, (Lack of specialist facilities, waste of time, prefer private care) Staff factors (Dismissive attitudes, Pressurizing staff, Poor care)

		Location: Data were collected from three hospitals in two regions of SA, Riyadh & Majmaah200 KM from the capital city.			maternal education (Lack of understanding, belief in other influence on health)
8-Abdel-Aziz, S.B., Amin, T.T., Al-Gadeeb, M.B., Alhassar, A.I., Al-Ramadan, A., Al-Helal, M., Bu-Mejdad, M., Al-Hamad, L.A. and Alkhalaf, E.H., 2017. Perceived barriers to breast cancer screening among Saudi women at primary care setting. Asian Pacific journal of cancer prevention: APJCP, 18(9), p.2409.	To investigating the perceived barriers towards breast cancer screening in Al Hassa, Saudi Arabia.	816 adult Saudi women aged ≥ 30 years attending for routine primary health services or accompanying patients at the selected primary health care centres (PHCs) were randomly selected from 12 PHCs (8 urban and 4 rural) Mean age of the study sample was 43.8, nearly half of them (52.3%) were of the age category between 40- < 50 years, 36% were rural women 63% were female	Data analysis was carried out using SPSS 21.0 (SPSS Inc, IBM, U.S.A)	across-sectional study	Findings in this study provide barriers that both rural & urban women faced to have BC screening. 259 out of 297 of rural women never had breast cancer screening. Onley 38% of the rural women. Barriers were significantly associated with women age, education level, and economic status. Barriers: efficiency of the health care providers due to lack of training (HCPs), difficulty to communicate with foreign Gender provider preferences 28.9% complained of transportation problems 21.1% with perceived fears from

		Location: Al Hassa Governorate, located in Eastern Province of Saudi Arabia			hospitals and health care facilities. lack of specialized clinics (P = 0.002)
9- Alfaqeeh, G. et al., 2017. Access and utilisation of primary health care services comparing urban and rural areas of Riyadh Providence, Kingdom of Saudi Arabia. BMC health services research, 17(1), p.106.	to identify barriers and enablers in relation to access to and utilisation of PHCS among a sample of patients attending PHCS in rural and urban areas of Riyadh province	Five rural and five urban Primary Health Care Centres (PHCC) in the Riyadh province 20>-60+ 880 patients from the selected urban and rural PHCCs of Riyadh province (88 patients from each PHCC). 56.1% female respondents.	Categorical variables for all explanatory variables were calculated. Chi-square Goodness of Fit analyses	Quantitative A questionnaire survey	Health facility Barriers: There was a significant relationship between the region someone resides in (urban vs. rural) and distance from patients' residence to the primary care centre, considered a problem among rural areas. Rural regions were significantly state PCC was not very clean. Personal barriers: Mobility appeared to be an issue for those who resided in a rural region. For example, significantly more people from urban regions stating it is very easy to get around Enablers: Rural regions were more likely to have their blood sugars checked compared to urban Regions were significantly more likely to 'definitely' receive advice relating to

					healthy eating more than rural regions. no significant relationship between the region someone resides in (urban vs. rural) & the patients- providers communication. rural areas had a higher level of education than urban areas.
10- Dhaher, E. A. (2017) 'Access to Reproductive Health Care Services for Women in the Southern Region of Saudi Arabia', Women's Reproductive Health, 4(2), pp. 126–140. doi: 10.1080/23293691.2017.1326255.	to describe the main problems in accessing reproductive health services, as well as some associated factors, as perceived by the women in the southern region of Saudi Arabia	151 Saudi women in their late third trimester (36 weeks or more) of pregnancy conducted during the period of October to December 2014 at the Obstetrics and Gynaecology outpatient clinics at the Armed Forces Hospital in the Southern Region (AFHSR) of SA.	The questionnaire was adapted from previous demographic and health surveys (DHS), some of which were conducted in Arabic in Jordan and Egypt (reproductive health variables and sociodemographic variables) PASW statistics 18 software was used to enter and analyse the data. A multivariable analysis	Cross-sectional survey Face-to-face interviews were conducted with the aid of a structured questionnaire A pilot study was conducted with 10 women in the same clinic,	Accessing health care in southern Saudi Arabia is determined by factors related to cultural and social perspectives rather than to the personal characteristics 85.4% had encountered at least one big problem (big problem (i.e., frequent and hard to solve), Finding a female health care provider (72.2%), Distance from health care services (67.5%) Need to be accompanied (53%) Transportation (51.7%) obtaining money to pay for services (41.1%) Getting permission (25.2%; knowledge of the existence of the service (56.6%)

					Factors associated with problems accessing health-care services women in Saudi Arabia are not allowed to move around without a male companion and permission from the patriarch in her family and woman not allowed to visit the clinics without permission from her husband. Indicate that accessing health care in southern Saudi Arabia is determined by factors related to cultural and social perspectives rather than to the personal characteristics women empowerment assessed through participation in the household decision-making
11- Waleed Hussain et al., 2016. From Symptoms to Diagnosis: An Observational Study of the Journey of Rheumatoid Arthritis Patients in Saudi Arabia. Oman medical journal, 31(1), pp.29–34.	to evaluate the factors contributing to delayed diagnosis of RA in Saudi Arabia from disease onset to first clinical consultation and diagnosis. Geographic area was included as one of	250 patients who are aged 18 years or more and attend the outpatient clinic in six hospitals. The mean age was 34 and the majority were female 84%.	Statistics (SPSS Inc., Chicago, US) version 18 was used for all statistical analysis.	Retrospective cross sectional	Geographic region was significantly associated with delayed diagnosis among RA patients. Compared to rural areas patients living in urban areas were diagnosed earlier than rural dwelling. The delay in diagnosis was related to delay in seeking health care service.

