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Assessment of common maternal risk factors related to gestational diabetes among pregnant women in KAMC, Riyadh

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Abstract: The current study this was conducted to assess common maternal risk factors for gestational diabetes shared among pregnant women in King Abdullah Medical City (KAMC), Riyadh.

Using the descriptive analytical approach, the current study involved all pregnant women attending King Abdulaziz Medical City in Riyadh. A sample of 450 pregnant women was selected according to stratified random sampling method. A structured questionnaire for assessing the common maternal risk factors for gestational diabetes mellitus was designed and filled by 449 from the research sample.

The study has shown that women diagnosed with gestational diabetes mellitus (GDM) could be at high risk for future diabetes. Besides, GDM differs in a direct proportion with the spread of type 2 diabetes. The study found a relationship between GDM and obesity, the history of the family with diabetes, age, and physical activities. Moreover, the results have shown that the research sample lack knowledge concerning gestational diabetes i.e. diet and exercises. In this regard, the researcher recommends raising the women awareness of GDM and taking additional care of pregnant women and especially those having GDM.

Keywords: Maternal Risk Factors, Gestational Diabetes, KAMC, Riyadh.

Introduction

The considerable increase in diabetes worldwide is one of the health problems. By 2030, the rate of diabetes is expected to double twice the current level of about 552 million people. This also includes pregnant women [1]. Increasing trend of diabetes emphasizes the importance of identifying related risk factors. Gestational diabetes is the most important predictor of diabetes in the future [2]. This disorder occurs when the maximum insulin secretion in the pregnant mother's body cannot overcome insulin resistance in her body [3]. The metabolic changes are made during pregnancy in order to supply fuel and nutrients for mother and fetus. The intolerance to glucose and gestational diabetes occurs when a pancreatic function is not enough to

overcome insulin resistance due to pregnancy. So, people who are prone to diabetes will go ahead [4]. Following such an occurrence, both mother and fetus are both subjected to hyperglycemia which itself causes damage such as an increase in blood pressure, maternal toxicity and a drop-in blood sugar [3].

Gestational diabetes has long been known to be a major risk factor for an embryo. Further, gestational diabetes is associated with an increase in obstetric complications such as weight gain and complications during and after delivery [1–6]. Mothers with gestational diabetes also have a higher risk of developing type 2 diabetes in the future [7]. Infertility and maternal complications include preeclampsia, eclampsia and forced cesarean section, while neonatal outcomes include macrosomia, birth defects, postpartum hypoglycemia, and increased bilirubin and respiratory distress syndrome [8]. The risk factors related to gestational diabetes are maternal age, pre-pregnancy BMI, history of diabetes among relatives, history of gestational diabetes in previous pregnancies [9]. Additionally, the increased reproductive age of women reduced physical activity, and adaptation to modern lifestyles may also be associated with an increased prevalence of gestational diabetes [10].

The incidence of GDM is rising. Increasing shift in its potential risk factors including obesity and diabetes type 2, advanced maternal age in pregnancy and the application of new criteria for the diagnosis of GDM are potential causes of this pattern [11].

In 2008, a major study known as HAPO was conducted in nine countries. This study showed that there is a significant association between glucose intolerance less than those levels that are diagnosed with gestational diabetes and adverse outcomes. This research and similar research have led to a greater need for a more sensitive definition of gestational diabetes [12]. In 2010, the International Association for Diabetes and Pregnancy (IADPSG) proposed new criteria for the diagnosis of gestational diabetes. Based on these criteria lower thresholds and single abnormal value required for the diagnosis of gestational diabetes and a higher incidence of GDM was reported in many studies [13].

In many studies, the risk factors of gestational diabetes mellitus are reported based on previous criteria (Glucose challenge test 50 g and oral glucose tolerance test 100 g).

In the light of the abovementioned, the present study mainly aims to evaluate the common maternal risk factors for gestational diabetes shared among the pregnant women. In addition, compare the selected risk factors with gestational diabetic women in the King Abdul-Aziz Medical City (KAMC) in Riyadh.

