



THE EFFECT OF HEALTH EDUCATIONAL SESSION ON RAISING PREGNANT WOMAN’S AWARENESS AND IMPROVING THEIR ATTITUDE TOWARD GESTATIONAL DIABETES

Hind Mohmmad Kanoori, Hind Al Ghadeer*, Farida Habib, Nagwa Afefy

Midwefery Nursing College of Nursing- Riyadh, King Saud bin Abdulaziz University for Health Sciences

*ghadeerh@ksau-hs.edu.sa

ABSTRACT

Gestational diabetes mellitus (GDM) is the most common complication during pregnancy. It is characterized by elevated blood sugar level with previous normative blood sugar level. It appears between 24 to 28 weeks of gestation, which is detected as a part of antenatal visits. The aim of this study is to assess the effectiveness of a health educational session on raising pregnant woman’s health awareness and their attitude toward Gestational Diabetes. A quasi experimental design was used to conduct the study. A convenient sample of 90 Saudi women who attended Obstetrics & Gynecology outpatient clinic at (KAMC-MNGHA-Riyadh) were included. Data was collected by using self-administered close ended questionnaire which consisted of four parts: Socio-demographic characteristics, obstetrical history, knowledge assessment, and attitude assessment (Pre-Post assessment). The educational session lasted for 20 – 25 minutes. There was a significant improvement in the total knowledge score before and after educational session about gestational diabetes (total knowledge score (P = 0.000). Out of the total sample (20 %) of the subjects had poor knowledge in the pre-test compared to (100%) in the post test. Also, there was significant differences in total attitude score before and after the session (p=0.013). Out of the total sample (24.4 %) of the subjects had negative attitude in the pretest compared to 8.9% in the post test. However, there were no significant differences in the knowledge mean score of the women across their Socio-demographic or obstetrical history. The study presented substantial findings that educational session significantly increased the level of knowledge and improve the attitude of women towards gestational diabetes.

Keywords: gestational diabetes; health educational; pregnancy

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INTRODUCTION

Gestational diabetes mellitus (GDM) is the most common complication during pregnancy. It is characterized by an elevated blood sugar level with previous normative blood sugar level between 24 to 28 weeks of gestation, which is detected as a part of antenatal visits. According to the American Diabetes Association, gestational diabetes’ prevalence has been increasing globally among different racial and ethnical groups. Alfadhli EM1, Osman EN, Basri TH, Mansuri NS, Youssef MH, Assaaedi SA, Aljohani BA.(2015); conducted a study to explore the prevalence of GDM among Saudi women in maternity and children hospital in al-medina. The study report that 954 women who were screen for GDM 50% of them were diagnosed with GDM which highlight that prevalence of GDM cases among Saudi women were high. Similarly, Wahabi H, Fayed A, Esmaeil S, Mamdouh H, KotbR (2016) the study reports that

among 14,568 prevalence of gestational diabetes was 24% the study conclude that diabetes during pregnancy are among the highest in the world. Amani A, Mohamed M, Mona G*, Yousra M, Bayan Hassan H, Omimah D, Aisha A, Umklthom M, Dalal M, Afnan A (2017):investigate the prevalence of GDM among 440 pregnant women from 3 hospitals in Jazan region. The prevalence of GDM in Jazan region was 8.2%.

Gestational diabetes mellitus adversely complicate both mother and fetus health during period of pregnancy. Maternal complications related to GDM double the risk of developing preeclampsia. Others include labor difficulties, second to third degree birth injuries, increase incidence of cesarean section and heavy postpartum bleeding. Meanwhile, complications related to fetus due uncontrolled maternal blood sugar include delayed intrauterine development of the fetus, increase incidence of spontaneous abortion, major congenital anomaly of the heart, excessive fetal growth (macrosomia), neonatal hypoglycemia, jaundice, polycythemia and stillbirth after birth.

