Patient-centredness in gestational diabetes mellitus healthcare services in Saudi Arabia—an exploration

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Abstract

Background: Gestational diabetes mellitus (GDM) is one of the most prevalent complications of pregnancy and an important risk factor for type II diabetes mellitus (T2DM) (McIntyre and Moses, 2020). Prevalence of GDM in Kingdom of Saudi Arabia (KSA) is substantially higher than the global average and is increased. Despite this, there is limited information on quality of care for GDM in KSA, in particular women's experiences of services.

Aims: To explore the quality of GDM healthcare services in KSA and suggest evidence-based recommendations for improvement.

Methods: A mixed methods approach was used incorporating three studies; i) a systematic review (SR) synthesizing data from seven qualitative research articles; ii) a qualitative study using semi-structured interviews with patients with GDM (16 from an urban setting and 11 from a rural setting); and iii) an electronic Delphi (e-Delphi) study with 17 specialist providers of GDM care. Each phase was undertaken sequentially

Findings: The narrative synthesis of the SR identified four key barriers to high-quality GDM care: limited access to healthcare, limited patient-centred care, limited professional and material resources, and poverty of patients. From the qualitative interviews, four themes relating to barriers for GDM patients emerged: access to care, communication, health provider factors and patient factors. Not every participant experienced problems with each factor. From the e-Delphi study, consensus was achieved among experts regarding the most and least important of the issues identified by patients. The five priority issues were: gaps in staff training, lack of doctors' expertise regarding GDM, short consultation times, long waiting times, and administrative problems when making appointments.

Conclusion: This thesis identifed potential ways to improve the quality of GDM healthcare services in Saudi Arabia. Recommendations are suggested to improve the quality of GDM healthcare, ranging from new training programs to greater investment in facility scheduling systems.

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Author’s Declaration

I hereby confirm that this thesis is my own, original work and that I am its sole author. Every source cited in the work has been acknowledged in the references. This thesis has not been submitted for an award to this, or any other university, up until this time.

Chapter 1: Introduction

1.1. Background

As a serious pregnancy complication that affects around 14% of pregnant women globally, gestational diabetes mellitus (GDM) is characterized by the spontaneous development of hyperglycemia during pregnancy (Plows et al., 2018). Despite GDM typically resolving once the baby has been delivered, the long-term consequences of the condition represent a cause for concern, including higher risk for cardiovascular disease (CVD) and type 2 diabetes mellitus (T2DM) for the mother, as well as a greater risk of obesity, T2DM, GDM, and CVD in the child (McIntyre and Moses, 2020). For this reason, timely and accurate diagnosis of GDM, paired with effective interventions and management of the condition, are essential, not only for the long-term health of the mother and child, but also for reducing the financial burden placed on healthcare systems (Dall et al., 2019).

A recent systematic review and meta-analysis conducted by Lee et al. (2018) found that, among all the Asian countries, the prevalence of GDM in the Kingdom of Saudi Arabia (KSA) was the third highest at 22.9%, and substantially higher than the global average of 14% (Plows et al., 2018). Along with reports indicating that many cases of GDM remain undiagnosed, or are diagnosed at a late stage in the KSA (Alfadhli et al., 2015, Agarwal, 2020), this highlights the critical importance of building capacity for effectively diagnosing and treating GDM in the KSA's healthcare system at both the primary levels (preventative, public health and non-urgent care provided in the community) and secondary levels (additional and specialized care provided in public hospitals (AlYami and Watson, 2014) (Agarwal, 2020). Nevertheless, problems such as the lack of consensus among international healthcare organizations for the screening and diagnosis of GDM (Agarwal, 2018), as well asthe inadequate level of knowledge and training surrounding GDM in both healthcare professionals and the general population (Alnaim, 2020), are substantial barriers towards achieving this.

It is also noteworthy that, as a high-income country in the Middle East that has undergone dramatic economic and sociodemographic changes in recent decades, the KSA has been associated with sudden, rapid, and significant shifts in individuals' lifestyles (Moshashai et al., 2020). Due to this, the prevalence of adverse health conditions such as obesity and lifestyle-related behaviour such as sedentarism, which constitute the main non-genetic risk factors for T2DM and GDM, has increased considerably, placing a sizeable burden on the country's underprepared healthcare system (Agarwal, 2020). Given the lack of preparedness in the country's healthcare system regarding the identification and treatment of the growing number of women suffering from GDM, paired with the long-standing difficulties surrounding the uniform screening, diagnosis, and treatment of GDM (Nielsen et al., 2012, Agarwal, 2018), it is inevitable that gaps have emerged in the quality of GDM healthcare (Ba-Essa et al., 2018).

With the above considerations in mind, the aim of this dissertation was to investigate the quality, in particular its patient-centredness, of GDM healthcare services in the KSA from the standpoint of service users, and to offer a set of evidence-based recommendations for improvement. A mixed methods study, prefaced by a systematic review (SR), was undertaken in order to gather in-depth, fine-grained data from service users regarding the principal barriers they encountered when receiving GDM healthcare services in a Large City in Saudi Arabia, consistent with the interpretivist and phenomenological approaches. The views of service users identified in the qualitative phase of the study regarding the main barriers associated with using and accessing GDM healthcareservices were also examined by drawing on the perspectives of healthcare professionals, leading to the identification of priorities for improvement in GDM healthcare services in the KSA. Throughout the study, the theoretical framework of the Institute of Medicine's (2001) six domains of quality of care was used to structure the inquiry into the overall quality of GDM healthcare services in the KSA. After offering background information on the classification, screening, diagnosis, risk factors, pathophysiology, implications, and treatment of GDM, thereby contextualizing the subsequent parts of this dissertation, this chapter discusses epidemiological trends relating to GDM in the KSA. The theoretical framework is then presented and the rationale for using it is stated. Following this, the research aim, objectives, and questions are outlined, and an overview of the remaining chapters in the dissertation is given.

1.2. Classification of GDM

According to the classification of GDM presented by the World Health Organization (WHO), GDM occurs when a pregnant female suffers from any degree of hyperglycemia, irrespective of severity, that is first detected during the pregnancy itself (Lefkovits et al., 2019). However, as mentioned in the introduction to this chapter, there is a notable lack of consensus among international healthcare organizations regarding the classification, screening, and diagnosis of GDM (Agarwal, 2018, Cade et al., 2019). Due to this, other classification systems exist for GDM, many of which have been developed more recently than the WHO classification system mentioned above. For example, the formal classification offered by the American Diabetes Association (ADA, 2018) suggests that GDM is a form of diabetes "first diagnosed in the second or third trimester of pregnancy that is not clearly either pre-existing type 1 or type 2 diabetes".

1.3. Screening and diagnosis of GDM

Given the existence of varying GDM classification systems, the approaches used in different countries to screen and diagnose GDM are also characterized by notable differences. In low-income or developing countries with limited healthcare system resources, screening for GDM typically proceeds according to a selective screening model, wherein parameters such as previous GDM, diabetes in close relatives (typically first-degree relatives), glucosuria, maternal age, and ethnicity are used to direct screening resources towards women who are associated with the highest risk of GDM (Kampmann et al., 2015).

When resources are available in a national healthcare system, GDM screening is typically organized according to a two-phase procedure, involving the administration of a 50-g 1-hour glucose challenge test (GCT), followed by a 75-g oral glucose tolerance test (OGTT) for women who test positive in the first phase (Lefkovits et al., 2019). Positive screening after the first phase is defined as having a glucose level greater than 7.8 mmol/litre (Lefkovits et al., 2019). Although there are dissimilarities among the screening recommendations given by international healthcare organizations, the WHO and the ADA recommend that GDM screening should be undertaken between 24 and 28 weeks of gestation (Kampmann et al., 2015).

Regarding the diagnostic criteria for GDM, these are generally based on the outcomes of the 75-g OGTT described previously, which often serves as the second stage of GDM screening, but – as previously noted – disparities exist across the existing international healthcare organizations (Wang and Yang, 2016). After administering this test, if the fasting plasma glucose (FPG) level of the pregnant female is 5.1 mmol/litre – 6.9 mmol/litre and/or is greater than 10.0 mmol/litre after 1 hour, or if it is 8.5 mmol/litre – 11.0 mmol/litre after 2 hours, a diagnosis of GDM should be provided (Wang and Yang, 2016, Lefkovits et al., 2019). It is important to re-emphasize that, depending on resource availability, only an FPG test may be administered without undertaking OGTT, thus conserving resources (Wang and Yang, 2016).

1.4. Pathophysiology of GDM

Progressive insulin resistance in maternal tissues during pregnancy, which results from endocrine factors (for example, cortisol and growth hormone secretion), the placenta (i.e. the secretion of human placental lactogen), and/or obesity and pregnancy-related factors that are not currently understood, is normal and routinely documented in the literature (Kampmann et al., 2015, Lefkovits et al., 2019). At the same time, in healthy pregnancy, a 50% reduction occurs in insulin-mediated whole-body glucose disposal, and so for the purpose of maintaining a euglycemic state, it is necessary for the female body to increase the secretion ofinsulin by approximately 225% (Goodarzi-Khoigani et al., 2017). Therefore, in the event that a pregnant woman cannot generate a sufficient insulin response to account for the normal insulin resistance that is associated with pregnancy, GDM occurs (Kampmann et al., 2015).

The inability to generate a sufficient insulin response typically stems from impaired pancreatic beta cell function (Johns et al., 2018, Lefkovits et al., 2019), but the pathophysiological mechanisms that generally underpin the presentation of GDM in pregnant women are apparently different between obese and lean women (Kampmann et al., 2015).

1.5. Risk factors for GDM

The principal risk factors for developing GDM include prior history of GDM (or low glucose tolerance), obesity (i.e., maternal BMI greater than 30 kg/m^2), relatives with diabetes (especially first-degree relatives), and ethnicity (i.e., having an ethnicity, including Middle- Eastern, Caribbean, Pakistani, Indian, or Bangladeshi, that is associated with a greater risk ofT2DM) (Wang and Yang, 2016, Lefkovits et al., 2019).). Other risk factors that have been identified in the literature include westernized diet, genetic polymorphisms, high gestational weight gain, high maternal age, and diseases associated with insulin resistance (for example, polycystic ovarian syndrome) (Mustaniemi et al., 2018, Plows et al., 2018).

These factors are implicated in the pathophysiology of GDM, particularly in terms of the direct or indirect impairment of pancreatic beta cell function, sensitivity to insulin, or a combination of both (Plows et al., 2018). As a case in point, westernized diet is strongly associated with excessive intake of refined sugars, processed meats, red meats, and saturatedfats, where the latter can disrupt insulin signalling and lead to inflammation or endothelial dysfunction (Lee et al., 2018).

1.6. Implications of GDM

The criticality of identifying deficiencies in the quality of care surrounding GDM healthcare services, as well as the accurate diagnosis and treatment of GDM, is emphasized when considering the far-reaching implications of GDM for pregnancy outcomes, both in terms of maternal and child health. Of the 14% of women who develop GDM globally, approximately 60% go on to develop T2DM in later life (Plows et al., 2018). Given the damagingchanges to the vasculature that may arise from the onset of GDM (Osol et al., 2019), the condition has been associated with a higher incidence of cardiovascular disease (CVD), which can greatly increase morbidity rate (Plows et al., 2018). It has also been documented in the literature that GDM is associated with conditions such as antenatal depression, preterm birth,Caesarean section, and pre-eclampsia (Plows et al., 2018, Lefkovits et al., 2019).

A range of harmful health implications, both long-term and short-term, are also associated with GDM in terms of the child, thereby further highlighting the importance of intervening in a timely and effective way in this condition. Given that GDM leads to a significant increase in the transport of amino acids, fatty acids, and glucose through the placenta, this can increase the endogenous production of insulin-like growth factor 1 (IGF-1), as well as insulin, in the fetus (Plows et al., 2018). Due to this, fetal overgrowth (also referred to as macrosomia, defined as an infant birthweight greater than 4 kg) is a fairly common perinatal complication associated with GDM, which arises in 10-20% of GDM pregnancies (Lefkovits et al., 2019). Other perinatal complications associated with the onset of GDM include death, bone fracture, nerve palsy, shoulder dystocia, and fetal organomegaly, all of which, despite their rarity (affecting approximately 1-4% of GDM pregnancies), significantly affect morbidity, mortality, and health-related quality of life (Johns et al., 2018).

1.7. Treatment of GDM

Once GDM has been diagnosed, the objective of GDM treatment is to counter hyperglycemia and, in turn, to mitigate the risk of negative pregnancy outcomes arising from excessive levels of sugar in the blood, both for the mother and the child (Johns et al., 2018, Plows et al., 2018, Lefkovits et al., 2019). The two main categories of GDM treatment are structured lifestyle interventions and pharmacological interventions, the latter of which is usually only adopted when lifestyle-related modifications are not having the desired effect (Johns et al., 2018). If structured lifestyle modification is contraindicated or unfeasible, pharmacological intervention may represent the only viable option for achieving the desired reduction in hyperglycemia. In terms of lifestyle interventions, these commonly include dietary changes, weight management, and physical activity (Dickens and Thomas, 2019).

The main pharmacological treatment option for GDM is insulin therapy, of which there are various kinds, including intermediate insulin (e.g. Neutral Protamine Hagedorn), rapid-acting insulin (e.g. human insulin), and long-acting insulin (e.g. insulin detemir) (Wang and Yang, 2016). Insulin is generally administered by patients in a self-managed way,which occurs several times each day in order to maintain safe levels of blood glucose

(Johns et al., 2018). Other than insulin therapy, oral antidiabetic agents (OADs), including Glibenclamide (also known as Glyburide) and Metformin, can be applied for GDM treatment (Johns et al., 2018). Although randomized controlled trials (RCTs) generally indicate that the side effects of OADs such as Glibenclamide and Metformin are negligible, and therefore they have been approved for use around the world, concerns regarding their ability to cross the placentain effective concentrations mean that clinicians prefer non-pharmacological options as the first-line modality for treating GDM (Dickens and Thomas, 2019).

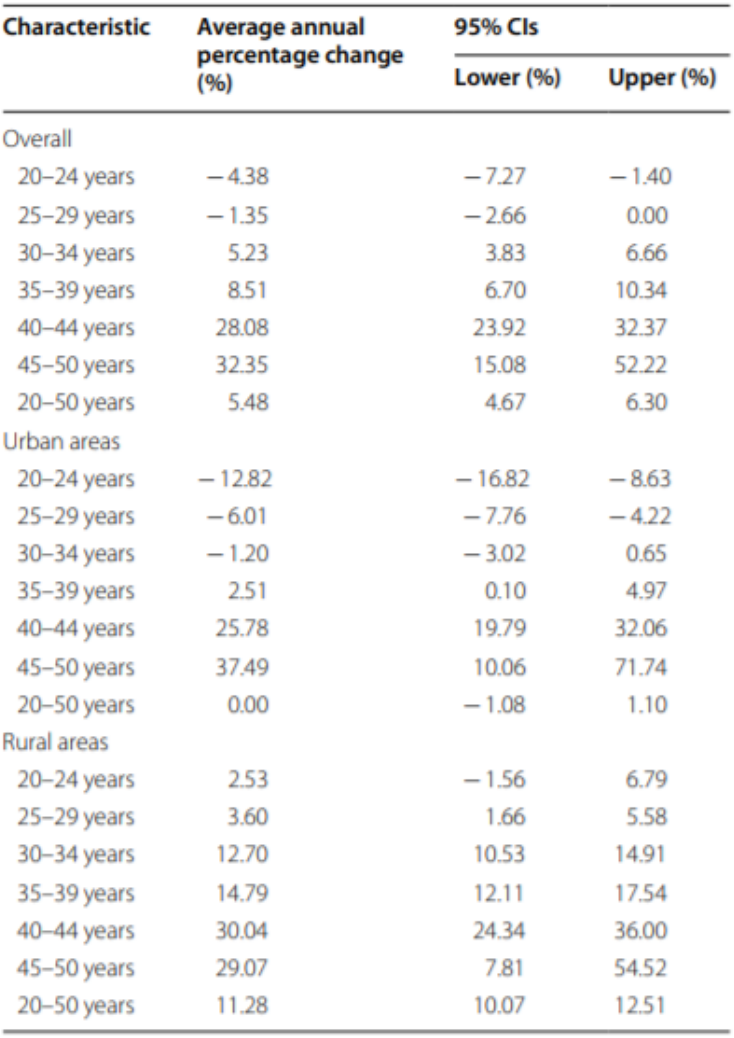
1.8. GDM epidemiology in the KSA

The estimated prevalence of GDM in the KSA varies across the available literature, and estimates appear to differ due to factors such as the lack of uniformity in the classification, screening, and diagnosis of GDM between international healthcare organizations and the studies themselves (see Sections 1.1 and 1.2). Furthermore, differences in the methodological aspects of studies, including the sampling strategy and the sample size may influence the estimated prevalence rates for GDM. As a case in point, studies that draw on low-quality methodologies (e.g. non-probability sampling techniques) and small sample sizes, despite reporting the estimated prevalence of conditions such as GDM, are likely to be offering biased and inaccurate results (Bornstein et al., 2013, Elfil and Negida, 2017).

Another factor relates to the population studies when estimating the prevalence of GDM, where the prevalence has been observed to differ depending on variables such as region, average age of sample, and sociodemographic characteristics (e.g. the income of an individual) (Abdelmola et al., 2017).

Approximately a decade ago, Al-Rowaily and Abolfotouh (2010) conducted a Riyadh-based study involving 633 pregnant women, and the reported prevalence rate was approximately 17.3%. In a more recent study undertaken by Abdelmola et al. (2017) in the KSA's Jazan region, the prevalence of GDM in a sample of 440 pregnant women was significantly lower at 8.2%. In their study, however, consistent with the discussion of GDM risk factors presented in Section 1.4, obese women were associated with a substantially higher prevalence compared to women of a healthy weight (20.2% versus 7.1%). In the Medina region of the KSA, Alfadhli et al. (2015) recruited a sample of 954 pregnant women and reported a prevalence of 39.4%. This figure was approximately the same as the earlier national-level, cross-sectional study undertaken by Al-Rubeaan et al. (2014), which found that overall GDM prevalence in 13,627 pregnant females was 36.6%.

Although the studies mentioned above indicate considerable variability in the reported prevalence of GDM depending on the region, the sample size, and the population characteristics, an important epidemiological finding that is clear from the available evidence is that the overall prevalence of GDM has been increasing in recent years (Alfadhli et al., 2015, Abdelmola et al., 2017, Alnaim, 2020, Wang et al., 2021). The significant increase in GDM in different subgroups of Chinese females between 2016 and 2018, as shown in Figure 1-1, is one instance of this wider trend. Overall GDM prevalence in the KSA appears to be greater than the global average, which is approximately 14.4% (Plows et al., 2018). This epidemiological trend is consistent with the changing lifestyles that characterize the Saudi population, an increasingly westernized diet, and a greater level of overall population affluence, all of which are associated with higher rates of both T2DM and GDM (see Section 1.4). With these considerations in mind, identifying deficiencies in the quality of care associated with GDM healthcare services in the KSA is an increasingly vital issue that remains to be addressed, which is expected to reduce the level of uncontrolled GDM across the country.



Characteristic	Average annual percentage change (%)	95% CIs	
		Lower (%)	Upper (%)
Overall			
20–24 years	− 4.38	− 7.27	− 1.40
25–29 years	− 1.35	− 2.66	0.00
30–34 years	5.23	3.83	6.66
35–39 years	8.51	6.70	10.34
40–44 years	28.08	23.92	32.37
45–50 years	32.35	15.08	52.22
20–50 years	5.48	4.67	6.30
Urban areas			
20–24 years	− 12.82	− 16.82	− 8.63
25–29 years	− 6.01	− 7.76	− 4.22
30–34 years	− 1.20	− 3.02	0.65
35–39 years	2.51	0.10	4.97
40–44 years	25.78	19.79	32.06
45–50 years	37.49	10.06	71.74
20–50 years	0.00	− 1.08	1.10
Rural areas			
20–24 years	2.53	− 1.56	6.79
25–29 years	3.60	1.66	5.58
30–34 years	12.70	10.53	14.91
35–39 years	14.79	12.11	17.54
40–44 years	30.04	24.34	36.00
45–50 years	29.07	7.81	54.52
20–50 years	11.28	10.07	12.51

Figure 1- 1: Percentage increase in gestational diabetes mellitus by demographic characteristics between 2016 and 2018 (97,063 participants in Zhejiang province in China)

1.9. Theoretical framework

Given that the focus of this thesis is to gain insight into the quality of care associated with GDM healthcare services in the KSA, it is necessary to establish exactly what is meant by the concept of “quality of care”. The theoretical framework adopted throughout this dissertation is the IOM's (2001) six domains of quality of care, described in this section.

Broadly speaking, the notion of “quality of care” is thought of by many patients, clinical practitioners, and healthcare administrators as reflecting the general “goodness” or “badness” of a particular aspect of healthcare provision (e.g. in terms of whether it achieves its intended aims) (Allen-Duck et al., 2017). However, given the centrality of the issue of high-quality healthcare to the legitimacy and viable functioning of a healthcare system, a more detailed definition is required. Once this definition has been formulated, it can be used as a guide for organizing a healthcare system, facilitating the provision of specific services, or critically assessing aspects of the healthcare system.

International healthcare organizations, including the WHO, have provided definitions of healthcare quality that, given their vagueness (e.g., the WHO’s definition of quality of care as a process in which strategic choices are made in health systems to align with available evidence) (Ahmed et al., 2017), offer little value for researchers and practitioners alike. In contrast, conceptualizations of quality of care such as the IOM's (2001) six domains of quality of care enable detailed and comprehensive assessments of healthcare quality in different contexts.

According to the IOM (2001), quality of care consists of the following domains: firstly, safety, which is concerned with ensuring that patients are not exposed to harm in the process of providing healthcare services; secondly, effectiveness, which is concerned with the provision of the optimal evidence-based interventions to the patients who need them; thirdly, patient-centredness, which relates to the issue of remaining responsive to the values, needs, and preferences of individual patients, and ensuring that they lie at the centre of all clinical decision making; fourthly, timeliness, which is concerned with safeguarding against excessive waits and potentially harmful delays; fifthly, efficiency, which relates to the question of avoiding material and non-material waste (e.g. supplies and human resources, respectively); and finally, equitability, which is concerned with safeguarding against variability in healthcare provision based on the personal characteristics of patients.

Using this framework, it is possible for patients, healthcare providers, and researchers, including the author of the present thesis, to offer a structured inquiry into the quality of certain aspects of healthcare services. At the same time, for quality improvement initiatives in healthcare, having access to a conceptualization of quality of care that illuminates pivotal to reimagine and create better new quality measures.

While some scholars have criticized the IOM's six domains, suggesting, for example, that the domains of "caring" and "navigating the healthcare system" should be included, leading to eight domains in total (Beattie et al., 2013), the simplicity and relative comprehensivenessof the IOM's (2001) conceptualization meant that it was chosen as the theoretical frameworkfor this thesis.

1.10. Research aims, objectives, and questions

The thesis aims to explore the quality, in particular its patient-centredness, of GDM healthcare services in the KSA from the standpoint of service users, and to offer a set of evidence-based recommendations for improvement.

To achieve the research aim, several objectives were established:

- To understand the factors influencing women's experience of the quality of GDM healthcare services in the literature.
- To qualitatively explore the quality of GDM services for adult women diagnosed with GDM in a large city of Saudi Arabia, examining their experience of primary and secondary healthcare services.
- To quantitatively identify GDM healthcare service priorities for action in the KSA using the Delphi technique.

- To issue a set of recommendations for policymakers and other stakeholders to improve the quality of GDM healthcare services, based on the perspectives of service users.

To guide the achievement of the research objectives, the following three research questions (RQs) were established:

- RQ1: What are the views and experiences of GDM patients regarding the quality of GDM healthcare services in a large city in Saudi Arabia?
- RQ2: What are the barriers encountered by women with GDM when accessing and using maternity healthcare services in a large city in Saudi Arabia?
- RQ3: How can GDM healthcare services in a large city in Saudi Arabia be improved?

1.11. Chapter overview

Having provided background information on GDM, patient-centred care and context of the KSA in the background chapter of this thesis, Chapter 3 presents a systematic review (SR). The methods used to undertake the SR are described, its results are presented, and a discussion of these results is also given, thereby achieving the first of the thesis's research objectives.

Chapter 4 outlines the research paradigms and philosophy, followed by the research approach and choice of methodology, focusing on the mixed method design, and concludes with the rationale of the sequential analysis method.

In Chapter 5, the methods, results, and findings from the qualitative phase of the thesis are presented. In this phase of the study, 27 pregnant females from a Large City in Saudi Arabia were recruited into semi-structured interviews, and a qualitative study based on the interpretivist and phenomenological research paradigms was undertaken to discern their views and experiences regarding the quality of GDM healthcare services.

Chapter 6 follows a similar format to Chapter 3 in that it initially outlines the methods used to conduct an e-Delphi study with a panel of 17 physicians, nurses, and healthcare administrators working in a Large City in Saudi Arabia. Results from the qualitative phase are used to design a questionnaire distributed online to the participants to establish consensus on the most and least important GDM healthcare service issues in a Large City in Saudi Arabia. The chaptercloses with a presentation and discussion of the e-Delphi study's results.

Chapter 7 concludes the dissertation with a discussion of the results from the three main phases of the research: namely, the SR, the qualitative study, and the e-Delphi study. The principal findings from these three phases are integrated into a discussion that is centred around the research aims, objectives, and theoretical framework. The strengths and limitations of the thesis are discussed, and recommendations for policy, practice, and further research are given.

1.12. Summary

This chapter presented important information on GDM, its pathophysiology, diagnosis, treatment, and implications. Despite the acknowledged difficulties associated with establishing an accurate overall GDM prevalence estimate, epidemiological trends in the KSA were discussed regarding this serious pregnancy complication. The chapter also explained the problem that this dissertation seeks to address, namely, to identify the gaps in the quality of GDM healthcare services in the KSA and, based on the perspectives of service users and experts, to offer actionable solutions and recommendations. In the next chapter, the background chapter that provides information on GDM, patient-centred care and context of the KSA is presented.

Chapter 2: Background

2.1. Introduction

This chapter provides an overview of GDM, prevalence, risk factors, diagnostic criteria and screening methods, as well as risk factors for the child and mothers. The chapter also examines existing literature exploring the history of the patient-centred care with focused on the Saudi context in relation to the pregnant women and gestational diabetes, as a theoretical framework of the research. In addition, it explains the centrality of the patient, the different ways to measure the patient-centred care and which measures to select. It also highlights the advantage and disadvantages of the patient-centred care. The last section in this chapter is the context of the KSA. It covers the governmental political structure of Saudi Arabia, the demographic patterns and the economic. Additionally, it gives an insight into the Saudi healthcare system, funding, expenditure, challenges and reforms.

2.2. Gestational diabetes

2.2.1. An overview of gestational diabetes

Gestational diabetes mellitus (GDM) is one of the most common complications of pregnancy and an important risk factor for the development of type II diabetes mellitus (T2DM) (Kampmann et al., 2015). The condition arises when there is impaired glucose tolerance (IGT) during pregnancy (Abraham and Wilk, 2014), usually developing after the first trimester, and women with gestational diabetes consistently show reduced insulin responses to carbohydrates following pregnancy (Wahabi et al., 2017). In non-gestational diabetes, reduced response to insulin is associated with impaired pancreatic β-cell function, and most women suffering from gestational diabetes also appear to have pancreatic β-cell dysfunction. Osgood, Dyck and Grassmann ascertained that the β-cell dysfunction in these women takes place against a background of pre-existing chronic insulin resistance (Osgood et al., 2011), and women who develop gestational diabetes, regardless of whether they are obese, often demonstrate resistance to insulin's ability to stimulate glucose disposal as well as to suppress production of glucose and fatty acids (Wahabi et al., 2017).

The prevalence of GDM has increased worldwide (Rahimi and Karami Moghadam, 2017). In most countries, screening for gestational diabetes takes place between the 24th and 28th week of pregnancy (Petry, 2014). Screening is particularly important because, although some women with GDM have symptoms including increased thirst, tiredness, frequent urination and blurred vision, in most cases GDM doesn't cause noticeable signs. Women diagnosed with GDM will then have blood glucose levels closely monitored throughout the remainder of their pregnancy. Medical associations in several countries have recommended maintenance of a healthy weight, which is below BMI of 30, and engagement in physical exercise during pregnancy in order to prevent the development of gestational diabetes (Lin et al., 2016).

2.2.2. Prevalence of gestational diabetes

The prevalence of GDM around the world has been increasing noticeably over the past quarter century (King, 1998, Ben-Haroush et al., 2004, Lawrence et al., 2008, O'Sullivan et al., 2011, Carolan et al., 2012, Niyibizi et al., 2016, Rahimi and Karami Moghadam, 2017). The current estimated prevalence rate for gestational diabetes is around 7–10% of pregnancies globally. The prevalence rate differs between studies depending on the region in which the study was conducted, and the socio-economic status, ethnicity, body mass index and maternal age of the women (Behboudi-Gandevani et al., 2019). However, the prevalence of GDM has increased since 2010 by two- to threefold. One of the increasing reasons is the adoption of the new criteria proposed by the International Association of Diabetes and Pregnancy Study Groups (IADPSG), an international consensus group with representatives from multiple obstetrical and diabetes organizations, for the screening and diagnosis of

GDM. At the beginning, the American College of Obstetricians and Gynecologists (ACOG) recommended a two-step approach for screening and diagnosis of GDM in high and moderate risk. A 50 g glucose challenge test (50 g GCT) is performed, followed by a 100 g oral glucose tolerance test (100 g OGTT) in case of a positive screen (>140 mg/dL). However, in 2010, the IADPSG recommends universal screening, this new strategy is based on the one-step approach by omitting the 50 g GCT and simplifying diagnostic testing by performing a 75 gram two-hour OGTT and requiring only a single elevated value for diagnosis rather than the previous three-hour OGTT requiring two elevated values for diagnosis. This one-step approach can generate higher rates of positive tests (Luewan et al., 2018).

The region of the world with the lowest gestational diabetes prevalence is Europe, with a median estimated prevalence of 5.8% (range 1.8%–22.3%) and the greatest is the Middle East and North Africa, which has a median estimate of 12.9% (range 8.4%–24.5%). Between these extremes, lie North America and the Caribbean (7%), Africa (8.9%), South and Central America (11.2%), Western Pacific (11.7%) and Southeast Asia (11.7%). Figure 2-1 shows the prevalence of gestational diabetes by geographic regions and countries (Zhu and Zhang, 2016).

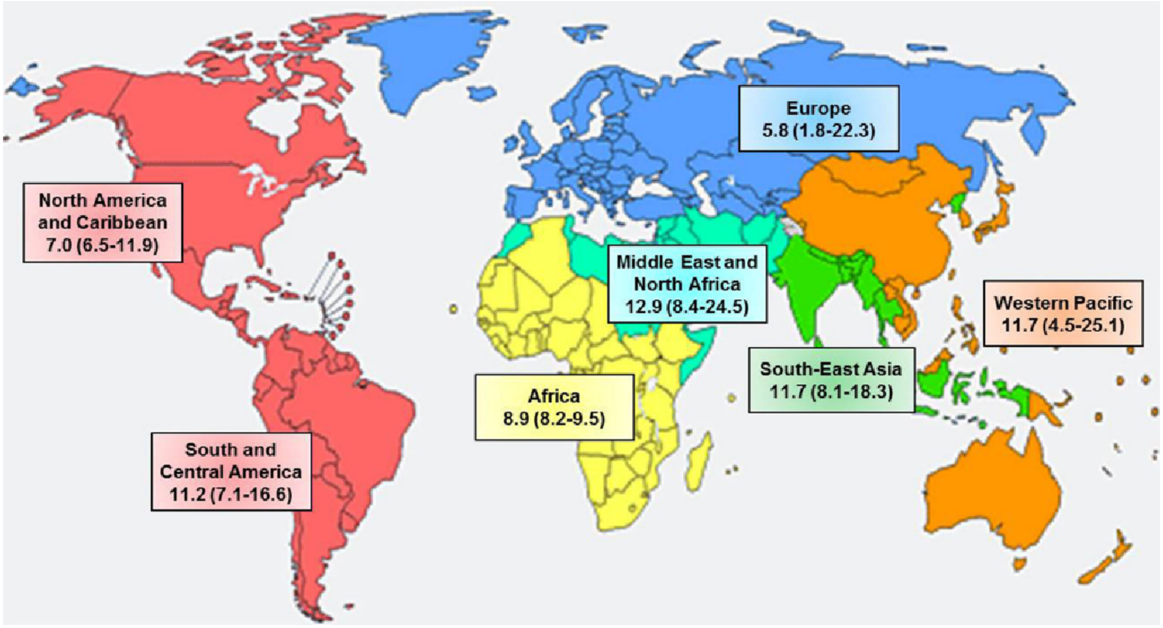


Figure 2-1: **Prevalence of gestational diabetes by Geographic Regions and Countries**

Some recent studies find extremely high prevalence rates of gestational diabetes in certain countries, such as 37.7% in The United Arab Emirates and 30.1% in Mexico. The estimated prevalence of pregestational diabetes mellitus (Pre-GDM) and gestational diabetes mellitus (GDM) in Riyadh, the capital city of Saudi Arabia, are 4.3% and 24.3%, respectively. These estimates reflect the high incidence of diabetes among pregnant women in Saudi Arabia compared to other populations in the world (Wahabi et al., 2017). The number of women with gestational diabetes in Saudi Arabia is increasing, and this could be due to the rising incidence of obesity, the high prevalence of type 2 diabetes and the tradition of Saudi women to conceive at an older age (Alfadhli et al., 2015). GDM has a range of adverse maternal and neonatal consequences (Muche et al., 2019) and it may also play a critical role in the rising prevalence of obesity and diabetes (Veeraswamy et al., 2012). Therefore, GDM has become a major public health issue in Saudi Arabia, requiring an appropriate response from healthcare services.

2.2.3. Risk factors for gestational diabetes

No definitive cause of GDM has yet been identified, but several risk factors have been found. A key risk factor is GDM in a previous pregnancy, especially if it was not well controlled. Risk factors for type 2 diabetes are also risk factors for GDM, including a family history of type 2 diabetes, raised body mass index prior to pregnancy, and polycystic ovarian syndrome (Quansah et al., 2018). Ethnicity also appears to be contributory, such as African American, Indian, Asian, Hispanic and Pacific Islanders. Without one of these key risk factors, the chance of developing GDM is low (Pons et al., 2015).

2.2.4. Diagnostic criteria and screening methods for gestational diabetes

The process for screening for gestational diabetes usually begins with screening questions at the first antenatal check (8-12 weeks of pregnancy). Women with one or more risk factors will be offered a glucose challenge test between weeks 24 and 28 of pregnancy, or earlier (at the first prenatal visit at around week 8 to 12) if she is at high risk. The initial glucose challenge test entails drinking a solution containing glucose syrup and measuring the blood glucose level after one hour. A normal level should be lower than 140 mg/dL; for values above this a further fasting oral glucose tolerance test will generally be offered, unless glucose levels are very high (above 200mg/dL), which will be considered diagnostic of diabetes (Rani and Begum, 2016).

For an oral glucose tolerance test, the subject fasts for at least 8 hours. At the beginning of the test, blood is sampled to establish baseline glucose levels and then a solution containing 75g of glucose is administered. Blood glucose levels are then monitored every hour for 2-3 hours. High blood glucose levels, greater than or equal to 200 mg/dl, in two or more samples is diagnostic of gestational diabetes (Rani and Begum, 2016).

2.2.5. The future risk for the child and mother

The mortality rate for GDM is not high, but ineffective control of excessive blood glucose levels is associated with a range of adverse health conditions for both mother that risks the life of the mother and the infant during and after the pregnancy and is likely to affect the growth of the fetus during pregnancy. During the initial pregnancy period, GDM increases the risk of congenital defects that adversely affect the development of the brain, heart and other organs (Badakhsh et al., 2016). Other effects of gestational diabetes are likely to result in overfeeding of the baby that results in overweight babies that may bring complications during birth. Overweight babies might need a cesarean section that increases risk during birth (Badakhsh et al., 2016). The baby might also be injured on the shoulders if a normal delivery is made.

There is also a possibility of a sharp decline of the infant's blood glucose after birth since they will be no longer be feeding on the increased blood glucose from the mother’s blood system (Badakhsh et al., 2016). Damm (2016) also notes that mothers with gestational diabetes have a higher possibility of ailing from 2 diabetes later in life. Besides, their infants have an extremely high risk of developing diabetes in young adulthood (Damm, 2009). It is essential to take adequate precautionary measures against the disease, and if ailing, mothers should seek proper treatment. In addition, health practitioners should manage gestational diabetes properly to reduce risks on the mother and the child. The disease is likely to affect the development of major organs such as the brain and heart detrimentally. In some cases when glucose goals could not be met, women need to take oral drugs or insulin injections to control the condition. Therefore, women are encouraged to eat a healthy diet, keep active and lose excess weight (Arnold and Flint, 2017).

2.3. Patient-centred care as an aspect of healthcare quality

Numerous conceptualizations of quality of care have emerged throughout medical history, giving rise to a range of frameworks and metrics, ranging from simple, individual measures to more complex definitions that encompass multiple components of care (Campbell et al., 2000). The Institute of Medicine (IOM) in the United States (US) perhaps best embodied these complexities in a landmark report – 'Crossing the Quality Chasm' – aimed at guiding healthcare performance improvement efforts (IOM, 2001). The report conceptualized quality in six dimensions:

- Safe: Avoiding harm to patients from the care that is intended to help them.
- Effective: Providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively).
- Patient-centred: Providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.
- Timely: Reducing waits and sometimes harmful delays for both those who receive and those who give care.
- Efficient: Avoiding waste, including waste of equipment, supplies, ideas, and energy.
- Equitable: Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

These dimensions have been broadly adopted by healthcare organizations internationally and frequently cited within a policy context (Gleeson et al., 2016; Beattie et al., 2014). For instance, within the NHS in England, high quality care is perceived in terms of patient safety, clinical effectiveness and patient experience and is enshrined within English law within the Health and Social Care Act (Doyle et al., 2013). High quality healthcare could, therefore, be defined in terms of an organization or system in which few errors occur, where treatment and care improves the health of people and where users are satisfied with the care they have received (Vincent, 2011).

This thesis will consider all six domains but will focus on patient-centred care (PCC). This aspect refers to the belief that, at all stages in the process of making healthcare decisions, the needs, values and preferences of patients should be acknowledged and addressed. The PCC approach is at the heart of the policies and programmes developed to enhance the efficiency of healthcare and to respond to issues of patient safety. The PCC approach encourages healthcare providers to work together with patients and their families to create and deliver personalised care. Research has shown that PCC models can have significant advantages for both patients and healthcare systems, including more positive patient experiences, improved patient outcomes (for example, increased adherence to treatment regimens), and lower healthcare costs (for example, through reduced duration of hospital stays and lower readmission rates) (Santana et al., 2019).

2.3.1. History of patient-centred care

A lot of the pioneering work in this area came from the US and the UK. Psychologist Carl Rogers first used the term ‘person-centred care’ in the field of psychotherapy in the early 1960s (Elliott, 2016). Despite this term being very different from the modern-day meaning of person-centred care, they both share empathy as a common factor. Empathy refers to the willingness of the healthcare professional to refrain from making judgements to understand the perspective of the patient/service user. This was referred by Rogers as ‘unconditional positive regard’. The transition from a medical to a biopsychosocial healthcare model was promoted by George Engel, an American psychiatrist, in the late 1970s. The new biopsychosocial model is now frequently employed to explain what is needed to provide person-centred care. In the 1990s, these concepts started to become more aligned with the US healthcare system. The Chronic Care Model was designed to overcome the perceived weaknesses in the support offered to patients with long-term illnesses. The Institute of Medicine identified patient-centredness as one of six key objectives of healthcare quality in 2001(Borrell-Carrió et al., 2004).

Person-centred care also played an increasingly significant role in UK health policies from this time. For example, the NHS Plan of 2000 stressed the need to personalise and coordinate care (Coulter and Oldham, 2016); and the importance of enabling and empowering patients to be involved in their own care plans was emphasized in the 2002 Wanless report (Wanless, 2002). In Lord Darzi's *High-Quality Care for All* report (2008), the public's changing expectations of health services were discussed and involving individuals in decisions about their own healthcare was a key aspect of the report (Darzi, 2008). In 2008, the first NHS Constitution in England outlined the care that the public should expect from the NHS and introduced a rights framework. The constitution emphasised that services provided by the NHS must reflect the needs and preferences of patients, relatives and carers. They stressed that patients should be involved and contribute to all decisions made about their care. Subsequent versions of the policy have consistently enforced this (Russell and Greenhalgh, 2014). In 2010, the Francis inquiry investigated failings in the care provided at the Mid-Staffordshire NHS Foundation Trust from 2005 to 2009. This report refocused attention on person-centred care, with aspects such as dignity, compassion and respect being especially highlighted (Francis, 2013). Moreover, the Berwick Advisory Group (2013) suggested that to ensure health services are delivered in safe, suitable and meaningful ways, patients and their carers should be more involved in their care at every level of the health service (Berwick, 2013).

Person-centred care has now become a fundamental part of healthcare policies in the four countries of the UK. In accordance with the Health and Social Care Act of 2012 and the requirements of Clinical Commissioning Groups (CCGs), NHS England has a legal duty to ensure that patients are involved in their own care (McDermott et al., 2017). In Scotland, supported self-management has been placed at the heart of vision 2020 (Silver, 2018). In Northern Ireland's 2020 quality strategy, 'patient-oriented care' has been highlighted as one of three focal points (Ham et al., 2013). Finally, Williams et al. (2013) focused on making sure that NHS Wales delivers patient-centred care (Williams et al., 2013).

2.3.2. Patient-centred care in Saudi Arabia

The value of the patient-centred care rose to begin the end of the 20th century in the KSA. At the beginning of the 1980s, there was an increased demand to reduce hospital bed occupancy which created the need to adopt patient-centred care to improve health outcomes. As a result, the Saudi ministry of health focused on increasing the training and education for the nurses and physicians with a goal to improve how health practitioners handled patients' needs (Algamdi, 2016). However, the impact of the changes and the adoption of patient-centred care could not be felt until the beginning of 2009. Starting in 2009, the government embarked on the massive expansion and improvement of the health sector. From that time, patients have reported increased satisfaction with healthcare in terms of care coordination, safety, communication, and the reliability of the healthcare offered (Senitan and Gillespie, 2020). However, research conducted on patient-centred care in the KSA has highlighted the need for further improvements.

For instance, Aljuaid et al. (Aljuaid et al., 2016) noted a need to improve patient safety, which is an important component of patient-centred care, among the university hospitals in the KSA. The researchers noted a huge variation of the nurses' regard for patient safety compared to physicians. The nurses mean for the regard of safety was 56.6, whereas the physicians scored a mean of 62.9. Furthermore, according to Rasheed, Alqasoumi and Hasan (Rasheed et al., 2020), the ministry of health should establish more transparent guidelines on community pharmacists towards the adoption of patient-centred care. Although Saudi Arabia has made huge developments towards the adoption of patient-centred care, more improvements should be made.

Moreover, the government is committed to offering patient-centred care to pregnant women, especially with gestational diabetes, since the GDM care is hindered by the increased ignorance and different factors which some associated with health providers. For instance, whereas expectant women in the KSA are offered at least eight hospital appointments, 30% fail to attend despite the maternal death rate standing at 24 among 100,000 women (Alanazy and Brown, 2020). The results indicate that limited education level and cultural hindrances may be contributing to these poor developments. However, the increased non-attendance to the clinical check-ups was also linked to attitudes, perceptions and communication models of the health providers. Some women indicated that the nurses focused on the physical check-up rather on the proper communication and emotional support. They noted that mothers need reassurance and sensitive consideration which would encourage them to attend the healthcare services when needed (Alanazy & Brown, 2020). Therefore, the authors agreed that further improvements are needed.

2.3.3. Defining patient-centred care

Patient-centred care has been promoted by the American Diabetes Association (ADA), the National Institute for Health and Care Excellence, and the Institute of Medicine. It has evolved into a fundamental aspect of care quality assessments and is considered to be a key value. Within the field of health services, Baker (Baker, 2001) defines patient-centred care as an approach to care that respects and addresses the needs, preferences and values of individual patients and which guarantees that patients' values are at the heart of all decisions made about their care. For diabetes, patient-centred care has been found to be related to enhanced patient satisfaction, more effective patient-provider communication, and better patient wellbeing in general (Institute of Medicine, 2001, Kinmonth et al., 1998).

Although patient-centred care as a concept is widely understood, there is no standard definition of the term. Relevant research literature outlines conceptual models that have key concepts related to positive outcomes. Such outcomes include enhanced patient satisfaction, lowered symptom burden, more efficient care and reduced use of services (Little et al., 2001). Despite the differences in terminologies, some components are commonly referenced, such as the patient as a person (disease and illness experience), a biopsychosocial perspective (considering a whole person), shared power and responsibility and the relationship between patient and healthcare professional (therapeutic alliance) (Mead and Bower, 2000).

Under a patient-centred approach, the healthcare provider's attempts to understand the patient as a person and how they perceive and experience their illness are vital. All patients experience their illness differently, and personalisation can encourage them to engage in activities or to make decisions that are beneficial to their health. For instance, a patient may try to avoid seeking medical help when experiencing symptoms due to financial constraints. Likewise, a patient's understanding of an illness, specific symptoms or treatment may be impacted by social or cultural norms. However, this understanding may be changed if the patient receives factual information from reliable healthcare professionals.

As well as considering a patient as a unique person, adopting a biopsychosocial perspective is also important. This means that healthcare providers must take a wider view of patient-provider encounters and consider nonmedical influences (such as social, psychological, health literacy influences) on illness, health improvements and changing behaviours. By adopting a biopsychosocial perspective, the focus of healthcare moves from a reactive approach to treating acute and chronic illness to a more thorough and proactive approach, in which preventive activities and wellness are highly encouraged. Within the biopsychosocial perspective of patient-centred care, healthcare providers must always consider non-medical factors that may be important in healthcare plans and must not disregard these factors as being outside their scope of practice.

Furthermore, shared responsibility and power are promoted in patient-centred care. This is favoured over paternalistic approaches that render patients submissive to medical authority because it ensures that patients' values and unique beliefs and characteristics are valued. Patient autonomy and participation are thus considered to be significant. As opposed to patient-centred care, provider-centred care allows for a power dynamic to develop that affords the provider full control of patient care. In such cases, patient-provider encounters are dependent upon the skills and knowledge of the healthcare professional, with the latter providing the patient with only closed questions and instructions. If a patient chooses to not adhere to a treatment or monitoring plan, then the illusion of power and control typically collapses. It may therefore be more effective to develop an approach that involves mutual participation of the patient and the practitioner in decision-making processes.

The patient-provider relationship is a natural extension of the first three aspects of patient-centred care. ‘Bedside manner’ has long been considered a bonus instead of a key part of effective healthcare practice. Within patient-centred care, the therapeutic alliance created through effective patient-provider relationships is emphasized. The relationship should, at the very least, involve an empathetic provider who is a good listener. Moreover, patient and provider should have a mutual understanding of healthcare objectives and mutual trust. By meeting these four requirements, a patient can be given personalised, respectful, and responsive care that considers their personal preferences, values and needs. In this approach, the patient is placed at the heart of the care plan. It is the patient who drives the treatment and the healthcare decisions that are made (Brooks, 2016).

2.3.4. The centrality of the patient

Science plays a crucial role in clinical practice, with most healthcare professionals spending years studying prior to working with patients. Implementing evidence-based principles into their daily practices is therefore generally a simple transition for healthcare providers to make. Nonetheless, learning to effectively adopt a patient-centred approach to care is more challenging, and further skills are required in areas such as communication, professionalism, and empathy. To implement such principles, providers must have a clear understanding of the relationship between clinical outcomes and unique patient characteristics, including depression, patient activation, and health literacy (Brooks, 2016).

2.3.4.1. Health literacy

Al Sayah (Al Sayah et al., 2013) explains that various functional, critical, numerical and interactive skills are required to ensure health literacy. Writing, reading, and interpreting written information are all types of functional skills, whilst the capacity to listen, understand and communicate healthcare information form the section of interactive skills. Decision-making skills and the ability to navigate the healthcare system to choose the most effective healthcare plans or to locate specific services are the critical components, whilst the capacity to interpret numeric data (like dosages and test results, e.g., self-monitored blood glucose) form the numerical skills. Some existing studies have assessed the impacts of health literacy and numeracy individually.

Research has found that low health literacy can significantly influence poor health status (American Medical Association, 1999) and poor health outcomes (Berkman et al., 2011, DeWalt et al., 2004). Research by AMA (1999) has found that health literacy has a stronger influence on health status than education level, race and age. In terms of diabetes, research has shown that poor health literacy and numerical skills are related to poor knowledge of the disease and a lower ability to recognise the symptoms (DeWalt et al., 2004). Moreover, Cavanaugh (2008) and Schillinger (2002) found that it can cause poor glycaemic control (Cavanaugh et al., 2008, Schillinger et al., 2002) and Huizinga (Huizinga et al., 2009) and Rothman (Rothman et al., 2006) found that it can even cause patients to have problems in determining the correct portion sizes and interpreting food labels. A relationship with diminished self-care was also found by Cavanaugh (2008) and Karter (Karter et al., 2010).

Health literacy and disease knowledge, however, are two separate things. It is possible for a patient with low health literacy to correctly answer questions about their disease if asked. Many researchers, including Ishikawa (Ishikawa and Yano, 2011), Tang (Tang et al., 2008), Powell (Powell et al., 2007) and Schillinger (Schillinger et al., 2003), found an inverse relationship between health literacy and A1C test, that measures the average blood sugar for the past two to three months. By evaluating health literacy, it may be possible to create and implement a more personalised, patient-centred approach to caring for diabetic patients.

In diabetes, numeracy plays a key part in health literacy. Self-care for diabetes requires a patient to be able to routinely review and interpret numerical data like their blood glucose levels, food quantification and suitable drug dosage, particularly regarding the administering of insulin. Moreover, Osborn (Osborn et al., 2009) and Cavanaugh (Cavanaugh et al., 2008) found that numeracy skills had a more significant impact on glycaemic control than general health literacy. It is recommended that clinicians use a valid tool with a numeracy component when evaluating health literacy to establish patient-centred care for diabetes patients.

2.3.4.2. Self-efficacy and patient activation

A patient's confidence in their own ability to carry out a goal-driven action is known as self-efficacy. Wallston (Wallston et al., 2007) investigated self-efficacy, self-care activities and glycaemic control in diabetic individuals and found a relationship between these factors. Patient activation is a similar concept which includes the consideration of patients' knowledge and skill level in healthcare plans, as well as their confidence. It is more likely that patients who demonstrate high levels of activation will engage in preventive care and positive self-care practices (Mosen et al., 2007).

For diabetes patients, self-management education is important. Moreover, it is important to consider how this education is given. Merely imparting knowledge does not improve medical outcomes. It is therefore recommended that approaches to self-management education are tailored specifically to the patient and that patient activation is evaluated. Patient activation is a developmental process, with positive outcomes being found to be related to positive changes. The valid Patient Activation Measure (PAM) 13 tool is often used to evaluate the extent of patient activation. Patients may respond to the questions verbally or in written form. There are 13 items in the tool which are designed to help the clinician determine which PAM level the patient falls into (Hibbard et al., 2007). Woodard (Woodard et al., 2014) studied patients with T2DM, with results showing that PAM was a strong predictor of glycaemic control and hospitalizations.

To improve patients' confidence and help them to progress through the activation levels, it is important to tailor education and identify the key objectives at each level. Hibbard

(2007) has found that this increases the chances of success. For instance, at level 1, patients should learn to understand their own behaviour patterns and develop self-awareness. At level 2, patients should learn to make small, achievable behaviour changes that are unique and may include aspects like lowering the daily intake of sugary drinks, parking further away from the entrance to a shop or restricting desserts to three times per week. At level 3, patients typically adopt new, healthy habits. Goals set by patients and providers must be appropriate and achievable. An example of such a goal would be that a sedentary patient should walk for 15 minutes three times per week. Education at the fourth level should focus on creating new strategies to prevent relapses and to ensure that the patient can stick to their goals even during times of stress.

2.3.4.3. Psychosocial influences

Implementing both physical health and mental health aspects is an important part of the biopsychosocial perspective of patient-centred care. Such aspects have also become an integral part of primary care. The incidence of depression is relatively high amongst diabetes patients, and this may be related to reduced self-care behaviours, for example, insufficient exercise and poor glucose monitoring skills (Dirmaier et al., 2010). Evaluating and treating the psychological impacts of the illness should therefore be a priority for healthcare providers caring for diabetic patients (Ducat et al., 2014).

There is still a great deal of controversy surrounding routine screening for depression in primary care. This is because there is still insufficient evidence from randomised controlled trials to support the advantages of this screening. Moreover, the inclusion of mental health in primary care practices generates a significant financial and resource burden. For example, ambulatory care pharmacists must be able to interpret and use depression screening findings when dealing with diabetic patients.

2.3.5. Measuring patient-centred care

There are two key reasons why patient-centredness is an essential component of quality care. Firstly, it has intrinsic importance since people are entitled to be treated with dignity and respect when using healthcare services. Secondly, person-centred care has instrumental importance because it has been found to influence the use of healthcare services and health outcomes (Doyle et al., 2013). Since the Institute of Medicine produced its landmark report on care quality in 2001, researchers have put forward different patient-centred measures (Wolfe, 2001). Theoretically speaking, such measures can enable the efforts made to improve quality to be assessed. Moreover, they can provide a means of holding healthcare systems to account for the quality of care they provide. Conversely, it is easy to misuse these measures in practice because they are all dependent upon a patient's perspective and report of their visit. Insufficient clarity and precision in the design of such measures can reduce their usefulness (Larson et al., 2019).

There are two key elements of patient-centred care: patient experience (the interactions between patients and the health system) and patient satisfaction (patients' perceptions of how the care received met their expectations). This can be measured in different ways, therefore several positive examples from maternal and child healthcare research were included to demonstrate how these measures can be used.

2.3.6. Using quality measures effectively

Effective implementation of patient-centred care requires clear definitions of patient-centredness an understanding of their inter-relation and impact on patient outcomes. Inter-relationships between measures of patients' experiences and satisfaction with care practices are shown in figure 2-2. This framework proposed by The Lancet Global Health Commission (Kruk et al., 2018) and the World Health Organization vision to improve care quality from pregnant women and new-born babies (Tunçalp et al., 2015).

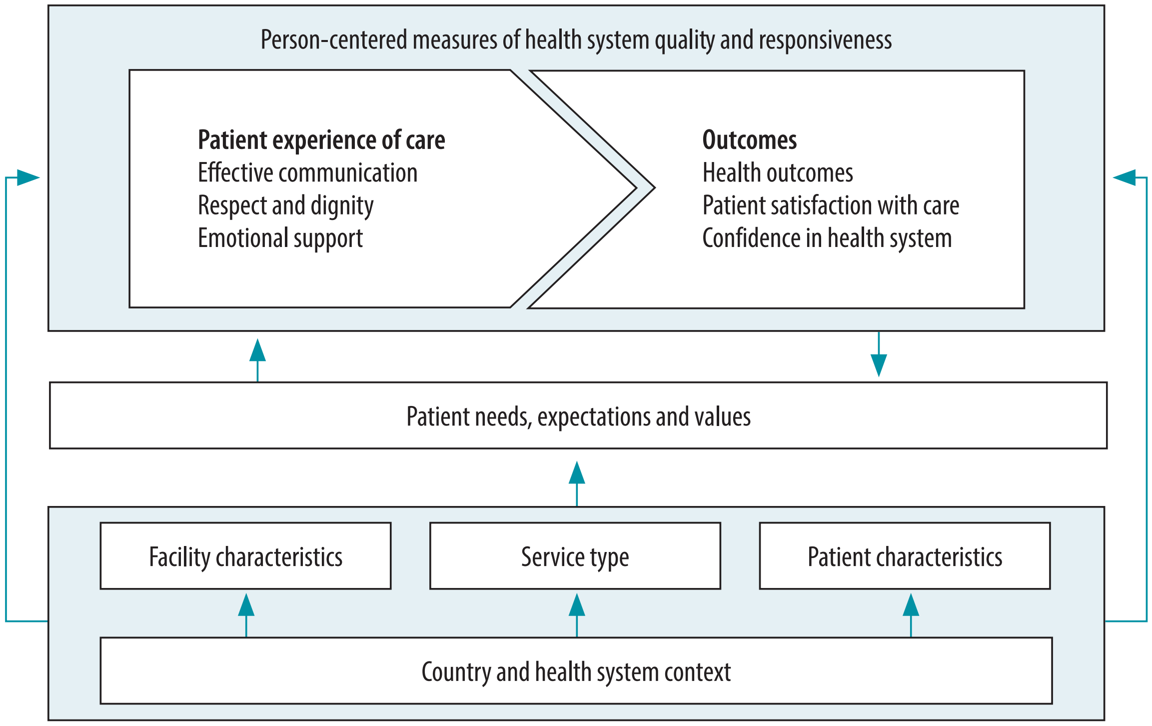


Figure 2- 2: Framework for person-centred measures of health system quality and responsiveness

As well as being a process indicator, patients' experience also reflects on the interpersonal elements of the care that they have received. There are three key aspects of experience: effective communication, respect and dignity, and emotional support (Tunçalp et al., 2015, Valentine et al., 2008). However, there are several factors that can impact these domains, including facility characteristics (e.g., how many patients are seen, resource/service availability, and the ratio of healthcare providers to patients), patients' characteristics (e.g., sociodemographic features, clinical history, previous use of healthcare), and the service type (such as preventive or non-emergency care versus emergency care). The national health system of the country in question largely determines these modifiers. Moreover, these modifiers may have indirect impacts on patients' experiences through the shaping of their values, needs and expectations (Larson et al., 2019).

Patient satisfaction measures patients' experiences of the care received and their confidence in the healthcare system. This measure assesses the extent to which care is provided and meets expectations (Kruk et al., 2018). The needs and expectations of patients are dynamic and can change in line with the care received and the patients' understanding of facility-level outcomes (such as fatality rates) and individual outcomes (such as health outcomes or patient satisfaction). Outcomes (such as patient satisfaction) can impact on, and be impacted by, the expectations and needs of patients. Moreover, satisfaction can also be impacted by a patient's experience of the care given. Previous studies have revealed that social factors (such as the age and educational backgrounds of patients) may explain differences in patients' experiences, their capacity to assess the quality of care delivered and their satisfaction with it (Bleich et al., 2009). Furthermore, wider social, communal and family factors also influence patients' expectations and perceptions of their care experiences (Larson et al., 2019).

Researchers and care implementers (including nongovernmental organisations that deliver care improvement programmes and local governments or private healthcare providers) must consider three key issues when producing evidence about person-centred measures (National Academies of Sciences and Medicine, 2018). Firstly, patients' experience and satisfaction are two different measures which assess different underlying constructs and are impacted by different factors. For these reasons, a measure must be selected that is appropriate for addressing the specific purpose. Secondly, patients' reports serve as the reference standard for patient-centred measures and subjectivity could play a significant role in this. Thirdly, it is important to consider any prior testing or validation of the measures (Larson et al., 2019).

Qualitative methods of evaluation (such as interviews and focus groups) are also useful for assessing patient-centred care, as they can enable deeper and more descriptive information about patient experiences to be obtained (De Silva, 2013) and this can be used to validate and strengthen information revealed through quantitative methods. For this thesis, the researcher used qualitative interview of patients to gauge their experiences and measure them against the Institute of Medicine's patient centered care standards. For a more robust and holistic evaluation, the researcher included a qualitative method of evaluation using the application of the Delphi technique, to gauge the experiences of health policy makers, healthcare providers and healthcare administrators. A mixed method approach proves to be more reliable and tends itself toward generalizability (Creswell, 2007; Creswell & Clark, 2011; Saunders et al., 2012).

2.3.7. Advantages of patient-centred care

The most significant benefit of joint participation in care is that decision-making processes are shared. The patient is no longer considered to be a passive recipient of medical care. Instead, a contractual view of healthcare is adopted, in which a patient becomes an active participant in decision-making processes (Leplege et al., 2007). This ultimately improves patients' adherence to care plans (Thompson and McCabe, 2012), health outcomes and patients' satisfaction with the care provided (Bertakis and Azari, 2011, Ekman et al., 2012). There are many advantages of implementing PCC approaches for patients, the most important of which is that patients are able to better manage their health if they are informed and supported. Bertakis and Azari (2011) found that patients' need to seek specialised care was reduced through the adoption of a PCC ($p < 0.0209$), as were hospitalizations ($p < 0.0033$) and pathology investigations ($p < 0.0027$). Advantages revealed in other studies include lower stress levels for patients, increased empowerment and improved self-perceptions amongst patients (Anderson, Funnell, & Butler, 1995; Hermanns, Kulzer, Ehrmann, Bergis-Jurgan, & Haak, 2013; Kinmonth, Woodcock, & Griffin, 1998) (Delaney, 2018).

More enhanced self-management behaviours are related to PCC approaches, as well as improved quality of life and more effective glycaemic control in diabetic patients. For example, Williams et al. investigated the impact of computer-assisted interventions for improving patient autonomy on patient-centred care, finding they improved diabetic self-management outcomes. When managing type 2 diabetes, self-care activities (such as taking medication, following a strict diet and testing blood sugar levels) are vital and improvements to patient-provider relationships, patient education about the disease, social and health support and involvement in PCC may all help to improve understanding of the condition and adherence to treatment (Williams et al., 2016).

Additionally, women with GDM can benefit from PCC approaches. They may face distinct challenges relating to their ethnicity, condition, psychological makeup, and social support systems which can impact post-natal health (Kalra et al., 2016). Women with GDM can encounter a great deal of suffering as a result of their illness and treatment, as well as a lack of empathetic care. It is therefore crucial that they are treated in a way that respects their individual needs, preferences and prognoses (Ge et al., 2017).

Furthermore, strong patient-provider relationships are required to ensure that patients with GDM stick to the strict diet and lifestyle requirements needed to manage their health. It has been found that high-quality diabetes self-management education (DSME) significantly enhances patient self-management, glucose control and overall satisfaction. High-quality education and personalized care plans are therefore crucial for pregnant women with GDM, as they help them to successfully self-manage their illness. GDM patients may therefore benefit if healthcare providers can understand their needs and can use patient participation to aid the patient to establish a life balance (Ge et al., 2017).

2.3.8. Disadvantages of person-centred care

Very little existing research has investigated the disadvantages of PCC, most likely because most researchers have positive opinions regarding the topic (Edvardsson et al., 2017, Ekman et al., 2011, Leplege et al., 2007, McCormack, 2004). However, increased costs, exclusion of specific groups, compassion fatigue and exclusion of staff's personhood have all been identified in this research as potential disadvantages.

Increased Costs

PCC is presented favourably in most research but implementing it can have unintended consequences. For example, in a randomised control trial carried out by Chenoweth et al. (2009) at urban residential sites, patients were randomized to PCC, dementia-care or normal care. A greater proportion of residents with falls were found in the PCC and normal care groups than the dementia-care group. Moreover, the number of falls in the PCC group was significantly higher than in the normal care group. This was in line results found by Coleman (Coleman, 2003). Implementing PCC therefore requires careful thought, particularly for those with cognitive impairment.