	the variables (urban, rural).	Saudi Arabia (didn't mention the hospital or the location of the hospitals) Conducted between June 2012 and April 2013			
12- El Bcheraoui, C. et al. (2015) 'Access and barriers to healthcare in the Kingdom of Saudi Arabia, 2013: findings from a national multistage survey', BMJ Open, 5(6), pp. e007801–e007801. doi: 10.1136/bmjopen-2015-007801.	Analysed data from a large household survey to identify barriers to healthcare in the Kingdom of Saudi Arabia	10 735 participants completed SHIS and were invited to the local health clinics The Ministry of Health divides KSA into 13 health regions, each with its own health department. We divided each region into subregions and blocks used by the KSA Department of Statistics.	multivariate logistic regression model to measure association between (1) diagnosis, (2) treatment and (3) control of hypertension or diabetes with demographic	Saudi Health Interview Survey (SHIS) is a national multistage survey of individuals aged 15 years The survey combined a household questionnaire and a laboratory blood analysis.	Diagnosed with HTN: being treated increased with age and education. The likelihood of having uncontrolled blood pressure despite treatment increased with education and a history of diagnosis with hypercholesterolemia. Type of clinic visited and distance travelled to the last clinic visit were not associated with diagnosis or treatment of hypertension or control of blood pressure and DM as well. Decreasing uncontrolled DM level was significantly associated with visiting governmental clinics.
13-Alghanim, S. A. (2011) 'Information needs and seeking	to determine information needs	The study population was all PHC	All analyses were conducted using the		The results indicated that physicians in rural areas were

behaviour among primary care physicians in Saudi Arabia: Implications for policy and practice', Sci. Res. Essays, p. 7.	and information-seeking behaviour among rural and urban primary health care physicians	physicians who work at the Ministry of Health PHC centres in Riyadh region at the time of the study between August and November 2010	Statistical Package for the Social Sciences, version 11.0 for Windows (SPSS Inc., Chicago, IL., USA). Chi-square was used to test significance between categorical variables and the independent t-test was used to test significance between continuous variables.	descriptive research methodology The study employed self-administered questionnaires to collect data on demographic characteristics, types of medical and health information needed, sources sought and barriers encountered by physicians	less likely to have access to medical and health information than their counterparts in urban areas, particularly for modern sources such as online databases, medical journals and the Internet websites. Study found that rural physicians were less likely to indicate the use of symposia (or conferences) than their counterparts in urban areas as a source of obtaining health information (38.8% vs 51.4%; $p<0.05$) and less likely to use Continuing Medical Education (CME) (52.9% vs 72.3%; $p<0.001$). However, physicians in rural areas were more likely to use their personal collections as a source of other information than their counterparts in urban areas (63.9% vs 52.0%; $p<0.05$). The results indicated that physicians in rural areas were less likely to have access to medical and health information than their counterparts in urban areas, these barriers include

					lack of libraries in the PHC centres, lack of training on the use of information, lack of inter-library loan services, lack of uniform data standards, lack of up-to-date medical books, lack of access to medical databases and lack of information support services.
14- Khan, A. R., Al-Abdul Lateef, Z. N., Al Aithan, M. A., Bu-Khamseen, M. A., Al Ibrahim, I., & Khan, S. A. (2012). Factors contributing to non-compliance among diabetics attending primary health centres in the Al Hasa district of Saudi Arabia. Journal of family & community medicine, 19(1), 26–32.	to measure the rate of non-compliance and the factors contributing to non-compliance among the diabetic patients in the Al Hasa region of Saudi Arabia.	Saudi Arabia (Al Hasa) This study conducted between June 2010 and June 2011 Random sampling was carried out for the selection of 535 diabetic patients from three chronic disease centres in different parts of Al Hasa. at least one year history of DM and on a fixed treatment plan for at least six months.	SPSS 13 versions were used for all statistical calculations. The results were expressed as mean values ± SD	Quantitative Cross sectional design	Rural participants represent 28% of the study. The non-compliance in the urban participants was significantly higher than (71.04 vs. 60.15%, P = .023) in the rural participants.

15-Khan, A. et al. (2011) 'Knowledge, attitude and practice of ministry of health primary health care physicians in the management of type 2 diabetes mellitus: A cross-sectional study in the Al Hasa District of Saudi Arabia, 2010', Nigerian Journal of Clinical Practice, 14(1), p. 52. doi: 10.4103/1119-3077.79241.	to assess the Knowledge Attitude and Practice (KAP) of MOH Primary Health Care Physician in the management of Type 2 Diabetes Mellitus (DM)	Study group was GPs working at the different PHCs of the Al Hasa Region of Saudi Arabia and were involved in the care of patients with diabetes. Our study population consisted of all the 150 physicians working at different PHCs of the Al Hasa region. Geographical area Rural GP 40 Urban GP 59 non-Saudi physicians, who comprised (n = 76) 76.8% of the study population. Saudi Arabia (Al Hasa) This study conducted between June 2010 and June 2011	A SPSS 18 was used for statistical analysis.	Quantitative Cross sectional design	Facilitator: The KAP score of the rural physician was significantly higher (68.65 ± 10.2, P = 0.003) than the score by the urban physicians (65.34 ± 7.36, P = 0.003). Researcher indicated that the higher KAP of the rural GPs may be due to the fact that, in the rural area, the GPs work in isolation and cannot easily contact the specialist for an expert opinion. It is likely that they update their knowledge on their own rather than the urban GPs.
16- Mahfouz, A.A., Abdel Moneim, I., Khan, M.Y., Daffalla, A.A., Diab, M.M., El Gamal, M.N. and Al Sharif, A.I., 2007. Primary	To study emergency services delivery in all 30 primary health care centres in Abha	The 180 patients who used PHC emergency facilities (33 from urban	Data were coded and analysed using SPSS PC+ software package	structured observation sheet. All primary health care	This study didn't mention the gender or the sociodemographic characteristic as a barrier