Recently research efforts were made to investigate pregnant women's awareness and knowledge about GDM. Alnaeem (2019) conducted a study in Dhahran at King Fahad Hospital aiming to assess the level of awareness of GDM among Saudi women who were diagnosed with GDM finding revealed that there is considerable lack of awareness about GDM diagnosis and its complication, which led to poor self-care and management. Moreover, alaji,Deep,Nallaperumal,Anjana,(2017) have similar results in Boland, Biala Podlaska, that there is an insufficient awareness regarding management and the ability to identify the symptoms related to their diagnosis which highlights the need for extended activities to increase the level of awareness among pregnant population who at risk or already diagnosed with GDM. In addition to the previous study, Buraczewska, Sokołowska, Mazurkiewicz, Borzęcki(2016) have similar findings In India, South Tamil Nadu; that knowledge and awarness was high, especially in rural areas. Highlighting the need to increase awareness regarding self-care, management and the complications associated with poor control of gestational diabetes. Furthermore, Bhowmik,Afsana, Ahmed,Siddiquee(2016) conducted an assessment to measure and evaluate level of knowledge about gestational diabetes mellitus (GDM) among Bangladeshi population finding state that there is an average level of knowledge about GDM self-care, which recommends increasing innovation in activities associated with increasing women' level of knowledge regarding self-care management in relation to their diagnosis.

Many studies recommend that the health care provider have an important role in increasing the population awareness about the potential risks and complications associated with gestational diabetes. Also by identifying all pregnant women who are at risk for developing GDM during their pregnancy period, to increase their level of awareness regarding gestational diabetes, its symptoms and signs, its risk factor and the maternal and fetal complications related to GDM. Therefore aiming to improve their self-care management in order to overcome the adverse complication associated with GDM. As a result, increasing awareness and attitude regarding GDM will improve maternal and fetal outcomes. (Vlaji,et al (2017);Buraczewska,et al (2016)Bhowmik,et al(2016). The aim of this study is to assess the effectiveness of a health educational session on raising pregnant woman's health awareness and their attitude toward Gestational Diabetes. Primary objectives to assess the effectiveness of health education session on raising pregnant woman's health awareness about GDM. To assess the effectiveness of health education session to improve pregnant woman's attitude toward GDM. Assess the relationship between selected socio-demographic variables and woman's health awareness

about GDM after the session. Assess the relationship between selected socio-demographic variables and woman's attitude toward GDM after the session.

METHOD

A quasi-experimental (pre-posttest) design was used to assess the effectiveness of a health educational session on raising woman's awareness and improving their attitude toward Gestational Diabetes. Using G*power with a paired sample t-testing, with a p-value of 0.05, a power of 0.95 and a medium low effect size of 0.15, the needed sample size was 80 subjects. To ensure representative sample was increased the sample up to 90 subjects. This study was conducted at Obstetrics and Gynecology outpatient clinic in one of the University hospitals in Riyadh, Saudi Arabia. With the following inclusion criteria Saudi pregnant women, singleton pregnancy, during their first half of pregnancy. A convenient sample of 90 pregnant women who visited 101 and Kasmalan clinic at KAMC was the targeted population. The researcher met the subjects in the waiting area of 101 clinics and Kasmalan obstetrics clinics while they are waiting for their appointment. The aim of the study was explained to each subject and voluntary informed consent was obtained and signed from each woman who agreed to participate in the study and meet the inclusion criteria. The subject autonomy and the provided information was kept confidential. The subjects were informed that they can withdraw from the study at any time without any penalty or effect on the care. Subjects completed the questionnaire (pretest) and received the educational session and done the posttest.