Implementing PCC is often more expensive than standard care, and to justify these costs it must be demonstrated to achieve better outcomes. However, in several studies no statistically significant differences were evident in health-associated outcomes (Metzelthin et al., 2015, Uittenbroek et al., 2018, Blom et al., 2016, van Leeuwen et al., 2015, Makai et al., 2015).

Exclusion of Specific Groups.

It is possible that PCC may be advantageous for some, but not for everyone. PCC requires patients and healthcare workers to actively take part in their own care. However, those with stronger voices may take advantage of this, leaving those with weaker voices at a disadvantage. Moreover, there may be individuals who do not want to take part in their own care.

However, standardising and operationalising PCC can be difficult. (O'Dwyer, 2013) explains that PCC is often regarded as a consumer-based approach to elderly care. After studying policy documents for residential care standards in Ireland, she stressed that PCC had been used as a hotel-like service with residents being treated as consumers who are entitled to autonomy and choice. However, many older people with age-related illnesses and impaired cognitive functions may be unable to make informed decisions. Additionally, in the rehabilitation context, individuals are required to actively participate in their own rehabilitation. However, Britten et al. (Britten et al., 2017) explain that not everybody wants to do this.

Exclusion of staff's personhood.

PCC is primarily concerned with the rights and needs of the patient, meaning that the needs and expertise of the staff may be undermined. This may strip the staff of their value as an autonomous person and may ultimately cause poor working conditions and high turnover rates. In other words, patients may be treated as persons while staff are not. In Kadri et al.'s (Kadri et al., 2018) study, it was revealed that many dementia care employers failed to individually identify their staff and that the moral aspects of care work were generally overlooked. Therefore, the intricate nature of care work is often reduced to a series of tasks. This may cause care workers to question their self-worth and has a negative impact on PCC provisions. Kadri et al. (2018) thus recommend that quality standards and policies are implemented to protect care workers in this respect. Buber's I–thou relationship theory (Buber, 2012) has been frequently employed to highlight the importance of viewing patients as “thou” as opposed to “it,”. However, the professional relationship is mutual and thus reducing professional to an ‘it’ is also unacceptable. Mead and Bower (Mead and Bower, 2000) also asserted the viewing the doctor as their own person is fundamental in patient-centred care.

Risk for Compassion Fatigue.

Work overload is a constant risk amongst healthcare staff. Thus, the risk of experiencing compassion fatigue is heightened. Compassion fatigue refers to an eventual decline in compassion due to exhaustion. It can cause feelings of stress, anxiety and hopelessness, as well as insomnia and nightmares. Compassionate care and the development of relationships between patients and their healthcare providers is fundamental in PCC approaches (Håkansson Eklund et al., 2018). However, despite being positive, compassionate care does have risks.

Compassion fatigue can result when one shows too much compassion (Coetzee and Klopper, 2010), the risk factors, causes and manifestations of which have been pinpointed by Coetzee and Klopper (2010). They define compassion fatigue as a state in which nurses expend more compassionate energy than they are able to restore. Factors that may increase the risk of compassion fatigue include contact with patients and the use of self. Compassion plays a vital role in the delivery of PCC, and thus it is crucial to consider the risk of compassion fatigue (Leplege et al., 2007).

2.4. Context of the Kingdom of Saudi Arabia (KSA)

2.4.1. Governmental political structure of Saudi Arabia

Saudi Arabia has a monarchial system of government with the state and the government headed by the king. The highest judicial, legislative, and executive office is the monarch, and he appoints the individuals in positions of authority at all government levels (El Mallakh, 2014). Moreover, the principle of Islamic law and justice is implemented by the Government of Saudi Arabia, which officially espouses the principles of consultation and equality. Saudi Arabia's holy book, the Quran and Sunnah of the Prophet Muhammad (PBUH) is deemed to have lawful authority over all laws that govern the country. Responsibility for ensuring rules adhere to the book of Allah and the Sunnah falls to the Council of Ministers of the Supreme Council. They work with government agencies to develop laws concerning urban development and services across the country. The Council of Ministers is aided by the Shura Council who conduct research, gather facts and give recommendations to the Cabinet to be approved by Prime Minister.

The Council of Ministers is also responsible for keeping government agencies informed about financial and administrative issues. Figure 2-3 shows Saudi Arabia's political governmental structure (Ajaj, 2014). In 1924, the Consultative Assembly of Saudi Arabia “Majlis Al-Shura” was established, and by 1992 only 12 appointed members worked in the Consultative Assembly. By 2009, the number of appointed members had increased to 150. The Assembly has involved 30 women members since 2013. This body has a centralized and clear hierarchical structure, of which the king is the Prime Minister, followed by the head of the Council of Ministers as Deputy Prime Minister, and the Crown Prince as deputy head of the Council of Ministers (Ajaj, 2014).

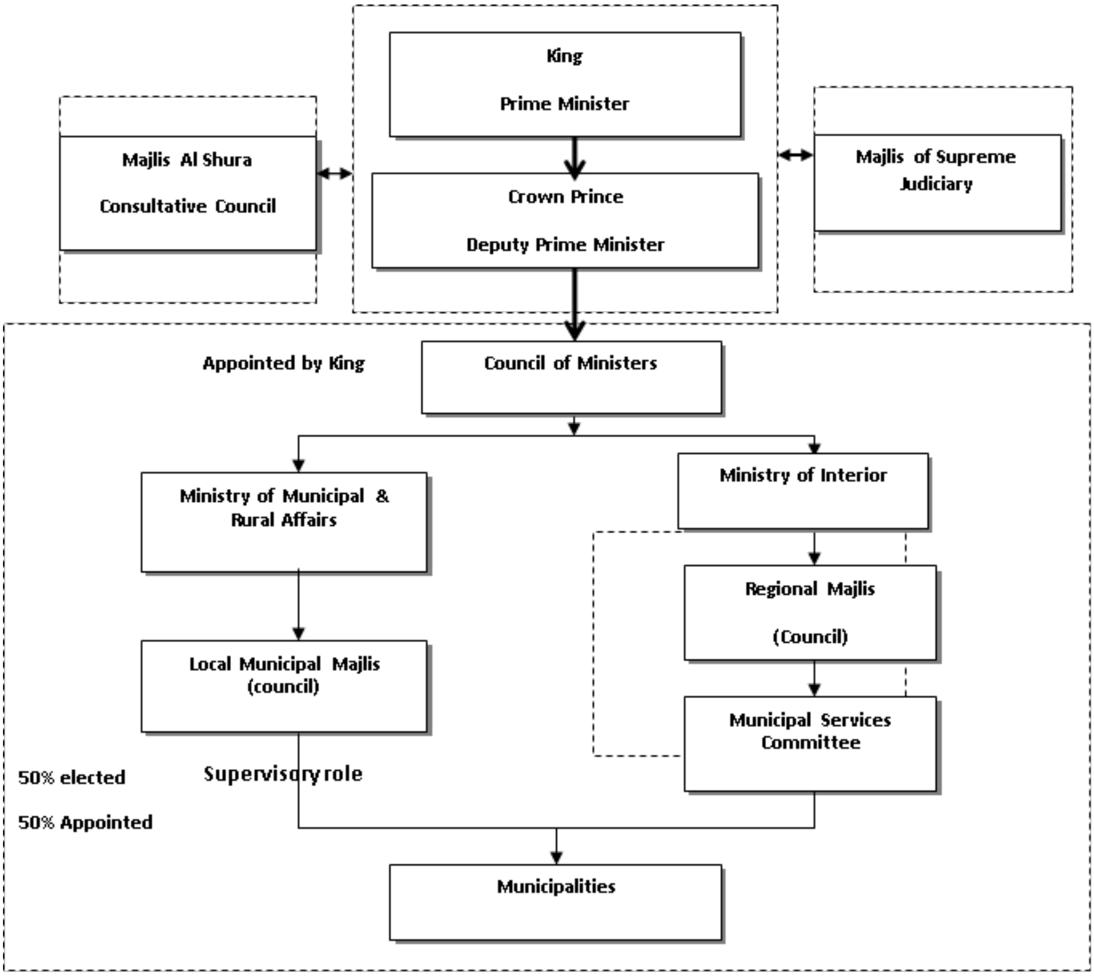


Figure 2- 3: Saudi Arabia's political governmental structure

2.4.2. Saudi Arabia’s demographic patterns

Saudi Arabia has the second largest population in the Arab world. It is estimated that, as of 2021, the Saudi population stood at 35.34 million, according to the United Nations’ data. The population grows at a rate of 1.51% yearly (United Nations, 2021). The majority of the Saudi population lives in two main population centres, Jeddah and Riyadh. Of the total population, the urban population is 84.0 % (29,255,576 people in 2020), in addition, 31.8 years is the median age in Saudi Arabia (Worldometer, 2021).

The 2019 statistics indicate a huge gap among women and men population. Among the total population of 34.3 million people, men were 19.60 million, whereas the women population was 14.54 million. That means women and men comprise 42.60% and 57.40% of the total population, respectively. Notably, the men population exceeds the women population in all age groups except age groups 70-74,75-79 and 85-80, where the two genders are equal (Population Pyramid, 2019). Studies suggest that the higher population of men is contributed by the boys' increased birthrate in the country.

A similar trend is witnessed among other Asian countries, with the male population being higher than women. For instance, the Indian age group of 20-24 comprises males with 4.7% of the population, whereas females are 4.2%. Malaysia's population for the same age group is 4.6% for males and 4.4% for females. The disparities are even high for the United Arab Emirates (UAE) population. Males constituted 5.3% of the population and females 2.4% for the same age group. Similar trends are witnessed in all the other age groups (Population Pyramid, 2019). However, the United Kingdom reveals a different trend, with 33.82 million of the population being females, whereas 32.98 million were males (Statista, 2019). Generally, unlike European nations, Asian countries have a higher male population than females.

2.4.3. Economic overview of Saudi Arabia

In 2016, the Kingdom of Saudi Arabia’s gross domestic product (GDP) was USD 646.44bn: 1.04% of the global economy. In the same year, the GDP per capita was USD 20,145, the unemployment rate was 5.6%, the inflation rate was 1.7%. Additionally, the country experienced 1.4% GDP growth, and its public debt reached 13.2% of GDP, and the fiscal balance dropped by 12.4% of GDP. In 2017, Saudi Arabia had the largest economy in the region, with a national budget of SR 890bn (USD 237bn) (Rahman and Alsharqi, 2019).

The Saudi economy relies heavily on oil revenues, and the country is the largest oil producer in the world. The petroleum sector constitutes approximately 87% of budget revenues, 42% of GDP and 90% of exports. Overall, approximately 90% of total government revenues is considered as oil revenue, and 88% of total export income relate to oil exports. (Rahman and Alsharqi, 2019).

2.4.4. Healthcare system in Saudi Arabia

The Saudi healthcare system grew rapidly over the last decade, reflecting the government's investment of billions of dollars into its infrastructure and certified healthcare facilities. Although an effective system may justify its development and the money spent on it, the national healthcare system in Saudi Arabia has failed to address the needs of society in many areas. It was thus essential to make changes to the system. Typically, a system should be upgraded when it stagnates and becomes an economic burden. Therefore, the Saudi government decided to redevelop the organizational operations and services within the healthcare sector due to extensive pressure and financial burdens on the economy (which were ultimately caused by war and the significant decline in oil prices in international markets) (Alharbi, 2018).

What's more, Saudi Arabia is going through a significant transformation period, during which the need to provide better healthcare for the increasing number of Saudi citizens (and particularly the increasing ageing population) has emerged (Al-Hanawi et al., 2019). Many hospitals and primary care facilities were built, and foreign staff were hired to provide facilities with expertise across a range of medical specialties (Almobarak, 2010). By the end of 2020, the Saudi government is expected to have 264 hospitals with 70,694 beds, 2,750 primary healthcare centres, and 27 specialist medical centres (Rahman and Alsharqi, 2019). Furthermore, there are about 2,259 healthcare centres that might be privatized by 2030 (El Mallakh, 2014). Moreover, the government aims to improve the quality of therapeutic and preventive health care throughout the country. Therefore, the government will initially concentrate on promoting preventive care, minimizing infectious diseases and encouraging

Saudis to use primary care services. The government also aims to increase cooperation and integration between health and social care services and to support families who must care for family members at home (Alharbi, 2018). In 2019, a review of the Saudi budget and recent economic developments was published. It showed that 15.6% of the budget was invested in healthcare services, which represents the third biggest portion of the national 2019 expenditure. Moreover, in 2019, there was an 8% increase in the budget allocation for the healthcare sector, reaching SAR172 (USD 46) billion. This was a significant increase from 2018, in which the budget spent on healthcare stood at SAR159 (USD42) billion. Most of the public money invested in healthcare is spent on developing and implementing new initiatives including reducing obesity, increasing local pharmaceutical manufacturing and increasing the national life expectancy. Additionally, the government is also investing money into the building of new hospitals, which will bring about a stronger healthcare infrastructure.

The Saudi healthcare system operates in three different sectors, the Ministry of Health (MOH), government agencies, and private providers. The Saudi MOH is responsible for providing 60% of all healthcare services in the country free at the point of delivery, and funding is drawn from government revenue. Other government agencies provide 20% of healthcare services at no cost and the remaining 20% of healthcare services is provided by the private sector (Al-Hanawi et al., 2018). The MOH is tasked with managing the healthcare system, executing healthcare policies for both the public and private sectors and controlling the overall healthcare system following its privatization (Alraga, 2017).

Other relevant government agencies include the Red Crescent Society, Ministry of Higher Education Hospitals, Security Forces Medical Services, Armed Forces Medical Services, National Guard Health Affairs, ARAMCO Hospitals, Royal Commission for Jubail and Yanbu Health Services, Ministry of Education Hospitals, and the King Faisal Specialist Hospital and Research Centre. These providers are all government agencies and are well structured and organized with their own independent budget and management of services and facilities. These facilities also provide primary, secondary, and tertiary services free of charge for their employees and family members and are open to all citizens in the event of an emergency, and they also work cooperatively with the Saudi government (Al-Hanawi et al., 2018).

Private healthcare services are not free in Saudi Arabia. The owners of these services are companies which provide much of the healthcare in urban areas. Private healthcare includes hospitals, dispensaries, pharmacies, laboratories, physiotherapy centres, and clinics. The government has encouraged local and foreign investors to invest in healthcare since 1975 to rise their long-term contribution to its economy, decrease the burden on the government and enhance the level of the services provided (Almalki, 2011).

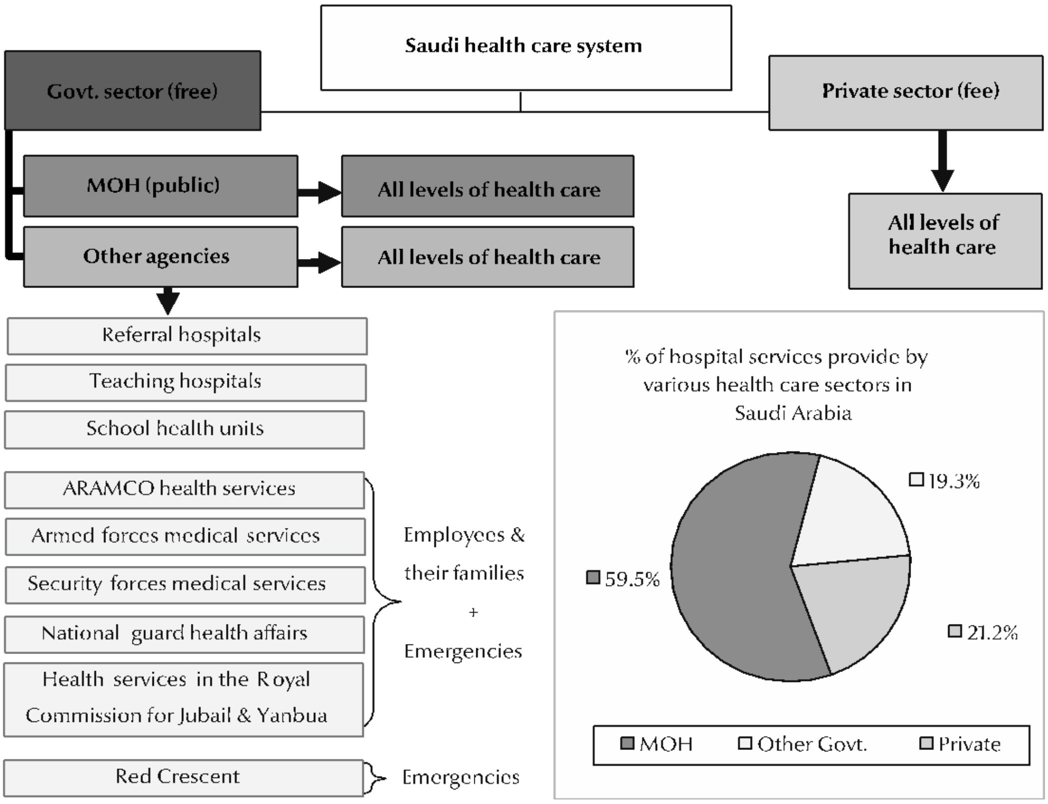


Figure 2- 4: Current structure of the healthcare sectors in Saudi Arabia

2.4.5. Services provided by the Ministry of Health in Saudi Arabia

In Saudi Arabia, the Ministry of Health is recognized as the lead agency of the government when it comes to managing, planning, financing, monitoring, implementing and evaluating health services and policies (Rahman and Alsharqi, 2019). The MOH is also responsible for the provision of primary care, secondary care, and tertiary care. Primary healthcare is the first-place patients for preventative and public health services, as well as treatment when they have health issues that are not urgent, therefore, primary healthcare provides most of the patient's healthcare needs.

If patients need further investigation, they can be transferred to secondary care to receive additional and specialized care. The secondary care services are provided by the specialists at public hospitals. In cases of very complex or rare conditions, primary and secondary care can refer the patients to the tertiary care hospital for specialized consultative care in central or specialized hospital (AlYami and Watson, 2014). In Saudi Arabia, it is the Ministry of Health’s obligation to ensure that all the levels of public medical care are handled appropriately, and all the Saudi citizens’ health needs are met. However, non-Saudi citizens are not allowed to use the public health services, but they always are able to access the private healthcare services.

2.4.6. Funding and healthcare expenditure

The Saudi government funds most of the healthcare organization from the oil revenues. In 2014, the budget of health and social sector was SR120 (USD 32) bn, representing 14% of the total government budget. The overall health expenditure rate was 4.68 GDP, and per capita expense was USD 1,147 in 2014. The Saudi government is able to allocate resources to the health sector, but the healthcare system is under high pressure because of the increases in healthcare expenditure and the Saudi citizens’ demand for high quality care, while the resources are limited, and the services are free of charge (Rahman and Alsharqi, 2019).

Compared to the situation in Saudi Arabia, the cost of healthcare in the US rose by 4.6 per cent, to USD 3.8 trillion in 2019, just slightly over the 4.7 per cent rise reported in the previous year. Similarly, while 17.6 per cent of the budget was spent on healthcare in 2018, this went up slightly to 17.7 per cent in 2019. Sixty-one per cent of the total spent on the US health was accounted for by rising costs in hospital care, doctor and clinical services and the retail costs of prescription drugs - but this was counterbalanced by a drop in the expenditure on the net cost of health insurance, which fell when the health insurance tax was put on hold in 2019 (Martin et al., 2021).

2.4.7. Healthcare system challenges in Saudi Arabia

Despite the comprehensiveness of the Saudi government strategy to improve healthcare service quality, there are still a large number of challenges the service will face in the coming years. The Saudi government makes great efforts to ensure that every citizen has access to high quality of healthcare services at zero cost. However, several challenges are facing the Saudi government in achieving its objective, particularly inequitable access. Although everyone is entitled to free services, access varies across the system and rural areas in particular have fewer facilities and poorer access (Aljuaid et al., 2016). A number of factors play a part in shaping the issues encountered in rural areas. These include: a falling population, a failure to develop economically, lack of adequate numbers of doctors and healthcare professionals in general, an unbalanced population, with a large number of old, deprived and inadequately insured residents, and elevated rates of chronic illness (Weisgrau, 1995). Another problem is the high cost of healthcare services. Over the years, the cost of healthcare services has been increasing more quickly than the allocated budget. The system is also facing the challenges of the E- Health utilization, the chronic illnesses increasing, and the healthcare services grown needs. In addition to other obstacles such as workforce shortages, the application of the cooperative health insurance scheme to all population categories, the privatization of the public hospitals and services, the development of national health information systems and altering patterns of communicable and non-communicable diseases throughout the population (Rahman and Alsharqi, 2019).

2.4.8. Saudi Arabia health system reform

The realization of a healthy population should be attained through the enhanced capability of the health sector. The Kingdom of Saudi Arabia has established its path towards establishing a sustainable health sector through the desired reforms in 2030. The major reforms highlighted in the transformation program incorporate both structural and administrative changes.

The government is committed to improving healthcare in the country through increased access, enhanced quality, and the enhanced value of the insurance cover. The government estimated to raise the health services accessibility to 88% by 2020 from 78% in 2016 that acted as the base year. The government was also committed to increasing the number of people referred and served by a specialized doctor for four weeks, from 38% to 55% in the same period. Fundamentally, the authorities estimated to increase the proportion of patients served at the emergency departments within four hours from 36% in 2016 to 54% in 2020 (Arabia, 2018)(National Transformation Program). The above-desired objectives highlight the commitment of the government towards improving healthcare in The Kingdom of Saudi Arabia.

The government has also highlighted other desired reforms in healthcare through the vision 2030 program. To begin with, the government is committed towards the enhancement of the eminence of healthcare through increased privatization of health facilities and the promotion of an environment that will encourage local and international investment in healthcare. The government is attempting to transform its position as a services provider to a regulatory and monitoring body. It must, therefore, develop the skills and capacity needed to oversee this transition. They have privatized government services in order to achieve the goals and objectives outlined in Vision 2030 and to increase the GDP contribution of the private sector from 40% to 65% by 2030 (Bassi, 2017).

The ministry of health is also determined towards establishing a centre for the standardization of medical goods. Fundamentally, the other objective of the government is to enhance the increased use of information technology in the provision of healthcare. For instance, the government estimates that by 2030, 70% of the population's health data should already be transferred to a unified system (Bassi, 2017).

The government has also identified a need to promote the local production of pharmaceuticals since the country heavily relies on imports. Therefore, the government is encouraging foreign companies to invest in the country through public-private partnerships. Pharmaceutical companies that will establish their undertakings within the country will receive preferential treatment in the tendering process. Besides, the companies will have a right to distribute their products directly in Saudi Arabia, whereas foreign companies can only sell through a distributor based in the country (Bassi, 2017). Other changes highlighted include the institutionalization of the health structure with a goal to promote effectiveness in the provision of health services. The government is committed to making huge reforms in healthcare by 2030. The change will increase the accessibility of health without straining government resources.

To making the reforms in the health sector, the government committed to follow three phases. The first phase was estimated to happen between 2018 and 2020 and involved capacity building, establishment, and advancement of clinical systems. The second phase should be addressed between 2021 and 2025 (Ministry of Health, 2018). The key undertakings at this phase will include increased corporatization of the major health entities with a goal to promote the independence and value of the firms. At this phase, the ministry of health will also make other changes related to policies, workers, and digitalization of the health systems that should be realized by 2030. In the third phase, which will be implemented between 2026 and 2030, the government will include all the Kingdom of Saudi Arabia residents in the National Hospital Insurance (NHI) (Ministry of Health, 2018). That way, the government estimates to establish sustainable healthcare in the Kingdom of Saudi Arabia.

Indeed, the Kingdom of Saudi Arabia has enhanced its determination towards the attainment of a sustainable health system. The reforms intend to increase accessibility and equitability in healthcare.

2.5. Conclusion

The chapter has provided detailed information on GDM. It has provided an overview of the patient-centered care as the theoretical framework, and the context of the KSA. The following chapter explains the methodology that was used for the research and the structure that was utilised in order to accomplish the research objectives.

Chapter 3: Methodology Overview

3.1. Introduction

This chapter explains the methodology that was used for the research, as well as the structure that is utilised in order to accomplish the research objectives. Moreover, there is the layer of approach, which details the method approaches of research accomplishment, including: the abductive, deductive and inductive. Then, there is the layer of methodology, which contains the different methods: quantitative, qualitative and mixed, which consequently results in the appropriate strategy selection in research performance. This also selects data collection methods that are suitable for the research, as well as the strategy for data analysis.

3.2. Research paradigms and philosophy

Research philosophy pertains to the principal aspects of understanding concerning the nature of knowledge and how knowledge can be contributed to, with a scholar's position and standpoint in relation to analysing the world and reality being defined (Saunders et al., 2012). Accordingly, the study question and one's comprehension of it, combined with a relevant research design, are fundamentally shaped by the researcher's understanding of how experiences inform knowledge, as well as their perspectives on the world, which inform the overall research philosophy (Saunders and Tosey, 2013). Epistemology and ontology are the two components of a research philosophy; the former may be characterised by positivist, interpretivist, realist and pragmatist understandings, while the latter is informed by subjective and objective understandings of reality. Moreover, axiology pertains to the comprehension of value, with particular values being derived and established through a study. Ultimately, a study's aims and goals will inform the identification of the relevant research philosophy, the rationale and relevance of the philosophical approach varying according to the study. (Saunders et al., 2012).

3.2.1. Ontology

According to Saunders et al. (2012) and Pickard (Pickard, 2013), the nature of reality underpins ontology. Analysis of the overall circumstances plus the expectations about the situation, formulation of questions concerning the nature of reality in its entirety, alongside the development of research hypotheses, characterises the ontological process (Saunders et al., 2012). Subjectivism and objectivism are the two approaches to ontology.

3.2.1.1. Objectivism

Objectivism has been defined as an understanding that social actors are distinct and autonomous from the reality governing social objects (Saunders et al., 2012). Accordingly, to assess and clarify models of reality, a positivist research philosophy is typically appropriate (Saunders et al., 2012). Furthermore, social actors are considered to be distinct and autonomous from the significance and reality of social phenomena, under an ontological understanding (Bryman and Bell, 2011).

3.2.1.2. Subjectivism

Particular social phenomena and various actors' interrelationships, as well as social actions, are subjectivism's concerns. It is, therefore, possible to identify influential phenomena and the causes of such events, in addition to comprehending procedures underpinning particular circumstances, is therefore possible (Saunders et al., 2012). Interpretivism as a philosophy is particularly beneficial when combined with subjectivism (Saunders et al., 2012). Furthermore, idealism considers subjective cognition to be the basis of comprehending reality, which is also relevant to subjectivism (Sexton, 2003).

3.2.2. Epistemology: pragmatism

Epistemology concerns the nature of knowledge and associated philosophical understandings of knowledge (Pickard, 2013). Possessing sufficient research data pertaining to the field of inquiry and the requisite knowledge informs epistemology (Saunders et al., 2012). The origins, character, potential and shortcomings of knowledge are the specific focuses of epistemology and philosophical approaches to it (Dudovskiy, 2011). There is an array of epistemological positions. Positivism is concerned with reaching shared comprehension, veracity and scientific understanding, with empirical research methods and rationality underpinning the approach. Furthermore, the varying conduct, experiences and specific respondent associations are considered as unimportant under positivism (Saunders et al., 2012). Alternatively, interpretivism is an approach which is more concerned with individuals' activities and the reasons underpinning them as a form of knowledge (Pickard, 2013). The particular environment is deemed to hold significance for meaning, with the environment also perceived as having a direct influence on the construal of perspectives and activities (Dey, 1993). Via activities, people are transformed into the subject, therefore social science is the typical focus of interpretivism. Pragmatism is a further approach, with positivism and interpretivism being amalgamated to explore actions through this approach (Saunders et al., 2012). On this basis, a mixed method choice is highly relevant to pragmatism (Creswell & Clark, 2011; Kelemen & Rumens, 2008).

Given the particular focus of this research and its investigation of phenomena underpinning various activities, the most relevant research philosophy was considered to be pragmatism. Furthermore, pragmatism was adopted mainly because of the specific study objectives (Kelemen & Rumens, 2008). However, numerous philosophical bases are appropriate alongside pragmatism (Saunders et al., 2012, p.127). In this research, given that certain social dynamics countered natural science's positivist approach and favoured interpretivism, while the scientific objective and positivist approach was favoured for other aspects, various philosophical perspectives informed the study. Moreover, pragmatism is underpinned by the position that comprehensive inquiry and clarification of phenomena may be approached variedly, therefore there is an emphasis on practical findings. Specifically, this study investigates women’s experiences about the quality of gestational diabetes healthcare services in different government hospitals within Saudi Arabia. Additionally, a sole data collection and research method may be adopted, or numerous methods can be used, when pragmatism is adopted (Kelemen & Rumens, 2008). On this basis, it is logical for a mixed method strategy to be implemented in this study.

3.2.3. Research approach

Abduction, induction and deduction are the three main kinds of research approach. Specific philosophies may be more appropriate to these approaches; the interpretivist approach is often successfully combined with induction, whereas deduction and positivism often combine effectively (Saunders et al., 2012). Even so, because different philosophies may be combined with the abductive approach, inductive and deductive elements can be combined through it.

Beginning with the data and developing theory from it defines the induction approach applied in this study (Saunders et al., 2012, p.147). Therefore, establishing a comprehensive understanding of a problem through obtaining information pertaining to a specific phenomenon characterises induction, with the development of theory stemming from analysis of data (Saunders et al., 2012). Qualitative research tends to be linked to the induction approach, whereby broad understanding from the data is narrowed to derive particular definitions. Given that it is sufficient to obtain a limited amount of data, a methodology that is rigorously organised is not essential in the induction approach (Saunders et al., 2012). Interviews were used to obtain information in this research, which helped detail different women’s experiences in regard to the quality of gestational diabetes healthcare services, including factors that influence women’s perspectives of the gestational diabetes care provided, as well as providing a set of recommendations for policy makers and other stakeholders to improve the quality of gestational diabetes healthcare services from the women with gestational diabetes' perspectives.

3.3. Choice of methodology

The principal methodological choices are mixed methods, quantitative or qualitative, with the established research aims and objectives informing the most appropriate choice (Saunders et al., 2012).

3.3.1. Qualitative

Qualitative data collection methods are most appropriate to adopt when research is concerned with the varying experiences and perspectives informing individual conduct; interviews and focus groups are commonly adopted methods (Dawson, 2013). Qualitative studies are also concerned with the interactions and connections between people and their varied comprehension of phenomena. Qualitative studies often follow interpretivism, with formulation of original theory or modelling being facilitated through induction (Saunders et al., 2012). If the researcher were to rely solely on a more direct approach like evaluating administrative data or interactions, it would create a barrier to the research process and results, because it is much more unreliable, inaccurate and difficult to access as clinicians are reluctant to have interactions observed. Therefore, using a qualitative interview method to assess a level of patient-centred care is a strong method for a more comprehensive evaluation of care. Patient reported measures are critical to reliable assessment of care (Fradgley, et al. 2015).

3.3.2. Quantitative

Quantitative inquiry, founded on data analysis using statistical methods to assess quantifiable data, seeks to establish the connection between particular variables and their correlation (Saunders et al., 2012). A preliminary and comprehensive literature review is used to establish hypotheses that permit the study aims and goals to be explored, thus providing a theoretical framework for the quantitative inquiry (Dawson, 2013; Pickard, 2013). The assessment of various theories is usually carried out through a deductive approach combined with quantitative inquiry and positivism as the philosophy. However, theorisation can also incorporate an inductive approach to facilitate the process (Saunders et al., 2012). For this study to be as reliable as possible, a quantitative approach to collecting healthcare professionals' opinions will create a balance against the responses of female patients. The qualitative and quantitative approach creates a more accurate measurement of the quality of patient-centred care, which is essential to inform quality improvement efforts (Fradgley, et al. 2015).

3.3.3. Mixed methods

With the advantage of providing a more comprehensive understanding of the various study particulars and potential aspects, the research may progress based on an amalgamation of quantitative and qualitative aspects through mixed methods option (Creswell, 2007; Creswell & Clark, 2011; Saunders et al., 2012). Given that quantitative and qualitative elements are combined in the mixed method option, more than a single data collection technique is necessary (Creswell, 2011; Saunders et al., 2012). Both strengths and weaknesses may be identified relating to the mixed method choice.

The strengths of the mixed method choice include: first, a mixed method helps to mitigate the shortcomings of both qualitative and quantitative methods. Second, validity of the study is enhanced through stronger supporting evidence being included. Thirdly, relevant data and findings are simpler to establish and are more sophisticated, whereas this is more challenging when a sole method is adopted. Fourth, a cohesive study is facilitated, because interlinking of qualitative and quantitative methods is effective. Fifth, the ability to establish various perspectives on the empirical data is improved. Sixth, the original results are based on an analysis of both written and numerical data.

Creswell and Clark (2011) observed, the mixed method choice also has various weaknesses. First, it is essential that qualitative and quantitative methods are familiar to the researcher. Second, mixed method approaches to data collection and analysis of data should be adequately understood by the researcher, Third, before the mixed method choice is adopted, the means of establishing an appropriate research question and subject focus, the nature of generalisability, experiment control, reliability and validity should each be understood. Fourth, to ensure that sufficient time is given to the respective qualitative and quantitative data collection and analysis processes, the investigator must be adept at time management. Fifth, for the qualitative and quantitative methods to provide an appropriate level of evidence, there must be sufficient research resources. Sixth, costs related to such aspects as transcription, computer programs, printing and recording are crucial to determine accurately to establish the final expenditure.

Based on the information above, it was determined that the mixed methods approach would be the most effective approach because it would offer a superior degree of comprehension into the quality of gestational diabetes healthcare services in government hospitals from the perspective of Saudi women. In fact, the shortcomings of qualitative and quantitative methods can be mitigated, and the methods are mutually supportive when amalgamated, a particular event or issue may be comprehended more effectively through a mixed methods approach (Creswell, 2015). The qualitative findings are achieved by the utilization of the mixed-methods approach that helps to explore the Saudi women's experiences with gestational diabetes care in a Large city in Saudi Arabia, in addition the statistical results from the mixed methods identifies gestational diabetes healthcare services problems priorities for action in Saudi Arabia through the application of the Delphi technique. The statistical data was shown in order to produce the most beneficial results in relation to the health policy makers, healthcare providers and healthcare administrative perspectives. Ultimately, mixed methods approach was necessary for responding comprehensibly and appropriately to the study question. Overall, responding to the specific study objectives more effectively, providing a greater degree of validity and enhancing the data collection and analysis processes, are all resultant benefits (Saunders et al., 2012).

Furthermore, the basic and advanced design approaches are specific paths that may be taken during mixed method research. Exploratory sequential, explanatory sequential and convergent are the three options under the basic design approach, while multistage evaluation, social justice and intervention are the three options under the advanced design approach. Of greatest relevance to this study's requirements and its particular study question was the exploratory sequential option, with the principal research question explored and assessed based on available evidence. Finally, and more specifically, using both the Delphi study and the interviews provides a well-rounded approach to gaining as much information about patient-centred care as possible. Whereas using one approach to gather information would be myopic.

3.4. The research's mixed method design

The study targets, rationale and questions should all be outlined in the research design (Andrew and Halcomb, 2009, Buchanan and Bryman, 2009). The most effective analytical approach was considered to be the combination of abduction, comprehending results based on identifying the most effective evaluations of their meaning, deduction, involving the development of correlations and general explanations through a transition from theory to data, as well as induction, enabling in-depth comprehension of the circumstances based on the significance given to phenomenon by research respondents, a combination which is enabled through the philosophy of pragmatism. Subsequently, conclusions with robust validity can be formulated, with results derived from various techniques being assessed for their uniformity through such triangulation (Teddlie and Tashakkori, 2009).

Extant studies on mixed method approaches are distinguished by two principal characteristics according to Bergman (2008), those that involve sequential design where one data set is formulated or elaborated by another, or concurrent design where parallel appraisal of quantitative and qualitative data is undertaken. When overall findings are evaluated based on both parallel and subsequent data collection and analysis, this is termed a concurrent design (Creswell and Creswell, 2003). Separate qualitative and quantitative strategies were adopted so that one method's advantages could be used to counter another's disadvantages. Sequential timing occurs when a particular data type is dealt with before another, with collection and analysis of one form carried out in a distinct process from another (Creswell and Creswell, 2003). Obtaining quantitative data prior to the qualitative data, or vice versa, are both viable options. However, if a particular dataset is going to be used to implement a particular technique, select participants, design an intervention or other subsequent activities, then it should be collected first using a sequential approach (Creswell, 2007).

Based on this research's diverse study questions, alongside the array of objectives stated here, a multifarious and varied investigation is possible through the mixed method strategy. Within the healthcare research field, mixed-methods has been widely adopted and is deemed suitable to investigate a wide range of topics (Sale et al., 2002). Moreover, with the results being merged and confirmed as the basis of conclusions, more convincing support for them was anticipated through the mixed method choice; findings' generalisability is typically enhanced and explanations with greater perception can be derived than if either qualitative or quantitative methods are adopted (Migiro and Magangi, 2011). Ultimately, gestational diabetes care standards from the perception of Saudi females should be comprehended in depth through the mixed-methods option.

The following objectives have been established. Table 3-1 shows the objectives of each method.

1. Defining the factors influencing women’s experience of the quality of gestational diabetes healthcare services by conducting the systematic review.
2. Collecting empirical qualitative data to explore the Saudi women with gestational diabetes’ experiences of using the primary and secondary healthcare services in a large city in Saudi Arabia.
3. Identifying gestational diabetes healthcare services problems priorities for action in Saudi Arabia through the application of the Delphi technique, and the respondents will be health policy makers, healthcare providers and healthcare administrators.
4. Providing a set of recommendations for policy makers and other stakeholders to improve the quality of gestational diabetes healthcare services from the women with GDM perspectives.

Table 3- 1: The objectives of each method

Method		Objectives of each method
Systematic Review		To understand the factors influencing women’s experience of the quality of gestational diabetes healthcare services in the literature
Qualitative study	Interviews with Saudi women diagnosed with GDM at age 18+ years.	To explore the women’s with gestational diabetes experience of using the primary and secondary healthcare services, from the point of being diagnosed with GDM. To issue a set of recommendations for policymakers and other stakeholders to improve the quality of gestational diabetes healthcare services from the perspectives of women with GDM.
Delphi Study	Survey of physicians, nurses, administrators, and policy makers	To achieve consensus on, and priorities for, gestational diabetes healthcare services issues in Saudi Arabia.

3.5. Mixed-methods’ utility and advantage

In terms of their manner of adoption and significance, mixed-methods strategies are increasingly prominent (Murphy and Dingwall, 2003; Kinn and Curzio, 2005). Indeed, mixed-methods approaches’ adoption and advantages are explored theoretically in 25% of research (Kinn and Curzio, 2005). Various shortcomings of a study may be mitigated when the amalgamation of theoretical approaches is investigated, so that ample evidence can be collected relating to unambiguous and straightforward research aims (Duffy, 1987; Murphy and Dingwall, 2003). This study's aims inform the development of various relevant concepts, via the mutually supportive mixed methods that involves triangulation to establish parallels, divergences and correlations in the data (Sandelowski, 2000; Creswell et al., 2003). Alongside the crucial elimination of subjectivity through triangulation of data, the validity of findings, evidence breadth and degree of understanding are all enhanced (Murphy and Dingwall, 2003; Kinn and Curzio, 2005).

Stronger evidence that is more reliable and valid can be collected when qualitative interview data's understanding is strengthened through a closed questionnaire's data and results (Miles and Huberman, 1994). Various data collection methods should be investigated and appraised before choosing to amalgamate them in a study (Morse 1991; Miles and Huberman, 1994; Morse and Chung, 2003). Resultantly, a rigorous research strategy permitting numerous datasets to be successfully managed was implemented, based on the overall research method being appropriate for comparative analysis of data.

3.6. Methods of data collection

The aim of this research is to explore the quality, in particular its patient-centredness, of GDM healthcare services and how they may be improved, from the perspective of Saudi women. In order to respond to the research problem, fulfil the study aims, test hypotheses and respond to assumptions, the data collection methods offering the greatest efficiency and utility were adopted (Royse, 2007). Research, resources, accessibility and time availability are the aspects shaping the collection process (Krishnaswamy et al., 2006). Accordingly, establishing the parameters and aims of the study is necessary prior to the collection methods' selection (Salkind, 2010). A sequential procedure was adopted for the study design, with semi-structured interviews undertaken initially to obtain qualitative data, followed by questionnaires to obtain the quantitative information. Nevertheless, the qualitative information received a greater emphasis in this study intentionally, in accordance with previous studies suggesting that the same or different emphasis may be placed on the datasets according to the decision of the investigator (Creswell, 2013; Morgan, 1988). The data collection in this study involved a combined procedure of questionnaires and semi-structured interviews.

3.7. Sequential analysis rationale

The decision regarding the research method was informed by the objectives and aims of the investigation. Mixed method research has had a best practice policy developed for it by the Institute of Healthcare, in order to assist grant assessors and academics, which shows that mixed method research is increasingly focused on (Creswell et al., 2011). The collection process for quantitative data followed and was influenced by the qualitative data collection and analysis stage (Onwuegbuzie, Bustamante and Nelson, 2010). Specifically, the identification and ranking of GDM health services' problems requiring resolution was facilitated, with the themes derived from the qualitative findings influencing the quantitative phase. Figure 3-1 illustrates the explanatory sequential design that was adapted from Creswell (2013).

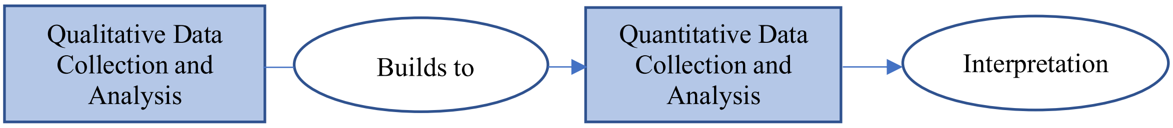


Figure 3- 1: Explanatory sequential design

3.8. Conclusion

A pragmatic mixed-methods design was chosen for this research project to enable a comprehensive exploration of the quality of GDM healthcare services to Saudi women aged 18+ in Saudi Arabia. This chapter has discussed each of the methods used, providing a rationale for their inclusion. The next chapter, the SR that serves as the first of the thesis's three major phases is presented.

Chapter 4: A systematic review of qualitative literature of women's experiences of gestational diabetes healthcare services

4.1 Introduction

This chapter presents the findings from the systematic review that conducted to present the opinions and experiences of women who have been treated for gestational diabetes regarding the quality of care they received. All the seven qualitative studies included in this systematic review have described several barriers to improving the quality of GDM care, including limited access to healthcare services, lack of patient-centred care, lack of professionals and material resources for GDM, and patients' limited financial resources (Nielsen et al., 2014, Lin et al., 2016, Whitty-Rogers et al., 2016). These studies differ in their focus, approach and time period. Moreover, there is also some concern about variation in the quality of qualitative studies which is important to overcome the bias of primary studies. Therefore, it is useful to synthesise the evidence regarding the common barriers and difficulties that women with gestational diabetes worldwide faced when seeking or using healthcare services.

4.2 Aim

The aim of the review is to present the opinions and experiences of women who have been treated for gestational diabetes regarding the quality of care they received.

4.2.1. Specific objectives

1. To identify and describe the experiences of women who have experienced gestational diabetes and their experiences with health care services.
2. To identify barriers and facilitators to healthcare seeking for gestational diabetes from the pregnant women's experiences.

4.3. Review research question

What are the opinions and experiences of women who have been treated for gestational diabetes regarding the quality of care they received?

4.4. Method

4.4.1. Information sources and selection of the studies

Data were searched from the inception to August 2017. Several scientific journal databases were used including MEDLINE, EMBASE, PubMed, CINHAL, and ASSIA, using MeSH headings and keywords (see Table 4-1, Appendix 4-A). No date restrictions were applied to the searches which were restricted to the English language only. The search results were downloaded into an EndNote and duplicates were removed.

Table 4- 1: The search terms and keywords

Sample	Phenomenon of interest	Design/ research type
Gestational diabet*	quality efficac* sufficien* effective* equit* inequalit* timel* access* health services accept * safe* health care healthcare patient-centredness patient-centeredness	experience* interview* interviews focus group* qualitative

All qualitative (7) studies reporting the opinions and experiences of women who have been treated for gestational diabetes regarding the quality of care they received were potentially eligible. Studies whose main focus was not the gestational diabetes health services, and studies that evaluated the quality of gestational diabetes health services from the health providers' experience or view were excluded. However, one study (Bernstein et al., 2016) that examined the quality of gestational diabetes health services from both clinicians' and women's perspectives was included because its main concern was on the women's experiance. The study interviewed 27 women and 25 clinicians which means more than 50% of the participants was the women.

According to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA), the key characteristics of a systematic review are: (a) a clearly stated set of objectives with an explicit, reproducible methodology; (b) a systematic search that attempts to identify all studies that would meet the eligibility criteria; (c) an assessment of the validity of the findings of the included studies (e.g., assessment of risk of bias and confidence in cumulative estimates); and (d) systematic presentation, and synthesis, of the characteristics and findings of the included studies (Moher et al., 2015). Moreover, a protocol is an essential component of the systematic review process; it ensures that a systematic review is carefully planned and that what is planned is explicitly documented before the review starts, thus promoting consistent conduct by the review team, accountability, research integrity, and transparency of the eventual completed review (Moher et al., 2015) Consequently, a detailed protocol was developed and was registered in the International Prospective Register of Ongoing Systematic Reviews (PROSPERO) database.

The SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) tool was used is an alternative to PICO (Population, Intervention, Comparison, Outcome) which has a special focus on qualitative research and has created to develop effective search strategies of qualitative and mixed-methods research (Cooke et al., 2012). Using the SPIDER tool enabled the researcher to search the literature in more timely and sensitive manner because of the suitability of the refined components for qualitative and mixed-methods research. The SPIDER approach was used deductively to develop a search strategy, and the researcher used a well specified approach to synthesis in the literature review (see Figure 4-1).

Sample - The group of people being looked at (because qualitative research is not easy to generalize, sample is preferred over patient).

Phenomenon of Interest - Looks at the reasons for behaviour and decisions, rather than an intervention.

Design - The form of research used, such as interview or survey.

Evaluation - The outcome measures.

Research type - Qualitative, quantitative and/or mixed methods.

The included studies had to have the following characteristics:

1. *Sample.*

The systematic review included studies that concentrate on pregnant women with gestational diabetes, or women who have had the condition in previous pregnancies, worldwide.

2. *Phenomena of interest.*

This systematic review included only studies that focus on the experience of healthcare services.

3. *Design.*

Only studies that used interview and focus group as data collection method were included in this systematic review.

4. *Evaluation*

Six main domains of quality were included: safety, effectiveness, patient-centredness, timeliness, efficiency, and equity (Agency for Healthcare Research & Quality).

- Safe: Avoiding harm that originates from care that is meant to help patients.

- Effective: Providing services based on scientific knowledge to all who could benefit, and refraining from providing those services to patients not likely to benefit (avoiding underuse and misuse, respectively).
- Patient-centred: Providing care that is responsive to, and respectful of, individual patient preferences, needs and values, and ensuring that patient values guide all clinical decisions.
- Timely: Reducing waits and sometimes harmful delays for both those who receive and those who give care.
- Efficient: Avoiding waste including waste of equipment, supplies, ideas, and energy.
- Equitable: Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

5. *Research type*

For the purpose of the study, only qualitative studies were included.

4.5. Data collection process

All records (title, publication details and abstracts) were screened for eligibility, independently, by the researcher. All studies identified as potential ‘includes’ were checked by two reviewers (supervisors Tim Doran and Amanda Mason-Jones). The reference lists of all of the included studies, and any related studies identified, were checked for further possible inclusions. Disagreements were resolved by discussion. Full text articles were retrieved for the selected titles. A standardised data collection form was used to extract the significant information from the selected studies including general information, study characteristics, participants’ characteristics, ethical standards (see Appendix 4-B).

4.6. Assessment of the qualitative studies quality

The risk of bias in the included published studies was assessed using the Critical Appraisal Skills Programme (CASP). This tool provides a systematic way of assessing the validity, results, and usefulness of published research. It contains ten broad questions by which qualitative research should be judged, with various sub-questions to aid this assessment.

The ten questions for assessing the qualitative research are:

1. Was there a clear statement of the aims of the research?
2. Is a quantitative methodology appropriate?
3. Was the research design appropriate to meet the aims of the research?
4. Was the recruitment strategy appropriate to the aims of the research?
5. Were the data collected in a way that addressed the research issue?
6. Has the relationship between researcher and participants been adequately considered?
7. Have ethical issues been taken into consideration?
8. Was the data analysis sufficiently rigorous?
9. Is there a clear statement of the findings?
10. How valuable is the research?

The response to most of the questions is either “yes”, “no” or “can’t tell”.

4.7. Data synthesis

Following data extraction, a narrative approach to synthesis was adopted. As recommended by the Guidance on the Conduct of Narrative Synthesis (Popay et al., 2006) the findings were integrated in a narrative synthesis since this is the most appropriate method due to the heterogeneity of the studies retrieved. The researcher followed the steps delineated by Popay and colleagues (2006), namely (1) developing (and/or) identifying a theoretical model, (2) developing a preliminary analysis, (3), exploration of relationships in the data, and (4), assessment of the robustness of the synthesis. Rather than developing a theoretical model as outlined by Popay, the findings were gathered under descriptive themes and then organized into overarching concepts from which a narrative synthesis could be composed.

4.8. Findings

In the findings section, the process of study selection is described, and then the results of the systematic search and a summary of characteristics across studies is presented. Also the quality assessment of the primary studies is briefly explained and followed by the systematic review findings.

4.8.1. Result of the research

PRISMA guidelines were used to guide reporting of the literature reviewed and a flow diagram is shown in Flowchart 4-1. One thousand eight hundred and seventeen articles were identified in the electronic databases (PubMed – 379, Embase – 459, Cinahl – 213, MEDLINE – 225, ASSIA –541). In addition to this, three studies were identified through other sources. There were 715 duplicates identified by the automated duplicate finding function on EndNote X7, leaving 1105 research papers. The 1105 articles were screened by title and abstract for inclusion. Out of 1105 articles, the full text of 49 articles were obtained and assessed for eligibility. Seven studies met the eligibility criteria for this review (Pennington et al., 2017, Bernstein et al., 2016, Ge et al., 2016, Whitty-Rogers et al., 2016, Neufeld, 2014, Collier et al., 2011, Hjelm et al., 2007). Full details of the included studies, including authors, year, country, participants, methods, and key findings can be found in Table 4-2.

All the studies gathered data using semi-structured interviews, except one of them which used focus groups. The majority of the studies were carried out in Canada (n = 2) and in the United States (n = 2), while the rest were in China, Australia, and The Middle East and

Sweden. The studies explored the quality of healthcare services from the perspectives of women with gestational diabetes. The narrative synthesis identified the following themes (see Figure 4-2): 1) Limited access to healthcare services; 2) Lack of patient-centred care; 3) Lack of professionals and material resources for GDM; and 4) Patients' limited financial resources.

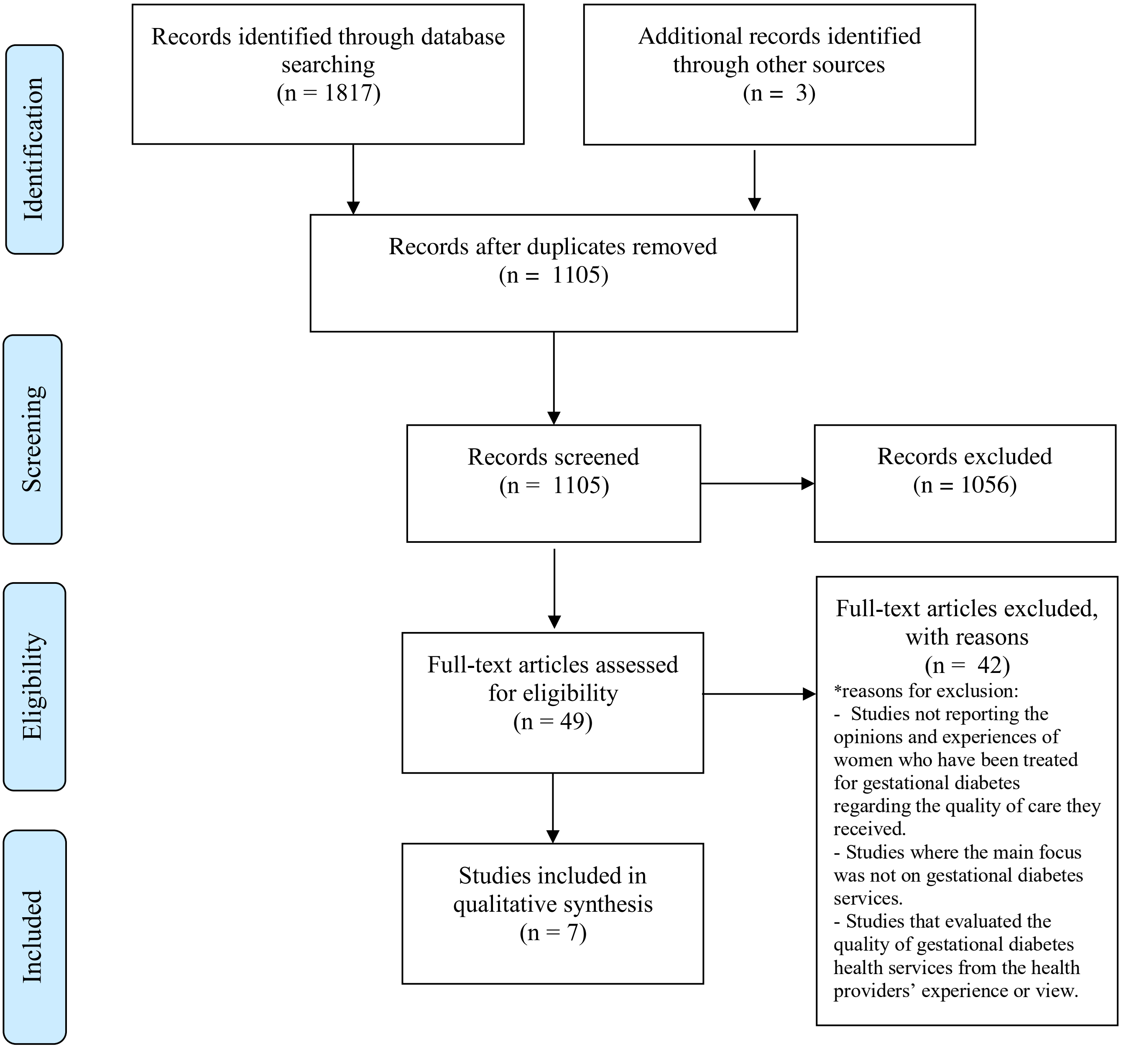


Figure 4- 1: Flow chart for included and excluded studies following recommendation of PRISMA

Table 4- 2: List of all included studies (N = 7)

First author, year and country	Participants	Methods	Key Findings
Neufeld, 2014, Canada.	29 First Nations and Métis women with GDM in Winnipeg, Manitoba, Canada. Age ranged from 18 to 43 years of age.	Qualitative research, semi-structured explanatory model interviews.	• Limited access and quality of prenatal care along with diabetes education. • Barriers in communication affect the transmission of information about GDM within the divisional healthcare facilities.

			- Feeling judged or looked down upon by their healthcare providers.
Whitty-Rogers, 2016, Canada.	9 Mi'kmaq women who had GDM, with a median age of 38 years, living in one of the 2 Mi'kmaq communities in Nova Scotia.	A participatory action research study using a Two-Eyed Seeing approach. Conversational interviews with women who experienced gestational diabetes mellitus and talking circles.	Findings included - Life-altering experiences. - Barriers limiting access to healthcare. - Social support during pregnancy. - Feeling compelled to take action.
Hjelm, 2006, the Middle East and Sweden.	14 women who had gestational diabetes, born in the Middle East.	Qualitative research, semi-structured	Findings related to Swedish women:

	Age range between 28-48 with a median age of 35 years. 13 women who had gestational diabetes, born in Sweden. Age range between 24-41, with a median age of 30 years.	individual interviews by external evaluators.	• Delay in information concerning gestational diabetes. • Limited access to telephone service. • Lack of confidence in staff because they lacked the expected competence. • Lack of holistic care beacuse the control of gestational diabetes and pregnancy had been done by different persons. Findings related to women in Middle East:

			• Feeling cared for. • Given the necessary information. • Claiming to follow advice.
Bernstein, 2016, United States.	25 clinicians (7 obstetricians, 5 family medicine physicians, 8 certified nurse midwives, 2 endocrinologists, and 3 internal medicine physicians). 27 women (13 in English, 7 in Spanish, and 7 in Haitian Creole). .	Qualitative research, semi-structured interviews.	• Barriers related to provider not mentioning the test or setting it up. • Transportation difficulties. • Work responsibilities. • Fatigue. • Concerns about fasting while breastfeeding.

			• Timing of the test after discharge from obstetrics. • No referral to PC for follow-up.
Ge, 2016, China.	44 Women who had diagnosed with GDM from both urban and rural areas. The median age of women was 30 (range 21-40) years.	Qualitative research, semi-structured interviews.	• Lack of professional care resources for GDM. • Lack of high quality personalised care for women with GDM. • Patients' suggestions regarding how to improve GDM care.
Collier, 2011, United States.	89 women (white, black and Hispanic) who had diabetes during recent pregnancy.	Qualitative research, 10 focus groups with	• Financial barriers. • Difficulties accessing care.

	Age between 19-44.	women who had GDM in the Atlanta area.	• Barriers to maintaining a healthy diet and exercising. • Communication difficulties. • Lack of social support. • Barriers related to diabetes care.
Pennington, 2017, Australia.	16 women with a history of GDM from urban and rural areas. The majority of women (n=10) were in in the 30-40 year old age group, with the youngest aged 27 years, and the oldest 56 years.	Qualitative research, semi-structured interviews.	• Advice and testing. • Role of the GP. • Barriers and enablers to care.

4.8.2. Quality assessment of qualitative studies

The CASP checklist has been used by other researchers to develop numerical scoring systems for appraising qualitative papers (Feder, Hutson, Ramsay, & Taket, 2006). It considers the aspects of a paper's content more than other tools, therefore the researcher decided to use it because the researcher was hesitant to exclude a paper on the basis of reporting quality alone, as it might have valuble content relevant to the synthesis. Dixon-Woods et al., (2007) is one of the studies that had a concern between reporting quality and relevance studies. This concern was shared by Smith, Pope, and Botha (2005) who published syntheses that have not incorporated a formal appraisal tool (Malpass et al., 2009).

In this systematic review, the researcher decided to not exclude any study based on the CASP checklist because of the small numbers of the selected studies and the valuable content of the selected studies that are relevant to the systematic review. Nevertheless, the overall quality of the seven selected studies was good. All the studies had a clear statement of the research aims and importance.

Additionally, the seven studies of the selected papers are qualitative studies, and most of them used a semi-structured interview as a data collection tool; only one study used focus groups (Collier et al., 2011). All the studies had a clear justification for the methods chosen except one study (Bernstein et al., 2016) which did not discuss how they decided to use the semi-instructed interviews to collect the data. Among all the studies, only one study did not have a discussion around the recruitment, and how the participants were selected (Bernstein et al., 2016). Most of the studies addressed the data collection setting, the data form, and the method of conducting the interviews, excluding one study (Bernstein et al., 2016) that didn't give enough information about where and how they conducted the interviews. Two out of the seven studies did not critically examine the participants' own role, potential bias and influence during the formulation of the research questions, and the data collection, inlcluding sample recruitment and choice of location (Bernstein et al., 2016, Pennington et al., 2017). Furthermore, all the studies had sufficient details and explanations about the ethical issues such as the consent, confidentiality, and ethical approval. Additionally, all the studies had in-depth descriptions of the analysis process. They all used thematic analysis to present their results, which should have reduced the heterogeneity of their findings. In addition, all selected studies had to have a clear statement of their findings. Table 4-3 shows the methodological quality of the included reviews based on CASP criteria

Table 4- 3: Methodological quality of the included reviews based on CASP criteria (N=7)

Study	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Neufeld (2014)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Whitty-Rogers et al. (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hjelm et al. (2006)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Bernstein et al. (2016)	Yes	Yes	Can't tell	No	Can't tell	Can't tell	Yes	Yes	Yes
Ge et al. (2016)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Collier et al (2011)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pennington et al (2017)	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes

4.8.3. Themes identified in the narrative synthesis

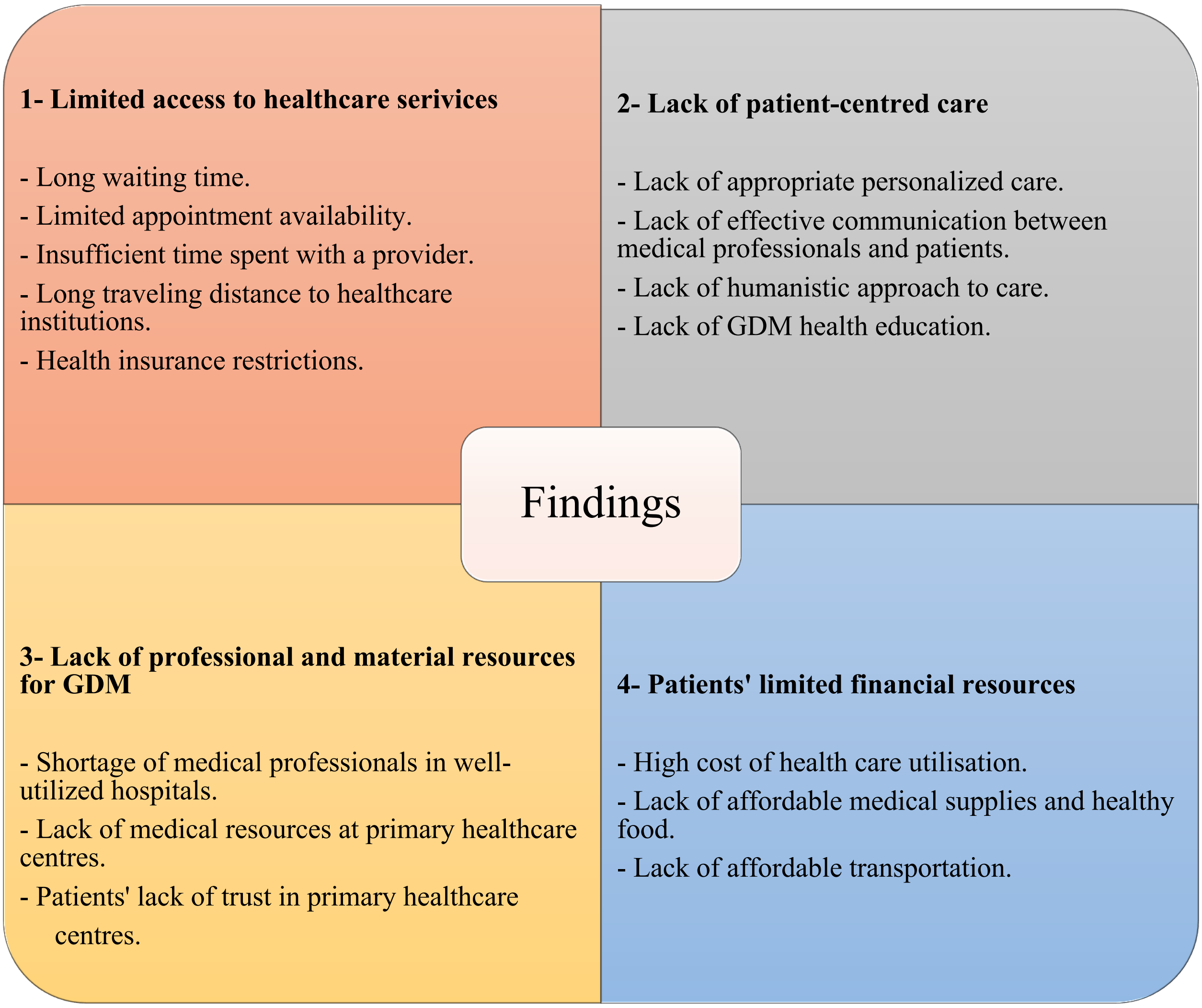


Figure 4- 2: Themes identified in the narrative synthesis.