Research Problem

Any woman can develop gestational diabetes, but some women are at greater risk include: age more than 25 years, family or personal health history, unexplained stillbirth, excess weight, non-white race are more likely to develop gestational diabetes [14].

Risk factors for GDM include advanced maternal age, non-white race, family history of diabetes, overweight and obesity, polycystic ovary syndrome, hypertension, and hyperlipidemia [15]. In addition to the potential pregnancy complications of GDM (e.g., infant macrosomia, large for gestational age, neonatal hypoglycemia, shoulder dystocia, and cesarean delivery [16]), women who have had GDM are at an increased risk of developing Type 2 diabetes after pregnancy. A systematic review found that the risk of developing Type 2 diabetes was sevenfold higher for those with GDM compared to those who had a pregnancy without GDM [17]. Furthermore, women with a history of GDM have been shown to have poorer self-rated health compared to those without a history of GDM; the difference in self-rated health was mostly explained by the higher prevalence of obesity in those with GDM [18]. Although women with GDM should be tested for diabetes 4–12 weeks postpartum, previous studies estimated that only half of women with GDM were tested between 6 and 12 weeks postpartum [19].

Accordingly, it is important to understand those factors in order to enhance the process of diagnosing, treating and avoiding gestational diabetes.

Research Methods

Research Population and Sample

The population included all pregnant women in KAMC, Riyadh. The sample included 450 pregnant women. A questionnaire was developed and refereed by a group of professional (i.e. academics and doctors). The questionnaires were distributed to the research population and 449 questionnaires were completed and retrieved.

Research Limitations

The research was conducted in the period between 1 January and 25 February 2018 and it was limited to the patients visiting the KAMC in Riyadh.

Data Collection and Research Instrument

An official permission was retrieved from KAMC. Besides, all data were collected after the courteous permission of the patients.

The researcher followed the descriptive analytical approach where a structured questionnaire for assessing the common maternal risk factors for gestational diabetes mellitus was designed. The questionnaire was provided with a covering letter explaining the purpose of the study, the way of responding, the aim of the

research and the confidentiality of the information in order to encourage a high response. The questionnaire included multiple choice question under the following domains:

1- Demographic Data
2- Assessment of Gestational Diabetes Risk Factors
3- Assessment of Knowledge on Gestational Diabetes
4- Assessment of Knowledge on Diet and Exercises in Gestational Diabetes

Statistical Analysis

To achieve the research objectives, the researcher used the statistical package for the Social Science (SPSS) for manipulating and analyzing the data. All statistical tests were two-sided, and a $p < 0.05$ was considered significant. The statistical analysis was performed using SPSS ver. 17.0 (SPSS Inc. Chicago, IL, USA) software.

Results and Discussion

Study participants including 450 pregnant women from the Riyadh. The majority of women were in the age group (20 – 29) and (30 – 39) years, 43.9% and 48.6% respectively. Nearly 80% of the women are with high school education level. 66.1% of the women had no abortions, 32.71% had 1-3 abortions, 0.4% had 4-7 abortions, and 0.7% had +8 abortions. Further details on the characteristics of the research sample are listed in the table (1).

Table (1) characteristics of the research sample

Sample Number	450		
Demographic Data	Category	Frequency	Percentages
Age in Years	Less than 20 years	19	4.2
	20 – 29 years	197	43.9
	30 – 39 years	218	48.6
	40 years and up	15	3.3
Monthly Family income	Below SR. 5,000	41	9.1
	SR. 5,001 - SR.15,000	295	65.7
	SR. 15,001 - SR.20,000	67	14.9
	SR. 20,001 - SR.25,000	33	7.3
	More than SR. 25,000	13	2.9
No. of Family members	3-1	213	47.4
	4-7	212	47.2
	8 and up	24	5.3
Type of family	Nuclear family	377	84.0