health care emergency services in Abha district of southwestern Saudi Arabia. EMHJ-Eastern Mediterranean Health Journal, 13 (1), 103-112, 2007.	district of Asir region, Saudi Arabia, data were collected about equipment and facilities, physicians' practices and attitudes, and patients' utilization of and satisfaction with emergency services	PHCCs and 147 from rural PHCCs) were interviewed about their satisfaction with the services. 30 PHCCs in Abha health district were included in the present study; 7 (23.3%) were urban centres and the remainder were rural centres	t-test, chi-square, Mann-Whitney U and Fisher exact tests were used as tests for significance at the 5% level of significance	physicians were interviewed using a self-administered questionnaire. Each selected patient was interviewed regarding their experience and utilization of PHC services for emergencies.	because the aim of this study focused mostly on the organizational barriers from patient and health care providers perspectives. The findings showed: Two centres had no devoted place for emergency services. Lack of some essential equipment and drugs was evident. The greatest continuing medical education need for doctors was them engagement of cardiovascular emergencies (72.3%). Many doctors (40.4%) did not consider the majority of cases as true emergencies. Many patients (43.7%) used the centres for emergency services, the most common being trauma, burns and orthopaedics (47.8%). Most patients were satisfied overall with emergency services (82.2%).

Appendix 6: Recruitment flyers and invitation letter

Flyer 1: Rural women

Flyer 2: Healthcare provider

The University Of Sheffield.

Ministry of Health

YOU MAY BE ELIGIBLE TO PARTICIPATE IN A RESEARCH PROJECT !!

Study for Healthcare providers

People living in rural areas have had experienced health disparities arising from multiple, complex barriers to healthcare access. To better understand these disparities, further research is needed. As a part of my Ph.D. study, I am exploring the barriers and facilitators for accessing and receiving healthcare services for rural women with chronic diseases (diabetes or/and Cardiovascular Diseases).

Participants will be asked to participate in:

Online interview via zoom or phone. The interviews are treated in confidence , and information obtained will be anonymous.

** Ethical approval was received from the University of Sheffield and Health Affairs Directorate*

** https://www.beyondceliac.org/research-news/healthcare-providers-lot-learn/*

Are you eligible?

Healthcare providers work at diabetic centers or cardiovascula clinics at (KFH & KASH) hospit or primary healthcare centers in rural areas.

IF YOU ARE INTERESTED TO TAKE PART IN THIS PROJEC PLEASE SCAN THE QR CODE BELOW

Scanned with CamScanner

Participants invitation letter (HCP - email)

Hello, my name is……. I have a nursing background and I am currently a student at the University of Sheffield in the United Kingdom undertaking a doctoral degree. This letter is to invite to take part in my study.

The purpose of the study

People living in rural areas have had experienced health disparities arising from multiple, complex barriers to healthcare access. To better understand these disparities, further research is needed. As a part of my PhD study, I am exploring what are barriers and facilitators for accessing, receiving, and delivering healthcare services for rural women with chronic diseases (diabetes or/and cardiovascular).

I would very much like to contact and talk to you over the telephone/online Zoom about the study and give you more details of what it will involve.

If you are interested in calling me to discuss your participation, please contact me on:

Tel:

Email me on:

Thank you for your time today.

Researcher:

Division of Nursing and Midwifery

University of Sheffield

Barber House

3a Clarkehouse Road

Sheffield S10 2LA

Tel: +966568580081

Appendix 7: Information sheet and consent form (rural women)

INFORMATION SHEET (Rural Women)

You are being invited to take part in a research project. Before you decide whether or not to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If there is anything that is not clear or if you would like more information, please do not hesitate to contact Ashwaq Albogami; amalbogami1@sheffield.ac.uk. Please take time to decide whether or not you wish to take part.

Thank you for reading this.

1.Research Project Title:

Barriers and Facilitators to Accessing HealthCare among Rural Areas in Taif city (Makkah Region): Perspectives of Rural Women and Health Care Providers.

2. What is the project's purpose?

The aim of this PhD study is to explore the barriers and facilitators for accessing, receiving and delivering healthcare services for rural women diagnosed with chronic diseases (Diabetes Mellitus type 1 & 2 or/and Cardiovascular Disease) in rural areas of Taif city. As a part of my PhD degree in nursing at the University of Sheffield, I will collect video, audio and written interviews about rural women and healthcare providers experiences.

3. Why have I been chosen?

I want to interview rural women, living in areas around Taif city Saudi Arabia diagnosed with chronic disease (DM & CVD) and experience of accessing healthcare. Those who meet the criteria are invited to take part in this study.