4.8.3.1. Theme 1: Limited access to healthcare services

Access to healthcare services remains one of the most significant issues that affected women's experiences of GDM care. There are many factors that influence the pregnant women's access to GDM care such as long waiting time, limited appointment availability, insufficient time spent with a provider, long traveling distance to healthcare institutions, and health insurance restrictions (see Figure 4-2) (Whitty-Rogers et al., 2016, Bernstein et al., 2016, Neufeld, 2014, Collier et al., 2011).

Difficulties in making appointments to see a doctor and limited time spent with the doctor were the most common access barriers among most of the women (Whitty-Rogers et al., 2016; Collier et al., 2011). Bernstein et al. (2016) expressed concern about the long traveling distance to healthcare institutions. Whitty-Rogers et al. (2016) also reported some transportation issues that women faced because they had to travel frequently for doctors' appointments, laboratory work, fetal monitoring, diabetic counselling, and regular follow-up. Therefore, the women are discouraged by the long waiting time and traveling distance which can impede on ensuring consistent care access, in addition to their struggle with the work-life balance which is detrimental to ensuring GDM care access (Bernstein et al., 2016). Furthermore, the study mentioned that time spent with the medical provider was very short, which prevented women from getting all their important questions answered.

On the other hand, Collier et al. (2011) reported that the patients find it a daunting prospect to find the right personalized care provider who accepts their health insurance, since their selection of a preferred provider was very limited. Furthermore, practitioners mention that insurance cover provides heightened bureaucracy in the provision of the right services that may reduce the wellbeing of the person. One of the barriers to the continuity of health service access, therefore, emanates from insurance restriction. For example, most women in different parts of Atlanta lacked access to primary healthcare services because they were not covered by Medicaid and Medicare. Also, some of them couldn’t access diabetes education classes that often because they were not covered by their insurance (Collier et al., 2017).

Pennington et al. (2017) illustrates that the ease in accessing specialists is a vital aspect in ensuring that critical care is provided that entails holistic management of the underlying patient issue. Specialists have the potential to empower the women in dealing with the essential elements of illness management. The healthcare providers ought to deal effectively with the different dimensions that entail patients' physical and mental issues.

4.8.3.2. Theme 2: Lack of patient-centred care

Patient-centred care is a caring approach that aims to empower individual patients to participate actively in their care. When dealing with gestational diabetes, it is appropriate to involve the patient, because, without their input, it is difficult to understand the situation and decide on the most effective approach. Ge et al. (2016) assert that personalized care can play a vital role in the evaluation of patient's health condition. Accordingly, involving patients in their own health and care is an essential aspect that can improve the patients’ health. Ge et al. (2016) also reported that women complained about doctors not considering their individual pregnancy experiences carefully, and not being able talk to their doctors about personalized care because their doctors were too busy with other patients. Ge et al. (2016) explained that personalized care has the potential to generate an open and interactive communication that can enhance the patient’s health. Moreover, the patient-centred care enhances the interactions and provision of direct assessment which can increase the patients’ perceptions and experiences. Ge et al., (2016) reported that recent studies have shown that the emphasis on patient-centred care is one of the factors that related to obtaining patient trust and gaining a good reputation.

On the other hand, effective communication is a fundamental aspect that facilitates the management of GDM care. Pennington et al. (2017) emphasize the importance of communication between the medical professionals and patients as a way to enhance the patient-centred care approach. Neufeld (2014) reported that women expressed inadequate and short communication, which led to misunderstandings between them and medical staff. Women also felt frustrated with the care that they received. There were often conflicting opinions and messages from their care providers. In addition to the communication issues, Neufeld (2014) discussed the need to establish trust through support, mutual respect and reciprocity. The author states that physicians ought to focus on daily information exchange which strengthens the relationship bond between doctors and patients and assists in providing the right care for the patients. Hence, effective communication is a vital component that can improve the healthcare service delivered to the patients in different healthcare settings (Neufeld, 2014).

Furthermore, receiving the right information about GDM plays a crucial role in enabling the patients to manage their health conditions and control GDM effectively. Neufeld (2014) has revealed that the limited access to GDM education affects the patient's perspectives and needs to be examined. The feelings of inadequacy in GDM care education, prenatal care and medication are dimensions of concern for the patients in dealing with their condition. Among the First Nations and the Métis women, it is clear that the prevalence of ineffective prenatal programs remains a concern in the empowerment process. In addition to the lack of GDM education, it is essential to consider the women's concern about the lack of collaborative efforts to improve their welfare (Neufeld, 2014). The core of healthcare services is the focus on multi-stakeholder involvement that is based on the harmonization of the healthcare providers, patients, healthcare centres and government efforts. Therefore, the inadequacies of communication and education relating to GDM care led to minimal services that do not meet the patients' requirements. The existent healthcare policies in specific settings, such as amongst First Nation peoples in Canada, point to a non-participatory environment that is not geared toward gaining new knowledge or insight about their health condition. Similarly, (Hjelm et al., 2006) reported that women in the Middle East and Sweden complained about lack of knowledge and information regarding their pregnancy and GDM since the information provided was insufficient and unclear. They also expressed the women's desire to access sufficient information or educational resources to gain appropriate knowledge regarding their health conditions. Moreover, Ge et al. (2016) explained the need to shift the patients' experiences from negative to positive to ensure that none of the individuals has a negative perception of their health conditions. The negative experiences of the patients can lead to not seeking the right care or the information needed to enhance their wellbeing.

In contrast, Hjelm et al. (2007) affirmed women's need for a humanistic or empathic approach to treatment. Empathy is important for physicians to connect with the patients; therefore, physicians have to maintain close ties with the patients when providing medical and counselling services to establish a good patient-provider relationship and have positive treatment outcomes. Furthermore, to provide the necessary GDM healthcare services among the First Nations and Métis women, it is vital to examine some of the psychological issues they face. The women struggle with feeling discriminated against by their family members and healthcare providers. They do not see general practitioners for fear of being neglected, ignored or judged. As a result, they do not seek the services, which leads to negative outcomes (Neufeld, 2014).

4.8.3.3. Theme 3: Lack of professionals and material resources for GDM

Despite the high motivation to address the prevalence of GDM among women worldwide, the lack of professionals and material resources for GDM remains one of the obstacles to access the healthcare for GDM (Bernstein et al., 2016; Ge et al., 2016; Neufeld, 2014; Hjelm et al., 2006).

Bernstein et al. (2016) asserts that the need for a high level of medical professionals is a critical requirement towards enhancing GDM care. Hjelm et al., (2006) agree, reporting that the lack of medical professionals' competency lowers the patients' confidence and trust in them. Similarly, Ge et al. (2016) reported that the insufficient materials and medical staff result in low quality primary care which makes the women prefer to attend hospitals despite long waiting times before being examined by a doctor. Additionally, Neufeld, (2014) explained that overutilization of hospitals overloads the medical professionals with work.

Furthermore, the enormous pressure on the hospitals and the high burden on the medical professionals make the patients face a difficulty when accessing the medical professionals (Neufeld, 2014).

Shortage of material resources is a concern in the delivery of GDM healthcare service which will hinder the progress in managing GDM effectively. Stress arose when patients could not get the appropriate test or treatment in time to manage and control the GDM (Pennington et al., 2017; Ge et al., 2016). Therefore, having the adequate material resources in healthcare facilities plays a fundamental role in the sustenance of the care process, and missing the proper treatment or medical equipment makes GDM management more challenging. The overall management of GDM relies on the convergence between the medical materials and the patient empowerment process, in addition to the ability to access professional care and assessment (Bernstein et al. 2016). Patients' empowerment is a vital factor that leads to the enhancement of the medical practice. Additionally, emphasizing the holistic care approach is an essential aspect of the high-level outcome (Bernstein et al. 2016). Furthermore, Ge et al. (2016) pointed out that women appreciate a collaborative approach to treatment, which ensures that they can always get access to a clinical or general practitioner. The collaborative care model might increase the women's trust in the primary care system, while reducing the stress of overworking staff members.

4.8.3.4. Theme 4: Patients' limited financial resources

Financial limitations are essential barriers to receiving GDM service care. It is important to consider some of the financial issues that face patients, specifically among minority communities such as Hispanics, African-Americans, Aboriginals and First Nation communities (Neufeld, 2014). Whitty-Rogers et al. (2016) explained that when accessing follow-up care, it is advisable to review the financial implications for the aboriginal people.

Similarly, access to transportation, medication and specialist services all require financial resources in the First Nations and Métis women in Canada (Neufeld, 2014).

Furthermore, the studies documented that the women who had limited financial resources to access GDM healthcare services feel powerless (Whitty-Rogers et al., 2016; Neufeld, 2014). Whitty-Rogers et al. (2016) pointed out that there are no affordable daycare centres in the low-income community where they collected data? to care for pregnant women's children when they required medical care. Additionally, daycare centres are expensive, and the majority of the women do not have employment, and therefore women are limited from using the daycare centres, which makes attending medical appointments at times more challenging. The study also reported that some women have part-time work, but still complain about not having enough money to reach financial stability and raise their family. Moreover, other unemployed women have to resort to welfare, which provides them with insufficient income. Most low-income women know that when they receive a diagnosis of GDM, they have to follow a healthy diet, but for some, it presents a challenge because they do not have easy access to grocery stores and/or because they do not have the financial resources to buy food, or to afford transportation to go to the grocery store. Additionally, some of the women feel that medical supplies and other healthcare costs should be subsidized to make them affordable (Whitty-Rogers, 2016).

Patients need to maintain a high level of GDM care that is dependent on consistent monitoring of blood glucose, regular follow-ups, psychosocial services and more (Neufeld, 2014). Access to most healthcare services depend on the financial stability, which is necessary to maintain a positive health outcome, but this cannot be met by some women. Without adequate financial support, a negative health outcome could appear, such as the failure to achieve the optimal level of health wellbeing. Furthermore, the financial and economic factors are examples of barriers which can lead to delays in accessing the professional services (Neufeld, 2014).

4.9. Discussion

This systematic review presents the opinions and experiences of women who have been treated for gestational diabetes regarding the quality of care they received, as identified by synthesizing seven selected studies, and the available evidence captured by published studies (see Figure 4-2). This discussion is organized in relation to the themes found in the research.

Equitable

Regarding access to healthcare services, most of the studies focused on barriers related to making an appointment to see a doctor, time spent during the office visits, and traveling long distances to healthcare facilities. Access to healthcare services is an essential aspect of successful healthcare services delivery, however the lack of access to GDM care often creates anxiety and stress that affect women's overall health and creates further medical issues that can be dangerous for mother and unborn baby. Inequitable access is a healthcare disparity that needs to be addressed globally. Similar access to care barriers were found by Martis et al. (Martis et al., 2018) in New Zealand, where long waiting times at clinic appointments and seeing a different health professional every clinic visit, can mean that women with GDM are unable to achieve optimal glycaemic control. Moreover, there are many obstacles in the screening and diagnosis for GDM in India. One of the main factors related to the patient is late contact with the healthcare system, as pregnant women have to travel long distances to see the doctor. Additionally, women have a lack of awareness about GDM and its complications, therefore they do not fast before attending their routine antenatal check-ups, which makes receiving a GDM test in the fasting state more challenging (Morampudi et al., 2017). Accordingly, Utz and De Brouwere (Utz and De Brouwere, 2016) reveals that unavailability of essential guidelines in service provision can have negative implications for management of GDM. The patients' lack of access to care can lead to substantial obstacles among the healthcare providers in detecting and managing GDM. The long process of the healthcare services procedures, such as tests and counselling, can lead to inadequate management of GDM.

Regarding limited financial resources, Kolu et al. (Kolu et al., 2012) analyzed total GDM-related health care costs compared to the health care costs of women without GDM and reported that a GDM diagnosis was correlated with a significant increase in total costs of healthcare. Most of the women were aware of the implications of the high cost of health on the utilisation of GDM services (Martis et al., 2018). Martis et al. (2018) stressed that the cost of essential GDM services is an obstacle to obtaining comprehensive GDM care in New Zealand, thus women in most cases refrain from screening and regular service access due to the financial restrictions. Hospitals in New Zealand therefore focus on encouraging women to embrace GDM self-management by providing free products, including free glucometers, testing strips and the blood lancets from their local hospitals. Similarly, the most common barrier New Zealand women reported regarding accessing food, exercise equipment and health professionals was the cost of resources. Lowering healthy food costs and offering easy access to a diabetes dietitian could greatly assist in managing GDM and enhancing the women’s health condition (Martis et al., 2018). Furthermore, other studies from the United States indicated similar financial barriers, including an increase in the cost of healthcare and medical supplies. These challenge the women’s ability to maintain a healthy diet and participate in physical activities, which play important roles in having good glycaemic control (Collier et al., 2011, Mersereau et al., 2011). However, some of the financial barriers to accessing GDM services, such as affordability and availability, seem to be associated with low- and middle-income countries and specific racial/ethnic groups or insurance conditions

(Whitty-Rogers, 2016; Neufeld, 2014; Nielsen et al., 2014). Additionally, another study from India indicated that a main challenge for healthcare providers is that patients do not comply with the GDM treatment or the advised number of follow-up visits due to the healthcare cost. As a result, the author suggested the need for a cost-effective, evidence-based, and patient-friendly approach to the diagnosis and management of GDM (Morampudi et al., 2017).

Timeliness

Nielsen et al. (2014) reported similar findings in their systematic review about the determinants and barriers for GDM services, identifying timely detection of GDM as a prerequisite for initiation of treatment and prevention of adverse outcomes arising from poor glycemic control. In addition, low use of healthcare services is associated with poor glucose and blood pressure control (Zhang et al., 2012). Collier et al. (2011) also mentioned that women mostly reported barriers related to access to care and insurance, which are barriers to good glycemic control in women with GDM. They recommended further in-depth analysis of potential deficiencies within systems delivering GDM services (Collier et al. 2011) to enable more effective and equitable access to healthcare services, which would in turn motivate women to engage more with those services, leading to improved health outcomes.

Patient-centred care

According to the National Institute for Health and Care Excellence (2016), "the quality standard for diabetes in pregnancy specifies that services should be commissioned from and coordinated across all relevant agencies encompassing the whole diabetes in pregnancy care pathway. A patient-centred care, integrated approach to providing services is fundamental to delivering high-quality care to pregnant women with diabetes and their newborn babies". Findings from this systematic review suggest that applying patient-centred approaches to care could help to focus on providing personalized care, effective communication, a humanistic approach to care and improved GDM health education. Moreover, some papers expressed women's desire to receive more appropriate advice and information about modifying lifestyle, healthy diet, and exercising to manage their health conditions, and to be subject to less judgmental and more cooperative approaches by providers of diabetes care during pregnancy (Hjelm et al., 2007).

Education and the humanistic approach to care

Similarly, several recent studies identified the importance of educating pregnant women on aspects related to GDM, such as the need for more frequent follow-up, regular monitoring, reliable sources of information, and greater trust in healthcare providers (Morampudi et al., 2017). Furthermore, the humanistic approach to care helps healthcare providers to cope with the women's emotional barriers and mental health issues. Martis et al., (2018) reported that some women have difficulty implementing lifestyle changes, which led them to feel unable to control and manage the GDM, and that might increase the negative emotions and create barriers to seeking GDM care for some women. Therefore, the study suggested that healthcare providers' sympathy, emotional support, open communication, along with mental health assessments are significant parts of care for women who have been diagnosed with GDM. Likewise, Hjelm et al. (2007) pointed out that patients' involvement, effective communication, and sufficient time spent with the doctors allowed the women to speak about their concerns and ask questions related to their pregnancy and gestational diabetes, which might reduce their anxiety and frustration, and increase the probability of following the doctor's advice and managing the GDM effectively.

Safety, efficiency and timeliness

Regarding the analysis of GDM management process Nielsen et al. (2014) attributes the need for effective healthcare professionals and sufficient material resources as the core factors for successful health outcomes. Accordingly, evaluation of professionals' competency in relation to the provision of GDM services is a paramount concern in the management of

GDM care (Ge et al., 2016). For instance, without effective specialist input, glucose surveillance, insulin therapy and overall obstetric care are likely to be suboptimal. Input can be reduced by lack of specialist training, but also by excessive hospital workload (Neufeld, 2014). According to Neufeld (2014) most women preferred using hospitals due to lack of trust in primary care centres, which were perceived to be of lower quality compared to hospitals. Therefore, medical providers in the primary healthcare centres must work on increasing patients' confidence by improving training, enhancing communication, improving the empathetic care approach, easing the appointment system, decreasing the waiting time, and making the doctor visit more effective (Neufeld, 2014).

Nielsen et al. (2014) found various challenges in GDM screening and diagnosis, including difficulties in screening, and testing women during the recommended time due to lack of equipment. Similar barriers to screening and diagnosis were found in low-resource countries, including the lack of well-trained healthcare professionals and phlebotomists, lack of diagnostic facilities and standardized medical laboratories, shortage of storage and transport of blood samples. Therefore, the authors recommended the need to train the workforce and mobilize medical resources to enhance access to GDM care (Morampudi et al., 2017). Moreover, maternal health and fetal outcomes depend upon the care by a committed team of diabetologists, obstetricians, and neonatologists, therefore healthcare providers need to have a collaborative approach (Morampudi et al., 2017).

4.10. Limitations

The first limitation of this systematic review arises from the fact that only one reviewer completed both the data collection and the data analysis processes. In particular, a single researcher identified the literature, screened the articles, extracted the data, assessed the quality of the included studies, and synthesized the findings. According to Aveyard (2014), novice researchers who lack experience may affect the reliability and validity of a systematic review’s results, especially when two or more independent and experienced reviewers are not available to compare and verify their results. In the present systematic review, however, this limitation was minimized in two ways: firstly, by verifying potential articles for inclusion in the systematic review with two experienced supervisors; and secondly, by increasing the transparency of the process. Regarding transparency, a clear account was offered of the search strategy and search terms; a PRISMA diagram was shown to indicate included and excluded studies; and the implementation of the systematic review was documented clearly overall (Greyson et al., 2019). For these reasons, the credibility of the process and its results, as well as the value of the research findings for future research and practice, are still expected to be high, despite the bearing of this methodological limitation on the results.

The comprehensiveness of this systematic review may also be a limitation due to the fact that only English language studies were included. Due to financial and time considerations, especially the obstacle of translating and back-translating Arabic research articles, it is possible that potentially relevant articles written in the Arabic language were excluded from the analysis and discussion. In the literature, it has been noted that the degree to which a systematic review is comprehensive is a critical indicator of its effectiveness, with transparency and systematicity being the other two key indicators highlighted by Greyson et al. (2019). Therefore, this systematic review’s inclusion of only English articles represents a possible limitation, which could influence its applicability and relevance to the rest of the present research, as well as to policy and practice in GDM healthcare (Smith and Noble, 2016). However, it is generally worth noting that this systematic review’s use of a targeted search term, combined with a sophisticated database search strategy (Misra and Agarwal, 2018), improved its overall comprehensiveness, countering this limitation to an extent. There are two further limitations related to the systematic review’s comprehensiveness: firstly, that relevant articles may have been missed; and secondly, that relevant articles published since the search strategy was applied have not been included in the systematic review.

As a final set of limitations, it is worth noting that while the methodological quality of the included studies was satisfactory (as evaluated using CASP checklists), there was considerable heterogeneity across the studies. This could impact the credibility and the validity of this systematic review's findings. As a case in point, although every study captured the perceptions of patients with GDM, the sample sizes differed substantially, ranging from 9 participants in the smallest sample to 89 participants in the largest sample. This is significant because sample size influences the validity and reliability of research findings (Faber and Fonseca, 2014), which means that the heterogeneity in this area may undermine the credibility of this systematic review's results. Another aspect of heterogeneity across the included studies relates to the inclusion of studies undertaken in different countries. In particular, with the exception of two pairs of studies that were undertaken in the same countries (i.e., two in the US and two in Canada), the other studies targeted different research settings. Therefore, since a single set of themes was distilled from studies conducted in diverse research settings, each with differing healthcare system features, this could have implications for the trustworthiness of this review's findings, as well as its applicability to the context of Saudi Arabia. It is also worth noting that, despite the heterogeneity in research settings, most studies were undertaken in high-income countries, which could undermine the representativeness of the systematic review's findings. Lastly, the inclusion of only one study that addressed the perceptions of healthcare professionals limited the systematic review's ability to compare the views of different populations.

4.11. Key literature published since the systematic review in 2017

Three additional relevant studies were published between completion of the systematic review and thesis submission. These qualitative studies reported the experiences of women who have been treated for gestational diabetes with respect to the quality of care received. Two studies used a semi-structured interview and focus groups as data collection tools; one study used face-to-face interviews only (see Table 4-4) (Helmersen et al., 2021).

Table 4- 4: List of key literatures (N = 3)

First author, year and country	Participants	Methods	Key Findings
Oza-Frank, 2018, United States.	- 12 African American, Hispanic, and Appalachian women. - Age ranged from 18 to 45 years of age and with GDM diagnosis within the past 10 years.	- Qualitative research. - Twelve focus groups were conducted, four within each race-ethnic group.	- Communication issues. - Personal and environmental barriers. - Type and quality of healthcare.

	- Women were recruited from urban and rural sites representing five regional areas across the entire state of Ohio.		
Parsons, 2018, United Kingdom.	- 50 women who had gestational diabetes within the last 5 years (15 were interviewed and 35 attended one of six focus groups). - Aged18 years or above.	- Qualitative research. - In-depth personal interviews and focus groups.	- The disrupted pregnancy. - projected anxiety. - Reproductive asceticism. - Women as baby machines. - perceived stigma. - lack of shared understanding. - postpartum abandonment.
Helmersen, 2021, Norway.	- 12 pregnant women diagnosed with GDM. - Six women had immigrant backgrounds, and six were ethnic Norwegian.	- Qualitative research. - Face-to-face interviews.	- Feeling shocked when they were diagnosed with GDM.

	- Women received GDM care in the area of Oslo, Norway. Aged between18-45 years.		- Feeling an immediate need for information about the consequences and management of GDM. - Feeling their general practitioner had too little knowledge about GDM. - Women with an immigrant background felt the PHC midwives provided them with sufficient dietary advice related to GDM. - Ethnic Norwegian women appreciated receiving more individually tailored dietary advice in SHC. - Women perceived the training in PHC and SHC as adequate.

			- Poor collaboration between healthcare professionals in PHC and SHC.

All the studies had a clear justification for the methods, and a discussion around recruitment and how the participants were selected. The studies also addressed the data collection setting, the data form, and the method of conducting the interviews. Furthermore, all three studies had sufficient detail on ethical issues such as consent, confidentiality, and ethical approval and in-depth descriptions of the analysis process. They all used thematic analysis to present their results, which should have helped to reduce the heterogeneity of their findings. Finally, all the three studies had a clear statement of their findings.

Oza-Frank et al. (2018) reported on various communication issues with respect to healthcare providers that affected the quality and quantity of care received, including women's knowledge, management, and follow-up of GDM. The study also reported women missing appointments because of systems issues such as unanswered phones and unreturned calls. In addition, Parsons et al. (2018), reported a lack of shared understanding between patients and healthcare providers that resulted in a lack of attention to the participants' individual needs. Poor collaboration between healthcare providers in primay healthcare and secondary healthcare was further reported by Helmersen et al. (2021), who metioned that some women felt they had to coordinate their own care due to this lack of communication between healthcare providers at various stages. Other similar observations of communication issues between patients and healthcare providers and between different healthcare providers were also discussed in more depth in the syetematic review performed for this study (Neufeld et al. 2014; Collier et al., 2011; Hjelm et al., 2006).

Oza-Frank et al. (2018) also reported on the need for additional support, including from medical staff, to help women overcome barriers and to facilitate lifestyle behaviour changes, with results similar to the findings of the systematic review regarding women's need for social support during pregnancy (Whitty-Rogers et al., 2016). Moreover, Oza-Frank et al. (2018) and Parsons et al. (2018) reported on several personal and cultural barriers to GDM care and management, such as a lack of ability to change diets and lifestyles, and the cost of transportation to healthcare services, while the systematic review reported similar barriers to maintaining a healthy diet and exercising such as financial barriers (Collier et al., 2011) and transportation difficulties (Bernstein et al., 2016).

Two of the studies reported that midwives and dieticians were the best source of information, providing women with sufficient dietary advice related to GDM (Helmersen et al., 2021; Oza-Frank et al., 2018). Another study reported that women who received both written and verbal information about how often and when to measure their blood glucose were more satisfied with how they were trained to self-monitor their blood glucose, reporting no difficulties in understanding the training they received from healthcare providers (Helmersen et al., 2021).

Overall, these three studies explored the opinions and experiences of women who were treated for gestational diabetes in terms of their perceptions of the quality of care they received. The studies reported similar issues to those identified in the systematic review comleted for this thesis, however, and no new themes were found.

4.12. Conclusion

The systematic review identified several qualitative studies exploring women's experiences with the quality of gestational diabetes healthcare services. Findings were extracted from these studies and then synthesized. These findings illustrated that women with gestational diabetes worldwide faced common barriers and difficulties when seeking or using healthcare services, such as limited access to healthcare services, lack of patient-centred care, lack of professional and material resources for GDM, and patients limited financial resources. In addition, all the included studies reported women’s suggestions to improve the quality of gestational diabetes healthcare services. The researcher used the systematic review to fill the literature gap in the limited information about GDM care worldwide. In addition, the review explored the women’s perspectives about GDM and helped get a better and deeper understanding of the research problem. Moreover, the systematic review helped the researcher to build the interview topic guide to interview the Saudi women and explore the phenomena in the Saudi context. The following chapter explores the quality of GDM healthcare services and how they may be improved from the perspectives of Saudi women.

Chapter 5: Exploring the quality of GDM healthcare services in Saudi Arabia: A qualitative study

5.1. Introduction

The current chapter presents the results from the qualitative study, which was the second study to be completed. The qualitative methodology is described, as well as the method of undertaking interviews for the purpose of this study. Following this, the main findings of the study are provided and analyzed.

5.2. Aim and objectives

The aim of this qualitative study was to explore the quality of GDM healthcare services. The objectives were:

- To explore the views and experiences of women.
- To consider how they may be improved.

5.3. Research questions

This qualitative study addressed the following questions:

Q1. What are the views and experiences of women with gestational diabetes regarding the quality of the healthcare services provided in a Large City in Saudi Arabia?

Q2. What are the barriers encountered by women with gestational diabetes when accessing and utilizing the maternity healthcare services in a Large City in Saudi Arabia?

Q3 How could gestational diabetes healthcare services in Jeddah region be improved?

5.4. Methodology

According to (Creswell and Poth, 2016), phenomenology, narrative, ethnography, case study and grounded theory are the main methodologies adopted in qualitative research studies. In the case of the phenomenological approach, this represents a valuable way in which to illuminate events or issues from the vantage point of lived experiences, and, as such, has been utilised in a range of healthcare research (Speziale et al., 2011).

A reasonable definition of the lived experience in the context of qualitative phenomenological research is as follows: namely, lived experience denotes the representation of the decisions made by and experiences encountered by an individual, as well as the information they acquire from such decisions and experiences (Giorgi, 1997). The principal concern of phenomenological inquiry is not to provide in-depth accounts of causation; rather, it is to yield insights into the meanings of certain events and phenomena on the basis of lived experiences. In this way, as noted by Giorgi (1997), qualitative phenomenological research represents an important movement away from the positivist preoccupation with causality, towards subjectivity and the meanings that underlie behaviours. Therefore, a phenomenological approach was well suited to examine the experiences of women with gestational diabetes healthcare services and resulted in valuable knowledge about women's experiences. More specifically, the use of descriptive phenomenology allowed the researcher to directly investigate and analyze this specific phenomenon to arrive at a description of the lived, or subjective, experiences of the Saudi women (Speziale et al., 2011).

5.5. Phenomenological design strengths and limitations

There are a number of advantages to phenomenological design under qualitative studies. A key benefit is the fact that the researcher is able to support their study efforts through curiosity and ambition. Maxwell (Maxwell, 2012) stated that it is beneficial to a study when the author has high levels of enthusiasm about the topic at hand, which will motivate them to fulfill their dissertation aims. An interviewer is able to collect personal, first-hand accounts from interviewees, as a result of their in-depth and open-ended questions

(Maxwell, 2012, Rudestam and Newton, 2014). A number of changes can occur throughout this process, as certain experiences are revealed to the researcher, who is then able to review (Miles et al., 2018). It is considered that the human element is both the biggest advantage and largest disadvantage of phenomenological qualitative research and investigation, and must be employed carefully (Patton, 2002).

While rich research data comes about as a result of phenomenological qualitative studies, a number of downsides must be considered. Firstly, there is the issue of bias (Creswell, 2014). A responsibility of the researcher is to take into account biases, personal opinion and moral standards during their research efforts. Secondly, the work involved in this type of research requires large amounts of time and effort (Janesick, 2015). As there is a vast quantity of data requiring analysis, this is an obvious disadvantage of this approach, and the researcher must account for this prior to undertaking any phenomenological qualitative research (Creswell, 2014). Also, the data collected is unable to be generalized, as there are personal contexts involved (Maxwell, 2012). Lastly, the authenticity and accuracy of the paper can be called into question. On this matter Rudestam and Newton (2015), state that it is necessary for the researcher to make sure they have proven to themselves and their readers that the results they present have come about from a reliable critical analysis of the topic. Patton (2002) puts forward the notion that reliability and validity cannot be evaluated through simple tests, and so the researcher is responsible for presenting the data as authentically as possible throughout the interview process and making it clear how the study's aim is linked with the data findings (Patton, 2002).

5.6. Methods

5.6.1. Semi-structured interviews

In phenomenological research, data is generally collected through face-to-face interviews to gain insights into the experiences of the participants. Open-ended interviews ease the collection of comprehensive data by providing the participants with the chance to explain and describe their entire experience (Penner and McClement, 2008).

Therefore, face-to-face interviews with women who had GDM were used to explore their experiences with healthcare services they have received. The interviews were initiated with a broad, open-ended question aimed at generating responses that describe the quality of the GDM care provided in a Large City in Saudi Arabia. The face-to-face nature of the interview allowed for immediate clarification or expansion of the participants' thoughts and access to nonverbal cues such as gestures and facial expressions (Speziale et al., 2011). Thus, all data gathered throughout the research could provide evidence of unpredictable relations or theories concerning high quality GDM care provision in Saudi hospitals. Furthermore, this research aims to explore the perceptions of patients, which can be ascertained through the process of interviews (Craig, 2007).

5.6.1.1. Advantages and disadvantages of semi-structured interviews

As there was a need to produce findings which would be sufficiently detailed and applicable in a wider context, interviews were considered to be the most valuable qualitative research strategy for this paper to employ. The interview method is able to portray various perspectives, and its key benefits are shown in the table below.

Table 5- 1: Advantages of semi-structured interviews

Potential Advantages
Participants will more openly share private experiences
There is no group pressure or impact involved, as information is specific to the individual respondent
There is greater convenience, as it is easier to organise interviews than focus group sessions
The interviews can also be conducted over the telephone, and are not necessarily face-to-face
A wider range of unexpected responses can be further investigated
Quantitative results can be used to pinpoint trends through coding
The need for research leadership and group management is minimal
Answers can be examined more efficiently through the semi-structured interview style

Table 5- 2: Disadvantages of semi-structured interviews

Potential Disadvantages
It is challenging to code a large number of responses
Lower levels of participation open up the possibility for research bias
Small sample size possibly linked to the seriousness of illness in certain participants
The patient might be unable to complete the interview due to illness, at which point medical staff intervention would be required

In Table 5-1, it is clear that interviews offer a large number of benefits with relatively few downsides, for the specific needs of the current research effort. Therefore, semi-structured interviews were selected for this paper, due to a number of key reasons. Firstly, to effectively collect the views participants had of the areas they felt were substandard, adequate, and outstanding, relating to the provided care. The second reason is to ensure complementarity. On the other hand, a number of authors have stated that semi-structured interviews impact the authenticity of a study (see table 5-2) (Creswell 2014). This can be due to the way questions are written which could result in them being understood differently by different participants. Conversely, certain other researchers (Louise Barriball and While, 1994) are in favour of semi-structured interviews and highlight their benefits. These differing outlooks on this method of data collection were taken into account during the research process.

For the context of healthcare, semi-structured interview questionnaire frequently used, but there are a number of different aspects that must be considered when designing the questions, such as not putting forward any leading questions related to the interviewer's existing beliefs, which would create bias and negatively impact data reliability (Balls, 2009). Furthermore, the questions needed to account for the fact that the respondents' levels of comprehension were not universal, and it was necessary to not use medical terminology where possible, and predominantly use simple wording. Throughout the interview testing period, a pilot study was used to make sure the questions were clearly understood by potential participants. This way, the interviewee would understand what they were being asked, and they would be able to offer an honest answer.

5.6.1.2. Interview guide protocol

The interview topic guide protocol was developed based on the systematic review (See Chapter 4) and the research objectives. To assess the validity of the topic guide, two recommended techniques were followed: pre-test where a draft of the topic guide was sent to the supervisors to be critically evaluated, and a pilot study has been done where the researcher has interviewed five university colleagues. By using this protocol, the researcher was able to ask the questions in a consistent manner to the interviewees, while also keeping a level of flexibility for further investigation in each interview (DiCicco-Bloom and Crabtree, 2006).

5.6.1.3. Piloting the interview protocol

When trying to pinpoint design problems related to question layout, content or interview process, and evaluating a protocol's trustworthiness, pilot interviews can be used (DiCicco Bloom and Crabtree, 2006). In addition, a researcher's capabilities are assessed through adhering to the pilot guidance, where they practice their interview skills. The interview schedule would also be tested early on through the pilot interviews completed with university colleagues (Ritchie et al., 2013). Processes intended for the complete data gathering process were used in the pilot interviews, with participants offering their feedback regarding question comprehension (Kvale and Brinkmann, 2009). The results were positive, and since this was the first opportunity the researcher had to interview five PhD students at a U.K. university, certain key criteria were made clear. Firstly, the student needed to be at the PhD level. Secondly, the student needed to have completed their data collection. Lastly, they needed to be somehow linked with the Saudi healthcare sector through their work. These criteria were set in place in order to gather richer data related to academic or field experiences.

A significant amount of useful feedback was provided by the sample used, as well as numerous notes. It was widely considered by participants that time is a critical aspect of robust information gathering, but there was also no guarantee that the data saturation level would be achieved regardless of the amount of time spent.

5.6.2. Sampling methods

In the context of research, the collection of people or units involved within the sampling frame are known as the sample (Bryman, 2016). Probability sampling and non-probability sampling are the two most widely used types of sampling (Bryman, 2016). For the current study's aims, it was considered that non-probability sampling was more appropriate, as certain population units will certainly be excluded from the study, and there are a number of reasons why selection probability is unable to be established reliably. The first reason for this is that the sampling frame is vast, with every unit included not being fully accessible due to geographic distance. Furthermore, there is no detailed list of every unit included in the sampling frame, with privacy and confidentiality also being obstacles if there were such a list in existence. A number of non-probability sampling methods exist, including convenience sampling, purposive sampling, quota sampling, expert sampling, and snowball sampling (Bryman, 2016).

The convenience sampling method was used initially in line with the service users who volunteered to participate in this study. Convenience sampling and collecting data this way is a low-cost approach, as it does not take as much time as other methods. A non-random sample was used in the current study because of the intention to undertake an exploratory study. In earlier work by Castillo (2009), it was stated that certain authors would employ convenience sampling in exploratory research, in order to quickly and cheaply establish if additional study is necessary. The fact that selection bias could occur due to the sampling method, the existence of confusing data, and the fact that certain female Saudi perspectives regarding gestational diabetes services could be overlooked were taken into account. A key reason for deciding to use convenience sampling was the time limitations of the current author's PhD, as the suggested sample size could be reached in a timely manner.

In order to find more patients who had been provided with GDM care in rural areas, snowball sampling was employed, due to its cost, simplicity and ease of use. Snowball sampling is a chain referral sampling approach, where the first subjects use referrals to produce more subjects for the study. However, a key downside of this way of sampling is the fact that participants who have a wide range of social connections could produce a larger proportion of referrals who will share certain characteristics with them, hence leading to biased samples (Johnston and Sabin, 2010). Also, there might be a lack of generalizable results produced by snowball sampling, and there is the issue of the time needed and difficulties related to following up with a referred respondent. However, the snowball sampling method was of great use to this study since relevant samples in rural areas are hard to access.

5.6.3. Inclusion criteria and sample size

To be included in the study participants had to: be Saudi women who had gestational diabetes in their previous pregnancy and within 6 months postpartum, regardless of whether their baby survived; be above the age of 18; be from any socio-economic group; have the mental capability to answer the interview questions; and be able to respond in Arabic or English; received their GDM care in public primary or secondary healthcare facilities.

It was recommended that the size of convenience samples be established inductively, and sampling continue until “theoretical saturation” occurs. In this research 27 interviews were undertaken in total, and they provided a range of perspectives on the women’s experiences with GDM healthcare services. Sample size was established inductively until data saturation occurred (Mason, 2010). The final sample consisted of 16 women from the urban areas and 11 women from rural areas, with an age range of 20 to 40 who all experienced gestational diabetes care at the government hospitals. These individuals would provide crucial information with which to answer the study's research questions and help achieve the intended objectives.

Table 5- 3: Interview sample size map

Areas	**Hospitals**	**Interviews**
Urban	Hospital A	3
	Hospital B	3
	Hospital C	3
	Hospital D	3
	Hospital E	0
	Hospital F	4
Rural	Hospital G	4
	Hospital H	4
	Hospital I	3

*Hospital E does not have maternal and children services.

The plan was to target all the governmental hospitals in a Large City in Saudi Arabia that were attended by Saudi nationals and where they would be available to participate in the interviews. Due to Large City in Saudi Arabia being a multi-cultural city, and it is where the current author lives and works, it was convenient that the majority of Saudi participants residing in KSA were also from this region. A total of 9 governmental hospitals across the Large City in Saudi Arabia were included, consisting of five government hospitals in urban areas, three government hospitals in rural areas, and a specialist maternity and child government hospital in an urban area. The hospitals selected from the new list of government hospitals in Large City in Saudi Arabia that were established by the Ministry of Health based on the health transformation strategy as part of the 2030 national vision for the Kingdom of Saudi Arabia. In this updated list, the MOH divided the government hospitals in the Large

City in Saudi Arabia geographically and linked nearby primary health centres to them. This list has not been published yet, but it was provided to the researcher when she visited the Directorate of Health Affairs in Large City in Saudi Arabia at the beginning of her journey to collect data. Table 5-4 shows the new division of government hospitals in Large City in Saudi Arabia.

Table 5- 4: Division of government hospitals in Large City in Saudi Arabia

Areas	**Hospitals**	**Associated primary health care**
Urban	Hospital A	A1, A2, A3, A4, A5, A6, A7, A8, A9, A10.
	Hospital B	B1, B2, B3, B4, B5, B6, B7.
	Hospital C	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13.
	Hospital D	D1, D2, D3, D4, D5, D6.
	Hospital E	None.
	Hospital F	F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11.
Rural	Hospital G	G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, G11.
	Hospital H	H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12, H13, H14, H15, H16.
	Hospital I	I1, I2, I3, I4, I5, I6, I7, I8, I9, I10, I11, I12, I13, I14, I15, I16, I17, I18.

5.6.4. Ethical considerations

The researcher submitted the ethics application form and a number of necessary documents, such as the interview topic guide, invitation letter, information sheet and consent form, to the Health Sciences Research Governance Committee (HSRGC), University of York, on November 17, 2017. In turn, ethical approval was granted on 8 December 2017, with certain changes made (see Appendix 5-A). In addition, ethical approval was granted by the Research and Studies Affairs Unit, Ministry of Health, Saudi Arabia on 26 November 2017 (see Appendix 5-B). Following this, the study was conducted between January 2018 and March 2018.

It was necessary to make sure that participants knew their participation was entirely consensual, and certain steps were taken accordingly. Prior to the interviews taking place, the participants could choose to not take part in the interviews and withdraw at any time. A consent form needed to be signed, and it was explained that there would be no repercussions if they no longer wished to take part in the study at any point, and that there would be no harm caused by their participation or non-participation.

The data collected in this study was stored in line with the University of York Data Protection Act (2018). The interviews were recorded via an audio recorder. The audio records were transcribed by the researcher and translated into English language. The personally identifiable data was removed from the transcripts. Then, thematic analysis was carried out to identify the main themes that occur most frequently and how these themes are related to each other. After that, the audio data was erased, and the written format was kept for analysis only. The data was not accessible to anybody except the researcher (Mashael Hobani), and both supervisors (Professor Tim Doran and Doctor Amanda Mason-Jones). Other academics may have access to the aggregate data, for example members of the Thesis Advisory Panel (Doctor Peter Knapp and Doctor Paul Galdas).

Participant anonymity and confidentiality were protected by making the participants' identification anonyms during and after the research period, as well as in any publications related to the study in the future. For example, the participants' contact details were collected in special forms in order to arrange the time and the place of the interview with them. The contact details' forms were shredded after completing the interview. Additionally, the interviews were recorded using an audio recorder. However, personally identifiable data was removed from the transcripts, for instance, any names mentioned in the recordings was replaced by a note of their job title or relationship.

Furthermore, an identification code was used in the interview transcripts, with no need to clarify their identity. Any written documents, including interview transcripts, consent forms and demographic surveys, were stored in locked cabinets at the University of York and at the University of King Abdulazizs. Moreover, any data which was stored electronically would be protected by password on the University of York and University of King Abdualaziz computer servers. Lastly, all data gathered for this study would be destroyed six months after its end, or three years from the time of its collection (General Data Protection Regulation and Data Protection Act, 2018).

5.6.5. Data collection

5.6.5.1. Recruitment and Study Setting

Patients were informed about the study a week in advance through at least one of three channels: a hospital's or a primary health care centre's newsletter, its website, or posters on the walls of its waiting rooms. These channels contained contact details to reach the researcher, to enable interested patients to ask any questions they may have (see Appendix 5-C). When patients visited the predefined facility, receptionists or the nurses asked them if they are willing to participate. If they accepted, the receptionists or the nurses handed out the participant information sheet, so they would be aware enough of the study and their rights to participate or not. Then, contact details such as name, email and phone number of participants who gave a verbal consent to participate in the study were taken and given to the researcher in a special form to arrange a time and date for the interview, at least 24 hours after being informed about the study. When participants arrived at the interview site, which was a convenience room at the nearest primary care or hospital to the participants, the chief investigator handed out consent forms to participants. Then, the chief investigator distributed a questionnaire to each participant, to collect some socio-demographic information. Then the chief investigator guided the discussion for approximately 60 minutes, using a semi-structured interview. A topic guide has been used to ensure consistency between interviews. A voice recorder has been used to record the discussions by the facilitator. At the end of each interview, patients were asked to identify additional participants relevant to this study and names and contact details were taken.

The qualitative study has been performed in several hospitals and primary healthcare centres in rural and urban areas of the Large City in Saudi Arabia. All the hospitals that offer gestational diabetes health services to their patients had been selected to recruit the participants in the study. The hospitals in rural areas were contacted and asked if they had patients who were going to be available on a particular date that the researcher was going to travel to see them, so that as many interviews as possible could be set up on the same day.

5.6.6. Data Preparation

In most cases, interviews produce a significant amount of data, as text or audio (Pope et al., 2000). There were certain issues that appeared during the annotated interview translation, from Arabic to English. It is not always the case that verbatim translation is entirely appropriate, and the initial meaning can be lost (Rubin and Rubin, 2011). Earlier studies have discussed qualitative research's intrinsic bias at great length (Temple and Young, 2004).

A common problem faced by translators is if they should use literal translation, which is word for word translation, or 'free' translation, where wording is changed to make the translation more accurate and comprehensible. However, there are two key downsides to free translation, which are possible information loss, and possible misunderstanding of words used by participants (Rubin and Rubin, 2011). To mitigate these issues, the researcher chose to translate the interviews literally to the greatest extent, with small changes made to correct grammar and improve the English meaning of the translation. The researcher worked with the supervisor (Doctor Amanda Mason-Jones) on translating and coding one of the participants' interviews and creating initial themes for the codes identified. The sample work was deemed to be sufficient to help the researcher work on the rest of the interviews and follow the same approach recommended by the supervisor.

NVIVO 12 software was used during the translation, as this software offers useful data management and data organization facilities for use in qualitative studies (Bazeley and Jackson, 2013).

5.6.7. Thematic Analysis

Qualitative data can be analyzed in a number of ways, but it has been stated that the data analysis method selected needs to be closely tied with the research goals and the research's theoretical framework (Pope et al., 2000). Smith and Firth (Smith and Firth, 2011) state that there are three key approaches to completing qualitative analysis. Firstly, there can be socio-linguistic methods used, which can be employed to investigate how language is used and what it means, for example with discourse and conventional analysis. Secondly, there can be methods used which pursue a theory's development, such as the grounded theory approach. Lastly, there can be methods used to attempt to depict a participant's experiences, such as content analysis or thematic analysis (Smith and Firth, 2011). In order to make sure data analysis is fully transparent, is able to pinpoint the underlying themes and establish a suitable conceptual framework, three interrelated steps are necessary under the thematic analysis method (Smith and Firth, 2011). These are data management, where the method is based around cases and themes, pinpointing and evaluating thematic analysis, and establishing clear narratives of specific experiences (Smith and Firth, 2011).

When it comes to handling research effectively, Ritchie et al. (2013) state that a qualitative analysis can be employed, after concluding outcomes in a reliable matrix output system, allowing for case or thematic analysis to occur thereafter. In the work of Smith and Firth (2011), case and thematic analysis can be used to explore qualitative data. Ellis (2010) puts forward the notion that numerous studies involving complicated data sets can use thematic analysis. Furthermore, it is considered to be a suitable analysis when managing text-based findings (Smith and Firth, 2011). Through a thematic analysis, the most prominent issues, presented as themes, can be found through the gathered data (Ritchie et al., 2013). This way, the key concepts and results of a body of evidence can be shown, and their distinction portrayed (Smith and Firth, 2011).

Through a thematic analysis, the matrix outputs are reliable and can be applied in various analyses afterwards, based on case and theme (Tobin and Begley, 2004). The researcher is able to gather all data prior to analysis, or undertake their analysis during the data collection period, due to the flexibility offered by the processes involved (Srivastava and Thomson, 2009). Also, thematic analysis allows the researcher to organize her results, and conclude findings from a significant dataset, meaning that health research, policy development and programme evaluation are areas which are highly suitable for this approach (Gale et al., 2013). For qualitative studies, quantitative research or a combination of the two, thematic analysis can be applied effectively (Tobin and Begley, 2004). For these reasons, the current study adopted the thematic analysis method. Thematic analysis is defined through the diagram below, taken from NatCen Learning (2012).

5.6.7.1. Thematic framework for analysis adopted in this study

Braun and Clark's (2006) six-phase procedure were used in the analysis of the qualitative data produced by the interviews. This was due to the fact that qualitative data could be analyzed in a phased manner, involving a thorough process and allowing themes to be confirmed, without unnecessary complexity. Figure 5-1 illustrates the thematic analysis by Braun and Clarke.

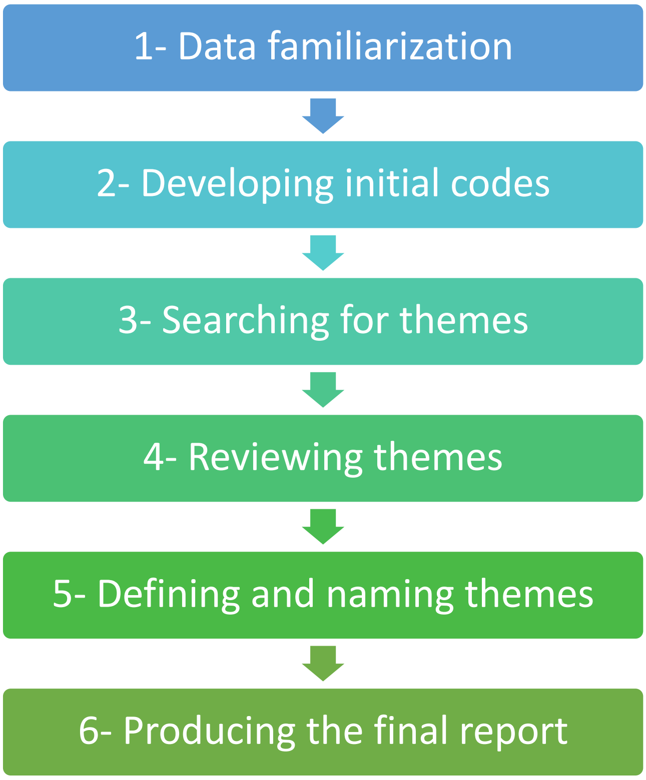


Figure 5- 1: Thematic analysis by Braun and Clarke.

1- Data familiarization

When a researcher listens to their audio recordings and reviews the material a sufficient amount to achieve a detailed enough evaluation of the data set, this is known as familiarization. Familiarization means that the researcher has a robust comprehension of the data prior to more detailed coding being undertaken. The researcher transcribed the interviews in a verbatim manner, which allowed her to achieve a level of familiarization with the data, as she became more aware through listening and recording, and documenting her early impressions (Braun and Clarke, 2006).

2- Developing initial codes

Once familiarization was achieved by hand, coding was conducted in a line by line manner to make sure the transcripts were read with sufficient attention. In turn, NVIVO 12 was used, where the transcripts were uploaded and managed, as the codes would be determined and the way they were spread throughout the interviews could be established (QSR International, 2015). At this point, further development of themes was facilitated by not removing or combining any codes at this stage.

In the current study, the research questions intended to ascertain the experiences of Saudi women with gestational diabetes issues. Due to the fact that this topic had not received much research attention in the past, it was decided that all interview data would be coded, in order to allow themes to appear naturally, without a pre-specified coding frame imposed. This way, the possibility of valuable data being overlooked would be mitigated, when shifting from coding to theme development. In initial interviews, there was a lack of structure, meaning that a larger amount of topic areas was examined, leading to a much bigger pool of codes being produced. The researcher was able to handle these codes more efficiently as they steadily analyzed the data.

3- Searching for themes

In order to confirm the accuracy of meaning and reliability of the codes, any excerpts input into NVIVO 12 were examined, with all information related to codes assembled there also. As there is no clear way of producing themes, the framework's guidance for the current analysis stage is limited. In the work of Braun and Clarke (2006), themes are thought to be produced using the most often referenced ideas, or by the areas discussed to the greatest length by the largest number of participants, or by whatever appears to have the greatest importance, irrelevant of frequency in the dataset. As a result, generating themes from data is a subjective action, due to the fact that the researcher's views of what is important data plays such a major role, regardless of the thoroughness involved in this process. Therefore, data which is actually most prominent or would objectively be included as a theme can be overlooked. This downside is apparent in qualitative research and gives greater importance to researcher reflexivity as a result. In addition, certain participant views could be given greater weight than others, and so the variation in participant experiences can be taken into account more fairly, with all contradicting opinions of a topic remaining within the same code.

4- Reviewing themes

Using a two-level review analysis for the candidate themes, the first level of analysis examined every collected theme to uncover any clear patterns or whether other themes had overridden them, or they were rejected. On the second level, analysis involved themes which could not fit into an existing category and were altered to create new themes (Baum and Clarke, 2006). This was considered to be a vital step when it comes to maintaining the integrity of the themes produced.

5- Defining and naming themes

This step involved themes being refined, through establishing the key themes and related sub-themes, and how they relate to the experiences shared. These detailed outcomes brought about names for every theme, which helped to describe them and their content. Baum and Clarke (2006) stated that the definition of a theme must instantly present the reader with a clear idea of the theme's content.

6- Producing the final report

Creating a report of the analysis offers an additional chance for reflection of the themes and their definitions (Braun and Clarke, 2006). Through the final report, a number of related quotes are included to demonstrate these themes efficiently, producing an overview of the personal experiences shared, and making sure these are clearly visible in the research outcomes. Extra care should be given to making sure specific participant experiences are not overlooked in favour of any others.

In order to achieve this, succinct examples are used to provide an interesting and descriptive vision of the research outcomes. The research question and related literature play a key role when it comes to developing a valuable scholarly report and choosing appropriate examples (Baum and Clarke, 2006). The report's authenticity is further supported by the selection of suitable excerpts to describe the participants' experiences fairly.

5.7. Result

Twenty-seventh women with a history of GDM were interviewed. Participants were collected from urban (n=16) and rural (n=11) governmental healthcare facilities. The women interviewed had delivered their babies in less than six months. The majority of women (n= 19) were in the 20-35-year-old age group, with the youngest aged 22 years, and the oldest 40 Years. Some women had a family history of diabetes. Two women had experienced GDM during their first pregnancy.

More details about the patients’ age, location, educational level, and employment status are given in Table 5-5.

Table 5- 5: Socio-demographic characteristics of the interviewees in rural and urban areas

Name	Age	Area type	Education level	Employment
Women with GDM living in urban areas				
U, P1	31	Urban	Bachelor's degree	Housewife
U, P2	26	Urban	Bachelor's degree	Housewife
U, P3	34	Urban	Bachelor's degree	Teacher
U, P4	30	Urban	Bachelor's degree	Radiology specialist
U, P5	39	Urban	Master's degree	Supervisor in the Ministry of Education
U, P6	34	Urban	Bachelor's degree	Teacher
U, P7	39	Urban	Master's degree	Supervisor in the Ministry of Justice
U, P8	37	Urban	College Diploma	Administrative secretary
U, P9	22	Urban	High school	Housewife
U, P10	40	Urban	High school	Housewife
U, P11	23	Urban	High school	Housewife
U, P12	28	Urban	High school	Housewife
U, P13	29	Urban	High school	Housewife
R, P14	26	Urban	Middle school	Housewife
U, P15	34	Urban	Middle school	Housewife
U, P16	26	Urban	Primary school	Housewife
Women with GDM living in rural areas				
R, P1	22	Rural	Bachelor's degree	Student
R, P2	32	Rural	Bachelor's degree	Housewife
R, P3	40	Rural	Bachelor's degree	Teacher
R, P4	22	Rural	Bachelor's degree	Student
R, P5	37	Rural	High school	Housewife
R, P6	37	Rural	High school	Housewife
R, P7	23	Rural	High school	Housewife
R, P8	34	Rural	High school	Housewife

R, P9	25	Rural	High school	Housewife
R, P10	36	Rural	Middle school	Housewife
R, P11	29	Rural	Primary school	Housewife

* In Saudi Arabia primary education is 6 years, follows by three years of intermediate general academic education. The final 3 years of the free education is the secondary schools. At age 6 though, they must enroll for 6 years at primary school.

Key themes from qualitative research

Four key themes were identified, some of which appeared to be highly influential in the Saudi context in terms of the women experiences with GDM healthcare services in the public hospitals examined in this study, as well as some other themes that have been previously identified in other studies globally on GDM quality of care. The primary themes and their subcategories that drawn from the interviewee responses are highlighted below (see Table 5-6).

Table 5- 6: Key themes from interviewee responses

Theme	subcategories	Sample participant responses demonstrating the meaning unit
1. Access to care factors	- Lack of sufficient time for doctors to see patients - Long waiting times for patients. - Long travel distance to health facilities. - Administrative problems for patients accessing the appointment system. - Lack of proper registry services and electronic health records systems.	“it is very quick visit, I spend very short time, fast like air, once I get to her office I stay for couple of minutes, and I leave” “waiting time in hospital B makes me so angry, I feel like I'm going to blow, and make problems with the whole department. It’s a horrible waiting time”. “the PHCs in the rural area should have ER department operating late for emergency cases because it’s hard for people to travel from area to other, because some people don’t have even a transportation, they rent cars or take taxies to go to PHC or ER. The PHCs are not working after 3 pm, if anybody got sick, he has to go to large public hospitals, which are about 30 to 40 kilometers away”. “sometimes they lose my medical record which causes a delay especially I'm in the clinic very early, so this point had disappointed me a lot”.
2.Communication factors	- Lack of provision of clear written/ verbal information to women. - Poor communication and coordination within secondary care. - Lack of communication between primary and secondary care.	“nobody from the DM educational department or the internal medicine specialists came to me and explained what to eat, the best diet for me, what I should do, nothing …” “every follow up was with a new doctor which was difficult for me to explain everything from the beginning” “a month after giving birth in the hospital, I went back to the primary care to follow up, but I found that my doctor didn’t have any idea about my health condition during the pregnancy”.
3.Health provider’s factors	- Lack of expertise doctors with respect to gestational diabetes. - Lack of respect, empathy and support. - Nurses’ lack of practical proficiency.	“I remember one day I went to see a doctor and she made a phone call to speak with another doctor and she asked her what type of medications she should give me and how many doses I should take. So, I felt they are not expert. In addition, some of the doctors I have seen during my check-up visits didn’t

		checked my sugar level at all. They don't meet the needs of diabetes patients". "it would be better if the doctor motivated me saying you should follow the diet instructions to maintain your health, rather than saying you will lose your baby if you didn't follow the instructions, each time I visited her, she made me feel scared of losing my baby" "I was sleeping in the ER due to vaginal bleeding. I spent a lot of hours without seeing a doctor, I had so much pain I was crying and screaming, a nurse came and yelled on my face and hit my arm three times asking me to stop crying because I'm bothering her and other patients"
4. Patients' factors	- Patients' socio-cultural factors. - Lack of trust in medical staff and governmental hospitals - Negative perceptions or feelings such as anger, discriminated, isolated, blamed, ignored and insulted.	"I really like her attitude when she was trying to calm me down saying the surgery will be easy, the other thing I really loved is when I was in the surgery room giving birth she was reading "Quran" the holy book on me while she was helping me to give birth, that made me feel so calm. I felt comfortable that if god forbid, I died, I'll die in peace" "Actually, when I was referred to hospital B, I was scared because my initial thoughts about the government facilities in general is very bad" "we feel like we are so heavy on them, a group of three doctors came to us while they were arguing with each other about taking new patients as they were tired of taking care of the patients. We heard them, and we felt unwanted, what we could do, or where we would go. We need their help in our bad health situation, and they need their god to give them a reward in return".

5.7.1. Theme 1: Lack of access to care

The performance of a thematic analysis on the interview transcripts allowed for the most significant barriers that impact access to GDM healthcare to be identified. Long waiting times for patients, lack of sufficient time for doctors to see patients, long travel distance to health facilities, administrative problems for patients accessing the appointment system, lack of proper registry services and electronic health records systems were all reported to impede access to healthcare (see Figure 5-2).

Figure 5- 2: Theme 1 Lack access to care

5.7.1.1. Long waiting times for patients

A key factor found to impact women's experiences of health care services was long waiting times, which can also impact their satisfaction with the service received. For the most part, waiting times were portrayed negatively by the women. Several of them outlined their dissatisfaction with admission times.

"I am extremely angry with the waiting times at hospital B. It infuriates me and I want to make problems with the whole department. Waiting times are horrible and unacceptable" (R, P4).

"The waiting time is the most significant problem, also there is no enough chairs .. the ER services are very slow, some women delivered in the ER waiting room. I felt sad" (U, P12).

"It was so crowded in the waiting room, some of the cases were so urgent, some women were bleeding, no one cares, we all have to wait for too long" (U, P12).

"The ER room is a very sad story, I thought to write about it in a journal one day. Women came in very urgent cases, some women go without any helper like mother or husband, and they wait for long time and feel dizzy they can't check whether their turn comes or not because they can't walk, if they tried to walk to the reception, they might fall dawn on the floor" (U, P12).

"I got sick and tired of the long waiting time, for example I had a medical issue, and I was waiting for 5 hours. I also saw some other patients in the waiting room were suffering of pain and sleeping while waiting to be seen by a doctor, I feel women are suffering due to the long waiting time in the hospital" (R, P7).

"Crowded waiting room, long waiting time .. between 2 to 3 hours waiting length. Doctors start seeing patients from 12pm to 4pm even that the patients come from 8 am" (U, P7).

Women mentioned that the high burden on the clinic and the shortage of specialized doctors increased the waiting time.

"I always wait between 2 to 3 hours if I want to see my main doctor because she was perfect and loves her patients and treats them very well" (U, P4).

"I wait an hour and a half or two hours until I see her. There are a lot of patients and just one doctor, so all of us have to wait for her" (U, P8).

Two women also noted that the large number of patients and the long waiting time leads to the inability of doctors to spend enough time with patients in order to reduce the waiting time and see other patients.

"I do not like the long waiting time and sometimes the doctor is in rush, so I cannot ask all my questions which caused hard communications specially some of the doctors from different nationalities and speak different languages such as English" (R, P3).

"I hope if the waiting time decrease as a pregnant woman I feel that it is too difficult to set all that long time .. the doctor has to inform us all the information we need and explain each test result in detailed not being in rush to finish our session and accept another patient in the waiting room" (U, P6).

There was no clear organisation or arrangement of patients in the waiting areas. Some Women who arrived promptly for their appointment were not able to be seen by the doctor because the preceding appointments had been running late or patients scheduled for earlier appointments arrived late. Moreover, making an appointment in advance was not sufficient to ensure that women could see the doctor quickly upon arrival at the hospital and women would still have to endure long waiting times.

"I hope the appointments become more accurate. They give us 8 am appointment but you see the doctor at 10 am" (U, P2).

"The waiting time length is up to 2 hours, although I attend my appointment on time, I still wait for long time, because the patients have to do some tests, so they go and return back to the doctor, so I wait for them to finish all their tests, therefore I spend more time than I spoused to. Moreover, after I see my doctor, I go to do x-ray, blood or urine test, and when I return back to the doctor, I find another patient in the doctor's room, therefore I have to wait again, I cannot get my appointment on time, never" (U, P9).

On the other hand, two women had positive experience regarding the waiting time length in hospitals, they reported that:

"Even though the hospital is so crowded, it is still organized what makes the waiting time less" (U, P13).

"The services in the hospital is totally perfect such as the waiting length is short, the doctors are taking care of patients very well. They first checked me and the baby, then took me to the available doctor. When I was in the doctor office, they give me enough time to ask,

and the doctor listen and treat me very well which made me so happy, all the staff are respectful, expert and experienced, I had a good experience at the clinic (U, P14).