Sample Number	450		
Demographic Data	Category	Frequency	Percentages
	Joint	72	16.0
Number of pregnancies	1-3	268	59.7
	4-7	155	34.5
	8 – 10	20	4.5
	More than 10	6	1.3
Number of deliveries	0	120	26.7
	1-3	256	57.0
	4-7	70	15.6
	8 – 10	3	.7
	More than 10	0	0.0
Number of abortions	0	297	66.1
	1-3	147	32.7
	4-7	2	.4
	8 – 10	3	.7
	More than 10	0	0.0
Education	Illiterate	17	3.8
	Below 10th class	64	14.3
	10-12th class	157	35.0
	Graduation	174	38.8
	Post-Graduation	32	7.1
	Any other (specify)	5	1.1
Occupation	Non-working	302	67.3
	Working	147	32.7

Table (2) shows that 51.0% of the families have Diabetes Mellitus, 49.0% of them have Hypertension, and 27.6% have GDM.

The researcher added a question about the family income to investigate that the women afford to purchase healthy food; women with average income can purchase healthy food. The characteristics of the research sample show that the percentage of early marriage is high in Saudi Arabia where most of the surveyed sample (35%) received an education until the 10-12th class. Besides, the results show that most of the married women are unemployed; 67.3 of the women under study were unemployed.

Table (2) History of Disease

Sample Number	450				
Family history of	Yes		No		p-value
	F	%	F	%	
Diabetes Mellitus	229	51.0	220	49.0	0.706
Hypertension	220	49.0	229	51.0	0.706
GDM	124	27.6	325	72.4	0.000

Table (3) shows that the general height ranges between 16-175 with a mean of 157.56 and std. deviation of 10.54. The weight ranges between 46-127 along with mean of 74.60 and std. deviation of 15.19. The weeks of gestation also ranges between 4-40 with the mean of 25.60 and std. deviation of 10.05. For the No. of Antenatal visits to the hospital, they range between 1-23 with mean 5.27 and std. deviation 3.81.

Through the results in the table (3) it could be concluded that a strong relationship between family history and GDM. This result agrees with the result of Shin and Yoon [10] who have shown that there is a strong association between family history and the expectancy of GMD during pregnancy.

Table (3) Descriptive statistics for some variables amongst the study sample

Sample Number	450				
Variable	N	Minimum	Maximum	Mean	Std. deviation
Height	449	16	175	157.46	10.54
Weight	449	46	127	74.40	15.19
Weeks of gestation	449	4	40	25.60	10.05
No. of Antenatal visits to the hospital	449	1	23	5.27	3.81

These results correspond with the results of Landon M., et al. [20], which aimed to understand whether the treatment of mild GDM would improve the pregnancy results. With the 958 women who were assigned with the research group, the researchers observed no significant variations among the groups in the composite results frequency (37.0% and 32.4% in the treatment and control groups, P=0.14). However, the researchers observed significant decrease with the treatment as compared with the typical care in many pre-specified results, which can include the mean birth weight (3302 vs. 3408 g), the neonatal fat mass (427 vs. 464 g). In addition, the general frequency of the large-for-gestational-age infants was 7.1% to 14.5%, the birth weight, which is greater than 4000 g, was 5.9% to 14.3%, the shoulder dystocia was 1.5% to 4.0%, and the cesarean delivery was 26.9% to 33.8%.

Gestational Diabetes Risk Factors

Table (4) shows that 6.7% from the sample's history of obstetric outcome is a Large baby, 11.1% is still baby, 18.9% is premature, 9.1% is preterm, 12.0% had PROM, 13.8% had GDM, 3.1% had Pre-Eclampsia, and 16.0% were Bleeding.