The questionnaire was applied for 15 women as a pilot study to check the validity, clarity, feasibility, and applicability of the questionnaire. Those subjects were excluded from the study. The result of the pilot study was used to rephrase the questionnaire form. The questionnaire consists of 3 parts, namely: Demographic and obstetric history, Knowledge about gestational diabetes, and Attitude toward gestational diabetes. The first part of the questionnaire was about the participant's demographic characteristics and obstetric history, which include (age, marital status, educational level, and current occupation, number of pregnancies, number of children, and number of deliveries). The second part was to assess the knowledge of participants about gestational diabetes. This part consists of 10 closed ended questions regarding risk factors, signs and symptoms, complications, and management. The third part of the questionnaire consisted of 11 Likert scale statements to assess the attitude of participants toward gestational diabetes. The responses to the attitude questions are 5-Point-Likert scale that range from 1 to 5 with a total score that ranges from 10 to 50. The second and third parts of the questionnaire (Awareness and attitude) was applied twice for each subject. The first time (pre assessment) was done before the educational session. The second time (post assessment) done after the educational session.

The face and content validity of the instrument was assessed by a panel of 3 PhD holders in nursing to ensure that the tool measures the variables of interest. Test retest method was used to determine the reliability of the tool, by applying this tool twice on 5 subjects who were excluded from the study. The reliability was 0.78. Subjects need 20 -25 minutes to complete the questionnaire. A structured session about gestational diabetes was carried out for each subject. The session lasted for 20 – 25 minutes. The main objective of the session was to improve woman's awareness and attitude toward gestational diabetes. The outlines of the session included: definition of gestational diabetes, symptoms and signs of gestational diabetes, risk factor of gestational diabetes, maternal and fetal complications of gestational diabetes diagnosis of gestational diabetes, and management of gestational diabetes. The session was provided through PowerPoint presentation and the use of audiovisual materials.

Data was coded for entry and analysis using SPSS statistical software package version 6. Data was presented using descriptive statistics in the form of frequencies and percentages. Interval and ratio variables were presented in the form of means and standard deviations. Paired t -test will be used to compare the interval and ratio data before and after the session. The non-parametric Wilcoxon Signed Ranks Test was used to compare the ordinal data before and after the session. The significance level was chosen as ($p < 0.05$).

RESULTS

The mean age of the women in the sample was 32.15 ± 5.36 years. More than half of the women in the sample (55.6%) had their age ranged between 31-40 years, while only 2.2% were 20 years and less. About two thirds of the women in the sample (65.6%) were housewife. About half of the sample (51.1%) were university graduated, while only 1.1% were illiterate. More than half of the sample (54.4%) their income ranged between 5000 and 10000 SR, while 14.4% of the sample their income was more than 15000 SR.

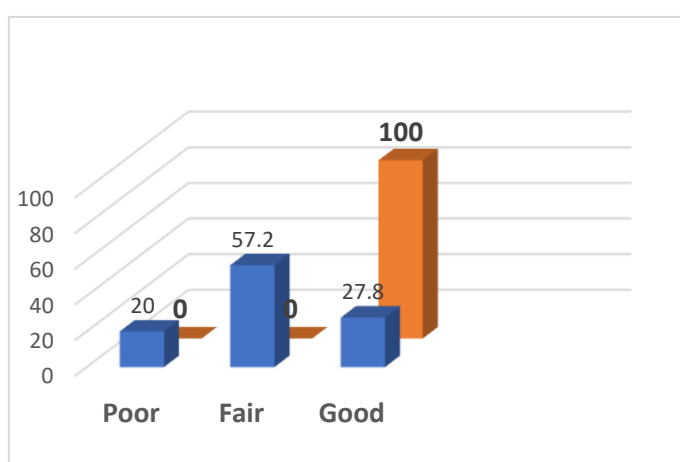


Figure 1: Comparison between Pre and Post Total Knowledge Score of the Women in the Sample

There was a statistically significant difference between pre- and post-educational session total knowledge score ($P = 0.000$). Out of the total sample 20 % of the subjects had poor knowledge in the pre test compared to zero percent in the post test. Only 27.8% of the subjects had good knowledge in the pretest compared to 100% in the post test.