5.7.1.2. Lack of sufficient time for doctors to see patients

Women reported that they would become worried or anxious if they had questions about their illness that were not answered. They therefore revealed that having sufficient time to comfortably talk to their doctor about their concerns was particularly important to them. A nine women reported being satisfied with time spent with their doctors. They reported that their doctors made them feel comfortable, allowed and encouraged them to ask questions and gave them the necessary information to ease their concerns.

"The time spent with my doctor was good" (U, P2).

"visit length about 15 minutes check me and fetus. she gives enough time to listen to me then I go out from her office so comfortable. she is the best doctor "(U, P3).

"I spent 20 minutes every visit. She wasn't in rush. Listening to everything. In the visit she explained everything and the sonar for me" (U, P4)

"The period time of each visit is 30 minutes or less sometimes" (U, P6).

"I spent sufficient time with doctor, all the questions were answered by my main doctor, however the physician assistant was not qualified, he did not answer my questions" (U, P7).

"I was seen by deferent doctors while I was sleeping in the hospital, and I had all my questions answered" (R, P2)

"The doctor spent 15 minutes with me, and I feel it was enough she respected and understood me" (R, P4).

On the other hand, the negative experiences of were highlighted by eight women. This was mostly attributed to the doctors' busy schedules and limited time to engage with patients. It was reported by these eight women that the doctors did not appear happy to listen to questions and concerns and were unwilling to provide requested information.

"My doctor was very rush which gave me a feeling that the doctor is busy and can't listen to me. Also, I didn't feel comfortable to contact with her during the visit time which causes me to forget some significant questions was prepared in my mind. The doctor finishes the visit in rush and sometimes forget to check the baby heart beating. Moreover, I waited long time before seeing the doctor and sometimes they lost my file which taking longer time to find my file" (U, P6).

"They didn't listen to what I said or want .. If the doctors explained everything honestly and kindly treated me, I will feel comfortable" (U, P10).

"When I was in her office she was so busy with other patients around her, sometimes talking on the phone, pressure on the doctor .. sometimes I got interrupted by other patients, no privacy .. sometimes I got checked in by medical students which bothered me. When they

are in the room my doctor didn't answer my questions and said nothing, everything should be done by them. I had no choice" (U, P12).

"Sometimes I asked about what to eat and not, but the doctor didn't have enough time to answer all the questions because of the crowded. She has a lot of patients" (U, P12).

"very quick visit, I spend very short time, fast like air, once I get to her office I stay for couple of minutes, and I leave. She didn't answer all my questions, even the answers she provided me, I feel that are general answers, not convincing answers that have more details. For example, when I asked about the baby health statues, she said yes, he's perfect, that's it" (U, P8).

Other women felt guilty to spend extra time with doctors and waste another patients' time:

"Each visit around 10 minutes, it depends on the visit, but what I need is more time. I could not ask what I need to know because I gave time for patients who are waiting after me" (U, P13).

"sometimes I was in rush, sometimes I can ask more questions and take my time, it depends on the crowded" (R, P4).

The women's experiences revealed a lack of quality care, according to the fourth Quality of Care Domain (timeliness). The timeliness domain is concerned with safeguarding against excessive waits and potentially harmful delays. When women wait hours to see a doctor and then during the visit, there is not enough time for patients to discuss their physical concerns with doctors and health issues may get worse. This is especially concerning because two people are at risk for being negatively affected, mother and child. When a doctor doesn't have enough time to check if a baby's heart is still beating, it shows lack of quality of care according to the standards set out by the Institute of Medicine (2001). Care should not be delayed or deferred because pregnancy rapidly progresses. The situations many of the women faced also represented a breach in patient-centred care. Patient centred care is providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.

5.7.1.3. Long distance to travel to health facilities

Women's experiences were negatively impacted by the long distances required to reach the healthcare facility. In some districts, particularly around the Large city of Saudi Arabia, this is not a problem, however, for women residing in rural areas, access to care is limited because healthcare clinics and emergency departments are very far away.

"There should be an emergency department in the PHCs in the rural area that stay open late because some people do not own vehicles and must travel far in rental cars and taxis to go the emergency room. The PHCs close at 3 pm, and if you are sick or injured after this time, you have to go to the main public hospital located 30-40 kilometres away ... also, the main *hospital in my village closes on Thursday, so urgent cases should travel to the other main hospital in "X" or "Y" village which are 120- or 130 kilometers away, and they are filled with terrific accident and women delivery cases, and people need car to travel there. So, if you have urgent care centers that work late will be prefect and cover a big gap. Sometimes we traveled a long distance in the middle of the night for something not urgent as*

high fever. If we have urgent care centers to deal with these types of cases will be better. The private clinics are expensive, and most people can't afford it" (R, P1).

"After I was discharged from the hospital, I didn't return back, I just follow the doctor's advices because of the long distance between me and the hospital" (R, P3).

"After I went back to my village I could not follow up with my doctor in Large City in Saudi Arabi because my village is in rural area which is far and there are no good hospitals here" (R, P8).

"Approaching the hospital is too hard, I actually travel by airplane to attend my appointment in the city because I do not like the health services in my village" (R, P4).

"PHC called me one time after the delivery to follow up but I couldn't because it's hard to reach the hospital, it's too far" (R, P4).

It was forbidden for women to drive in Saudi Arabia, and for many women, their male relatives who are permitted to drive must work during the day. Taxis are the only means of public transport that women can use, and they are very expensive.

"The process can be made easier in Saudi Arabia by implementing efficient transportation systems. A woman should have the right to drive to her appointment if her husband is not available. I believe that cost plays a major role in appointment attendance because socio-economic levels vary greatly throughout the country" (R, P4).

"Many individuals living in rural locations simply cannot afford to pay for transportation or communication. Many of them do not even know where to go". (R, P11).

Most of the women's experiences in this study revealed a lack of quality care, according to the sixth Quality of Care Domain (equity). The equitable domain is concerned with providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status. The rural women in this study disclosed that in their geographic location, there is insufficient transportation to gain access to their medical appointments. The situations the women faced also represented a breach in patient-centred care according to the standards set out by the Institute of Medicine (2001). This did not appear to be an anomaly, rather it was a systemic issue for rural populations in Saudi Arabia.

On the other hand, some women living in urban areas had nothing negative to report about transportation or the long distances to health facilities.

"The hospital was not far. I had no transportations issues" (U, P2).

"The hospital is close to me" (U, P4).

"the transportation is good I'm using Uber" (U, P5).

"The hospital is close to my house and its parking easy reachable" (U, P9).

"The hospital is about 20 – 25 minutes away from my house, and the access wasn't that much hard" (U, P13).

"The PHC is close to my house, but no parking at the PHC building .. the hospital A has 4 floors parking and outside parking around the hospital too, even though it is not easy to get space for your care because of the high capacity of the patients and the hospital usually is so crowded because the patients are coming from out the city they are coming from around the country" (U, P13).

In addition, women revealed that they often need to wait between appointments, and when they take their children with them, the latter would become tired; it is inevitably a long day for both mother and child. Women from urban and rural areas mentioned similar issues regarding the lack of children day care section in the hospitals.

"I have transportation issues since I live far from the hospital, also I have no body to sit with children at home during the doctor visit, their father needs to take a day off or to excuse for couple of hours to take care of the children" (U, P1).

"I hope if the hospital has children day care section because there is no children day care. Actually, I traveled from outside of the city and I have my children with them. sometimes the doctor suggested me for early delivery but the issue I face is there is no children day care section to take care of my children" (U, P13).

5.7.1.4. Difficulties with the appointment system

Women reported that issues encountered during the appointment scheduling process were significant barriers to their access to healthcare. Many women reported that the scheduling process lacked flexibility, which was a major challenge.

"I was told that: you must come back on this date. It was not a negotiation. I was being told that I would have to come at the specified time" (R, P1).

This inflexibility has resulted in misalignment between the available appointment times and the women's schedules. A woman described that she works outside of her home and cannot be in both their workplace and the hospital at the same time, therefore she was forced to take time off from her job to attend appointments.

"I work part-time, and one major issue for me is that I have to take many days off work or make special arrangements to attend my appointments". (U, P3).

The medical services' referral system has been painted in a negative light by many women. The most significant issues highlighted were waiting times for referrals, laboratory tests and admissions.

"They gave me a far appointment, I waited long time to see the doctor after I was referred from the PHC to the hospital" (U, P2).

"There is a long gap between the last PHC visit and first visit with the doctor in the hospital" (U, P1).

"The sugar test appointment was after a month, it takes time, long progress to make the appointment, needs to travel from building to other" (U, P5).

"They gave me an appointment to visit the diabetes educational department, when I went to the educational session, I found the department closed, then they gave me another appointment which was too far, and I delivered my baby before that date" (U, P2).

"The doctor got tired of my unstable sugar level and then she referred me to an endocrinologist, but I couldn't see him because the nearest appointment was in 6 months and my estimated delivery time was after one or two months" (U, P7).

"After I was referred to hospital B, I went to the reception, and they opened me a new medical record and I had an appointment there, but it was a far appointment. The issue with the hospital B is you have to wait too long for an appointment, it's a big problem, very big problem" (U, P8).

"I had a follow up appointment every week in my 9th month of pregnancy, and in each visit, I had my baby checked by the ultrasound in the doctor office, but it was so hard to get a 3D ultrasound exam. The appointment was after the expected delivery date which doesn't make sense, what I want from this exam after I delivered my baby. I need to see his head whether facing up or down before the delivery. Therefore, I went to the reception office, but they did nothing, then I went back to my doctor she said that she has nothing to do, then I left the hospital. After 2 months I had it done which was at the end of the 9th month of delivery" (U, P9).

"I felt tired and emotionally ill of the 3D ultrasound exam' appointments, they were very hard to make. I previously asked them to get a sonar photo, but they said it won't be clear, so I ordered 3D ultrasound exam 6 months in advance, 6 months is a lot, there was no

heavy orders on it because not all the women need it. Anyway, my appointment has been made at the third week of the seventh month of pregnancy, and I was so happy because it's kind of test that shows the exact fetus shape, but I had vaginal bleeding and the delivery date was before the 3D ultrasound exam date. In my situation, I think if I had it done early, they would see that the fetus head moved down to the pelvis" (R, P5).

Several limitations to the scheduling approach were also reported by the women, such as a lack of reminder notifications from clinics and issues with rearranging appointments for following non-attendance appointments by phone, often resulting in long waiting times until the next appointment.

"No-one follows up with us to remind us that we have an appointment, no texts or calls" (*R, P9).*

"Appointments in government hospitals are rescheduled for two months. My condition might worsen in this time" (*U, P14).*

"The PHC has never called me for an appointment" (U, P10).

"Taking an appointment is very hard. The patients present is mandatory which waste time and money for taxis because they do not allow us reschedule appointments by phone" (U, P5).

"They have a huge problem regarding the phone appointments. You should go to them and make the appointments at the hospital. Thanks god my house is not so far from the

hospital B. For example, I missed an appointment and I called them to make a new appointment, but they were careless. They said you have the previous appointment's card, so you have to come and make a new one. So, I took a taxi, it was so hard, it was a big problem. I used to take a taxi to the hospital to only make an appointment and return home. I hope that a woman can make her appointment from her house by phone. In the card, it was written, call to reschedule an appointment but that is a lay, you should go to the hospital's reception to make an appointment" (U, P5).

Woman noted that it was difficult to get an urgent appointment. They must chase people up between the departments to arrange an appointment.

"*There is a section dedicated to appointments in the Department of Obstetrics and Gynecologyy. However, I was asked to go to another building to make an appointment. When requesting an urgent appointment, they simply tell me that they do not deal with emergency appointments and that I needed to go to the main building. It would be better if they had a small section for urgent appointments. Pregnant, tired women like me are being forced to walk long distances to other buildings so that we can make appointments. It is not fair. There is already an appointment section, I do not understand why they cannot do it for us"* (*U, P4).*

"I used to go the Obstetrics and Gynecology Department to make my appointments but if I want an appointment after one or two weeks, the receptionist tells me you have to go to the out-patient reception to make an urgent appointment, but if it is after a month or more, I can make it in the same department. For example, after I delivered, the doctor gave me a follow up appointment, but I couldn't attend it because I was sick and forgot it, they also didn't send me a reminder. However, I tried to reschedule it, but I couldn't do it by phone,

therefore I went to the hospital to explain them my situation, they said we cannot reschedule it, we have to see the department's secretary to decide whether or not give you another appointment, you have to wait. Now, I finished 40 days after delivery and I didn't see my doctor" (U, P5).

"If I got sick between visits or I need to see a doctor I have either going to a private hospital or wait until my appointment" (U, P10).

"It is impossible to see the doctor between visits, it must be in advance a follow up appointment, I was nerves during my whole pregnancy, I was wondering what I would do if I got sick between my follow up visits but thank god that I was not in urgent situation where I have to see the doctor between my follow up visits. I did not know if they would accept me directly in the ER or what would be happen if got sick" (U, P14).

Two women reported unorganized appointment process which made them feel unhappy and disappointed.

"One day, I went in the afternoon to the appointment section in the main building to schedule appointments for three tests the doctor asked me for, the workers were not in the office. Someone works at the hospital advised me to returned next day to make the appointments. Next day, I returned to them, and I met a very rude lady, she is very very bad, I asked for an appointment, and she was yelling on me saying the appointments are finished. How did they finish? Yesterday my doctor gave me prescriptions for three types of tests which have to be done in two weeks. She told me why you didn't come yesterday? I told her I came but nobody was here. She said this is your problem not ours. So, where I have to go? When I

go to my doctor, she tells me you have to go to the appointment section, and when I went to the appointment section, they told me we don't have an available appointment for you.

My delivery is very soon, and I have a follow up appointment in 2 weeks, I have to follow up with my doctor and have the result ready by that time. I told her I really need the tests appointments. She said I will give you an appointment in 4 weeks.

Then, I went back to the appointment section at the Department of Obstetrics and Gynecology, I found a nice guy works on the office I explained him my situation, then he singed my appointment's paper and gave me very soon appointment for my three tests and he said don't worry come to your appointment and you will have them done. See how easy that was? So, what does that mean? That means they made it hard for us.

Why did they make us tired in order to have an urgent appointment? If he can do it from the beginning, why he sent me to the main building and made me go back and forth many times? I swear to god, 4 or 5 times I was going back and forth between the main building and obstetrics and gynecology clinic to make an appointment, my feet hurt me, I couldn't walk, and in the end the guy made it for me in less than a second.

In my appointment day, I took my signed paper with me and I gave it to the receptionist of the appointment department in order to have my tests. He told me who made the appointment for you, I replied your coworker here. He said my coworker is absent, I said what can I do for him, if he is absent, I cannot get in. He told me wait he might come. Can you imagine that? I have waited maybe for half an hour to see whether or not the absent guy will come.

Then I asked him, did your friend come or not. He said no, but that's fine you can go, I'll let you in instead of him. There is negligence, extremely negligence in the matter of making appointments. They have to take it more seriously" (U, P8).

"One day, I had a pregnancy a follow up appointment and an X-ray appointment in the same day, and my doctor should see the X-ray result before I see her, therefore I went early in the morning before my doctor appointment to the radiology department to have the X-ray done but the radiologist told me my X-ray appointment at 1:30 pm, I informed her that I have to see my doctor at 9:25 and I need to have the X-ray before my visit, I also told her the receptionist should have made the X-ray appointment time before my doctor visit time. The radiologist asked me to go and speak with the clinics' director. I told her the problem is not from the radiology department nor the outpatients' clinics, it's from the receptionist who is responsible for the appointments, she should organize the appointments, so by the time I see the doctor I have the X-ray result ready.

Basically, if I went to the doctor before I had the X-ray, the doctor will have me wait until I finish the X-ray, and if that happened, I'll tell the doctor to check me today and see the XR result next visit.

Anyway, I went to the clinics' director because the radiologist refused to let me in unless I go to the director and tell him everything, and then I go back to her and tell her the director's response. I think the radiologist saw that I knew how the appointments system should organized and she wanted me to explain my opinion to the director.

I went to the director, and I felt that he had a problem or conflict with the radiology department, however I explained him everything and I told him why you didn't improve the quality of the appointments processes and I told him that the X-ray appointments should be before the doctors' appointments time. After I told him everything, he wasn't confident and said there are other patients who have the rights to have their X-ray exam before you, I told him I know that there are patients who have appointments that booked in advance before me or other who have urgent cases, but you have to inform the receptionist who make the appointments that the clinics appointments should be after the X-rays appointments time not *the opposite, to enhance the work quality. However, I didn't feel that he benefited me, so I left because there are a lot of men in that section, so I didn't want to spend a long time there. After that, I went back to radiologist and she let me have the X-ray exam because she promised me if I explained the director the situation and returned to her to tell her what happened with him, she will allow me to have the X-ray exam" (U, P9).*

"I hoped if they schedule and organize all the tests and exams in one day, I used to go to the hospital 2-3 times and I do not finish all of them" (U, P9).

Women expressed their desires to improve the appointment system.

"I really really want them to improve from A to Z., and enhance the services, the appointments system is very very slow, I don't feel they even have a specific system for it" (U, P8).

"I wish the appointment system and process improve" (U, P5).

"If some patients have urgent cases, they should give them faster appointments" (U, P13).

Despite the women's negative experiences, other woman reported that they were satisfied with the easy appointment processes:

"They texted me a reminder message after I booked the appointment and a day before .. After I finished my appointment the doctors gave me a paper has the next appointment date and I took it to the receptionist to register it in the system. I felt satisfied" (U, P4).

"I easily make the appointments by myself in the front disk, then they text me the appointment, then remind me a day before" (R, P4).

"If I missed my appointment, they gave me another appointment after one or two weeks" (R, P6).

Positive experiences were also reported by another two women, who indicated that staff were helpful and supportive.

"The individuals with whom I spoke were considerate, patient and well informed. They were able to give us accurate information about the appointment dates and times available." (U, P15).

"They were very cooperative and helped with anything I needed, including scheduling appointments and changing appointment times. I was happy with their cooperation." (*R, P7).*

Most of the women's experiences in this study showed a lack of quality care, according to the fourth Quality of Care Domain (timeliness). The timeliness domain is concerned with safeguarding against excessive waits and potentially harmful delays. The inflexibility of appointment dates, lack of coordination with other departments (like radiology) and especially stressful with women who have comorbidities and multiple obligations, like other children. The situations the women faced also represented a breach in patient-centred care.

5.7.1.5. Lack of proper registry services and electronic health records systems.

Several women spoke of losing their paper medical files or having to wait long past their scheduled appointment time to be seen. This has meant that patients have to waste consultation time discussing their medical history and medication usage and have less time to ask important questions about their illness and treatment plans.

"Sometimes they lose my paper medical record which causes a delay especially I go too early to the clinic, so this point has disappointed me a lot. Additionally, I didn't feel comfortable explaining my whole situation each time to a deferent doctor, and each doctor say something deferent. One of them doesn't want me to take a medicine and the other says it is fine you can take it; I mean like tablets or any treatment. So, their recommendations and treatment are not similar because they don't have a clear idea about my condition" (U, P9).

"One day, I went to the hospital for a follow up appointment, but the nurse told me you should wait until we find your medical record and hand it to your doctor, it is lost. I have waited for long time, and each time I ask her did you find it she responds no. I was so mad, how they lost an important paper like that, then I told her I will leave the hospital and call me when you find it, I cannot wait more, then she let me see the doctor without having my record. The doctor asked me to tell her everything I know about my condition from the first day of pregnancy. It is wasting of time" (*U, P4)*

Most women expressed their need to have a full electronical medical record to let the doctors know all the patients' conditions, tests, X-rays, and everything related to them. Moreover, the complex processes of the registration services decrease the women confidence and trust on PHCs. One woman reported:

> *"They are very slow and inflexible, the way of opening a new health record in the PHC is very complicated, for example I moved to live with my aunt because I had a conflict with my husband, my husband's house is in X district but my aunt's house is in Y district where I lived for a period of time with her, so I wanted to open a health record for me in B5 PHC which is closer to my aunt's house than B6 PHC, but they refused saying go to B6 PHC which closer to your husband's house .. They asked me for my husband's house contract, and I told them I will bring the one for my aunt's house in Y district, but they refused and asked me to bring the contract of husband's house in X district. I couldn't bring my husband house's contract, therefore they refused to provide me the GDM healthcare services that I needed, they did not even allow me to open a a medical record. I have discussed my situation with them that I had an issue with my husband, but they did not cooperate with me. Now, I would like to open a file for my baby, but I cannot, especially my small baby needs care and vaccinations. I feel like they have a very long and complex processes. Actually, I do not trust PHCs, even if I got sick, I do not want to go there" (U, P8).*

The women also expressed their annoyance at their inability to view their medical records and obtain copies of their medical reports or tests or exams to show them to another doctor or to transfer to another hospital, however the hospital protocol caused by Saudi Arabia's health service policies has affected that. Under this policy, nursing staff are forbidden from given certain information to patients.

“They said it’s not allowed to get my record or tests results, so I couldn’t go to other hospital. My doctor gave me a brief report which wasn’t accepted it by another hospital, it wasn’t enough, so I delivered my baby here” (U, P10).

“It is not allowed to see your records, the doctor is the only one have the right to read it, he only discusses the result with us” (*U, P12).*

“After I finish the test, I asked her if I can see the result, she said I cannot give it to you, we send it directedly to your doctor, I ordered a copy of it, but she also refused” (U, P3).

“The doctor usually discusses the test result with us, but we cannot have a copy of it” (R, P3).

“I have to wait a long time to receive my results from the doctors. The nurses are not allowed to disclose this information before the doctor. This causes me a great deal of worry and anxiety about my wellbeing” (U, P5).

Most of the women’s experiences in this study exposed a lack of quality care, according to the first Quality of Care Domain (safety). The safety domain is concerned avoiding harm to patients from the care that is intended to help them. When electronic patient records are not maintained and used efficiently, doctors can lack crucial information for the treatment of the patient. For example, if the mother had a medication allergy and that information gets missed it could potentially harm or be fatal to both the mother and the unborn baby.

Additionally, with the issues of timeliness and equitable access already mentioned, its likely a patient would not be able to get their records created from scratch in a timely fashion, as the pregnancy progresses. The situations the women faced also represented a breach in patient-centred care.

5.7.2. Theme 2: Communication Factors

In the interviews, various issues with communication were reported as having negatively impacted women's experiences of GDM health care. The communication-related issues expressed were lack of provision of clear written- verbal information to women, poor of communication and coordination within secondary care and lack of communication between primary and secondary care (see Figure 5-3).

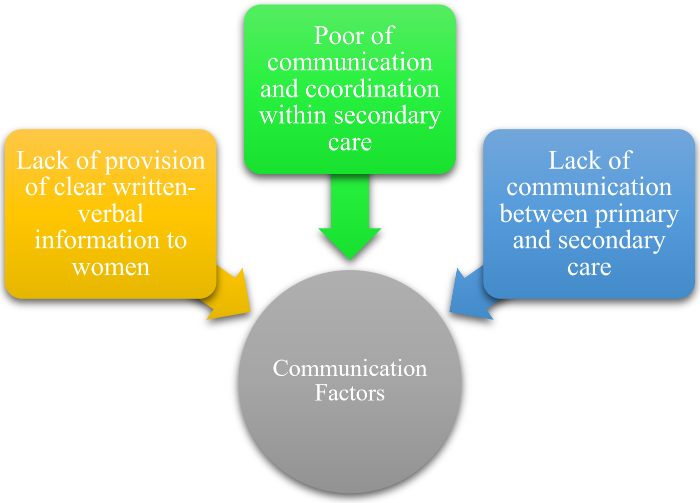


Figure 5- 3: Theme 2 Communication factors

5.7.2.1. Lack of provision of clear written/ verbal information to women

The qualitative research findings also revealed that the information-sharing between doctors and patients is sub-standard. A majority of women from both rural and urban areas reported negative experiences with regard to the information shared regards the GDM and lifestyle modifications, they also emphasized the anxiety and worry caused by this. This is evidenced in the following quotes from women:

"I took the injections wrong, I didn't know how to do it correctly, nobody taught me" (U, P2).

"They didn't inform me how to change my lifestyle such as exercises, only gave me a bag for a device to take the reading every day and record it in schedule" (U, P3).

"I did not know how I can control the diabetes. After I was referred to the hospital, they just checked the sugar level and said everything is fine. They also gave me a Brochures about the diabetes. I heard that they have a DM education department, but I have never seen it, I did not see nutritionists. My sources of information are my family, my relatives and the internet. I wished if I was given a treatment plan and enough information about fetus, exercises and food. If I had that information since I got pregnant, I could avoid what happened to me. In my case, I didn't know about the GDM and that I could have it at the last month of pregnancy .. I was afraid if diabetes stays after delivery as some people told me" (U, P3).

"Nobody from the DM education department or the internal explained me what to eat, or the best diet for me, what I should do to control the sugar, nothing. They only measured my sugar level and discharged me. After I had the 3D ultrasound exam, I saw that my fetus became smaller. His size was good at the 7th month of the pregnancy, but after I slept in the hospital and followed a strong diet, they found that the fetus became very small. A doctor

from the Embryology department told me they should have explained you that you have to eat 6 meals, 3 snacks and 3 main meals that has protein, vegetable. All this information no one explained it to me before. Then, I started from the beginning trying to enhance my nutrition to increase the fetus size. I visited the embryologist after 2 weeks, she said the fetus size started improving, that was after I modified my meals and increased it to 6 meals. The food advices were given to me by the embryologist, it wasn't from the nutritionist or my obstetrics and gynecology doctor. Then I was hospitalized in hospital B where they were measuring the sugar level 2 hours after each meal and then they prescribed me a Glucophage medicine and asked me to take it on time. The dose was 500 mg and I should take it twice a day which means 1000mg a day, but no one explained to me when I have to take it, what kind of food is appropriate with it and what is not. I was searching online, Actually, no one from the medical staff informed me, I suffered very much in the subject of food. I avoid eating the fat food, I also tried to avoid any type of food that increase my sugar level, I stayed away from eating carbohydrates, I could not find anything appropriate to eat, so the fetus size decreased again, I could not find a solution, I really really suffered" (U, P4).

"I did not get enough information about how to take the insulin injection at home, so I used to go to the PHC twice a day to get the insulin injection. After a couple of months one of the nurses taught me how to take the insulin injection by myself at home" (U, P6).

"Doctors didn't inform me any information even what is the reading for normal sugar level .. nobody told me 150 consider as a high sugar reading. Actually, I thought only high readings are dangerous .. I thought it is good to have as low as possible sugar reading. For example, sometimes my sugar reading was 150, but I didn't know that is a high sugar level. On the other hand, sometimes the sugar level dropped down to 60, and I think it is good

because it has to be low not high. Basically, no one explained me what is the GDM because this was my first-time getting diabetes in my life .. I don't know anything about how to control the sugar by following healthy food or exercise. I know nothing" (R, P6).

Several women spoke of receiving GDM information verbally which was hard for them to remember at home. Another, who received written information, spoke of its insufficient details.

"It's better to understand and remember the information when they verbally explain it and then provide written instructions to follow, but they did not give us any written instructions" (U, P5).

"I haven't had a treatment plan. She just checked the sugar and gave me a paper for food instructions" (U, P4).

"The doctor did not explain what is the GDM enough, she referred me to the DM educational department which wasn't good. They did not give me the information I needed, they only gave me one paper for food, it is not enough for me, I cannot eat the same food for 3 months (U, P4)".

"The doctor gave me some information about the GDM, but it was not written and was not enough to understand my disease and how to live with it, for example how to modify my life" (U, P6).

"A little information was delivered buy a diabetes educator about the lifestyle modification .. but until now I don't know what GDM means, and whether or not there is a

GDM after delivery, the only things I'm sure about is if followed a healthy diet, and did not get mad , I will avoid having the diabetes forever .. she didn't explain me anything else" (R, P2)

Several women spoke of doctors not monitoring their diet and asking them for their progress or obstacles after handling the written instructions.

"The doctor just gave me the paper and didn't ask me about it again. She gave it to me and done, that's it. She didn't ask me if I'm doing a good diet or no, actually, she didn't ask any questions regarding my diet or exercise" (U, P8).

The need for information related to mental health was among the priorities of women's needs, as they suffered from the inability to control their anger or sadness most of the time, which affected the stability of sugar level. However, most of the women expressed the lack of sufficient psychological information related to pregnant women with gestational diabetes.

"didn't receive any information about the psychological changes regarding the GDM pregnancy .. no emotional support .. each person tells u something deferent about the GDM, I don't know if it will stay after delivery .. I wish the doctor gives extra information about the GDM .. my relatives who had GDM is my only resource of information .. I was so nervous and angry most of the time, I wish if the doctor told me why and how to be calm" (R, P2).

"No advices or information about how to s control your feelings, or how to escape the negative feelings that is caused by the GDM .. Information about the diagnosis, complications, and treatment were not received too .. I used internet as the only resource for

information .. No group patient to shared information and experiences in the hospital" (U, P7).

As a result of insufficient GDM information, a majority of women relied on the internet, family and friends as alternative sources of information to get the information they needed, however not all the information is correct or match their conditions which make them feel worried. Some women said:

"I had a little background about the GDM because some of my family members had it .. The doctor did not tell to stop the tablets after the delivery, and it would affect negatively on breast feeding but I read that" (U, P4).

"I wished if someone explained me everything about GDM not reading from the internet because it might not be accurate, I wish if a specialist sat with me and explain it very well. On the internet each person says something deferent" (U, P4).

"There is no hospital educational department, we chat with other women in the waiting room or while we are sleeping in the hospital to exchange information, or experience or complaints. We also use the internet as a source of information" (U, P5).

"No one supported me educationally in the hospital. she didn't give me a plan or instruction when I have high or low sugar .. The nutritionist should inform me .. My husband was advising me to do with GDM because he has type 2 DM .. Also, when I read online the information is not accurate and general information depends on the writer experience which is deferent than my situation .. I wish there is a DM educational department" (U, P10).

"The DM educational department explain me some stuff about GDM, but I still need to ask some of my relatives and friends, but I don't prefer looking online which makes me nerves and worried" (U, P10).

The discussion went further, and several women suggested that hospital should take the responsibility of providing the written information such as establishing a health education department or printing books or brochures to increase the health awareness related to pregnant women health.

"I think the health education should be the hospital responsibility itself. For example, when I go to the hospital I love walking around, so when I walk, I find the holy books, some books about the natural birth, cesarean delivery, and gestational diabetes, but unfortunately torn and thrown on the floor, and there is not enough number of them. So, this is should be the hospital responsibility to make an appropriate corner in each department for these books. In addition, the Obstetrics and Gynecology department should have their own education department that discuss the common health problems pregnant women have, such as the GDM, natural birth, and cesarean delivery, in addition to some books that explain these problems and describe them. At least give the patients an overview of the problems they suffer from, and the prevention methods. And I hope each time the patient sees a doctor; the doctor tells the patient you can take one of the books and read about your condition. That's it" (U, P8).

"Initially I use the internet when I need any information, but something you find information that your mind can accept it, you know that the internet has myths, so when my

mind didn't believe it or accept it, and at the same time I hear something opposite to what I've read, I got confused between what I have read and hear, I start to contact a doctor and ask her about my individual case not someone else's case. You know the internet usually have cases similar to you but still not yours. So, other women could have similar case but one small thing deferent that might affect on the whole case, so I can't follow the suggestions that I found on the internet. I see the hospital should take the responsibility to provide us the necessary information and establish a specific department for health education" (U, P8).

Nonetheless, a very few women did not face challenges to get all the important information from the doctors or health educator.

"*The doctor informed me all the information and the nutritionist explained me what I need to eat and what to avoid" (R, P4).*

"My doctor gave me enough information about the diet, and I didn't face any issue in following the diet" (U, P9).

"They informed all the information that I need to know about my situation such as what should I eat and how can I take the sugar reading, the also provided me a free sugar measurement device and sent me a specialist to show me how to use the measurement device, and she spent enough time to explain me how to clean it with the alcohol pads and how to take the reading" (R, P4).

"They explained the GDM very well" (U, P1).

Most the women's experiences in this study revealed a lack of quality care, according to the first Quality of Care Domain (safety). The safety domain is concerned avoiding harm to patients from the care that is intended to help them. When doctors do not sufficiently educate patients, it can lead to unnecessary emotional and physical distress. For example, if the mother does not know how to effectively self-treat an insulin reaction, it could potentially harm or be fatal to both the mother and the unborn baby. Additionally, with the issues of timeliness and equitable access already mentioned, its likely a patient would not be able to be seen fast enough in an emergency.

5.7.2.2. Poor communication and coordination within secondary care

Most women reported feeling uncomfortable about the need to detail their medical history, the tests they took, and their health condition at each follow-up visit with different doctors. In addition, women faced challenges in following with doctors' advices and instructions since they have conflict opinions regarding treatment.

"There are no communications between doctors, each time I go to a new doctor I described her my condition from A to Z, and sometimes I forgot to tell everything that happened to me the last 2 or 3 weeks, if there is a communication between the doctors or there is something written in my record, will be better ... I also had to tell them all my medications .... their conflict opinions confused me" (U, P4).

"Every follow up was with a new doctor, it was difficult for me to explain everything from the beginning in each visit ... each doctor said something different than the previous doctor such as start using or stop using some treatments or medications which made me

confused. Even though the doctors had my health record to check what the previous doctors wrote about my situation, they still had conflict opinions and advices" (U, P6).

"Each follow up visit I saw new doctors, and I had to explain them everything and remined them of my condition ... I feel like there was no communication between the doctors" (R, P5).

"When I see my main doctor, I spend enough time with her ... she knows everything about my case, but when receptionist sends me to other doctor, the new doctor does not know anything about me, and he wants to get rid of me fast ... I have to explain the same information each time to each doctor, I wish they have everything written in my health record, or they communicate with each other to exchange my case information ... Sometimes I insist to see my main doctor, then they ask me to wait until next week to see her. If the other doctors did not know my condition, why should I see them? ... the doctors gave me deferent advices and doses for the insulin injections" (U, P10).

"They work in one team, so they should know my case ... I chose a well-known doctor with a good reputation, but she transferred me to another doctor to check and consult me, the other doctor did not know anything about me, at least he should have known my health history and medical condition, but what happened is he told me you don't have GDM while I have it. He advised me to eat what I want, and he prescribed me other type of food which wasn't suitable for my diet. After I saw him, I was eating everything, but I was thinking is that right? Should I follow his recommendations or my main doctor' recommendations, I was confused. I did not feel comfortable in fact" (U, P8).

"I felt very uncomfortable having to explain my situation again to different doctors. Also, each doctor said something different about it. One would tell me not to take a certain medication, while another would tell me to take it. They all give me different recommendations and treatments" (U, P5).

For most women, the effective communication between doctors was viewed as fundamental to share sufficient and accurate information about the patient which assists them to make the unified decision regarding the appropriate treatment for the patients. Furthermore, for these women, recording the patients' health status in the medical record alone is not a measure of the effectiveness of communication between doctors, as most of these records lack some important health information, which women must repeat at every visit. Women believe that all doctors should write all the minute details of patients' cases and then discuss them as a one medical team to get a complete picture of the patients' conditions who are assigned to follow them up.

"Whether or not they take a look on my health record, they have some conflict opinions between each other. I wish if I can set and talk with each other, that will be better" (U, P8).

"I noticed some bad points which are the doctors not contacting with each other. I tell my health information from the beginning of pregnancy in each visit, although the doctors have my record between their hands. I felt tired of explaining that every single visit. I hope if they know my health situation and problems, it will be more comfortable for me .... I cannot trust them and follow their advice with confidence. Actually, when I enter the doctor's office he looks into my record while asking me about my health and my medical issues, all doctors'

questions are the same, even though I answered them, and they have the answers written in my record, the still ask me the same questions. They seemed like they did not know my case, or they did not read my record earlier to get an idea of what I had" (U, P3).

"I felt worried that they ask every time the same questions even the background questions such as my age, my weight, my previous kids, whether or not they were normal deliveries, and whether I had obstacles or consequences during the previous deliveries? Even though, I saw that the previous doctors wrote all this information before, they still asking me everything again and again, Actually I don't know why they keep asking me the same questions which annoyed me" (U, P14).

"No communication between doctors, they write in my record and the other doctor read it. They didn't call each other" (U, P12).

"Each doctor when I asked him or her, they said ask the other doctor tomorrow, no one answered me, each one referred me to other one ... Wrong information ... no honesty" (U, P10).

Few women described positive experiences of dealing with different doctors during the pregnancy follow up visits.

"They contacted with each other and read my medical record, Feeling satisfied with their coordination" (U, P2).

“The cooperation between the doctors is good, each one of them knows my condition %100 and reads my health record” (R, P2).

“Initially I felt uncomfortable to be seen by a different doctor in each visit, but when I saw that they are all aware of my condition I felt comfortable” (R, P2).

“I only explained my condition and illness in the first visit … the doctors had good communications with each other’s, they knew everything about me without the need to repeat the explanation by me again. The doctors who I followed with were understanding and cooperative” (R, P3).

“Doctors contacting each other very well then the internal doctor asks me some questions about the symptoms” (R, P4).

“Each visit I see a different doctor, and the doctors know my case because everything is written by the previous doctors on the records … before my appointments I usually do exams and tests, and the doctors check all the results, so they don’t need to ask me, but if I have some new symptoms or questions, they listen to me” (U, P13).

5.7.2.3. Lack of communication between primary and secondary care

Almost all patients found that the GP referred them quickly and appropriately when they diagnosed them with GDM, and they also decreased the time duration between the referral and the first consultation with the specialist. Actually, all the pregnant women with GDM were referred to the secondary care depending on the new Saudi women health policy.

"I was in the PHC and the doctor saw that the sugar is a little high then she referred me directly to the hospital .. I waited long time from the referral to the first visit, in the hospital they did not take me seriously, I told them I have GDM, but they did not do anything, they did not make any tests for me, after the third visit I insisted to have the sugar test, then they saw that I have GDM and required me to sleep in the hospital to take care of me" (U, P3).

"I was following up in the PHC, but I didn't know that I had GDM, I used to feel dizzy and tired all the time, I have anemia, so I was thinking it might be because of it, but the doctor told me it is very important to have the sugar test, so I had it and I found that I have GDM ... then my doctor referred me to the hospital to make the juice test because they don't have it in the PHC. I was referred in the 7th month of pregnancy" (U, P11).

"At the 8th month of pregnancy, I knew that I have diabetes when I visit a doctor in the PHC, then she referred me to hospital C and I got the treatment there" (U, P4).

A majority of women spoke about the problems with the transfer of information at the interface which were considered a significant cause of delays in care delivery and frustration. In addition, women spoke of their GP did not stayed in contact with them after the referral.

"*PHCs did not contact the hospital, so secondary care providers had to open new medical records for the patients when they attended their referral appointments. Patients also had to explain their medical history from scratch all over again because the PHCs failed to tell them anything about the patient's condition. Secondary care doctors thus knew nothing about the patient or their situation. Following childbirth, the women had to go back to the PHCs to get their child vaccinated, where they often found that the PHCs had not been* *updated about their health conditions or any treatment that they had undergone throughout their pregnancy."*

"After I was referred to the hospital, I returned to my doctor in the PHC because in the hospital nobody did any test for me, she advised me to return to the hospital and ask them again because she cannot call them" (U, P2).

"primary care clinics don't talk to hospital clinics or ring each other. I find the whole thing incredible the length of time it takes; it's just been horrendous, waiting weeks to see a consultant to be told 'I don't know anything about your case, you have to redo all the test and exams to be able to treat you .. it can make you feel very insignificant"

"I visit PHC and asked them to do the test, but they didn't have this kind of test but they referral me to hospital F from 6th month, but hospital F didn't do the test until beginning of the 9th month .. they didn't communicate with each other regarding my test" (U, P9).

"There is no communication between sseparate clinics. It is astonishing how long the process takes. It has just been horrible. I have waited for weeks to be seen by a consultant and I have had to repeat my health history several times. I have also had to redo the tests that I have already done at the PHC. I am very unhappy with this."

Most women reported poor communication and coordination with secondary care which represents a lack of quality care in the safety and effective care domains (IOM, 2001). The first Quality of Care Domain is safety which is concerned avoiding harm to patients from the care that is intended to help them. The second Quality of Care Domain is effectiveness, by providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively). The situations the women faced also represented a breach in patient-centred care.

During pregnancy, many appointments are sequential, and the timeliness and coordination of care is critical to positive patient outcomes that represent patient centered care. Their experiences expose a multitude of lack of timeliness and coordination, and an overall lack of patient centered care, according to the standards set out by the Institute of Medicine (2001).

5.7.3. Theme 3: Health providers' factors

Through the women's interviews, it was revealed that interactions with health care providers significantly impacted their perceptions of the care they have received. There were three factors involved in this theme, namely: lack of expertise doctors with respect to gestational diabetes, lack of respect, empathy and support, and nurses lack of proficiency
(see Figure 5- 4).

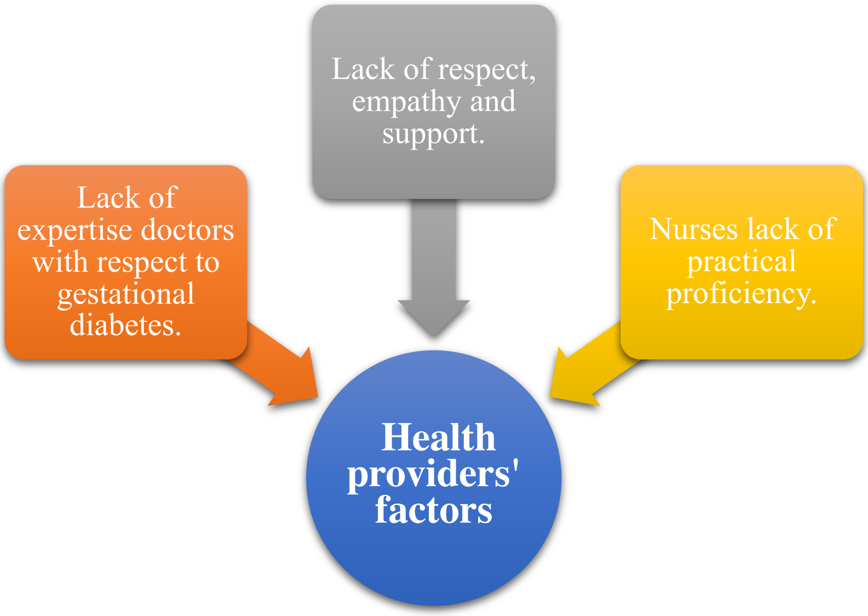


Figure 5- 4: Theme 3 Health providers' factors

5.7.3.1. Lack of expertise doctors with respect to gestational diabetes

Some women spoke of the doctors' inability to examine them accurately to ensure they have GDM, while others spoke of their doctors not requesting them any blood or oral glucose tests until late in the pregnancy even the doctors were informed, they have a family history of diabetes, which led to delivery complications and psychological problems such as C-section surgery, stress and insecurity.

"The thing that I didn't like is when I went for a visit and the doctor told me you do not have GDM, but then, I knew that I have it" (U, P8).

"I slept in the hospital a month before I gave birth, my sugar was high. I was seen by a doctor from my main doctor's team, I told him my condition. He said who told you that you have sugar? I told him Dr. X, my main doctor. He said you don't have sugar. I told him, so I have sugar now or not?? Tell me the last decision. He said no no, I told him are you sure? He

said yes, don't believe your doctor when she said you have sugar. I think they had a conflict or problem between each other that time. Even when I had the C-section surgery, the surgery was delayed because they were waiting for him, and he did not come, so my main doctor had another assistant doctor with her, she said I'm not waiting for him. He was so bad with me. Actually, I don't know how he became a doctor .. no morals, no awareness of patients' health conditions, and he is a super neglected. To make you feel calm he says anything wrong. There is a different between you make me feel comfortable and just laying on me. When you tell me, you don't have GDM, while my doctor who follows up with me and knows my condition very well said I have it, you made me feel the doctor here are not qualified, and you all cannot consult me correctly" (U, P8).

"I didn't know that I have diabetes until a week before I delivered my baby, although I informed them that some of my family have diabetes .. I didn't get enough sugar test .. I ordered hemoglobin A1c test twice, first they said there is an issue in the system, the second time they did it, and the result came out after 2 weeks when I was at the end of 9th month of pregnancy ... they asked me to follow a diet for a couple of days then I had the C section surgery" (U, P9).

"The doctors didn't inform me that I have GDM, I wished I knew earlier I didn't even know when it started, in which month" (R, P7).

Women also spoke about lack of doctors' knowledge regarding the appropriate treatment for individual patient, in addition to the amount and duration of the treatment use, as some women have fallen into health problems because of using excessive insulin doses prescribed by their doctors.

"During one visit to the doctor, she called another doctor to ask which medication should be given and the dosage requirements. This gave me the impression that the doctor lacked expertise. What is more, I have seen some doctors who have not even checked my sugar levels. They do not address the needs of diabetic patients" (U, P1).

"If I listened to them, I would use the insulin injection until now which will cause me having the T2DM for the rest of my life" (U, P10).

"The doctor did not advise me to stop the tablets after the delivery, so I was taking it while I breast feeding my baby to protect myself from T2DM" (U, P4).

A few women spoke of deaths, injuries and illnesses that occurred to babies and mothers due to wrong diagnoses and medical decisions. Doctors do not take the adequate time to examine and diagnose women and are to make medical decisions.

"When I went to the doctor, I told him that I feel I am sitting on something bothering me, he advised me to relax. After that, I noticed a lot of vaginal discharge, and I went to him again, he told me it is normal, I said no when I wake up, I feel wet. He said if it is odorless, then it is harmless. I ordered a 3D ultrasounds exam, but he refused, and I also asked him for a medical excuse for absence because I am an employee, but he refused on the grounds that my health is good, but I did not go to work because I do not want to lose my pregnancy, especially since I was suffering from infertility for 24 years and I am trying so hard to become pregnant. However, 2 days after he told me the everything is normal, I had vaginal bleeding. I went to the ER, they told me that the placenta was opened .. I saw him in the ER

room he said what happened to you I just saw you 2 days ago, I told him I had vaginal bleeding. Anyway, he felt sad about me, and I can tell from his face and voice that he felt guilty and said to his assistant that I came to him and complained, and I told her you are fine and should practice your normal life and go to your work. In fact, I felt mad, I wished if I could save my baby, but I know that I didn't have luck. I lost my baby in the 23rd week, if I was in the 26th weeks he might be fine. Then, I told myself I shouldn't blame myself or my doctors it's a luck and a desire from the go, but at least I wish if he checked on me and see what type of vaginal discharge I do have, I have noticed it for two weeks, and each time he said it is normal, normal, normal. I have no experience in pregnancy, I was not pregnant before, beside that I was fine all the time since I got pregnant. The other problem is my chance to get pregnant again is less because I am almost 40 years old" (R, P5).

"Sometimes they take wrong decisions without double check. sometimes the ultrasound machine shows unclear reading of the fetus heart beats because is not working very well, and they thought that something is wrong with the fetus may have died. I told them I feel that he's moving and he's fine, but maybe your machine does not work. I told them if my health and my fetus condition are fine don't rush the delivery, they said we will retake the reading and if we found the same result you will make the C section surgery. When they checked the fetal heartbeat rate again, they saw that his heart sometimes is not beating very well, but I felt that their machine has a problem. They were in rush to do the operation for me. They told me you have to deliver soon. That was Thursday night and they required me to deliver the next day on Friday, they told me the fetus may be dead, we have to do the surgery so fast, I said no. I told them don't rush me while it is not my delivery month. At that time, I was in the 8th month because I remember in this visit my doctor after I finished the fetus radiology exam told me you haven't entered your 9th month of pregnancy yet. Then, she gave

me another appointment to visit when I start the 9th month to determine the delivery date, but they said you spent one week in your 9th month and you most have the operation now.
You know that when all the team comes to you that makes you feel worried. All the medical staff came to me in one time, and they were talking in English and I did not understand what they were saying, and I felt more worried. My blood pressure went high …. After they left, I felt more comfortable, but they returned again to me saying you should have the surgery, I told them my main doctor is not here, who will do the operation for me? they said, "Dr. X" the Egyptian doctor, and he has someone with him, but she is not a doctor, her name is "Y". "X" is a medical student, and she is the one who made the surgery for me not Dr. X …. In addition, when I came to the hospital on Thursday for the fetus radiology, I was fasting before the exam, however they did not allow me to eat from Thursday until Friday, they made me fast for two days. I told them for sure the fetus will be sleeping because I have not eaten anything since, I came to the hospital on Thursday evening for the ultrasound exam until now. The said no, no, no, no, the baby may have died. They did not listen to me when I told them the operation will affect befell on me and my baby size and I asked them to wait until the second week of the 9th month of pregnancy, however after I delivered, they saw that the baby was sleeping, there was no reason for rushing me to deliver. I know that he was sleeping, because it happened before. I went to the hospital while I was fasting, and they thought that the fetus is dead. They rushed the operation decision. Now, if you see my baby you will think he is 40 days old not 4 months. He is very small and has couple of health problems since he was born" (U, P10).

"I wished if they improve the medical staff and the GDM healthcare services to treat the patients very well. All my pregnancy follows ups here end with fetal death. They are not interested in doing any type of diabetes test. For example, in my third pregnancy, they said it

is impossible that you have GDM, they did not check my sugar level, in the end my baby was too big and swollen he had less oxygen, he was sick and sat in the nursing care for a week then he was discharged. However, one doctor told me you might have diabetes in your pregnancy, but he did not request me a sugar test. Anyway, now my baby is better" (R, P6).

"All my follow ups with them in my second pregnancy were so bad, they didn't make any ultrasound exam for my fetus until the 9th month of pregnancy, they found out that the fetus is deformed. I was following regularly on time I did not miss my appointments which were once a month. Each visit they only checked the blood pressure and weight that's it, no sonar or 3D ultrasound scan during the pregnancy, only one time when they found him deformed, then they said the baby is too big you cannot abortion him, it is too late. They had me to keep the fetus inside me until I end 10th month. Then, they said we have to do Caesarean surgery, anyway he will not be alive he will die. Then, I did the Caesarean surgery, and after I delivered directly the baby died. Actually, I lost two babies because of them, my first baby died after the delivery, and the second baby they made me wait until the 10th month to have the caesarean surgery on me and then he died too. Actually, the doctors do not understand their job. Actually, I got tired each doctor says something different which is not reassuring" (R, P6).

"I came back to the public hospital for my appointment when I was in the 9th month of my pregnancy, the doctor said you have to sleep at the hospital to deliver next day, the next day the doctor gave some injections to help me deliver but it did not well what caused me to have a C-section surgery to deliver my baby" (R, P8).

A few women described positive experiences with their doctors they reported that their doctors were sufficiently knowledgeable about GDM disease and its effects. They understood the needs of individuals patients and were able to create the best possible treatment plan to address their specific needs. They also provided important advice regarding how to avoid the complications of the disease. Such women indicated being very grateful and trusting of their doctors.

"During my pregnancy in the 8th month, my doctor had a doubt that the fetal size got bigger, she said I saw that there is a lot of water around him, then she ordered an urgent ultrasound exam, and she went by herself and made it for me so fast because the receptionist said the appointment will be after one month, she said I can't leave you for a month I have to ensure you and your fetus health, she is excellent, she is expert and make you feel comfortable" (U, P2).

"She asked me to do the daily blood test at home twice a day and write it down in a piece of paper to provide it to her in the next visit, and every visit she checked my reading with me, honestly, she is the best" (U, P8).

"she used to tell me to avoid eating sweets, move a lot, walk, she told me each time you feel pain, walk, she said walking is excellent. Avoid sugars and carbohydrates. Don't eat food that has sugar in it because you won't help yourself, she was monitoring my sugar level frequently" (U, P8).

"I feel comfortable when I go to my doctor who I initially was booked with for my GDM because she knows everything about GDM, even though I have met her once or twice,

she is totally aware of my condition. Her knowledge, personality, moral, behavior is very perfect" (U, P8).

Most the women's experiences revealed a lack of effective provider expertise, according to the second Quality of Care Domain (effectiveness). This domain is concerned providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively). Their experiences related to being listened to, their conditions being treated correctly and getting the effective, safe care they needed for gestational diabetes issues, reflected a total lack of patient centered care (I.O.M, 2015) including extreme situations where the infant that could have lived to 40 weeks, died before 24 weeks.

5.7.3.2. Lack of support, respect, and empathy

Women were split on their attitudes towards empathy and respect. Some discussed their experiences of doctors' lack of respect and emotional support.

"I cannot call her. I don't have her number. Actually, I'm not allowed to have it. However, I got sick between my visits, I felt so dizzy, so I went to the ER, I did not see a doctor, no one came to consult me or even to look at me from 5 am until 10 am. Some nurses were there, I asked them to take off the needles from my hand, I could not afford that. The nurse advised me to complain about the doctor. The nurse told me the doctor is setting in her office upstairs, does not want to see patients here, she is there but does not want to come to the ER, do you believe that? I have told the nurse many times, please call her. The doctor replied I am coming I am coming, but she did not. The nurse wanted me to make a complain

about her to the hospital's director. This my first time seeing a nurse asking a patient to complain about a doctor because the doctor did not respect her patients" (U, P8).

"I gave birth on Thursday at 12 pm, and slept in the hospital until Sunday, I did not see any doctor for three days, my main doctor was not in the whole hospital, I saw another doctors on Sunday .... I swear all the doctors who visited me did not helped me, if the doctor is not my main doctor, he cannot help me, there was no care. I have complained many times, I requested gel for my backpain, you know when I gave birth, I was given anesthesia for the lower part of my body only, so my back hurt me a lot, so I have asked them to give me a cream or gel to relieve the pain, but they did not give me anything and I was discharged without having anything to reduce the pain. I was ringing the bell each half an hour to order the gel, but they did not provide it to me" (U, P8).

"The doctors are specializing in Obstetrics & Gynecology. The room has 4 beds, each doctor comes to see one patient, so sometimes when I see a doctor comes to see the patient on the other bed, I call her to see me because I feel pain, she responds saying I will ask your main doctor to see you I am not responsible for your case, but nobody comes to me. My doctor is on a holiday or not in the hospital, that's fine, she can see what I need since she is a doctor as well and she is specialized in Obstetrics & Gynecology, at least she can listen to my needs or complains. She usually sees the doctor's name that was written above my bed which is Doctor Aisha, and leaves. You know I have no problem if she said I am not aware about your condition, but she shows me that she does not care about my needs or complains, that's makes me mad. It is better if she said I have no idea about your case and I will let your doctor come to see you, I'll really really appreciate that and respect her, that will show me she is interested in my health condition" (U, P8).

"The ER is the worst thing in the life. They have no mercy on the sick patients even if some patients are bleeding nobody care in the ER, and the nurses do not respect the patients and yell on the patients' faces. I remember one pregnant woman was bleeding and screaming, and the water birth was on the floor, which was so nasty, I felt stomach cramps because I was so scared, I felt that I'm the one who is giving birth while I was not, and also other pregnant women saw her which made them feel worried too. The doctors have to take care of the patients' emotions who are in critical situations and the patients around them too. Also, the nurses in delivery section have bad behavior, they are not respecting the patients and treating them very bad. I'm not sure why, but I guess that is because of the long working hours, maybe they became bored of their job" (U, P14).

"I was stressed and worried when they said you and your husband have to sign permission letters because we might need to do an abdominal hysterectomy. They told me you might have bleeding or adhesions in the womb, we the singed, but my husband came on Thursday night and asked them for about the permissions letters and he tear them, they told him even if tear them we will have her sign them again while you are not here, and your permission is not important. Then, they came to me saying do you prefer your health or your husband, I told them I feel more comfortable in my house, let me go home. They told me if you leave the hospital you cannot return gain, you will not accept you. After that when they measured my blood pressure was high, it was high because of their speech and conversation with me. Then, they had me to sleep at the hospital, and came back to my room at 3 am to take me to the operation room" (U, P10).

"One day, I had severe pain that banded me from sitting, I was screaming, I was in the first or second month of pregnancy, I went to the ER, and the doctor came to see me after

I felt I am going to die, she came and was looking at a paper, she did not even look at me when I was talking, she wrote me a paracetamol and some medication, and then she asked me to leave saying you are fine. I was very sick, and she didn't even ask for one test or exam, nothing, from her opinion she thinks I have nothing. So, the doctors in the ER at the obstetrics and gynecology department are very bad. It is very disappointed. If you see the ER in the obstetrics and gynecology department is almost empty. Patients do not prefer to go there because they know their bad behavior" (U, P8).

Some women explained that they were threatened with the death of a fetus in order to make them follow instructions carefully, which made them fear and anxiety throughout pregnancy, and that also raised their sugar level.

"No empathy or emotional support, they make us feel scared in order to follow their instructions" (U, P1).

"I was so worried about my baby, when I was following up, they used to tell me either you sleep in the hospital or your fetus may die, I heard this word a lot, I was crying and worried all the time about the sugar, I was scared, I did not eat anything to decrease my sugar level to avoid having any problem to the fetus. The doctor also told me when you feel worried your body secretes hormones that raise the level of sugar, but the doctor did not help me to feel comfortable, it was a period of my life that filled with anxiety, I wasn't comfortable at all, I was afraid all the time" (U, P4).

"I would feel better if the doctor offered more encouragement to follow the specified diet instead of warning me that I will lose my baby if I do not comply. I felt afraid of losing my baby every time I went to see her."

"There is no respect from the medical staff including the nurses .. the nurse screamed on my face saying: not allowed to go to the doctor, he has a patient. I respond I know. I don't want to go. I just want to give him the card of my waiting number. In general, nurses are not respecting the patients even in the delivery room they treat us so bad, they yell on women's faces to listen to their orders. There is no understanding of the pregnant women's emotional and psychological needs" (R, P6).

Most women in rural areas preferred to be treated in urban hospitals. They noted that the behavior of doctors and nurses in urban hospitals is better than in rural hospitals, and GDM healthcare services too.

"In the city hospital, I felt comfortable and relaxed. Nurses were kind and polite. This was a complete contrast to the hospital in X Village, where women were beaten if they moved their body during childbirth. Apparently, they wanted the woman to stay in one position. For instance, in the delivery room, I was in pain, so I moved slightly on the bed. This caused my catheter to fall out. I was beaten hard on my thigh by the nurse and although it hurt, I did not say anything. I think it is terrible that the nurses at the general hospital beat their patients. Also, Saudi nurses are often verbally aggressive to patients who are feeling sick and in agony. How can they expect the patients to be happy and satisfied when they treat them like that?" (R, P10).

Most women expressed a need for respect and emotional support:

"Women in poor condition, coming from far distance for treatment, Doctors and nurses have to feel empathy with them" (U, P5).

"I wish if I had more support and empathetic care as a pregnant woman has diabetes" (U, P3).

"One of the doctors refused to prescribe me the medication and the other one treated me well and gave me all the medications I need them to respect me and know all my psychological needs and meet them" (U, P5).

"Most of our needs as women with GDM is the psychologically support, feeling relaxed and appreciated. Most of the sickness related to these problems" (U, P5).

"I wish doctors and nurses' behavior gets improved because they are annoying me, also their bad services I wish it gets improved. However, I was so patient, and saying for myself that it is just a matter of time and I will go out of here, I only want to go out, and thanks god that he helped me to get out of the hospital. Actually, one time I was discharged from the hospital under my responsibility because I got to the level where I cannot stay more. It is impossible to imagine how I was depressed" (U, P14).

Some women spoke of their positive experiences with the emotional support provided by the doctors and nurses. They revealed that their doctors' support and empathy improve their level of comfort in discussing concerns with them. Moreover, they felt that the doctors had a genuine interest in their illness and recovery which encouraged them to follow their instruction.

"They encourage and motivate me. They assure me that, after childbirth, I will be able to overcome my illness and return to a normal life. This encouraged me to eat healthily and exercise as much as possible. I am very grateful to my doctors; they have been a great help"(U, P10).

"My main doctor was sweet and compassionate. She reassured me that everything was going to be okay. She gave me all the information that I needed regarding the health of my baby and kept reminding me that it would all be worth it in the end when I had a beautiful baby forever" (R, P11).

"Some doctors are so kind, I felt like I'm one of their family they are very qualified" (U, P5).

"Their support significantly helped my treatment to be successful. Their encouragement and kindness helped because they seemed to want me to recover" (R, P3).

"Their compassion and kind attitudes have encouraged me and made my treatment easier to deal with. I took strength from their supportive words. Now, I feel fit and healthy, and ready to go home" (U, P7).

"I was able to contact my doctor and see her anytime I want because I was in an urgent condition. I call her nurse to get a waiting list's number, and I see her after she finishes all her cases" (R, P5).

The way in which doctors deal with patients significantly impacts their perceptions of the experiences with GDM care. It was evident that doctors play a fundamental role in motivating patients, increasing their morale. This is achieved by being kind and positive.

Furthermore, most the women's experiences revealed a lack of effective provider expertise, according to the third Quality of Care Domain which is patient centered care which is Furthermore, most the women's experiences revealed a lack of effective provider expertise, according to the third Quality of Care Domain - patient centered care, which is concerned providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions. Women reported a disrespectful attitude and lack of empathy from their providers, which is not conducive to being "responsive" to patients. The doctors and nurses lack of humane treatment which manifested as negative attitudes and behavior violates the value of patient centered care. The women's experiences also reflected a breach in the sixth domain (equitable care). The healthcare varied because it was based on knowledge and care of women (gender) with gestational diabetes. Many of the women were from rural areas which reflects the geographic location characteristic. Most of the healthcare administrators' behaviors and attitudes violated overall patient centered care as defined by the Institute of Medicine standards (I.O.M, 2015).

5.7.3.3. Nurses' lack of proficiency

The majority of women in the interviews disclosed about the psychological and emotional challenges they had experienced that prompted by the nurses' lack of proficiency. The women also revealed that the nurses lacked basic skills such as measuring the blood pressure and giving the intravenous injection.

"Nurses lack knowledge and skills when it comes to inserting the intravenous line. The way that they usually do it is often painful. For instance, when staying at the hospital to delivery my baby, the nurse tried several times to insert the intravenous line in my hand but was unable to do so. She had to ask other nurses, and they struggled to do it as well. After giving birth. I felt intense pain in my hand and noticed that my entire arm was swollen, and I could not move it. I called my mother, who told me that the needle had not been inserted correctly and had caused the glucose spread throughout my whole arm rather than into the vein. I had pain in my arm and hand for a whole month after this. Nurses are not skilled or trained enough to be able to insert the intravenous line. I would be really happy if nursing services would be improved and if nurses could respond to our calls more quickly" (U, P14).

"I do not like having the intravenous line inserted, it makes me very uncomfortable. It is even worse when nurses must attempt insertion many times. I just wish they would learn to do it properly so that they could do it properly the first time" (U, P13).

"I feel the foreign nurses are not expert at all, and not capable to do their work, they do not know what they are supposed to do, it is impossible, they do not even know how to insert an injection into a vein. Before I gave birth, one day I was sleeping in the hospital and the nurse came and said you need to take some medications throw the vein, I refused, I told

her I am not going to take any injection until you bring me someone who can do it right. My hand cannot handle more needles and medications. Each time they insert the needle outside the vein, I tell them I feel pain, they say it is fine the medicine will flow outside the vein then will go inside it!! I swear to god this is what happened. I told her I do not want it. She said it will be your responsibility, I said ok, I do not want more needles. Not only me, but all the patients in the room also had the same problem" (U, P8).