4. Do I have to take part?

It is entirely up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep (and be asked to sign a consent form). You can still withdraw at any time without any negative consequences and it will not impact on the healthcare that you receive. You do not have to give a reason. If you wish to withdraw from the research, please contact me via the email provided with this sheet. Please note the point at which data will be anonymized and data analysis has commenced, it will become very difficult to remove data you provide. By choosing to participate in this research, this will not create a legally binding agreement, nor is it intended to create an employment relationship between you and the University of Sheffield. No questions will be asked if you stop. Deciding whether or not to take part in the study will not affect the standard of any care you may receive.

5. What will happen to me if I take part? What do I have to do?

If you take part in this qualitative study, you will be invited to do a one-on-one video (zoom) or phone interview that will take about 30-40 min. The interview will be conducted in Arabic and include semi structured questions about your experience including the barriers and facilitators to accessing & receiving healthcare services to manage your chronic diseases. I will take handwritten notes to record your answers as well as using an audio recorder to make sure I don't miss what you say. You have the right to deny video recording.

6. What are the possible disadvantages and risks of taking part?

As a participant in this study, it is not likely that there will be any harms or discomforts associated with taking part in this study. It is unlikely that there will be direct benefits to you, however, by better understanding the challenges you encountered to access health, I will be able to shape access healthcare for future women who find themselves in a similar situation to yourself. Some of the interview questions might be deemed as personal; you have the right to skip questions that you don't want to answer or which make you feel uncomfortable. The information you share will not be connected to your name.

7. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project; it is hoped that this work and the knowledge received will have significant implications for rural communities particularly women and health care professionals.

8. Will my taking part in this project be kept confidential?

All the information that I collect about you during the course of the research will be kept strictly confidential and will only be accessible to Ashwaq Albogami, the researcher, and my supervisors (Dr. Jill Thompson & Dr. Sharron Hinchliff). Your privacy and confidentiality will be protected by the use of a pseudonym (false name) which means that the information you share will not be connected to your name. The files will be transcribed, and the data will be stored on a University secure google drive on a computer that is password protected that only the researcher have access to. You have the choice to decline the use of the video function. Your contact information will be destroyed after the study is completed. The audio and/or video recordings of your activities made during this research will be used only for analysis and for illustration in conference presentations or published in academic journals. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

If translation and transcription services are needed, they will be required to sign the Non-disclosure / confidentiality agreements. All transcripts will be anonymized and demographic data will be removed. Should you disclose information to suggest that the actions of you or others has resulted in serious harm we may need to share this information with other relevant agencies. In keeping with University of Sheffield policy we will inform you of our actions.

9. What is the legal basis for processing my personal data?

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing is necessary for the performance of a task carried out in the public interest' (Article 6(1)(e)). Further information can be found in the University's Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.' Your contact information will be destroyed after the study is done.

As we will be collecting some data is defined in the legislation as more sensitive (information about your health condition, gender, and culture) we also need to let you know that we are applying the following condition in law: that the use of your data is necessary for archiving purposes in the public interest , scientific research purposes or statistical purposes" (9(2)(j)).

Special category data is listed here

https://www.sheffield.ac.uk/govern/data-protection/privacy/general#Special%20data

10.What will happen to the data collected, and the results of the research project?

The collected Data from interviews will be transcript and analyzed. The collected data will be in a pseudonymized form and accessed by researcher and her supervisors. During the study data will be stored on the university secure google drive and will be archived in the university ORDA data repository archive. Personal data will be destroyed immediately after completion of the study. The result of this study will be reported in the PhD thesis. Due to the nature of this research, it is very likely that other researchers may find the data collected to be useful in answering future research questions. We will ask for your explicit consent for your data to be shared in this way.

11. Who is organizing and funding the research?

This project is organized by the University of Sheffield and funded by Royal Embassy of Saudi Arabia Cultural Bureau.

12. Who is the Data Controller?

The University of Sheffield will act as the Data Controller for this study. This means that the University of Sheffield is responsible for looking after your information and using it properly.

13. Who has ethically reviewed the project?

This project has been approved via the University of Sheffield's Ethics Review Committee, as administered by Health Sciences School. Ethical and local approve was also obtained from Directorate of Health Affairs at Taif which has an administrative authority over primary and secondary healthcare facilities in Taif city and its rural areas.

14. What if something goes wrong and I wish to complain about the research or report a concern or incident?

If you are dissatisfied with any aspect of the research and wish to make a complaint, please contact [Ashwaq Albogami; amalbogami1@sheffiled.ac.uk] in the first instance. If you feel

your complaint has not been handled in a satisfactory way you can contact my supervisors then the Dean of the Health Sciences School Professor Tracey Moore tracey.moore@sheffield.ac.uk. If the complaint relates to how your personal data has been handled, you can find information about how to raise a complaint in the University's Privacy Notice: https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

If you wish to make a report of a concern or incident relating to potential exploitation, abuse or harm resulting from your involvement in this project, please contact the project's Designated Safeguarding Contact [Ashwaq Albogami; amalbogami1@sheffiled.ac.uk]. If the concern or incident relates to the Designated Safeguarding Contact, or if you feel a report you have made to this Contact has not been handled in a satisfactory way, please contact the Dean of the Health Sciences School Tracey Moore: tracey.moore@sheffield.ac.uk and/or the University's Research Ethics & Integrity Manager (Lindsay Unwin; l.v.unwin@sheffield.ac.uk).

