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Lived Experience of Gestational Diabetes Mellitus among Saudi Women: Interpretive Phenomenological Study

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ABSTRACT

Gestational diabetes mellitus (GDM) is defined as an abnormal glucose tolerance of variable severity with onset or first recognition during pregnancy and usually disappearing immediately after delivery. Women diagnosed with GDM are at high risk for adverse maternal and neonatal health outcomes such as hypertension, birth trauma, stillbirth, obesity, perineal lacerations and higher rates of cesarean section. The prevalence of GDM has recently increased two to three-fold worldwide. GDM has emerged as a significant health issue among pregnant women in Saudi Arabia, yet little is known about what this experience is like for Saudi women and their families. A hermeneutic phenomenological approach was used to explore pregnant Saudi women's lived experience of having GDM and to gain an in-depth understanding of the meaning of this experience from the perspective of the women. Data were collected using semi-structured interviews with eight Saudi women recently diagnosed with GDM. Seven themes were identified: *Response to GDM Diagnosis, GDM Self-Management, Having Support, Facing Challenges, Lack of Knowledge, Concerns with Having GDM, and Need for Improved Awareness of GDM*. The findings revealed the many challenges Saudi women encountered as they engaged in GDM self-management and developed a new lifestyle. The results indicate that there is need for further research and increased awareness about GDM among pregnant Saudi women and the general public. The results also indicate that support from family members is vitally important for these women. The findings inform nurses, other health care providers and policy makers about the complex nature of GDM for pregnant women and assist in development of appropriate guidelines to improve health care and support systems in Saudi Arabia for this population.

Keywords: gestational diabetes, qualitative studies, phenomenology, diabetes experience, interpretative approach, and pregnancy.

CO-AUTHORSHIP

Hayat Algamadi conducted the research for her master's thesis under the supervision of Dr. Marilyn Evans and Dr. Kim Jackson who will be co-authors of the publication resulting from the manuscript.

DEDICATION

This research is dedicated to my parents, Abdullah Alghamdi and Jamelah Alnahdi who have always inspired me to pursue higher education.

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CHAPTER ONE: INTRODUCTION

Many physiological and psychological changes occur during pregnancy and for some women these changes can result in health issues that require medical interventions. Gestational diabetes mellitus (GDM) is defined as an abnormal glucose tolerance of variable severity with onset or first recognition during pregnancy and usually disappears immediately after delivery (American Diabetes Association, 2014; Kim et al., 2006). Over the past 20 years, the prevalence of GDM has increased by approximately 10-100% in several racial and ethnic groups (Ferrara, 2007), and since 2010 it has increased two-to three-fold worldwide, ranging from 8.9% to 53.4% (Alfadhli et al., 2015).

Women from Saudi Arabia have a high incidence of GDM placing them at risk of adverse maternal and neonatal outcomes (Alfadhli et al., 2015; El Mallah, Narchi, Kulaylat, & Shaban, 1997). Al-Khalifa et al., (2012) report that 8.9% to 12.5% of all pregnancies have been affected by GDM in Saudi Arabia. Gestational diabetes mellitus has emerged as a significant issue among pregnant women in Saudi Arabia (Al-Rubeaan et al., 2014) yet little is known about what this experience is like for Saudi women and their families. In this chapter, I briefly present background pertaining to gestational diabetes in order to provide context and the significance of gestational diabetes among pregnant Saudi women and health care delivery.

Background and Significance

Major risk factors for GDM include advanced maternal age, obesity, hypertensive disorders, polycystic ovary syndrome (PCOS), previous GDM, multiparity, and family history of diabetes (Alfadhli et al., 2015). Women diagnosed with GDM are at high risk for adverse maternal health outcomes such as hypertension, stillbirth, obesity, perineal lacerations and higher rates of cesarean section (Reece, 2010). Poorly controlled diabetes in pregnancy increases the risks of

complications and adverse outcomes for women and their infants in the perinatal and neonatal periods (Gainor, Fitch, & Pollard, 2006; Galindo, Burguillo, Azriel, & Fuente, 2006; HAPO Study Cooperative Research Group, 2008; Nielson, Moller, & Sorensen, 2006). Women with previous GDM are also at risk to develop type 2 diabetes later in life (Gasim, 2012).

Most women who have GDM deliver healthy infants. However, GDM that is not carefully managed can cause problems for infants. The adverse health outcomes among infants born to mothers with GDM are hypoglycemia, neonatal jaundice (Ayaz et al., 2009), shoulder dystocia, macrosomia (Reece, 2010), and early markers of cardiovascular disease (Bunt, Tataranni, & Salbe, 2005; Tam et al., 2010) such as insulin resistance (Krishnaveni et al., 2010). Infants born to women with GDM have a greater risk of developing respiratory distress syndrome than infants born to women without GDM (Reece, 2010) and are also at higher risk for childhood obesity (Vohr & Boney, 2008).

Almarzouki (2012) conducted a survey of health files of 62 women with GDM to determine maternal and neonatal short term health outcomes in pregnancies complicated by GDM in Saudi Arabia. The results revealed that women, even with well controlled GDM, experienced adverse maternal and fetal outcomes. Cesarean sections were performed on 11 women, and 15 women developed pregnancy induced hypertension. Eleven neonates were admitted to neonatal intensive care, 15 neonates suffered from respiratory distress, and 19 infants developed hypoglycemia. In this study, the prevalence of GDM was 6.1% and the most frequent complications were high rates of cesarean section deliveries and neonatal hypoglycemia. Strategies towards GDM prevention were highly suggested to reduce the complications associated with diabetes among pregnant women and newborns.

Given the many adverse health outcomes for pregnant women with diabetes and their infants, early identification of GDM in pregnancy is an important step toward effective diabetes management and prevention of poor health outcomes. In Saudi Arabia, prenatal screening for gestational diabetes is conducted using the criteria established by the International Association of Diabetes and Pregnancy Study Group (IADPSG) (Alfadhli et al., 2015). One or more abnormal values are needed for a diagnosis of GDM to be made in accordance with IADPSG criteria: FBG (Fasting Blood Sugar) > 5.0 mmol/L and/or 1-hour BSL (Blood Sugar Level) > 10 mmol/L and/or 2-hour BSL \geq 8.5 mmol/L (International Association of Diabetes and Pregnancy Study Groups Consensus Panel, 2010).

There is a paucity of research available on Saudi women with GDM resulting in little knowledge about their experiences in diabetes self-management and what their specific needs are to promote their long term health and well-being and to prevent type 2 diabetes. When GDM is well managed, morbidity rates for women and infants are greatly reduced (Carolan, 2013). Self-care management of GDM helps women monitor their blood glucose and adjust what they eat to maintain her blood glucose levels within normal levels (Carolan, 2013). Self-management of GDM, physical activity and healthy diet have shown to enhance maternal and infant health outcomes (Yuen & Wong, 2015). Women with a history of GDM have reported facing challenges adhering to these measures and needing ongoing support postpartum (Evans, Patrick, & Wellington, 2010). Evans, Patrick, & Wellington (2010) suggest that effective treatments decrease prenatal morbidity and enhance health outcomes for pregnant women with diabetes.

This study increases our understanding of the lived experience of pregnant Saudi women who have been diagnosed with gestational diabetes and the meanings embedded in their experience. An in-depth understanding of the perceptions and thoughts of Saudi women living

with gestational diabetes may help inform diabetes prevention programs, practices and policies oriented to ensuring necessary supportive care for pregnant Saudi women with GDM. The results will enhance nursing assessment and care for Saudi pregnant women and their families and identify the supports necessary for diabetes self-care management. Hearing the stories of these women increases our awareness and understanding of the meaning of women's everyday lived experiences from the pregnant women's perspectives. Further, the results are beneficial in supporting health providers and policy makers in creating effective maternal health programs for Saudi women with gestational diabetes.

Literature Review

Databases used for the literature review included CINAHL, ProQuest PsycINFO, and Nursing & Allied Health Database. The search focused on papers published from 2004 to 2016 to determine key research findings, identify gaps in the existing knowledge base regarding gestational diabetes, and to capture the most current research on gestational diabetes. Key words, "gestational diabetes", "qualitative studies", "phenomenology", "diabetes experience", "interpretative approach", and "pregnancy" were used to access published articles. In the search strategy, the selected key terms were combined by using AND and OR to access additional relevant articles. The titles of all selected articles and their abstracts were reviewed, and those unrelated to the study were omitted. The search was limited to English, qualitative research, and peer-reviewed articles. Qualitative research were included to gain an in-depth understanding about pregnant women's experiences with GDM in different socio-cultural contexts.

Three qualitative studies were identified from Sweden and Australia, utilizing varied qualitative approaches to understanding the experiences and beliefs of women with GDM. One qualitative study conducted in Sweden by Hjelm, Bard, Nyberg, & Apelqvist (2005) compared

beliefs about health and illness between women with gestational diabetes born in Sweden and those born in the Middle East. A total of 27 pregnant women with GDM were recruited from a specialized diabetes clinic at a university hospital. Thirteen women were Swedish and 14 women were from the Middle East. The women born in Middle Eastern countries were originally from Iraq, Lebanon, and Iran. Semi-structured interviews were used to capture the women's stories of common health problems associated with a diabetic pregnancy. The results showed that socio-demographic factors such as education, race, ethnicity, and income played an essential role in affecting women's behaviors towards managing GDM. The Swedish women asked for urgent medical treatment and viewed a pregnancy with GDM as a disease, whereas women from the Middle East adapted to the disease and perceived pregnancy and its complications as a norm. The researchers suggested that assessing women's beliefs, risk awareness, and meeting their individual needs for information was vitally important.

The results of a later study conducted by Hjelm, Bard, Berntorp, & Apelqvist (2009), to explore Swedish and Middle Eastern women's views of health and illness related to gestational diabetes revealed that women, with previous GDM, held different beliefs about health and illness. For example, Middle Eastern women showed less knowledge and awareness of GDM, and expressed worries about being in a diabetic state. This experience directed Middle Eastern women to seek help and advice from health-care providers to determine if diabetes was present in the postpartum period. They also indicated tendencies to change their diet. However, Swedish-born women showed a high awareness of needed lifestyle changes, were knowledgeable about risks associated with GDM, such as potential for future development of type 2 diabetes, and sought more information from health providers to avoid developing diabetes.

A qualitative study to explore women's experiences and perceptions of GDM, was conducted in Australia by Razee et al., (2010). A sample of 57 participants were included in the final analysis and consisted of 20 Arabic, 20 Cantonese/Mandarin, and 17 English speaking women who had GDM 6-36 months previously. Findings revealed that women's experiences and beliefs of GDM, and their ability to maintain a healthy lifestyle were related to social support, cultural roles and beliefs, information needs, and psychological well-being.

The researchers found differences between the three ethnic groups. For example, the English and Cantonese/Mandarin speaking women emphasized emotional support as particularly significant while mental health and distress were not considered barriers to maintaining healthy lifestyles. Conversely, psychological distress was reported as a main barrier to being physically active and adhering to a healthy diet among the Arabic women participants. Arabic women who were less educated reported that their ability to manage their GDM had been strongly negatively affected by their state of psychological well-being and their information needs. Cultural expectations and roles such as being a responsible wife and a good mother were also reported by many of the Arabic participants as impacting diabetes self-management. Support from family members and friends, and how it can affect women's ability to engage in healthy lifestyle choices, was a fundamental theme among Arabic participants discovered by the researchers. The findings also emphasized the need for lifestyle prescriptions, personal support, and knowledge about GDM among women with gestational diabetes and their family. A limitation of the study is that the Arabic participants were from Lebanon and Iraq, where there may be religious and social differences among Arabic women from other countries. These differences are essential to take into consideration as the results may not pertain to other Arabic speaking migrants, such as those from African countries. A further limitation is that the interviews with Arabic and Cantonese/Mandarin

speaking women were conducted in the respective languages and then translated into English. Some of the content, meaning, and nuances might have been lost during translation.

Together, the studies have showed differences in beliefs about health and illness among women with GDM that changed and affected awareness of risk and self-care practice. Middle-Eastern women may be less educated about GDM and its effects, leading to the perception that GDM is less serious. The findings also uncovered that socio-demographic factors and cultural contexts played an important role in engaging in GDM self-management and maintaining a healthy lifestyle.

Literature Review Summary

In summary, the fact that only three qualitative articles on Arab women's experiences with GDM were available for review indicates an overall lack of literature in this area. The literature to date revealed that women's lived experiences, beliefs, and perceptions of GDM are affected by cultural, social, and psychological factors. The experiences of women with GDM from different ethnic groups have been reported in the literature using qualitative designs. However none of these studies included Saudi Arabian women experiencing GDM or were conducted in Saudi Arabia; hence, this study was undertaken to fill this identified gap. The lack of descriptive literature about this specific population points to the need for gaining an increased understanding of gestational diabetes in Saudi Arabia to provide comprehensive care for pregnant Saudi women. This phenomenological study provides insights into the lived experience of pregnant Saudi women diagnosed with GDM, identifies what health care professional support is required, increases our understanding of health care needs of pregnant women, and informs practices and policies oriented to ensuring necessary support for pregnant women with GDM.

Purpose Statement

The purpose of this phenomenological study was to explore pregnant Saudi women's lived experience of having GDM and to gain an in-depth understanding of the meaning of this experience from the perspective of the women.

Research Questions

The research questions were: 1) What is it like for pregnant Saudi women to experience gestational diabetes? ; 2) What meaning does gestational diabetes have for pregnant Saudi women?; and 3) What is helpful or not helpful to the women's diabetes self-care management?

Declaration of Self

It is beneficial to write the declaration of self to give readers a brief introduction to the researcher's background, thoughts, and experiences related to the research topic. My interest in maternity and women's health started while I was working as a staff nurse in an Obstetric unit in Saudi Arabia. I had the opportunity to work with high risk pregnant women experiencing health conditions such as gestational diabetes, placenta previa, placenta abruptio, ectopic pregnancies, and hypertension. I have observed an increase in the diagnosis of gestational diabetes among Saudi women over the last five years. Some of those women had difficulty controlling their blood glucose during their pregnancy because it was their first time experiencing diabetes and they had insufficient information regarding diabetes self-management.

I have also volunteered as a health promoter and an instructor at many workshops related to maternal and infant health. Some of the topics in these workshops included breastfeeding, gestational diabetes, morning sickness, and prenatal and postnatal care. This experience helped increase my awareness of the problems that can occur during pregnancy and how to deal with them.

My mother had GDM in her first pregnancy, and my oldest sister experienced GDM during her first and second pregnancy. Furthermore, many of my friends and relatives experienced GDM over the past four years so I really felt the need to learn more about what it is like for women who experience gestational diabetes in Saudi Arabia. I am therefore interested in exploring the lived experience of pregnant Saudi women who have gestational diabetes.

As a registered nurse, I believe it is important for Saudi health care providers, families, and communities to explore and understand women's lived experience with gestational diabetes in order to generate knowledge to inform the best care to meet their needs and to enhance diabetes prevention programs in Saudi Arabia.

References

- Alfadhli, E. M., Osman, E. N., Basri, T. H., Mansuri, N. S., Youssef, M. H., Assaaedi, S. A., & Aljohani, B. A. (2015). Gestational diabetes among Saudi women: Prevalence, risk factors and pregnancy outcomes. *Annals of Saudi Medicine*, *35*(3), 222-230. doi:10.5144/0256-4947.2015.222
- Al-Khalifah, R., Al-Subaihin, A., Al-Kharfi, T., Al-Alaiyan, S., & Alfaleh, K. M. (2012). Neonatal short-term outcomes of gestational diabetes mellitus in Saudi mothers: A retrospective cohort study. *Journal of Clinical Neonatology*, *1*(1), 29-33. doi: 10.4103/2249-4847.92241
- Almarzouki, A. A. (2012). Pregnancy outcome with controlled gestational diabetes: A single centre experience. *Pakistan Journal of Medical Sciences*, *28*(5), 887-890. doi: 10.12669/pjms.285.2699
- Al-Rubeaan, K., Al-Manaa, H., Khoja, T., Youssef, A., Al-Sharqawi, A., Siddiqui, K., & Ahmad, N. (2014). A community-based survey for different abnormal glucose metabolism among pregnant women in a random household study (SAUDI-DM). *BMJ Open*, *4*(8), e005906-e005906. doi: 10.1136/bmjopen-2014-005906
- American Diabetes Association. (2014). Diagnosis and classification of diabetes mellitus. *Diabetes Care*, *37* (Supplement 1), S81-S90. doi:10.2337/dc14-S081
- Ayaz, A., Saeed, S., Farooq, M. U., Bahoo, A., Luqman, M., & Hanif, K. (2009). Gestational diabetes mellitus diagnosed in different periods of gestation and neonatal outcome. *Dicle Medical Journal/Dicle Tip Dergisi*, *36*(4), 235-240.
- Bunt, J. C., Tataranni, P. A., & Salbe, A. D. (2005). Intrauterine exposure to diabetes is a determinant of hemoglobin A1c and systolic blood pressure in pima Indian children. *The*

Journal of Clinical Endocrinology & Metabolism, 90(6), 3225-3229. doi:10.1210/jc.2005-0007

Carolan, M. (2013). Women's experiences of gestational diabetes self-management: A qualitative study. *Midwifery*, 29(6), 637-645. doi: 10.1016/j.midw.2012.05.013

El Mallah, K. O., Narchi, H., Kulaylat, N. A., & Shaban, M. S. (1997). Gestational and pre-gestational diabetes: Comparison of maternal and fetal characteristics and outcome. *International Journal of Gynecology and Obstetrics*, 58(2), 203-209. doi:10.1016/S0020-7292(97)00084-2

Evans, M. K., Patrick, L. J., & Wellington, C. M. (2010). Health behaviours of postpartum women with a history of gestational diabetes. *Canadian Journal of Diabetes*, 34(3), 227-232. doi:10.1016/S1499-2671(10)43011-7

Ferrara, A. (2007). Increasing prevalence of gestational diabetes mellitus: A public health perspective. *Diabetes Care*, 30 (Supplement 2), S141-S146. doi:10.2337/dc07-s206

Gainor, R. E., Fitch, C., & Pollard, C. (2006). Maternal diabetes and perinatal outcomes in West Virginia Medicaid enrollees. *The West Virginia Medical Journal*, 102(1), 314-316.

Gasim, T. (2012). Gestational diabetes mellitus: Maternal and perinatal outcomes in 220 Saudi women. *Oman Medical Journal*, 27(2), 140-144. doi:10.5001/omj.2012.29

Galindo, A., Burguillo, A. G., Azriel, S., & de la Fuente, P. (2006). Outcome of fetuses in women with pregestational diabetes mellitus. *Journal of Perinatal Medicine*, 34(4), 323-331. doi: 10.1515/JPM.2006.062

HAPO Study Cooperative Research Group. (2008). Hyperglycemia and adverse pregnancy outcomes (HAPO). *New England Journal of Medicine*, 358(19), 1991–2002. doi: 10.1056/NEJMoa0707943

- Hjelm, K., Bard, K., Berntorp, K., & Apelqvist, J. (2009). Beliefs about health and illness postpartum in women born in Sweden and the Middle East. *Midwifery*, *25*(5), 564-575. doi:10.1016/j.midw.2007.08.007
- Hjelm, K., Bard, K., Nyberg, P., & Apelqvist, J. (2005). Swedish and Middle-Eastern-born women's beliefs about gestational diabetes. *Midwifery*, *21*(1), 44-60
doi:10.1016/j.midw.2004.09.004
- International Association of Diabetes and Pregnancy Study Groups Consensus Panel. (2010). International association of diabetes and pregnancy study groups recommendations on the diagnosis and classification of hyperglycemia in pregnancy. *Diabetes Care*, *33*(3), 676-682. doi:10.2337/dc09-1848
- Kim, C., Tabaei, B. P., Burke, R., McEwen, L. N., Lash, R. W., Johnson, S. L., & Herman, W. H. (2006). Missed opportunities for type 2 diabetes mellitus screening among women with a history of gestational diabetes mellitus. *American Journal of Public Health*, *96*(9), 1643-1648. doi:10.2105/AJPH.2005.065722
- Krishnaveni, G. V., Veena, S. R., Hill, J. C., Kehoe, S., Karat, S. C., & Fall, C. H. D. (2010). Intrauterine exposure to maternal diabetes is associated with higher adiposity and insulin resistance and clustering of cardiovascular risk markers in Indian children. *Diabetes Care*, *33*(2), 402-404. doi:10.2337/dc09-1393
- Nielsen, G. L., Møller, M., & Sørensen, H. T. (2006). HbA1c in early diabetic pregnancy and pregnancy outcomes. *Diabetes Care*, *29*(12), 2612-2616. doi: 10.2337/dc06-0914
- Razee, H., van der Ploeg, H. P., Blignault, I., Smith, B. J., Bauman, A. E., McLean, M., & Cheung, N. W. (2010). Beliefs, barriers, social support, and environmental influences related to diabetes risk behaviours among women with a history of gestational diabetes.