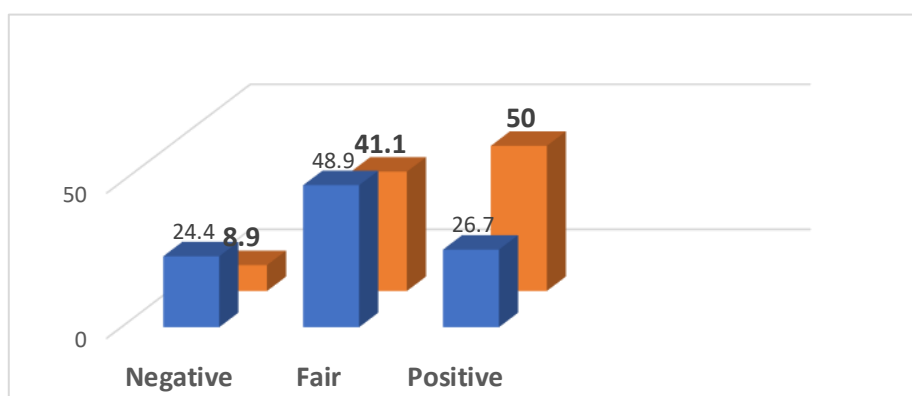


Figure 2: Comparison between Pre and Post Total Attitude Score of the Women in the Sample There was a statistically significant difference between pre- and post-educational session total attitude score {P = 0.013}. Out of the total sample 24.4 % of the subjects had negative attitude in the pretest compared to 8.9%in the post test. Only 26.7% of the subjects had positive attitude in the pretest compared to 50% % in the post test

Table 1.
Relationship between Total Knowledge Assessment Score about Gestational Diabetes and Demographic Data

Demographic Variables	Total women’s Assessment of Maternal knowledge about gestational diabetes		Total women’s Attitude of pregnant women toward gestational diabetes	
	Correlation	P	Correlation	P
Age	r= 0.170	0.108	r= 0.093	0.384
Job	F= 3.367	0.070	F= 1.023	0.315
Level of education	F= 3.418	0.068	F= 0.007	0.935
Income	F= 1.841	0.146	F= 1.739	0.165

Table 1, Shows relationship between total knowledge assessment of about gestational diabetes and demographic data of the women in the sample. There were no statistically significant Relationship between total knowledge assessment score of gestational diabetes and demographic Data.

Table 2.
Relationship Between Total Women’s Attitude Score Toward Gestational Diabetes and Demographic Data

Demographic Variables	Total women’s Assessment of Maternal knowledge about gestational diabetes		Total women’s Attitude of pregnant women toward gestational diabetes	
	Correlation	P	Correlation	P
Age	r= 0.170	0.108	r= 0.093	0.384
Job	F= 3.367	0.070	F= 1.023	0.315
Level of education	F= 3.418	0.068	F= 0.007	0.935
Income	F= 1.841	0.146	F= 1.739	0.165

Table 2 Shows relationship between total women’s attitude score toward gestational diabetes and demographic data of the women in the sample. There were no statistically significant relationship between total women’ attitude score toward gestational diabetes and demographic data.

Part eight: Relationship between Total Knowledge Score about Gestational Diabetes and Total Attitude Score Toward Gestational Diabetes

Figure 3 Shows relationship between total knowledge score about Gestational Diabetes and total attitude score toward Gestational Diabetes of the women in the sample. There was no statistically significant relationship between total assessment of maternal knowledge about gestational diabetes and attitude of pregnant women toward gestational diabetes. r= 0.067, p= 0.531