15. Contact for further information:

I have greatly valued your participation in this research study and your willingness to share about your experience. If you have further questions about this study, you may contact: Ashwaq Albogami; amalbogamii@sheffiled.ac.uk or Dr. Jill Thompson; jill.thompson@sheffield.ac.uk or Dr. Sharron Hinchliff; s.hinchliff@sheffield.ac.uk

Note: You will be given a copy of the information sheet and, a signed consent form to keep.

IF YOU ARE INTERESTED TO TAKE PART IN THIS PROJECT, PLEASE CONTINUE TO THE NEXT PAGE FOR THE CONSENT FORM

Please tick the appropriate boxes	Yes	No
Taking Part in the Project	☐	☐
I have read and understood the project information sheet dated …../…../….. or the project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	☐	☐
I have been given the opportunity to ask questions about the project.	☐	☐
I agree to take part in the project. I understand that taking part in the project will include being interviewed by Zoom/Phone.	☐	☐
I agree that whilst I am participating in this interview audio recordings will be made.	☐	☐
I agree to being audio recorded and for transcripts of these anonymized audio recordings to be used in the research.	☐	☐
I understand that by choosing to participate as a volunteer in this research, this does not create a legally binding agreement nor is it intended to create an employment relationship with the University of Sheffield.	☐	☐
I understand that my taking part is voluntary and that I can withdraw from the study at any time before data anonymised which cannot be excluded. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will not be revealed to people outside the project.	☐	☐

I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	☐	☐
I understand and agree that other authorized researchers or translator / transcriber will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I give permission for the anonymised and confidential transcript that are created from my interview to be deposited the University of Sheffield's library and at White Rose Research Online depository so it can be used for future research and learning.	☐	☐
So that the information you provide can be used legally by the researchers	☐	☐
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed] Signature Date

Name of Researcher [printed] Signature Date

To be signed and dated 2 copies of the consent form: 1 paper copy for the participant, 1 copy for the research data file.

If you have any questions or desire further information with respect to this study, you may contact me on my email address: amalbogami1@sheffield.ac.uk

Oral consent script (Rural Women)

Introduction:

Hello. I'm Ashwaq Albogami, conducting interviews about Barriers and facilitators to access healthcare among rural women . I'm conducting this as part of my PhD research at University of Sheffield Nursing & midwifery division.

What will happen during the study?

I'm inviting you to do a one-on-one [phone, Zoom] interview that will take about 30-40 min. I will ask you questions about your experience to accessing and seeking healthcare services. I will take handwritten notes to record your answers as well as using an audio recorder to make sure I don't miss what you say. We can have this conversation now or we can set up a time and place that works for us both.

Potential risks and benefits to participants and to society

It is not likely that there will be any harms or discomforts associated with taking part in this study. It is unlikely that there will be direct benefits to you, however, by better understanding the challenges you encountered to access health care and how to tackle these challenges. Results may have significant implications for rural community and health care profession.

Confidentiality

Your responses will remain confidential, and your name will be removed from the transcript and the questionnaire. An anonymous code will be used to link the background questions and interview transcript. The record of your consent to participate in the study will be stored separately from both the background questions and the transcript of our conversation so that it cannot be associated with your responses.

The information you provide may be presented at professional conferences or published in academic journals. Any data from this research which will be shared or published will be the combined data of all participants. That means it will be reported for the whole group not for individual persons. If we use a quotation that you provided, your identity will be kept anonymous. In case of professional translator and transcriber services are needed, I'll ask them to sign the Non-disclosure / confidentiality agreements form. Also, I'll make sure the transcripts will be anonymized and I will remove the demographic data from the transcripts.

Consent:

Your participation in this study is entirely voluntary. You can decide to stop at any time, even partway through the interview for whatever reason. If you choose to participate, you may skip any questions you do not wish to answer. If you decide not to participate in the study or choose to withdraw, please let me know at any point during our conversation. Please note the point at which data will be anonymized and start analysis on the transcripts, it will become very difficult to remove data you provide.

Consent questions:

Do you have any questions or would like any additional details? [Answer questions.]

Do you agree to participate in this study ?

[If yes, begin the interview.]

[If no, thank the participant for their time.]

Signatures

Date of interview signature

If you have any questions or desire further information with respect to this study, you may contact me on email address: amalbogami1@sheffield.ac.uk

Appendix 8: Information sheet and consent form (Healthcare providers)

INFORMATION SHEET (Healthcare Provider)

You are being invited to take part in a research project. Before you decide whether or not to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If there is anything that is not clear or if you would like more information, please do not hesitate to contact Ashwaq Albogami, amalbogami1@sheffield.ac.uk. Please take time to decide whether or not you wish to take part.

Thank you for reading this.

1.Research Project Title: Barriers and Facilitators to Accessing Health Care among Rural Areas in Taif city (Makkah Region): Perspectives of Rural Women and Health Care Providers.

2. What is the project's purpose?

The aim of this PhD study is to explore the barriers and facilitators for accessing, receiving and delivering healthcare services for rural women diagnosed with chronic diseases (Diabetes Mellitus type 1 & 2 or/and Cardiovascular Disease) in rural areas of Taif city. As a part of my PhD degree in nursing at the University of Sheffield, I will collect video, audio and written interviews about rural women and healthcare providers experiences in accessing healthcare and how may influence healthcare providers practice in delivering healthcare services to rural women.