Table (4) Previous history of obstetric outcome amongst the study sample

Sample Number	450				
Previous history of obstetric outcome	Yes		No		p-value
	F	%	F	%	
Large baby	30	6.7	419	93.3	*0.000
Still Baby	50	11.1	399	88.9	*0.000
Premature	85	18.9	364	81.1	*0.000
Preterm	41	9.1	408	90.9	*0.000
PROM	54	12.0	395	88.0	*0.000
GDM	62	13.8	387	86.2	*0.000
Pre-eclampsia	14	3.1	435	96.9	*0.000
Bleeding	72	16.0	377	84.0	*0.000

The results above correspond with the study of Khan and Kan [21], Chasan-Taber et al [22] were the study examined the women diagnosed with gestational diabetes mellitus (GDM), which can be at high risk for future diabetes. The study results showed that the selected women were unmarried (87%), predominantly young (69% <24 years), and had low education levels (48% less than high school). The levels of stress (mean 26.9 to 7.1), the anxiety (mean 41.6 to 10.4), and the depressive condition and symptoms (33.2%) were generally high.

Table (5) shows that the Blood pressure (Systole) ranges between 76-153 with a mean of 107.27. The blood pressure (Dystol) ranges between 46-600 with a mean of 76.92. The Fasting Blood Sugar ranges between 4-180 with a mean of 25.06. Post-Prandial Blood Sugar ranges between 3-350 with a mean of 72.18. The times per week ranges between 1-7 with a mean of 4.14 and the long ranges between 1-120 with a mean of 28.11. These results can be similar to the study of Dana Dabelea et al [23] were the spread of GDM differs in a direct proportion with the spread of type 2 diabetes in a sample or any ethnic population.

Table (5) Descriptive statistics of Assessment of Gestational Diabetes Risk Factors

Sample Number	450				
Variable	N	Minimum	Maximum	mean	Std. deviation
Blood pressure (Systole)	449	76	153	107.27	9.81

Sample Number	450				
Variable	N	Minimum	Maximum	mean	Std. deviation
Blood pressure (Dystol)	449	46	600	76.92	87.35
Fasting Blood Sugar	86	4	180	25.06	42.72
Post-Prandial Blood Sugar	37	3	350	72.18	80.25
How many times per week	58	1	7	4.14	2.30
About for How long	59	1	120	28.11	27.36

Table (6) shows that the general risk factors can be 1.1% from the ample smoke, 38.1% are from being exposed to the second-hand smoking. For the 11.4 %, they exercise on regular basis; yet, 17.6% have been diagnosed with gestational diabetes before. 21.4% have prediabetes or impaired glucose tolerance and 9.1% had a stillbirth on a previous delivery. 6.9% had a large baby with a past pregnancy and 7.1% had a previous history of multiple pregnancies. 48.3% have UTI history of repeated infections. The results show that some bad habits might cause GDM i.e. smoking, fewer exercises, the bad eating habit that affect the blood sugars and so on. In addition, the history of infection proves that the patient has an actual problem and need to take measure to alleviate the infection side effects. These results agree with the results of Dudhwadkar and Fonseca [24].

Table (6) Assessment of Gestational Diabetes Risk Factors

Sample Number		450				
Assessment Of Gestational Diabetes Risk Factors		Yes		No		P-value
		F	%	F	%	
Do you smoke?		5	1.1	444	98.9	*0.000
Are you expose to second-hand smoking?		171	38.1	278	61.9	*0.000
Do you do exercises on a regular base		51	11.4	398	88.6	*0.000
Have you been diagnosed with gestational diabetes before		79	17.6	370	82.4	*0.000
Have you been told that you have prediabetes or impaired glucose tolerance		96	21.4	353	78.6	*0.000
Have you had a stillbirth on a previous delivery		41	9.1	408	90.9	*0.000
Have you had a large baby with a past pregnancy		31	6.9	418	93.1	*0.000
Have you had a previous history of multiple pregnancies		32	7.1	417	92.9	*0.000
Did you have a history of repeated following infections	UTI	217	48.3	232	51.7	*0.000
	Skin	62	13.8	387	86.2	*0.000
	Genital	127	28.3	322	71.7	*0.000

Renata et al. [25] conducted a study where they tried to identify the main presence of the risk factors of GDM through the period of pregnancy when diagnosed with GDM. The results showed that 76 women were estimated, 53 of them (69.7%) had 10 years of education and 23 women (30.3%) had more than 11 years of education. In this sample, a high prevalence of the unfavorable condition of the pre-pregnancy nutritional (such as obesity or overweight), the gestational weight gain that is above what is known (PPBMI <25 kg/m2 is mainly linked with weight gain), the history of the family with diabetes, the old age (38.2%) and the low state of the physical activities.