Health Promotion Journal of Australia, 21(2), 130-137. doi: 10.1071/HE10130

Reece, E. A. (2010). The fetal and maternal consequences of gestational diabetes mellitus.

Journal of Maternal-Fetal and Neonatal Medicine, 23(3), 199-203.

doi:10.3109/14767050903550659

Tam, W. H., Ma, R. C. W., Yang, X., Li, A. M., Ko, G. T. C., Kong, A. P. S., . . . Chan, J. C. N.

(2010). Glucose intolerance and cardio metabolic risk in adolescents exposed to maternal gestational diabetes: A 15-year follow-up study. *Diabetes Care*, 33(6), 1382-1384.

doi:10.2337/dc09-2343

Vohr, B. R., & Boney, C. M. (2008). Gestational diabetes: The forerunner for the development of maternal and childhood obesity and metabolic syndrome? *Journal of Maternal-Fetal and Neonatal Medicine*, 21(3), 149-157. doi: 10.1080/14767050801929430

Yuen, L., & Wong, V. W. (2015). Gestational diabetes mellitus: Challenges for different ethnic groups. *World Journal of Diabetes*, 6(8), 1024-1032. doi: 10.4239/wjd.v6.i8.1024

CHAPTER TWO: MANUSCRIPT

Introduction

Many physiological and psychological changes accompany pregnancy and for some women these changes can result in health issues that require medical interventions. Gestational diabetes mellitus (GDM) is a common metabolic complication attributed to 90% of diabetes mellitus cases in pregnancy (Soheilykhah et al., 2010) and affects approximately 7% of all pregnancies (American Diabetes Association, 2014). Gestational diabetes mellitus is defined as an abnormal glucose tolerance of variable severity with onset or first recognition during pregnancy and usually disappears immediately after delivery (American Diabetes Association, 2014; Kim et al., 2006).

Gestational diabetes mellitus has been increasing in Saudi Arabia, ranging from 12.5% of 818 pregnant Saudi women in 2000 (Ardawi et al., 2000) to 18.7% of 3041 pregnant Saudi women in 2013 (Wahabi, Esmail, Fayed, & Alzeidan, 2013). Women from Saudi Arabia have a high incidence of GDM, placing them at risk of adverse maternal outcomes (Alfadhli et al., 2015; El Mallah, Narchi, Kulaylat, & Shaban, 1997), such as caesarean delivery, preeclampsia, and premature delivery (HAPO Study Cooperative Research Group, 2008). GDM also affects infant outcomes such as shoulder dystocia, major fetal malformation, neonatal hypoglycemia, and hyperinsulinemia (HAPO Study Cooperative Research Group, 2008). Gestational diabetes mellitus has emerged as a significant issue among pregnant women in Saudi Arabia (Al-Rubeaan et al., 2014) yet little is known about what this experience is like for Saudi women and their families.

Literature Review

Databases used for the literature search included CINAHL, ProQuest PsycINFO, and the Nursing & Allied Health Database. The search was limited to articles meeting the following

inclusion criteria: (a) written in English; (b) peer reviewed; (c) authors used qualitative methodology for data collection and analysis to gain a comprehensive understanding about pregnant women's experiences of acquiring and living with GDM during pregnancy; (d) published between 2004 and 2016. This range was chosen to determine key research findings, identify gaps in the existing knowledge base regarding gestational diabetes, and to capture the most current literature on gestational diabetes. Key words used in the literature search included: "gestational diabetes", "qualitative studies", "phenomenology", "diabetes experience", "interpretative approach", and "pregnancy" and were also combined by using AND and OR to access relevant articles. From the databases searched, 240 studies were initially identified. Three stages were utilized to attain the final number of relevant articles. Searching multiple databases resulted in the retrieval of several duplicate citations reporting the same information. At the first stage, 128 duplicated articles were omitted to avoid repetitive and redundant publications and to ensure a reliable pool of studies for inclusion. At the next stage, the titles of 112 articles and their abstracts were reviewed to determine if they discussed women's experience with gestational diabetes. A further 75 articles were omitted as they were judged as unrelated to the study's focus. Finally, the full texts of remaining 37 articles meeting the inclusion criteria were reviewed, of which 14 articles were included in the literature review.

While there were no studies exploring the experiences of pregnant Saudi women experiencing GDM, several studies to date have provided some insight into the experiences of women with GDM among other cultural groups. An Australian study conducted by Bandyopadhyay et al. (2011) aimed to investigate the experiences of 17 South Asian women in Melbourne, Australia, after a diagnosis of GDM and to understand how they self-managed diabetes. The data was collected by face-to-face, in-depth interviews at two different time points,

following GDM diagnosis and at six weeks postpartum. Thematic analysis was used to identify patterns and themes. The identified themes were: “Response to GDM diagnosis and postpartum response to GTT findings”; “Difficulties experienced with dietary advice”; “Weight issues and exercise”; “Concerns for the baby”; “Achieving a ‘good reading’ and response to insulin”; “Positive effects on well-being and women’s views on care and information provision”; and “Maintaining changes”. The findings revealed that the women’s knowledge and awareness of diabetes were low before having GDM. The researchers therefore suggested that women be provided advice about appropriate strategies to minimize their risk of GDM at the beginning of pregnancy.

A similar study conducted in North Sweden by Persson, Winkvist, & Mogren (2010) utilized a grounded theory approach to focus on pregnant women’s experiences of living with GDM. Semi-structured interviews were conducted involving ten pregnant women with GDM, over two different periods; first interviews were in 1998-2000 and second interviews were in 2006 to further explore the experience and reach data saturation. The results revealed that the impact the diagnosis had on the women’s daily lives was demonstrated in the core category, ‘From stunned to gradual balance’, and nine sub-categories, “Struck by lightning”, “Having a personal responsibility”, “Being under surveillance”, “Struggling for protection”, “Feeling socially apart”, “Being sufficiently supported”, “Changing the self-image”, “Adapting to a new situation” and “Waiting for the ‘Moment of truth’ ”. The diagnosis of GDM was identified as an indicator of future diabetes and associated with a number of challenges and demands for the participants. Most women managed to create their own individual balance for coping with GDM within an expected time, but for some participants living with GDM involved a daily effort associated with

shortcomings and increased concerns. Women with experience of GDM in prior pregnancies showed an enhanced process of adaptation and finding a balance for each pregnancy.

Nolan, MaCrone, & Chertok (2011) explored the maternal experience of having diabetes during pregnancy in West Virginia, United States (US) using a phenomenological approach. Focus groups and individual telephone interviews were used to collect the data. Participants included eight women who had type 2 or GDM in at least one pregnancy. Content analysis revealed the following three themes: “Feeling concern for the infant related to diabetes”; “Feeling concern for self-related to diabetes in the future”; and “Sensing a loss of personal control over their health”. The study results gave voice to the women’s experience with and concerns about having diabetes in pregnancy and suggested identifying fears, demonstrating respect for the woman in her diabetes self-management, and providing adequate support and education to these women to promote positive lifestyle changes and improve care provider-women partnerships.

Another phenomenological study explored the lived experiences of women with GDM living in rural communities in western New York State (Abraham & Wilk, 2014). Semi-structured interviews were conducted with ten women aged 25 to 49 years with a history of GDM in the last five years. Thematic analysis resulted in five themes: “Authentic emotion”, “Judgment”, “It's only a matter of time”, “I can't do this alone”, and “Missed opportunities”. Strong emotions were expressed at the time of GDM diagnosis. Some women felt judged by healthcare providers and many expressed not being adequately informed about how to manage their diabetes. Some were worried about their future risk of developing type 2 diabetes. The results showed that women with GDM in rural communities needed more support, information and resources for successful diabetes self-management.

Carolan (2013) conducted a qualitative study to gain a deeper understanding of the diabetes self-management experiences of women with GDM. A total of 15 women with GDM, from Caucasian, Asian, South-Asian, Indian, and Arabic backgrounds, and who experienced diabetes self-care management, participated in semi-structured interviews and one focus group. The women's experience of GDM self-care management was revealed in four themes: "The shock of diagnosis", "Coming to terms with GDM", "Working it out/learning new strategies", and "Looking to the future". Adjustment to diabetes self-care management was underpinned by a fifth theme, "Having a supportive environment". The findings indicated that thinking about the baby was a strong motivator for women and supported the process of adaptation to a gestational diabetes self-management plan.

Several barriers to GDM self-care management have been identified in the literature. Collier et al. (2011) explored barriers to diabetes management among US women with a history of gestational diabetes in Atlanta, Georgia. Focus groups were conducted with 89 participants consisting of white, black, and Hispanic women who had pre-gestational diabetes (PGDM) or GDM during a recent pregnancy. Seven focus groups were conducted with women who had PGDM, and nine focus groups were held with women who had GDM. Financial issues, difficulties accessing care, challenges in maintaining a healthy diet and exercise regime, communication difficulties, lack of social support, and challenges related to diabetic care were identified by the women as main barriers to diabetes management during pregnancy. The findings indicated that women with GDM were aware of possible diabetes complications but often not knowledgeable about the impact of diabetes on their infants and themselves during and after pregnancy. In contrast, participants with PGDM were aware of risks associated with diabetes and expressed concern about the consequences of diabetes on their infants. Most women with PGDM knew the

significance of maintaining glycemic control during pregnancy. The women in the study confirmed their concern for the health of their infants was a powerful motivating factor to control their blood glucose levels.

Beliefs about illness and health among women with GDM have been explored in different sociocultural contexts. Parsons, Ismail, Amiel, and Forbes (2014) undertook a metasynthesis of 16 qualitative studies from 1990 to 2012 about perceptions of GDM among women with the illness. The study's aim was to gain an in-depth understanding of women's experiences of GDM, their diabetes risk perceptions, and their views on type 2 diabetes prevention. The researchers found that many women with GDM believed themselves to be at risk for type 2 diabetes, and experienced various emotions including fear, being upset, denial, shock, guilt, as well as loss of personal control while others believed GDM to be non-permanent and were unaware of any future risks. The findings also revealed some women lacked knowledge about diabetes and did not distinguish between types of diabetes, related morbidities, and disease management while others had awareness of GDM and associated morbidities. Family needs, emotional stress, and lack of time were reported as barriers to achieving a healthy lifestyle after delivery. The authors identified various factors to consider when developing a type 2 diabetes prevention program for this population: addressing the emotional impact of GDM, providing women with sufficient information about risk for future diabetes, and offering an intervention that fits with women's multiple roles.

A similar qualitative exploratory study completed by Ge, Wikby, & Rask (2016) explored beliefs about illness, health, and self-care behavior among women with GDM living in a rural area of south-east China. Semi-structured interviews were conducted with 17 pregnant women with GDM. The findings indicated that the beliefs about GDM among the women were different. Some

women felt fear regarding their diagnosis of diabetes and its negative consequences on the health of their baby, while others believed that GDM is not a chronic disease and even disbelieved their diagnosis. The researchers also highlighted that most of the women possessed no knowledge about the causes of GDM and had misunderstandings about diet control and self-monitoring of blood glucose, while a few women showed limited knowledge about hormones, insulin, and blood glucose. The women attributed illness and health to individual, social, and natural factors. The researchers suggested that training of health care providers through health education including individuals, families, and rural communities was needed to improve GDM care among these women.

Similarly, Ge et al. (2016) investigated beliefs about health and illness and health-related behaviors among 15 urban Chinese women with GDM, and found that some women worried about the negative consequences of GDM, whereas others believed in “letting nature take its course” and “living in the present”. Most of the women lacked adequate knowledge about GDM and they tried to balance between following professional advice and avoiding practical difficulties related to diabetes management. The women’s beliefs and health related behavior were affected by Chinese culture. Some cultural aspects were helpful to women in terms of controlling their blood glucose for their infants’ health, obtaining their family support, and decreasing their stress from GDM.

A qualitative study conducted in Sweden by Hjelm, Bard, Nyberg, & Apelqvist (2005) compared beliefs about health and illness between women with gestational diabetes born in Sweden and those born in the Middle East. A total of 27 pregnant women with GDM were recruited from a specialized diabetes clinic at a university hospital. Thirteen women were Swedish and 14 women were from the Middle East. The women born in Middle Eastern countries were originally from Iraq, Lebanon, and Iran. Semi-structured interviews were used to capture the women’s stories

of common health problems associated with a diabetic pregnancy. The Swedish women asked for urgent medical treatment and viewed a pregnancy with GDM as a disease, whereas women from the Middle East adapted to the disease and perceived pregnancy and its complications as a norm. The researchers suggested that assessing women's beliefs, risk awareness, and meeting their individual needs for information was vitally important.

Another Swedish study, managed in two different university hospitals and clinics, explored beliefs about health, illness and health care in women with GDM (Hjelm et al., 2008). The data were collected by semi-structured interviews and analyzed using content analysis. Thirteen women received care at a Swedish university hospital specialty diabetes clinic and had regular contact with a diabetologist and antenatal care provided by a midwife. Ten women attended a Swedish university hospital specialty maternity clinic, which provided regular contact with a midwife, a structured program for self-monitoring of blood glucose and insulin treatment, and a one-day diabetes class presented by an obstetrician, a diabetologist, a midwife and a dietician. The results showed that the women had different views about health and illness. The women monitored at a maternity clinic believed GDM to be a temporary condition during pregnancy, while women managed at a diabetes clinic reported being worried about their future risk of developing type 2 diabetes. The researchers concluded that health professionals and health care organizations influence the beliefs about health and illness among women with GDM. A similar study showed that African-born women living in Sweden believed that GDM was an illness with a low level of severity and that this belief was related to their limited knowledge (Hjelm, Berntop, & Apelqvist, 2012). A lower level of awareness and limited knowledge of gestational diabetes were previously revealed in Middle Eastern women with GDM, (Hjelm, Bard, Nyberg, & Apelqvist, 2005) compared with Swedish women.

A later study conducted by Hjelm, Bard, Berntorp, & Apelqvist (2009), to explore Swedish and Middle Eastern women's views of health and illness related to gestational diabetes found that both Swedish and Middle Eastern women, with previous GDM, held different beliefs about health and illness. For example, Middle Eastern women showed less knowledge and awareness of GDM, and expressed worries due to being in a diabetic state. This experience directed Middle Eastern women to seek help and advice from health-care providers to determine if GDM was present in the postpartum period. The Middle Eastern women also indicated tendencies to change their diet. However, Swedish-born women showed a high awareness with needed lifestyle changes, were knowledgeable about risks associated with GDM, such as risk for future development of type 2 diabetes, and sought more information from health providers to avoid developing diabetes.

Other studies have identified a number of factors influencing women's ability to follow a healthy lifestyle in the postpartum period and facilitating or hindering GDM self-management among pregnant women (Carolan, Gill, & Steele, 2012; Razee et al., 2010). A qualitative study conducted by Carolan, Gill, & Steele (2012) explored factors that facilitated or inhibited GDM self-management among Australian women. A total of 15 pregnant women with GDM, from a multi-ethnic population in the Western region of Melbourne, Australia, participated in semi-structured interviews and a focus group. Thematic analysis revealed barriers to GDM self-management, such as: time pressures, physical and social constraints, comprehension difficulties, and insulin as an easier option. Thinking about the baby and psychological support from partners and families were found to be facilitators to GDM self-management. The results suggest that women from low socio-economic and migrant backgrounds frequently struggle to understand

GDM self-management requirements. Educational and supportive services aimed to increase the literacy level among pregnant women were recommended.

One qualitative study exploring women's experiences and perceptions of GDM, was conducted in Australia by Razee et al. (2010). A total sample of 57 participants, which included Arabic (n = 20), Cantonese/Mandarin, (n = 20) and English speaking women (n = 17) with recent GDM, participated. In-depth interviews, narrative methods, and focus groups were used to collect the data. Findings revealed that women's experiences and beliefs of GDM, and their ability to maintain a healthy lifestyle were related to social support, cultural roles and beliefs, information needs, and psychological well-being.

The researchers found differences between the three ethnic groups. For example, the English and Cantonese/Mandarin speaking women emphasized having emotional support as particularly significant to maintaining a healthy lifestyle, while mental health and distress did not present as barriers to maintaining healthy lifestyles. In contrast, psychological distress was reported as a main barrier to being physically active and adhering to a healthy diet among the Arabic women participants. The Arabic women who were less educated reported that their ability to manage their GDM had been strongly affected by their state of psychological well-being and their information needs. Cultural expectations and roles such as being a responsible wife and a good mother was also reported by many of the Arabic participants as impacting diabetes self-care management. Support from family members and friends, and how it can affect women's ability to engage in healthy lifestyle choices, was a fundamental theme among Arabic participants. The study's findings emphasized the need for personal support, information, and lifestyle interventions among women with gestational diabetes and their families.

A limitation of Razee's et al. study is that the Arabic participants were from Lebanon and Iraq and may have had religious and social differences from other Arabic women. These differences are essential to take into consideration, as the results may not pertain to other Arabic speaking migrants, such as those from African countries. A further limitation is that the interviews with Arabic and Cantonese/Mandarin speaking women were conducted in their respective languages and then translated into English. Some of the content, meaning, and nuances might have been lost during translation.

Literature Review Summary

As indicated in the literature review, women's lived experiences, beliefs, and perceptions of GDM are influenced by cultural, social, psychological, and socio-demographic factors such as education, race, and ethnicity. The studies highlighted different beliefs about health and illness related to GDM among women with gestational diabetes. The literature also revealed several barriers and facilitators to diabetes self-care management among women with GDM, from different ethnic backgrounds. There has been little research to date to explore what having gestational diabetes is like for pregnant Saudi women and their families. To the best of our knowledge, there is no information on how a diabetic pregnancy is viewed by Saudi childbearing women. Given that there are exploratory studies of Middle Eastern women living in other countries, this study is unique as there are no known qualitative research studies conducted among pregnant Saudi women with GDM living in Saudi Arabia. Given the high prevalence of diabetes and GDM in Saudi Arabia, there is a need to explore gestational diabetes as experienced by Saudi women and to gain an in-depth understanding of what the experience means from the women's perspective. Insights into the lived experience of pregnant Saudi women diagnosed with GDM will help to identify what health care professional support is required, increase our understanding

of health needs of this group during pregnancy, and inform practices and policies oriented to ensuring necessary support for pregnant Saudi women with GDM.

Purpose Statement

The purpose of this phenomenological study was to explore pregnant Saudi women's lived experience of having GDM and to gain an in-depth understanding of the meaning of this experience from the perspective of the women.

Research Questions

The research questions were:

- 1) What is it like for pregnant Saudi women to experience gestational diabetes?
- 2) What meaning does gestational diabetes have for pregnant Saudi women?
- 3) What is helpful or not helpful to the women's diabetes self-care management?