3. Why have I been chosen?

I want to interview healthcare providers who have had experience in delivering care to rural women. The project will involve healthcare providers who are providing care for rural women in healthcare facilities (primary & secondary) working at diabetic centres (DM) and cardiovascular disease (CVD) clinics. Those who meet the criteria are invited to take part in this study.

4. Do I have to take part?

It is entirely up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep (and be asked to sign a consent form). You can still withdraw at any time without any negative consequences. You do not have to give a reason. If you wish to withdraw from the research, please contact me via the email provided with this sheet. Please note the point at which data will be anonymized and analysis has commenced, it will become very difficult to remove data you provide. By choosing to participate in this research, this will not create a legally binding agreement, nor is it intended to create an employment relationship between you and the University of Sheffield. No questions will be asked if you stop. Deciding whether or not to take part in the study will not affect your job.

5. What will happen to me if I take part? What do I have to do?

If you take part in this qualitative study, you will be invited to do a one-on-one video (zoom) or phone interview that will take about 30-40 minutes. The interview will be conducted in English and include semi structured questions about your experience in providing care to rural women and what are barriers and facilitators you experienced through delivering healthcare services. I will take handwritten notes to record your answers as well as using an audio recorder to make sure I don't miss what you say. You have the right to deny video recording.

6. What are the possible disadvantages and risks of taking part?

As a participant in this study, it is not likely that there will be any harms or discomforts associated with taking part. It is unlikely that there will be direct benefits to you, however, by better understanding the challenges you encounter in practice, I will be able to shape your experience of delivering healthcare to rural women. Some of the interview questions might make you feel uncomfortable; you have the right to skip questions that you don't want to answer or which make you feel uncomfortable. Data will not be connected to your name.

7. What are the possible benefits of taking part?

Whilst there are no immediate benefits for those people participating in the project; it is hoped that this work and the knowledge received will have significant implications for rural communities, particularly women and health care professionals.

8. Will my taking part in this project be kept confidential?

All the information that we collect about you during the course of the research will be kept strictly confidential and will only be accessible to Ashwaq Albogami, the researcher, and my supervisors (Dr. Jill Thompson & Dr. Sharron Hinchliffe). Your privacy and confidentiality will be protected by the use of a pseudonym (false name) which means that the information you share will not be connected to your name. The files will be transcribed, and the data will be stored on a University secure google drive on a computer that is password protected that only the researcher have access to. You have the choice to decline the use of the video function. Your contact information will be destroyed after the study is completed . The audio and/or video recordings of your activities made during this research will be used only for analysis and for illustration in conference presentations or published in academic journals. No other use will be made of them without your written permission, and no one outside the project will be

allowed access to the original recordings. If transcription services are needed, they will be asked to sign the non-disclosure / confidentiality agreements. All transcripts will be anonymized and demographic data will be removed .Should you disclose information to suggest that the actions of you or others has resulted in serious harm we may need to share this information with other relevant agencies. In keeping with University of Sheffield policy we will inform you of our actions.

If transcription services is needed, they will be required to sign the Non-disclosure / confidentiality agreements. All transcripts will be anonymized and demographic data will be removed. Should you disclose information to suggest that the actions of you or others has resulted in serious harm we may need to share this information with other relevant agencies. In keeping with University of Sheffield policy we will inform you of our actions.

9. What is the legal basis for processing my personal data?

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing is necessary for the performance of a task carried out in the public interest' (Article 6(1)(e)). Further information can be found in the University's Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.' Your contact information will be destroyed after the study is done.

As we will be collecting some data is defined in the legislation as more sensitive (information about your health condition gender , and culture) we also need to let you know that we are applying the following condition in law: that the use of your data is necessary for archiving purposes in the public interest , scientific research purposes or statistical purposes" (9(2)(j)).

Special category data is listed here

https://www.sheffield.ac.uk/govern/data-protection/privacy/general#Special%20data

10.What will happen to the data collected, and the results of the research project?

The collected data from interviews will be transcribed and analyzed. The collected data will be in a pseudonymized form and accessed only by researcher and her supervisors. During the study data will be stored on the university secure google drive and will be archived in the university ORDA data repository archive. Personal data will be destroyed immediately after

completion of the study. The result of this study will be reported in the PhD thesis. Due to the nature of this research, it is very likely that other researchers may find the data collected to be useful in answering future research questions. We will ask for your explicit consent for your data to be shared in this way.

11. Who is organizing and funding the research?

This project is organized by the University of Sheffield and funded by Royal Embassy of Saudi Arabia Cultural Bureau.

12. Who is the Data Controller?

The University of Sheffield will act as the Data Controller for this study. This means that the University of Sheffield is responsible for looking after your information and using it properly.

13. Who has ethically reviewed the project?

This project has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by Health Sciences School. Ethical and local approve was also obtained from Directorate of Health Affairs at Taif which has an administrative authority over primary and secondary healthcare facilities in Taif city and its rural areas.

14. What if something goes wrong and I wish to complain about the research or report a concern or incident?

If you are dissatisfied with any aspect of the research and wish to make a complaint, please contact [Ashwaq Albogami; amalbogami1@sheffiled.ac.uk] in the first instance. If you feel your complaint has not been handled in a satisfactory way you can contact my supervisors then the Dean of the Health Sciences School Professor Tracey Moore tracey.moore@sheffield.ac.uk. If the complaint relates to how your personal data has been handled, you can find information about how to raise a complaint in the University's Privacy Notice: https://www.sheffield.ac.uk/govern/data-protection/privacy/general. If you wish to make a report of a concern or incident relating to potential exploitation, abuse or harm resulting from your involvement in this project, please contact the project's Designated Safeguarding Contact [Ashwaq Albogami; amalbogami1@sheffiled.ac.uk]. If the concern or incident relates to the Designated Safeguarding Contact, or if you feel a report you have made to this Contact

has not been handled in a satisfactory way, please contact the Dean of the Health Sciences School Professor Tracey Moore : tracey.moore@sheffield.ac.uk and/or the University's Research Ethics & Integrity Manager (Lindsay Unwin;l.v.unwin@sheffield.ac.uk).