Knowledge of the Gestational Diabetes

Table (7) shows that 0.2% understood that gestational diabetes mellitus is diabetes in childhood, 1.1% answered that it is diabetes in adulthood, 92.4% have identified it as diabetes in pregnancy, and 6.2% answered diabetes in old age.

Table (7) Sample's knowledge of gestational diabetes mellitus

Sample Number	450	
What is gestational diabetes mellitus	Frequency	Percentages
Diabetes in childhood	1	0.2
Diabetes in adulthood	5	1.1
Diabetes in pregnancy	415	92.4
Diabetes in old age	28	6.2
Total	449	100.0
Chi-Square= 1092.514	df =3	*p-value = 0.000

Table (8) shows that in the diabetes mellitus, 91.3% believe that the rise in the levels of the blood sugar it is true, the rise in blood calcium levels was believed to be true by 2.4%, the decline in the blood sugar levels with 4.3%, and 2.2% believed that the decline in blood magnesium levels is regarded as diabetes mellitus. This proves the need for raising the patients' awareness of diabetes and GDM.

Table (8) Sample's knowledge of diabetes mellitus

Sample Number	450	
In diabetes mellitus which of the the following statement is true	Frequency	Percentages
The rise in blood sugar levels	410	91.3
The rise in blood calcium levels	11	2.4
The decline in blood sugar levels	18	4.0

Sample Number In diabetes mellitus which of the the following statement is true	450 Frequency	 Percentages
The decline in blood magnesium levels	10	2.2
Total	449	100.0
Chi-Square= 1053.405	df =3	*p-value = 0.000

Table (9) shows that 8.0% from the gestational diabetes is mainly caused by the dysfunctioning of the liver, 82.2% believed it is caused by dysfunctioning of insulin receptors, 2.0% believed it is caused by the dysfunctioning of the spleen, 7.8% believed it is caused by the dysfunctioning of kidneys. Among other factors, Crowther et al. [26] conducted a study were the main rate of serious perinatal complications were considerably lower among the infants of the 490 selected-women in the study than among the infants of the 510 selected-women. However, several women had higher rates of labor induction, caused by the dysfunctioning of their gestational organs, than the other women regarding the cesarean delivery did.

Table (9) Sample's Knowledge of Gestational diabetes

Sample Number	450	
Gestational diabetes is caused by	Frequency	Percentages
Dysfunctioning of liver	36	8.0
Dysfunctioning of insulin receptors	369	82.2
Dysfunctioning of spleen	9	2.0
Dysfunctioning of kidneys	35	7.8
Total	449	100.0
Chi-Square= 787.196	df =3	*p-value = 0.000

Table (10) shows that 5.6 % believed that babies born to diabetic mothers are generally small, 2.0% believed that they are born thin, 63.3% believed that it is born big, and 29.2% believed that they are no differences.

Table (10) Sample's knowledge of babies born to diabetic mothers

Sample Number Babies born to diabetic mothers are generally	450 Frequency	 Percentages
Small	25	5.6
Thin	9	2.0
Big	284	63.3

Sample Number Babies born to diabetic mothers are generally	450 Frequency	Percentages
No difference	131	29.2
Total	449	100.0
Chi-Square= 428.71	df =3	*p-value = 0.000

Table (11) shows that 29.0% believed that being more than 25 years is a risk factor, 50.1% believed that worrying about diabetes during pregnancy is another risk, 12.5% believed that the family's history of diabetes can be another risk factor, and 8.5% believed that being overweight before pregnancy is the main risk factor for diabetes in pregnancy.