Methodology

The purpose of this study supports a qualitative approach that focuses on human experience, subjectivity, and inter-subjectivity rather than objectivity. Qualitative methodologies are particularly useful to understand complex social processes and to describe a phenomenon from an individual perspective (Malterud, 2001). Phenomenology is a methodology (Creswell, 2003; Morse, 1991), or a philosophy with epistemological and ontological approaches that aim to gain an in-depth understanding of an individual's lived experience and provide rich descriptions regarding specific phenomenon (Polit & Beck, 2008; Van Manen, 1990). As Van Manen (1990) described, phenomenological research does not develop theory, it offers insight into reality and makes us closer to the living world. Phenomenology is an inductive qualitative research tradition that flourished in the 20th century by the German philosopher Edmund Husserl (Reiners, 2012),

and it can be divided into descriptive phenomenology developed by Edmund Husserl and interpretive-hermeneutic phenomenology created by Martin Heidegger (Connelly, 2010).

Descriptive phenomenology is utilized to gain true meanings through engaging in-depth into reality (Lavery, 2003; Lopez & Willis, 2004). Husserl is attributed with introducing the study of 'lived experience' or experiences within the 'life-world' (Koch, 1995). He aimed to establish a rigorous and unbiased approach that emerges to arrive at an important understanding of human consciousness and experience, which should be an object of scientific study (Fochtman, 2008; Lopez & Willis, 2004; Wojnar & Swanson, 2007). Husserl believed that in order to reveal the true essence of the 'lived experience' it was essential for any preconceived ideas to be put aside or bracketed (Stumpf & Fieser, 2008). Bracketing, a crucial element of Husserlian phenomenology, is a way to ensure validity of data collection and analysis and maintain the objectivity or "essence" of the phenomenon (Ahern, 1999; Speziale & Carpenter, 2007). The researcher would articulate personal biases, assumptions, and presuppositions and put them aside (Gearing, 2004) to keep what is already known about the description of the phenomenon separate from participants' description of the lived experience. The researchers avoid imposing their assumptions on the data collection process (Ahern, 1999; Gearing, 2004; Speziale & Carpenter, 2007). Husserl believed that bracketing helps to reach insight into the common characteristics of any lived experience. He described these features as universal essences and considered them to illustrate the true nature of the phenomenon under examination (Lopez & Willis, 2004; Wojnar & Swanson, 2007).

Heidegger, a student of Husserl, introduced some assumptions that may provide meaningful inquiry of the lived experience. Heidegger was interested in moving from description to interpretation of people's lived experience, and his ideas comprise the interpretive or hermeneutic phenomenology. Heidegger rejected bracketing and focused on deriving meaning

from being (Mulhall, 1993). Interpretative phenomenology includes not only description of the lived experience, but also looks for meanings embedded in common life practices. The aim of the hermeneutic phenomenological approach is to reflect upon the meaning of a person's experience of a phenomenon. Although descriptive phenomenology is an appropriate method to describe and understand the phenomena of one's experience (van Manen, 1990), interpretive phenomenology is concerned with the description and the interpretation and meaning of the lived experience (Langdrige, 2007; Lavery, 2003; Morse & Field, 1996). Heideggerian, or interpretative phenomenology, focuses on the use of language, the interpretation of a person's 'meaning-making', and their perceptions of meaning to phenomena, (Smith, Flowers, & Larkin, 2009).

An interpretative phenomenological design as described by Heidegger was used for this study to explore Saudi women's lived experience of having GDM while pregnant. Heideggerian hermeneutic phenomenology was considered more suitable than Husserlian phenomenology for the purpose of this study because it provides a means to uncover how pregnant Saudi women understand and make meaning of their lived experience with gestational diabetes. Descriptive phenomenology, as defined by Husserl, was considered not appropriate to use for this study since the meaning of pregnant women with gestational diabetes cannot be understood in isolation of the context where it occurs.

Methods

Setting

The study was conducted at Maternity and Children's Hospital in Jeddah, Kingdom of Saudi Arabia. This hospital was chosen as it offers services to pregnant women with gestational diabetes, thus research participants were readily available to the researcher. This hospital also provides

health services in medicine, surgery, pediatrics, gynecology and obstetrics to the community of Jeddah and surrounding area.

Sampling Strategy

A purposive sample was used to obtain rich descriptions of the women's pregnancy experiences and gain an in-depth understanding of living with gestational diabetes and its meaning from the perspective of pregnant Saudi women (Morse, 1991). Snowball sampling was also used to recruit participants as it allowed a targeted sample to be reached easily (Morse, 1991; Patton, 2002). Snowball sampling involved asking participants who were enrolled in the present study to inform other women with gestational diabetes who might be interested in the study. If these other women were interested in the study, they would contact the researcher directly.

In interpretive phenomenological studies, sample size is determined based on the quality of or the richness of themes or patterns of meaning emerging from the data (Van Manen, 1990). According to Morse (2000), the ideal sample size for generating rich descriptions and recurring patterns is between eight to 12 participants. Twelve women were invited to participate in this study and eight participants made up the final sample after determining, during data analysis, that eight was sufficient to address the research purpose. Eligibility criteria for participation in this study included being Saudi Arabian, currently pregnant, singleton pregnancy, first time diagnosed with GDM, aged 18 years or older, able to speak and read Arabic or English, and were willing to share and express their experience with gestational diabetes. Participants needed to be living in Jeddah because the study was conducted in that city. Women who had known fetal anomalies, additional pregnancy related complications such as preeclampsia, and non-Saudi women were not eligible to participate.

Recruitment

Initial recruitment was performed through the obstetric follow-up clinic, the diabetes clinic, and the obstetric unit at Maternity and Children's Hospital in Jeddah. The researcher initially contacted the managers of the obstetric unit and the diabetes clinic face-to-face and informed them about the study to gain their support and access to these places. Flyers were placed in various public places at the hospital such as waiting room areas, general follow up health clinics, and hospital entrance areas, as well as the diabetes clinic, the obstetric unit, and obstetric clinic. The flyers included the researcher's name and contact information, the goal of the study, and the participant eligibility criteria (Appendix A). A brochure including a brief explanation of the study, its aim, and the eligibility criteria was also given to health practitioners, including physicians and nurses, who work at the obstetric clinic, diabetes clinic, and obstetric unit and they were asked to distribute it to eligible participants (Appendix B). Women who were interested in participating were asked to contact the researcher directly by phone or email, for more information.

Participants enrolled in the study were asked to inform other women with gestational diabetes and who might also be interested in participating. Two participants were recruited by snowball sampling. When contacted by interested potential participants, the researcher introduced and explained more about the study, answered any questions they had, and determined their eligibility. If participants were still interested, the researcher arranged for a mutually agreed upon time and place to meet. A reminder telephone message or email was sent to participants one day before the agreed upon date of the interview. At this meeting, an information letter was provided to interested participants (Appendix C) and written informed consent was obtained (Appendix D). The final sample size of eight was determined by the researcher's judgment of the richness of the data whereby no new information was being revealed and the data was deemed sufficient to address the purpose of the study (Sandelwski, 1995).

Data collection

Data were collected using semi-structured interviews (Appendix E). This approach provided flexibility and helped participants to openly express their feelings and share their lived experience of having gestational diabetes (Polit & Beck, 2008). Open-ended questions are useful for researchers who want to gain an in-depth understanding of participants' feelings, perceptions, and understandings of a particular phenomenon. The interviews were conducted one-to-one in conversational style using probes, as necessary, to further understand the woman's storied experiences of GDM. A demographic questionnaire was also used to describe the sample (Appendix F). The interviews were digitally audio-recorded with permission of each participant. Digital recordings were anonymized and uploaded into a password-protected computer to ensure privacy.

Given that Arabic is the official language used in the Kingdom of Saudi Arabia, all written and verbal correspondence was provided in Arabic (Appendix G). The interviews were conducted in Arabic, as this was the first language of all participants. The audio-recorded interviews were transcribed verbatim in Arabic, upon their completion, by the researcher, and then translated to English by a professional translation service. The individual interviews were approximately 60 to 90 minutes in length. At the beginning of the interview, the researcher introduced herself and shared with the participants the reasons for conducting a study of gestational diabetes and answered any questions they had.

The interview began with an open general question, "Tell me a little about your experience of GDM" and continued with probes and follow up questions. Several verbal probes asking for clarification were used, such as, "Can you give me example?", "Can you explain more?", and "What do you mean by that?". Some verbal cues such as "oh", "that is right", "I got what you

mean”, ah”, and “I see” were also used when a conversation needed promoting. Following the interview, each participant was thanked for their time and interest.

Field notes were taken after each interview to capture a wide range of information from the participants and to ensure all important observations occurring during the interview, such as non-verbal behaviors, were documented (Patton, 2002). According to Cohen, Kahn, & Steeves (2000), field notes indicate "body language, tone of voice, environment distraction, the dress and demeanour of the participants, and the important symbols that are hanging on the walls or standing on tables and bookshelves" (Cohen, Kahn, & Steeves, 2000, p. 65). Non-lexical conversation sounds such as “um”, “hm”, and “uh” were included in the field notes. Silent periods, smiles, and facial expression were examples of some observed behaviors that were documented in the field notes immediately after the interview.

One to three weeks following the first interviews, a second interview was conducted with the participants over the telephone or in person to share the emerging themes with the participants and to reflect together on the meaning of themes. The initial themes were shared with five participants who were available for the second interview in person. The second interviews lasted approximately 20-30 minutes and provided the opportunity for member checking and allowed the researcher and the participants to reflect together on the emerging themes. The other three participants had no time for the second interview in person so they were contacted over the telephone and themes were also shared with them.

Data analysis

The purpose of data analysis in hermeneutic phenomenological research is to uncover themes and meanings in the storied experience of the participants. Van Manen (1997) suggests data analysis involves examining the text, reflecting on the content to explore something ‘telling’,

something ‘meaningful’ and something ‘perceptive’, and finding the main themes that comprise the experience and the language that capture the meaning of these themes. Data analysis and interpretation for this study followed Van Manen’s six steps for data analysis (Van Manen,1997): (1) exploring a phenomenon of interest; (2) exploring this experience as lived rather than as it is conceptualized; (3) reflecting on essential themes; (4) describing a phenomenon through the art of writing; (5) remaining orientated to the phenomenon, and (6) being mindful of the ‘parts and wholes’ of the research content.

Initially, each interview was transcribed verbatim in Arabic and uploaded to a secure computer by the researcher for data analysis. All audiotapes were listened to carefully many times in their entirety while simultaneously reading the transcripts to ensure completeness and accuracy. All transcribed interviews were translated to English by a professional translation service. Arabic and English transcripts were read to ensure the translation accuracy and to get a sense of what was being told.

The transcripts were analyzed line by line and then initial coding was conducted by highlighting key words, phrases and sentences that were repeated throughout each transcript and writing codes in the margins of the transcripts. These initial codes were then collapsed into common categories. These categories were generated by grouping similar codes together. The categories were then grouped together to create the final themes. Direct quotes from participants were used to illustrate the themes and to link them to the women’s stories (Elo & Kyngas, 2008). Together, the final themes revealed the Saudi women’s stories and their interpretations of their experience living with gestational diabetes mellitus.

Approaches for Creating Trustworthiness

To ensure the trustworthiness of this study, Lincoln and Guba's (2007) four criteria were used: credibility, transferability, dependability and conformability. These criteria ensure the rigor of qualitative findings (Guba, 1981; Schwandt, Lincoln, & Guba, 2007), and they are well established for assessing the quality and trustworthiness of qualitative research (Anney, 2014).

Credibility refers to the confidence and the believability of the research findings (Holloway & Wheeler, 2002; Macnee & McCabe, 2008). It is also defined as the extent to which the interpretations reflect the participants' lived experiences (Lincoln & Guba, 1985). Prolonged engagement with participants and persistent observation in the field, and the use of a semi-structured interview guide with open-ended questions encouraging open dialogue enabled the participants to provide rich descriptions of their experience of gestational diabetes. To establish credibility, the researcher engaged in in-depth conversations and observations with the participants during data collection. Member checking was used by presenting the participants with the preliminary themes to ensure the meaning of the women's experience of GDM was captured and interpreted correctly (Lincoln & Guba, 2007). Member checks mean "the data and interpretations are continuously tested as they are arising from the participants" (Guba, 1981, p.85), and it is part of the collaborative process of discussing findings with participants to ensure that the themes emerge from the informants (Manning, 1997). The emerging themes were shared with my supervisor to obtain feedback.

Reflexivity is important to enhance credibility, as it captures initial impressions gleaned from reading and rereading the transcripts and throughout data analysis (Laverty, 2003). Reflective journaling was used to document the researcher's feelings, thoughts, and comments while listening to the women's stories (Laverty, 2003). Field notes were written immediately after the interviews

on observations such as behaviors, laughter, silences, or changes in the tone of voice that were noted during the interviews.

Transferability refers to the degree to which the findings of qualitative research might resonate with others rather than being generalizable to similar settings. Van Manen describes resonance as the “ah hah” moment when transferring the results to a similar context with other respondents (Bitsch, 2005; Tobin & Begley, 2004). Providing a rich description is crucial in qualitative studies to ensure transferability. According to Bitsch (2005), some researchers facilitate the transferability by providing sufficient descriptions and using purposeful sampling. To ensure transferability of this qualitative study, thick descriptions of the women’s experiences with GDM, the results, data collection, and the context of the study, were provided (Guba, 1981). Transferability was made possible by using direct quotations to represent participants’ experiences and to illustrate the themes (Lincoln & Guba, 2007; Munhall, 2001).

Dependability ensures that the research process is consistent and could be repeated. Detailed accounts concerning methodology, data collection and analysis were maintained to achieve dependability. An audit trail of all methods and decisions made were maintained to allow other researchers to replicate the process if necessary (Lincoln & Guba, 2007). The audit trail allows readers to go through a researcher’s logic and decide whether the study’s findings may be relied upon as a plan for further inquiry (Carcary, 2009).

Confirmability means the degree to which the results of a study can be confirmed by other researchers (Baxter & Eyles, 1997). Confirmability of findings also refers to the data and outcomes correctly representing the information shared by participants (Elo et al., 2014). Researchers can use an audit trail and reflexive journal to establish confirmability of qualitative inquiry (Bowen, 2009; Koch, 2006; Lincoln & Guba, 1985). To ensure confirmability, reflective journaling was used after the interviews and throughout data analysis. Feelings and thoughts that occurred while

listening to the mother's stories were documented to capture initial impressions gleaned from reading and re-reading the transcripts (Laverty, 2003).

Ethics

Ethical approval for this study was obtained from the Western University's Research Ethics Board (Appendix H) and the Saudi Ministry of Health (Appendix I). Participation in this study was voluntary and the rights of the participants were protected by allowing them the opportunity to refuse to participate or withdraw from the study at any time, without penalty or impact on their perinatal or diabetes care. Participants were assured that they did not have to answer any questions that made them feel uncomfortable. A letter of information including study details, goals, benefits, and risks was provided to all participants. As well, written informed consent was obtained from the participants prior to the commencement of interviews.

To ensure privacy, all audio-taped materials were stored in a locked cabinet located in the researcher's office at home, and all electronic data were saved on a password-protected computer, only accessible by the researcher. The original consent forms were locked securely and separately from the data. To ensure anonymity, pseudonyms were substituted for the participants' names, and any information that participants provided was password-protected and encrypted. Participant identifiers were kept separate from the audiotapes and typed transcripts and will not be disclosed in any publication or presentation of findings. Audiotapes were erased once they were transcribed and the analysis was completed. Transcripts will be kept on file for five years, in accordance with policy per UWO HSREB (The Western University Health Science Research Ethics Board), and they will then be shredded and disposed of to protect confidentiality.

There were no anticipated risks associated with participating in this study. However, the discussion of the experience of gestational diabetes was distressful for some women. Participants were invited to stop and resume the interview at a later time if they felt stressed or discomfort.

Information about counselling services available in Saudi communities was also provided to participants in case they required additional support.

Results

Participants

All the women attended the same hospital in Jeddah for their perinatal and diabetes care. The participants' ages ranged from 27 to 44 years. All eight participants were married. Types of diabetes treatment the women received varied; five of whom followed diet only and three were on diet and insulin therapy. Two participants were interviewed in their first trimester, three of them were in their second trimester, and three women were in their third trimester. Five women were recently diagnosed with GDM and three of them were close to term. The demographic characteristics of participants are included in Table 1.

Table 1.

Demographic Characteristic of Participants

Women's pseudonyms	Age	Gestational age	Marital status	Level of education	Treatment type
1.Sawsan	37	6 weeks	Married	Bachelor's degree	Diet and insulin
2.Amani	37	11 weeks	Married	High school	Diet and insulin
3.Nawal	44	25 weeks	Married	No formal education	Diet and insulin
4.Norah	27	20 weeks	Married	Bachelor's degree	Diet only
5.Sama	38	35 weeks	Married	Bachelor's degree	Diet only
6.Hanan	28	29 weeks	Married	Bachelor's degree	Diet only
7.Ibtisam	34	18 weeks	Married	Intermediate education	Diet only
8.Mayar	38	32 weeks	Married	Bachelor's degree	Diet only

Themes

This study revealed Saudi women's stories about their initial experiences of being diagnosed with GDM and how they managed their diabetes during pregnancy. Most women reported being worried, shocked, and fearful when initially told they tested positive for gestational diabetes. All eight participants described facing the challenges of diabetes self-management, including having to learn and follow several strategies to maintain their blood glucose within a prescribed level within a short period. The women expressed a need for more information about how to manage diabetes and a supportive environment.

Although each woman's experience is recognized as unique, seven main themes were identified that together revealed common meanings about the GDM experience from the perspective of the women. These themes were: *Response to GDM Diagnosis, GDM Self-Management, Having Support, Facing Challenges, Lack of Knowledge, Concerns with Having GDM, and Need for Improved Awareness of GDM.*

Theme 1: Response to GDM Diagnosis

All the women expressed fear about having GDM and were particularly concerned for the well-being of their fetus and themselves. Different emotions were expressed when participants were first informed of their GDM diagnosis. Most participants reported concern about what gestational diabetes meant for themselves, their pregnancy, and their anticipated baby, with feelings of being “*anxious*”, “*upset*”, “*scared*”, and “*worried*” commonly stated. While some women were concerned about their future with diabetes, Hanan mentioned her constant fear for her unborn baby, “*I had terrible fear.... I was afraid that the baby will have malformations, or something bad will happen to him.... I had an abnormal fear because I feared for the fetus.*”

Similarly, Norah expressed being fearful for her fetus but not for herself, *“It was a shock to me, the fear... fear ...the fear of it. Initially, I was fearing for my fetus, and I was not fearing for myself.”*

Some women reported feeling shocked when they were told that they had GDM. Nawal shared, *“I was shocked, but it is like that a person will get a shock with things.....when a person gets shocked, it is normal, then, slowly will get used to. I was shocked, yes, I was shocked a little.”*

Sawsan also expressed ‘shock’ when first informed of her GDM diagnosis. She talked about her first impressions related to GDM diagnosis and stated that, *“My first reaction was oh gestational diabetes on my first pregnancy.... it was difficult, especially at the beginning of pregnancy. It was like a reaction of a person who wants to get pregnant without diabetes.”* For others the diagnosis elicited sadness and feelings of depression. Mayar shared, *“I felt sad that I reached this milestone. I was psychologically depressed.”* Hanan also commented, *“When I knew I had gestational diabetes, I was crying a lot..... I felt so depressed.”*

Theme 2: GDM Self-Management

Participants commented on developing routines and making new positive changes in their lifestyle behaviors to manage the diabetes, improve their health and to control their blood glucose. To achieve good glycemic control, all women stated that they needed to eat a healthy diet and avoid foods that contain sugars. Some participants mentioned that adjusting to their new situation was easy when they had adequate knowledge about gestational diabetes and had received sufficient support from health care providers, family members, partners, and friends. Following a diet was one strategy mentioned by all participants that effectively controlled their blood glucose levels and helped them to be healthy. Norah stated that, *“The diet has helped me tremendously, this is the most important strategy to be a healthy person to keep the glucose rate normal and not affect me.”*

Ibtesam also commented *“When I followed the diet, honestly, I was completely convinced that the diet is the best remedy, and it is better than taking drugs.”*

For some women, a common strategy to manage GDM included modifying their eating habits such as changing the number of meals, type of food, quantity of food, and meal times. Sawsan explained how her food habits changed after she was diagnosed with GDM.