15. Contact for further information:

I have greatly valued your participation in this research study and your willingness to share about your experience. If you have further questions about this study, you may contact: Ashwaq Albogami ; amalbogami1or Dr. Jill Thompson; jill.thompson@sheffield.ac.uk or Dr. Sharron Hinchliff; s.hinchliff@sheffield.ac.uk.

Note: You will be given a copy of the information sheet and, a signed consent form to keep.

IF YOU ARE INTERESTED TO TAKE PART IN THIS PROJECT CONTINUE TO THE NEXT PAGE FOR THE CONSENT FORM.

Please tick the appropriate boxes	Yes	No
Taking Part in the Project	☐	☐
I have read and understood the project information sheet dated …../…../….. or the project has been fully explained to me. (If you will answer No to this question please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	☐	☐
I have been given the opportunity to ask questions about the project.	☐	☐
I agree to take part in the project. I understand that taking part in the project will include being interviewed by Zoom/Phone.	☐	☐
I agree that whilst I am participating in this interview audio recordings will be made.	☐	☐
I agree to being audio recorded and for transcripts of these anonymised audio recordings to be used in the research.	☐	☐
I understand that by choosing to participate as a volunteer in this research, this does not create a legally binding agreement nor is it intended to create an employment relationship with the University of Sheffield.	☐ ☐	☐ ☐
I understand that my taking part is voluntary and that I can withdraw from the study at any time before data anonymised which cannot be excluded. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will not be revealed to people outside the project.	☐	☐

I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	☐	☐
I understand and agree that other authorised researchers or translator/ transcriber will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I give permission for the anonymised and confidential transcript that are created from my interview to be deposited the University of Sheffield's library and at White Rose Research Online depository so it can be used for future research and learning.	☐	☐
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed] Signature Date

Name of Researcher [printed] Signature Date

To be signed and dated

2 copies of the consent form: 1 paper copy for the participant, 1 copy for the research data file

If you have any questions or desire further information with respect to this study, you may contact me on my email address: amalbogami1@sheffield.ac.uk

Appendix 9: Interview guide protocol for participants (rural women)

Semi-structured Interview Guide for Rural Women & Healthcare providers
Rural Women
Time of Interview:
Date:
Place:
Interviewer:
Interviewee:
Introduce myself:
First I would like to introduce my self , I am Ashwaq Albogami a PhD student and as s a part of my PhD degree in nursing at the University of Sheffield, I will collect video, audio and written interviews about rural women and healthcare providers experiences.
Information sheet & consent form:
Before starting the interview I would like to let you know that I received the signed consent form which means you agree to take apart of the study and please let me know if you have any questions about the information sheet. As you know, I've asked you here today to take part in an interview about your experience as rural women diagnosed with chronic diseases and what are barriers you faced to access & receiving healthcare services. Before starting the interview I would like to ask you if you have any questions about the information sheet I have a list of topics we can discuss about , but I hope that the interview will be more like a chat with you doing most of the talking. please let me know, if I ask a question that you don't understand or that you're unsure of. Sometimes in these interviews, people feel that they have been talking too much but don't worry as I really want to know about your personal opinions and understand the meaning of your experience in access healthcare and if we go off track, I will ask some questions to get us on the right track again. Sometimes I ask questions may sound a bit obvious but I ask them because I don't want to take anything for granted. Here is no right or wrong answer. Please answer each question in detail .Your answers will help me to understand the health access situation in rural areas. Our conversation will not affect the care you receive. If you want to stop the interview at any point, please let me know and we can stop. I'm happy to answer any questions that you might have about me but I'd rather we waited until the end of the interview.
Are you happy to begin? (Demographic questions)
General questions , can you tell me
How old are you?
Are you married or single? How many children do you have?
What is the highest degree or level of education you have completed?
What is the current employment status? Are you working or your husband if you married?
where do you live?
Are you receiving healthcare from local primary healthcare centre in your rural area or hospitals at Taif or both?
Please tell me about your health? (Probes)
How long have you been diagnosed with (e.g. diabetes or cardiovascular diseases)?
What do you know about your diseases, treatment or management, and the long-term effects?
How to care about your self or living with a chronic condition?

Does the condition have an impact on your daily life? prompts: (caring for family, ability to work, sleep).