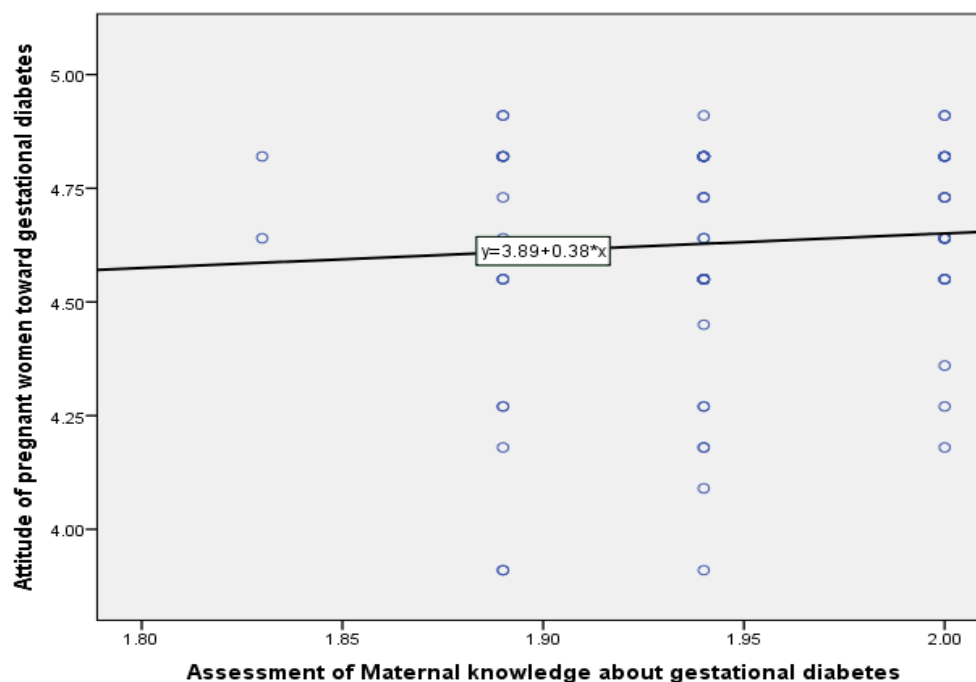


Figure 3: Relationship between Total Knowledge Score about Gestational Diabetes and Total Attitude Score Toward Gestational Diabetes

Table 3.

Relationship between Assessment of Maternal Knowledge about Gestational Diabetes before the Session and Numbers of Pregnancies

Items	Numbers of Pregnancies	Chi-	P
	Definition of Gestational diabetes	0.511	0.638
	Risk factors of gestational diabetes	1.364	0.506
	History of gestational diabetes s		
	Obesity	1.495	0.474
Cause of Gestational diabetes		1.453	0.326
	Gestational diabetes complications to Mather	1.364	0.506
	Labor difficulties	0.118	0.943
	Casern deliveries	0.106	0.629
	Peterm deliveries.	0.315	0.750
	Third- and fourth-degree Tears	0.227	0.809
	Gestational diabetes increases fetal complications	0.623	0.733
	Increase incidence of spontaneous abortion	0.200	0.829
	Excessive fetal growth (macrosomia	0.642	0.448
	Still birth	0.146	0.930
	Neonatal hypoglycemia	0.409	0.693
Screening for GDM will improve Maternal and fetal Outcomes		0.227	0.973
	lifestyle modifications	0.394	0.821
	Exercising regularly		
	Eating low carb food	0.315	0.750
	Eating small frequent meals during the day to avoid hunger	10.439	0.005

Table 3 shows the relationship between assessment of maternal knowledge about gestational diabetes before the session and numbers of pregnancies. There was statistically significant relationship between number of pregnancies categories and only one item of life style

modifications, which is: eating small frequent meals during the day to avoid hunger (p=0.005). However, there were no statistically significant relationship between assessment of maternal knowledge about gestational diabetes before the session and numbers of pregnancies for all other items.

Table 4.
Relationship Between Assessment of Maternal Knowledge About Gestational Diabetes Before the Session and Numbers of Abortion

Items	Numbers of Abortions	Chi-	P
	Definition of Gestational diabetes	1.898	0.197
	Risk factors of gestational diabetes	2.169	0.338
	History of gestational diabetes		
	Obesity	0.185	0.912
Cause of Gestational diabetes		1.641	0.241
	Gestational diabetes causes complications to Mather	1.996	0.369
	Labor difficulties	0.185	0.912
	Casern deliveries	3.382	0.077
	preterm deliveries.	1.168	0.354
	Third- and fourth-degree Tears	0.843	0.465
	Gestational diabetes increases fetal complications	2.310	0.315
	Increase incidence of spontaneous abortion	0.741	0.509
	Excessive fetal growth (macrosomia	2.606	0.116
	Still birth	0.542	0.763
	Neonatal hypoglycemia	3.749	0.088
Screening for GDM will improve Maternal and fetal Outcomes		0.843	0.839
	lifestyle modifications	3.696	0.158
	Exercising regularly		
	Eating low carb food	1.168	0.354
Eating small frequent meals during the day to avoid hunger		2.071	0.355