"The nurses are unqualified. Before my baby was born, a nurse applied a pressure measurement tool on my arm the wrong way round. When I told her to turn it around, she yelled and argued with me until her colleague arrived and confirmed that it was wrong. Even if a nurse is new to the job, she should be able to master the basic skills before being allowed to work in the hospital. Moreover, new nurses should not be placed in VIP sections of large hospitals" (U, P4).

"The first time I was seen by the nurse, she gave me strong medication intended for the patient next to me. She did realise her mistake in time, and I vomited the medicine. After that, I always kept a closer eye on my medication" (R, P2).

"The woman who was sleeping next to me in hospital had a C-section surgery to deliver her baby and slept 8 days after the surgery because she was bleeding, and they thought that was postpartum blood, which is the normal blood after delivering the baby, but later they realized that was bleeding from her bladder because she was injured by the Saudi nurse while she was inserting the urinary catheter. so Saudi nurses have not enough experiences for making this kind of job and giving injections too. I feel they are beginners" (U, P14).

"When my sugar went high, doctor had me to sleep at the hospital. I made a complain to the doctor about the some of the unqualified nurses who did not measure the sugar correctly. The nurses say my sugar level is good all the time while is not. They should have measured it 2 hours after the meal, but they come after 4 hours, it is obvious that the nurse will see my sugar level is balanced and became normal, and then writes a normal sugar reading. I talked to the nurse and I told her this is not working, I would go home and do it myself, she made me angry when she said we know our work, we do not have to take it 2 hours after eating because we divide it by 2 bla bla bla bla, I told her do not lie on me I know that it does not need to be divided?? Why?? They have to know the sugar level 2 hours after the meal no need to divide the readings. The last time I slept there I brought the measurement and strips with me to measure my sugar by myself. When my strips finished, I walked hardly from my bed to the nurse' unit to tell them please do the sugar test for me now, it has been two hours since I ate my meal" (U, P4).

Some women described positive experiences with nurses' practical skills, especially the Saudis, words such as 'expert', 'committed, 'perfect, 'responsive', and understanding frequently came up.

"To be honest, each Saudi nurse works at the in-patient department is very perfect .. they are so so perfect. The respect is first class; however, the Filipinos are so bad. My hand swelled up after I had one injection, I made a complain, I told the doctor, I could not handle it, I felt like my hand will explode .. the nurse came and took the needle off, I swear to god the blood was going everywhere. She did not have any sense of humanity. I do not know if they are Muslims or not. They are so tough, I told you my hand swelled up and the nerve hurt me I

could not move my hand couple of days. When a Saudi nurse comes, I always ask her to take the needle off and fix it, so she takes it and put it in the other hand because all the veins hurt me and cannot be used "(U, P8).

"The nurses did not know how to give injections, they tried in my both hands a lot of times. The nurse's hand was shaking, but the Saudi nurse was good and has mercy" (U, P10).

"I cannot forget that while I was in the ER having pain, I saw a woman giving birth, I swear to god she was giving birth in the ER, only nurses around her no doctor looked after her, she was in so much pain. Actually, I forgot my pain when I saw her pain. Can you imagine that me and her were in one room, nurses were checking on both of us, there is no curtain between us, so I tried to turn right to avoid seen her, and she turned left. The nurses were working so hard trying to help us and reduce our pain. After couple of hours, the doctor came, she opened the door, and once she saw the woman giving birth, she left quickly without even talking to us. She left the woman while she was giving birth and had so much pain. The nurses were taking care of her all the time, they do their job very well, they are so expert, actually I see them work more than the doctors in the hospital" (U, P8).

"The nurses are extremely committed to their job. They helped us as much as possible. They were always smiling and were diligent in their work" (R, P11).

"The nurses showed a great deal of professional and experience. They were accurate with administering treatment. If they were unsure of something, they would ask the doctor for clarification. Their competence impressed me" (U, P15).

Most the women’s experiences revealed a lack of effective provider expertise, according to the second, third and sixth Quality of Care Domain which is effective, patient centered and equitable care, as seen in many of the experience reported prior to the nurse’s proficiency section of this thesis. Women reported lack of proficiency for GDA which violates the Institute of Medicine standards related to equitable and patient centered care.

5.7.4. Theme 4: Patients’ factors

Several patient-related factors also impacted the issues with the GDM healthcare services in Saudi Arabia. This includes patients’ socio-cultural factors, lack of trust in medical staff and governmental hospitals, and negative perceptions or feelings (see Figure 5- 5).

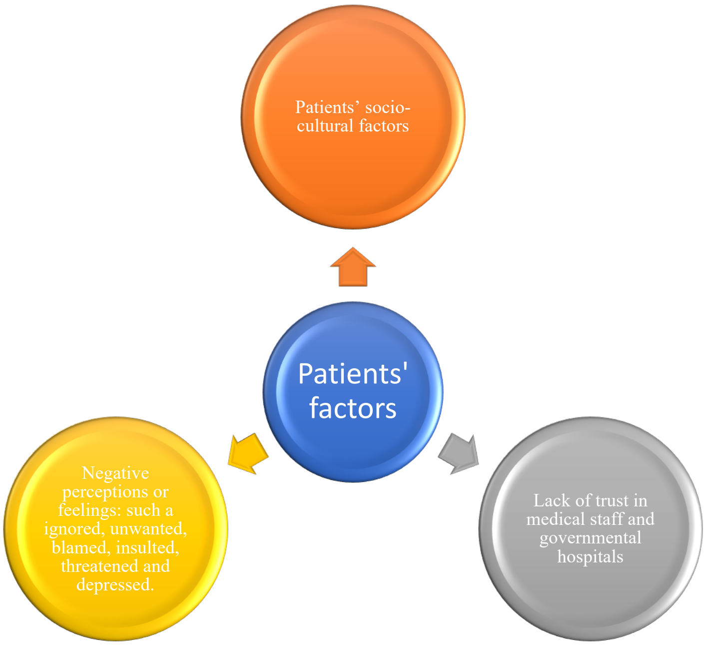


Figure 5- 5: Theme 4 patients’ factors

5.7.4.1. Patients' socio-cultural factors

In the KSA, doctors are typically considered to be powerful, authoritative figures who should be trusted and taken at their word and not questioned. Moreover, shared decision making is not the norm. This plays a significant role in determining the doctor-patient relationship. Women perceptions of doctors within this context and the power imbalances that exist are closely associated with the traditional role of doctors in the Saudi culture. Doctors are regarded as highly respected, authoritative figures, regardless of whether they are native Saudi's or not.

"Every patient values the relationship with their doctors. After all, they are the second person we trust (after God) with our body and illness. It is thus vital to have good, trusting relationships with them" (R, P3).

Doctors are regarded as having the most powerful human authority on health, this is because they have the vital skills and knowledge to provide the treatment to make a patient better. For this reason, women could not question about their treatment plans, tests results, and health concerns since the doctors are the only ones who able to make the best decisions of the medical interventions and treatments which indicates a top-down power relationship between doctors and patients.

"The doctors showed no interest in the mental wellbeing of the patients. They sorted out treatment plans and that was it. We felt uncomfortable sharing our concerns. This had a negative impact on the entire situation because it demoralised us" (U, P8).

"To start with, I was full of doubt and fear. However, I did not feel that I could express this to the doctor. I tried once to do so, but they send me away and I simply have not been able to muster up enough courage since then to try to discuss it again" (R, P7).

It is evident from this statements that the women did not feel comfortable with the doctors. These extracts imply a sense of being 'not comfortable' with doctors. This influenced the patient's experiences because it caused them anxiety due to receiving little information about their treatment and being unable to ask questions about the treatment chosen for them. Women are given no say in what happens to their own body, which undoubtedly causes a great deal of dissatisfaction with the care received. However, a woman with high level of education and works as a supervisor in the Ministry of Education reported confidently that "I know everything about my health condition, and I have all the information about the GDM and the treatment. I do not need to ask them anything because I educate myself and read a lot" (U, P11). She felt that it was not only doctors who possessed the power of knowledge, as she could help and provide herself all the treatment and information needed without returning to them.

Moreover, some women do not have the ability to express opinions or desires, and this is due to the old traditional imposed on them, as women were required to accept and comply and not to express their opposite opinion or rejection, therefore they find it difficult to express their dissatisfaction about the bad GDM services and they leave the hospital without complaining.

"I didn't complain to the PHC director because I was afraid of having problems" (U, P2).

"I did not complain to the doctors and did not tell the problems that I faced in the hospital to anyone, I just left silently, you are the first one that I speak with about all the problems that happened to me there, I do not like to speak or express my opinion on anything, if I see something that bother me, I keep silent and leave, I got used to it" (R, P6).

"I am afraid to say the truth about the bad behavior of the medical providers at the PHC" (U, P13).

One woman from a rural area *(R, P3)* was very scared to speak about her opinion on the doctors, nurses, and overall GDM services provided in the hospital, she stuttered and changed her opinions a lot during the interview. Other woman revealed that she accepted the poor services and the negative medical staff behavior and did not fill a complaint against them because she felt frustrated that it is useless to file a complaint since nobody cares, and she thought that if she complained to the higher authorities, they may mistreat her too and she will not find anyone to help her.

"I was scared to make a complain, and also there is nobody will listen, like when I was in the ER department and I couldn't even see someone to talk to. Also, because I see how the appointment department's employee was, she was so bad with me, so I was afraid that there would be no interest in or response to my complain, this is what I do not like. I do not like going to someone to complain and then I need another one to complain about the previous one. Do you know what I mean? So, I go to someone to make a complaint, then this one itself needs me to complain about him or her attitude too because he or she is also treating me badly, so this was my concern, so I said I am not going to bother myself. The god will see them" (U, P8).

One key point to mention is that Islam is the religion of Saudi Arabia. Many women revealed that their perceptions of their illness and the care provided were influenced by their faith. Many women reported that their faith in God was stronger than their faith in medicine or doctors. They also stated that their faith and religious prayers helped them to get through their difficulties.

"I think my illness was sent to me by God to test my patience and ability to deal with it. I accepted the GDM, and I tried hard to recover. I asked God to help me, and then the doctors" (U, P5).

Some women indicated that they pray that they will not experience any GDM complications. They strongly believed that God would help them to give birth peacefully and as painlessly as possible. They displayed positive attitudes towards their healthcare providers who referred to God and prayed that they would have a healthy baby. They felt more comfortable with the doctors when the latter read the Qur'an (Islamic holy book) to them during baby delivery because they were concerned about the survival of themselves and their baby.

"Her attitude really helped me to calm down. She told me the surgery would be easy. I also liked it when she read the Qur'an to me in the operating theatre because it really calmed me down. I was at ease and I felt that, if I would die, then I would die peacefully" (U, P8).

Some women reported a preference for female doctors and nurses and reported that they did not want to receive care from a male doctor which was for religious purposes.

"During my first pregnancy, I had follow-up appointments with a female doctor. The GDM services provided by female staff pleased me, but there was a male doctor who I did not like. Once, I went into his office and did not feel comfortable because I had not seen him before. He did not make me feel comfortable. I much prefer to be seen by the female doctor. I think he may have only graduated recently, because he looks young, maybe even younger than 20. I do not like how he looked at me. I felt angry and anxious in his presence" (U, P8).

"They ask me what I prefer male or female doctor usually I chose a female" (R, P4).

The cultural context of health care can significantly influence women experiences and perceptions. One key cultural factor that is relevant to hospitals in Saudi Arabia is the number of expatriate nurses and medical workers from around the world (particularly South Africa, India and the Philippines). Such workers do not speak Arabic. Patient satisfaction was found to be largely impacted by the presence of expatriate nurses who could not speak Arabic. This was found to create tension when communicating with patients. Many women reported that they were only able to accurately express their feelings and needs in Arabic, which the nurses could not always understand. Women also felt that Arabic-speaking nurses were more able to offer the level of psychological support and medical care needed than their non-Arabic speaking counterparts.

"Their language skills are problematic. I would find it easier to talk to them if they could speak Arabic" (R, P2).

Communication skills are fundamental. This means being able to talk openly and ask questions. To do this, it is vital that nurses can speak and understand more Arabic. They would be better able to deal with patients if they could.

"The doctors are very perfect, some the foreign nurses are bad, some of them speaking English" (U, P11).

"The nurses of Philippine and Sri Lankan nationality are not speaking Arabic, they also are not polite, they either neglect the patient or shout at them ... I prefer the Saudi staff, they speak Arabic and have mercy" (U, P5).

"The nurses were very good, their behavior was good, some of them were not Saudis, so I used to ask women sleeping in the same room or another nurse who speaks Arabic to translate for me, but a few times I did not find anyone to translate, I tried hard to explain my need, I used my hands and stuff around me so she could understand me" (U, P10).

Women' satisfaction is impacted by poor communication that results from language barriers. Women was reported this to be a major factor causing poor relationships between them and the doctors and nurses. English is used as the default language between health professionals, even in the presence of the patient, due to the multi-national nature of the medical staff. However, women reported that this caused fear and anxiety in them.

"A doctor visited me and ordered sonar or other tests. I was not sure about that because he was speaking English. I asked the nurse, but she said she could not find any instructions from the doctor. I felt lost because I could not understand the doctors when they

were speaking in English. I could not even fathom whether he was requesting something or just talking generally. This caused me to feel anxious and had to ask several doctors whether tests or sonar had been requested" (U, P13).

"I was so mad when I saw them speaking English and laughing, I felt they laughed on me" (U, P10).

"The medical providers are not taking care of the patients' feelings, especially the nurses, they gathered in their room speaking English and laugh loudly, (U, P12).

"When the doctors speak with each other about my condition, I wait for long time to get their decision, I feel worried, I cannot understand English" (R, P5).

"All the medical staff came to me in one time, and they were talking in English and I did not understand what they were saying, and I felt more worried. My blood pressure went high. I heard them saying baby baby baby many times, I knew that they were talking about my baby, but I did not know what they were saying exactly. I felt that something is bad happened with my baby. I asked the nurses how my baby is? did anything bad happened with my baby? they replied in broken Arabic baby is good, baby is good" (U, P10).

In the above cases, the women's experiences with GDM care were significantly impacted by the language barrier. The women felt excluded from the discussions about their health because the medical providers were talking in English instead of Arabic. Therefore, they were unhappy and dissatisfied with the GDM care provided.

Additionally, most the women's experiences revealed a lack of effective provider expertise, according to the sixth Quality of Care Domain (equity). Personal characteristics such as language due to geographic location can negatively impact patient centered care and patient outcomes (I.O.M, 2015). Doctors should be required to provide a certified language interpreter for patients who do not speak the primary language in the clinic. Without this service, patients are at high risk for detrimental comorbidities.

5.7.4.2. Lack of trust in medical staff and governmental hospitals

Although all the women were attending regular pregnancy checkups with their doctors, when asked about their general opinion of the use of governmental healthcare facilities such as the hospitals and PHCs, there was a clear lack of trust and comfort on them in most women's narratives. Women related that to a previous unsatisfactory experience or bad reputation, however few women changed their viewpoints after trying the services and expressed their satisfaction with government health services and facilities.

"Actually, when I was referred to hospital B I was scared because my initial thoughts about the government facilities in general is very bad. So, when I entered the hospital, I felt scared. To be honest with you, I do not feel safe in government hospitals. I always feel scared, I have a bad feeling in my heart that something bad will happen. Especially my first delivery was in a private hospital, so I feel that the private hospitals are better in everything, but when I went to the hospital B it was not that bad. I can say that the experience was good. The doctor I followed up with was good, but initially their appointments were so far, and this thing is very very bad, their appointments are very bad, but thanks god the doctor was helping me to schedule close appointments when my delivery was approaching since I had GDM" (U, P8).

"I feel like they have a very long process. Actually, I do not trust PHCs, even if I got sick, I don't want to go there, their services are very primitive, and their medications are so old and rudimentary. You do not get attention and interest. They do not take care of the patient who comes to get the treatment" (U, P8).

"I did not expect the perfection because I heard about the low-quality level of this hospital ... but I was shocked, the nursing services were perfect, I received high quality level services" (U, P4).

"In the past people thought hospital B was like a cemetery, it had a bad reputation, but now it has changed and became much better" (U, P5).

"Initially, I had bad idea about hospital B, but after I tried it, I liked the experience, and now when anyone tells me that the hospital B is bad, I tell them it is excellent" (U, P8).

Women noted shortage of medications in governmental hospitals and PHCs which prompted them to pay for their necessary medications from their own pocket. Some women had no difficulty with it, others found it expensive and felt unsatisfied.

"I hoped if the public hospital provides medications and pain killers during the pregnancy and anesthesia oxygen during delivery as the privet hospitals do" (R, P8)

"I have tried to order medications from their pharmacy, but not always the medications are available. They give far appointments to provide the medications, I used to

wait for long time to receive them. I usually need iron and calcium which are supposed to be available in each pharmacy, but it was so hard to find them ... I wish if they provide the glucose meter and other medications again. They used to provide them in both the PHC and hospital but now they do not, they say they finished .. I had to buy them from outside the hospital. They used to tell me to buy it from outside" (U, P8).

"I paid the glucose meter, and it was expensive because I needed to measure the sugar 4 times a day, and I had to buy the strips refill many times a month" (R, P5).

"Some of the important medications are not available in the hospital … I could not buy the glucose meter" (U, P7).

"Not all the medications were available, but they were not expansive to buy from a private pharmacy" (U, P3).

There was a common desire among women to have more clean and private health facilities for pregnant women, and most expressed a preference for renewing and cleaning the waiting rooms and in-patients' units.

"I hope they renew the medical equipment and furniture. Everything is worn-out such as the chairs and ACs" (U, P6).

"While I was sleeping in the hospital there are no privacy. Each time they turned the light off and on … the rooms were not clean" (U, P10).

"The building needs to be cleaned and monitored" (U, P4).

"I got mad in the hospital because it of cleanness, I saw my bed and chair were dirty, no body change the bed sheets for 2 days" (U, P13).

"PHC's building were so bad, very bad. Actually, it's a residential building that's very poor, I am not only talking about the cleanliness but also the building, from outside it is o.k. but inside, I feel like the building is worn out, actually, it is not a government building that built specially be a health facility as the other public PHC, it is an apartment building converted into a PHC. Also, the waiting room is not clean nor organized, people sit wherever they want, I felt nothing is organized" (U, P8).

*"The AC is not working in the pharmacy, but it is working in the waiting room, it is in good condition, but they turned it off, I do not know why? This is a government facility, why do they make the women die of the hot weather? The female waiting room in the obstetrics and gynecology department is very bad, the room size is 5*4, and a lot of women die of heat. They close it, either I go and ask them to turn it on, or if I look for the remote control and turn it on by myself. Sometimes I send one of my children to ask someone in the reception to turn it on. If I did not speak up, the women will remine in the heat. I hope you visit the waiting room and see. Because of the heat I went outside, I was pregnant and had short breath, while I was waiting outside the waiting room, a nurse came yelling on me saying go go go go inside, he treated women like sheep, I told him I'm not going to the detention room for women, the male has a large comfortable waiting room, they have ACs and large rooms, but the female are so poor, they are sick and pregnant and sitting in very small room where the Ac is turned off all the time. Additionally, the chairs designs are killing, they aren't*

comfortable, and not sufficient. One day, I found a small carpet, I put it in front of the doctor office and laid on it, I could not t sit in the chair, they brought me a security man to move me. Now, they have a security man in front of the doctor room to prevent anyone to sit there. They should fix the room, make it larger and more comfortable. They told me if you have any compliment go to the hospital director. I came for follow ups and treatment or to search for the hospital director?"? (U, P5).

"When I visited the doctor in her office, I sat and talked with her, but I still felt there was no complete privacy comparing with being in a private clinic. In the public PHC you do not feel %100 privacy. Sometimes people open the door to talk with the doctor or ask her some stuff" (U, P8).

A woman noted that finding a bed is huge challenges in governmental hospitals.

"The most important issue is not finding an available bed even if the condition is urgent, you cannot find one. I waited approximately five hours before finding me a bed" (R, P2).

Besides all the negative experiences urban women had with receiving GDM care in the governmental healthcare facilities, most women in rural areas revealed that they preferred to receive treatment in government hospitals in urban areas because they trust them more, and they reported that the level of healthcare services in urban hospitals were much better, in addition to the sympathy and respect of the medical providers there.

"In the ER a doctor checked me and my baby, then the doctor requested me to sleep in the hospital for two days, the third day, I booked for a follow up appointment in the public hospital after a week, and I went out to a private hospital, I paid from my own pocket because I have never given any medications while I was sleeping in the hospital, they just checked the sugar level. I did not feel comfortable to stay in the public hospital, I only got glucose in the vine, I did not know what was the treatment in it, and I did not know that if I was treated right or not, I have not had enough information and medications" (R, P8).

"In hospital F in the urban area of the Large City in Saudi Arabia the medical providers and healthcare services are so perfect not as the hospitals in the rual areas. They have Embryology department which we do not have, they provided me good services and different types of ultrasounds such as the 3D ultrasound, and I had several tests … appointments scheduled every or two sometimes, the waiting length is less, doctor gave me enough time and information, they were not in rush, the nurses are so good, both of them are qualified and experts with high behavior in all sections, nurses are visiting the rooms providing services and medications on time without the need to call them. The hospital is so clean and has easy and available parking …. after delivery I was sleeping in a comfortable, quiet and privet room .. everything was written on my file, so doctors know everything, no need to explain … I felt satisfied" (R, P6).

"When I referred to hospital F in Large City in Saudi Arabia, they supported me emotionally, specially I came to them while I was so tired psychologically" (R, P6).

"I heard there are some cases had problems in the rural hospitals and PHCs, so I do not prefer them. I always go to hospitals in the urban area of the Large City in Saudi" (R, P5).

"I went to general hospital in my area only one-time during Eid al-Fitr holiday when I got sick suddenly. The doctor checked me and prescribed me an injection, but I refused to get the injection because I was scared of having a wrong injection. I said just give me the medications, no injections please. Also, I refused to have an oxygen session at the hospital, so I had the oxygen session at home by myself. I treated myself at home … The hospital is empty not too many patients, it is not crowded because people scared to be treated in the hospital and avoid going there as much as they can. The hospital is too big, new and clean, but too quiet, no people walking around even doctors and nurses are a few. Basically, the hospital needs more qualified doctors and nurses. Overall, the number of hospitals in my area are 4 hospitals these 2 public hospitals and another 2 privet hospitals, but I have never visited these privet hospitals, so I have no idea about them, also there is not any PHC in my village" (R, P8).

"The hospital the urban area of the Large City in Saudi is very good. The nurses are good, they treated me very well, the doctors explained me the potential GDM complications on me and my baby, and how I have to treat myself, and stay in a healthy diet for 3 months after delivery in order to feel better and get my normal sugar level back as before the pregnancy without the GDM, they gave me enough information, so I did not feel I need any external resources" (R, P8).

"The hospitals in my village are not good, doctors and nurses have so bad attitude. Also, there are so medical mistakes. I don't go to the hospitals in my area, even the medications are available, because the doctors have no experience, for example doctors give you medication that is not related to your diagnosis, because they do not have enough knowledge and not understanding their job, and because of that a lot of medical mistakes happened here. Actually, we have only 2 hospitals, one of them is old and the second one is new, both are clean, but the doctors are not qualified even nurses do not know how to insert the needle into the vein" (R, P8).

Some women described positive experiences of using the governmental healthcare facilities.

"When I left the hospital, I felt satisfied and all my needs were covered, I felt the services were good. I had everything I need. I got the appropriate care for a woman who had GDM. I had enough information about me or my baby health condition, I also was treated in appropriated way. As a first time I experienced a governmental hospital, I feel it was good experience, and I will try it again" (U, P8).

"Medications are available in the pharmacy but only the needles of the insulin injections were not there always. I paid from my own money" (R, P4).

"Building is good, clean, the medical staff available all the time ... parking is available ... pharmacy is good and rarely being in lack of medications" (R, P4).

"The PHC is new, it was built less than a year ago, but not enough nurses and medications there. Actually, it was rental building then it is changed to government building, but it is new and clean" (U, P9).

"The building is not that much old, but it is clean, and I noticed new instructions and renewal being processed" (R, P4).

"The room was clean and comfortable, and the hospital is good, and the staff treated me nicely" (R, P8).

"The pharmacy of the army hospital provides me all the medications free of charge even insulin, the injections and the device of checking the diabetes at home, also the strips and alcohol wipes. they gave her everything she needs no needed to get medications on her own pocket" (U, P13).

"She described the hospital as perfect on all details" (U, P13).

"I experienced a good privacy, depend on the patients' sleep in the same room ... At night they used to wake me up because they are switching the shifts ... All the nurses are Saudis ... The rooms are clean and changing the towel every time" (R, P5).

"Getting a bed was easy and fast" (R, P2).

Most the women's experiences revealed a lack of effective provider expertise, according to the sixth Quality of Care Domain (equity).

5.7.4.3. Negative perceptions or feelings: such a ignored, unwanted, blamed, insulted, threatened and depressed.

Several women reported that the primary concern for the healthcare providers was the health and wellbeing of the baby. The mother was often felt ignored and unwanted.

"They told me that I needed to sort out my diet and come back to see them three months after the birth of my child to have my sugar tested. If the sugar level was high, I would have to have a follow-up appointment with an internal doctor. However, after delivering my baby, they did not give me any follow up appointment to come back and be tested. I don't understand this, there has to be a follow-up. I may have already given birth, but that does not mean that I do not need further care. However, the doctor informed me that they were primarily concerned for the baby that the baby's health is most important. Whether or not I wanted a follow-up appointment was my choice. I did not receive a follow-up appointment from anyone in the hospital for my GDM or my surgical procedure. They just wanted me to leave" (R, P1).

"The doctor is very lazy, they do not want to read the patients' record because just want to get rid of us" (R, P6).

"There is no emotional support, and they look like they do not want any more patients. We felt we are so heavy on them. The nurses also ignoring us, we call them for hours, and even when we go their area to ask them to come to our room, they still ignoring and not responding to us, they are not interested in helping us. The pregnant women have

unstable moods and emotions because of the unbalanced hormones, so they need more empathetic care, but they did not provide it" (U, P14).

"We are made to feel that we are so dependent upon them. Three doctors came to see us and were having a disagreement between themselves about who taking on new patients because they were all fed up with caring for the patients. This made us feel very unwanted, but we had nowhere else to go. We needed their help to make us better and they needed God's help in return. I do not understand why they do not leave this job if they are not suited to a humanitarian job and give the job to someone who really wants it. Many people are highly qualified and have no job. They are waiting at home to be given an opportunity. Why do the doctors do this job if they do not want to deal with the patients? I am telling you all of this because I suffered a great deal of psychological trauma due to this. This was not even a one-off. I had to stay in the hospital multiple times throughout my pregnancy and following the birth of my child. I met so many other patients who were unhappy with the attitudes of the doctors. Patients quietly discuss the doctors' attitudes and behaviour in the waiting areas. So many of us have suffered because of this" (U, P14).

Rather than doctors engage in a friendly conversation about how women could manage their GDM, most doctors preferred to blame or threaten the women and emphasized that their fetus will die if they did not follow their instructions carefully.

"Saying your fetus will die, destroyed me ... the doctor was asking me to feel relaxed to not harm the fetus, but they did not help me to feel relaxed" (U, P4).

"They explained to me that the GDM will affect my fetus not me. They said if you ate sweet food or did not follow the food instruction, your fetus will become bigger, or something bad will happen to him, the water will increase inside you, or we will have to make C-section surgery on you" (U, P7).

"She scared me saying it is up to you, if you want your baby to become bigger and have a C-section surgery, eat sweets and sugar" (U, P8).

"When I was sleeping in the hospital, I faced a series problem because all of them shocked shocked shocked me saying your baby will die, the baby will bla bla bla…, etc. You know I was hopefully having a baby, I did not believe that I could become pregnant, they had me feel so tired and scared, so I told them what the god wants, will happen" (R, P5).

"I was continually told that my baby could die if I did not follow instruction. They repeated this over and over again. I felt like they wanted to keep control, because as far as I could tell, what I was doing was working" (U, P7).

"We are already stressed, and now they are yelling at us for forgetting the monitor or having a quick meal. I just feel like we are always in trouble" (R, P5)

In addition, women faced challenges in following the doctors' instructions such as diet and exercise which exposed them to criticism and blame from their doctors.

"The doctor blamed me because I could not follow the diet, but I did not have enough information on how to control sugar by diet or even by medications as insulin" (U, P14).

"Sometime my doctor becomes a little tough when he gets mad of me not following the strict diet, he gave me" (U, P8).

Some women reported feelings of helplessness and depressed, because, despite wanting to maintain healthy blood sugar levels, they simply were not able to control it.

"I got depressed and frustrated while I tried to be healthy. I have followed the doctor's advice, and she tells me the same thing every time I see her, that I must control my diet. If I am not hungry, I do not eat. I have so tried so hard to keep it under control, but my glucose levels just do not fall within the normal range" (R, P6).

"Some women did not believe that GDM was a serious illness and tried to ignore it. Some knew nothing about the future risks of the illness and believed that, although their blood glucose levels were a little high, it was not serious. They knew of GDM mothers that had given birth to babies who were healthy and had no physical symptoms themselves. Some of them did not even consider GDM to be a disease" (U, P5).

Women also indicated that they were treated objectively and not personally. They revealed that the health care providers had full control over this. Moreover, some woman was insulted verbally and physically to follow the orders or instructions, especially in rural areas.

"I had vaginal bleeding and was needed to stay in the emergency room. I was not seen by a doctor for a very long time. I was in agony, I cried and screamed. A nurse came,

shouted at me, hit me in the arm three times and told me to stop crying because it was annoying her and the other patients in the room" (R, P5).

"The ER is the worst thing in the life. They have no mercy on the sick patients even if some patients are bleeding nobody care in the ER, and the nurses do not respect the patients and yell on the patients' faces. I remember one pregnant woman was bleeding and screaming, and the water birth was on the floor, which was so nasty, I felt stomach cramps because I was so scared, I felt that I'm the one who is giving birth while I was not, and also other pregnant women saw her which made them feel worried too. The doctors have to take care of the patients' emotions who are in critical situations and the patients around them too. Also, the nurses in delivery section have bad behavior, they are not respecting the patients and treating them very bad. I'm not sure why, but I guess that is because of the long working hours, maybe they became bored of their job" (U, P14).

"One day, I had severe pain that banded me from sitting, I was screaming, I was in the first or second month of pregnancy, I went to the ER, and the doctor came to see me after I felt I am going to die, she came and was looking at a paper, she did not even looked at me when I was talking, she wrote me a paracetamol and some medication, and then she asked me to leave saying you are fine. I was very sick, and she didn't even ask for one test or exam, nothing, from her opinion she thinks I have nothing. So, the doctors in the ER at the obstetrics and gynecology department are very bad. It is very disappointed. If you see the ER in the obstetrics and gynecology department is almost empty. Patients do not prefer to go there because they know their bad behavior" (U, P8).

Despite the women's negative feelings and perceptions, some women’s experiences were not at all stressful and harmful.

> *“During the pregnancy, I felt completely normal. I do not recall having any particularly bad experiences” (R, P11).*

Most the women’s experiences revealed a lack of humane treatment, including negative attitudes and behavior from healthcare staff and administrators during their visit, violating the Institute of Medicine healthcare quality standards.

5.8. Discussion

Access to care factors

Long waiting time and lack of sufficient time for doctors to see patients

The general health experiences of women in Saudi Arabia have been significantly impacted by a lack of access to healthcare. Several researchers (Hassali et al., 2014) have found that long waiting times and positive patient experiences are inversely related. Therefore, since they serve as a measure of organisational performance, long waiting times have emerged as a significant concern for hospital administrators and policymakers (Kujala et al., 2006). Waiting times and consultation times are now the primary factors which influence patient satisfaction (Hassali et al., 2014, RG et al., 2009, Barlow, 2002). Although no acceptable ‘waiting’ or ‘consultation’ times have been established, several researchers have found that patients who must wait more than 30 minutes are more likely to be unsatisfied (McKinnon et al., 1998). Moreover, international studies have revealed similar results, that 30-45-minute waiting times to see a doctor are generally considered unacceptable (Bielen and Demoulin, 2007, Barlow, 2002, McKinnon et al., 1998, Ghazali et al., 2011). Ghazali et al.

(2011) found that, on average, outpatient waiting times in Malaysia are between 1 and 2 hours. Patient satisfaction is significantly and negatively impacted by long waiting times. However, there are several other factors related to the waiting experience that can enhance patient satisfaction, including the comfort and attractiveness of the waiting room, the provision of health information, reading materials and entertainment sources (such as a television), and friendly staff (Oche and Adamu, 2013, Feddock et al., 2005, McKinnon et al., 1998). However, many factors have been found to contribute to lengthy waiting times, including high numbers of patients, staff shortages and the use of older equipment (Oche et al., 2013; Barlow et al., 2002). Additionally, waiting times can be further delayed through the completion of lengthy and complex registration processes, or the unnecessary repetition of tests (Garber, 2004, Barlow, 2002). In previous studies, recommendations have been made to employ multiple staff members to deal with registration processes and to set up an electronic medical record system. Moreover, other researchers have found that patients often arrive early to their specified appointment, which causes overcrowding and therefore, further delays the waiting time (Ahmad et al., 2017). On the other hand, Saudi women have stated that waiting times are slightly reduced when patients arrive early. Nonetheless, several factors can further improve the situation, including the implementation of an efficient and effective scheduling system in which appointments are scheduled based on the expected consultation time (Hong et al., 2013). Klassen and Rohleder (Klassen and Rohleder, 1996) explains that effective scheduling must be based on clinical needs and the nature of the consultation to achieve efficient and optimal waiting times.

The duration of doctor consultations varies between countries and is often determined by factors relating to the doctor and the patient. Frequent complaints made by female Saudi patients include the lack of time available to spend with the doctor and that doctors are often unable to answer important questions asked by patients because they are too busy.

International research has indicated that, in primary care environments, there is an average waiting time of 10-15 minutes (Cape, 2002, Britt et al., 2002). It has also been found that important psychosocial issues are likely to be missed in consultations that last less than 7 minutes. It is more probable that doctors who take more time during consultations will recognise psychosocial issues, investigate the presenting complaints in more depth, prescribe less medication and give more preventative advice (Wilson and Childs, 2002). Deveugele et al. (Deveugele et al., 2002) found that females in Saudi Arabia favoured longer consultations because it enabled them to share their feelings, worries and needs effectively with the doctor. Likewise, Levinson (Levinson et al., 2010) highlighted the importance of doctors understanding the needs, concerns and priorities of patients. Therefore, to achieve this, it is crucial that doctors listen carefully to patients' responses and clarify any unclear information. What is more, by improving patient-centred communication, healthcare providers will undoubtedly gain a more accurate understanding of patients' thoughts, feelings, needs and values. Therefore, in turn, they can provide patients with the necessary information to care for themselves. This also develops trust and understanding between patients and their doctors.

Long travel distance to health facilities

In this study, long travel distances, insufficient public transportation and the lack of hospital facilities in rural locations were highlighted as key problems relating to hospital treatment. For instance, '… in one case the nearest medical facility to the village is an annexe of the central hospital and is located 2-3 km away. With no free public transport options, it is extremely difficult to reach.

Moreover, similar factors have been found to impact women's experiences with healthcare in both rural and urban settings. One systematic review investigated the factors impacting public healthcare access in rural locations around the world. It was found that resource limitations resulted in most healthcare facilities being situated in urban locations. In turn, patients living in rural areas were forced to travel a long way to access healthcare. Additionally, it was found in the review that patients had to reserve transportation in advance or pay for private transport services to reach a healthcare facility. It is, therefore, surmised that public transportation plays a significant role in facilitating access to healthcare (Dassah et al., 2018). The results of this study were also in line with those found by El-Farouk (El-Farouk, 2016), who highlighted the uneven distribution of healthcare facilities and lack of access to them as being significant concerns for most health systems. This led to the recommendation that a new method should be developed across Saudi Arabia to identify uneven distributions of health resources.

Several methods, including customer reports and the opinions of policymakers, are already used in other countries for this purpose. El-Farouk (2016) explains that, in some countries, scientific and clear-cut measures are employed to ensure that healthcare is evenly distributed. Therefore, it is crucial to identify the geographical distribution of health resources, and accessibility to healthcare facilities to determine how they can be improved. In turn, this will enhance healthcare planning and the accessibility of healthcare for everyone. In rural locations, it is not just distance that is a key issue, but also roads networks tend to be substandard, which further impedes access to health facilities.

Administrative problems for patients accessing the appointment system

The lack of flexibility in appointment scheduling has been highlighted as a significant concern by employed Saudi women. They point out assigned appointment times and dates frequently clashed with their own schedules. Additionally, they reported negative experiences with the medical services referral system, with the most significant complaints being long waiting times for referrals, admissions and tests. The appointment scheduling system is at the heart of healthcare services and largely influences efficiency and timely access. Therefore, ultimately, it influences medical outcomes. Moreover, the scheduling system is fundamental in determining patient satisfaction. A study which investigated the key problems associated with patient appointment systems in the U.S. highlighted similar issues, with particular focus on the challenges of balancing supply and demand. It can be difficult to achieve this balance due to various factors, including uncertainty regarding patient arrival and consultation times, the needs of both the patient and provider, punctuality, cancellations and no-shows. Additionally, it is important to consider that some patient cases are more urgent than others and, therefore, the decision-making process must be dynamic. This is because appointments for non-urgent patients are always made in advance, while urgent and emergency cases cannot be predicted. There are also issues relating to the allocation of rewards and costs within healthcare systems, which often result in misalignment between the incentives and motivations of patients and doctors and can have a negative impact on the overall health system. This generates a more intricate issue of determining which perspective is most important to consider when creating and implementing scheduling systems (Gupta and Denton, 2008). Regarding the long waiting times for referrals, several researchers (Grilli et al., 2007, Rastall and Fashanu, 2001, Davies, 1999) have found that, due to the nature of community outpatient services (i.e. that they deal with non-urgent care), waiting lists are often utilized to manage demand, causing long waits for healthcare. Many techniques have been employed throughout the world to enhance patient flow and to shorten waiting times in outpatient facilities. Such techniques include triage and prioritization systems, lean approaches, advanced access plans and rationing (Jarvis, 2016, Vose et al., 2014, Harding et al., 2013, Williams et al., 2012, Kreindler, 2010). As well as enhancing the flow of patients in healthcare settings, resources have also been invested in reducing waiting times at community outpatient centres in order to improve patient experiences and satisfaction. Long waiting times can result in poor patient outcomes, including increased pain and stress, and lower quality of care. Ultimately, this can significantly reduce confidence in the health system (Kreindler, 2010). Saudi women also frequently report not receiving follow-up telephone calls following hospital discharge, nor do they receive calls to remind them of their upcoming appointments. Such services are simply unavailable in government hospitals. It is asserted by Dudas et al. (Dudas et al., 2001) that a follow-up phone call made within 48 hours of a patient's discharge from a healthcare setting played a vital role in detecting the need for further medical attention, ensuring that patients received necessary medications, enhancing satisfaction with the discharge process and a lowering of the incidence of patients returning to the facility. The results are in line with those found by Kelly et al. (Kelly et al., 1999), which identified follow-up telephone calls as important tools in identifying crucial patient needs between treatments. Missed appointments are, however, an avoidable cost which can impact the efficiency of resource distribution and ultimately affect patient experiences and treatment outcomes. Therefore, more and more healthcare facilities have implemented reminder systems to address this issue. In such systems, patients receive a reminder to attend their appointment. The reminder system must be designed in accordance with the specific nature of the service. It is crucial that there are administrative processes in place to improve attendance, rescheduling and cancellations in order to optimize appointment and reminder systems.

Lack of proper registry services and electronic health records systems

Based on the women's reports in the present study, it can be concluded that public hospitals must invest more time, money and resources into implementing electronic health record systems. In Saudi Arabia, the Ministry of Health (MOH) has understood the importance of implementing electronic healthcare provision systems since the start of the 21st century. They set up a National E-Health Strategy in 2011 to achieve the desired objectives.

The strategy consists of two phases which each last five years (National E-health Strategy, 2011). However, the Saudi Arabian government periodically reports on affairs surrounding the adoption of electronic health records around the country, and whether the process is on track to achieve the objectives is somewhat unclear. Likewise, existing studies have shown that the adoption of electronic health record systems is actually much slower than anticipated, particularly in small hospitals and those in rural settings (Adler-Milstein et al., 2015). This is despite the fact that most healthcare providers understand the importance of keeping electronic health records (Birkhead et al., 2015). The women in this study stated that paper records are kept by most government hospitals and that they are frequently lost. This results in extended waiting times and the need to repeat their medical history to the doctors. Ultimately, this lowers patient satisfaction with the healthcare service. Sullivan (Sullivan, 2010) explained that paper medical record systems were responsible for many medical errors made every day and that the causes of such errors included illegible handwriting, issues with manual order entry, and the use of non-standard abbreviations. Additionally, the Institute of Medicine (1999) released a report titled ‘Preventing Medication Errors’, in which it was estimated medical errors could impact every patient on every day of their stay in hospital (Donaldson et al., 2000). Sullivan (2010) stresses that medical errors can be largely avoided using electronic medical records systems. The latter researcher also highlights poor communication between healthcare providers with mutual patients as another key cause of medical errors. This often leads to the ordering of unnecessary tests and patients having to repeat tests. In turn, this slows down the treatment process. The adoption of interoperable electronic health record systems could thus eliminate these issues and the costs that they incur (Sullivan, 2010).

Communication factors

Lack of provision of clear written and verbal information to women

In this research, information-sharing between doctors and patients regarding self-management of GDM was reported to be poor. The women participating in the study reported that this has a negative impact on their understanding of GDM care. Women, therefore, indicated that they depend on internet sources, family and friends to provide the necessary information, although information obtained via these channels is often incorrect or not relevant to their specific condition. This causes women to feel unsatisfied. This clearly demonstrates the importance of improving communications between doctors and patients. The effectiveness of treatments is largely impacted by a lack of personalized service and poor health literacy. Often, patients want to find the necessary information but are unable to interpret it (23). This was also found in the present research. If customized education materials are developed to measure and improve health literacy, then GDM knowledge will be largely improved (24). Moreover, the provision of educational materials can help patients to understand their disease and enhance their self-management skills (23). If service delivery models or communication styles fail to involve patients in decision-making processes, this can further hinder the effectiveness of treatment. Educating patients about their condition and involving them in decision-making processes has been found to improve both health literacy (25) and self-management confidence (26). Ultimately, improved confidence in self-management can generate more positive outcomes for patients (4,27). However, participants stressed that they were grateful for the expertise and knowledge provided by healthcare teams, even though they wished to be more involved in decision making with regard to managing GDM. The research has highlighted the need to clearly define the nature of partnerships between specialists, GPs and patients. To be effective in enhancing perceptions of personalized care, education must be patient orientated. Moreover, the roles of GPs and other relevant practitioners must be clearly defined (28). In recent times, patient empowerment has become a topic of increasing importance within healthcare, and especially in the field of patient-centred care. Several factors that impact patient empowerment were identified in the present research (29), such as perceived respect, health literacy, and involvement in decision-making practices.

Poor communication and coordination within secondary care

To develop effective patient-centred care, it is crucial that effective communication is established between healthcare providers. Yet, the women participating in this research reported that current communication between healthcare providers in secondary healthcare settings is largely subpar, with mistakes and delays in communicating information being common complaints. What's more, the women frequently reported that doctors were unaware of recommendations provided by other healthcare professionals, which usually resulted in conflicting care plans. Other women reported having to repeat important medical information many times to different doctors. Patients indicated that they felt extremely concerned that their doctors were unaware of their medical history and treatment plans. These results are in line with those of another study, which also found that poor and ineffective communication between doctors can be damaging to patients, as well as causing delays in care provision, a continuation of incorrect or unnecessary treatments, increased duration of hospital stays, delays in assessing and treating patients, and increased costs (Woolf et al., 2004). Therefore, it is evident that effective communication between doctors in secondary care settings is crucial in establishing patient-centred care plans and facilitating the development of trusting relationships between doctors and their patients. This holistic approach to care significantly enhances the chances of treatment being successful, as well as increasing patient satisfaction (Ranjan et al., 2015).

Participants in this research stated that record-sharing would be more effective if doctors were to share their records electronically. Likewise, similar studies have revealed that, when electronic health records are used within a patient-centred approach, doctors can engage with patients more effectively and efficiently. Therefore, the sharing of electronic health records can enhance communications between doctor and patient and improve patients' health literacy regarding their illnesses. Moreover, it encourages shared decision-making (Rosenthal, 2008).

The participants also reported that there are several factors that make effective communication between healthcare professionals more challenging, including the involvement of many professionals from different disciplines and the need to visit different specialists who are often spread out over several locations. This significantly reduces opportunities for regular synchronous interactions. Despite the fact that communication and teamwork are vital in ensuring safe patient care, the educational curricula for a majority of healthcare professions only require employees to demonstrate technical skills and therefore, communication skills are largely ignored (Dingley et al., 2008). On the other hand, many doctors do not have natural communication skills and therefore, require formal training for it (Ranjan et al., 2015).

Lack of communication between primary and secondary care

The increased prominence of care coordination in healthcare was an interesting finding that was revealed in many of the interviews. This was reported by participants who had the highest levels of dissatisfaction with regard to communication between primary and secondary care providers. Participants who displayed higher levels of satisfaction offered fewer opinions, reporting only on the lack of familiarity with how their care plan was coordinated by their healthcare providers. This is supported by other research findings which indicate that patient perception is significantly influenced by ineffective care coordination and often results in negative health effects and failure to meet patients' expectations (Haggerty et al., 2013, Maeng et al., 2012). Successful care coordination is usually managed by healthcare providers behind the scenes. Patients explain that this is less about active appreciation and more about how invisible and unobtrusive this is to them.

Many of the participants reported that care coordination was largely impeded by the lack of record-sharing between healthcare professionals. They also stressed that information flow and interoperability must be improved. It is evident from the findings that doctors are still largely dependent on paper-based methods for communicating with external providers (O'malley et al., 2010), and this made them unhappy. They consider paper-based record keeping to be a haphazard system in comparison to electronic record keeping. Nonetheless, if interoperability between different HER systems was enhanced, this could significantly improve care coordination between different health systems (O'Malley, 2011, Walker et al., 2005). The Saudi Healthcare Transformation Strategy requires a nationally standardized health information system to be developed (Alharbi, 2018). Many of the women interviewed also highlighted the need for a standardized health record system that could be accessed by all doctors involved in their care.

Health providers' factors

Lack of expert doctors with respect to gestational diabetes

Kleeberg (Kleeberg et al., 2005) points out that a doctor's level of competence and success is evidenced in positive patient experiences. Moreover, Kuteyi et al. (Abioye Kuteyi et al., 2010) add that possessing and maintaining excellent technical skills are crucial for doctors. For the most part, the technical expertise of doctors consists of upholding a suitable level of experience, diagnosing accurately, the ability to carry out clinical procedures, prescribing correct medications and keeping up to date with medical developments (Hagedoorn et al., 2003). In this study, participants report varied experiences about their doctors' technical expertise. Some participants indicate greater satisfaction, whilst others expressed that their doctors lacked knowledge about technical procedures, medicines and treatment. The results of this research were in line with those of many international studies which have investigated the relationship between medical interactions and patient satisfaction (Khattak et al., 2012, Chen et al., 2008, Danish et al., 2008, Saeed and Ibrahim, 2005, Shilling et al., 2003). It appears that patients' satisfaction with healthcare services is positively influenced by doctors' levels of technical expertise (Deledda et al., 2013).

Contrastingly, a positive relationship was found between women's unsatisfactory experiences with consultations/treatments and the likelihood of her revisiting the doctor. The women reported that they would keep visiting the same doctor/hospital for check-ups and childbirth even though they feared the negative effects of visiting a doctor with insufficient expertise (such as the death of their unborn baby). This somewhat contradicts existing research into the topic which reveals that unsatisfied patients are less likely to continue visiting a doctor who they perceive to be incompetent (Maseko et al., 2014). However, the participants in this research also express that they revisit the same governmental hospital for medical consultations even if they are unhappy with the service provided (Abioye Kuteyi et al., 2010). A study performed in Pakistan also revealed similar findings that, in areas where resources are limited for, or not available to those from lower socio-economic backgrounds, patients will continue to visit the same medical facility regardless of how unsatisfied they are, primarily because they have no alternative (Jalil et al., 2017).

What's more, Fuat (Fuat et al., 2003) found that inaccurate diagnoses were significantly impacted by insufficient multidisciplinary support and inexperienced doctors. Diagnosis can be defined as the process of identifying a medical problem through examinations, medical testing, and assessments of presenting symptoms and a patient's medical history. For more complicated conditions (eg GDM), early diagnosis is crucial for creating an effective management plan and for improving outcomes for women (Zandbelt et al., 2004). To enhance the provisions of GDM healthcare services to women, high-quality diagnostic services, multidisciplinary care and specialist consultations are essential (Izbicki et al., 1992).

Lack of respect, empathy and support

The women in this research have varying experiences of empathy and respect from their doctors. Whilst some do report instances of kind, respectful and close relationships with their doctors, others reported that their doctors displayed no such behaviours. Therefore, it is evident that the characteristics displayed by doctors are crucial in building and sustaining patients' morale. Moreover, the women also expressed the need for doctors to be considerate of their opinions and emotions during consultations and to tailor care plans accordingly. To achieve this, empathetic skills are fundamental (Kahriman et al., 2016). A recent study also found that, if doctors build empathetic relationships with their patients, it promotes cooperation in creating a tailored treatment plan. This ultimately enhances users' satisfaction with medical care services, improves care quality, minimises errors and increases the number of positive healthcare experiences. Moudatsou (2020) explains that empathetic relationships are built gradually throughout the care process. Empathy can be defined as the foundation of patient-centred care because the patient is treated as a person and not an illness. Doctors must be able to show empathy and treat their patients as equal to them. To do this, they must treat patients with respect and openly share relevant information with them.

Nurse's lack of practical proficiency

The participants in this research revealed that nurses often lack basic medical skills, such as the ability to take patients' blood pressure or provide intravenous injections. This is particularly the case with new nurses. Prior research by Missen et al. (2016) has found similar results, namely that nursing graduates failed to reach the minimum competency expectations. Another study also identified a misalignment between classroom teaching and real-life work in a clinical setting (Maben et al., 2006). All graduate nurses must pass a physical assessment in the form of a nursing education course. However, there are still several issues relating to the physical assessment, both in the classroom and in clinical environments. This is even the case in advanced healthcare facilities in high-resource countries (Güldal et al., 2005).

However, a majority of the participants were dissatisfied with the presence of foreign nurses, whom they perceived to lack medical and ethical skills with regard to providing GDM healthcare. Saudi Arabia is a high-income country, and therefore, healthcare services are in increasing demand. However, this has been confounded by a national shortage in nursing staff, and therefore, the government has had to employ many expatriate workers to fill the void (Al-Omari et al., 2015). Nonetheless, there is also a shortage of qualified expatriate nurses as a result of poor-quality nursing education in their respective countries (A Almutairi et al., 2020). This can largely impact their ability to perform physical assessments (Al-Quliti and Alamri, 2015) and this incompetence may largely impact the provision of optimum patient care. Ultimately, this has a negative impact on women's experiences with GDM care.

To enhance care quality, it is imperative that nurses are sufficiently trained to improve clinical proficiency. Moreover, nursing education providers must enhance the teaching curricula and work together with healthcare facilities to prepare graduate nurses for real-life work and to ensure that they are proficient, safe practitioners upon graduation. More importantly, nurses must aim to provide patient-centred care. The participants in this study perceived nursing care to be more high-quality when the patient is treated with respect and listened to. This makes them feel safe. This, in turn, enhances positive patient experiences, as the participants reported in the study (Kieft et al., 2014).

Patients' factors

Sociocultural factors

The study identified several sociocultural factors that undermined the sense of empowerment and comfort that the participants had with their doctors, one of which is related more broadly to the differential treatment of women in various areas of Saudi society due to religious, cultural, and social dimensions. For example, some women in the study reportedly felt afraid of alerting others when they had received low-quality care, and others mentioned that they frequently kept silent about clinically relevant questions. This was especially the case when male physicians were involved in providing healthcare services to the women, as many participants explicitly preferred female physicians. In the wider literature, the influence of gender norms on power relations has been studied in multiple healthcare contexts, including in Saudi Arabia (Aldosari, 2017). Gender concordance between patients and physicians, especially with male physicians and female patients, has been associated with complexities in terms of shaping the patient experiences and health outcomes (Greenwood et al., 2018). For example, in a cross-sectional analysis of US electronic health record data on patient satisfaction (n = 17,677), Chekijian (Chekijian et al., 2020) reported that female patients tended to report higher satisfaction with female emergency department physicians. In the Large City in Saudi Arabia context addressed in this study, the preference of many women for female doctors is consistent with this, as well as the broader influence of religious and gender norms in Saudi Arabia and the Muslim world (Aldosari, 2017).

Women in this study reported that the languages they were fluent in (mainly Arabic and English) influenced the quality of the healthcare they received, as well as their patient experience. This was since significant numbers of expatriate healthcare workers could not speak Arabic. In Saudi Arabia, a large proportion of the healthcare workforce, including physicians and nurses, consists of expatriate workers (ranging from the Philippines to the UK) (Almutairi, 2015). For this reason, English has become the default language for communication in many healthcare settings, which was found to have a significant impact on the healthcare services the women received in this study. Language barriers in multilingual hospitals have been studied by several researchers, including in the Saudi setting. For example, the recent qualitative study conducted by Alhamami (Alhamami, 2020a), which involved interviews (n = 37) with nurses, physicians, patients, and allied health professionals, found similar results to this study, showing that multilingualism often challenges the quality of healthcare services, their effectiveness, patient safety, and the patient experience. Given the general importance of interpersonal communication in delivering all aspects of healthcare (Chichirez and Purcărea, 2018), and – more specifically – in treating, managing, and educating patients with chronic diseases (Dickinson et al., 2017), it is essential to address sociocultural factors that impede it, such as a mismatch between the patients' and healthcare providers' languages.

Lack of trust in medical staff and government hospitals

Each of the women's narratives, despite their regular attendance at physician appointments, revealed substantial mistrust and unsettledness regarding the use of government hospitals. This was especially the case, as certain women noted, when compared to the use of private hospitals for pregnancy related and GDM services. This is consistent with the literature showing that differences exist between private and public healthcare infrastructures in many other countries, including in the way they are perceived by patients. Therefore, both objective and perceived differences in quality, safety, and effectiveness are relevant for consideration. Notably, private providers were perceived more favourably compared to public healthcare providers in Iran (Alijanzadeh et al., 2016), Saudi Arabia (Alumran et al., 2020), Ghana (Kwateng et al., 2017), and other countries (Pérez-Cuevas et al., 2017). Studies have also found that, in certain countries, objective (rather than only perceived) differences exist between the quality of public and private healthcare services, such as in the Ahmed et al. (2017) study of Malaysian hospitals. As a case in point, the (Basu et al., 2012) systematic literature review suggested that, in most low- and middle-income countries, the private healthcare sector is more clinically effective, efficient, and accountable than the public healthcare sector. Comparing these findings against the women's narratives in this study, it is clear that the participants' low trust in medical staff and government hospitals stems, at least in part, from the distinction between public hospitals and private hospitals, similarly observed in healthcare systems around the world.

Although several of the women in this study reported positive experiences of care in government hospitals, many displayed predominantly low levels of trust in these hospitals, as well as in the medical staff who they interacted with. To an extent, as previously discussed, low trust can be accounted for based on the patients' institutional perceptions of low-quality public healthcare (relative to private healthcare). However, this study's interviews also demonstrated that other factors contributed to low trust. One of the key factors was the question of whether the patient had heard of (or had suffered from) a prior negative experience in a government hospital, which strongly influenced their level of anxiety and their own patient experience. Influential experiences for the patients included visiting a hospital with poor equipment, low levels of hygiene, bed shortages, equipment shortages, long waiting times, and medical errors, each of which has been identified as a critical risk factor for negative patient experiences in prior studies (Xie et al., 2019). Other international studies have reported that similar factors, ranging from long waiting times (Chu et al., 2019) to reports of medical error (Smith, 2017), can have a lasting impact on a patient's trust and their perceptions of medical staff and hospitals. This highlights the important need not only to deliver a clinically effective, safe, and satisfactory experience, but also to ensure that trust is developed with patients wherever opportunities exist to do so. Trust-building can occur at all levels in healthcare, even including the beginning of doctor and patient relationships (Dang et al., 2017).

Negative perceptions or feelings

In this study, combined with lacking trust for medical staff and public healthcare institutions, many of the women's experiences of maternity healthcare services were determined by their patient-specific negative perceptions or feelings, which arose from multiple areas. These areas were as diverse as feeling ignored, insulted, depressed, threatened, or unwanted, and the causes of these negative perceptions or feelings were similarly diverse. For example, several participants reported incidents of disrespectful language or inhumane treatment by medical staff, especially in rural hospitals and government hospitals. It is notable that, compared to the low-quality experiences described by the participants in this research, similarly diverse pathways to inhumane healthcare services are regularly reported around the world, even in high-income countries (Peled-Raz, 2017, Shelmerdine, 2017). Examples of healthcare provision such as this must be corrected because they can increase the risk of non-compliance with medical orders (Mogakwe et al., 2020), lower patient awareness about their disorder (Farahani et al., 2013), and suboptimal healthcare outcomes. At the same time, the rural/urban divide in quality, safety, and effectiveness of care, as highlighted by this study's participants, has been reported in many other countries, including the UK and Germany (Potrafke and Roesel, 2019). Based on these observations, it is clear that challenges must be overcome when seeking to address the root causes of the negative perceptions and feelings that patients hold towards the healthcare system, particularly in this population of women with GDM using maternity healthcare services.

Although several of the women included in the study did not report negative, stressful, or demeaning experiences of care, the fact that some did, as all patients do around the world (Shelmerdine, 2017), highlights the importance of limiting negative perceptions or feelings. Multiple studies in the literature emphasise how anxiety and a sense of vulnerability are heightened in patients when seeking healthcare services, especially maternity healthcare services (Schetter and Tanner, 2012), which stresses the need for effective physician and healthcare provider communication practices (Dang et al., 2017). Furthermore, when healthcare providers induce negative perceptions and feelings in patients through poor communication, showing low levels of respect, and disempowering them, this can impede recovery or lead to stress, particularly for women suffering from GDM (Karaca and Durna, 2019). These communication difficulties, in addition to creating psychological challenges for the patient that exacerbate their physiological conditions (Dang et al., 2017), violate well-established ethical codes and practice guidelines in countries such as the UK (Guy, 2019). For example, in the UK, legal papers and policy documents released by organisations such as the Nursing and Midwifery Council (NMC, 2020) and the National Health Service (NHS England, 2014) set out clear accountabilities and responsibilities for nurses, physicians, and other members of the healthcare workforce. As of 2020, many of these instruments are reportedly lacking in the Saudi context (Alsufyani et al., 2020), which is reflected in the women's responses regarding the barriers they encountered when accessing and using maternity healthcare services.

5.9. Limitations

The qualitative research design performed in this study, guided by the interpretive phenomenological approach, is potentially limited in several respects, and so this section examines these limitations. First of all, although the qualitative study benefitted from generating fine-grained results on the participants' experiences, thereby complementing the available statistical data (Nowell et al., 2017), it suffers from the inherent limitation of not illuminating the research questions with statistical exactness (e.g., as would a quantitative research design) (Creswell, 2014). Therefore, while it was possible to analyze the participants' diverse views and experiences, the research findings regarding the identified barriers to GDM healthcare access and use may not be representative.

Another research limitation is that the inclusion criteria for the study led to the views of patients in private healthcare organizations being excluded from consideration. The opportunity to compare the experiences of rural and urban patients in this study was valuable. Therefore, this would have also been the case for the chance to compare perceptions of private and public care quality, as other researchers have investigated. In addition, other factors that may limit the applicability of this study's findings relate to the selected sampling technique for the research design, which consisted of convenience sampling. Due to the use of convenience sampling, the study's sample group could represent a potentially biased target population (Jager et al., 2017), meaning that the transferability of the research findings is limited.

It is worth noting that many well-known methodological pitfalls were avoided in this study in order to increase the trustworthiness and transferability of the research, such as the use of face-to-face interviews as opposed to online or telephone interviews (Szolnoki and Hoffmann, 2013). Despite the robustness of the data collection approach, several aspects of the research methodology relating to the data analysis procedure should be highlighted as possible limitations. For example, achieving trustworthy, dependable, and credible thematic analysis, especially when a qualitative dataset is large (as in the case of the present study), is complex, usually requiring several analysts working collaboratively (Nowell et al., 2017). Since only one analyst (in this case, the researcher) completed the thematic analysis procedure, this could reduce the reliability and trustworthiness of the results.

5.10. Conclusion

The purpose of this chapter was to analyze and discuss the qualitative data obtained from interviews undertaken with a convenience sample of female GDM patients, all of whom had received their GDM diagnosis within the past 6 months and had accessed maternity healthcare services from a rural or urban public hospital. After analyzing the textual interview data using Braun and Clarke's (2006) six-phase thematic analysis procedure, a variety of themes and sub-themes were synthesized from the dataset, each highlighting a factor that was found to influence the quality of the GDM care provided to the patients. In this study, these factors were the following: access to care factors, communication factors, health provider factors, and patient factors.

In the subsequent discussion of each of these broad themes, along with each of their sub-themes, fine-grained insights were obtained into the experiences of the women, consistent with the interpretive phenomenological approach and the strengths of thematic analysis (Ryan, 2018). This enabled this study’s overarching research objectives to be addressed, including the objective of exploring the views and experiences of Saudi GDM patients compared to the experiences of patients in other countries. In addition, by discussing the four identified themes, barriers to access and use of maternity healthcare services in the Large City in Saudi Arabia, along with possible improvements to GDM services in Saudi Arabia, were highlighted.

Thematic analysis revealed four sub-themes for access to care factors that influenced the quality of the GDM care provided to the female patients, as well as their experiences. These were long waiting times and short consultation times, long travel distances to health facilities, administrative problems for patients accessing the appointment system, and lack of proper registry services and electronic health record systems. On the whole, access to care for the study's GDM patients was substantially limited in each area, especially in the rural setting. However, due to the existence of similar problems in other countries, as well as the possibilities for policy-borrowing (Meng et al., 2019), various solutions were identified that could be introduced in the Saudi context. Adequate solutions, however, must seek to reform different levels of the healthcare infrastructure simultaneously, given the complexity of the factors that influence access to care (e.g., ranging from retraining administrative staff to designing new software systems for electronic health records).

The three sub-themes identified as communication factors affecting GDM quality of care in the participants were the following: lack of provision of clear written and verbal information to women, poor communication and coordination within secondary care, and lack of communication between primary and secondary care. In this study's sample, communication was reported as a fundamental consideration in the context of maternity healthcare services, but it also reappears as a constant across all contexts, influencing clinical effectiveness, patient safety, and the patient experience (Lippke et al., 2019). For this reason, as the data indicate, solving problems at the level of communication in all healthcare settings, including Saudi hospitals for GDM patients, is a rich area for policymakers to focus on in order to make substantial gains in improving patient experience, patient safety, and other outcomes.