If I want to make desserts, I reduce the amount of sugar. The same thing with drinks such as tea. I used to put two full spoons (of sugar) in a cup, but now I put only half a spoon. I used to open the refrigerator and eat anything available, but after I got the gestational diabetes, no...no... never. I cannot do that anymore and ... I consume beneficial things, vegetables, and fruits.

Similarly, Sama discussed adapting to the changes she made to her diet.

After having the diabetes, I started trying to adapt myself because I never was following a diet or a food style, and these things were never in my list. At the beginning, it was very difficult for me to do so. But after that, I adapted with it.

For Norah, being healthy was the best strategy to cope with GDM. She described being healthy in different ways such as eating a balanced diet, increasing physical activities, drinking water, regulating time between meals, and monitoring her blood glucose and plans to continue.

The strategy I followed which I will continue to follow, I mean, loving to be healthy. To be healthy in my eating, in my sleep, in my drinking, and in everything. I drink a lot of water. I try as much as I can to follow a healthier system.

Another strategy that some participants reported as helpful to diabetes management was supporting one's self to make necessary changes. Ibtesam believed that support and adaptation to having diabetes starts from within the person. She explains:

I started to support myself psychologically. I said, "I need to make a change"... I supported myself and I said, I have to make a change myself, and I do not need anyone to advise me or a doctor to advise me to follow a specific system. I should follow the system myself and I will treat myself.

Participants described using a glucometer to record their blood glucose levels as a helpful strategy to manage their diabetes as it allowed them to know previous blood glucose results, be aware of any changes, and control their blood glucose. In describing the glucometer, Nawal remarked:

The device is only for me, the readings are recorded.... It saved me a lot of time as well as my efforts. Using the recorded results is easy for me. It helped me to remember the last results and act based on them. For example, if the blood glucose is high, I use insulin injection. If I want to see the changes or improvements in my blood glucose results, I just take the device and see my results.

Other participants mentioned engaging in physical activity such as walking. Mayar stated, *"I become more interested in sports. I walk half an hour daily. The pregnant women should walk at least half an hour daily even inside the house."* Ibtesam also commented *"I insist on a full portion of walking, as it is necessary to burn sugar."*

Theme 3: Having Support

Having support from others helped the women manage their daily life, and enabled them to feel relaxed, cared for and in control of their diabetes management. The majority of women reported being well supported by family members, friends and partners. The women mentioned these individuals showed different supportive actions such as providing constant advice, accepting the diagnosis of diabetes, changing their lifestyle to adhere to the prescribed diet, minimizing

exposure to stress, and reducing demands on them. Nawal explained how her family, particularly her daughters supported her:

My daughters have also helped me.... They treated me like if I am their daughter.

They cook healthy food for me.....they bring fruits and vegetable and put them in front of me... they measure my blood glucose regularly.... Their help and support made me feel happy and comfortable.

Amani described the support she received from her friends and how they assisted her in diabetes self-management by adjusting their dietary habits:

My friends....treated me like if they are on diet like me as if they have diabetes.

They eat what I eat only....not offering anything I am prohibited from in order not to make me desire to eat it... they were helping me through reducing the amount of sugar in their meals.

Sawsan viewed the constant help from friends as a positive experience and made her feel comfortable, “*You know... made me (her friends) feel I am not different....made me not think of diabetes.... made me feel comfortable when I met them... made me think and care for myself.*”

Some women mentioned that their partner’s support affected them positively as it made it easier for them to cope and manage their GDM. In describing her husband Norah stated, “*The most important thing that made it easy for me is my husband's support and his continuous care....standing by my side and he is supporting me, and this is what made it normal for me.*”

Similarly Sama, in describing the support her husband provided, stated, “*My husband, he was standing by my side and helped me. He said, 'it is just a period and it will pass', he always advises and helps me keep away from sweets and such stuff.*”

Some participants did not have enough support and help from their friends and received negative comments related to GDM diagnosis from others. Hanan explained, *“My friends in the society told me about some bad experiences... I have not heard that there is a woman had gestational diabetes, gave birth normally, and her baby was good. All of which were negative experiences.”* Hanan described her experience with a lack of support from her friends and family members as frustrating. She further explained how family members were not helpful and made her feel scared. *“My family member were afraid... They did not help me. I feel that they scared me. "Do not drink, you have diabetes," "You have diabetes," "You have diabetes." I mean, I hear these words from them all the time.”*

Other women mentioned the informational support they received from health care professionals as valuable and helped to increase their awareness about diabetes. Norah highlighted the importance of this support, *“They taught me about diabetes... the doctor advised me to read some books about diabetes... they have been providing me with health education...”* However, other women reported not being well supported by health care providers during their GDM pregnancy. Hanan reported lack of support from the health care team, and she viewed the insufficient information provided and help by them as a negative experience. She explained:

Unfortunately, did not support me at all. There was no discussion, no dialogue. I did not feel comfortable until I went to a private hospital... You do not feel comfortable with it, and you do not feel that anyone has spent time to talk to you.

Theme 4: Facing Challenges

While the women explained having to cope with diabetes self-management, they described facing challenges to overcome many barriers. Immediately following the diagnosis, the participants described struggling to understand how they would cope with the new prescribed

dietary requirements that were considered as very restrictive. Other challenges reported by most women were difficulties dealing with insulin injections, food and social restrictions, and accepting the disease. Most women indicated that these challenges made them feel frustrated, anxious, stressed, and depressed. Nawal experienced depression having to follow a specific diet, *“I was depressed and I said, “How can I go back and follow diet.” When I feel depressed, everything in my life is affected.... My eating habits, sleeping, appetite, and my glucose rate.”*

Some women commented on challenges when following dietary advice while pregnant. For Mayar, being pregnant with diabetes made her feel different as all the people around her ate different kind of sweets, but she could not eat what she wanted due to her dietary restrictions. She described the difficulties adhering to dietary restrictions around special occasions such as weddings and Eid where food choices were unrestricted and eating is affected by social norms. Mayar exclaimed:

The most challenging I went through is the time. I mean the time of my pregnancy. The difficulties were in certain days such as Eid. I felt it was very difficult because the food pattern in Eid is totally different among Saudi community. As you know our Eid all sweets....I felt that going to the weddings and events was very difficult due to their eating habits and pattern.

Norah explained the difficulty in accepting the diagnosis of GDM, particularly after the diagnosis was confirmed. She described, *“The most difficult thing is accepting the situation itself. I mean “my gestational diabetes.”* However, Amani revealed that she struggled with advice she was received from health care providers because it was given as an demand on what to do: *“I faced a difficulty, I could not deal with the advice that were given to me. At the beginning, the advice*

was like orders... you know we were not used to taking orders.” With time she gained the knowledge and learned new strategies to manage her GDM, and she could cope better.

Women also discussed their experiences with other aspects of diabetes self-management, especially insulin administration. Participants who required insulin described the challenges or frustration that they encountered with insulin management. For Amani, difficulties with insulin injection included learning how to inject, timing of injections and dealing with needles. She experienced obsessiveness and overthinking about the need for insulin and considered it as a radical change in her life. Amani pointed out how she faced this challenge:

You must take insulin at specific times. My difficulty was with insulin. To know how to use the insulin and how to inject as well as it is something new. I learn how to inject myself. To deal with the needles four to five times a day before and after eating, high and low rate, mixed and turbid medications with the proper dosage. Something is totally new.

Sawsan also faced challenges with insulin administration due to lack of awareness about insulin management and its use which made her fearful and wondering, *“Will I continue taking the insulin after delivery? Should I stop it anytime I want? What will occur if I do not use it?...I did not know how to deal with such medications.”* For Nawal, achieving and maintaining normal blood glucose level control was difficult. She described her frustration associated with her blood glucose results, *“I am following diet and continuing the insulin injection...until today the glucose rate is high, it is 300 mg/dl....The glucose rate is the same..”*

Theme 5: Lack of Knowledge

Lack of knowledge of GDM was a prevalent issue reported by most women. Sama reported her lack of knowledge on diabetes and that the information provided was insufficient and not helpful.

Unfortunately, the information was not enough.... Unfortunately, I did not feel I had got enough information....I did not find anyone who advised me or provided me with the information that I feel would have been very helpful....family members do not have enough information.

Others pointed out having “no background”, “awareness” or “knowledge” about gestational diabetes. Sama described her poor knowledge and information about GDM, “I only hear about gestational diabetes ... I do not know what gestational diabetes is. If I had not gone through this experience, I would never have had any background about it.” Amani commented, “I had no background on gestational diabetes because we had no knowledge..... no awareness. If we had awareness, a woman who has diabetes symptoms would know that she is prone to gestational diabetes”

Women reported the lack of knowledge motivated them to seek information from various sources, such as health care providers, friends, family members, books, and the internet. Norah described seeking information about GDM from health care providers and on her own through reading from books:

They (health providers) educated me in this topic. Umm.... I mean, they taught me about diabetes... the doctor advised me to read some books about diabetes... when I read, knew and heard from many people, I knew that if I had dealt with it correctly...I mean, things like that besides the assistance of the doctor.

Sama described how she tried to gain necessary information about GDM on her own through Internet, *“I was relying on myself; I was browsing the internet and asking the people around me. But unfortunately, I did not feel I had got enough information.”*

Theme 6: Concerns with Having GDM

All participants expressed concerns about developing complications related to GDM. The majority of participants worried about the potential adverse effects of GDM on themselves such as preterm birth, cesarean delivery, eclampsia, having a large baby, and developing diabetes after delivery. Norah was concerned about complications during the pregnancy, labor and delivery and permanently having diabetes, *“I was afraid that my disease would continue. It is going to continue after pregnancy...I may be forced to give birth early, Allah forbid, premature delivery. I may have eclampsia.”* Many women were fearful of developing diabetes in the future. Sama exclaimed, *“The diabetes may continue with the mother after birth. This has been the most frightening thing to me.”* Ibtesam was also concerned about developing diabetes and experiencing obstetric complications. She stated, *“I was afraid of that it may continue after pregnancy.... gestational diabetes may lead to death or lead to premature birth or caesarian section.”* Hanan commented, *I always hear that" the baby will be big, the pregnant with gestational diabetes always gives birth through a caesarean section" ...I had terrible fear.”*

Theme 7: Need for Improved Awareness of GDM

Most women mentioned that a heightened awareness of GDM among pregnant women could assist them with diabetes self-management and to move forward. Norah described the need to inform pregnant women about gestational diabetes as well as promote the health of women with GDM, *“I want a policy maker to provide health education and promotion for pregnant women with gestational diabetes and to raise awareness or educate women about it.”*

Some women mentioned beneficial ways to enhance awareness of GDM among pregnant women, improve the knowledge about the associated risks, and potentially minimize the prevalence of GDM in Saudi Arabia. Sama suggested:

Hospital education courses can be conducted for pregnant women.... These sessions will be about the causes of gestational diabetes, its impact on the pregnant woman and on her fetus how to deal with it, and the appropriate food and exercise.... I mean healthy food for pregnant women.

Other women mentioned there was a need for more educational resources such pamphlets and awareness programs about gestational diabetes being available in hospital settings. Ibtesam suggested, *“The most important things are pamphlets and raising the awareness by the doctor himself. I hope they conduct awareness programs in hospitals...in halls... and in conferences about the risks of this disease from time to time.”* Amani commented on the need for more health promotion strategies in hospitals, schools and other public places to increase general awareness about diabetes among the Saudi population.

I wish we had health promotion..... health promotion to be given in hospitals, public places, and schools about diabetes, about gestational diabetes, and be in a way that is not intimidating. By doing so, the awareness level will be increased. I hope that there are more studies, more information, more explanations, and more pamphlets distributed among patient and people.

Women mentioned that there was a need for more diabetes specialists and clinics specialized in gestational diabetes in the Saudi health care system. Mayar emphasized the need for diabetes specialists, *“There must be a diabetes specialist, and you know there were no specialists*

for diabetics. There must be diabetes specialists because diabetes is a common disease in our society.”

Discussion

The women's stories have provided significant and helpful insights into the experiences of Saudi women with GDM in Jeddah and what this experience meant for them. Although women expressed various emotions regarding their diagnosis of GDM, they all experienced fear. Feelings of shock, anxiety, and stress were also commonly described by most women. Many women were concerned about what impact GDM would have on their fetus and their future life. Facilitators to managing GDM included constant support from family members, friends, partners, and health care providers, and health education about GDM provided by health care professionals.

Consistent with studies on women's experiences of GDM diagnosis in other population groups (Bandyopadhyay et al., 2011; Carolan, 2013), Saudi Arabian women in the current study experienced fear, shock, anxiety, and depression when informed of their GDM diagnosis. Previous research indicates women with GDM are anxious about the well-being of the fetus, the pregnancy outcome, and their future health (Costi, Lockwood, Munn, & Jordan, 2014). Stress and anxiety associated with GDM have been discussed in the literature. Findings reported in a study done by Hui, Sevenhuysen, Harvey, & Salamon (2014), found that women with GDM expressed stress related to their GDM diagnosis and anxiety related to the fear of maternal and infant complications. Women's experiences with GDM have shown to involve emotional distress and lack of control related to being unable to achieve glycemic control, difficulties experienced with dietary management, and insulin injection (Pluess, Bolten, Pirke, & Hellhammer, 2010; Lawson & Rajaram, 1994). The current study findings concur with previous research indicating that women with GDM experienced a high level of anxiety at the time of their diagnosis, but this feeling may

be temporary (Daniells et al., 2003; Hui, Sevenhuysen, Harvey, & Salamon, 2014; Lawson & Rajaram, 1994).

Barriers to GDM self-management expressed by the women in this study included difficulties with dietary regime and adjusting to the disease itself. Some women found accepting the disease and making the required changes to their diets difficult. For the women needing insulin, dealing with insulin injections was seen as a major difficulty. Some women experienced struggles with social restrictions that prevented them from eating foods that were norms, particularly during special occasions. These unique barriers to diabetes management were different from previous research whereby white, black, and Hispanic women who had GDM during a recent pregnancy identified costs, difficulties accessing care, barriers to maintaining exercise, and communication as creating difficulties for them to self-manage their diabetes (Collier et al., 2011). Additionally, it has been shown that resignation toward the diagnosis of GDM, limited self-efficacy, and lack of understanding of the consequences of GDM are more likely to result in poor adherence to GDM self-management (Clark, 2013). Barriers to accessing and paying for healthcare, medical supplies, and healthy food, difficulties accessing care, barriers to maintaining exercising, and trouble communicating with their healthcare providers were not reported in this study. Again, these differences could be due to different sampling, cultural, dietary, social, and ethnic factors, as ethnicity plays a significant role in affecting women's behaviors towards managing GDM.

Saudi women, in the current study, adapted gradually to their GDM management through learning and following new strategies to cope. In a similar qualitative study, women with gestational diabetes were reported to effectively engage in GDM self-management after developing specific strategies to control their blood sugar within a short time (Carolan-Olah, Gill, & Steel, 2013). Women from different ethnic backgrounds, such as Caucasian, Asian, South Asian,

Indian, and Arabic with GDM were involved in that study. Strategies used by most women to maintain their blood glucose at recommended levels were learning about food values, identifying foods that contain high levels of sugar and cause an elevation in blood sugar level, exercising, drinking water, and taking food to work (Carolan-Olah, Gill, & Steel, 2013). In the current study, adjustments to GDM self-management and to a new lifestyle were facilitated by implementing a number of strategies. The most useful strategies in controlling women's blood glucose were following the prescribed diet, changing eating habits and avoiding unhealthy food. Making dietary changes assisted the woman in controlling their blood glucose level and promoting better health for themselves and their infants.

Another vitally important strategy was making positive changes in exercise, particularly walking as it helped women in reducing the level of blood glucose and managing their GDM effectively. Both women in the previous and the current study tried to cope with GDM self-management through following several strategies. Exercise was a similar strategy in both studies while other strategies such as learning about food value, taking food to work, and drinking water were not widely used strategies in the current study. These differences in strategies for diabetes self-management could be due to sample and recruitment differences. Participants in Carolan-Olah, Gill, & Steel's study (2013) were not residing in Saudi Arabia and were recruited after they had a minimum of three-weeks experience of self-managing their condition and received GDM education, whereas most participants in the current study were newly diagnosed and had not received a lot of education. Therefore, the experience of a newly diagnosed woman might be quite different from one who has had time to adjust to their diagnosis.

Receiving informational support from health care professionals was mentioned by the women as important for raising awareness of GDM. The significance of health care providers in

providing information, increasing awareness, and supporting the women with GDM has been mentioned in the literature. Morrison, Lowe, & Collins (2014) found that most women commended obstetricians and diabetes health providers for the intense education and support provided to them, whereas others did not feel well supported by health care personnel during their GDM pregnancy. Similar to the findings of Morrison, Lowe, & Collins (2014) some women in the current study reported that the lack of information from health care providers caused frustration for them.

The majority of women found social support from family members, friends, and partners most helpful and considered this support as a facilitating factor in diabetes self-care management. Provision of information and emotional support have been identified in previous research on women with GDM (Levy-Shiff, Lerman, Har-Even, & Hod, 2002; Morrison, Lowe, & Collins, 2014). The study results indicate that support from family members and partners was considered more important than that received from health care providers. Another study indicates that health provider support identified as more significant (Morrison, Lowe, & Collins, 2014). This difference regarding support could be due to ethnic and cultural factors as Saudi Arabian families within the culture are collectivistic and responsible for the patients (Wehbe-Alamah, 2008; Younge, Moreau, Ezzat, & Gray, 1997). This is very different from the individualism that permeates through other cultures. Culturally, patients going through health struggles must be supported by family members and partners in Saudi society. Other differences could also be due to the questions posed to the participants, as this study had particular questions about the support from family members and friends. However, Morrison, Lowe, & Collins's study (2014) focused on information regarding GDM management, lifestyle-related risk factors, family and medical history, postpartum follow-up, physical activity, and diet quality.

Participants reported having very limited knowledge and information about GDM prior to being diagnosed and were motivated to seek information from several different sources including health care providers, books, the internet, and friends. Most of the women felt they needed more information about GDM, and its risks on the health of pregnant women and their fetus. They wanted to increase their awareness about the disease to adapt to the diagnosis and to effectively manage their diabetes. Others expressed the need for further education and support, particularly from health care professionals. All participants identified the need for increasing awareness about GDM in Saudi society in general.

The awareness of gestational diabetes among pregnant women in different societies has been investigated in the literature. A study conducted by Price, Lock, Archer, & Ahmed (2017) investigated the awareness of GDM and its risk factors among pregnant women in Samoa while Shriram, Rani, Sathiyasekaran, & Mahadevan (2013) determined the awareness of GDM among antenatal women in a primary health center in South India. Most women in Samoa were not aware of what GDM is and a very small proportion had knowledge about it (Price, Lock, Archer, & Ahmed, 2017), similar to the findings in the current study. However, a greater proportion of women in South India had high awareness about the conditions of GDM and its complications, time of diagnosis of GDM, diet, and exercise as a treatment option for GDM (Shriram, Rani, Sathiyasekaran, & Mahadevan, 2013). A recent Arabic study was conducted by Elmekresh et al. (2017) in a Sharjah community to assess the awareness of GDM among women in the childbearing age. The findings showed that a large proportion of the women (73.5%) were aware of GDM, and awareness was higher among married women and those who had a previous pregnancy or GDM. Similarly, results from an Indian study indicated that women with a history of GDM were knowledgeable about GDM and its related risk factors (Elamurugan & Arounassalame, 2016).