What are your experiences of accessing healthcare for your condition? Can you tell me more about your experience? prompts: 'distance to clinic', availability of same sex health practitioner)

What healthcare services are available to your condition? (Probes)

Did you experience any healthcare services not being available in the area you live? What types of services are not available ?
How do you informed or know about the available healthcare services?
How do you think this situation of limited healthcare services influences your health status?
What do you think about the care that you receive from healthcare providers? What might make it better? (Probes)
How do you think these issues (e.g. culture, gender, and language) stand as a barrier to access healthcare? Prompt: Can you explain in which way?
Do you think they adequately trained for the job?
Do you find your place of residence restricts you from receiving the care? (Probes)
Is it because of the distance ?
How long does it take you to travel to healthcare facilities? Prompt: (Please explain)
What kind of problems related to travel do you experience?
What are the expenditures have to pay extra (transport, medications or additional medical assistance)?
Do you think being a woman increase these barriers to access healthcare ? (Probes)
How external commitments (family responsibility or job) prevent you from going to your appointments? (Please explain)
Do you need to be accompanied or need husbands' permission? Prompt: what were your thoughts on that?
What do you think about recent social transformation of Saudi women (e.g. driving , autonomy in decision making , and job opportunity…) ? Prompt: in which way this changes facilitate accessing healthcare services ?
What are strategies or facilitators made access to healthcare services easier in your community? (Community support, healthcare system, patient-provider relationship)
Do you believe you receive the same healthcare as people living in a larger city? Prompt: Why do you think that? (Probes)
How satisfied are you with the healthcare you are receiving?
Thank you for your time and providing these important information, Is there anything else you'd like to add or tell me?
Thank you for your time.
General prompts
Can you tell me a bit more about that?
What do you mean by…?
How did that/does that feel?
How so? Why do you think…?
NOTE: If the participant uses other terminology , the researcher will ask the participants what they mean and adopt the term if explain the same meaning.
This is not a strict interview schedule to be adhered to. The researcher should add questions and additional probes as they find appropriate and as areas of interest develop.

Appendix 10: Interview guide protocol for HCPs

HealthCare Providers
Time of Interview:
Date:
Place:
Interviewer:
Interviewee:
Introduce myself:

First I would like to introduce my self , I am Ashwaq Albogami a PhD student and as s a part of my PhD degree in nursing at the University of Sheffield, I will collect video, audio and written interviews about rural women and healthcare providers experiences.

Information sheet & consent form:
Before starting the interview I would like to let you know that I received the signed consent form which means you agree to take apart of the study and please let me know if you have any questions about the information sheet.

As you know, I've asked you here today to take part in an interview about your experience as healthcare provider who had experience in delivering care to rural women who diagnosed with chronic diseases (diabetes or/and cardiovascular diseases) and what are barriers you faced to delivering healthcare services. I have a list of topics we can discuss about , but I hope that the interview will be more like a chat with you doing most of the talking. please let me know, if I ask a question that you don't understand or that you're unsure of. Sometimes in these interviews, people feel that they have been talking too much but don't worry as I really want to know about your personal opinions and understand the meaning of your experience in access healthcare and if we go off track, I will ask some questions to get us on the right track again. Sometimes I ask questions may sound a bit obvious but I ask them because I don't want to take anything for granted. Here is no right or wrong answer. Please answer each question in detail .Your answers will help me to understand the healthcare situation in rural areas. Our conversation will not affect your job. If you want to stop the interview at any point, please let me know and we can stop. I'm happy to answer any questions that you might have about me but I'd rather we waited until the end of the interview.

Are you happy to begin?

Can you describe your role within the Centre?
Could you please tell me about your working experience working in rural areas?
do you provide care for patients from rural areas around Taif city?

Can you tell me what is your first impression when you know your patient living in rural areas? (Probes)
If you have patients from rural areas , what is your first impression?
What do you think about your experience in delivering care to rural women? How this shape your practice?
Do you think rural women receive that same level of care as urban women? any barriers that rural women face when accessing health care services?

Do you think being a woman who lives in rural areas impacts on accessing and receiving high quality healthcare ? Can you explain this point please?

From your working experience, what are barriers you faced when delivering care to rural women? (Probes)

What do you think about (education level, language, culture, and religion) how impact on delivering care to rural women?
What do you think about the age of the patient?
what about the accent is it difficult to understand the rural woman or does this influence on the communication between you and your patient?
I know there is difference in our community btw delivering care to male compared to female , so can you explain to me your experience in this context?
How barriers hindered the deliver adequate healthcare services to the rural women?

Does the policy and procedure of healthcare system in Saudi Arabia has any impact in negative or positive way on the delivery of healthcare to rural women? Prompt: Can you explain in which way?

What do you think about referral system? is it easy to refer your patients?
Is there adequate support to do the job (resources, coordination and management)?
Shortage of staff? Or the workload or overlapping roles ?
Do you think lack of coordination bet healthcare facilities influence on delivering care to rural women ?
What about opportunities for continuing professional development/ further education?
Do you receive any courses regarding rural women needs ?
Do you have a chance to ask for courses to develop your skills?
Is it available in your centre or you need to travel to the city ?is the educational resources (books, computers , etc available in your centre?

How do you see the health services related to diabetes or cardiovascular diseases in your healthcare facilities? (Probes)
How available are healthcare services for chronic diseases (Diabetes & Cardiovascular diseases) in the clinic or centre? For example mental health services , dentist or any specialties services.
What happens if patient needs emergency health care when at the Centre?
Do you think Wasfati & Mawid or any virtual services help in providing care it rural women ?
What are strategies or facilitators made delivering healthcare to rural women to healthcare services easier ?
(e.g. Community support, patient-provider relationship)
Do you remember any problematic situation in your work happened when delivering care to rural women? If yes. (probes)
Can you tell us about this situation, about what happened ?
Is there anything else you'd like to add or tell me?
NOTE: If the participant uses other terminology, the researcher will ask the participants what they mean and adopt the term if explain the same meaning.

This is not a strict interview schedule to be adhered to. The researcher should add questions and additional probes as they find appropriate and as areas of interest develop.