The last two themes identified in the thematic analysis were health provider factors and patient factors, each representing the main human agents that form the front-line of the healthcare system. The third main theme, health provider factors, consisted of the following three sub-themes: firstly, lack of expertise among doctors with respect to gestational diabetes, secondly, lack of respect, empathy, and support, and finally, lack of practical proficiency in nurses. Along with the final theme (patient factors), which consisted of sociocultural factors, low trust in medical staff and government hospitals, and negative perceptions or feelings, the study painted a rich picture of the variegated factors influencing the participants' experiences of care. The next chapter presents findings from the Delphi study that conducted to reach consensus on priorities for improvement of GDM healthcare services in Saudi Arabia from the perspective of professionals organizing and delivering healthcare.

Chapter 6: Reaching consensus on priorities for improvement of gestational diabetes healthcare services in Saudi Arabia: A Delphi study

6.1. Introduction

This chapter presents findings from the Delphi study, conducted to reach consensus on priorities for improvement of GDM healthcare services from the perspective of professionals organizing and delivering healthcare. At the outset, an outline of the methodological underpinning of the Delphi technique is given, followed by a presentation of the methods adopted in this research. Finally, the results are presented and discussed.

6.2. Research aims and question

The Delphi study presented in this chapter aims to achieve consensus among healthcare professionals on the key problems relating to gestational diabetes mellitus (GDM) services in the Kingdom of Saudi Arabia (KSA), as identified through the qualitative study given in Chapter 5. In particular, the purpose of the Delphi study was to prioritize theseissues. Consistent with this aim, the following research question was established: “Which GDM healthcare service issues should be made a priority for resolution?”

6.3. Methodology

This section describes the Delphi technique, the e-Delphi technique, and the strengths and limitations of this research tool. The section concludes with an explanation of the rationale for using the Delphi technique in this phase of the research.

6.3.1. Delphi technique

Although the Delphi technique was invented within the RAND corporation, an American non-profit think tank for global policy, in the 1950s, the fact that it was originally developed to assist in military decision-making meant that it was not publicly disclosed until the early 1960s (Hirschhorn, 2019). Dalkey and Helmer's (Dalkey and Helmer, 1963) seminal paper was the first to provide a publicly available description of the Delphi technique, wherein it was described as a research tool – consisting of sequential rounds of questionnaires interspersed with controlled opinion feedback – for establishing consensus in a group of experts. The principle that underlies the Delphi technique is that group consensus is associated with greater validity compared to individual opinion, and it has since been applied in diverse fields, including engineering, computer science, and nursing (Keeney et al., 2010).

Despite the flexibility of the Delphi technique, as well as its adaptation in various ways by researchers over the years (e.g. to promote methodological rigour in terms of validity, reliability, and trustworthiness) (Steinert, 2009, Hasson and Keeney, 2011), the procedure involved typically conforms to several core features. Procedurally, the Delphi technique is always iterative in that, from a high-level view, it involves distributing a series of questionnaires to a group of experts, where each round of questionnaires is interspersed with controlled opinion feedback (Keeney et al., 2010). More specifically, after the first set of questionnaires is distributed and the expert responses are obtained (and, crucially, before a new questionnaire is distributed), the researcher who is coordinating the survey provides the participants with anonymous controlled opinion feedback (i.e., feedback on the answers given by all participants). As a result, all participants have the opportunity to reflect on the feedback, which means that, when they answer new questionnaires in the later rounds of the procedure, they can reconsider their opinions (Hasson and Keeney, 2011). This process, consisting of questionnaires and controlled opinion feedback, continues until satisfactory consensus has been achieved or until the participants' opinions stabilize across the survey rounds (von der Gracht, 2012).

In most applications of the Delphi technique, between two and four rounds of questionnaires and controlled opinion feedback are involved, but the recommendation is to use a minimum of three to ensure an acceptable response rate (Keeney et al., 2010). In terms of what constitutes an acceptable response rate in a Delphi study, a minimum response rate of 70% has been cited as a prerequisite for achieving a satisfactory level of methodological rigour (Hasson and Keeney, 2011). A high response rate is desirable because, if a substantial proportion of the Delphi participants withdraw over the course of the process, this can undermine the validity of the results (Hsu and Sandford, 2007).

Considerations such as the research aims, available time, and research design have an impact on the approach used to select a panel (i.e., group of experts) for a Delphi study (eg probability or non-probability sampling), as well as the question of how many participants are included in the panel (Keeney et al., 2010). These considerations also influence the heterogeneity of the Delphi panel. In prior research, Delphi studies have been undertaken that involved as few as 4 participants and as many as 3,000 (Thangaratinam and Redman, 2005). However, the number of participants included in a Delphi study commonly ranges from 10 to 30 experts (Keeney et al., 2010). It is worth noting, nevertheless, that the larger the panel size, the greater the reliability of the respondent group (Hasson and Keeney, 2011). Regarding the issue of how experts are chosen in a Delphi study, this is critical for ensuring that the required knowledge is represented in the participants, which will allow the research aim to be achieved. For this reason, it is important to establish criteria for defining relevant expertise and, in turn, to apply those criteria to recruit individuals who can be considered experts (Hirschhorn, 2019).

6.3.2. E-Delphi technique

Over the past three decades, particularly with the development of the Internet, a technique known as e-Delphi (or electronic-Delphi) has emerged, developed, and been widely applied in diverse research areas (Donohoe et al., 2012). The hallmark of the e-Delphi technique is that it leverages online platforms to design and implement the elements of a

Delphi research procedure, consisting of inviting participants, monitoring their participation, facilitating interaction between participants and the survey coordinator, and completing data management and data analysis (Hasson and Keeney, 2011; Donohoe et al., 2012).

The fundamental advantages associated with the use of an e-Delphi procedure as opposed to a non-electronic Delphi procedure stem from the fact that, by leveraging aspects of the world's rapidly evolving Internet infrastructure, the process can be accelerated, the survey's reach can be extended, and the process of storing, retrieving, and managing data can be streamlined (Donohoe et al., 2012). As a case in point, using today's readily available and freely available online survey software, as well as applications such as email, data can be obtained from participants in a highly efficient way, often eliminating human error associated with processing and managing data manually. At the same time, the e-Delphi technique is valuable for healthcare research because front-line professionals often have little time to spare (e.g. in attending face-to-face data collection sessions) and so the use of modern technologies can streamline and quicken the process (Meshkat et al., 2014).

It is important not to overlook the disadvantages associated with the e-Delphi technique, chief among which is the fact that access to target populations may be restricted by internet accessibility issues. This can lead to bias and undermine the reliability, validity, and trustworthiness of the process (Donohoe et al., 2012). In certain countries, including the KSA (in which the present e-Delphi study was undertaken), the internet penetration rate, as well as the rate of smartphone ownership, is approximately 85% (Alsubaei and Lyndon, 2020), which reflects the fact that certain members of the population would not be able to participate in an e-Delphi study, thereby affecting the methodological rigour of the research results. Notably, however, the population of interest for the present Delphi study was not subject to this limitation. Another limitation relates to the fact that the participants may never meet each other or know who has joined in the rounds. Furthermore, there is the assurance of anonymity of the participants' individual responses, and these are never known to one another (Shariff, 2015). However, the participants' identities in an e-Delphi study may be uncertain in terms of who they claim to be (e.g., due to online verification and security issues), validation measures can be taken to safeguard against this (Donohoe et al., 2012).

6.3.3. Strengths and limitations of Delphi technique

Several of the core features of the Delphi technique, including anonymity, iteration, and the use of controlled feedback, constitute the main strengths of the research tool. In the case of anonymity, this ensures that participants, in not having to interact with other participants in a direct way, can express their opinions freely, without being influenced by group conflicts or dominant individuals (Keeney et al., 2010; Hirschhorn, 2019). Further to the anonymity aspect, it has also been shown that anonymity safeguards against group think and instead promotes independent decisions (Hirschhorn, 2019). In the case of iteration, the fact that several rounds of questionnaires are involved in a Delphi study means that it is possible for the participants to re-evaluate their judgements, which increases the methodological rigour and value of the results (Vernon, 2009, Hirschhorn, 2019). Finally, since controlled feedback is another essential element of the Delphi technique, this can educate and motivate the participants, and it can also broaden their knowledge and drive the development of new ideas (Fink-Hafner et al., 2019, Hirschhorn, 2019).

The time-intensive nature of a Delphi study serves as one of the principal limitations associated with the use of the research tool. In most cases, applications of the Delphi technique will take between three and five months, which stems from the need to engage in varied tasks ranging from survey coordination, providing feedback, creating questionnaires, sending invitations, and sending reminders (Keeney et al., 2010; Fink-Hafner et al., 2019). At the same time, the fact that standardized criteria for conducting Delphi studies are lacking (eg in terms of reporting and analyzing data, providing controlled feedback to participants, establishing the meaning of the terms “consensus” and “expert”, and undertaking statistical tests) represents another pivotal limitation associated with the method (Vernon, 2009). Finally, for Delphi studies to have an acceptable level of methodological rigour, participants must be committed, which is a complex factor to control for (Hirschhorn, 2019).

6.3.4. Rationale for using Delphi technique

Given the diverse nature of the GDM healthcare service issues in the KSA identified from the qualitative phase of this thesis, it was desirable to establish consensus on these issues across multiple healthcare providers, and to prioritize the issues. In doing so, insights gained from the literature review and qualitative study regarding GDM healthcare service issues in the KSA could be triangulated and further examined with the Delphi technique (Hirschhorn, 2019), highlighting clear avenues for policy design and interventions to reform this area of healthcare. As a case in point, since the priorities identified by the patients themselves may not be feasible areas of intervention from the standpoint of healthcare professionals and administrators, it is worthwhile to use the Delphi technique to allow a diverse, expert stakeholder group to have input on these priorities.

6.4. Methods

6.4.1. Study design

To address the research aim, a three-round Delphi study was conducted. The procedure was coordinated and implemented using Internet technologies, and so the adopted study design can be considered an example of an e-Delphi study. An overview of the stages involved in the study design, including constructing the initial questionnaire, pilot testing, choice of experts, and the three rounds of the Delphi study is given in Figure 6-1.

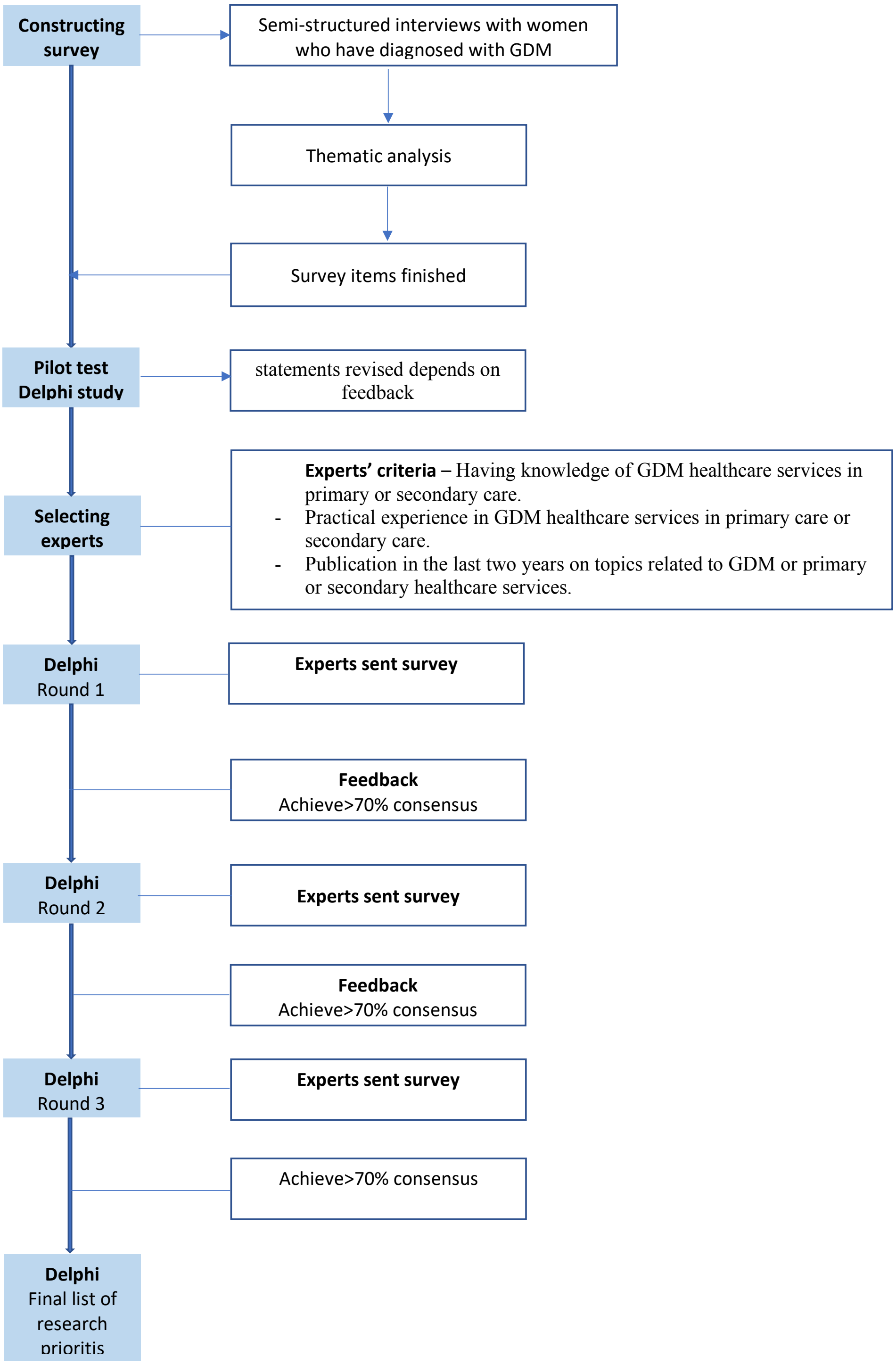


Figure 6- 1: Study design for Delphi technique

6.4.2. Participants and setting

Participants for the Delphi study were identified using several sources. The experts who were contacted included physicians, nurses, and healthcare administrators (including directors and administrative assistants) working in Large City in Saudi Arabia. Consistent with the recommendations of Hirschhorn (2019), the heterogeneity of this group of participants was sought after in order to ensure that, when combined, the participants' knowledge would be sufficiently broad to illuminate all relevant aspects of GDM healthcare service issues, including organization and different aspects of delivery. The number of participants included in a Delphi study commonly ranges from 10 to 30 experts (Keeney et al., 2010), but 17 experts in total consented to participate in the first round. Several participants withdrew from the study over the course of the next two rounds, with only 15 and 14 participants included in the second and third stages, respectively.

6.4.3. Sampling and recruitment

A non-probability sampling approach, namely, purposive sampling (Elfil and Negida, 2017), was adopted in combination with snowball sampling to recruit participants from primary healthcare centres (PHCs) and hospitals from the north, west, east, south, and centre of Large City in Saudi Arabia, in addition to rural areas. This sampling strategy was adopted to ensure maximum variation in age, education level, and other demographic factors, thereby promoting the heterogeneity of the sample.

Before the sampling and recruitment process began, the criteria given below were used to identify experts for inclusion in the Delphi study:

- Had knowledge of GDM healthcare services in primary or secondary care.
- Had practical experience in GDM healthcare services in primary or secondary care.

- Had published an article in the previous two years on topics relevant to GDM healthcare services in primary or secondary care.

After identifying experts who satisfied the inclusion criteria, an email was sent to each individual containing an invitation letter, an information sheet, and a consent form (see Appendices 6-A, 6-B, and 6-C). Any individuals who consented to participate in the Delphi study received a link to a web-based questionnaire (see Appendix 6-D). In total, 35 invitations were disseminated to eligible individuals.

It is also worth noting that, in contrast to other Delphi studies that have been undertaken in the healthcare context, in which patients are considered experts and, therefore, are included in the Delphi process (Thangaratinam and Redman, 2005), no GDM service users were included in this study. However, the results from the semi-structured interviews undertaken with GDM service users in the KSA, as obtained in the previous qualitative phase of this dissertation (see Chapter 5), were used as the basis for the first round questionnaires.

6.4.4. Questionnaire development

This section provides an overview of the questionnaire development approach adopted for each of the three questionnaires used across the rounds of the Delphi study, along with an explanation of the process used to pilot the first round questionnaire. It is worth noting that every participant received identical questionnaires, and all questionnaires were administered in the English language. Since the researcher intended to analyze and write up the results in English, and since the English language is commonly used among healthcare professionals across most institutions in the KSA (Alhamami, 2020b), the use of English as the language for the questionnaires was chosen to avoid potential difficulties arising from translation (Kalfoss, 2019).

6.4.4.1. Round 1 questionnaire

As noted in Section 6.4.3, the initial list of GDM healthcare service issues used in the first round of this Delphi study was based on the results of the qualitative study reported in Chapter 5. As such, the questionnaire for the first round was separated into four sections, each of which listed a series of issues relating to an aspect of GDM healthcare services that the participants were asked to rate by their importance on a scale. Specifically, the categories presented to the participants were the following: firstly, quality of care issues (4 issues); secondly, access to care issues (8 issues); thirdly, physician training and education issues (4 issues); and fourthly, communication issues (4 issues).

The questionnaire for the first round of the Delphi study also contained an open-ended question asking the participants to write down any GDM service issues they considered to be important but that were not included in the survey. In addition, demographic data were obtained from the participants, including job title, years of experience, relevant education history, city of residence, age, gender, profession, and work setting (e.g. primary care, secondary care, or government sector). Finally, the questionnaire also obtained contact information, as well as the preferred method of contact (e.g. email, WhatsApp), from the participants in order to prepare for the second round of the Delphi study.

It is important to note that a pre-pilot study was undertaken in order to promote the content and validity of the first round questionnaire (see Appendix 6-E). Five participants in total were invited to complete the pre-pilot questionnaire, and they were asked to fill out a structured feedback form in order to offer their comments on the design of the questionnaire, its layout, content, instructions, and ease of use. No notable comments were given, aside from the fact that the participants were satisfied with the length of the questionnaire (i.e., in containing only 20 statements to rate), and minor adjustments were made to the questionnaire items in order to maximize clarity and reduce the possibility of misunderstanding.

6.4.4.2. Round 2 questionnaire

At the outset, descriptive statistics were used to analyze the responses from the first round of the Delphi study, thereby determining the percentage of agreement for the most and least important GDM service issues (see Section 6.5. for an overview of the results). On the basis of this analysis, the questionnaire for the second round was prepared. In addition, qualitative data from the first round's open-ended question were analyzed. The questionnaires were distributed to all of the participants who completed the first round questionnaires.

For the second round, the questionnaires were divided into two parts: firstly, an information sheet was created containing a summary of all the statements for which consensus (i.e., more than 70% agreement) was identified in the first round, thus satisfying the controlled opinion feedback aspect of the Delphi technique (which is one of its hallmarks) (Keeney et al., 2010); and secondly, the same questionnaire that was applied in the first round was readministered (without the open-ended question, demographic data, and contact information parts). As in the first round, participants were asked to rate issues by importance on a scale.

6.4.4.3. Round 3 questionnaire

The questionnaire for the third and final round of the Delphi study was developed in order to achieve the aim of prioritizing the identified GDM healthcare service issues on which consensus had been achieved over the previous two rounds. For this reason, descriptive statistics were used to analyze the previous round's questionnaire responses (using the same approach used for the first round), and all of the issues for which 70% or higher consensus was achieved were incorporated into the next round.

After applying descriptive statistical analysis to the previous round's responses, 10 GDM healthcare service issues were identified that achieved 70% or higher consensus (see Section 6.5. for more information). Therefore, for the third round questionnaire, all 10 of these statements were listed in sequence, prefaced with the following question: “What are the top 5 most important gestational diabetes mellitus healthcare service issues?” In this round, the participants were asked to assign a rating to the issues in terms of their importance (in this case, from 1 – most important – to 5 – least important).

6.4.5. Questionnaire administration for all rounds

As noted in Section 6.4.3, an initial email was sent to each expert who agreed to participate in the study containing an invitation letter, an information sheet, and a consent form (see Appendices 6-A, 6-B, and 6-C). Where necessary, reminder emails were sent to the invitees via email or WhatsApp in order to maximize the response rate.

Any individuals who consented to participate in the Delphi study received a link to a web-based questionnaire (see Appendix 6-D). For this e-Delphi study, Google Forms was chosen as the online survey software tool to facilitate the data collection process. The rationale for administering the questionnaires using Google Forms stems from the user-friendliness of the platform’s interface, its compatibility with different Internet browsers (including browsers for smartphones and tablets), and its respondent-tracking feature (Raju and Harinarayana, 2016). Google Forms was also deemed a suitable online survey software tool due to its security features, which comply with the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA).

After the participants completed the first round questionnaire, a message of thanks was sent, and participants were informed about what to expect for the next two rounds of the Delphi study. Since the questionnaire for the first round gathered information about each participant’s preferred communication channel for receiving the next questionnaires (see Section 6.4.4.1), subsequent questionnaires were administered based on this data.

The approach to questionnaire administration across all three rounds conformed to the core principles of research ethics, and one of the key aspects of this was the ethical consideration of ensuring each participant's anonymity. Although this meant that no identifying information was obtained from participants, the first and second rounds of the questionnaire asked the participants for a name to ensure that their responses could be matched across the two rounds. Another ethical consideration conformed to throughout the process was that every participant's right to withdraw from the study at any time – without giving any reason – was respected. However, the responses given by participants prior to their withdrawal were still included in the analysis.

6.4.6. Timing of rounds

Each of the three rounds were undertaken over the course of six weeks, between July 2019 and December 2019. For each round, four weeks were allocated for questionnaire administration and the collection of completed questionnaires, and reminders were disseminated to the participants on a weekly basis. The participants were informed about the closing dates for the three rounds. As for questionnaire analysis and making preparations for the next rounds, two weeks were allocated. Every participant who consented to take part in the first round was sent the questionnaires for the second and third rounds.

6.4.7. Summary of Delphi process

The questionnaire for the first round of the Delphi process was based on the results of the qualitative study reported in Chapter 5. Participants (n = 17) were presented with 20 issues relating to aspects of GDM healthcare services in the KSA, separated across multiple categories, and they were asked to rate these in order of importance. Specifically, the categories presented to the participants were the following: firstly, quality of care issues (4 issues); secondly, access to care issues (8 issues); thirdly, physician training and education issues (4 issues); and fourthly, communication issues (4 issues).

For the second round, the same questionnaire that was applied in the first round was readministered (without the open-ended question, demographic data, and contact information parts), but the participants were given an information sheet containing a summary of all the statements for which consensus (i.e., more than 70% agreement) was identified in the first round. This offered an opportunity for them to reconsider their responses.

The third and final round of the Delphi study presented participants with 10 GDM healthcare service issues that had achieved 70% or higher consensus in the second round. The participants were asked to sign the top 5 issues in order of importance. As detailed in Section 6.5., statistical aggregation of the group's responses for the third round's questionnaire led to the identification of the top 5 GDM healthcare service issues to be prioritized from the original set of 20, as initially derived from the qualitative study undertaken with GDM service users in Chapter 5.

6.4.8. Data management

Since each of the questionnaires was completed using Google Forms, the completed questionnaire responses were exported to Excel after each round to facilitate statistical analysis. The researcher's secure and password-protected personal computer was used to undertake the data management and data analysis procedures, consistent with the core principles of research ethics.

6.4.9. Data analysis

6.4.9.1. Qualitative data

Qualitative (i.e., textual) data were only yielded by the questionnaires used in the first round of this Delphi study. To examine these data, the thematic analysis process was applied, which consists of becoming familiar with the data, generating initial codes (i.e., low-level themes), identifying themes, reviewing themes, and defining and naming themes (Nowell et al., 2017). Excel was used as the environment in which the thematic analysis process was undertaken.

6.4.9.2. Quantitative data

The participants' demographic characteristics, as identified in the data obtained in the first round of this Delphi study, were analyzed using descriptive statistics.

For the GDM service issue rating data obtained in the first and second rounds, consensus was defined in advance to denote to any item achieving a rating of 70% or greater, which is commonly used as a cut-off point in the literature (Keeney et al., 2010). While some studies distinguish between strong and weak consensus (as greater than 80% and 70%, respectively) (Bonilla et al., 2020), no such distinction was made in this research due to the nature of the research aim.

In terms of how consensus was calculated for the first and second rounds, a sum was first taken of the number of participants who had rated a given issue as the most important. In this case, "most important" was defined as a rating of 1or 2 on a 4-point scale, or 1, 2, 3 on an 8-point scale. To calculate the consensus percentage as the most important issue, the proportion of these participants relative to the total number of participants was taken. After that, a sum was taken of the number of participants who had rated a given issue as the least important (i.e., either 3 or 4 on a 4-point scale, or 6, 7, 8 on an 8-point scale). To calculate the consensus percentage as the least important issue, the proportion of these participants relative to the total number of participants was taken.

For the GDM service prioritization ranking completed by the participants in the third round of this Delphi study, the top 5 items that achieved more than 70% consensus were included in the discussion and analysis. The quantitative data obtained in the third round consisted of the rates the participants assigned to 10 GDM service issues regarding their importance (with most important indicated by rates of 1 or 2, and least important by rates of 4 or 5, on a 5-point scale). A sum of rates calculation was applied, as shown below, yielding an ordering of the 10 GDM service issues from most important to least important:

$$rank\_sum(X) = (1 \times A) \times (2 \times B) \times (3 \times C) \times (4 \times D) \times (5 \times E)$$

where X is a particular GDM service issue, and where the constants A, B, C, D, and E refer to the total number of responses for each rating of 1 to 5 given by a participant on the 5-point scale, respectively. It is worth noting that for any given GDM service issue X, a lower rate sum value was associated with a higher level of importance.

In turn, each sum of rates value derived by applying the above formula was divided by the total number of participants (n = 14) to produce an average rate value. This again yielded an ordering of the 10 GDM service issues from most to least important, where – as before – a lower average rate value was associated with greater importance. This final step concluded the identification of the top 5 items that achieved more than 70%.

6.4.10. *Quality Assurance*

To maximize the response rate of the Delphi study, several measures were taken based on reports given in related studies published elsewhere in the literature. These measures included the provision of the researcher's contact details on each questionnaire's first page; the provision of full and clear descriptions of the research process; maintaining periodic contact with the Delphi study participants using reminders (sent through each participant's preferred communication channel); thanking the participants for their time at the end of each round; and offering a clear description of the value associated with each participant's responses (Aw et al., 2016, Hirschhorn, 2019, Hsu and Sandford, 2007). In addition, the response rate was maximized by safeguarding against participant fatigue, which can arise when Delphi studies incorporate more than three rounds (Keeney et al., 2010).

6.4.11. Ethical Considerations

Since this Delphi study involved the collection of information from human participants, a range of ethical considerations needed to be taken into account. These issues were anonymity, confidentiality, secure data storage, and voluntary and informed consent

(Avasthi et al., 2013). Hence, to safeguard against the violation of fundamental principles of research ethics when collecting, storing, analyzing, or writing up the data or Delphi study findings, several measures were adopted (Keeney et al., 2010). Although full anonymity is difficult to achieve in a Delphi study (i.e., because the researcher knows who the participants are), it was ensured that participants were anonymous to other participants, as well as to readers, by eliminating identifying information (e.g., personal names). In addition, voluntary and informed consent was obtained from each participant before they were allowed to offer data for research purposes, which was ensured by providing an information sheet and asking them to sign consent forms.

6.4.12. Research Ethics Approval

Ethical approval was received to undertake this Delphi study from the Health Sciences Research Governance Committee (HSRGC), University of York on 8 December 2017, with certain changes made (see Appendix 5-A). In addition, ethical approval was granted by the Research and Studies Affairs Unit, Ministry of Health, Saudi Arabia on 26 November 2017 (see Appendix 5-B).

6.5. Results

6.5.1. Response Rate

The total number of participants who completed all three rounds of the Delphi process amounted to 14. However, 17 responses were obtained for the first round and 15 responses were obtained for the second round. Since 35 invitations were distributed to relevant experts at the outset of the Delphi process, this meant that the response rate for the first round was 48.6%, as reported by Hasson and Keeney (2011). However, all participants who completed each round were invited to participate in the subsequent round, and so the response rates were significantly higher for the second and third rounds (at 88.2% and 93.3% respectively). An overview of the response rate and between-rounds participation rates is given in Figure 6-2.

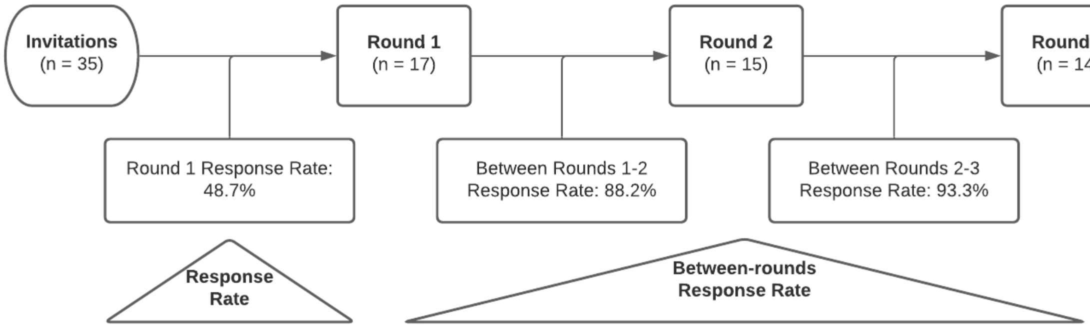


Figure 6- 2: Response rate and between-rounds participation rates for Delphi study

6.5.2. *Demographic Characteristics*

Table 6.1 provides an overview of the demographic data obtained from the participants in the first round of the Delphi process (n = 17). Most of the participants were female (n = 11, 64.7%), and the most common age range was 31-40 years (n = 6, 35.3%). The mean age of the participants was 37.5 years. The professions represented in this Delphi panel were heterogeneous, covering a roughly equal split of doctors (n = 7, 41.2%), nurses (n = 6, 35.3%), and healthcare administrators (n = 4, 23.5%). In terms of years of experience in their professional area, the largest group of participants had 6-10 years (n = 5, 29.4%), and with respect to educational background, roughly equal numbers of participants had completed their education up to the bachelor's, master's, and MD levels. All of the participants resided in Large City in Saudi Arabia, and 12 (70.6%) had received education on the management of GDM patients.

Table 6- 1: Demographic data

Demographic Characteristic		N	%
Gender	Male	6	35.3
	Female	11	64.7
Age (years)	21-30	5	29.4
	31-40	6	35.3
	41-50	4	23.5
	51-60	2	11.8
Profession	Doctor	7	41.2
	Nurse	6	35.3
	Administrator	4	23.5
Experience (years)	0-5	4	23.5
	6-10	5	29.4
	11-15	4	23.5
	16-20	1	5.9
	21-25	3	17.6
Healthcare setting	Primary	8	47.1
	Secondary	9	52.9
City of residence	Large City in Saudi Arabia	17	100.0
	Other	0	0.0
Educational background	Bachelor’s	4	23.5
	Master’s	5	29.4
	MD	5	29.4
	Other	3	17.6
Received GDM management education?	Yes	12	70.6
	No	5	29.4

In terms of the specific areas of expertise that the panellists represented (that is, as opposed to their general profession of doctor, nurse, or healthcare administrator), Figure 6-2 provides an overview of these areas of expertise (based on the participants’ job titles) plotted against the number of participants in each role. Figure 6-3 shows each area of expertise plotted against the question of whether the participants had previously received GDM management education. As Figure 6-2 shows, each of the three types of expert included in the Delphi study consisted of some level of diversity. At the same time, Figure-3 indicates that all but one of the clinical practitioners (i.e., nurses and doctors) received GDM management education, while all of the administrators included in the Delphi study (n = 4) did not receive GDM management education.

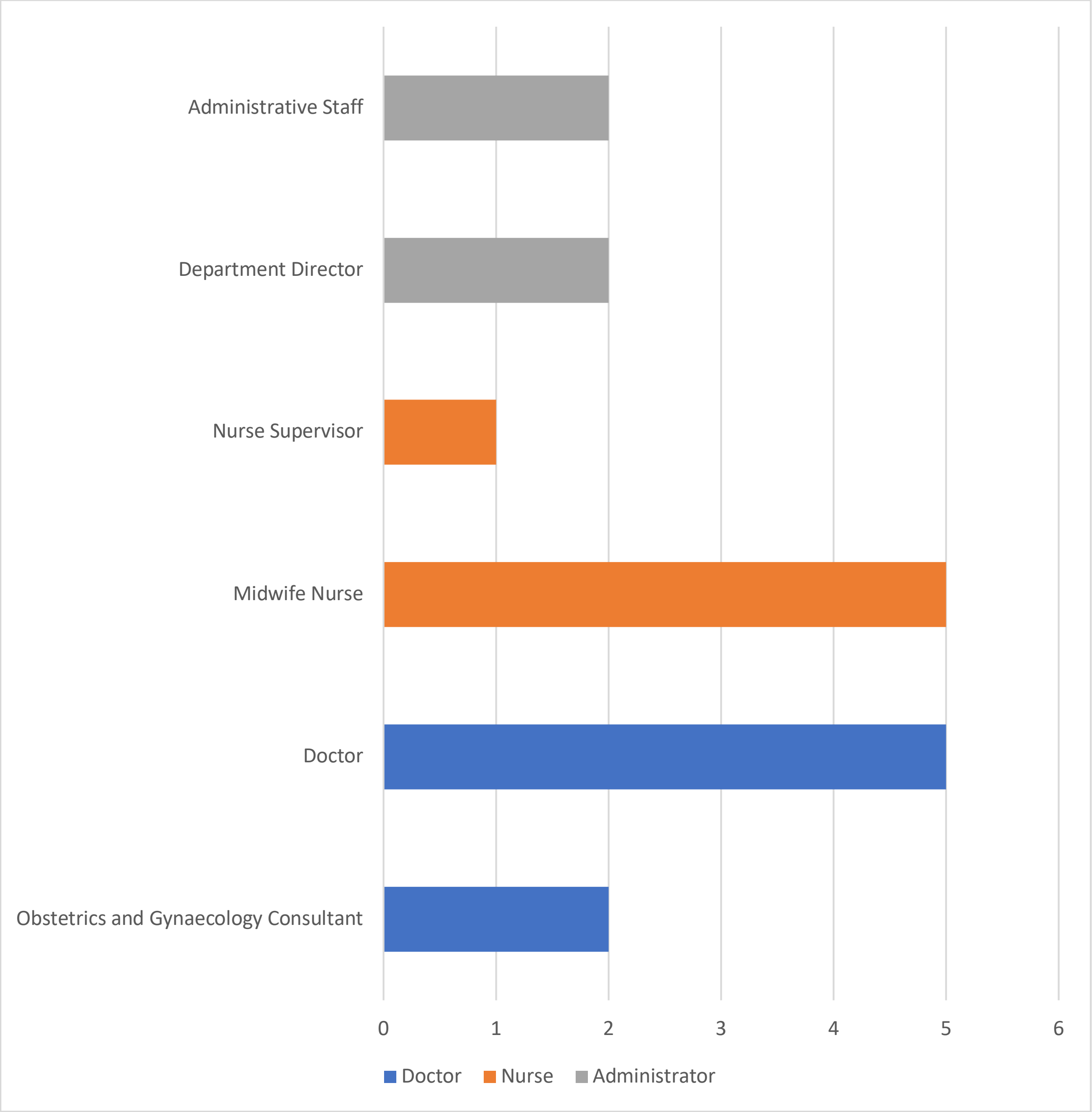


Figure 6- 3: Types of expert included in Delphi panel

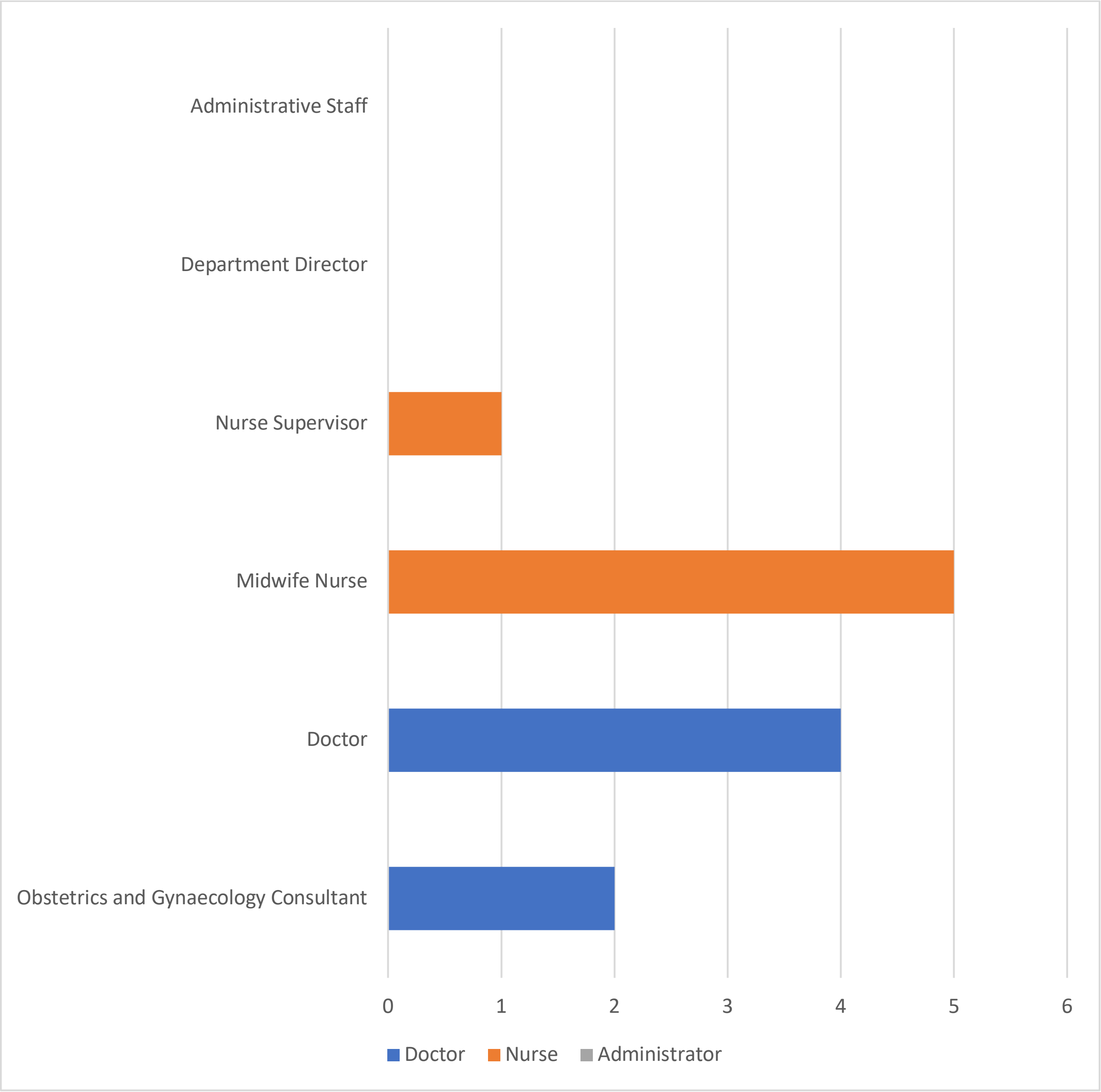


Figure 6- 4: GDM management education by type of expert in Delphi panel

6.5.3. Round 1 Results

6.5.3.1. Quantitative Data

As shown in Table 6-2, consensus on the most important issues was achieved on 2 GDM healthcare service issues in the quality of care category, 2 issues in the access to care category, 2 issues in the physician training and education category, and 1 issue in the communication category. Most of the issues for which consensus was achieved on the identification of the important GDM healthcare service issues were associated with weak consensus (i.e., between 70% and 80% consensus), while the issues of long waiting times and high medical staff turnover (in the access to care and physician training and education categories, respectively) were associated with strong consensus (i.e., greater than 80% consensus). Table 6.2 also provides an overview of the issues for which consensus was achieved regarding their status as the least important issues. In total, 6 items across the categories achieved consensus in the panel of experts as the least important issues facing GDM healthcare services in the KSA.

Table 6- 2: Consensus for most important (green) and least important (yellow) GDM healthcare service issues in first round of Delphi study

Categories	**GDM healthcare service issues**	**Consensus as the most important issue (%)**	**Consensus as the least important issue (%)**
Quality of care	Lack of expertise of doctors regarding GDM	76.5	23.6
	Conflicting diagnoses or advice received by physicians	35.2	64.7
	Lack of respect, empathy, and emotional support from doctors	17.7	82.4
	Lack of proficiency in nurses	70.6	29.4
Access to care	Long travel distance for patients to health facilities	70.5	5.9
	Insufficient opening hours for health facilities	23.6	35.3
	Lack of sufficient time for physicians to see patients	53.0	11.8
	Long waiting times	94.1	0

	Administrative problems for patients accessing the appointment system	47.1	23.6
	Lack of proper registry services and electronic health records systems	0	76.5
	Patients not permitted to access test and examination results	0	94.2
	Lack of test consumables and equipment	17.7	52.8
Physician training and education	Gaps in medical staff training	76.5	23.5
	High medical staff turnover	82.4	17.6
	Lack of monitoring and evaluation of medical staff	23.5	76.4
	Lack of performance measurement and incentive system	17.6	82.4
Communication	Lack of clear written/verbal information provided to women regarding their gestational diabetes	70.6	29.4
	Poor communication and coordination within secondary care	58.8	41.2
	Lack of communication and coordination between primary and secondary care	58.8	41.2
	Lack of communication between healthcare administrators and governors	5.9	94.1

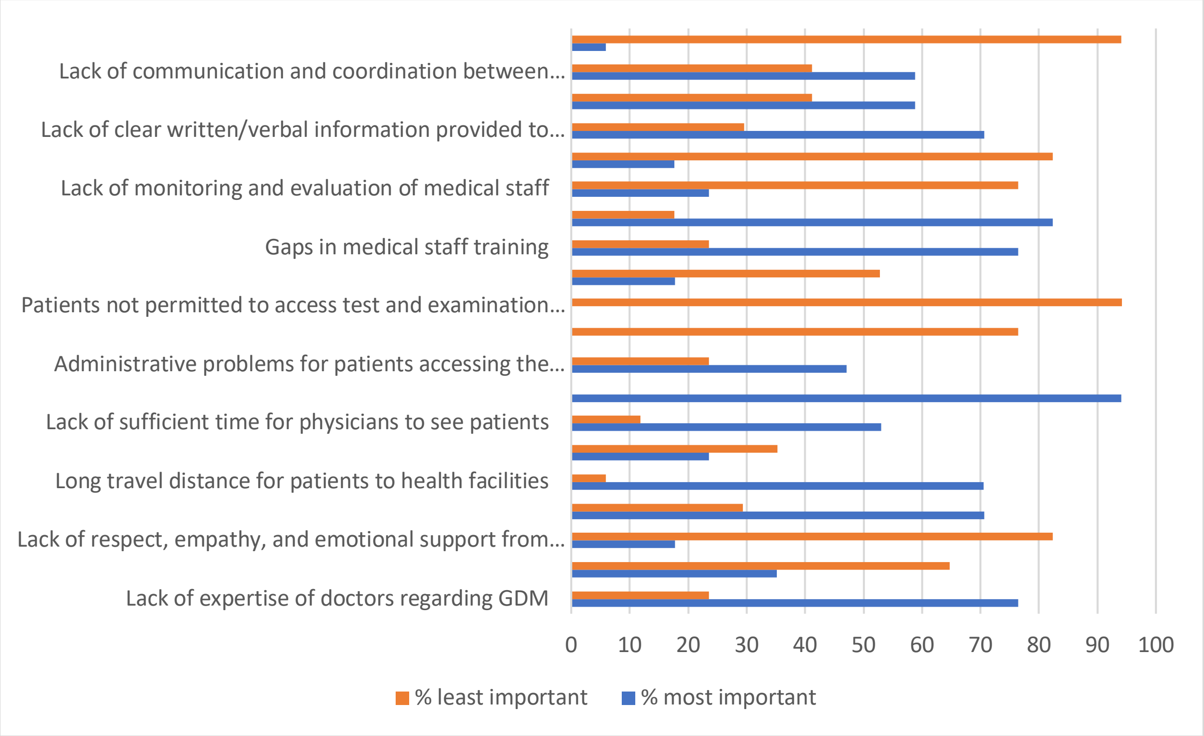


Figure 6- 5: Consensus for most important and least important GDM healthcare service issues in the first round of Delphi study

6.5.3.2. Qualitative Data

After applying thematic analysis to the textual responses obtained from the open-ended question included in the first round of the Delphi study, no new themes were identified. It is also worth noting that only 6 of the 17 participants (35.29%) provided a response to this open-ended question (2 nurses, 1 doctor, and 2 administrators - Figure 6-5).

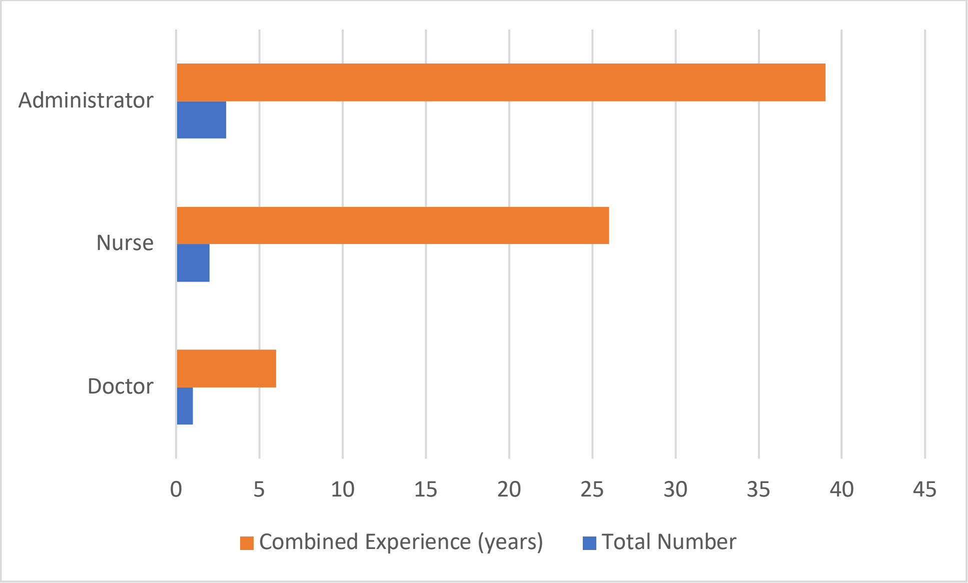


Figure 6- 6: Types of expert, with combined years of experience, who responded to the open-ended question in the Delphi study's first round

The qualitative responses offered by the participants fell into one of the following two categories: firstly, GDM healthcare service issues already raised in the questionnaire; and secondly, GDM healthcare service issues that had not been raised, but that could be categorized under one of the existing themes. As an example of the former category, one of the participants cited the GDM healthcare service issue of healthcare providers' limited interpersonal skills, which was already included in the first round.

In terms of the qualitative responses that drew attention to GDM healthcare service issues that had not been mentioned in the questionnaire, but which could be categorized under one of the existing themes, several noteworthy issues were highlighted. For example, the issue of shortage of Saudi nurses was highlighted by the nursing supervisor included in the sample, while one of the administrative experts (a department director) noted the issue of facility cleanliness and patient privacy. The following communication issue was also highlighted by the only doctor who filled a response to this open-ended question:

> *"Another issue for gestational diabetes healthcare services in the KSA is patients' lack of knowledge about doctors' roles and abilities, which can lead to dissatisfaction or their unwillingness to accept the healthcare services on offer."*
>
> *(Doctor with 6 years of experience).*

Another notable GDM healthcare service was highlighted by one of the administrative experts included in the sample, which can be categorized under the theme of access to care factors:

> *"The bureaucracy and late responses of the Ministry of Health is a huge obstacle to progress and enhancing healthcare services in Saudi hospitals."*
>
> *(Administrative director with 18 years of experience).*

Since the open-ended question asked the participants about any GDM healthcare service issues that they believed were important but that were not mentioned in the questionnaire for the first round of the Delphi study, these issues are analyzed in greater depth in the discussion section of this chapter, thereby complementing the quantitative data on consensus and priorities obtained from the Delphi study (see Section 6.5). However, these responses were not included in the questionnaires for subsequent rounds of the Delphi study.

6.5.4. ***Round 2 Results***

As Table 6-3 and Figure 6.6 indicate, consensus on the most important GDM healthcare service issues were achieved for all of the items for which consensus was originally achieved in the first round of the Delphi study. Three new issues achieved consensus in the second round: firstly, the access to care factor of insufficient time for patients to see physicians; secondly, the communication factor of poor communication and coordination with secondary care; and thirdly, the access to care factor of administrative problems for patients accessing the appointment system.

The strength of the consensus increased for every issue for which consensus was achieved in the first round. In particular, in the second round, every consensus on the most important GDM healthcare service issues were strong (i.e., greater than 80%). Furthermore, for 3 issues (long waiting times, gaps in medical staff training, and high medical staff turnover), a perfect consensus of 100% was achieved. A similar trend was also noted for consensus on the least important GDM healthcare service issues, where all areas of consensus from the first round increased, and also where certain issues achieved perfect consensus.

Table 6- 3: Consensus for most important (green) and least important (yellow) GDM healthcare service issues in second round of Delphi study. New consensuses identified in the second round are shaded in light green and light yellow for the most and least important issues, respectively

Categories	GDM healthcare service issues	Consensus as the most important issue (%)	Consensus as the least important issue (%)
Quality of care	Lack of expertise of doctors regarding GDM	93.3	6.7
	Conflicting diagnoses or advice received by physicians	0	100.0
	Lack of respect, empathy, and emotional support from doctors	0	100.0
	Lack of proficiency in nurses	86.6	13.3
Access to care	Long travel distance for patients to health facilities	80.1	0
	Insufficient opening hours for health facilities	0	13.4

	Lack of sufficient time for physicians to see patients	80.0	0
	Long waiting times	100.0	0
	Administrative problems for patients accessing the appointment system	93.3	6.7
	Lack of proper registry services and electronic health records systems	0	71.4
	Patients not permitted to access test and examination results	0	93.3
	Lack of test consumables and equipment	0	93.3
Physician training and education	Gaps in medical staff training	100.0	0
	High medical staff turnover	100.0	0
	Lack of monitoring and evaluation of medical staff	6.7	93.3
	Lack of performance measurement and incentive system	0	100.0
Communication	Lack of clear written/verbal information provided to women regarding their gestational diabetes	80.0	20.0
	Poor communication and coordination within secondary care	80.0	20.0
	Lack of communication and coordination between primary and secondary care	20.0	80.0
	Lack of communication between healthcare administrators and governors	0	100.0

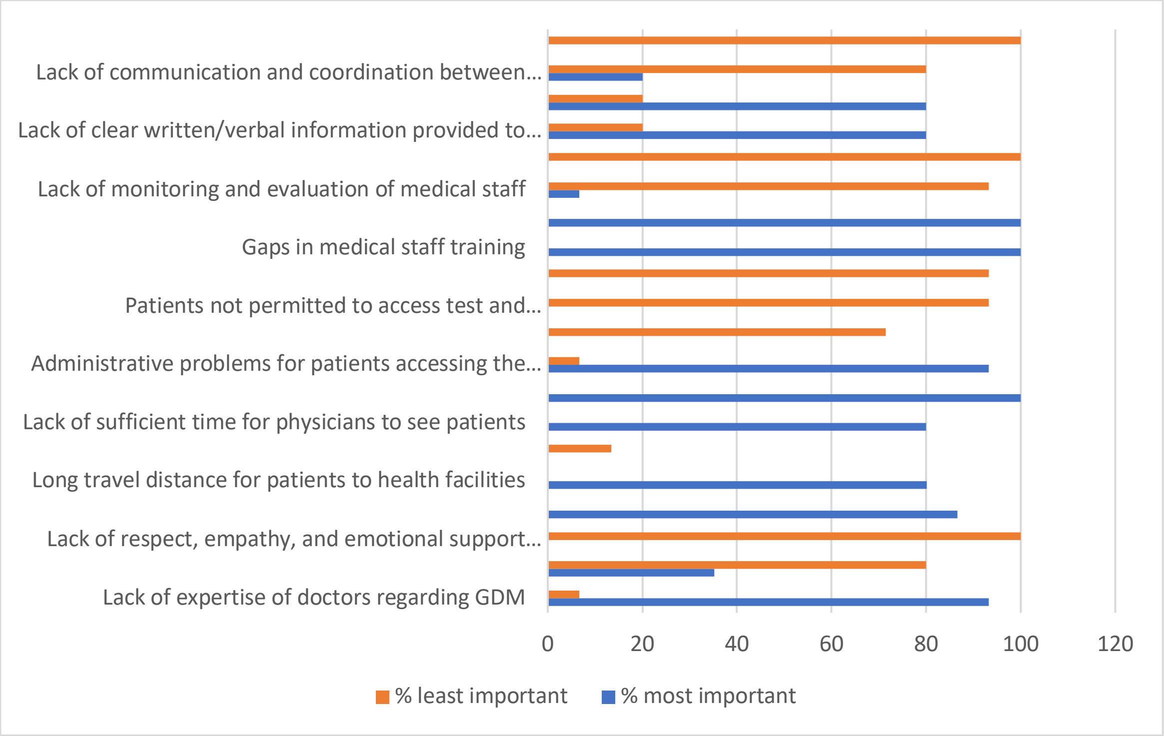


Figure 6- 7: Consensus for most important and least important GDM healthcare service issues in second round of Delphi study

6.5.5. *Results for Rounds 1 and 2*

To prepare the questionnaires for the third round of this Delphi study, which sought to identify the top 5 priorities in terms of GDM healthcare service issues in the KSA, a list was compiled of all the issues for which consensus as the most important issue had been established by the end of the second round. As shown in Table 6.4, 10 issues were identified as the most important, meaning that the remaining 10 were excluded from the third round. Table 6.4 also shows the strength of the consensus on these issues, which was strong in every case and complete in 3 cases.

Table 6- 4: Most important GDM healthcare service issues for which 70% or higher consensus was obtained by the second round of the Delphi study

Categories	GDM healthcare service issues	Consensus (%)
Quality of care	Lack of expertise of doctors regarding GDM	93.3
	Lack of proficiency in nurses	86.6
Access to care	Long travel distance for patients to health facilities	80.1
	Lack of sufficient time for physicians to see patients	80.0
	Long waiting times	100.0
	Administrative problems for patients accessing the appointment system	93.3
Physician training and education	Gaps in medical staff training	100.0
	High medical staff turnover	100.0
Communication	Lack of clear written/verbal information provided to women regarding their gestational diabetes	80.0
	Poor communication and coordination within secondary care	80.0

Table 6-5 shows all the GDM healthcare service issues for which consensus was established that these represented the least important issues. Similar to the consensus established with respect to the most important issues, the 9 issues highlighted here were all associated with strong consensus, with the sole exception of the access to care issue of lack of proper registry services and electronic health records systems, which achieved a consensus of 71.4%.

Table 6- 5: Least important GDM healthcare service issues for which 70% or higher consensus was obtained by the second round of the Delphi study

Categories	GDM healthcare service issues	Consensus (%)
Quality of care	Conflicting diagnoses or advice received by physicians	100.0
	Lack of respect, empathy, and emotional support from doctors	100.0
Access to care	Lack of proper registry services and electronic health records systems	71.4
	Patients not permitted to access test and examination results	93.3
	Lack of test consumables and equipment	93.3
Physician training and education	Lack of monitoring and evaluation of medical staff	93.3
	Lack of performance measurement and incentive system	100.0
Communication	Lack of communication between healthcare administrators and governors	100.0
	Lack of communication and coordination between primary and secondary care	80.0

6.5.6. Round 3 Results

The purpose of the third and final round of the Delphi study was to prioritize the 10 most important GDM healthcare service issues identified at the end of the second round, an overview of which is given in Table 6-4 Based on the participants' responses to the third questionnaire, wherein they were asked to sign the 5 issues they considered to be the most important, the results reported in Table 6-6 were obtained.

The top issue, gaps in medical staff training, was a physician training and education factor. The quality of care factor of doctors lack of expertise regarding GDM was the second highest issue. Ranks 3 to 5 were all access to care factors, including long waiting times, administrative problems with the patient appointment system, and limited time for patient consultations with physicians. Noteworthily, no communication factors were rated in the top 5 issues based on these Delphi results.

Table 6- 6: Top 5 GDM healthcare service issues, as rated by the Delphi study participants

Rank	Categories	GDM healthcare service issues
1	Physician training and education	Gaps in medical staff training
2	Quality of care	Lack of expertise of doctors regarding GDM
3	Access to care	Lack of sufficient time for physicians to see patients
4		Long waiting times
5		Administrative problems for patients accessing the appointment system

To close the reporting of this results section for the Delphi study's third and final round, Figure 6-5 illustrates the average rate for all 10 of the GDM service issues that were included in the third round of the Delphi study. A notable result, as revealed by this figure, is that at least one issue from each group (i.e., physician training, quality of care, access to care, and communication) appeared in the top 10. For this panel of experts, access to care factors accounted for 3 of the top 5 GDM healthcare service issues, as well as 4 of the total 10. This was greater than any other factor, highlighting the significance as an area for prioritization and further improvement initiatives.

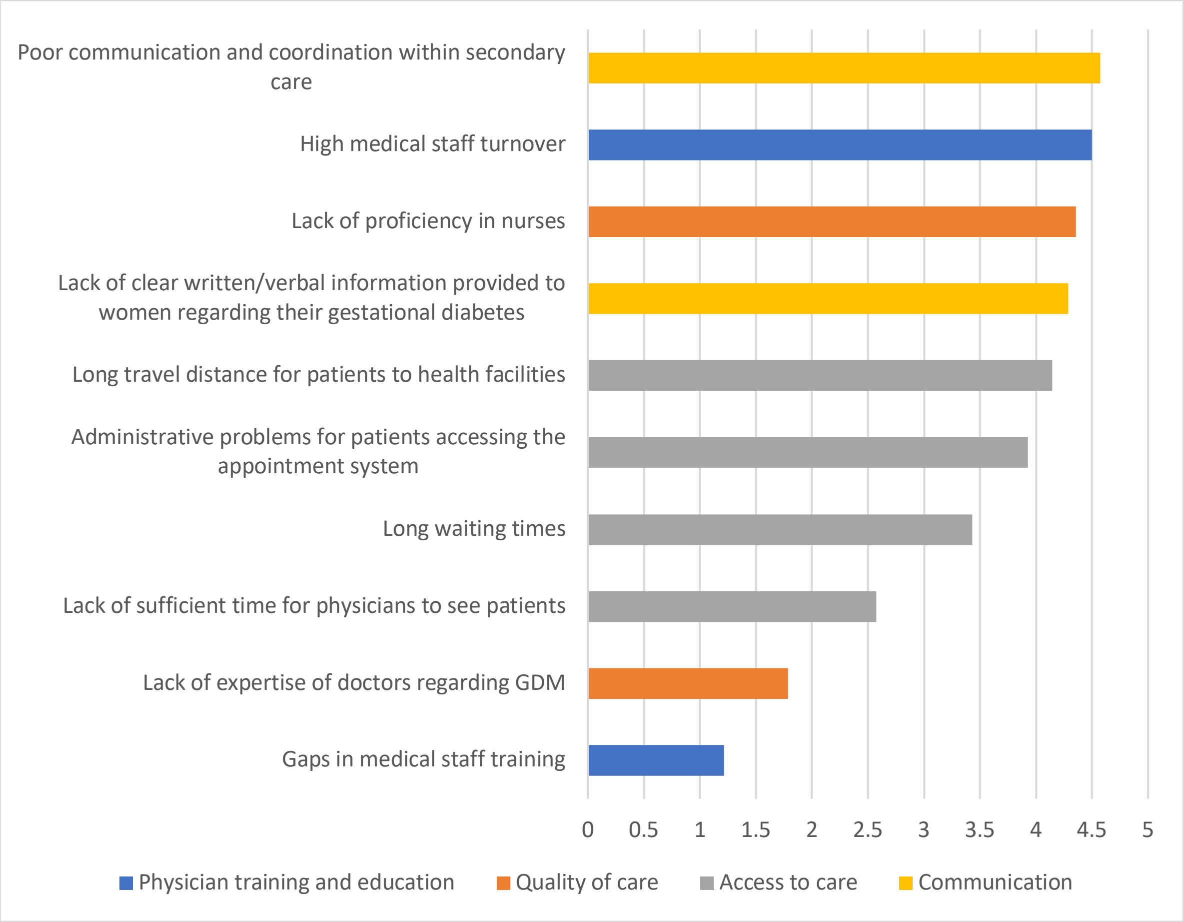


Figure 6- 8: Top 10 GDM healthcare service issues as rated by the Delphi study participants. Lower numbers indicate greater importance

6.6. Discussion

6.6.1. Main Findings

The Delphi participants, including doctors, nurses, and healthcare administrators (n = 17) in Large City in Saudi Arabia, achieved consensus across multiple GDM healthcare service problems in the KSA, including both the most and least important issues as priorities for resolution. The top five GDM healthcare service problems prioritized for resolution in the Delphi expert panel related to physician training and education (PTE) factors, quality of care (QOC) factors, and access to care (ATC) factors. Consensus was achieved on several communication (COM) factors, but these did not feature in the top five priorities.

6.6.2. Findings

At the end of the second round of the Delphi study, consensus had been achieved on 10 of the 20 items for the most important GDM healthcare service issues, and on a further 9 as the least important. After the open-ended question in the first round of the Delphi study, no new themes were identified, other than the existing themes of physician training and education (PTE) factors, quality of care (QOC) factors, access to care (ATC) factors, and communication (COM) factors. This indicates that the questionnaire used for the data collection process was sufficiently broad and spanned the major areas that GDM healthcare services involve.

6.6.2.1. Agreement

Across the panel of experts in this Delphi study (n = 17), consensus was achieved on 10 of the 20 items for the most important GDM healthcare services, and the 5 most important were prioritized. In addition, consensus was achieved on another 9 items as the least important issues for GDM healthcare services. A notable finding in this study is that wherever consensus was achieved on an item, it was almost always strong, with only one exception (i.e., in consensus on the least important GDM healthcare service issues).

6.6.2.2. Importance and Prioritization

Gaps in Medical Staff Training

The physician training and education (PTE) factor of gaps in medical staff training was rated as the top issue for resolution in GDM healthcare services by the Delphi panel. At the same time, consensus was achieved that two of the least pressing issues were both PTE factors (i.e., lack of monitoring and evaluation of medical staff and lack of a performance measurement and incentive system). These results, especially that of the importance of the PTE factor on medical training gaps being the top-rated issue, are consistent with several trends reported elsewhere in the literature. In particular, healthcare human resource development in the KSA, including in Large City in Saudi Arabia (where all Delphi study participants were located), has been identified as a challenging area for the country over the years, including in recent years (Al-Hanawi et al., 2019). Researchers have identified opportunities to overcome these limitations in the KSA's healthcare training infrastructure, but across all areas of healthcare service provision, the need for increasingly specialized training to account for dynamic, complex, and emerging challenges has been emphasized (Al-Ali et al., 2020). For both infectious and non-communicable diseases that affect large populations, including GDM, adequate medical staff training – for all stakeholders involved in a GDM patient's clinical pathway – is especially important, and it underpins high-quality care (Noor, 2019). With these issues in mind, this Delphi study's results also indicate that the most pressing GDM healthcare service issue is gaps in medical staff training in the KSA.