Pakistani women also showed they were knowledgeable about GDM, its associated risks, and progress of disease (Khalid, Shaheen, & Javed, 2015). Findings of previous research are in contrast to the present study where most women reported limited knowledge about GDM and expressed their need for better awareness about GDM, its risks and complications. More specifically, these differences in knowledge about diabetes among Saudi women could be due to limited integration of GDM and associated risk factors in routine health-care education programs organized for Saudi women and their knowledge of health care providers.

Most women highlighted the need for GDM awareness among themselves and the general public. The possible reason of having not much awareness about pregnancy and diabetes among this group is that Saudi Arabia's maternal health policy extensively focuses on reproductive health care and has a comprehensive maternal care program that provides complete health care to mothers, covering prenatal through postnatal needs (Shaw et al., 2018), but health education, awareness and promotion related to gestational diabetes were not included or mentioned in that program. It is therefore necessary, in a health care context, to include, strengthen, and improve awareness about GDM and its consequences on maternal and fetal outcomes among pregnant Saudi women.

Education is significant for raising awareness of GDM and its risk factors among pregnant women and their families and establishing health programs focused on decreasing the prevalence of type 2 diabetes (Price, Lock, Archer, & Ahmed, 2017; Shriram, Rani, Sathiyasekaran, & Mahadevan, 2013). Cultural norms with regard to diet in Saudi society cause unique challenges to diabetes self-management not noted in non-Saudi populations. The importance of having family support was a point that most women raised, which is evident in some of the previous work, but

the significance in Saudi society is the role of family when someone is dealing with a health condition.

Implications for Nursing Practice, Nursing Education, and Future Research

The findings from this research study have implications for future nursing practice, education and research in Saudi Arabia. Nurses are in a unique position to offer support to pregnant women to cope with and manage GDM. Acknowledging the various emotions women experienced at the time of diagnosis and while managing diabetes, health care professionals can begin to understand how pregnant Saudi women feel and reflect upon their current provision of care. Most participants in this study identified lack of knowledge and awareness about GDM and expressed the need for educational programs or sessions that will provide them with detailed information about GDM, ways to manage it, and strategies to cope with it. Some health providers did not always provide the women with enough information on gestational diabetes and its management. The results raised issue of the need for better awareness of GDM among pregnant Saudi women and their families, as well as the general public. Thus, diabetes educators, nurses, and doctors need to be informed that pregnant Saudi women want to learn more about GDM.

To address the lack of knowledge women have about GDM, nurses can develop educational materials about GDM, present sessions about GDM at the diabetes clinic for all pregnant women, and suggest effective strategies to cope with GDM and reduce the negative feelings, particularly the fear of diabetes and its impact on their fetus. Nurses working with women who have GDM can help reduce negative consequences by identifying and removing barriers to GDM self-management and good glycemic control. For example, nurses can encourage and educate childbearing women on how to follow a healthy diet, engage in regular physical exercise, and create online forums for discussions about how to implement and sustain these health

promoting behaviors. Nurses play a crucial role in caring for and supporting pregnant women and their families during pregnancy, and helping them to understand how to manage GDM effectively by teaching them about the disease, importance of nutrition, blood glucose monitoring, and how to recognize signs of complications.

Educating pregnant women about GDM and its management needs further promotion. Nurses should include information about GDM in prenatal education programs to help women understand the disease, its risk factors, and complications that may affect their well-being and their baby's health. Diabetes self-management education (DSME) should be provided by nurses to all pregnant Saudi women with GDM to assist them in promoting optimal perinatal outcomes, avoiding diabetes complications, and preventing diabetes in the future. The positive effects of DSME have been shown among other populations. Adults with type 2 diabetes who received DSME showed improvement in glycemic control (Deakin, McShane, Cade, & Williams, 2005). Diabetes self-management education is also reported to improve quality of life, (Cooke et al., 2013; Deakin, McShane, Cade, & Williams, 2005) facilitate healthy eating, increase regular physical activity, (Toobert et al., 2011) enhance coping, (Thorpe et al., 2013) and reduce diabetes-related distress (Fisher et al., 2013; Siminerio, Ruppert, Huber, & Toledo, 2014) and depression (De Groot et al., 2012; Hermanns et al., 2015).

The results indicate the importance of family support for pregnant women with GDM. The significance of providing sufficient support and education, based on the culture for the mothers with GDM and their family members, has been identified in the literature (Emamgoli et al., 2016). Enhancing family support for pregnant women with GDM is important since this is the context in which the majority of diabetes self-care management occurs. Nurses may need to place greater emphasis on targeting family members' communication skills and teaching them positive ways to

promote GDM self-management with their pregnant family members. Nurses can also include family members in diabetes educational interventions and offer emotional support, as these strategies can help to develop healthy family behaviors and encourage diabetes self-management (Hu, Wallace, McCoy, & Amirehsani, 2014).

The study findings should be taken into account when tailoring public awareness campaigns related to GDM and when approaching pregnant women at risk for developing diabetes. There is need for more awareness about GDM among the general public in Saudi Arabia. An awareness campaign is a strategy to educate the public about GDM and inform them of the causes, symptoms, complications of diabetes associated with GDM, blood glucose monitoring, and GDM self-management and intervention. Awareness campaigns of GDM in Saudi society can be enhanced through a comprehensive outreach campaign that includes social media and viral messaging, which are needed to effectively increase public awareness and promote bystander action in the face of GDM. Further, much effort could be devoted by nurses, health educators, and public health to raise awareness and highlight the message that every pregnant woman with GDM deserves the best quality of awareness, care, and prevention that is available to them.

Most women mentioned walking as a useful strategy to manage and control their blood glucose. One of the best treatment strategies to control blood glucose in women with GDM is exercise, (Padayachee & Coombes, 2015) which may reduce or delay the need for insulin (Bung & Artal, 1996; Prather, Spitznagle, & Hunt, 2012). Developing guidelines for exercise during pregnancy can be implemented in Saudi Arabia to increase activity levels among pregnant women with GDM as well as those known to be at risk for developing diabetes. The guidelines could include a variety of exercises ranging from low exerting forces to high exerting forces that are safe for both mother and infant. Some forms of exercise, that could be taught and practiced during

pregnancy, include, recreational activities, yoga, resistance strength training, and aerobic exercise such as walking, jogging, aerobic dance, swimming, and hydrotherapy aerobics. The positive effects and benefits of physical activities for mothers and their fetuses have been reported (Benelam, 2011; Melzer, Schutz, Boulvain, & Kayser, 2010).

Pregnant women who routinely exercise have more positive pregnancy outcomes and fewer negative adverse events (Kramer, 2003). For example, one study showed that women who used resistance band exercise training had improved glucose control (De Barros et al., 2010), and another suggested that aerobic exercise can decrease blood glucose levels in individuals with hyperglycemia (Colberg et al., 2010). Recreational physical activity has also been demonstrated to enhance general well-being and pregnancy outcomes, maternal mood, and mental health (Pivarnik et al., 2006). Exercise during pregnancy is also associated with decreased risk of excessive gestational weight gain (Pivarnik et al., 2006). There are practice guidelines for physical activity during pregnancy providing recommendations for health care providers to whether to prescribe physical activity and in what manner (Evenson et al., 2014). The guidelines reveal that pregnant women may need further precaution and should seek medical advice before attempting to achieve the recommendations. American Physical Activity Guidelines provides information on the benefits of physical activity specific to many populations (United States, Department of Health and Human Services, 2008). It gives more detailed recommendations for pregnant women including at least 150 minutes of moderate intensity aerobic activity, such as brisk walking per week (United States, Department of Health and Human Services, 2008) as a complete body workout that is straightforward on the joints and muscles during pregnancy as well as being an excellent workout postpartum (American College of Obstetricians and Gynecologists, 2003). Nurses can enhance pregnant women's understanding and use of pregnancy-related physical

activity guidelines and encourage healthy pregnant women to incorporate moderate exercise such as brisk walking.

Facilitating maternal social support where Saudi women have a chance to share their experiences and concerns of GDM with others helps to reduce some of the stress, anxiety, and fear of diabetes. Studies have suggested that the perception of maternal social support before and during pregnancy could have a positive effect on health by reducing anxiety and stress, and enhancing coping abilities (Iranzad et al., 2014). Strategies that provide opportunities for pregnant women to talk with a supportive peer or to connect with peers who have experienced or are experiencing GDM, can help them learn from each other and to more effectively cope with their worries and concerns. Finally, encouraging women to share their experiences with other sources of support, such as partners, health care professionals, family members, and friends, can also be beneficial in coping with GDM.

The findings of this study can be utilized to inform nursing education by raising awareness about the significance of including GDM as a crucial health issue among pregnant women in Saudi Arabia. Nurses must have a comprehensive understanding about GDM and its risks on the health of pregnant women and their fetuses to develop the required skills for identifying pregnant women with GDM and providing effective care. Integration of GDM in nursing curriculums needs to be implemented. Nurse educators could develop structured teaching plans that include GDM self-management, causes, symptoms, and associated complications to guide nursing students in teaching pregnant women with GDM and preparing them for diabetes self-care. These strategies could help nurses to be more informed and eager to take a leap forward in the direction of addressing GDM in the healthcare settings.

Uncovering barriers and facilitators to the effective self-management of GDM, by pregnant Saudi women and their family members, can assist nurses and other health care personnel to develop effective strategies to help these women and their families find appropriate resources to enhance their health. Further research is needed to explore what educational strategies would be most effective in helping pregnant Saudi women maintain a healthy lifestyle following their experience with GDM, to prevent type 2 diabetes. Further research on the lived experience and awareness of GDM among Saudi women living in different geographical regions, rural and urban, in Saudi Arabia would be beneficial. Additional knowledge regarding GDM in Saudi Arabia can guide and inform health care providers and policy makers to support these women and address the challenges women encountered in the delivery of care and education for Saudi women with GDM. More research is needed to explore the association between depressive symptoms and gestational diabetes in light of the findings that women expressed feeling sad and depressed when diagnosed.

The women in this study reported that family and partner support played a major role in their diabetes management. Further study is needed to determine how family member and partner support can be enhanced. It would also be important to understand the value of social support for pregnant women, particularly from family members and partners, and to identify the knowledge and needs they have regarding gestational diabetes and its management.

Strengths of the Study

This is the first qualitative study, to our knowledge, that explored pregnant women's lived experience of having gestational diabetes in Saudi Arabia. The study findings can help guide areas where healthcare promotion should be targeted in Saudi Arabia to address the increasing prevalence of diabetes and specifically gestational diabetes. The interviews were conducted in the participants' language (Arabic) by an Arabic speaker (the researcher), which enabled the eliciting

of rich, in-depth personal stories from these pregnant women about their experience of gestational diabetes. The sample included pregnant women with varied educational levels. Furthermore, using face-to-face interviews in a private room at a hospital and at participants' homes helped to build trust between the researcher and participants.

Limitations of the study

Since this study was limited to Saudi Arabian women living in Jeddah, an urban setting, the results might be different for women residing in a rural setting. The results are not directly transferable to other populations of Saudi women (Miles & Huberman, 1984). A further limitation is that using a translation process may have resulted in an inaccurate understanding of the women's intent of their stories, in spite of the care taken to ensure accuracy in the translation process. It is probable that some of the content and meaning could have been lost during translation.

Summary

Understanding Saudi women's lived experiences of GDM is a beginning step that provides further insight into their situation. Overall, the findings concur with other studies that identified issues such as negative emotions at the initial diagnosis of GDM, coping and challenges to GDM self-management, and concerns about the impact GDM has on women's fetuses and their future. Although a number of challenges to cope with GDM self-management were discovered, most women adapted easily to their diabetes, changed their diet, and learned new management strategies to control their blood glucose. The findings indicated the importance of family support for pregnant Saudi women with GDM and raised the need for better awareness of GDM among these women, their families and the general public. The challenges regarding diabetes self-management identified by pregnant Saudi women with GDM can be significantly minimized. Effective changes in government policies to educate pregnant women and their families, health providers, and the

general public about GDM, will help to raise awareness of GDM in Saudi society. These findings are presented for nursing practice, research, and education, and can be used by health care professionals in clinical settings to reduce complications associated with GDM, and improve the care provided to these women.

References

- Abraham, K., & Wilk, N. (2014). Living with gestational diabetes in a rural community. *The American Journal of Maternal/Child Nursing, 39*(4), 239-245.
doi:10.1097/NMC.0000000000000047
- Ahern, K. J. (1999). Ten tips for reflexive bracketing. *Qualitative Health Research, 9*(3), 407-411. doi:10.1177/104973239900900309
- Alfadhli, E. M., Osman, E. N., Basri, T. H., Mansuri, N. S., Youssef, M. H., Assaedi, S., & Aljohani, B. A. (2015). Gestational diabetes among Saudi women: Prevalence, risk factors and pregnancy outcomes. *Annals of Saudi Medicine, 35*(3), 222-230.
doi:10.5144/0256-4947.2015.222
- Al-Rubeaan, K., Al-Manaa, H., Khoja, T., Youssef, A., Al-Sharqawi, A., Siddiqui, K., & Ahmad, N. (2014). A community-based survey for different abnormal glucose metabolism among pregnant women in a random household study (SAUDI-DM). *BMJ Open, 4*(8), e005906. doi: 10.1136/bmjopen-2014-005906
- American College of Obstetricians and Gynecologists. (2003). Exercise During Pregnancy (Patient Education Pamphlet AP119). *Atlanta, GA: American College of Obstetricians and Gynecologists.*
- American Diabetes Association. (2014). Diagnosis and classification of diabetes mellitus. *Diabetes Care, 37* (Supplement 1), S81-S90. doi:10.2337/dc14-S081
- Anney, V.N. (2014). Ensuring the quality of findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational Research and Policy, 5*(2), 272-181.
- Ardawi, M. S., Nasrat, H. A., Jamal, H. S., Al-Sagaaf, H. M., & Mustafa, B. E. (2000).

- Screening for gestational diabetes mellitus in pregnant females. *Saudi Medical Journal*, 21(2), 155-160.
- Bandyopadhyay, M., Small, R., Davey, M., Oats, J. J. N., Forster, D. A., & Aylward, A. (2011). Lived experience of gestational diabetes mellitus among immigrant south Asian women in Australia. *Australian and New Zealand Journal of Obstetrics and Gynaecology*, 51(4), 360-364. doi:10.1111/j.1479-828X.2011.01322.x
- Baxter, J., & Eyles, J. (1997). Evaluating qualitative research in social geography: Establishing 'rigour' in interview analysis. *Transactions of the Institute of British Geographers*, 22(4), 505-525. doi: 10.1111/j.0020-2754.1997.00505.x
- Benelam, B. (2011). Physical activity in pregnancy. *Nutrition Bulletin*, 36(3), 370-372. doi: 10.1111/j.1467-3010.2011.01915.x
- Bitsch, V. (2005). Qualitative research: A grounded theory example and evaluation criteria. *Journal of Agribusiness*, 23(1), 75-91.
- Bowen, G. A. (2009). Supporting a grounded theory with an audit trail: An illustration. *International Journal of Social Research Methodology*, 12(4), 305-316. doi: 10.1080/13645570802156196
- Bung, P., & Artal, R. (1996). Gestational diabetes and exercise: A survey. *Seminars in Perinatology*, 20(4), 328-333. doi: 10.1016/S0146-0005(96)80025-5
- Carcary, M. (2009). The research audit trial - enhancing trustworthiness in qualitative inquiry. *Electronic Journal of Business Research Methods*, 7(1), 11-24.
- Carolan, M. (2013). Women's experiences of gestational diabetes self-management: A qualitative study. *Midwifery*, 29(6), 637-645. doi: 10.1016/j.midw.2012.05.013
- Carolan, M., Gill, G. K., & Steele, C. (2012). Women's experiences of factors that facilitate or

inhibit gestational diabetes self-management. *BMC Pregnancy and Childbirth*, 12(1), 1-12.
doi:10.1186/1471-2393-12-99

Carolan-Olah, M., Gill, G., & Steel, C. (2013). Women's experiences of gestational diabetes self-management: A qualitative study. *Women and Birth*, 26(1), S2-S21. doi: 10.1016/j.wombi.2013.08.225

Clark, P. F. (2013). *Barriers and facilitators to the effective management of gestational diabetes mellitus for Hispanic women* (Doctoral dissertation, University of Northern Colorado). Retrieved from <https://digscholarship.unco.edu/cgi/viewcontent.cgi?article=1083&context=theses>

Cohen, M.Z., Kahn, D.D.L., & Steeves, R.H. (2000). *Hermeneutic phenomenological research: a practical guide for nurse researchers*. Thousand Oaks, CA: Sage.

Colberg, S. R., Sigal, R. J., Fernhall, B., Regensteiner, J. G., Blissmer, B. J., Rubin, R. R., . . . & Braun, B. (2010). Exercise and type 2 diabetes: The American college of sports medicine and the American diabetes association: Joint position statement executive summary. *Diabetes Care*, 33(12), 2692-2696. doi: 10.2337/dc10-1548

Collier, S. A., Mulholland, C., Williams, J., Mersereau, P., Turay, K., & Prue, C. (2011). A qualitative study of perceived barriers to management of diabetes among women with a history of diabetes during pregnancy. *Journal of Women's Health*, 20(9), 1333-1339. doi:10.1089/jwh.2010.2676

Connelly, L. M. (2010). What is phenomenology?. *Medsurg Nursing*, 19(2), 127-129.