Table (11) Sample's knowledge of diabetes in pregnancy

Sample Number	450	
All of the following is a risk factor for diabetes in pregnancy	Frequency	Percentages
Age more than 25 years	130	29.0
Worried about diabetes in pregnancy	225	50.1
The family history of diabetes	56	12.5
Overweight before pregnancy	38	8.5
Total	449	100.0
Chi-Square= 193.361	df =3	*p-value = 0.000

Table (12) shows that the 43.4% believed that the thin body built does not lead to diabetes in pregnancy, 8.2% believed that the high blood pressure does not also lead to diabetes, 17.1% believed that too much amniotic fluid does not lead to diabetes, and 31.2% believed that previous miscarriage does not also lead to diabetes. Zeck et al. [27] studied the variations that were found in the gestational management than pre-gestational diabetes. The variations were in the tests of the oral glucose tolerance and the cut-off stages for diagnosing diabetes.

Table (12) Sample's diabetes in pregnancy

Sample Number Which of the following does not lead to diabetes in pregnancy	450 Frequency	Percentages
Thin body built	195	43.4
High blood pressure	37	8.2

Sample Number Which of the following does not lead to diabetes in pregnancy	450 Frequency	Percentages
Too much amniotic fluid	77	17.1
Previous miscarriage	140	31.2
Total	449	100.0
Chi-Square= 129.379	df =3	*p-value = 0.000

Table (13) shows that 57.5% believed that the decreased urination is not a symptom of diabetes, 12.2% believed that blurred vision is not a symptom of diabetes, 25.4% believed that the frequent infections are not a symptom of diabetes, and 4.9% believed that increased thirst is not a symptom of diabetes. For that, Ewenighi Chinwe et al. [27] conducted a study that showed a mean gestational age is 26+6.4 weeks, the mean parity is 1.5, and the BMI of 26.6 (+/-3.9) kg/m2. Furthermore, the main prevalence of the GDM in pregnant females within 15-24 years was 3.3%, for the 25-34 years they had 4.2%, and the 34-44 years had 17.6%. The study showed that the spread of GDM has significantly increased with the age increase of the study's subjects.

Table (13) Sample's diabetes in pregnancy

Sample Number	450	
Which of the following is not a symptom of diabetes in pregnancy	Frequency	Percentages
Decreased urination	258	57.5
Blurred vision	55	12.2
Frequent infections	114	25.4
Increased thirst	22	4.9
Total	449	100.0
Chi-Square= 291.036	df =3	*p-value = 0.000

Table (14) shows that 1.1% believed that minerals should be reduced from the diet, 44.3% believed that carbohydrates should be reduced from the diet, 3.3% believed the proteins should be reduced from the diet, and 51.2% stated that Fats should be reduced from the diet. The study of Joseph Bottalico [28] presented the GDM as a sentinel event in the life of a woman that presents disease prevention and challenges opportunities in order provide the required health care for them at any given age. The study of Madhuvrata et al. [29] found that the sample of 2422 women compared their diet through pregnancy, their exercises, the lifestyle modifications, and the metformin, all of which was accomplished with regular care in the women's general risk for GDM. The study showed the use of dietary factors have presented a statistically and

considerably lower incidence of gestational hypertension and GDM in comparison to the regular care in women with general factors of risk for GDM.

Table (14) Knowledge of Diet and Exercises in Gestational Diabetes - Reducing foods in the diet

Sample Number	450	
Foods rich in	Frequency	Percentages
Minerals	5	1.1
Carbohydrates	199	44.3
Proteins	15	3.3
Fats	230	51.2
Total	449	100.0
Chi-Square= 377.29	df =3	*p-value = 0.000

Table (15) shows that 79.1% believed that vegetables do not have high levels of sugar, 3.8% also believed that fruit juice does not have high levels of sugar, 7.3% stated that pasta does not have high levels of sugar, and 9.8% believed that rice doesn't have high sugars. In accordance with the gestational diet, the study of Leng et al [30] showed that the increasing spread of obesity/overweight and the old ages at pregnancy were highly linked to the increasing spread of GDM, along with the increase of the diagnostic criteria modifications.