Table 4 Shows relationship between assessment of maternal knowledge about gestational diabetes before the session and numbers of abortion. There were no statistically significant relationship between maternal knowledge about gestational diabetes before the session and numbers of abortion for all items.

Table 5.
Relationship Between Woman's Health Awareness About GDM After The Session And Age

Items	Age	Chi-	P
	Definition of Gestational diabetes	90.00	0.000
Risk factors of gestational diabetes	history of gestational diabetes	0.099	0.911
	Obesity	0.072	0.933
	Cause of Gestational diabetes	0.059	0.944
	Gestational diabetes causes complications to Mather		
	Labor difficulties	0.035	0.967
	Casern deliveries	0.023	0.978
	preterm deliveries.	0.085	0.922
	Third- and fourth-degree Tears	7.263	0.122
	Gestational diabetes increases fetal complications		
	Increase incidence of spontaneous abortion	0.773	0.567

Items	Age	Chi-	P
	Excessive fetal growth (macrosomia)	-	-
	Still birth	0.059	0.944
	Neonatal hypoglycemia	-	-
Screening for GDM will improve Maternal and fetal Outcomes		-	-
	lifestyle modifications	-	-
	Exercising regularly	-	-
	Eating low carb food	-	-
Eating small frequent meals during the day to avoid hunger		-	-

Table 5 Shows the relationship between woman’s health awareness about GDM after the session and Age. There was statistically significant relationship between age categories and one item of the Knowledge assessment, which is definition of Gestational diabetes known (p=0.00). However, there was no statistically significant relationship between woman’s health awareness about GDM after the session and Age for all other items.

Table 6.
Relationship between Total Knowledge Assessment Score about Gestational Diabetes and Demographic Data

Demographic Variables	Total women’s Assessment of Maternal knowledge about gestational diabetes		Total women’s Attitude of pregnant women toward gestational diabetes	
	Correlation	P	Correlation	P
Age	r= 0.170	0.108	r= 0.093	0.384
Job	F= 3.367	0.070	F= 1.023	0.315
Level of education	F= 3.418	0.068	F= 0.007	0.935
Income	F= 1.841	0.146	F= 1.739	0.165

Table 6 Shows relationship between total knowledge assessment of about gestational diabetes and demographic data of the women in the sample. There were no statistically significant Relationship between total knowledge assessment score of gestational diabetes and demographic Data.

DISCUSSION

This study was conducted to assess the knowledge and attitude of Saudi women towards gestational diabetes and whether educational session will produce an impact on these variables. Ninety women were included in the sample of the study. Each woman completed pre-test to assess their knowledge and attitude toward gestational diabetes and attended an educational session then completed the post test. So, findings were discussed through the following frame of references: 1) demographic data; 2) obstetrical data; 3) the impact of an educational session about gestational diabetes on Saudi pregnant women’s knowledge; and 4) the impact of an educational session about gestational diabetes on Saudi pregnant women’s attitude.

In the current study, it was shown that more than half of the women in the sample (55.6%) had their age ranging between 31-40 years, while only 2.2% were 20 years and less. The mean age of this study is very comparable to that of Steel et al. (2014). In the past, Women tended to get married at a younger age than men, partially because of sexism and cultural values, also because women were historically less likely to have as much formal education (Emery, Sinrich, 2019). Nowadays, the average age to get married in the UK has tipped over the 30-

year-old. Similarly, in the US the average age of getting married has also been increasing with an average age of 29 for male and 27 for female. This is greatly linked as women are becoming more independent and career-driven than ever before (Sinrich, 2019). Contrary to what had been reported in other studies in UK and USA, the average age of Saudi women marrying for the first time was 20.4 years old (Jarrah, 2018).