Cooke, D., Bond, R., Lawton, J., Rankin, D., Heller, S., Clark, M. (2013). Structured type 1 diabetes education delivered within routine care: Impact on glycemic control and diabetes-specific quality of life. *Diabetes Care*, 36(2), 270-272. doi: 10.2337/dc12-0080

- Costi, L., Lockwood, C., Munn, Z., & Jordan, Z. (2014). Women's experience of diabetes and diabetes management in pregnancy: A systematic review of qualitative literature. *JBIM Database of Systematic Reviews and Implementation Reports*, 12(1), 176-280. doi: 10.11124/jbisrir-2014-1304
- Crewell, J.W. (2003). *Research design: Qualitative, quantitative and mixed method approaches*. Thousand Oaks, CA: Sage Publications.
- Daniells, S., Grenyer, B. F. S., Davis, W. S., Coleman, K. J., Burgess, J. P., & Moses, R. G. (2003). Gestational diabetes mellitus: Is a diagnosis associated with an increase in maternal anxiety and stress in the short and intermediate term? *Diabetes Care*, 26(2), 385-389. doi:10.2337/diacare.26.2.385
- Deakin, T., McShane, C. E., Cade, J. E., & Williams, R. D. (2005). Group based training for self-management strategies in people with type 2 diabetes mellitus. *Cochrane Database of Systematic Reviews*, 2(2), CD003417. doi: 10.1002/14651858.CD003417.pub2.
- De Barros, M. C., Lopes, M. A., Francisco, R. P., Sapienza, A. D., & Zugaib, M. (2010). Resistance exercise and glycemic control in women with gestational diabetes mellitus. *American Journal of Obstetrics and Gynecology*, 203(6), 556.e1-556.e6. doi: 10.1016/j.ajog.2010.07.015
- De Groot, M., Doyle, T., Kushnick, M., Shubrook, J., Merrill, J., Rabideau, E., & Schwartz, F. (2012). Can lifestyle interventions do more than reduce diabetes risk? Treating depression in adults with type 2 diabetes with exercise and cognitive behavioral therapy. *Current Diabetes Reports*, 12(2), 157-166. doi: 10.1007/s11892-012-0261-z
- Elamurugan, S., & Arounassalame, B. (2016). What do Mothers know about gestational

- diabetes: knowledge and awareness. *Indian Journal of Obstetrics and Gynecology Research*, 3(4), 393-396. doi: 10.18231/2394-2754.2016.0021
- El Mallah, K. O., Narchi, H., Kulaylat, N. A., & Shaban, M. S. (1997). Gestational and pre-gestational diabetes: Comparison of maternal and fetal characteristics and outcome. *International Journal of Gynecology and Obstetrics*, 58(2), 203-209.
doi:10.1016/S0020-7292(97)00084-2
- Elmekresh, A., AbuHalimeh, B., Abukhater, R., Bakro, A., & Nahab, S. (2017). Gestational diabetes awareness in women of childbearing age in Sharjah. *Global Journal of Obesity, Diabetes and Metabolic Syndrome*, 4(3), 051-053. doi: <http://doi.org/10.17352/2455-8583.000023>
- Elo, S., Kaariainen, M., Kanste, O., Polkki, T., Utriainen, K., & Kyngas, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open*, 4(1), 1-10.
doi:10.1177/2158244014522633
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107-115. doi:10.1111/j.1365-2648.2007.04569.x
- Emamgoli Khooshehchin, T., Keshavarz, Z., Afrakhteh, M., Shakibazadeh, E., & Faghihzadeh, S. (2016). Perceived needs in women with gestational diabetes: A qualitative study. *Electronic Physician*, 8(12), 3412-3420. doi: 10.19082/3412
- Evenson, K. R., Barakat, R., Brown, W. J., Dargent-Molina, P., Haruna, M., Mikkelsen, E. M., ... & Yeo, S. (2014). Guidelines for physical activity during pregnancy: comparisons from around the world. *American Journal of Lifestyle Medicine*, 8(2), 102-121. doi: 10.1177/1559827613498204
- Fisher, L., Hessler, D., Glasgow, R., Arean, P., Masharani, U., Naranjo, D., & Strycker, L.

- (2013). REDEEM: A pragmatic trial to reduce diabetes distress. *Diabetes Care*, 36(9), 2551-2558. doi: 10.2337/dc12-2493
- Fochtman, D. (2008). Phenomenology in pediatric cancer nursing research. *Journal of Pediatric Oncology Nursing*, 25(4), 185-192. doi:10.1177/1043454208319186
- Ge, L., Wikby, K., & Rask, M. (2016). 'Is gestational diabetes a severe illness?' exploring beliefs and self-care behaviour among women with gestational diabetes living in a rural area of the south east of China. *Australian Journal of Rural Health*, 24(6), 378-384. doi: 10.1111/ajr.12292
- Ge, L., Albin, B., Hadziabdic, E., Hjelm, K., & Rask, M. (2016). Beliefs about health and illness and health-related behavior among urban women with gestational diabetes mellitus in the south east of china. *Journal of Transcultural Nursing*, 27(6), 593-602. doi:10.1177/1043659615594677
- Gearing, R. E. (2004). Bracketing in research: A typology. *Qualitative Health Research*, 14(10), 1429-1452. doi: 10.1177/1049732304270394
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal*, 29(2), 75-91. doi: 10.1007/bf02766777
- HAPO Study Cooperative Research Group. (2008). Hyperglycemia and adverse pregnancy outcomes. *The New England Journal of Medicine*, 358(19), 1991-2002. doi:10.1056/NEJMoa0707943
- Hermanns, N., Schmitt, A., Gahr, A., Herder, C., Nowotny, B., Roden, M., . . . Kulzer, B. (2015). The effect of a diabetes-specific cognitive behavioral treatment program

- (DIAMOS) for patients with diabetes and subclinical depression: Results of a randomized controlled trial. *Diabetes Care*, 38(4), 551-560. doi: 10.2337/dc14-1416
- Hjelm, K., Bard, K., Berntorp, K., & Apelqvist, J. (2009). Beliefs about health and illness postpartum in women born in Sweden and the Middle East. *Midwifery*, 25(5), 564-575. doi:10.1016/j.midw.2007.08.007
- Hjelm, K., Bard, K., Nyberg, P., & Apelqvist, J. (2005). Swedish and Middle-Eastern-born women's beliefs about gestational diabetes. *Midwifery*, 21(1), 44-60
doi:10.1016/j.midw.2004.09.004
- Hjelm, K., Berntorp, K., & Apelqvist, J. (2012). Beliefs about health and illness in Swedish and African-born women with gestational diabetes living in Sweden: Health/illness beliefs and migrants. *Journal of Clinical Nursing*, 21(9-10), 1374-1386. doi:10.1111/j.1365-2702.2011.03834.x
- Hjelm, K., Berntorp, K., Frid, A., Åberg, A., & Apelqvist, J. (2008). Beliefs about health and illness in women managed for gestational diabetes in two organizations. *Midwifery*, 24(2), 168-182. doi:10.1016/j.midw.2006.12.008
- Holloway, I., & Wheeler, S. (2002). *Qualitative research in nursing* (2nd ed.). Malden, MA: Blackwell.
- Hu, J., Wallace, D. C., McCoy, T. P., & Amirehsani, K. A. (2014). A family-based diabetes intervention for Hispanic adults and their family members. *The Diabetes Educator*, 40(1), 48-59. doi: 10.1177/0145721713512682
- Hui, A., Sevenhuysen, G., Harvey, D., & Salamon, E. (2014). Barriers and coping strategies of women with gestational diabetes to follow dietary advice. *Women and Birth*, 27(4), 292-297. doi: 10.1016/j.wombi.2014.07.001

- Hui, A. L., Sevenhuysen, G., Harvey, D., & Salamon, E. (2014). Stress and anxiety in women with gestational diabetes during dietary management. *The Diabetes Educator*, 40(5), 668-677. doi:10.1177/0145721714535991
- Iranzad, I., Bani, S., Hasanpour, S., Mohammadalizadeh, S., & Mirghafourvand, M. (2014). Perceived social support and stress among pregnant women at health centers of Iran-Tabriz. *Journal of Caring Sciences*, 3(4), 287-295. doi: 10.5681/jcs.2014.031
- Kramer, M. S. (2003). Aerobic exercise for women during pregnancy. *Birth*, 30(4), 278-279. doi: 10.1046/j.1523-536X.2003.259_2.x
- Khalid, T., Shaheen, F., & Javed, N. (2015). Awareness regarding gestational diabetes mellitus among pregnant women at tertiary care hospital, Rawalpindi, Pakistan. *Pakistan Journal of Medical Research*, 54(3), 87-89
- Kim, C., Tabaei, B. P., Burke, R., McEwen, L. N., Lash, R. W., Johnson, S. L., & Herman, W. H. (2006). Missed opportunities for type 2 diabetes mellitus screening among women with a history of gestational diabetes mellitus. *American Journal of Public Health*, 96(9), 1643-1648. doi:10.2105/AJPH.2005.065722
- Koch, T. (1995). Interpretive approaches in nursing research: The influence of husserl and heidegger. *Journal of Advanced Nursing*, 21(5), 827-836. doi:10.1046/j.1365-2648.1995.21050827.x
- Koch, T. (2006). Establishing rigour in qualitative research: The decision trail. *Journal of Advanced Nursing*, 53(1), 91-100. doi:10.1111/j.1365-2648.2006.03681.x
- Langdrige, D. (2007). *Phenomenological psychology: Theory, research and method*. New York; Harlow, England;: Pearson/Prentice Hall.
- Laverty, S. (2003). Hermeneutic phenomenology and phenomenology: A comparison of

- historical and methodological considerations. *International Journal of Qualitative Methods*, 2(3), 21-35. doi: 10.1177/160940690300200303
- Lawson, E. J., & Rajaram, S. (1994). A transformed pregnancy: The psychosocial consequences of gestational diabetes. *Sociology of Health and Illness*, 16(4), 536-562. doi:10.1111/1467-9566.ep11347644
- Levy-Shiff, R., Lerman, M., Har-Even, D., & Hod, M. (2002). Maternal adjustment and infant outcome in medically defined high-risk pregnancy. *Developmental Psychology*, 38(1), 93-103. doi:10.1037//0012-1649.38.1.93
- Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills: Sage Publishing
- Lincoln, Y. S., & Guba, E. G. (2007). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, (114), 15-25. doi:10.1002/ev
- Lopez, K. A., & Willis, D. G. (2004). Descriptive versus interpretive phenomenology: Their contributions to nursing knowledge. *Qualitative Health Research*, 14(5), 726-735. doi:10.1177/1049732304263638
- Macnee, L. C., & McCabe, S. (2008). *Understanding nursing research: Using research evidence-based practice*. Philadelphia, PA: Lippincott Williams & Wilkins.
- Malterud, K. (2001). The art and science of clinical knowledge: Evidence beyond measures and numbers. *The Lancet*, 358(9279), 397-400. doi: 10.1016/S0140-6736(01)05548-9
- Manning, K. (1997). Authenticity in constructivist inquiry: Methodological considerations without prescription. *Qualitative Inquiry*, 3(1), 93-115. doi:10.1177/107780049700300105
- Melzer, K., Schutz, Y., Boulvain, M., & Kayser, B. (2010). Physical activity and pregnancy: Cardiovascular adaptations, recommendations and pregnancy outcomes. *Sports Medicine*, 40(6), 493-507. doi:10.2165/11532290-000000000-00000

- Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Beverly Hills: Sage Publications.
- Morrison, M. K., Lowe, J. M., & Collins, C. E. (2014). Australian women's experiences of living with gestational diabetes. *Women and Birth: Journal of the Australian College of Midwives*, 27(1), 52-57. doi:10.1016/j.wombi.2013.10.001
- Morse, J. S (1991). *Qualitative nursing research: A contemporary dialogue*. SAGE Publications.
- Morse, J. (2000). Determining sample size. *Qualitative Health Research*, 10(1), 3-5. doi: 10.1177/104973200129118183
- Morse, J.M. & Field, P.A. (1996). *Nursing Research: The Application of Qualitative Approaches*. Basingstoke, Macmillan.
- Mulhall, S. (1993). *On being in the world*. New York: Routledge.
- Munhall, P. (2001). *Nursing research*. (3rd ed.). Mississauga, ON: Jones and Bartlett Publishers.
- Nolan, J. A., McCrone, S., & Chertok, I. R. A. (2011). The maternal experience of having diabetes in pregnancy: Diabetes in pregnancy qualitative study. *Journal of the American Academy of Nurse Practitioners*, 23(11), 611-618. doi:10.1111/j.1745-7599.2011.00646.x
- Padayachee, C., & Coombes, J. S. (2015). Exercise guidelines for gestational diabetes mellitus. *World Journal Diabetes*, 6(8), 1033-1044. doi: 10.4239/wjd.v6.i8.1033
- Parsons, J., Ismail, K., Amiel, S., & Forbes, A. (2014). Perceptions among women with gestational diabetes. *Qualitative Health Research*, 24(4), 575-585. doi:10.1177/1049732314524636
- Patton, M.Q. (2002). *Qualitative research and evaluation methods (3rd ed)*. California: Sage Publications Inc.

- Persson, M., Winkvist, A., & Mogren, I. (2010). 'From stun to gradual balance'--women's experiences of living with gestational diabetes mellitus. *Scandinavian Journal of Caring Sciences*, 24(3), 454-462. doi: 10.1111/j.1471-6712.2009.00735.x
- Pivarnik, J. M., Chambliss, H. O., Clapp, J. F., Dugan, S. A., Hatch, M. C., Lovelady, C. A., & Williams, M. A. (2006). Impact of physical activity during pregnancy and postpartum on chronic disease risk. *Medicine & Science in Sports & Exercise*, 38(5), 989-1006. doi: 10.1249/01.mss.0000218147.51025.8a
- Pluess, M., Bolten, M., Pirke, K., & Hellhammer, D. (2010). Maternal trait anxiety, emotional distress, and salivary cortisol in pregnancy. *Biological Psychology*, 83(3), 169-175. doi:10.1016/j.biopsycho.2009.12.005
- Polit, D.F., & Beck, C.T. (2008). *Nursing research: Generating and assessing evidence for nursing practice* (8th ed). Philadelphia: Wolters Kluwer/Lippincott, Williams & Wilkins
- Prather, H., Spitznagle, T., & Hunt, D. (2012). Benefits of exercise during pregnancy. *PM & R : The Journal of Injury, Function, and Rehabilitation*, 4(11), 845-850. doi: 10.1016/j.pmrj.2012.07.012
- Price, L. A., Lock, L. J., Archer, L. E., & Ahmed, Z. (2017). Awareness of gestational diabetes and its risk factors among pregnant women in Samoa. *Hawai'i Journal of Medicine & Public Health*, 76(2), 48-54.
- Razee, H., van der Ploeg, H. P., Blignault, I., Smith, B. J., Bauman, A. E., McLean, M., & Cheung, N. W. (2010). Beliefs, barriers, social support, and environmental influences related to diabetes risk behaviours among women with a history of gestational diabetes. *Health Promotion Journal of Australia*, 21(2), 130-137. doi: 10.1071/HE10130
- Reiners, G. M. (2012). Understanding the differences between Husserl's (descriptive) and

- Heidegger's (interpretive) phenomenological research. *Journal of Nursing Care*, 1(5), 1-3. doi: 10.4172/2167-1168.1000119
- Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing & Health*, 18(2), 179-183. doi: 10.1002/nur.4770180211
- Schwandt, T. A., Lincoln, Y. S., & Guba, E. G. (2007). Judging interpretations: But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Evaluation*, 2007(114), 11- 25. doi: 10.1002/ev.223
- Shaw, S. M., Barbour, N. S., Duncan, P., Freehling-Burton, K., & Nichols, J. (Eds.). (2018). *Women's Lives around the World: A Global Encyclopedia [4 volumes]*. ABC-CLIO.
- Shriraam, V., Rani, M. A., Sathiyasekaran, B. W. C., & Mahadevan, S. (2013). Awareness of gestational diabetes mellitus among antenatal women in a primary health center in south India. *Indian Journal of Endocrinology and Metabolism*, 17(1), 146-148. doi:10.4103/2230-8210.107861
- Siminerio, L., Ruppert, K., Huber, K., & Toledo, F. G. S. (2014). Telemedicine for reach, education, access, and treatment (TREAT): Linking telemedicine with diabetes self-management education to improve care in rural communities. *The Diabetes Educator*, 40(6), 797-805. doi: 10.1177/0145721714551993
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method and research*. London: Sage Taylor & Francis Group: Sage Publications Ltd
- Soheilykhah, S., Mogibian, M., Rahimi-Saghand, S., Rashidi, M., Soheilykhah, S., & Piroz, M. (2010). Incidence of gestational diabetes mellitus in pregnant women. *Iranian Journal of Reproductive Medicine*, 8(1), 24-28.

- Speziale, H. S., & Carpenter, D. R. (2007). *Qualitative research in nursing: Advancing the humanistic imperative* (4th ed.). Philadelphia: Lippincott Williams & Wilkins.
- Stumpf, S. E., & Fieser, J. (2008). *Philosophy: History and problems* (7th ed.). New York: McGraw-Hill.
- Thorpe, C. T., Fahey, L. E., Johnson, H., Deshpande, M., Thorpe, J. M., & Fisher, E. B. (2013). Facilitating healthy coping in patients with diabetes: A systematic review. *The Diabetes Educator*, 39(1), 33-52. doi: 10.1177/0145721712464400
- Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, 48(4), 388-396. doi:10.1111/j.1365-2648.2004.03207.x
- Toobert, D. J., Strycker, L. A., King, D. K., Barrera Jr, M., Osuna, D., & Glasgow, R. E. (2011). Long-term outcomes from a multiple-risk-factor diabetes trial for latinas: ¡Viva bien. *Translational Behavioral Medicine*, 1(3), 416-426. doi: 10.1007/s13142-010-0011-1
- United States. Department of Health and Human Services. (2008). *2008 Physical activity guidelines for Americans: Be active, healthy, and happy*. (No. no. U0036.;no. U0036;). Washington, D.C.: U.S. Dept. of Health and Human Services.
- Van Manen, M. (1990). *Researching the lived experience: Human science for an action sensitive pedagogy*. New York: State University of New York Press.
- Van Manen, M. (1997). *Researching lived experience: Human science for an action sensitive pedagogy*. (2nd ed.). London, Ontario: University of Western Ontario.
- Wahabi, H. A., Esmail, S. A., Fayed, A., & Alzeidan, R. A. (2013). Gestational diabetes mellitus: Maternal and perinatal outcomes in king Khalid university hospital, Saudi Arabia. *The Journal of the Egyptian Public Health Association*, 88(2), 104-108. doi:

10.1097/01.EPX.0000430392.57811.20

Wehbe-Alamah, H. (2008). Bridging generic and professional care practices for Muslim patients

through use of leininger's culture care modes. *Contemporary Nurse*, 28(1-2), 83-97. doi:

10.5172/conu.673.28.1-2.83

Wojnar, D. M., & Swanson, K. M. (2007). Phenomenology: An exploration. *Journal of Holistic*

Nursing, 25(3),172-180. doi:10.1177/0898010106295172

Younge, D., Moreau, P., Ezzat, A., & Gray, A. (1997). Communicating with cancer patients in

Saudi Arabia. *Annals of the New York Academy of Sciences*, 809(1 Communication), 309-

316. doi: 10.1111/j.1749-6632.1997.tb48094.x

CHAPTER THREE: IMPLICATIONS AND CONCLUSIONS

This study explored the meaning of experiencing GDM from eight pregnant Saudi women's perspectives. In this study, all participants were shocked when they initially received a diagnosis of gestational diabetes. Their stories revealed their need for further information about GDM and how to manage it. The women faced numerous challenges while trying to engage in GDM self-management. Despite the challenges women faced to overcome all the barriers that interfere with coping with GDM, they all reflected that their experiences changed their dietary habits positively and helped them to learn new strategies to easily adjust to their GDM. The findings revealed seven main themes: *Response to GDM Diagnosis*, *GDM Self-Management*, *Having Support*, *Facing Challenges*, *Lack of Knowledge*, *Concerns with Having GDM*, and *Need for Improved Awareness of GDM*.

In this chapter these themes will be briefly elaborated upon followed with a discussion outlining implications for nursing research, practice, education, and policy development. The theme, *Response to GDM Diagnosis*, revealed women's reactions when initially informed of their GDM diagnosis which included various emotions. *GDM Self-Management* outlined women's adjustments to a new lifestyle and to GDM self-management. This theme uncovered a variable range of adaptations described by women in regards to living with and managing GDM. The third theme, *Having Support*, referred to the social support women received from family members, friends, partners, and health care professionals. *Facing Challenges* pointed out how women encountered difficulties adjusting to diabetes management. The common challenges reported by most of the women were how to accept the disease and how to cope with new dietary requirements. The theme *Lack of Knowledge* represented participants' insufficient knowledge and information about GDM, which encouraged them to seek information from several sources such as, health care

providers, friends, the Internet and others. *Concerns with Having GDM* highlighted how most women were worried about the consequences related to having GDM. The final theme, *Need for Improved Awareness of GDM*, illustrated the need for better awareness about GDM, and its risks and complications amongst health care professionals, pregnant women, and their families and in the larger community. After exploring the meaning of having GDM while pregnant, from Saudi women's perspectives, several implications for nursing research, nursing practice, nursing education, and policy makers are evident. These implications can be used by health care professionals and policy makers, in clinical settings, to promote health for these women and improve the support provided to them.