Limited Expertise Among Doctors Regarding GDM

The second factor was the quality of care (QOC) factor of limited expertise among doctors and physicians regarding GDM specifically. This result, particularly in terms of the second leading QOC factor of limited doctor expertise, is consistent with several other studies, and has several noteworthy implications. First of all, as reported in the literature, both GDM and type 2 diabetes mellitus (T2DM) have increased in prevalence in recent years in the KSA due to economic and lifestyle changes in the Saudi population (Agarwal, 2020). Health policies in the country, including investment and healthcare training policies across the Arab world, have been required to respond to the growing complexity of the national healthcare landscape (e.g., rising incidence of GDM and T2DM). It also appears that expertise in conditions such as GDM and T2DM has yet to be developed and optimized in response to the emerging challenges. Limited knowledge and awareness among patients and doctors themselves are factors that have impacted this, as reported by Alnaim (Alnaim, 2020). Furthermore, the influence on key areas of healthcare, such as quality of care, is substantial throughout the world (Forbes et al., 2017, Karaca and Durna, 2019). In light of this evidence from the literature, the Delphi panel's consensus on weaknesses in doctor GDM expertise as the second leading issue is understandable and natural.

There is also a clear relation between the first and second factors, one a PTE and another a QOC factor, that were identified as the most important by the Delphi study participants. In particular, consistent with the gaps in medical staff training (a PTE factor), the second highest priority identified was lack of expertise of doctors regarding GDM (a QOC factor). The link between these factors consists in the observation that, when medical staff receive inadequate training (leading to gaps in knowledge and practice), this influences meaningful aspects of healthcare delivery, including patient quality of care (QOC). In various research settings, available evidence suggests that the link between medical staff training and high-quality care is undeniable (Darban et al., 2016, Han and Pappas, 2018, Al-Ali et al., 2020). Furthermore, due to the available evidence base, healthcare organizations around the world, especially in developed countries such as Germany and the UK, are beginning to accept, adopt, and promote concepts such as "clinical excellence", "evidence-based medicine", and others (Ahmed et al., 2017, Ali et al., 2018). The purpose of these concepts is to guide practice, and to ensure that, in addition to upholding ethical principles in all areas of service provision, aspects of healthcare services such as quality of care must also be provided in an efficient, safe, and effective way (Rosenthal et al., 2020). With these issues from the literature in mind, it is clear that the Delphi results on the first and second highest priorities for resolution in GDM healthcare services are closely connected, with implications for healthcare policy and practice.

Lack of Sufficient Time for Physicians to See Patients

After the first and second most pressing issues identified by the Delphi participants were PTE and QOC factors, respectively, the three remaining items (ranking third, fourth, and fifth in importance) were all access to care (ATC) factors. The first of these – lack of sufficient time for physicians to see patients – was the third most pressing GDM healthcare service issue, according to the outcome of the Delphi expert panel. The breadth of stakeholders included in the sample, including the fact that 4 of the 17 participants were healthcare administrators (including 2 in directorial positions), adds substantial weight to this area of consensus and priority, especially as it is the first to highlight the consequential issue of patient access to care in Large City in Saudi Arabia. When the consultation time a patient receives is short, the time available for effective doctor-patient communication is often limited (Surbakti and Sari, 2018). In turn, limited and ineffective doctor-patient communication can have a negative impact on patient outcomes, including disease progression (Altice et al., 2017). For example, in the case of GDM, where some scholars have emphasized the importance of using GDM treatment as an opportunity to prevent T2DM (Agarwal, 2020), having an adequate length of time in which to communicate with the patient is fundamental. Furthermore, given the KSA's status as a country that offers universal health coverage, there is an essential ethical and governance related need to ensure that sufficient investment is made to promote consultation times and other areas that improve patient access to care (Rahman and Al-Borie, 2020).

Long Waiting Times

The fourth most pressing issue identified by the Delphi panel was another access to care (ATC) factor, namely that of long waiting times for patients. The literature shows that a range of adverse physical and psychological consequences can result when patients wait too long for healthcare appointments, and this is especially the case for conditions such as GDM (Ansell et al., 2017). Furthermore, several studies indicate that delays in access to care can lead to higher risk of mortality and morbidity, particularly in conditions such as heart disease and cancer (Fahmy et al., 2009, Ansell et al., 2017), but also in GDM and T2DM (Hosomura et al., 2017). Paired with the other priorities identified by the Delphi expert panel, including gaps in medical staff training and limited time to consult with patients, the untimely medical care that the participants show via their consensus is an interlinked area that should be addressed using all available means. Strategies such as the use of professional development courses for healthcare staff (Karas et al., 2020), new management programmes (Seidman et al., 2020), and shifts in organizational culture (Dubinsky et al., 2015) can lead to more efficient patient management, which contributes to shorter waiting times. In most cases, reductions in waiting times in primary health centres, hospitals, and other healthcare facilities across the KSA must be achieved in a facility-specific way, using strategies, change management approaches, and techniques tailored for the context (Kline, 2019). However, a finding suggested by the wider literature and this Delphi study is that, in order to improve access to care as a priority issue for GDM healthcare service treatment, timely patient care and reductions in treatment waiting times are critical across all levels.

Administrative Problems for Patients Accessing the Appointment System

As with some of the previous priority issues identified by the Delphi respondents, the fifth and final priority – namely, administrative problems for patients accessing the appointment system for GDM healthcare services – is linked to the other identified issues in several ways. First of all, given the movement towards web-based appointment systems in many modernizing healthcare organizations in recent years (Zhao et al., 2017), including several in the KSA (e.g. especially the KSA's medical cities) (Alessy and AlWaheidi, 2020), the ability of healthcare administrators and other professionals to deliver timely and consistent services to the populations they serve is not currently optimized. For example, the fourth ranked priority issue in this Delphi study – long waiting times – was another access to care (ATC) factor highlighted by the participants, which is connected to administrative factors and the ineffectiveness of certain appointment and patient tracking systems. In a KSA-based study, Khan (Khan, 2020) reported that diabetes and hypertension patients, despite the growing prevalence of T2DM and GDM in the country, were associated with low adherence to treatments and also failed to attend follow-up appointments. The researchers noted that this may be a KSA-specific feature that, for the purpose of promoting public health and adherence, could be managed using technology-supported programmes such as mobile health technology. Challenges in the use of outdated appointment systems, as well as the ability to reschedule and manage patient no-show behaviour in conditions such as GDM (Nguyen et al., 2020), are important for managing the condition across the KSA. With these results in mind, the opportunity to use emerging Internet technologies, including cloud-based healthcare management systems (Zhao et al., 2017), may also be worth considering as a method for resolving appointment-related challenges in GDM healthcare services.

6.6.2.3. Trends

Along with the five priority issues identified by the Delphi participants, consensus was achieved on five other items spanning the four themes: physician training and education (PTE) factors, quality of care (QOC) factors, access to care (ATC) factors, and communication (COM) factors. At least two items were rated as important in each category, with four in total mentioned in the ATC category (ranks 3, 4, 5, and 6 in importance). Generally speaking, this is suggestive of the multifaceted issues that interact so as to influence GDM healthcare services, and which healthcare policymakers and practitioners must, therefore, address. Based on these complex interactions, it is necessary to exploit all available resources and advances, covering multiple channels (e.g., big data management for appointment scheduling or decision support systems) (Benhlima, 2018, Janati et al., 2018), to address the combined PTE, QOC, ATC, and COM factors that appear to influence GDM healthcare services in the KSA. The above analysis of the top five priorities for resolution (see Section 6.6.3.3), paired with the other priority issues (10 in total) for which consensus was achieved in the Delphi study, highlights the importance of bringing evidence-based practice, multidisciplinary teams (Foster et al., 2017), and concepts of clinical excellence to bear on the area of GDM healthcare services.

The first of the five other factors on which consensus was obtained (i.e., sixth most important) was long travel distance for patients to health facilities in the KSA, which was viewed by the Delphi panel as having undermined patients' access to GDM healthcare services (an ATC factor). This finding reflects the rural-urban disparities that have been observed in many countries (Kirby and Yabroff, 2020), including the KSA (Alanazy and Brown, 2020), to access to healthcare services. In the KSA, the rural-urban inequalities associated with access to critical healthcare services, including GDM, have a significant impact on health and patient outcomes, and therefore should constitute a key focal point of further reforms to the KSA's capacity building initiatives for conditions such as GDM (Alfaqeeh et al., 2017). The issues occupying ranks 7 and 8 as the most pressing GDM service issues were the QOC item of lack of proficiency in nurses and the PTE factor of high medical staff turnover. The first area of concern is closely related to the lack of training and expertise in physicians (see Section 6.6.3.3). However, due to the different skillsets and capabilities required by members of multidisciplinary healthcare teams (Foster et al., 2017), the solutions for training high-quality nurses will differ from those of training doctors or administrators. In turn, this necessitates context-sensitive initiatives to solve the interrelated QOC and PTE issues that influence healthcare services.

6.6.3. Strengths and Limitations

An important strength of this Delphi study stems from its overall contribution to the literature. To the best of the author's knowledge, this is the first research project to have undertaken a Delphi study on the prioritization of GDM healthcare service problems in Large City in Saudi Arabia. At the same time, the research results are expected to have value in future research projects, meta-analyses, and literature reviews, particularly in offering insights into an under-researched area of the KSA's healthcare system.

Given the Delphi study's inclusion of a diverse panel of experts (eg nurse supervisor, administrative staff, obstetrics and gynaecology consultant, midwife nurse, and so on), some with experience of over 25 years, a notable strength of the research is its consideration of a broad range of perspectives. Furthermore, given the consensus achieved across this diverse group of stakeholders (i.e., in the results reported in Section 6.5), this reinforces the degree to which the results and findings of the Delphi study may be generalizable. Although each participant's city of residence was the same, the sample covered a significant range of professions, educational backgrounds, and experience levels, contributing to the depth of the study's results.

The use of the Internet to apply an e-Delphi technique greatly assisted in the efficiency and accuracy of the data collection and data analysis procedures. Over the course of the three rounds included in the Delphi study, the level of withdrawal was minimal, and it did not have a substantial impact on the results, as it does in many reported studies (Hirschhorn, 2019). Specifically, 17 participants completed round 1, 15 round 2, and 14 round 3, all of whom were committed to the process and responded quickly. Additionally, measures were taken to maximize the response rate for the Delphi process, given its desirability for the validity of the results (Hsu and Sandford, 2019).

The well-known technological and bias-related weaknesses associated with the use of an e-Delphi approach may undermine the reliability and applicability of this study's results and findings. For example, since Internet accessibility issues in the KSA may influence the trustworthiness of the online sample recruitment process, as well as the attrition rate, bias is a consideration that must be taken into account. However, the utility of the Delphi study's results for evidence-based practice may be promoted by the fact that, with the use of a snowball sampling technique, the overall sample included in the Delphi panel may be broader than with an exclusively online recruitment process.

6.7. Conclusion

After a three-round e-Delphi study conducted over several months using Google Forms and a sample of Large City in Saudi Arabia-based nurses, physicians, and healthcare administrators (n = 17), consensus was achieved among the expert panellists on the five leading issues to prioritize for improving GDM healthcare services in KSA facilities. Taken together, the five priorities suggest that multiple interrelated service issues exist that, by strong consensus, experts believe can be improved noticeably to enhance the KSA's healthcare system and help it strive for clinical excellence. The results indicate that ongoing deficiencies in several areas, especially quality of care, access to care, and physician training and education, are impacting the performance of the KSA's medical infrastructure. Despite the potential for limited generalizability of these Delphi study results due to the focus on Large City in Saudi Arabia, methodological strengths improve the applicability of the study, and especially the utility of these research findings for policymakers and practitioners in the KSA. The following final chapter discusses the key findings of the three studies (systematic review, qualitative study and Delphi study), research’s strengths and limitations and recommendations for policymakers and future researchers.

Chapter 7: Discussion and Conclusion

The overarching aim of this study was to explore the quality of gestational diabetes mellitus (GDM) healthcare services in the Kingdom of Saudi Arabia (KSA), in particular its patient- centredness, and to offer a set of evidence-based recommendations for improvement. Focusing on the research setting of a Large City in Saudi Arabia, a mixed-methods research design was implemented to address the main research aim. This enabled the researcher to approach the research aim from multiple complementary angles, drawing together perspectives from service users, healthcare professionals, and researchers so as to highlight potential routes towards improving quality of care in this essential area of practice.

A mixed-methodology research design was used consisting of a range of approaches: systematic reviewing (SR), individual qualitative interviews and a Delphi study. The systematic review data were synthesized from high quality qualitative research articles (n = 7); the qualitative study was conducted using semi-structured interviews with GDM service users in a Large City in Saudi Arabia (n = 27); and the quantitative study, in which the e-Delphi technique, was used to achieve consensus in a panel of experts (n = 17) on the service issues that should be made a priority for resolution. Each phase of the research was undertaken in sequence, beginning with the SR, which led to the identification of several "themes" concerning the barriers to GDM healthcare services. This was followed by the qualitative study, which used the identified themes as the basis for the semi-structured interviews, yielding a detailed and context-specific list of barriers. Finally, the e-Delphi study achieved consensus between healthcare services providers on priorities in relation to healthcare issues identified by the service users involved in the qualitative study.

The previous three chapters in this thesis presented the methods, results, and findings from each of the three research phases separately. Therefore, it is the purpose of this final chapter to draw these findings together in one place (Section 7.1), to discuss them in relation to the overall research aims and objectives (Section 7.2), and to examine the findings with respect to the thesis' theoretical framework (Section 7.3). Following this, the strengths and limitations of the research are discussed (Section 7.4), recommendations are given for policymakers and future researchers (Sections 7.5 and 7.6, respectively), and final concluding remarks are offered (Section 7.7).

7.1 Key findings

Table 7-1: The key findings from the three studies (systematic review, qualitative study and Delphi study)

Systematic Review			The six IOM domains related to sub-theme identified	Qualitative Study			The six IOM domains related to sub-theme identified	Delphi Study (Top 5 GDM healthcare service issues)			The six IOM domains related to sub-theme identified
Main themes	**Sub-themes**	**Priority level**		**Main themes**	**Sub-themes**	**Priority level**		**Main themes**	**5 Sub-themes**	**Priority level**	
1- Limited access to healthcare services	- Long waiting time.	High	Timeliness + efficiency	1- Access to care factors	- Lack of sufficient time for doctors to see patients.	High	Timeliness + patient-centredness	1-Physician training and education	- Gaps in medical staff training.	High	Effectiveness
	- Limited appointment availability.	High	Timeliness		- Long waiting times for patients.	High	Timeliness + efficiency	2- Quality of care	- Lack of expertise of doctors regarding GDM.	High	Effectiveness
	- Insufficient time spent with a provider.	High	Timeliness + patient-centredness		- Long travel distance to health facilities.	Medium	Equity				
	- Long traveling distance to healthcare institutions.	High	Equity								
	- Health insurance restrictions.	High	Equity								

2- Lack of patient-centred care	- Lack of appropriate personalized care. - Lack of effective communication between medical professionals and patients. - Lack of humanistic approach to care. - Lack of GDM health education.	High High High High	Patient-centredness Patient-centredness + timeliness Patient-centredness patient-centredness + safety		Administrative problems for patients accessing the appointment system. - Lack of proper registry services and electronic health records systems. - Lack of provision of clear written/ verbal information to women.	High High Medium	Timeliness Timeliness patient-centredness + safety	3- Access to care	- Lack of sufficient time for physicians to see patients. - Long waiting times. -Administrat-ive problems for patients accessing the appointment system.	High High Low	Timeliness + patient-centredness Timeliness + efficiency Timeliness

3- Lack of professional and material resources for GDM	- Shortage of medical professionals in well-utilized hospitals.	High	Effectiveness + timeliness	2-Communcation factors	- Poor communication and coordination within secondary care.	High	Timeliness + effectiveness + efficiency				
	- Lack of medical resources at primary healthcare centres.	High	Effectiveness + safety		- Lack of communication between primary and secondary care.	High	Timeliness + effectiveness + efficiency				
	- Patients' lack of trust in primary healthcare centres.	High	patient-centredness	3- Health provider factors	- Lack of expertise doctors with respect to gestational diabetes.	High	Effectiveness				
					- Lack of respect, empathy and support.	High	patient-centredness				

4- Patients' limited financial resources	- High cost of health care utilization. - Lack of affordable medical supplies and healthy food. - Lack of affordable transportation.	High High High	Equity Equity Equity	4-Patients factors	- Nurses’ lack of practical proficiency - Patients’ socio-cultural factors. - Lack of trust in medical staff and governmental hospitals - Negative perceptions or feelings such as anger, discriminated, isolated, blamed, ignored and insulted.	High High High High	Safety + effectiveness Patient-centredness patient-centredness + effectiveness Patient-centredness				

*** Kye factors highlighted by (green) show the agreement between the qualitative and Delphi study, Kye factors highlighted by (red) show the disagreement between the qualitative and Delphi study.**

7.1.1. Systematic review

To contextualize the research area in preparation for the second and third phases of the research design, a systematic review (SR) was undertaken. The SR focused on uncovering high quality research articles relating to the opinions and experiences of women on the quality of care for GDM. The aim of the SR was to identify and describe the experiences of women with GDM regarding interactions with healthcare services, and to identify quality of care issues associated with GDM services across the international community.

A systematic search strategy was implemented using a variety of electronic databases, and after identifying 7 relevant studies that satisfied the eligibility criteria, a critical appraisal of the studies was undertaken using the CASP qualitative study checklist. A key finding from the critical appraisal process was that each of the included studies was associated with a satisfactory level of methodological rigor, which heightened the value of the findings not only for the second phase of the research (especially preparing the qualitative interview guide) but also for guiding evidence-based policy and practice.

Narrative synthesis of the included studies (n = 7) led to the identification of the following themes: limited access to healthcare services; lack of patient-centred care; lack of professionals and material resources for GDM; and the limited financial resources of patients. The number of included studies was limited by eligibility, but covered a relatively broad range of countries, including Canada (n = 2), the United States (n = 2), Australia (n = 1), China (n = 1), and the Middle East and Sweden (n = 1), which increased the generalizability of the findings (see Table 7-1).

7.1.2. Qualitative study

Using the key findings yielded by the SR conducted in the first phase of the research project, the purpose of the second phase was to move from the general, international setting of the SR to the specific, KSA-focused setting that constituted the core focus of the overall research aim. For this reason, a qualitative study was undertaken involving face to face, semi-structured interviews with urban (n = 16) and rural (n = 11) Large City in Saudi Arabia residents who had received GDM healthcare services in government healthcare facilities.

As was the case with the SR, a structured and well-validated research methodology was adopted, which added weight to the key findings generated by the qualitative study. Specifically, the research process relied on clearly defined inclusion and exclusion criteria, sampling and data collection procedures, and thematic analysis for credible and trustworthy textual data analysis. So-called “theoretical saturation” was reached with the 27 semi-structured interviews in total (Saunders et al., 2018), further bolstering the credibility and trustworthiness of the generated findings.

A finding of fundamental importance from the qualitative phase of this research was that, according to the thematic analysis of the interview data, four main sets of factors constituted the main barriers that GDM service users in Large City in Saudi Arabia-based government hospitals encountered: access to care factors; communication factors; health provider factors; and patient factors (see Table 7-1). Although not every participant experienced issues with GDM healthcare services in each area, and while the spectrum covered by every participant’s lived experience was broad and contrasting, these were the main issues.

It is worth noting that each of the identified factors – access to care, communication, health provider, and patient factors – contained a number of secondary subcategories, thereby offering further insights into the research question for the qualitative study. For example, the issue of long travel distances to healthcare facilities was a key access to care issue faced by rural participants, along with long waiting times, poor electronic health record systems, administrative problems for patients accessing the appointment system and excessively short consultation times with doctors. Communication factors included lack of provision of written or verbal information to GDM service users, poor communication and coordination within secondary care, and lack of communication between primary and secondary care. Inadequate respect and training, particularly GDM-specific training, and nurses lack of practical proficiency were important health provider factors, while sociocultural factors (e.g., religious beliefs), trust (e.g., towards government healthcare facilities) and negative perceptions (e.g., discriminated, ignored and insulted) were notable patient factors.

Another key finding from the qualitative study was that the principal factors and subcategories identified from thematic analysis of the interview data were broadly consistent with those reported in the wider literature, particularly in other developing countries (Nielsen et al., 2012). At the same time, it was found that, given the multi-dimensional nature of the problems that undermined quality of care for the users of GDM healthcare services who participated in this qualitative study, any adequate solution would need to reform different levels of the healthcare infrastructure simultaneously, ranging from physician training and education to patient sociocultural factors.

Based on the identified importance of numerous overlapping and intersecting factors in influencing quality of care for GDM healthcare services in the KSA and internationally and given the limited capacity of most healthcare systems to initiate widespread, all-encompassing reforms, it was deemed essential to identify the priorities for immediate resolution. This was the aim of the subsequent quantitative component of the thesis research design, which used the e-Delphi technique to achieve consensus on the priorities for resolution in GDM healthcare services among a panel of experts.

7.1.3. Delphi study

Drawing on the flexible, iterative, and widely used Delphi technique, the third phase of this mixed-methods research design sought to rate and prioritize the GDM healthcare service issues identified by the patients in the qualitative study by consulting with a panel of experts (n = 17). In this e-Delphi study (i.e., a Delphi study administered using the Internet and other digital resources), the expert panel consisted of physicians, nurses, and healthcare administrators (including directors and administrative assistants) working in Large City in Saudi Arabia. All the expert panel had one or more of the inclusion criteria: (knowledge of GDM healthcare services in primary or secondary care, practical experience in GDM healthcare services in primary or secondary care and published an article in the previous two years on topics relevant to GDM healthcare services in primary or secondary care). The heterogeneity of the expert panel was sought after in order to ensure that, when combined, the participants' knowledge would be sufficiently broad to illuminate all relevant aspects of GDM healthcare service issues, including organization and different aspects of delivery (Hirschhorn, 2019).

Over the course of three rounds and a single pilot round, consensus was achieved among the panel of experts regarding the most important and least important GDM healthcare service issues, as identified by the GDM service users in the previous phase of the research. The top 5 priority GDM healthcare service issues were: gaps in medical staff training (a physician training and education factor); lack of expertise of doctors regarding GDM (a quality of care factor); and three access to care factors: lack of sufficient time for doctors to see patients, long waiting times, and administrative problems for patients accessing the appointment system (see Table 7-1).

7.2. Key findings and overall research aim and objectives

7.2.1. Research aims and objectives

The aim of this thesis was to explore the quality, in particular its patient-centredness, of GDM healthcare services in the KSA from the perspective of women, and to offer a set of evidence-based recommendations for improvement. Given the complexity of this overall aim, a series of research objectives were established to guide its achievement.

The three research objectives were achieved by conducting the three phases of the mixed-methods research project, the main findings for which are presented in Section 7.2. As for the second research objective that related to issue a set of recommendations for policymakers and other stakeholders to improve the quality of GDM healthcare services based on the perspectives of women, which was also achieved, the details of it are presented later in this chapter in Section 7.5.

In this section, a discussion of the thesis's findings in relation to the second and third research objectives is presented. The discussion of how to improve GDM healthcare services in the Large City in Saudi Arabia is addressed in Section 7.5.

7.2.1.1. Experiences of GDM patients regarding quality of GDM healthcare services in KSA

To achieve the second objective, the thesis sought to address this question "What are the views and experiences of GDM patients regarding the quality of GDM healthcare services in the Large City in Saudi Arabia?" Since the second phase of this study used a qualitative method informed by interpretivism and phenomenological research, it was possible to offer clear, informative, and fine-grained insights into this research question. While a concrete answer to this question that transfers to all healthcare settings across the KSA cannot be offered due to the heterogenous and complex nature of the country's healthcare and sociodemographic landscape, the qualitative study's findings highlight several important conclusions: firstly, the variability in the experiences of GDM healthcare services and their quality of care across patients; and secondly, the general pattern of predominantly negative experiences of GDM healthcare services and their perceived quality in the Large City in Saudi Arabia.

At the outset of this section, a critical finding that should be emphasized in relation to the first research question is that, although this thesis focused on examining the various aspects of women's experiences of GDM healthcare services in Large city in Saudi Arabia and around the world, not all the experiences of the included participants in the qualitative study were negative. For example, while certain participants reported that their experience of GDM healthcare services, as well as their perceptions of quality of care, were significantly undermined by access to care factors such as waiting times and distance to primary or secondary healthcare centres, such experiences were not universal. To an extent, this finding reflects the well-documented fact that patients, depending on their socioeconomic status, geographical location, age, and other patient-specific factors, typically have different clinical pathways, even when they travel through similar – or the same – healthcare institutions (Parikh-Patel et al., 2017). In this qualitative study, 11 participants were from rural areas of Large City in Saudi Arabia whereas 16 participants were from urban areas, and other variabilities in terms of age, number of pregnancies, and educational level were also observed. Therefore, patient-specific considerations such as this are highly likely to affect each individual's experiences of the quality of GDM healthcare services differently, whether or not they are receiving services in the same healthcare institution.

The absence of complete consistency among the GDM patients included in the qualitative study regarding their experiences of the quality of GDM healthcare services is also consistent with the finding of "practice variation" in previous studies (Tomson and Van

Der Veer, 2013). In certain strands of the literature, practice variation is conceptualized as a desirable and essential aspect of responsive and patient-centred healthcare services (Krumholz, 2013). However, for other researchers, including Tomson and van der Veer (2013) and Cook (Cook et al., 2018), the term "practice variation" is used to refer to the inconsistencies that can arise in routine healthcare provision, even when applying the same healthcare services to the same patients at different points in time. Practice variation, in the latter sense, arises from diverse factors, including resistance to guidelines among healthcare professionals or patients, unintentional and intentional non-adherence to guidelines and regulations, and human error, and it must be minimized in order to guarantee consistent and high-quality care (Cook et al., 2018). In the qualitative phase of this thesis, therefore, the degree of variability observed in the participants regarding their positive or negative views towards certain aspects of GDM healthcare services can, at least to a partial extent, be attributed to the well-known reality of practice variation, whether wanted practice variation or unwanted practice variation. It is worth noting the extent to which the researcher themselves, by engaging in qualitative data collection, may have contributed towards this variability (e.g., in terms of their conduct during interviews and their framing of questions). Moreover, because it is a qualitative study that includes different professionals, different policies and cultures in a different country, it might be also a reason for the absence of complete consistency.

Having addressed potential reasons for the observed disparities between the qualitative study's GDM patients' experiences regarding quality of care in government hospitals in Large City in Saudi Arabia (i.e., either arising from practice variation or contrasting patient characteristics), it is important to note that the main finding from the qualitative study was that, on the whole, patients did not view these services as wholly positive or wholly negative. All of the participants, who were perhaps emboldened to be open and honest by the focus of the semi-structured interviews on the barriers they encountered when accessing GDM healthcare services in Large City in Saudi Arabia, were extremely forthcoming about the negative aspects of their patient experience. In certain cases, the events that led to the formation of a negative patient experience that undermined quality of care were severe and shocking, such as experiences involving patients who reported having been treated unfairly or disrespectfully. Experiences of this kind were mentioned frequently enough for it to be identified as a theme (specifically, the subcategory of lack of respect, empathy, and support from healthcare providers). Therefore, the researcher can claim that the majority of the time, patient centered care is not being provided. The experiences of the women in this research are reflective of systemic issues in the KSA’s healthcare system that are ignored by providers should be a priority for systemic change.

Moreover, Brown and Swartz (Brown and Swartz, 1989) argued that understanding the perspectives of both the provider and client can enable the researcher to identify areas in which changes are required. They further argue that studies designed to investigate quality should consider the perspectives of providers and patients because the provision of quality healthcare services is the responsibility of healthcare providers. Therefore, studies that only focus on the patients’ perspectives may overlook important quality concerns, particularly in cases where patients and providers have differing opinions regarding the quality of care.

However, very little research has investigated healthcare providers’ perspectives when it comes to patients’ expectations of care quality. A study comparing the perspectives of healthcare staff and patients was carried out by Silvestro (2005) in the United Kingdom and revealed that managerial staff were the most ‘out of touch’ with patient expectations, probably because they spent the last time with patients. Managers highlighted access as the most important factor for patients when this factor actually received the lowest rating by patients. Likewise, patients also highlighted integrity as being the most important factor, although the managerial staff believed it to be the least important factor. What's more, it was revealed that all staff members believed that patients' perceptions of service were lower than they really were. It was, therefore, concluded that the managers largely misunderstood patient expectations, and this could cause decision-makers to make misinformed investment decisions and improvement priorities.

Furthermore, Zhao et al. (Zhao et al., 2009) made comparisons between nurses and patients' perceptions of healthcare service quality. In their research, statistically significant differences were identified between the perceptions of both parties in terms of staff characteristics, care-related activities, and the progression of nursing. Therefore, it was concluded that patients have different opinions than nurses about patient-centred care because they viewed the standards and characteristics of care differently. A significant difference in quality care perceptions between healthcare providers and patients was also identified by Abuosi (Abuosi, 2015), who investigated the topic in hospitals in Ghana.

Research evidence indicates that illness behaviours, adherence to treatment plans, continuation with the same healthcare providers, medical outcomes and overall health status are impacted by service experiences (Calnan et al., 1994, Da Costa et al., 1999, Westaway et al., 2003, Sofaer and Firminger, 2005, Larsson and Bergström, 2005). The differing perceptions of care quality between patients and providers may therefore have many implications. For example, it can influence patients' desire to seek healthcare in the future, and it can impact the likelihood that patients will follow the advice provided by healthcare professionals. It may also cause reluctance in patients to seek assistance from the same care provider again in the future. Such attitudes and behaviours may ultimately impact a patient's overall health status (Wilde-Larsson and Larsson, 2009).

It is clear that, at least from the standpoint of patients themselves, experiences regarding the quality of GDM healthcare services in the Large City in Saudi Arabia show room for substantial improvement. Paired with the strong consensus that formed in the Delphi study around many of the negative aspects of GDM healthcare service issues that the patients themselves raised, the findings of the qualitative study clearly indicate the need for a renewed and concerted focus in this area. Hence, in terms of the first research question that this thesis sought to address, while it is clearly the case that there are positive and negative aspects to the experiences of GDM patients regarding the quality of GDM healthcare services in the Large City in Saudi Arabia, correcting the predominantly negative nature of the reported experiences should stimulate sustained and coordinated efforts within KSA's healthcare system.

7.2.1.2. Barriers faced by GDM patients in using GDM healthcare services in KSA

The second research question that this thesis sought to address was: "What are the barriers encountered by women with GDM when accessing and using maternity healthcare services in the Large City in Saudi Arabia?". The findings of the three phases of this study considered together offer clear insights. In particular, having identified common barriers to patient access to effective services from the literature, it was possible to undertake a context-specific analysis of the situation in the Large City in Saudi Arabia using qualitative interviews, and then to use these findings to inform a Delphi study, establishing consensus among Large City in Saudi Arabia-based experts on their priorities for quality improvement.

Access to care

As identified from the SR, the barriers that GDM patients encountered when accessing and using GDM healthcare services included limited access to healthcare services, lack of patient-centred care, lack of professional and material resources within the healthcare system, and limited financial resources of patients. Regarding the barrier of limited access to healthcare services, further information was obtained from participants in the qualitative study, indicating that, in the context of GDM healthcare services in government hospitals in Large City in Saudi Arabia, the principal barriers included short consultation times with doctors, long waiting times, long travel distances to healthcare facilities, administrative problems when accessing the appointment system, and the lack of proper registry services and electronic health record systems. As noted in the discussion section of Chapter 5's qualitative study, each of these barriers associated with access to care was consistent with specific aspects of the KSA's current healthcare infrastructure, ranging from its underdeveloped electronic health record systems (Jabali, 2018) to its underdeveloped public transportation system, despite considerable investment (Yousif, 2019). The expert Delphi study participants placed four of the access issues high in their list of priorities, but several of the access issues identified as important by women with GDM were not considered high priorities by the expert panel (see Table 6.5). This highlights the need for gaining a lot of specific information from patients lived experiences to use as a guide to resolve these barriers.

Physician training and education

Another barrier identified in the SR and confirmed by the next two phases of the thesis, was physician training and education. In the Delphi study phase, the highest priority issue identified was gaps in medical staff training, and in the qualitative study, numerous examples of issues relating to physician training and education, including gaps in medical staff training, were reported by participants. As a case in point, one participant recounted an experience in which they overheard a doctor ask a colleague about how they should proceed with the ongoing consultation, however, the doctor could find a colleague to assist them it was required. The significance of this particular set of barriers is not just related to the increased potential for adverse patient outcomes when a member of the medical team lacks the necessary training. (Buchman et al., 2017) As the results from the qualitative phase of the thesis indicate, a patient's perception that the healthcare professional they are being advised by is not an expert can undermine their experience, lead to a lack of trust, and have negative impacts on other key factors, including patient-related or communication-related factors. In the case of GDM, the treatment for which typically involves structured lifestyle modification and pharmacological management (Mukerji and Feig, 2017), lack of trust in medical professionals and their advice can lead to non-adherence and, subsequently, treatment failure. Hence, physician training and education factors are pivotal barriers that, if unresolved, generate other related barriers to women's access to and effective use of GDM healthcare services. With these considerations in mind, the physician training and education factors identified in this thesis' qualitative and Delphi studies, particularly gaps in medical staff training, are critically important for quality improvement initiatives in this area.

Despite these results, and despite indicates in the literature of satisfactory performance in these areas in many healthcare facilities (e.g. good performance in physician emotional intelligence and physician error) (Stoller, 2020), medical error and ineffectively trained physicians are realities in most healthcare systems (Makary and Daniel, 2016). For this reason, continual improvements must be sought in these areas. In the healthcare systems of many developed countries (Kawczak et al., 2020), quality improvement and continuing professional development are two concepts that are beginning to be adopted in healthcare training and education (Robinson and Esgro, 2018). Therefore, although the participants in this Delphi study suggested that doctors' respect, empathy, and diagnostic capacities were not major issues in existing GDM healthcare service provision, it is still advisable to manage low-priority issues such as these in a timely way.

Communication factors

Communication factors, ranging from communication between patients and healthcare professionals to communication within secondary healthcare institutions, were identified in all three parts of the thesis as key areas for resolution. Collectively, these factors represented another set of barriers that were reported on in both the SR and qualitative phase of the thesis, but it is noteworthy that, according to the expert Delphi panel, none of these factors featured in the top 5 GDM healthcare service issues for priority resolution in the Large city in Saudi Arabia. Since women who suffer from GDM will interact with different parts of a country's healthcare infrastructure, beginning with primary care, often moving to secondary care, and then often re-entering the healthcare system at the primary care level for follow-up after giving birth (McIntyre and Moses, 2020), coordination between primary and secondary healthcare, as well as within primary and secondary healthcare, is fundamental in order to achieve high-quality care. Therefore, for the treatment of GDM to be effective, patient-centered, timely, efficient, safe, and equitable (IOM, 2001), effective communication both within and between different parts of the healthcare system is essential. While the SR indicated that, especially in high-income countries with robust levels of investment in public healthcare infrastructure, poor coordination between elements of the healthcare system is not usually a key factor requiring improvement for GDM services, responses to the qualitative interviews indicate that it is a key issue in Large City in Saudi Arabia. This is consistent with many of the economic aspects of the Saudi healthcare system, which is underdeveloped in terms of its infrastructure and levels of integration compared to the healthcare systems in many of the world's wealthiest countries, thereby highlighting directions for improvement that could improve patient safety and other aspects of quality (Senitan et al., 2017). Conversely, the expert Delphi panel rated communication and coordination between primary and secondary care as one of the least important GDM healthcare service issues, which contrasted with the first-hand experiences reported by many of the female participants in the qualitative study.

The reason for these differences in priorities could be due to the differences in experience or background of the patients and healthcare providers which lead them to pay attention to particular issues and influence how they approach the issues. Historically, physicians have given clinical knowledge and medical outcomes more significance compared to patients' perception of process or structural determinants of health care quality. It is thought that patients are less able to judge healthcare quality based on technical quality in an unbiased manner, instead relying on personal experience and functional determinants (Piligrimienė and Bučiūnienė, 2008). Because patient satisfaction is thought to be crucial to effective marketing of a healthcare organization, administrators are driven by financial incentives to stress patient satisfaction as a measure of quality (Piligrimienė and Bučiūnienė, 2008). Additionally, individual perspectives are different to population perspectives. The population sample selected for the study does not reflect the opinion of the majority of the population, and although it is possible to survey representative samples of the population, it can be challenging to get results that perfectly reflect the views, feelings, or thoughts of that population. In addition, sampling bias can lead to a systematic over- or under-estimation of the corresponding parameter in the population (Singer et al., 1999).

Another point of conflict between opinions stems from the different quotes that have been observed. Patients on higher incomes are more likely to have high levels of education and health literacy, and may be more likely to accept clinical explanations and medical jargon without relying on empathy to maintain trust in healthcare providers. However, they may be less likely to accept perceived sub-optimal level of care. Conversely, low-income patients may require more empathy and explanation to develop trust in healthcare providers.

Taking the findings from the three phases of the study together, it is clear that several barriers to the provision of high-quality GDM healthcare services exist not only in the Large City in Saudi Arabia but also in the wider KSA and, even more broadly, the international community. Each of the identified sets of barriers (e.g., access to care factors), as well as the individual barriers themselves (e.g., long waiting times), was found to have a direct and noticeable impact on essential dimensions of quality of care.

Certain barriers highlighted by the patients as having a significant impact on their experiences of GDM healthcare services were not considered priorities for resolution by the expert Delphi participants. For example, there was 100% consensus among Delphi participants that lack of respect and empathy from doctors was a relatively low priority issue, despite being identified as one of the most important issues to solve by women with GDM. Additionally, strong consensus was achieved by the Delphi experts that conflicting diagnoses or advice received by physicians was not a priority issue, whilst some women reported that this was a source of confusion, wasted time and potential harm to themselves and their fetus.

The researcher decided not to view the inconsistency between the quantitative and qualitative findings as grounds for questioning the results of each analysis but set about determining under what circumstances this could occur, and the consequences for this type of research in the future. There are two ways of understanding this discrepancy. The first is embedded in comprehending the quality of healthcare services offered to GDM patients, as well as the social roles and preconceptions which are an intrinsic feature of public health research focussing on GDM healthcare service users. Secondly, this could be explained by the study design itself, which lays emphasis on the shared, and not the linear, relationship between qualitative and quantitative data (Wagner et al., 2012).

This study focussed on issues linked to the quality of GDM care which are generated by the interaction which occurs between healthcare providers and their patients. The researcher felt a great deal of empathy for the participants on hearing their stories during the interviews, but was not part of the target population. Her role was simply to present and analyse the findings from the perspective of the participants, and the qualitative findings of the study have to be seen in this light. It may well be the case that the emphasis on the role of women's experiences arose to compensate for the lack of female viewpoints in Saudi literature on care, to upgrade the overall quality of GDM care and to note that women play a key role in evaluating the GDM quality of care. Highlighting and putting forward women's views and suggestions relating to the GDM care they experienced could increase their willingness to engage with services, their resolve to comply with doctors' instructions and, in the process, improve their own health. The Delphi study, in contrast, allowed experts to respond to questions on the vital role of GDM healthcare services without providing any explanation or justification. It is therefore possible that the discrepancy between healthcare providers and patients in the two phases of the study results from the fact healthcare providers were able to give more detailed information in their answers. Thus, social desirability bias may well have shaped the findings - a potential risk in every behavioural research study. The researcher neither refutes nor confirms the existence of social desirability bias in this study but points out that it is essential to consider its possible effects (Wagner et al., 2012). In this research, the systematic review was helpful in drawing attention to the same problems which had been encountered globally, and how other researchers had overcome them - which helped the researcher to find a way of dealing with these contradictions, by referring to earlier studies in this field.

The discrepancies which were emphasised in this study demonstrated another major feature of the mixed methods research approach. A mixed methods study design facilitates a mutual dialogue between quantitative and qualitative data, and findings from one method impact on the development and analysis of the next, and this allows the researcher to hone and improve the following phases of the research. This study is made up of three phases, harnessing the results of the systematic review to choose the topic to be covered in interview, and using the qualitative results to play a central role in developing the Delphi survey. The early discrepancy between the patients' views on the importance of the issues relating to GDM healthcare services led the researcher to carry out other quantitative analyses, which were not part of the initial design, and might have been overlooked had it not been for the qualitative findings. A more all-inclusive use of the mixed methods approach could take advantage of the apparent discrepancies in the results to perfect the data collection instruments by using the lessons learned through trying to square the results (Wagner et al., 2012). To take one example, the qualitative interviews may not have ranked issues in the same order as the Delphi surveys. Merely carrying out qualitative interviews - as was the case in this survey - would not have prioritised the issues in itself. In addition, interview data describing women's personal experiences with GDM healthcare services provided a valuable dimension to the findings. Nevertheless, lack of design which aimed to integrate the findings from the two phases, it is quite possible that the discrepancies would not have been identified, and future study designs, data gathering instruments and analysis approaches would not have benefitted from the lessons of this study (Wagner et l., 2012).

Overall, it is evident that in the coming years, investments and reformulations will need to be introduced into KSA’s healthcare system to account for this new and emerging evidence. Additionally, given that the burden of diseases in the KSA has recently been shifting from communicable to non-communicable diseases such as diabetes and GDM (Tyrovolas et al., 2020), it is evident from both the literature and this thesis’ primary research that patients and healthcare professionals are becoming aware of the need to adapt existing systems and processes to ensure high-quality care for all patients. The prevalence of GDM around the world has been increasing noticeably over the past quarter century (King, 1998, Ben-Haroush et al., 2004, Lawrence et al., 2008, O'Sullivan et al., 2011, Carolan et al., 2012, Niyibizi et al., 2016, Rahimi and Karami Moghadam, 2017). The current estimated prevalence rate for gestational diabetes is around 7–10% of pregnancies globally. The prevalence rate differs between studies depending on the region in which the study was conducted, and the socio-economic status, ethnicity, body mass index and maternal age of the women (Behboudi-Gandevani et al., 2019). However, the prevalence of GDM has increased since 2010 by two- to threefold.

With these considerations in mind, the findings of this thesis are timely; not only in identifying the barriers encountered by women with GDM when accessing and using maternity healthcare services in Large City in Saudi Arabia, but also in prioritizing these in preparation for the anticipated reform and investment initiatives that are advised and expected in the increasing prevalence of GDM in KSA.

7.3. Key findings and theoretical framework

As explained in Chapter 1, the theoretical framework for this thesis was the conceptualization of quality of care advanced by the Institute of Medicine (IOM, 2001) in its report on *Crossing the Quality Chasm: A New Health System for the 21st Century*. From the standpoint of this report, high-quality healthcare is underpinned by six fundamental domains: safety, effectiveness, patient-centredness, timeliness, efficiency, and equitability. This framework was used as a lens through which to interpret the lived experience of interviewees, and as guideposts to evaluate the services they received. In the previous section, findings from the three phases of this thesis that have strong relevance for each of these six domains were discussed through the lens of the first two research questions, offering useful insights into the quality of GDM healthcare services in the Large City in Saudi Arabia, as well as the

KSA’s wider healthcare landscape. However, the purpose of this section is to link the thesis’ findings explicitly to the six domains of quality of care, examining the current state of GDM healthcare services in the Large City in Saudi Arabia in relation to these fundamental aspects of quality of care.

Regarding the domain of safety, the qualitative study and Delphi study drew attention to several points of concern suggesting that the quality of GDM healthcare services in the Large City in Saudi Arabia, and potentially the wider KSA, is currently suboptimal in terms of its safety. For example, communication factors such as inefficient referral processes between primary and secondary care were identified by the GDM patients as especially common issues. Despite the fact that the expert Delphi panel viewed this particular communication factor as one of the least important GDM healthcare service issues, there is a wealth of KSA-specific evidence in the literature indicating that this factor impacts safety for diabetes patients (Al-Alfi et al., 2007, Senitan et al., 2017, Alharbi, 2020). Other findings also suggest that safety must be a target for improvement. For example, among the top 5 GDM healthcare service issues rated by the Delphi study participants, at least 4 have a direct bearing on patient safety. While long waiting times is one of the key predictors of patient safety in emergency departments and urgent care contexts (Källberg et al., 2017), it also strongly influences quality dimension such as timeliness, patient-centeredness, and efficiency, as discussed in due course. Therefore, while it is possible to conclude on the basis of these findings that the quality dimension of safety is lacking in GDM healthcare services in the Large city in Saudi Arabia, as certain researchers have done through comparative effectiveness studies (Senitan et al., 2017, Senitan and Gillespie, 2020), it is evident from the responses of both service users and providers that there is substantial room for improvement in this dimension.

The findings of this thesis also indicate that the quality dimension of effectiveness, which is concerned with providing evidence-based services and avoiding underuse and misuse in the provision of healthcare services (IOM, 2001), is associated with significant deficiencies in the maternity healthcare departments of government hospitals in Large City in Saudi Arabia. A pivotal barrier to effective healthcare services was physician training and education. As previously noted, gaps in medical staff training were noticeable even by service users in the qualitative study. Furthermore, the expert Delphi panel rated this as the top priority for resolution. One of the reasons why gaps in medical staff training are so essential to fill in order to deliver effective healthcare services relates to the fact that, for evidence-based practice to be achieved, healthcare professionals must have a clear knowledge of the current evidence base (Greenhalgh, 2017). This is particularly important given the fact that, even when all healthcare practitioners have the required knowledge and understanding (e.g. due to effective training, years of experience, or continuing professional development programmes) (Verloo et al., 2017), there is still a gap between the knowledge of evidence-based practice and its implementation in routine healthcare (Lehane et al., 2019). Lack of proficiency in nurses, which was rated as the 8th priority for resolution by the Delphi participants, can also undermine quality. This is especially clear when considering the positive impact of nursing training and intervention on GDM patient outcomes, indicating that in the absence of training, quality of care declines (Saboula et al., 2018). Given that there are more nurses compared to physicians in most healthcare systems, including that of the KSA (Alluhidan et al., 2020), effective and, therefore, high-quality GDM healthcare services can only be provided if these healthcare professionals have adequate knowledge, skills, and abilities. Taken together, the findings suggest that diverse issues, ranging from low expertise to high turnover to administrative coordination and communication issues, are currently limiting the effectiveness of GDM healthcare services in the Large City in Saudi Arabia.

These findings clearly indicate that opportunities for significant improvement exist in the KSA’s maternity healthcare system regarding the quality of domains of effectiveness and safety. The evidence from this thesis is also clear with respect to the quality domain of equitability. At its core, the domain of equitable healthcare is concerned with the question of whether patient care varies depending on participants’ personal characteristics such as ethnicity, gender, geographic location, and socioeconomic status (IOM, 2001). Therefore, since this thesis’ qualitative and Delphi studies identified substantial deficiencies in terms of GDM patients’ access to care, it also examined the issue of whether these deficiencies were more or less severe depending on patient-specific characteristics. The thesis revealed that equitable (geographic location) access to healthcare is a severe problem. This problem is related specifically to women and their lack of individual, social and political power to change their circumstances. Therefore, the quality domain of equitability is a serious problem. Nevertheless, as previously noted, the variable of rural and urban geographical location was considered in the qualitative study, indicating that, for GDM patients in rural areas, hospital facilities tended to be lacking and travel distances to healthcare institutions tended to be longer. The expert Delphi panel also appeared to corroborate this, indicating that long travel distances to healthcare facilities were the 6th highest priority for resolution in the Large city in Saudi Arabia’s GDM healthcare services. Although this thesis gathered primary data only from Large City in Saudi Arabia, it is notable that similar findings regarding the inequitable nature of healthcare services depending on geographical location (particularly in terms of urban versus rural residence) have been reported elsewhere in the KSA (Alanazy and Brown, 2020), as well in the international community (Weinhold and Gurtner, 2018, Nelson et al., 2020). Additionally, GDM patients in the qualitative study indicated that the cost of travel to healthcare facilities was a barrier to their use of maternity healthcare services, which indicates that patients of lower socioeconomic status face greater obstacles in accessing healthcare services. Taken together, therefore, the thesis' findings indicate that, while further research is needed to gain insight into the equitability of GDM healthcare services in the KSA, there are systematic disparities depending on patient-specific characteristics. Furthermore, since this research only focused on government hospitals in Large city in Saudi Arabia and still identified preliminary evidence of the lack of equitability in GDM healthcare services, further areas of inequality are expected in the KSA's broader healthcare infrastructure (e.g., when comparing public to private healthcare), consistent with reports of such inequalities in the KSA and the wider international community (Lewis et al., 2018).

In terms of the quality domains of timeliness and efficiency, these are related in the sense that both are concerned with streamlining the delivery of healthcare services in terms of minimizing the time spent and the resources used, respectively (Wells et al., 2017). Regarding the domain of timeliness, the participants in the qualitative study drew attention to the long waiting times associated with both primary and secondary GDM healthcare services, and this was ranked as the 4th highest priority for resolution by the expert Delphi panel. This consistency between the two studies indicates that, in terms of timeliness, it is not only that perceived waiting times were excessive for GDM healthcare services (i.e., from the perspective of the service user) but also that actual waiting times were long (i.e., as evaluated by healthcare professionals and institutional administrators). Timeliness is of particular importance because of the nature of a patients progressing pregnancy. While significant disparities have been identified in many healthcare systems between perceived and actual waiting times for healthcare services (Alrasheed, 2017), which can be attributed to the differing expectations of patients (Yoon et al., 2017), the consistency between the qualitative study and Delphi study suggests that long waiting times are a systemic problem in GDM healthcare services that need to be addressed in the Large City in Saudi Arabia. It is clear that the KSA's public healthcare system, the timeliness off GDM healthcare services is a substantial area for improvement. In terms of the domain of efficiency, a key finding from this thesis relates to the human resource wastages arising from poor coordination of appointments and key services, and the integration within and between primary and secondary healthcare services. As noted previously, despite the fact that these efficiency-related considerations were not ranked as the key priorities for resolution in GDM healthcare services by the expert Delphi panel, there is KSA-specific evidence in the literature indicating systemic problems in this area, and thus multiple opportunities to improve quality of care.

Finally, regarding the domain of patient-centred care, this is concerned with ensuring healthcare provision that responds to, respects, and empowers patients, proceeding only with clinical pathways that are consistent with the needs, preferences, and values of the patients themselves (IOM, 2001). As noted in Section 7.2.2.1, the phenomenon of “practice variation” in GDM healthcare services, which is viewed by some researchers as the cornerstone of patient-centred care (Krumholz, 2013), was strongly indicated by the thesis’s findings, both from the qualitative study and the Delphi study. However, as previously discussed, there are both desirable and undesirable forms of practice variation (Krumholz, 2013; Cook et al., 2018), and both of these were reflected in this thesis’s findings regarding the patient-centredness of GDM healthcare services in the Large City in Saudi Arabia. For patient-centred care to be achieved, the evidence indicates that factors such as available time and shift length of healthcare practitioners have a significant impact (Jarrar et al., 2019). The fact that the 3rd highest priority for resolution reported by the expert Delphi panel was lack of sufficient time to consult with GDM patients suggests that differentiation of service provision according to patient preferences, values, and needs may not possibly given the time constraints that characterize government hospitals in Large City in Saudi Arabia. Furthermore, given the quality of care issues and physician training and education issues surrounding the provision of GDM healthcare services, it is possible that patient-centred care is currently not being achieved principally because, even for clinicians who are interested in promoting this, they lack the means to do so. Therefore, despite the fact that many patients in the qualitative study reported experiences that reflected effective patient-centred care, the evidence from this study and the wider literature indicates that current capacity is lacking in the KSA to achieve a high level of patient-centredness (Jarrar et al., 2019, Alhalal et al., 2020, Rasheed et al., 2020). The researcher asserts that the IOM framework could be consolidated with patient centeredness as its overarching focus, and the other domains falling under that heading, since they are details related to how healthcare can and should be, patient centered. The services experienced by women clearly lacked even the lowest level of patient centeredness and are in desperate need of systemic repair.

Taken together, the thesis' findings in relation to the theoretical framework of the IOM's (2001) six domains of quality of care indicate the need for significant and far-reaching reforms to existing modes of practice in GDM healthcare services, especially for women in rural areas that lack financial resources. These reforms must target the KSA's primary and secondary healthcare infrastructure, as well as the intersections between and within these major areas of the country's healthcare system. Across all six quality domains, the findings indicate substantial, concerning, and systemic deficiencies. Furthermore, comparison of the findings with the current literature indicates that the Large City in Saudi Arabia-centered findings reported in this thesis are largely transferable to the rest of the KSA's national healthcare infrastructure, not only for GDM healthcare services. However, at the same time, it is worth emphasizing that the KSA's healthcare system is not alone in the international community in this regard, with multiple quality of care issues identified in other countries, too. Therefore, despite the remarkable improvements that have been made in the KSA in a short space of time to its entire healthcare infrastructure (Rasheed et al., 2020), including for

GDM healthcare services, there are clear opportunities for further refinement, which are discussed in this chapter in due course.

7.4. Strengths and limitations

A major strength of this thesis stems from the fact that it accounts for a long-standing gap in the literature. To the best of the researcher’s knowledge, no prior study has offered an in-depth examination of the KSA’s GDM healthcare services based on the perspectives of Saudi women, drawing on both qualitative and quantitative data. Furthermore, since a mixed methods study was undertaken, it was possible to benefit from opportunities to triangulate the qualitative results with the quantitative results in this novel area of investigation (Kern, 2018). This enabled the researcher to approach a set of recommendations for the improvement of GDM healthcare services that was informed by the views of a varied group of informed stakeholders.

Another notable strength of this thesis is that it adopted a sequential design, beginning with an SR, followed by a qualitative study, and ending with an e-Delphi study. As a result of this sequential approach, it was initially possible to learn about key findings from the international literature regarding the experiences of GDM patients in accessing and using GDM healthcare services, which established a robust foundation for the qualitative study’s semi-structured interviews. Despite the fact that the SR itself was limited by the use of only a single reviewer and the resulting bias this may have generated (Aveyard and Bradbury-Jones, 2019), the adoption of a systematic protocol for identifying, screening, appraising, and synthesizing the available evidence grounded the later phases of the study in a solid foundation. At the same time, owing to the adoption of a sequential design, it was possible to investigate, verify, and prioritize the results from the qualitative study (specifically regarding the barriers encountered in the KSA by GDM healthcare service users) based on the perspectives of expert stakeholders operating in the KSA’s healthcare infrastructure.

Despite the strengths of the thesis mentioned above, there are some notable limitations. In the qualitative study, the absence of multiple researchers working independently to conduct the thematic analysis may have affected the reliability and trustworthiness of the results (Braun and Clarke, 2019). For example, while the researcher stopped conducting semi-structured interviews when they believed theoretical saturation to have been reached at 27 interviews, it would have been valuable to have the input of other researchers at this point for them to verify the decision (Faulkner and Trotter, 2017, Saunders et al., 2018). Furthermore, since the researcher is a relative novice, it is possible that opportunities were missed to conduct the qualitative data analysis process in the most efficient and effective way, which could affect the dependability and credibility of the analysis.

Another important limitation of the thesis relates to the sampling strategy adopted in both the qualitative study and the Delphi study. In both phases, a non-probability sampling technique was adopted, involving a convenience sample in the qualitative study and a purposive/snowball sample in the Delphi study. Although the use of these sampling strategies enabled the researcher to ensure that the overall research objectives were achieved (eg, in terms of ensuring maximum sample heterogeneity in the Delphi study and, in this way, enabling consensus to be established across a diverse group of experts), they may lower the transferability and generalizability of the research results to other research populations and research settings (Jager et al., 2017, Fink-Hafner et al., 2019). Additionally, since the recruitment process for the Delphi study consisted of an entirely online procedure, the trustworthiness of the sample recruitment process may be limited in that only participants with adequate Internet access could participate.

Finally, several limitations of the qualitative study and Delphi study involved in this thesis may hinder the applicability of the research results to contexts outside the Large city in

Saudi Arabia and, potentially, to settings other than government hospitals in the KSA. All of the research participants, including the GDM patients and the expert Delphi panel, were from Large City in Saudi Arabia, which means that their perspectives may only pertain to GDM healthcare services in this area. Furthermore, in the qualitative study, the nature of the inclusion criteria meant that patients who had received GDM healthcare services in settings other than Large City in Saudi Arabia's government hospitals were excluded from the sample. As such, it is not only the case that an opportunity was lost to compare the nature of GDM healthcare services in different regions of the KSA (e.g., Large city in Saudi Arabia versus other regions) and different hospital types (e.g., public versus private) but also that the thesis' findings may not hold in other research settings. To an extent, the discussion of the research findings in relation to results reported elsewhere in the literature countered this limitation, but there are still concerns surrounding the widespread applicability and generalizability of these results.

7.5. Recommendations for Policy and Practice

Having identified the most pressing GDM healthcare service issues facing the KSA's healthcare system, this section provides a series of recommendations that are intended to address these issues as the ideal priorities for resolution. As discussed in the following subsections, many of the recommendations are immense and monumental and although they would have sweeping positive impacts on managing the issues identified in the Delphi study, they may be out of reach. The researcher also formulated more modest, incremental recommendations that may be more manageable for Saudi culture norms related to change.

7.5.1. Implement Uniform National Standards on GDM for Primary Care

Consistent with much of the recent literature, this thesis found that the knowledge, skills, and abilities of healthcare practitioners, both at the primary and secondary level, were inadequate regarding GDM and GDM management, which led to multiple expertise-related issues being identified as priorities for resolution by the Delphi study participants. For this reason, consistent with recommendations given in the literature (Utz et al., 2017, Alharthi et al., 2018), the first step is to develop a uniform national standard and promulgated in the KSA regarding the diagnosis and management of GDM, particularly at the level of primary healthcare. The importance of this recommendation stems from the fact that GDM diagnostic criteria have changed multiple times in the previous 25 years (Behboudi-Gandevani et al., 2019), which emphasizes the need for revised and uniform national standards in the KSA. Adopting or creating uniform national standards, such as the six standards of care related to patient-centred care is the first step that will drive years of incremental changes to the healthcare system in Saudi Arabia (IMO, 2015).

7.5.2. Improve GDM Knowledge in Non-specialists

Gaps in medical staff training and lack of expertise of doctors regarding GDM were priorities 1 and 2, according to the expert Delphi panel. Both of these issues were found to influence the experiences of GDM patients as well as the quality of the care they received. Ideally, both in-service, pre-service and periodic (e.g., quarterly) professional development training initiatives should be introduced to ensure that healthcare providers, especially non-specialists working at the primary healthcare level, have adequate knowledge relating to GDM and GDM management. Improving knowledge at the primary healthcare level would limit the rate for referrals to specialists (Utz et al., 2017), thereby improving not only patient outcomes but also improving access to care for other patients in other parts of the country's healthcare system. It would also work towards countering the high level of undiagnosed or missed GDM in the KSA (Alharthi et al., 2018).

Furthermore, since the GDM service users in this study reported that, when they lacked trust in healthcare providers due to the perception of their status as a non-expert, they tended to revisit the same doctor or healthcare center for a second opinion. With this in mind, intervening at the level of in-service, pre-service and periodic professional development training for non-specialists would also be likely to have a positive secondary effect on many of the access to care factors identified in this study. To address these recommendations in a more manageable way, a first step towards change should be to implement quarterly professional development for healthcare administrators and providers and measuring results in care with patient surveys, which could be implemented by the Saudi Ministry of Health since it is responsible for leading and providing funds for the healthcare reforms.

7.5.3. Introduction of Mandatory Curricula for Empathy and Compassion

While some patients in the qualitative study reported low levels of respect, empathy, and compassion in healthcare professionals when receiving GDM healthcare services, this was identified as one of the least important issues by the expert Delphi panel. Despite this, evidence from the literature indicates that healthcare quality is underpinned by factors such as healthcare provider empathy and compassion, such that the absence of pre-service training in this area can be reasonably considered a gap in healthcare providers education (Patel et al., 2019). For this reason, a recommendation of this thesis is to use the uniform national standards for the care of GDM for creating and introducing mandatory curricula for health administrators and healthcare providers about effective clinical empathy and compassion towards female patients. Additionally, for those already trained and working in the field, mandatory (and quarterly) professional development should be implemented immediately. In coordination with training and professional development, all current hospital administrators and healthcare providers, should be assessed on a regular basis for their skills in empathy and compassion towards female patients.

7.5.4. Use of PROMs for Capacity-building in Patient-centred GDM Healthcare Services

Among nurses, doctors, and other clinical practitioners, the use of patient-reported outcome measures (PROMs) should be integrated into routine practice in primary and secondary care in order to build capacity for patient-centered GDM healthcare services. PROMs are valuable in promoting high-quality patient-centred care because they illuminate healthcare outcomes from the subjective perspectives of patients, enabling improvements to be identified and implemented that matter to patients (Nelson et al., 2015). As such, the use of PROMs, which are ideally co-developed with patients and professionals (Nelson et al., 2015; Mann et al., 2020), would play an essential role in capacity-building for patient-centered GDM healthcare services. Examples of best practice in the use of PROMs to facilitate patient-centered care abound in the literature, with Nelson et al. (2015) highlighting opportunities to use digital technologies (e.g., tablet devices distributed to patients with simple user interfaces) to gather PROMs data and track its development over time.

7.5.5. Invest in and Implement Efficient and Effective Scheduling Systems

The qualitative study found that the access to care factors of long waiting times and lack of sufficient time for doctors to see GDM patients undermined the patient experience, and the expert Delphi panel ranked these two issues as priorities 3 and 4, respectively. A viable and cost-effective strategy for addressing both of these GDM healthcare service issues simultaneously could involve investing in, at the level of the Saudi Ministry of Health, and implementing, at the level of healthcare administrators, an efficient and effective appointment scheduling system to avoid these issues in primary and secondary healthcare.

After facilitating buy-in at the level of policymakers for a change in the Ministry of Health’s budgeting for public healthcare expenditures (Kokkinen et al., 2019), and after ensuring that administrative and clinical healthcare staff possess the leadership and change management capabilities necessary for organizing the transition (Bradley et al., 2018), the path would be cleared for a reformulation of existing scheduling systems to address the abovementioned access to care factors. In terms of the nature of the new scheduling system to implement, multiple possibilities have been identified in the literature.

The recommendation given here, which is associated with considerable success in the literature, involves the use of so-called "open access scheduling" in primary healthcare, which has been shown to reduce waiting list times without the need to add staffing resources across multiple research settings (Ansell et al., 2017). Since open access scheduling involves leaving around 50% of each doctor's day open, it often leads to reduced waiting times and longer consultation times (Epstein and Dexter, 2017). Additionally, leveraging novel technologies, including cloud-based appointment systems (Zhao et al., 2017) and artificial intelligence schedule management (Nelson et al., 2019), could aid in addressing these access to care factors.

Importantly, the technology-related aspects of this recommendation (e.g., artificial intelligence schedule management) assume that the Saudi Arabian healthcare system has the ability to attract, train, and retain a sufficient number of high-quality, skilled healthcare administrators and providers in general. As such, possible resource limitations may undermine any attempt to apply this recommendation. Additionally, the technology-related aspects of this recommendation assume that there is funding for electronic health records and scheduling software or a cloud-based system, which highlights the importance of ensuring buy-in at the policymaking level in the Ministry of Health for this change (Kokkinen et al., 2019). Finally, the technology-related aspects of this recommendation assume that rural women would have access to technology to use scheduling applications.