In this study majority of the participant age represent middle aged adult. Women age of 35 and above is at greater risk of developing multiple complications more than younger age women. For example, more risk of having certain chromosome problems, which lead to birth defects such as Down syndrome are strongly linked to advanced maternal age. Additionally, advance maternal age impose higher chances of multiple gestation, diabetes, hypertension, pregnancy loss, or stillbirth (Kenny, et al, 2013). Additionally, the data on marital status indicated that the greatest percentage of the samples was married. This was an expected outcome as marriage is culturally compulsory before initiating any sexual activity. Moreover, the status of employment demonstrates that (65.6%) of the women were housewife and about 13.3% were students this is similar to the employment characteristics that was observed in the study by Shobeiri, et al (2016). However, more unemployed women were recorded in study of Esa, et. al., (2017).

In comparison between pre- and post-knowledge test of pregnant women about Gestational Diabetes. There was a significant improvement in the women's knowledge regarding gestational diabetes after the educational session which included definition, classification, diagnosis, risk factors and complication. Out of the total sample 20 % of the subjects had poor knowledge in the pretest compared to zero percent in the post test. Only 27.8% of the subjects had good knowledge in the pretest compared to 100% in the post test these differences may related to the sample characteristics or their obstetrical history. Similar finding was observed in the study of (El Toony, A Khalifa, and Ghazaly 2018) they found that there was an increase in the patients awareness regarding the GDM. In addition, (Amason, Lee, Aduddell, Hewell and Brackle, 2016) had also observed in a their pilot study, they concluded that educational intervention significantly increases diabetes knowledge in women with GDM.

Women's knowledge about the definition of gestational diabetes was assessed in this study. More than half of the women (80.0%) knew about definition of GDM during pre-test. Thus, post-test showed that majority of the women learned about the full definition of gestational diabetes. The reason that the definition of gestational diabetes is very common because it has similar characteristic of the chronic illness diabetes mellitus. Moreover, The World Health Organization (WHO) reported that Saudi Arabia ranks the second highest in the Middle East, and is seventh in the world for the rate of diabetes. Thus the government of Saudi Arabia and ministry has made a lot of health awareness campaign to raise the people awareness about all types of diabetes via the use of television, radio, and social media.

Moreover there was a change in the participant level of awareness in terms of the maternal complication associated with GDM such as labor difficulties, preterm labor, and cesarean deliveries. Only 60% of the participant had good knowledge in the pretest compared to 100% in the post test. Additionally, 76.7% of the participant believed that GDM complicate fetal health in the pretest as GDM deteriorate fetal health by causing spontaneous abortion, fetal macrosomia, neonatal hypoglycemia and still birth as compared to 100% in the posttest. Similar finding was reported in (El Toony, etl 2018).

In addition we investigate the relationship between total knowledge assessment of about gestational diabetes and demographic data of the women in the sample such as age, job, level of education and monthly income. It was found that there were no statistically significant relationship between total knowledge assessment score of gestational diabetes and demographic Data. We also assess the relationship between total women's attitude score toward gestational diabetes and demographic data of the women in the sample. There were no statistically significant relationship between total women' attitude score toward gestational diabetes and demographic data.

CONCLUSION

In conclusion, this study shown that health education session was effective in raising women awareness and had improve their attitude toward gestational diabetes. We can conclude that improvement in the knowledge gap is an important step towards improving perinatal outcomes. In particular, low literacy rate was found on the women in terms of the risk of developing gestational diabetes, maternal and fetal complications before the educational session. After the administration of educational session, the participants remarkably raised their level of knowledge in all variables that was assessed in the post- test. However, at pre-test attitude of women in all variables were at fair level but had also made a considerable enhancement after the educational session. Moreover, There was no statistically significant relation between total Knowledge and total attitude score.

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