Implications for Nursing Research

Participants confirmed that support from partners, family members, and friends was very helpful to them in diabetes self-care management, but formalized support services such as diabetes education programs, information about GDM, and gestational diabetes educational materials were not readily available or provided to them. As such, further study is needed to determine how different forms of social support and diabetes education can be enhanced.

The lack of knowledge about GDM described by the women in this study suggests that pregnant women need more information on gestational diabetes throughout their pregnancy. Most participants reported lack of awareness of GDM, thus, further research is required to better understand how aware pregnant Saudi women are of GDM, and to identify mechanisms to help improve the education and awareness of GDM among pregnant women in Saudi Arabia. Increased awareness of GDM among Saudi women and their families can serve to enhance the prevention of, or early diagnosis of the disease. Research on how best to promote understanding and knowledge of GDM among the general public can also help to improve prevention outcomes and earlier diagnosis of GDM.

Exploring the lived experience of GDM among Saudi Arabian women covering all the geographical areas of Saudi Arabia, particularly rural settings, is also needed to gain a better understanding of maternal experiences of having GDM in different regions. Pregnant women with GDM living in rural areas in Saudi Arabia may have different experiences than their urban dwelling counterparts due to poor access to diabetes health education (Alsunni, Albaker, & Badar, 2014), and having limited or no access to health care facilities, such as maternal health and diabetes care (Almalki, Fitzgerald, & Clark, 2011). Such knowledge would be useful to enhance current health services for childbearing women in Saudi Arabia who have or are at risk for gestational diabetes.

Implications for Nursing Practice

It is important to recognize the potential psychological impact of the GDM diagnosis, and for sufficient support, such as counselling, to be available. Women's responses to GDM diagnosis varied, however, feelings of fear, depression, anxiety, and shock were commonly described. Strategies for reducing such feelings need to be implemented by nurses to promote psychological well-being among pregnant Saudi women with GDM. Strategies for managing fear, depression, and anxiety could include promoting exercise, counselling (Masding, Ashley, & Klejdys, 2011), meditation and relaxation (Nilsson, Unosson, & Rawal, 2005), and access to diabetes peer support groups. One effective intervention for treating depression during pregnancy and the postpartum phase, is exercise (Lewis & Kennedy, 2011). The effectiveness of the counselling services on the psychological well-being of people with type 1 diabetes has been reported in the literature. Masding, Ashley, & Klejdys (2011) assessed the effects of the counselling course on glycemic control, and on the psychological well-being among people with type 1 diabetes. Counselling sessions were provided to 62 people with type 1 diabetes, with each person receiving a six-

week course of 50-minute one-to-one sessions with a qualified and experienced counsellor. Integrative and creative approaches and transactional analysis were used, which helped participants share their thoughts and feelings and established their wants and needs. The findings revealed that counselling sessions were associated with improvements in glycemic control and reduction in anxiety and risk of type 1 diabetes (Masding, Ashley, & Klejdys, 2011). Relaxation strategies have been shown to enhance pregnant women's psychological and physical status (Nilsson, Unosson, & Rawal, 2005). A study conducted by Bastani et al. (2005) demonstrated that pregnant women who received relaxation training during their second trimester had significantly reduced perceived stress and anxiety levels. Research has demonstrated that mindfulness interventions are associated with lower levels of psychological distress, anxiety, and depression during pregnancy and in the early postpartum period (Duncan et al., 2017). Antenatal and postpartum nurses can benefit from additional training in meditation and relaxation techniques as a resource for enhancing maternal psychological health for their clients with GDM.

Nurses are knowledgeable and skillful at health promotion. Awareness about GDM and its management could be improved by nurses through addressing gestational diabetes during pregnancy, teaching about GDM and its associated complications, supporting pregnant women with GDM to undertake self-care and blood glucose monitoring, distributing detailed information pamphlets and posters in hospital clinics and waiting areas, and assisting pregnant women with GDM in adjusting dietary habits. Improving the education provided to all childbearing women regarding the risk for gestational diabetes, and how to prevent the condition, will help women to obtain information they need to improve their self-care skills and maintain a healthy lifestyle. Such information should be provided to women pre-conception, during pregnancy and in the postpartum period for prevention of gestational diabetes in subsequent pregnancies and future type 2 diabetes.

To effectively control glucose levels and reduce most adverse health outcomes, nurses can use combined interventions such as dietary counselling, physical activities, health education, and psychological interventions and encourage referrals for specialized and follow-up care during pregnancy.

Participants mentioned that following a healthy diet is a vitally important strategy in managing GDM, thus, it is essential that nurses become aware of Saudi Arabian women's dietary habits during pregnancy to be able to provide culturally specific dietary advice to assist women managing GDM when diagnosed. Nurses, dieticians, and endocrinologists can suggest special dietary strategies for women, as well as counselling about the disease, from the time of initial diagnosis. Evidence suggests that dietary modification reduces pregnancy and perinatal complications and controls the blood glucose levels for women with gestational diabetes (de Lima et al., 2013).

All these implications should not be confined to the women only, but can extend to include family members and partners to engage them as care providers and sources of support to the women experiencing lifestyle changes. Some strategies nurses could use to engage families in diabetes self-management include providing family members and partners with knowledge about gestational diabetes and possible diabetes treatment strategies, validating their experiences as providers of support, and teaching them various stress management skills,

Implications for Nursing Education

The results of this study indicate that improving awareness of GDM among pregnant Saudi women is necessary. It is significant for nursing students to increase their knowledge and expertise about GDM and its management. Nurses need to have an adequate level of knowledge about gestational diabetes to teach childbearing women. Educational courses about diabetes are already

being taught in undergraduate programs of nursing in Saudi Arabia, but they can be enhanced to ensure learning about GDM and its impacts on pregnant women and their infants is provided. Various stimulation and education models with case studies about GDM can be beneficial to improve nursing students' knowledge and skills about gestational diabetes management. Courses focusing on GDM in nursing curricula should be provided. These courses could include pathophysiology, classification, and diagnosis of GDM, complications associated with GDM, oral medications and insulin therapy, nursing care, and non-drug therapies for diabetes, including exercise, nutrition, treatment, and self-care management. Nurse educators need to prepare nursing students for new roles in health promotion and teach them to encompass the subject of GDM as a main part of the routine health-care education programs arrange for childbearing women.

Implications for Policy Makers

The findings from this research illustrate childbearing women's need for increased GDM awareness. The Saudi government and policy makers currently play a significant role in developing and supporting health care services for pregnant women with gestational diabetes and for carrying out initiatives for diabetes prevention and risk reduction. Several educational programs on diabetes, associated complications, symptoms, management, the role of diet and physical exercise in diabetes control, diabetes care, practical training on home-self monitoring of blood glucose, and insulin administration have been conducted in Saudi Arabia (Al-Shahrani et al., 2012; Asiri, 2015). However, there are limited educational programs that specifically target GDM and its effects on mothers and their infants. Saudi policy makers should include GDM within all diabetes education programs, and stimulate and support the adoption of effective measures for the reduction, prevention, and control of GDM in Saudi society.

Creating diabetes health services for pregnant women under the auspices of the Saudi Ministry of Health and establishing centers of therapeutic training that introduce the principle of diabetes self-management are needed to help pregnant Saudi women with GDM receive adequate support to engage in physical activities, maintain healthy dietary habits, administer insulin, and use a glucometer to reduce the negative maternal and neonatal effects of GDM. Adequate training of healthcare professionals on diabetes prevention, diagnosis, and management is a critical step, which needs to be considered by Saudi policy makers to establish a network of skilled diabetes experts that can ensure all pregnant Saudi women have access to adequate and appropriate care. Offering comprehensive preventive care that includes information on diet, weight and self-care management, and exercise advice for all pregnant women, developing specialized-care referral centers for pregnant women with GDM who cannot be treated in a public health-care setting, as well as implementing GDM educational programs that include awareness campaigns targeted at pregnant women who are at high risk of diabetes, will help in reducing risks for developing GDM in the future, controlling blood glucose levels, and increasing women's awareness

Conclusion

This study provides insight into the lived experience of pregnant Saudi women after being diagnosed with GDM. The study findings revealed the many challenges Saudi women participated in the study encountered as they engaged in GDM self-management and developed a new lifestyle. The results indicate that there is a need for further research and increased awareness about GDM among Saudi women and the general public. The results also indicate that support from family members is vitally important for these women. More efforts are required to intensify existing health education programs to enhance the knowledge about the risks and complications of GDM

among pregnant women, their families, health care providers, and the general public in Saudi Arabia.

References

- Almalki, M., Fitzgerald, G., & Clark, M. (2011). Health care system in Saudi Arabia: An overview. *Eastern Mediterranean Health Journal*, *17*(10), 784-793.
- Al-Shahrani, A. M., Hassan, A., Al-Rubeaan, K. A., Al Sharqawi, A. H., & Ahmad, N. A. (2012). Effects of diabetes education program on metabolic control among Saudi type 2 diabetic patients. *Pakistan Journal of Medical Sciences*, *28*(5), 925-930. doi: 10.12669/pjms.285.2669
- Alsunni, A., Albaker, W., & Badar, A. (2014). Determinants of misconceptions about diabetes among Saudi diabetic patients attending diabetes clinic at a tertiary care hospital in eastern Saudi Arabia. *Journal of Family and Community Medicine*, *21*(2), 93-99. doi:10.4103/2230-8229.134764
- Asiri, S. A. (2015). Client education plan for improving diabetes management during primary health care in Saudi Arabia. *Austin Journal of Nursing & Health Care*, *2*(2), 1018-1028.
- Bastani, F., Hidarnia, A., Kazemnejad, A., Vafaei, M., & Kashanian, M. (2005). A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *Journal of Midwifery and Women's Health*, *50*(4), e36-e40. doi: 10.1016/j.jmwh.2004.11.008
- De Lima, H., Rosado, E., Neves, P., Machado, R., de Oliveira, L., & Saunders, C. (2013). Systematic review; nutritional therapy in gestational diabetes mellitus. *Nutricion Hospitalaria*, *28*(6), 1806-1814. doi:10.3305/nh.2013.28.6.6892
- Duncan, L., Cohn, M., Chao, M., Cook, J., Riccobono, J., & Bardacke, N. (2017). Benefits of preparing for childbirth with mindfulness training: A randomized controlled trial with

active comparison. *BMC Pregnancy and Childbirth*, 17(1), 1-11. doi: 10.1186/s12884-017-1319-3

Lewis, B. A., & Kennedy, B. F. (2011). Effects of exercise on depression during pregnancy and postpartum: A review. *American Journal of Lifestyle Medicine*, 5(4), 370-378.
doi:10.1177/1559827610392891

Masding, M., Ashley, K., & Klejdys, S. (2011). Introduction of a counselling service for patients with type 1 diabetes: Better glycaemic control and reduced anxiety. *Practical Diabetes International*, 28(1), 28-30. doi:10.1002/pdi.1548

Nilsson, U., Unosson, M., & Rawal, N. (2005). Stress reduction and analgesia in patients exposed to calming music postoperatively: A randomized controlled trial. *European Journal of Anaesthesiology*, 22(2), 96-102. doi: 10.1017/S0265021505000189



Appendix A Recruitment Flyer

The Lived Experience of Gestational Diabetes Mellitus among Pregnant Saudi Women

Purpose of the study:

The aim of the study is to explore Saudi women's lived experience of having gestational diabetes mellitus while pregnant and to gain an in-depth understanding of the meaning of this experience from the perspective of the women.

You are being invited to participate in a study to:

- share your voice and stories about gestational diabetes experiences.
- talk about the steps you took to deal with your gestational diabetes and what you would like to see change within the health care systems and health care providers.
- participate in a research study through a one-time interview, done at your convenience, by a Western University Masters student in Nursing.

You can participate if

- You are Saudi women living in Jeddah
- Your age is 18 years or above
- You have gestational diabetes without any pregnancy complications

If you have any questions, please feel free to contact me by email or phone at the contact information provided below.



Appendix B
A brochure

<p>Invitation to Participate: You are being invited to participate in a research study about the lived experience of gestational diabetes mellitus among Saudi women. You are eligible to participate because you have been diagnosed with gestational diabetes.</p> <p>Purpose of this study: The study aims to explore Saudi women's lived experience of having gestational diabetes mellitus while pregnant and to gain an in-depth understanding of the meaning of this experience from the perspective of the women.</p> <p>You can participate if</p> <ul style="list-style-type: none"> ▪ You are Saudi living in Jeddah ▪ Your age is 18 years or above ▪ You have gestational diabetes without any pregnancy complications 	<p style="text-align: center;">The Lived Experience of Gestational Diabetes Mellitus Among Pregnant Saudi Women</p> <p style="text-align: center;"><i>Gestational Diabetes</i></p> <p style="text-align: center;">Join our study and share your experience with gestational diabetes</p>	<p>Study Procedures If you agree to take part in this study, you will be asked to participate in a 60-90-minute individual interview. This interview can take place in person at a time and place that is convenient for you, depending on your preference. Your permission to record the interviews will also be requested and some basic information, including your age, marital status, level of education and type of treatment you are receiving will be taken. Some examples of the things you will be asked in the interview include your experience of gestational diabetes, as well as your needs for support and what has been helpful or not helpful for you.</p> <p>If you have any questions, please feel free to contact me by email or phone at the contact information provided below.</p> <div style="border: 1px solid blue; width: 150px; height: 30px; margin: 10px auto;"></div>
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Appendix C

Letter of Information

The Lived Experience of Gestational Diabetes Mellitus among Pregnant Saudi Women:
Interpretive Phenomenological Study

Principal Investigator

Dr. Marilyn Evans, RN, PhD
Associate Professor
Arthur Labatt Family School of Nursing
Western University, London, ON

Co-Supervisor

Dr. Kim Jackson, RN, PhD
Assistant Professor
Arthur Labatt Family School of Nursing
Western University, London, ON

Investigator conducting this study

Hayat Alghamdi, BScN, MScN student
Arthur Labatt Family School of Nursing
Western University, London, ON

Invitation to Participate

You are being invited to participate in a research study about the lived experience of gestational diabetes mellitus among Saudi women. You are eligible to participate because you have been diagnosed with gestational diabetes.

Purpose of the Letter

The purpose of this letter is to provide you with information required for you to make an informed decision regarding participation in this research.

Purpose of this study

The purpose of this study is to explore Saudi women's lived experience of having gestational diabetes mellitus while pregnant and to gain an in-depth understanding of the meaning of this experience from the perspective of the women

Inclusion Criteria

Participants meet inclusion criteria if they are Saudi women, first time diagnosed with gestational diabetes mellitus, are aged 18 years or older, able to speak and read Arabic or English, and are willing to share and express their experience with gestational diabetes. Participants must live in Jeddah.

Exclusion Criteria

Women with pregnancy complications or risk factors and those who are non-Saudi will be excluded

Study Procedures

If you agree to take part in this study, you will be asked to participate in a 60-90-minute individual interview. This interview can take place in person at a time and place that is convenient for you, depending on your preference. Your permission to record the interviews will also be requested and some basic information, including your age, marital status, level of

education and type of treatment you are receiving will be taken. Some examples of the things you will be asked in the interview include your experience of gestational diabetes, as well as your needs for support and what has been helpful or not helpful for you. After the interview, I will contact you by phone for a second interview to briefly review some of my findings and ensure that you have input into the final product of the study. This will be helpful to confirm that your experience has been accurately represented in my interpretation.

Possible Risks and Harms

There are no known or anticipated risks or discomforts associated with participating in this study. However, the discussion of the experience of gestational diabetes is distressful for some women. If the stress is too great, participant will be asked to stop and resume at a later time. If you feel that you require additional support, the researcher will provide you with information about counseling services available in your community.

Benefits of Participation in the Study

By participating in this study, you will be assisting the researcher in gaining a better understanding of what it is like for Saudi women to live with gestational diabetes. The information you provide can assist in enhancing both health cares and diabetic centers for pregnant women. Furthermore, you may find it a rewarding to share your story of having gestational diabetes, make sense of what happened to you, and learn from your experience. By sharing your story, your voice can also help to create change in health services for other women with gestational diabetes. This information may help other women who have gestational diabetes to learn from your experience and instruct health care professionals how to better care for women who have gone through this experience. This study is being done by researches in Canada and participants' information that is collected as part of the study will be taken there.

Voluntary Participation

Your participation in this study is completely voluntary. You may refuse to participate or refuse to answer any questions that make you feel uncomfortable. You may also decide to leave the study at any time without any penalties. The medical care that you are receiving will not be affected if you choose not to participate or you decide to withdraw from the study.

Confidentiality

Maintaining confidentiality will be held to the upmost ability but cannot be fully guaranteed. Any information obtained from this study will be kept confidential and accessible only to the investigators of this study. If the results are published, any data resulting from your participation will be identified only by a pseudonym. Neither your name nor any other identifying information will appear in any published report of the study or in any written or verbal reports associated with the study. All personal identifiers will be securely stored in a locked cabinet in a locked office separate from the transcripts. Also, information that you provide will be password acceptable and encrypted. The data will be stored on a secure computer in a locked room which can only be accessed by the research team. After the study is over, the data will be kept secure for five years and then it will be destroyed. If you choose to withdraw from this study prior to initiation of the data analysis phase, your data will be removed and destroyed from our database.

And if they withdraw after data analysis phase their data can no longer be removed, but it will be grouped with the other data and they would not be identified. If you would be interested, a summary of the study results will be made available to you at the completion of the study.

Contact Information

If you have any questions or concerns about the study, you may contact Dr. Marilyn Evans (Principal Investigator) or Dr. Kim Jackson (Co-Supervisor) or Hayat Alghamdi (Co-investigator conducting this study) as mentioned in the beginning of this letter.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics , email:

This letter is yours to keep for future reference

Participant Initial

Appendix D
Participant Consent Form

**The Lived Experience of Gestational Diabetes Mellitus Among Pregnant Saudi Women:
Interpretive Phenomenological Study**

I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate in this study. All questions have been fully answered to my satisfaction. Participants do not waive any legal rights by signing the consent form.

Name (Print): _____

Signature: _____

Date: _____

Name of Person Responsible for Obtaining Informed Consent (Print):

Signature of Person Responsible for Obtaining Informed Consent:

Date: _____

Appendix E

Semi Structured Interview Guide

Legend: 1,2,3,4,5 = Sub Questions

- = probes

1. Tell me a little about your experience of Gestational Diabetes?

- How did you feel?
- What were your first impressions when you were told that you had GDM?
- How were you treated by health care personnel?
- What kind of information did you receive?
- What other factors or experiences play a part in your gestational diabetes?

2. How has having gestational diabetes changed your life?

- What has been a positive change?
- What has been challenging to adjust to?
- What changes in your diet or exercise did you try and continue with?

3. Tell me about how you manage your GDM

- What management strategies (ways of dealing with your diabetes) work for you?
- What ways do you know now, that would have been helpful at the beginning?
- What made it easy or difficult for you to manage your gestational diabetes?
- How have friends and family been helpful/ not helpful?
- How health care providers been supportive to you
- Are you receiving any formal help? What has that been like?

4. What advice would you give to someone who is newly diagnosed with GDM?

5. If you could speak to a policy maker about support systems for pregnant women with gestational diabetes,

- What would you want to say to them?
- What recommendations for change would you make?

Appendix F

Demographic Questionnaire

Please provide some information about yourself

- 1. Name:**
- 2. Mobile number or email:**
- 3. Age:**
- 4. Marital Status:**
 - Single
 - Married
 - Divorced
 - Windowed
 - Separated
- 5. Level of education**
 - High school
 - Diploma
 - Bachelor's Degree
 - Master's Degree
 - Others
- 6. What type of treatment are you currently receiving for Gestational Diabetes Mellitus?**
 - Special meal plans and scheduled physical activity
 - Diet only
 - Daily blood glucose testing and insulin injections
 - Pharmacotherapy (Medications)
 - Other



Appendix G
الملحق أ
نشرة الاختيار



تجربة الإصابة بسكري البول الحملّي بين النساء الحوامل في المملكة العربية السعودية: دراسة ظاهرته تفسيرية

هدف هذه الدراسة

هدف هذه الدراسة هو استكشاف تجربة النساء في المملكة العربية السعودية مع الإصابة بالسكري الحملّي خلال فترة الحمل والحصول على فهم عميق عن معنى هذه التجربة انطلاقاً من وجهات نظر هذه النسوة.