7.6. Recommendations for Further Research

Interpretive

7.7. Conclusion

The empirical results reported herein should be considered in the light of some limitations previously mentioned. This thesis' findings indicate that, from the perspectives of GDM service users, there exist multiple possibilities for improving the quality of GDM healthcare services not only in the large city in the Saudi Arabia but also in the wider KSA. Despite the significant improvements to the KSA's national healthcare infrastructure that have been achieved in recent years, barriers to receiving GDM healthcare services were identified in the areas of access to care, quality of care, physician training and education, and communication and coordination within and between primary and secondary care.

While further research is recommended in the equitability of GDM healthcare services across the KSA, opportunities to improve the maternity services received by GDM service users were identified across all six domains of the IOM's (2001) quality of care framework. A series of recommendations was offered to improve the quality of GDM healthcare services based on the principal barriers identified, ranging from new training programs to greater investment in facility scheduling systems, but further research should be undertaken to continue expanding the evidence base in this area.

Appendix 4-A: Search strategy for individual databases

Pubmed - search conducted 1 August 2017

#4 Add Search (#3 AND #2 AND #1)
#3 Add Search gestational diabet*[tw] OR gestational diabetes[mh]
#2 Add Search quality[tw] OR efficac*[tw] OR efficien*[tw] OR effective*[tw] OR equit*[tw] OR inequalit*[tw] OR timel*[tw] OR access*[tw] OR health services[mh] OR health service*[tw] OR accept*[tw] OR safe*[tw] OR health care[tw] OR healthcare[tw] OR patient-centredness[tw] OR patient-centeredness[tw]
#1 Add Search interviews[mh] OR interview*[tw] OR focus group*[tw] OR qualitative research[mh] OR qualitative[tw] OR experience*[tw]

Embase - search conducted 1 August 2017

#4 (#1 AND #2 AND #3)
#3 gestational diabet*.mp.
#2 experience*.mp. OR interview*.mp. OR focus group*.mp. OR qualitative.mp.
#1 quality.mp. OR efficac*.mp. OR efficien*.mp. OR effective*.mp. OR equit*.mp. OR inequalit*.mp. OR timel*.mp. OR access*.mp. OR health services.mp. OR accept*.mp. OR safe*.mp. OR health care.mp. OR healthcare.mp. OR patient-centredness.mp. OR patient-centeredness.mp.

CINHAL - search conducted 1 August 2017

S4 (S1 and S2 and S3)
S3 (MH "Diabetes Mellitus, Gestational")
S2 "quality" OR "efficac*" OR "efficien*" OR "effective*" OR "equit*" OR "inequalit*" OR "timel*" OR "access*" OR (MH "Health Services+") OR "health service*" OR "accept*" OR "safe*" OR "health care" OR "healthcare" OR "patient-centredness" OR "patient-centeredness"
S1 "experience*" OR "interview*" OR (MH "Interviews+") OR (MH "Focus Groups") OR "focus group*" OR "qualitative"

MEDLINE - search conducted 1 August 2017

#4 (#1 AND #2 AND #3)
#3 gestational diabet*.mp.

#2 quality.mp. OR efficac*.mp. OR efficien*.mp. OR effective*.mp. OR equit*.mp. OR inequalit*.mp. OR timel*.mp. OR access*.mp. OR health services.mp. OR accept*.mp. OR safe*.mp. OR health care.mp. OR healthcare.mp. OR patient-centredness.mp. OR patient-centeredness.mp.

#1 experience*.mp. OR interview*.mp. OR focus group*.mp. OR qualitative.mp.

ASSIA - search conducted 1 August 2017

S4 (S1 AND S2 AND S3)

S3 gestational diabet*

S2 quality OR efficac* OR efficien* OR effective* OR equit* OR inequalit* OR timel* OR access* OR health services OR accept* OR safe* OR health care OR healthcare OR patient-centredness OR patient-centeredness

S1 experience* OR interview* OR focus group* OR qualitative

Appendix 4-B: Data Extraction Form

Data extraction form		
General information	**Extracted data**	**Comments**
Study ID		
Author		
Year of study		
Country		
Type of publication		
Study characteristics		
Study aim		
Research questions		
Study setting		
Methods		
Data collection tool		
Data collection period		
Data analysis		
Participant characteristics		
Number of participants		
Inclusion criteria		
Exclusion criteria		
Sampling technique		
Age		
Ethnicity		
Ethical standards		
Ethical approval	☐ Yes ☐No ☐ Unclear	
Informed consent	☐ Yes ☐No ☐ Unclear	
Ethical issues addressed	☐ Yes ☐No ☐ Unclear	

Confidentiality maintained	☐ Yes ☐No ☐ Unclear	
Findings		
Themes		
Author’s conclusion		
Implications for policy		
Implications for practice		
Other relevant findings		
Other Comments		

Appendix 5-A: Ethical approval letter from the Health Sciences Research Governance Committee (HSRGC) at University of York

UNIVERSITY of York

DEPARTMENT OF
HEALTH SCIENCES

c/o Department of Philosophy
Heslington
York YO10 5DD

Telephone (01904) 323253
Fax (01904) 321383
E-mail smh12@york.ac.uk

Prof Stephen Holland
Chair, Health Sciences Research
Governance Committee

www.york.ac.uk/healthsciences

10 June 2020

Miss M Hobani
PhD candidate
Department of Health Sciences
University of York
York
YO10 5DD

Dear Mashael

Saudi Women's Experience of Gestational Diabetes care

I am writing to confirm that your study gained full approval from the Health Sciences Research Governance Committee (HSRGC). The project was reviewed by the full committee at its meeting on 4 December 2017, and I sent you a decision letter on 8 December 2017 approving the study, including feedback which was taken up in supervision. Subsequent to that, you informed me on 15 May 2019 of a substantial amendment to the study. I wrote on 21 May 2019 taking Chair's Action to approve the amendment, also including feedback which was taken up in supervision. This Chair's Action was reported to and approved by the full committee at its next face-to-face meeting.

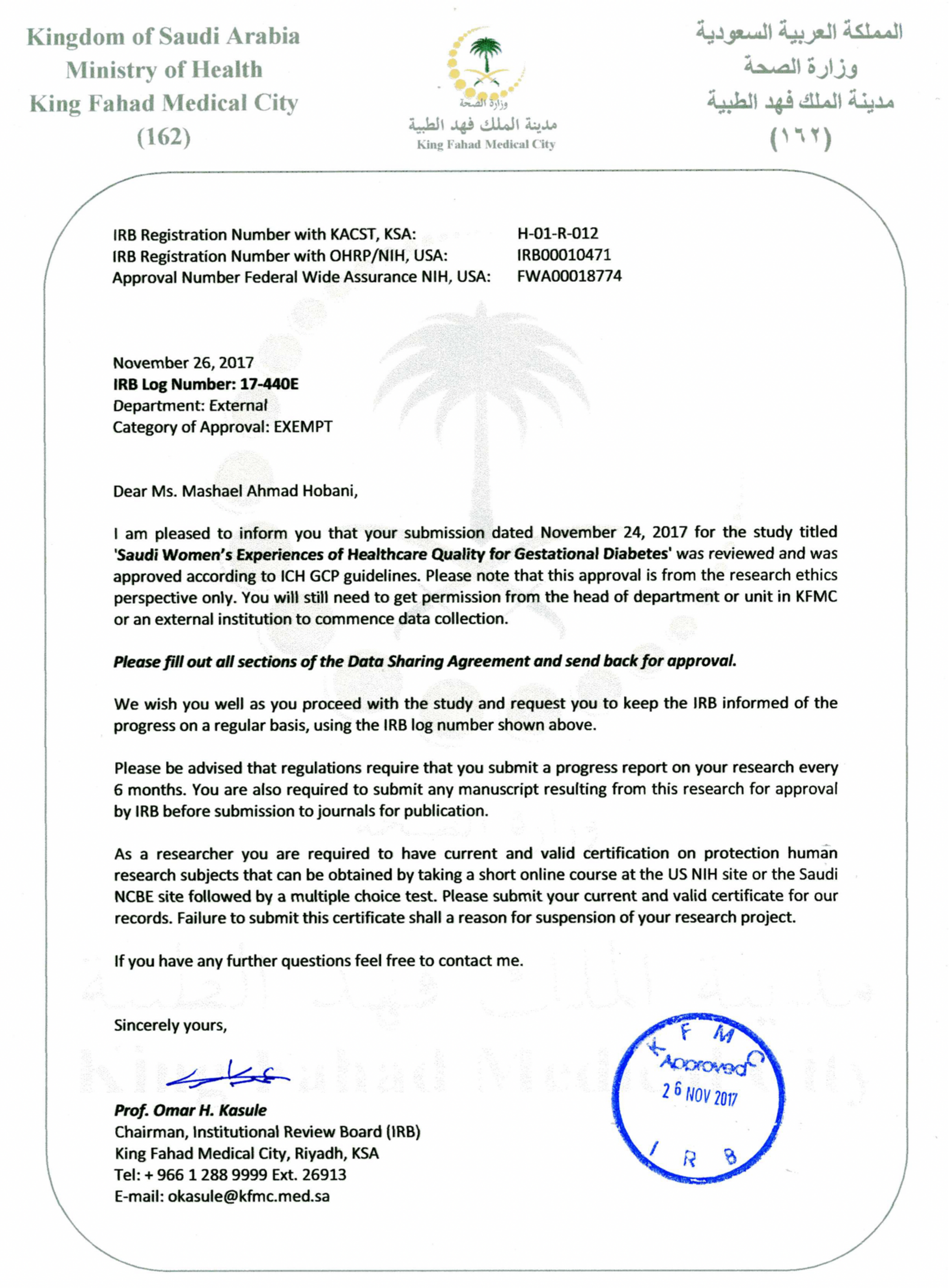
Yours sincerely

S. Holland

Stephen Holland
Chair: HSRGC

cc: *Prof Tim Doran*
Dr Amanda Mason-Jones

Appendix 5-B: The Ministry of Health’s ethical approval letters



Kingdom of Saudi Arabia
Ministry of Health
King Fahad Medical City
(162)

وزارة الصحة
مدينة الملك فهد الطبية
King Fahad Medical City

المملكة العربية السعودية
وزارة الصحة
مدينة الملك فهد الطبية
(١٦٢)

IRB Registration Number with KACST, KSA:	H-01-R-012
IRB Registration Number with OHRP/NIH, USA:	IRB00010471
Approval Number Federal Wide Assurance NIH, USA:	FWA00018774

November 26, 2017
IRB Log Number: 17-440E
Department: External
Category of Approval: EXEMPT

Dear Ms. Mashael Ahmad Hobani,

I am pleased to inform you that your submission dated November 24, 2017 for the study titled ***'Saudi Women’s Experiences of Healthcare Quality for Gestational Diabetes'*** was reviewed and was approved according to ICH GCP guidelines. Please note that this approval is from the research ethics perspective only. You will still need to get permission from the head of department or unit in KFMC or an external institution to commence data collection.

Please fill out all sections of the Data Sharing Agreement and send back for approval.

We wish you well as you proceed with the study and request you to keep the IRB informed of the progress on a regular basis, using the IRB log number shown above.

Please be advised that regulations require that you submit a progress report on your research every 6 months. You are also required to submit any manuscript resulting from this research for approval by IRB before submission to journals for publication.

As a researcher you are required to have current and valid certification on protection human research subjects that can be obtained by taking a short online course at the US NIH site or the Saudi NCBE site followed by a multiple choice test. Please submit your current and valid certificate for our records. Failure to submit this certificate shall a reason for suspension of your research project.

If you have any further questions feel free to contact me.

Sincerely yours,

Prof. Omar H. Kasule
Chairman, Institutional Review Board (IRB)
King Fahad Medical City, Riyadh, KSA
Tel: + 966 1 288 9999 Ext. 26913
E-mail: okasule@kfmc.med.sa

KFMC
Approved
26 NOV 2017
IRB

المملكة العربية السعودية
وزارة الصحة
الإدارة العامة للبحوث والدراسات

وزارة الصحة
26-12-2017 08-04-1439
1439-676625
1439-676625

الموضوع: بحث الطالبة/ مشاعل حوباني.

سعادة/ مدير الشؤون الصحية بمحافظة جدة المحترم

السلام عليكم ورحمة الله وبركاته،،،،

إشارة إلى موضوع الطالبة/ **مشاعل احمد حوباني**، المبتعثة من جامعة الملك عبدالعزيز لدراسة درجة الدكتوراة في تخصص **"السياسات الصحية"** بكلية العلوم الصحية- الخدمات الصحية والسياسات بجامعة يورك بالمملكة المتحدة، رقم السجل المدني (١٠٥٣٥٨٨٦٣٦) وعنوان البحث:

" الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية "

نحيطكم علماً بأن الطالبة قد إستوفت كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية بالإدارة العامة للبحوث والدراسات ولجنة الأخلاقيات بمدينة الملك فهد الطبية بوزارة الصحة، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن الطالبة ستنفذ دراستها في مراكز الرعاية الصحية الأولية بمحافظة جدة.

وعليه، نأمل من سعادتكم التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمتها بعد موافقة الجهات المختصة لديكم، لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين خلال قيامها بمهام بحثها، مع العلم بأن وزارة الصحة تضمن حقوقها في نتائج هذا البحث من خلال إتفاقية المشاركة في البيانات والتي تم توقيعها بين الباحثة والإدارة العامة للبحوث والدراسات.

وتفضلوا بقبول خالص تحياتـــي ،،،

مرفق مستندات وملخص المقترح البحثي،،،،،

د. [illegible]
٧/٤/١٤٣٩هـ

مدير عام الإدارة العامة للبحوث والدراسات المكلف

ص. عذاري فيصل العتيبي

الرمز البريدي: ١١١٧٦ ص.ب الرياض: ٢٧٧٥ فاكس: ٠١١٤٧٣٥٠٣٨ هاتف: ٠١١٤٧٣٥٠٣٩
e-mail: research@moh.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى شرق جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:
مركز صحي : ١.بريمان ، ٢.الجامعة ، ٣.الروابي ، ٤.الرغامة ، ٥.السليمانية ، ٦.الربيع والتوفيق ، ٧.قويزة ، ٨.المطار القديم ، ٩.الرحاب ، ١٠.شرق الخط السريع.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبعد الاطلاع ودراسة منهجية البحث من قبل اللجنة العلمية ولجنة أخلاقيات البحث العلمي المسجلة لدى اللجنة الوطنية للأخلاقيات الحيوية والطبية برقم (H-02-J-002) وجد أنه لا مانع من إجراء البحث.
أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

1. **اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.**
2. **في حال أي تغيير في خطة البحث يجب الحصول على موافقة إدارة الأبحاث.**
3. **عدم تأثر الخدمة في المرافق المعنية.**
4. **المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.**
5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa
Tel# (012 - 6347334)

الرقم: ٨٠٩٩٦٦/٤٨١٦٦/٤٧/ج التاريخ: ٢٧ / ٤ / ٢٩ ١٤هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176
موقع إلكتروني : www.mohj.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مشرف برنامج مستشفى الملك عبد العزيز بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.مدائن الفهد ، ٢.القريات ٣.البلد ، ٤.الثعالبة ، ٥.غليل ، ٦.المحجر ، ٧.القرينية.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبعد الاطلاع ودراسة منهجية البحث من قبل اللجنة العلمية ولجنة أخلاقيات البحث العلمي المسجلة لدى اللجنة الوطنية للأخلاقيات الحيوية والطبية برقم (H-02-J-002) **وجد أنه لا مانع من إجراء البحث.**

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

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5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ عبد الله بن سعد الزهراني

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa

Tel# (012 - 6347334)

الرقم : ٤٨١١٦٦٨٠٩٩٥٨/٤٧/ج التاريخ : ٢٧/ ٤/ ٢٩/ ١٤هـ المشفوعات : ....

هاتف : ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس : ٠١٢-٦٦٢٢٩٦١ ص.ب : ١٢٤٩٣ جدة : ٢١١٧٦
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المملكة العربية السعودية
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مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى الملك فهد العام بمحافظة جدة المحترم،

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مركز صحي : ١.الرويس ، ٢.النهضة ، ٣.العزيزية ، ٤.الحمراء ، ٥.النعيم ، ٦.السلامة ، ٧.المروة ، ٨.الصفا (١) ، ٩.الصفا (٢) ، ١٠.الربوة ، ١١.الفيصلية ، ١٢.مشرفة ، ١٣.البوادي.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
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شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa

Tel# (012 - 6347334)

الرقم: ٨٠٩٩٥٢/٤٨١٦٦/٤٧/ج التاريخ: ٢٧ / ٤ / ٢٩ ١٤هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176
موقع إلكتروني : www.mohj.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة المدير التنفيذي لمجمع الملك عبد الله الطبي بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.ثول ، ٢.الشاطئ ، ٣.الرياض ، ٤.ذهبان ، ٥.الوفاء ، ٦.أبحر الشمالية ، ٧.الشراع (٥٠٥) ، ٨.الريان ، ٩.الحمدانية ، ١٠.خالد النموذجي ، ١١.العيادات التخصصية بثول.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبعد الاطلاع ودراسة منهجية البحث من قبل اللجنة العلمية ولجنة أخلاقيات البحث العلمي المسجلة لدى اللجنة الوطنية للأخلاقيات الحيوية والطبية برقم (H-02-J-002) وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

1. **اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.**
2. **في حال أي تغيير في خطة البحث يجب الحصول على موافقة إدارة الأبحاث.**
3. **عدم تأثر الخدمة في المرافق المعنية.**
4. **المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.**
5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa
Tel# (012 - 6347334)

الرقم: ٨٠٩٩٤٤/٤٨١٦٦/٤٧/ج التاريخ: ٢٧/ ٤ / ١٤٢٩هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176
موقع إلكتروني : www.mohj.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى الثغر بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.الأمير عبد المجيد ، ٢.كيلو (١٤) ، ٣.الحرازات ، ٤.المنتزهات ، ٥.أم السلم ، ٦.كيلو (١٣).

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبعد الاطلاع ودراسة منهجية البحث من قبل اللجنة العلمية ولجنة أخلاقيات البحث العلمي المسجلة لدى اللجنة الوطنية للأخلاقيات الحيوية والطبية برقم (H-02-J-002) وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

1. **اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.**
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3. **عدم تأثر الخدمة في المرافق المعنية.**
4. **المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.**
5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

عنه

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa **Tel#** (012 - 6347334)

الرقم: ٤٨١٦٦/٨٠٩٩٧١/٤٧/ج التاريخ: ٢٧/ ٤ / ١٤٢٩هـ المشفوعات: ....

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى الولادة والأطفال بالمساعدية بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث وهي كالتالي:

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبناء على موافقة الإدارة العامة للبحوث والدراسات بوزارة الصحة **برقم ٦٧٦٦٢٥ بتاريخ ١٤٣٩/٠٤/٠٨هـ** ولجنة الأخلاقيات بمدينة الملك فهد الطبية ، وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

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5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

Roaa
بغدادي

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa **Tel#** (012 - 6347334)

الرقم: ٩٢٨١٧٢/٤٨١٦٦/٤٧/ج التاريخ: ١٤ / ٥ / ١٤٣٩هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176

موقع إلكتروني : www.mohj.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى الليث بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.الليث ، ٢.الوسقة ، ٣.بني يزيد ، ٤.جدم ، ٥.طفيل ، ٦.السعدية ، ٧.غميقة ، ٨.الرنيفة ، ٩.المستنقع ، ١٠.بيرين ، ١١.الشواق ، ١٢.سعيا الميقات ، ١٣.يلملم ، ١٤.جمعة بن هلال ، ١٥.الرياحين ، ١٦.الأميرة فهده بالغالة.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبناء على موافقة الإدارة العامة للبحوث والدراسات بوزارة الصحة **برقم ٦٧٦٦٢٥ بتاريخ ١٤٣٩/٠٤/٠٨هـ** ولجنة الأخلاقيات بمدينة الملك فهد الطبية ، وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي:**

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3. **عدم تأثر الخدمة في المرافق المعنية.**
4. **المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.**
5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

Roaa
بغدادي

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa

Tel# (012 - 6347334)

الرقم: ٨٩٨٢١٠ ٤٨١٦٦/٤٧/ج التاريخ: ١١ / ٥ / ١٤٢٩هـ المشفوعات: ....

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: الموافقة على إجراء بحث

سعادة مدير مستشفى أضم العام بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.أضم ، ٢.بني عفيف ، ٣.الصلايا ، ٤.مرعة ، ٥.النعيمات ، ٦.كساب ، ٧.العرج ، ٨.سوق العين ، ٩.الجائزة ، ١٠.المرقبان ، ١١.آل صلاح ، ١٢.حقال ، ١٣.دثن ، ١٤.الفحو ، ١٥.أم حطب ، ١٦.آل السني ، ١٧.ذي رهجان ، ١٨.صبح بني ذبان.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبناء على موافقة الإدارة العامة للبحوث والدراسات بوزارة الصحة **برقم ٦٧٦٦٢٥ بتاريخ ١٤٣٩/٠٤/٠٨هـ** ولجنة الأخلاقيات بمدينة الملك فهد الطبية ، وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثة في إجراء البحث **مع مراعاة الآتي**:

1. **اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.**
2. **في حال أي تغيير في خطة البحث يجب الحصول على موافقة إدارة الأبحاث.**
3. **عدم تأثر الخدمة في المرافق المعنية.**
4. **المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.**
5. **استخدام المعلومات لأغراض البحث العلمي فقط.**
6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

د/ نهى أحمد عائش دشاش

Tel# (012 - 6347334)

E-mail: research-jeddah@moh.gov.sa

الرقم: ٤٨١٦٦٨٩٨١٦٥/٤٧/ج التاريخ: ١١ / ٥ / ٢٩ ١٤هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176
موقع إلكتروني : www.mohj.gov.sa

المملكة العربية السعودية
Kingdom of Saudi Arabia
مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

وزارة الصحة
Ministry of Health

الإدارة: إدارة البحوث والدراسات

الموضوع: المواففة على إجراء بحث

سعادة مدير مستشفى رابغ العام بمحافظة جدة المحترم،،

السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثة اسمها أدناه سوف تقوم بإجراء البحث في **المراكز الصحية التابعة للمنشأة** وهي كالتالي:

مركز صحي : ١.الصليب الشرقي ، ٢.الأبواء ، ٣.مستورة ، ٤.مغينية ، ٥.صعبر ، ٦.الجوبة ، ٧.كلية ، ٨.المرجانية ، ٩.حجر ، ١٠.النوييع ، ١١.المرخة.

اسم الباحثة:	مشاعل أحمد الحوباني
رقم البحث:	٠٠٨٦٧
رقم الموافقة:	A٠٠٥٣٣
عنوان البحث - عربي:	الجودة والوصول لخدمات رعاية مرضى السكري في مراكز الرعاية الصحية الأولية.
عنوان البحث - انجليزي:	Saudi Women Experiences with the Quality of Gestational Diabetes Healthcare Services.
مدة الموافقة:	سنة من تاريخه

وبناء على موافقة الإدارة العامة للبحوث والدراسات بوزارة الصحة **برقم** ٦٧٦٦٢٥ **بتاريخ** ١٤٣٩/٠٤/٠٨هـ ولجنة الأخلاقيات بمدينة الملك فهد الطبية ، وجد أنه لا مانع من إجراء البحث.

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6. **تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.**

Roaa
بغدادي

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،،

رئيس اللجنة المحلية لأخلاقيات البحوث
مدير إدارة البحوث والدراسات

د/ عبد الله بن سعد الزهراني

مساعدة مدير الشؤون الصحية
للتخطيط والتطوير

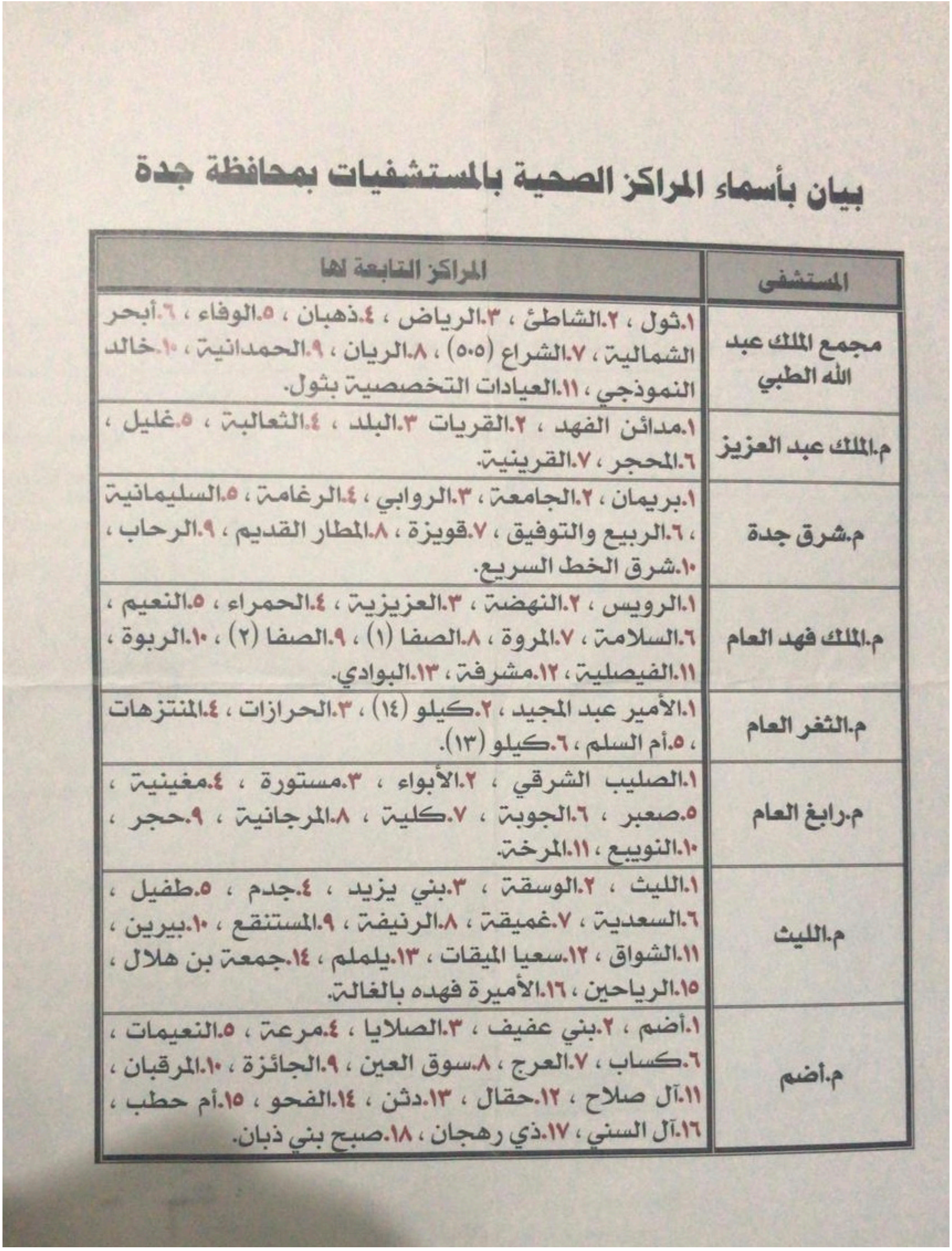
د/ نهى أحمد عائش دشاش

E-mail: research-jeddah@moh.gov.sa
Tel# (012 - 6347334)

الرقم: ٤٨١٦٦٨٩٨٠٢٤/٤٧/ج التاريخ: ١١ / ٥ / ٢٩ ١٤هـ المشفوعات: ....

هاتف: ٠١٢-٦٩٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة: ٢١١٧٦
Tel.: 012-6831377, 012-6970006 Fax : 012-6622961 P.O. Box : 12493 Jeddah 21176

موقع إلكتروني : www.mohj.gov.sa



بيان بأسماء المراكز الصحية بالمستشفيات بمحافظة جدة

المستشفى	المراكز التابعة لها
مجمع الملك عبد الله الطبي	١.ثول ، ٢.الشاطئ ، ٣.الرياض ، ٤.ذهبان ، ٥.الوفاء ، ٦.أبحر الشمالية ، ٧.الشراع (٥٠٥) ، ٨.الريان ، ٩.الحمدانية ، ١٠.خالد النموذجي ، ١١.العيادات التخصصية بثول.
م.الملك عبد العزيز	١.مدائن الفهد ، ٢.القريات ٣.البلد ، ٤.الثعالبة ، ٥.غليل ، ٦.المحجر ، ٧.القرينية.
م.شرق جدة	١.بريمان ، ٢.الجامعة ، ٣.الروابي ، ٤.الرغامة ، ٥.السليمانية ، ٦.الربيع والتوفيق ، ٧.قويزة ، ٨.المطار القديم ، ٩.الرحاب ، ١٠.شرق الخط السريع.
م.الملك فهد العام	١.الرويس ، ٢.النهضة ، ٣.العزيزية ، ٤.الحمراء ، ٥.النعيم ، ٦.السلامة ، ٧.المروة ، ٨.الصفا (١) ، ٩.الصفا (٢) ، ١٠.الربوة ، ١١.الفيصلية ، ١٢.مشرفة ، ١٣.البوادي.
م.الثغر العام	١.الأمير عبد المجيد ، ٢.كيلو (١٤) ، ٣.الحرازات ، ٤.المنتزهات ، ٥.أم السلم ، ٦.كيلو (١٣).
م.رابغ العام	١.الصليب الشرقي ، ٢.الأبواء ، ٣.مستورة ، ٤.مغينية ، ٥.صعبر ، ٦.الجوبة ، ٧.كلية ، ٨.المرجانية ، ٩.حجر ، ١٠.النويبع ، ١١.المرخة.
م.الليث	١.الليث ، ٢.الوسقة ، ٣.بني يزيد ، ٤.جدم ، ٥.طفيل ، ٦.السعدية ، ٧.غميقة ، ٨.الرنيفة ، ٩.المستنقع ، ١٠.بيرين ، ١١.الشواق ، ١٢.سعيا الميقات ، ١٣.يلملم ، ١٤.جمعة بن هلال ، ١٥.الرياحين ، ١٦.الأميرة فهده بالغالة.
م.أضم	١.أضم ، ٢.بني عفيف ، ٣.الصلايا ، ٤.مرعة ، ٥.النعيمات ، ٦.كساب ، ٧.العرج ، ٨.سوق العين ، ٩.الجائزة ، ١٠.المرقبان ، ١١.آل صلاح ، ١٢.حقال ، ١٣.دثن ، ١٤.الفحو ، ١٥.أم حطب ، ١٦.آل السني ، ١٧.ذي رهجان ، ١٨.صبح بني ذبان.

Appendix 5-C: Research participant recruitment posters

- Are you a women over18's years old?
- Have you been diagnosed with gestational diabetes?
- Are you a Saudi citizen?

If Yes, you then invited to participate in this study.

I would like to assure you that this study has been reviewed and received ethics clearance through the University of York Research Ethics Committee. However, the final decision about participation is yours.

☎ ++447853383384
✉ mh1672@york.ac.uk

CALL FOR PARTICIPANTS

My name is Mashael Hobani and I am a 2nd year PhD student at the University of York, UK.
I am exploring the quality of healthcare services for gestational diabetes and how they can be improved, from the perspective of women living in Saudi Arabia and those who provide and organise services. If you are interested in participating, the interview will take approximately 45 minute of your time.

دعوة عامة للمشاركة

١- هل أنتِ فتاة تجاوز عمرك ١٨ سنة؟

هل سبق وأن تم تشخيصك بسكري الحمل؟

٣- هل أنتِ مواطنة سعودية؟

إذا كانت إجاباتك بنعم فأنتِ مدعوة للمشاركة معنا في هذه الدراسة

إسمي مشاعل الحوباني طالبة في السنة الثانية دكتوراة بجامعة يورك في الولايات المتحدة البريطانية

أقوم بعمل بحث لإستكشاف جودة خدمات الرعاية الصحية لسكري الحمل وإمكانية تحسينها من منظور النساء السعوديات ومقدمي الخدمات الصحية

إذا رغبتم في الإنظمام معنا سيتم إجراء مقابلة مدتها ٤٥ دقيقة من وقتكم

☎ +٩٦٦٥٣٧٤١٧٥٧٠
✉ mh1672@york.ac.uk

وأود أن أؤكد لكم أن هذه الدراسة قد تم مراجعتها والحصول على الترخيص الأخلاقي للبحوث العلمية من خلال لجنة أخلاقيات البحوث العلمية بجامعة يورك ومع ذلك، فإن القرار النهائي بشأن المشاركة يعود لكم

Appendix 5-D: Certificate of completion of the qualitative data collection from the Saudi Ministry of Health

المملكة العربية السعودية
وزارة الصحة
الوكالة المساعدة للتخطيط والبحوث
الإدارة العامة للبحوث والدراسات

١٤٣٨/٧/١٠هـ الموافق ٢٠١٨/٣/٢٧م

خطاب إنهاء مهمة علمية

سعادة / الملحق الثقافي السعودي — لندن **المحترم**

السلام عليكم ورحمة الله وبركاته،،،،

إشارة إلى موضوع الطالبة/ مشاعل احمد حوباني، مبتعثة من قبل جامعة الملك عبدالعزيز لدراسة درجة الدكتوراه في تخصص "السياسات الصحية" بكلية العلوم الصحية - الخدمات الصحية والسياسات بجامعة يورك بالمملكة المتحدة، رقم الهوية الوطنية (١٠٥٣٥٨٨٦٣٦)، والرقم الأكاديمي (0013477) وعنوان الرسالة:

" خبرات السيدات السعوديات لجودة الرعاية الصحية تجاه مرض السكري للحوامل"

نحيط سعادتكم علماً بأن الطالبة المذكورة قد أنهت مهمتها لجمع المعلومات والبيانات اللازمة من مراكز الرعاية الصحية الاولية بجدة من تاريخ (١ /١/ ٢٠١٨م) وحتى (٤/١/ ٢٠١٨م)، وبناءً على إتفاقية المشاركة في البيانات التي تم توقيعها بين الطالبة والإدارة، تلتزم الطالبة برفع النسخة النهائية من البحث متضمناً النتائج في قاعدة البيانات البحثية بالموقع الإلكتروني لوزارة الصحة (إضافة بحث- منصة البحوث الإلكترونية).

وقد أعطى هذا الخطاب بناءً على طلبها لتقديمه للملحقية الثقافية السعودية في لندن.

وتفضلوا بقبول أطيب التحيات ،،،

مدير عام الإدارة العامة للبحوث والدراسات

ص. عذاري بنت فيصل العتيبي

الإدارة العامة للبحوث والدراسات
الشئون الادارية و المالية

الرمز البريدي: ١٢٢٣٤ ص.ب الرياض: ٨٥٥٦ فاكس: ٠١١٤٧٣٥٠٣٨ هاتف: ٠١١٤٧٣٥٠٣٩
e-mail: research@moh.gov.sa

Appendix 6-A: Invitation letter

Defining consensus on gestational diabetes healthcare services priorities in Saudi Arabia: A Delphi study

Dear Sir/ Madam,

My name is Mashael Hobani. I am a PhD student at University of York and a lecturer at King Abdulaziz University. My thesis is about exploring the quality of gestational diabetes healthcare services and how it can be improved, from the perspective of women living in Saudi Arabia.

Gestational diabetes has reached an epidemic stage and has a medical and economic impact on the health and economy of Saudi Arabia. Despite all the efforts exerted and resources invested in the prevention of gestational diabetes, the prevalence of gestational diabetes in Saudi Arabia has been increasing. Therefore, providing high-quality healthcare services to women with gestational diabetes would create health and economic benefits. However, gestational diabetes healthcare faces a number of challenges due to several factors, some of which are unique to Saudi Arabia. This research will identify the main gestational diabetes healthcare services problems associated with the quality of care received from the primary and secondary care in Saudi Arabia based on establishing a consensus opinion amongst participants.

As such, I would like to invite you to become an expert member for my study. Your knowledge and expertise would be extremely helpful to me in conducting research of this topic. The workload associated with this request will be minimal: correspondence will mostly be undertaken with you via email. I would only contact you at key points throughout the study, which will be around three months, once a time each month.

If you are willing to participate in the study, I would be very grateful if you could complete the attached consent form and return it.
This research will be carried out using the Delphi technique consisting of a maximum of 3 questionnaires (known as rounds) aiming to achieve consensus. With your permission, the questionnaire will be e-mailed to you. After receipt of the enclosed consent form, you will shortly receive the first questionnaire. Simple and specific instructions will be provided for each questionnaire.

The amount of time necessary for completion of each questionnaire will vary with each participant but should be approximately 15 minutes for Round 1, 10 minutes for Round 2, and 10 minutes for Round 3. There are no right or wrong answers to the questions. This study is seeking your expert opinion.

It is important that you understand your participation in this study is entirely voluntary. You will not be identifiable in the findings. Your name will not be recorded in rounds; instead, you will be allocated a unique code that can only be identifiable to the researcher. You will remain anonymous to the other participants throughout this Delphi study and only the researchers will be able to identify your specific answers. For further information, please read the information sheet attached.

We sincerely hope you will agree to participate. If you have any questions please, e-mail me at mh1672@york.ac.uk. You are also welcome to call or WhatsApp me on +44728280293.

Thank you for your time and help you may be able to offer to this study.
Yours sincerely,

Appendix 6-B: Participant information sheet

UNIVERSITY of York
The Department of Health Sciences

Defining consensus on gestational diabetes healthcare services priorities in Saudi Arabia: A Delphi study

Participant Information Sheet

We would like to invite you to take part in a research project. Before you decide 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. Ask the researcher if there is anything that is not clear or if you would like more information.

What is the purpose of this study?

This Delphi study aims to seek consensus on the main problems associated with gestational diabetes healthcare services in Saudi Arabia from different viewpoints to prioritise the problems that need immediate attention for future research and provide recommendations for policy makers.

Who is doing the study?

My name is Mashael Hobani, I am a PhD student in Health Sciences from the University of York in the United Kingdom. These research forms part of my doctoral thesis project, supervised by Prof Tim Doran and Doctor Amanda Mason-Jones. (contact details can be found at https://www.york.ac.uk/healthsciences/our-staff/), and funded by King Abdulaziz University and Saudi Arabian Cultural Bureau in London.

Who is being asked to participate? *or* Why have I been asked to participate?

You have been invited to take part in this Delphi study because you are working in either a primary care, secondary care, or government health facilities.

Do I have to take part?

No, taking part is voluntary. If you would prefer not to take part, you do not have to give a reason. If you take part but later change your mind you can withdraw at any time.

What will be involved if I take part in this study?

If you agree to take part in the study, you will be asked in the first instance to complete and return a consent form. This research will be carried out using the Delphi technique. The Delphi technique is a method used to understand people’s agreement on a certain topic. It is simply a questionnaire that is sent a number of times to participants until agreement has been reached. Each questionnaire send is called round and denoted by a number for example the first questionnaire is round 1. After each round participant responses are combined and shared with all participants anonymously. The aim of providing participants responses is to see if the participant will change his/her opinion based on other people’s opinion. This study may require up to three rounds (questionnaires).

With your permission the questionnaire will be e-mailed to you. After receipt of the enclosed consent form, you will shortly receive the first questionnaire. Simple and specific instructions will be provided for each questionnaire.
The amount of time necessary for completion of each questionnaire (or rounds) will vary with each participant; but should range from approximately 15 minutes for Round 1, 10 minutes for Round 2, 10 minutes for Round 3. There are no right or wrong to the questions. This study is seeking your expert opinion.

The following point is important to remember:

1. Your participation is entirely voluntarily.
2. You may decline or withdraw from the study at any time.
3. You will remain anonymous to other participants throughout this Delphi study and only researchers will be able to identify your specific answers.
4. All records are confidential. Your name will only be recorded on the consent form; it will not be recorded on the questionnaire. All information will be handled and stored in a confidential manner. This information will only be available to members of the research team.
5. Any information that you provide will be confidential and when results of the study are reported, you will not be identifiable in the findings.
6. The information gathered will be sent for publication in a professional journal and will also presented at conferences. All details about people who took part in the study will be kept anonymous.
7. You will only have to complete the consent form once; return of completed Delphi rounds implies your consent to participate.

What are the advantages/benefits and disadvantages/risks of taking part?

You will not benefit directly from participation in this study. The study will provide data on the issues of gestational diabetes healthcare services in terms of use in Saudi Arabia.

Can I withdraw from the study at any time?

If you would prefer not to take part, you do not have to give a reason. If you take part but later change your mind you can withdraw at any time.

Will the information obtained in the study be confidential? *or* Will the information I give be kept confidential?

Yes, if you consent to take part in this study, your name will not be disclosed and will not be revealed in any reports or publications resulting from the study. Apart from your consent form, your name will not be recorded on Delphi rounds. Each participant will be allocated a unique code. You will remain anonymous to the other participants throughout this Delphi study and only the research team will be able to identify your specific answers. All information will be handled and stored in a confidential manner. No comments made by participants will be associated with them in any publication. Every stage of this study, data collection, storage and analysis will comply with the requirements of the Data Protection Act (1998) and the Health Sciences' data management policies for data confidentiality. Your personal information will be never disclosed to prevent your identification. Your line manager (if you have one) will not be given any direct feedback about this Delphi study.

The access to data will be limited to the main researcher (Mashael Hobani), both supervisors (Professor Tim Doran and Doctor Amanda Mason-Jones) and researchers that might collaborate in this project, for example members of the Thesis Advisory Panel (Doctor Peter

Knapp and Doctor Paul Galdas). The data will be destroyed after three years post PhD thesis submission.

What will happen to the results of the study?

Results from this study will form part of my doctoral thesis and may be disseminated in peer reviewed journals and scientific conferences. You will be sent a brief report of the findings (fully anonymised) and any article published containing part of the data you gave.

Who has reviewed this study?

The Research Governance Committee (HSRGC) of the Department of Health Sciences from the University of York granted ethical approval for this research. More information of this committee can be found at https://www.york.ac.uk/healthsciences/research-information/rsg/.

Who do I contact in the event of a complaint?

Please contact my supervisors if there is any complaint:

Professor Tim Doran - tim.doran@york.ac.uk

Doctor Amanda Mason-Jones - amanda.mason-jones@york.ac.uk

If you agree to take part, would like more information or have any questions or concerns about the study please contact Mashael Hobani, PhD student in Health Sciences at the University of York, York, United Kingdom. Email address: mh1672@york.ac.uk.

Thank you for taking the time to read this information sheet.

Appendix 6-C: Participant consent form

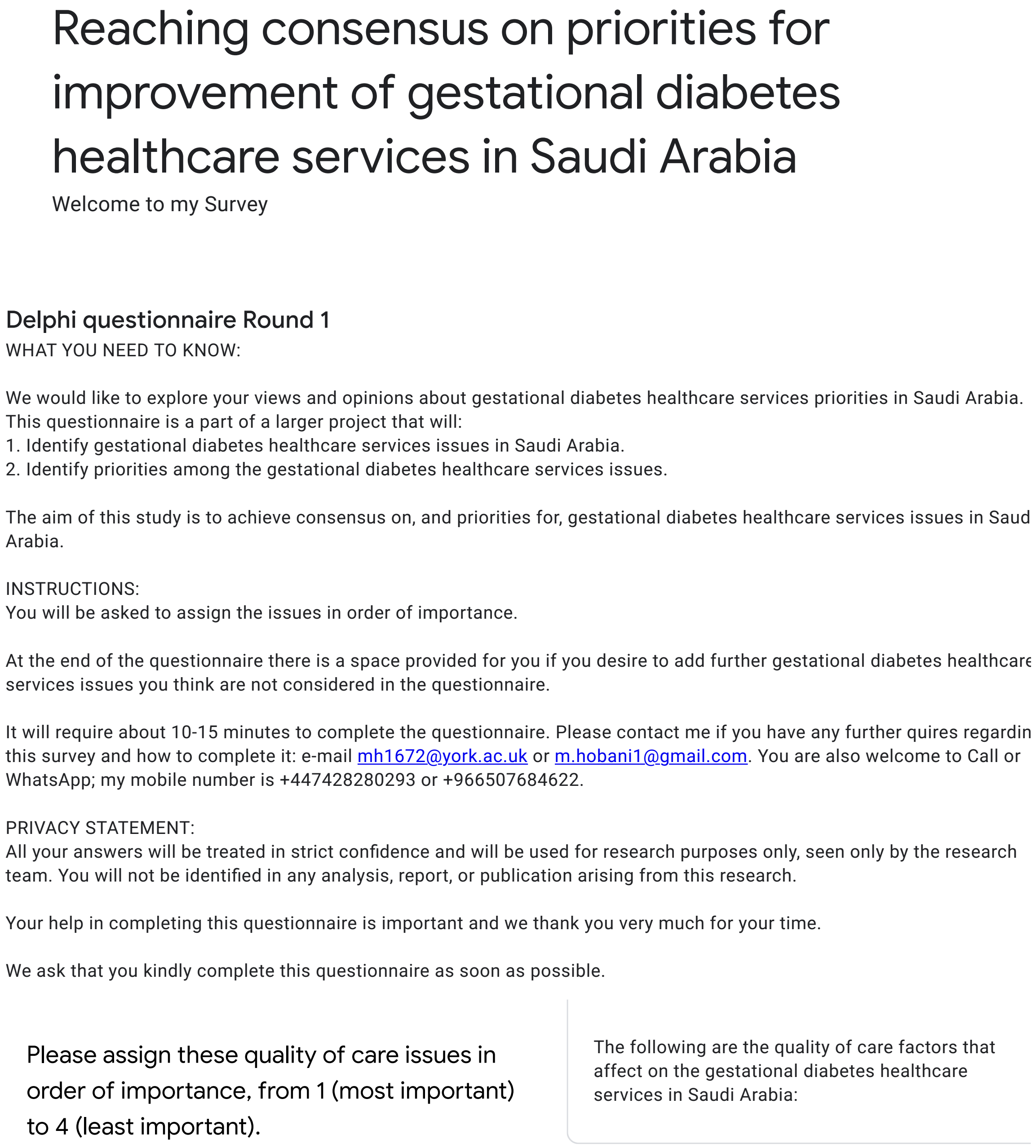
The Department of Health Sciences

Participant Consent Form

Title of Study: Defining consensus on gestational diabetes healthcare services priorities in Saudi Arabia: A Delphi study

	Please confirm agreement to the statements by putting your initials in the boxes below
I have read and understood the participant information sheet [date 14/5/2019, version 1]	
I have had the opportunity to ask questions and discuss this study	
I have received satisfactory answers to all of my questions	
I have received enough information about the study	
I understand my participation in the study is voluntary and that I am free to withdraw from the study: 1 At any time/up to *(4)* weeks post- questionnaire 2 Without having to give a reason for withdrawing *3 In case of withdrawing, your data will not be included in the data analysis, and will be destroyed*	
I understand that any information I provide, including personal details, will be kept confidential, stored securely and only accessed by those carrying out the study.	
I understand that any information I give may be included in published documents, but all information will be anonymised.	
I agree to take part in this study	
Participant Signature ………………………………………………………… Date	
Name of Participant	
Researcher Signature ……………………………………………………….. Date	
Name of Researcher	

Appendix 6-D: Delphi Questionnaires – Round one, two and three



Reaching consensus on priorities for improvement of gestational diabetes healthcare services in Saudi Arabia

Welcome to my Survey

Delphi questionnaire Round 1

WHAT YOU NEED TO KNOW:

We would like to explore your views and opinions about gestational diabetes healthcare services priorities in Saudi Arabia.
This questionnaire is a part of a larger project that will:
1. Identify gestational diabetes healthcare services issues in Saudi Arabia.
2. Identify priorities among the gestational diabetes healthcare services issues.

The aim of this study is to achieve consensus on, and priorities for, gestational diabetes healthcare services issues in Saud Arabia.

INSTRUCTIONS:
You will be asked to assign the issues in order of importance.

At the end of the questionnaire there is a space provided for you if you desire to add further gestational diabetes healthcare services issues you think are not considered in the questionnaire.

It will require about 10-15 minutes to complete the questionnaire. Please contact me if you have any further quires regardin this survey and how to complete it: e-mail mh1672@york.ac.uk or m.hobani1@gmail.com. You are also welcome to Call or WhatsApp; my mobile number is +447428280293 or +966507684622.

PRIVACY STATEMENT:
All your answers will be treated in strict confidence and will be used for research purposes only, seen only by the research team. You will not be identified in any analysis, report, or publication arising from this research.

Your help in completing this questionnaire is important and we thank you very much for your time.

We ask that you kindly complete this questionnaire as soon as possible.

Please assign these quality of care issues in order of importance, from 1 (most important) to 4 (least important).

The following are the quality of care factors that affect on the gestational diabetes healthcare services in Saudi Arabia:

1. Lack of expertise of doctors regarding gestational diabetes.

Mark only one oval.

1	2	3	4
○	○	○	○

2. Conflict diagnoses or advices received by Physicians.

Mark only one oval.

1	2	3	4
○	○	○	○

3. Lack of respect, empathy and emotional support from doctors.

Mark only one oval.

1	2	3	4
○	○	○	○

4. Lack of proficiency in nurses.

Mark only one oval.

1	2	3	4
○	○	○	○

Please assign these access to care issues in order of importance, from 1 (most important) to 8 (least important).

The following factors are access to care factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

5. Long travel distance for patients to health facilities.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

6. Insufficient opening hours for health facilities.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

7. Lack of sufficient time for physicians to see patients.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

8. Long waiting times.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

9. Administrative problems for patients accessing the appointment system.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

10. Lack of proper registry services and electronic health records systems.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

11. Patients not permitted to access test and examination results.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

12. Lack of test consumables and equipment.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

Please assign issues with physician training and education in order of importance, from 1 (most important) to 4 (least important).

The following are physician training and education factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

13. Gaps in medical staff training.

Mark only one oval.

1	2	3	4
○	○	○	○

14. High medical staff turnover.

Mark only one oval.

1	2	3	4
○	○	○	○

15. Lack of monitoring and evaluation of medical staff.

Mark only one oval.

1	2	3	4
○	○	○	○

16. Lack of performance measurement and incentive system.

Mark only one oval.

1	2	3	4
○	○	○	○

Please assign problems with communication in order of importance, from 1 (most important) to 4 (least important).

The following factors are communication factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

17. Lack of clear written/ verbal information provided to women regarding their gestational diabetes.

Mark only one oval.

1	2	3	4
○	○	○	○

18. Poor communication and coordination within secondary care.

Mark only one oval.

1	2	3	4
○	○	○	○

19. Lack of communication and coordination between primary and secondary care.

Mark only one oval.

1	2	3	4
○	○	○	○

20. Lack of communication between healthcare administrators and governors

Mark only one oval.

1	2	3	4
○	○	○	○

21. Any additional gestational diabetes healthcare services issues or factors you believe are important but not mentioned in this survey, please write them here.

About yourself

Last, but not least we would like to know a little more about you

22. Name (write any name you want to identify yourself)

23. What is your present job title?

24. How many years of experience do you have in your field?

25. Have you received education to manage patients with gestational diabetes?

26. What city do you currently live in?

27. What is your age?

28. Are you male or female?

Mark only one oval.

○ Male
○ Female

29. What is your main profession?

Mark only one oval.

○ Medical doctor
○ Midwife nurse
○ Hospital Administrator
○ Other

30. What is the highest degree or level of school you have completed? if currently enrolled, mark the previous grade or highest degree received

Mark only one oval.

○ Bachelor degree
○ MD
○ Master degree
○ Doctoral degree
○ other

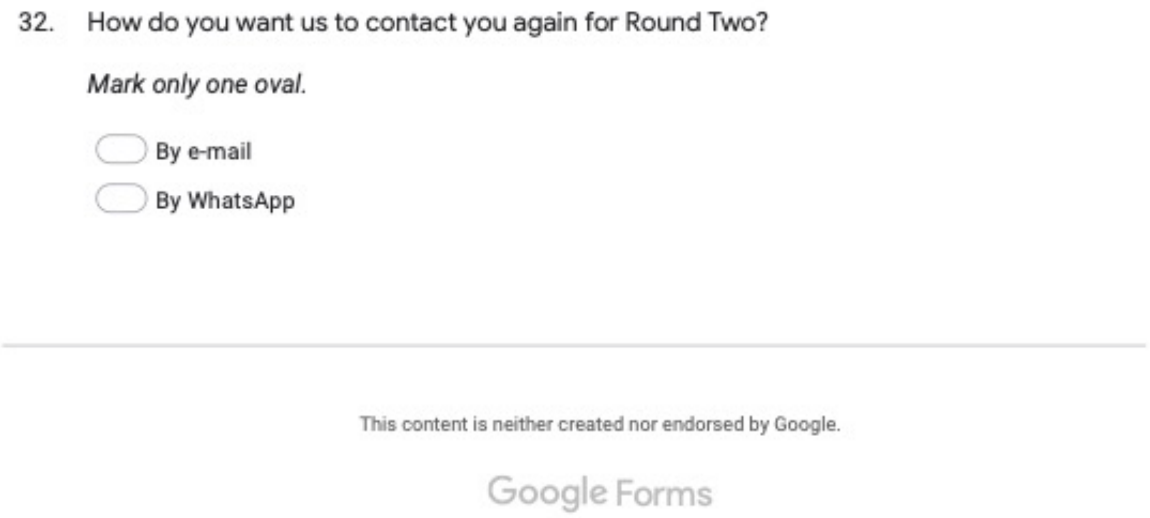
31. In which setting do you work?

Mark only one oval.

○ Secondary care
○ Primary care
○ other

Thank you for taking time to tell us about yourself

what will happen next: After we have analyzed all responses from Round One, we will send yo a summary sheet of all statements for which consensus was achieved in Round One, in addition to the Round Two questionnaire of the Delphi study.



32. How do you want us to contact you again for Round Two?

Mark only one oval.

○ By e-mail
○ By WhatsApp

Reaching consensus on priorities for improvement of gestational diabetes healthcare services in Saudi Arabia

Welcome to my Survey

Delphi questionnaire Round 2

WHAT YOU NEED TO KNOW:

We would like to explore your views and opinions about gestational diabetes healthcare services priorities in Saudi Arabia.
This questionnaire is a part of a larger project that will:
1. Identify gestational diabetes healthcare services issues in Saudi Arabia.
2. Identify priorities among the gestational diabetes healthcare services issues.

The aim of this study is to achieve consensus on, and priorities for, gestational diabetes healthcare services issues in Saud Arabia.

INSTRUCTIONS:
You will be asked to assign the issues in order of importance.

It will require about 5-10 minutes to complete the questionnaire. Please contact me if you have any further quires regarding this survey and how to complete it: e-mail mh1672@york.ac.uk or m.hobani1@gmail.com. You are also welcome to Call or WhatsApp; my mobile number is +447428280293.

PRIVACY STATEMENT:
All your answers will be treated in strict confidence and will be used for research purposes only, seen only by the research team. You will not be identified in any analysis, report, or publication arising from this research.

Your help in completing this questionnaire is important and we thank you very much for your time.

We ask that you kindly complete this questionnaire as soon as possible.

Please assign these quality of care issues in order of importance, from 1 (most important) to 4 (least important).

The following are the quality of care factors that affect on the gestational diabetes healthcare services in Saudi Arabia:

1. Lack of expertise of doctors regarding gestational diabetes.

Mark only one oval.

	1	2	3	4
	○	○	○	○

2. Conflict diagnoses or advices received by Physicians.

Mark only one oval.

	1	2	3	4
	○	○	○	○

3. Lack of respect, empathy and emotional support from doctors.

Mark only one oval.

	1	2	3	4
	○	○	○	○

4. Lack of proficiency in nurses.

Mark only one oval.

	1	2	3	4
	○	○	○	○

Please assign these access to care issues in order of importance, from 1 (most important) to 8 (least important).

The following factors are access to care factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

5. Long travel distance for patients to health facilities.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

6. Insufficient opening hours for health facilities.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

7. Lack of sufficient time for physicians to see patients.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

8. Long waiting times.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

9. Administrative problems for patients accessing the appointment system.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

10. Lack of proper registry services and electronic health records systems.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

11. Patients not permitted to access test and examination results.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

12. Lack of test consumables and equipment.

Mark only one oval.

1	2	3	4	5	6	7	8
○	○	○	○	○	○	○	○

Please assign issues with physician training and education in order of importance, from 1 (most important) to 4 (least important).

The following are physician training and education factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

13. Gaps in medical staff training.

Mark only one oval.

1	2	3	4
○	○	○	○

14. High medical staff turnover.

Mark only one oval.

1	2	3	4
○	○	○	○

15. Lack of monitoring and evaluation of medical staff.

Mark only one oval.

1	2	3	4
○	○	○	○

16. Lack of performance measurement and incentive system.

Mark only one oval.

1	2	3	4
○	○	○	○

Please assign problems with communication in order of importance, from 1 (most important) to 4 (least important).

The following factors are communication factors that contribute to gestational diabetes healthcare services issues in Saudi Arabia:

17. Lack of clear written/ verbal information provided to women regarding their gestational diabetes.

Mark only one oval.

1	2	3	4
○	○	○	○

18. Poor communication and coordination within secondary care.

Mark only one oval.

1	2	3	4
○	○	○	○

19. Lack of communication and coordination between primary and secondary care.

Mark only one oval.

1	2	3	4
○	○	○	○

20. Lack of communication between healthcare administrators and governors

Mark only one oval.

1	2	3	4
○	○	○	○

Thank you for taking time to tell us your views

what will happen next: After we have analyzed all responses from Round Two, we will send you
summary sheet of all statements for which consensus was achieved in Round Two, in addition t
a much shorter Round Three questionnaire of the Delphi study.

21. Name (write any name you want to identify yourself)

____

Reaching consensus on priorities for improvement of gestational diabetes healthcare services in Saudi Arabia

Welcome to my Survey

Delphi questionnaire Round 3

WHAT YOU NEED TO KNOW:

We would like to explore your views and opinions about healthcare services priorities for gestational diabetes in Saudi Arab
This questionnaire is a part of a larger study exploring the healthcare experiences of women with gestational diabetes.

INSTRUCTIONS:
You will be asked to assign the issues presented in order of importance from 1 to 5.

It approximately takes 5 minutes to complete the questionnaire. Please contact me if you have any questions regarding the survey or how to complete it: e-mail mh1672@york.ac.uk or m.hobani1@gmail.com.

PRIVACY STATEMENT:
All your answers will be treated in strict confidence and will be used for research purposes only. Individual responses will o
be viewed by the research team and you will not be identified in any analysis, report, or publication arising from this researc

Your help in completing this questionnaire is important and we thank you very much for your time.

Reaching consensus on priorities for improvement of gestational diabetes healthcare services in Saudi Arabia

Please assign these gestational diabetes healthcare services issues in order of importance, from 1 (most important) to 5 (least important).

1. Lack of expertise of doctors with respect to gestational diabetes.

Mark only one oval.

1	2	3	4	5
○	○	○	○	○

2. Lack of proficiency in nurses.

Mark only one oval.

	1	2	3	4	5	
	○	○	○	○	○	

3. Long travel distance for patients to health facilities.

Mark only one oval.

	1	2	3	4	5	
	○	○	○	○	○	

4. Lack of sufficient time for doctors to see patients.

Mark only one oval.

	1	2	3	4	5	
	○	○	○	○	○	

5. Long waiting times for patients.

Mark only one oval.

	1	2	3	4	5	
	○	○	○	○	○	

6. Administrative problems for patients accessing the appointment system.

Mark only one oval.

1	2	3	4	5
○	○	○	○	○

7. Gaps in medical staff training.

Mark only one oval.

1	2	3	4	5
○	○	○	○	○

8. High medical staff turnover.

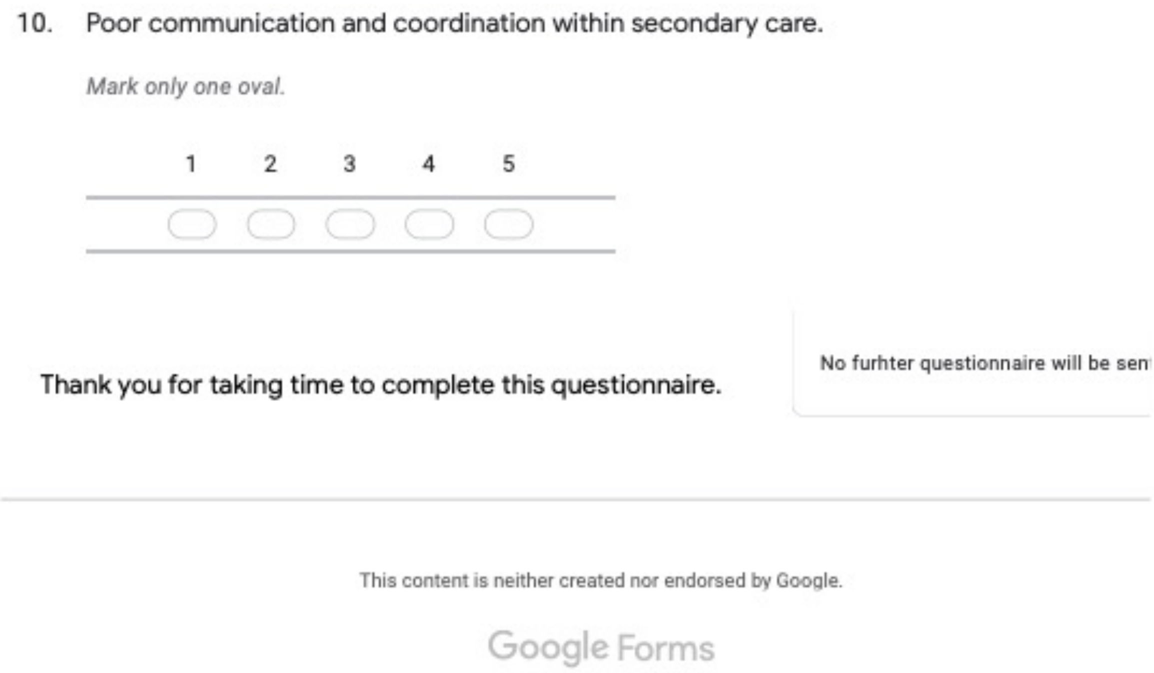
Mark only one oval.

1	2	3	4	5
○	○	○	○	○

9. Lack of provision of clear written/ verbal information to women with gestational diabetes.

Mark only one oval.

1	2	3	4	5
○	○	○	○	○



10. Poor communication and coordination within secondary care.

Mark only one oval.

1	2	3	4	5
○	○	○	○	○

Thank you for taking time to complete this questionnaire.

No furhter questionnaire will be sen

This content is neither created nor endorsed by Google.

Appendix 6-E: Delphi pilot questionnaire

1. **Approximately how long did long did it take you to complete the questionnaire?**

2. **Were any questions unclear or ambiguous? (Please comment)**

3. **Did you object to answering any questions (please comment)**

4. **Was the layout clear and attractive? (Please comment)**

5. **Please detail any other comments regarding the questionnaire in the space below:**

Thank you very much for completing the feedback form. Your time and effort is very much appreciated.

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