يتم دعوتك للمشاركة في الدراسة ل:

- مشاركة قصتك عن إصابتك بالسكري الحملّي
- حديث عن الخطوات التي تم اتخاذها من قبلك للتعامل مع مرض السكري الحملّي والأشياء التي تودين رؤيتها للتغيير في أنظمة العناية الصحية ومقدمي العناية الصحية
- مشاركة في البحث خلال مقابلة شخصية، ستجرى هذه الدراسة وفقاً على اختيارك، عن طريق طالبة ماجستير تمرّض في جامعة ويسترن.

تستطيعي المشاركة إذا

- أنت سعودية تعيشين في جده
- عمرك ١٨ سنة أو ما فوق ذلك
- لديك سكر الحمل بدون أي مضاعفات أخرى

إذا لديك أي سؤال، الرجاء عدم التردد في التواصل معي عن طريق البريد الإلكتروني أو الهاتف على المعلومات الاتصال الواردة أدناه

الملحق باء
كّتيب

<p>دعوة اشتراك</p> <p>ندعوك للمشاركة في دراسة بحثية عن تجربة إصابة النساء في المملكة العربية السعودية بالسكريّ الحملّي. يحقّ لك المشاركة بسبب تشخيص حالتك على أنّها إصابة بالسكريّ الحملّي.</p> <p>هدف هذه الدراسة</p> <p>هدف هذه الدراسة هو استكشاف تجربة النساء في المملكة العربية السعودية مع الإصابة بالسكريّ الحملّي خلال فترة الحمل والحصول على فهم عميق عن معنى هذه التجربة انطلاقاً من وجهات نظر هذه النسوة.</p> <p>تستطيعي المشاركة إذا</p> <ul style="list-style-type: none"> ▪ انت سعودية تعيشين في جده ▪ عمرك ١٨ سنة او ما فوق ذلك ▪ لديك سكر الحمل بدون أي مضاعفات أخرى 	<p>تجربة الإصابة بسكري البول الحملّي بين النساء الحوامل في المملكة العربية السعودية: دراسة ظاهرتيه تفسيرية</p> <p>سكر الحمل</p> <p>انضمي للدارسة وشاركي بتجربتك مع سكر الحمل</p>	<p>إجراءات الدراسة</p> <p>في حال الموافقة على الإشتراك بهذه الدراسة، سيطلب منك خوض مقابلة فردية تتراوح مدتها ما بين ٦٠ و ٩٠ دقيقة. يُمكن إجراء هذه المقابلة شخصياً في الوقت والمكان المناسبين لك وذلك وفق اختيارك. سيطلب منك أيضاً الإذن بتسجيل المقابلة إلى جانب معلومات أساسية بما في ذلك اسمك وحالتك الزوجية ومستوى التعليم ونوع العلاج الذي تتلقينه أو ستحصلين عليه. بعض الأمثلة عن الأشياء التي سنسألين عنها في المقابلة تشمل تجربتك مع السكريّ الحملّي إلى جانب حاجتك إلى الدعم وما الذي ساعدك أو لم يساعدك.</p> <p>إذا لديك أي سؤال، الرجاء عدم التردد في التواصل معي عن طريق البريد الإلكتروني او الهاتف على المعلومات الاتصال الواردة ادناه</p> <div style="border: 1px solid black; width: 150px; height: 30px; margin: 10px auto;"></div>
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المُلحق ج رسالة معلومات

تجربة الإصابة بسكري البول الحملّي بين النساء الحوامل في المملكة العربية السعودية: دراسة ظاهرته تفسيرية

الباحث الرئيس

د. مارلين إيفانز ممرضة مجازة، حاملة شهادة دكتوراه
أستاذ مشارك
في كلية آرثر لبات فاميلي للتمريض
جامعة ويسترن، لندن

المُشرف المساعد

د. كيم جاكسون، ممرضة مجازة، حاملة شهادة دكتوراه
أستاذ مساعد
في كلية آرثر لبات فاميلي للتمريض
جامعة ويسترن، لندن

الباحث الذي يجري الدراسة

حياة الغامدي، حاملة بكالوريوس في التمريض وطالبة رسالة ماجستير في التمريض
في كلية آرثر لبات فاميلي للتمريض
جامعة ويسترن، لندن

دعوة اشتراك

ندعوك للمشاركة في دراسة بحثية عن تجربة إصابة النساء في المملكة العربية السعودية بالسكري الحملّي. يحقّ لك المشاركة بسبب تشخيص حالتك على أنّها إصابة بالسكري الحملّي.

هدف هذه الرسالة

الهدف من هذه الرسالة هو إعطاءك المعلومات اللازمة حتى تتخذي قرارًا على بيّنة بالإشتراك في هذا البحث.

هدف هذه الدراسة

هدف هذه الدراسة هو استكشاف تجربة النساء في المملكة العربية السعودية مع الإصابة بالسكري الحملّي خلال فترة الحمل والحصول على فهم عميق عن معنى هذه التجربة إنطلاقًا من وجهات نظر هذه النسوة.

معايير الإنضمام

تستوفي النساء معايير الإنضمام إلى هذه الدراسة إن كنّ سعوديات وأنّ هذه هي المرة الأولى التي تُشخّص إصابتهن بالسكري الحملّي، وأن يكنّ قد بلغن ١٨ عامًا أو ما يزيد، وأنهن يستطعن قراءة اللغتين العربية والإنكليزية والتكلّم بهما، وأنهن مستعدات للمشاركة في تجاربهن والتعبير عما يتعلّق بإصابتتهن بالسكري الحملّي. ويجب أن تكنّ المشاركات في جدّة.

معايير الإستثناء

تُستثنى النساء اللاتي يُعانين من مضاعفات الحمل أو من عوامل الخطر واللاتي لسن سعوديات.

إجراءات الدراسة

في حال الموافقة على الإشتراك بهذه الدراسة، سيُطلب منك خوض مقابلة فردية تتراوح مدّتها ما بين ٦٠ و ٩٠ دقيقة. يُمكن إجراء هذه المقابلة شخصيًا في الوقت والمكان المناسبين لك وذلك وفق اختيارك. سيُطلب منك أيضًا الإذن بتسجيل المقابلة إلى جانب معلومات أساسية بما في ذلك اسمك وحالتك الزوجية ومستوى التعليم ونوع العلاج الذي تتلقينه أو ستحصلين عليه. بعض الأمثلة عن الأشياء التي ستُسألين عنها في المقابلة تشمل تجربتك مع السكري الحملّي إلى جانب حاجتك إلى الدعم وما الذي ساعدك أو لم يساعدك. بعد إنهاء المقابلة، سأتصل بك هاتفياً لإجراء مقابلة ثانية لتنفيذ مراجعة سريعة متعلّقة بما وجدته وتحديد

ما إذا كان لديك ما تضيفه إلى الدراسة بنسختها الأخيرة. سيكون هذا مفيداً لتأكيد العرض الصحيح لتجربتك في التفسير الذي سجلته.

المخاطر والأضرار المحتملة

لا توجد أي أخطار أو أسباب إزعاج معروفة أو متوقعة متعلّقة بالمشاركة في هذه الدراسة. لكن الكلام عن تجربة الإصابة بالسكريّ الحملّي يُعدّ أمرًا مزعجًا بالنسبة لبعض النساء. إن كان التوتّر أكثر من قدرة التحمّل، سيُطلب من المشاركة التوقّف وإكمال المقابلة في وقت لاحق. إن شعرت أنّك تحتاجين دعمًا إضافيًا، ستوفّر الباحثة لك معلومات عن خدمات المشورة المتوافرة في مجتمعك.

فوائد الاشتراك في الدراسة

ستُساعدين الباحثة من خلال اشتراكك بهذه الدراسة في اكتساب فهم أفضل عن تعايش السعوديات مع الإصابة بالسكريّ الحملّي. يُمكن أن تساعد المعلومات التي توفرينها في تعزيز العناية الصحيّة ومراكز النساء الحوامل المختصّة بحالات السكريّ الحملّي. إضافة على ذلك، قد تستفيدين من المشاركة في قصتك عن إصابتك بالسكريّ الحملّي وفهم ما حدث لك ومعرفة المزيد من تجربتك. ويُمكن من مشاركتك في قصتك المساعدة في صنع تغيير في الخدمات الصحيّة التي تتلقاها نساء أخريات مصابات بالسكريّ الحملّي. قد تُفيد هذه المعلومات نساء أخريات يُعانين من السكريّ الحملّي من التعلّم من تجربتك وتعلّم المختصّين بالرعاية الصحيّة كيفية توفير عناية أفضل للنساء اللاتي خضن هذه التجربة. ستُجري باحثات من كندا هذه الدراسة، لذلك فإن معلومات المشاركات والتي ستُجمع أثناء الدراسة ستُأخذ إلى كندا.

الاشتراك الطوعيّ

إشترارك في هذه الدراسة طوعيّ. يُمكنك رفض المشاركة أو رفض الإجابة عن أي أسئلة تُشعرك بعدم الراحة. ويُمكنك أيضًا وفي أي لحظة ترك الدراسة من دون أي عقوبات جزائية. ولن تتأثر العناية الصحيّة التي تحصلين عليها إن اخترت عدم المشاركة أو اخترت الإنسحاب من الدراسة.

السريّة

سنبذل قصارى جهدنا في الحفاظ على السريّة لكننا لا نضمن ذلك بالكامل. ستبقى أي معلومات نحصل عليها من هذه الدراسة سريّة ويُمكن الوصول إليها من قبل الباحثين في هذه الدراسة فقط. في حال نشر النتائج، فإنّ أي بيانات ناتجة عن مشاركتك ستُعرّف باستخدام أسم مزيف. لن يظهر اسمك أو أيّ معلومات أخرى تُحدّد هويتك في أيّ من التقارير المنشورة عن الدراسة أو في أيّ من التقارير المكتوبة أو الشفوية والمتعلّقة بهذه الدراسة. ستُحفظ كل المعلومات الشخصية في خزانة مُقفلة في مكتب وستكون منفصلة عن نصوص المقابلات. إضافة على ذلك، ستزوّد المعلومات التي تقدمينها بكلمة مرور وستكون مُشفّرة. وستُحفظ البيانات في كمبيوتر محمي في غرفة مقفلة لا يُمكن الوصول إليه إلا من قبل فريق البحث. بعد الإنهاء من الدراسة ستبقى البيانات آمنة مدّة خمسة أعوام قبل حذفها والتخلّص منها. إن اخترت الإنسحاب من الدراسة قبل بدء مرحلة تحليل البيانات، فإنّ بيانات ستُسحب وتُحذف من قاعدة بياناتنا. وفي حال الإنسحاب بعد مرحلة تحليل البيانات، فلن يكون بالإمكان سحب البيانات، لكنها ستُجمع مع البيانات الأخرى لكنها لن تُعرّف. وإن كانت النتائج مهمّة لك، ستحصلين على ملخّص عن نتائج الدراسة عقب إتمامها.

معلومات الإتصال

إن كانت لديك أيّ أسئلة أو مخاوف بشأن الدراسة، يُمكنك الإتصال بالدكتورة مارلين إيفانز (الباحث الرئيس) أو د. كيم جاكسون (المشرف المساعد) أو حياة الغامدي (الباحث الذي يجري هذه الدراسة) مثلما هو مُبيّن في بداية هذه الرسالة.

إن كانت لديك أي أسئلة عن حقوقك بصفتك مشاركة في هذا البحث أو عن خطوات سير هذه الدراسة، يُمكنك التواصل مع مكتب أخلاقيات البحث على الرقم [] أو عبر العنوان الإلكتروني التالي: []

يُمكنك الاحتفاظ بهذه الرسالة واستخدامها مستقبلاً

الحرف الأول من اسم المشاركة.....

المُلحق د
استمارة موافقة المشارك

تجربة الإصابة بسكري البول الحملّي بين النساء الحوامل في المملكة العربية السعودية: دراسة ظاهرته تفسيرية

قرأت الرسالة التي تحوي المعلومات وجرى شرح طبيعة الدراسة لي، وأوافق على المشاركة في هذه الدراسة. وقد حصلت على إجابات كاملة ووافية عن كل أسئلتي. لا يتنازل المشاركون عن أي حق قانوني خاص بهم عقب توقيع استمارة الموافقة هذه.

الاسم (مكتوبًا): _____

التوقيع: _____

التاريخ: _____

اسم الشخص المسؤول عن تنفيذ واستلام الموافقة المسبقة (مكتوبًا): _____

توقيع الشخص المسؤول عن تنفيذ واستلام الموافقة المسبقة (مكتوبًا): _____

التاريخ: _____

المُلحق ياء دليل المقابلة شبه المنظّمة

دليل الأسئلة: ١، ٢، ٣، ٤، ٥ = الأسئلة الفرعية
▪ = الأسئلة الإستفسارية

١. أخبريني قليلاً عن تجربتك مع السكري الحملّي؟

- كيف شعرت؟
- كيف كانت إنطباعك حين عرفت أنّك مصابة بالسكري الحملّي؟
- كيف جرت معاملتك من قبل فريق الرعاية الصحيّة؟
- ما هي المعلومات التي حصلت عليها؟
- ما هي العوامل أو التجارب الأخرى التي تلعب دوراً في التأثير على حالة السكري الحملّي التي أصابتك؟

٢. كيف غيّرت إصابتك بالسكري الحملّي حياتك؟

- ما هو التغيير الإيجابي الذي حصل؟
- ما الذي شكّل التكيف معه تحدياً لك؟
- ما هي التغييرات في عاداتك الغذائية أو التمارين الرياضية التي جرّبتها واستمرّيت في ممارستها؟

٣. أخبريني كيف تتعاملين مع إصابتك بالسكري الحملّي؟

- ما هي إستراتيجيات التعامل (أساليب التعامل مع إصابتك بالسكري) التي أثبتت جدواها؟
- ما هي الأساليب التي تعرفينها الآن والتي كانت ستفيدك في بداية الأمر؟
- ما الذي صعّب أو سهّل عليك عملية التعامل مع الإصابة بالسكري الحملّي؟
- كيف ساعدوك/لم يساعدوك أصدقاؤك وأفراد عائلتك؟
- كيف دعمك موفّرو خدمات الرعاية الصحيّة؟
- هل تتلقّين أي مساعدة رسمية؟ كيف تصفينها؟

٤. ما هي النصيحة التي يُمكنك تقديمها إلى شخص جرى تشخيصه مؤخراً بأنه مصاب بالسكري الحملّي؟

٥. إن تمكّنت من الكلام مع واحد من أصحاب القرارات السياسية عن أنظمة دعم النساء الحوامل المصابات بالسكري الحملّي،

- ما الذي تريدن قوله له؟
- ما هي التوصيات بالتغيير التي تريدن تنفيذها؟

الملحق فاء
الاستبيان الديموغرافي

الرجاء تقديم بعض المعلومات عن نفسك

١. الاسم:

٢. رقم الجوال أو الايميل:

٣. العمر:

٤. الحالة الاجتماعية:

- عذباء
- متزوجة
- مطلقة
- أرملة
- منفصلة

٥. المستوى التعليمي

- مرحلة الثانوية
- دبلوم
- بكالوريوس
- ماجستير
- اخرى

٦. ما هو نوع العلاج الذي تتناولينه الان لسكر الحمل؟

- خطط وجبة خاصة ونشاط بدني مقرر
- النظام الغذائي فقط
- اختبار سكر الدم يوميا وحقن الأنسولين
- الادوية
- اخرى

Appendix H Ethical Approval (HSREB)



Research Ethics

Western University Health Science Research Ethics Board HSREB Delegated Initial Approval Notice

Principal Investigator: Dr. Marilyn Evans
Department & Institution: Health Sciences\Nursing, Western University

Review Type: Delegated
HSREB File Number: 108586
Study Title: Lived Experience of Gestational Diabetes Mellitus among Saudi Women: Interpretive Phenomenological Study

HSREB Initial Approval Date: March 03, 2017
HSREB Expiry Date: March 03, 2018

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Revised Western University Protocol	The Western Protocol- a clean copy	2017/03/01
Letter of Information	Appendix C- a clean copy	2017/03/01
Data Collection Form/Case Report Form	Appendix A- a clean copy. Semi Structured Interview Guide	2017/02/08
Data Collection Form/Case Report Form	Appendix B- a clean copy. Demographic Questionnaire	2017/02/08
Investigator Brochure	Appendix E- a clean copy	2017/02/08
Recruitment Items	Appendix F- a clean copy	2017/02/08
Other	Appendix G - Arabic Translated documents	2017/02/08
Letter of Information & Consent	Appendix D- a clean copy. Participant Consent Form (signature page)	2017/02/08

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review.

The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Ethics Officer, on behalf of Dr. Joseph Gilbert, HSREB Chair
EO: Erika Basile Nicole Kaniki Grace Kelly Katelyn Harris Nicola Morphet Karen Gopaul

Appendix I
Ethical Approval (Saudi Ministry of Health)



المملكة العربية السعودية
Kingdom of Saudi Arabia

مديرية الشؤون الصحية بمحافظة جدة
Directorate of Health Affairs - Jeddah
(٢٠٢/٢٧٥)

الموضوع: الموافقة على إجراء بحث

الإدارة: إدارة البحوث والدراسات الطبية

المحترم،

سعادة مدير مستشفى الولادة والأطفال بالمساعدي بمحافظة جدة
السلام عليكم ورحمة الله وبركاته...

نفيدكم بأن الباحثين اسمهم أدناه سوف يقومون بإجراء البحث كالتالي:

أسماء الباحثين:	حياة الغامدي ، د. مارلين إيفانز ، د. كيم جاكسون
رقم البحث:	٠٠٧٨٩
رقم الموافقة:	A٠٠٤٥٥
عنوان البحث:	Lived Experience of Gestational Diabetes Mellitus among Saudi Women: Interpretive Phenomenological Study.
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-O2-J-002) وجد أنه لا مانع من إجراء البحث.

أمل تسهيل مهمة الباحثين في إجراء البحث مع مراعاة الآتي:

١. اتباع قوانين اللجنة الوطنية للأخلاقيات الحيوية والطبية.
٢. في حال أي تغيير في خطة البحث يجب الحصول على موافقة إدارة الأبحاث.
٣. عدم تأثر الخدمة في المرافق المعنية.
٤. المحافظة على حقوق الأشخاص الخاضعين للبحث وخصوصياتهم.
٥. استخدام المعلومات لأغراض البحث العلمي فقط.
٦. تقديم تقرير عن سير الدراسة لإدارة البحوث كل ستة أشهر.

شاكرين تعاونكم.

وتفضلوا بقبول أطيب تحياتي،

مساعد مدير الشؤون الصحية للتخطيط والتطوير
بمحافظة جدة

د/ زكي عبد الله القاسمي

مدير إدارة البحوث والدراسات الطبية

د/ عبد الله بن سعد الزهراني

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Tel# (012 - 6347324)

هاتف: ٠١٢-٦٦٧٠٠٠٦ / ٠١٢-٦٨٣١٣٧٧ فاكس: ٠١٢-٦٦٢٢٩٦١ ص.ب: ١٢٤٩٣ جدة، ٢١١٧٦
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Curriculum Vitae

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Bachelor of Nursing
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2007-2012

Honors and Awards: King Abdullah Scholarship
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