Table (15) Knowledge of Diet and Exercises in Gestational Diabetes - Food with no high levels of sugars

Sample Number	450	
Which of the following foods does not contain high sugars	Frequency	Percentages
Vegetables	355	79.1
Fruit juice	17	3.8
Pasta	33	7.3
Rice	44	9.8
Total	449	100.0
Chi-Square= 703.241	df =3	*p-value = 0.000

Table (16) shows that 2.2% believed that the dairy products are a great source of Magnesium, were 3.8% zinc, 94.0% chose Calcium.

Table (16) Knowledge of Diet and Exercises in Gestational Diabetes – dairy products

Sample Number	450	
Dairy products are a great source of which of the following	Frequency	Percentages
Magnesium	10	2.2
Zinc	17	3.8
Calcium	422	94.0
Cobalt	0	0.0
Total	449	100.0
Chi-Square= 743.47	df =3	*p-value = 0.000

Table (17) shows that Carbohydrate is found rich in the cheese and butter by 2.2%, was fat was believed to be rich by 84.2%, 11.8% believed it is Protein, and 1.8% chose Minerals as a rich in cheese and butter. This is due to the patients' diet were some of their diets are unhealthy and should be reconsidered.

Table (17) Knowledge of Diet and Exercises in Gestational Diabetes – consuming cheese and butter

Sample Number	450	
Which of the following is found rich in cheese and butter	**Frequency**	**Percentages**
Carbohydrate	10	2.2
Fat	378	84.2
Protein	53	11.8
Minerals	8	1.8
Total	449	100.0
Chi-Square= 850.394	df =3	*p-value = 0.000

Table (18) shows that 1.6% believed that the safest exercise during pregnancy is swimming, 0.2% chose jogging, 0.9 % believed it is playing, and 97.3% believed walking as the safest exercise of all.

Table (18) Knowledge of Diet and Exercises in Gestational Diabetes – Safest exercise during pregnancy

Sample Number	450	
Safest exercise during pregnancy is	**Frequency**	**Percentages**
Swimming	7	1.6
Jogging	1	.2
Playing	4	.9
Walking	437	97.3

Sample Number	450	
Safest exercise during pregnancy is	Frequency	Percentages
Total	449	100.0
Chi-Square = 1252.871	df =3	*p-value = 0.000

Conclusion

The study has shown that women diagnosed with gestational diabetes mellitus (GDM) could be at high risk for future diabetes. Besides, GDM differs in a direct proportion with the spread of type 2 diabetes. The study found a relationship between GDM and obesity, the history of the family with diabetes, age, and physical activities. Moreover, the results have shown that the research sample lack knowledge concerning gestational diabetes i.e. diet and exercises.

Recommendations

In the light of the achieve results, the researcher recommends raising the women awareness of GDM and taking additional care of pregnant women and especially those having GDM. Besides, the researcher recommends conducting further studies to identify additional factors.

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تقييم عوامل الخطر الشائعة لمرض السكري الحملي بين الحوامل مدينة الملك عبد العزيز للعلوم والتقنية في الرياض

الملخص: أجريت الدراسة الحالية لتقييم عوامل الخطر الشائعة لمرض سكري الحمل بين النساء الحوامل في مدينة الملك عبد العزيز للعلوم والتقنية في الرياض. واستخدم الباحث المنهج الوصفي التحليلي حيث اشتملت الدراسة الحالية على جميع النساء الحوامل اللاتي يحضرن مدينة الملك عبد العزيز الطبية بالرياض. تم اختيار عينة من 450 امرأة حامل بشكل عشوائي وفقاً لطريقة اختيار العينة العشوائية الطبقية. كما تم تصميم استبانة محكمة لتقييم عوامل الخطر، وقد تم تعبئة 449 استبانة.

وأظهرت نتائج الدراسة بأن النساء الحوامل المصابات بسكري الحمل معرضات لخطر الإصابة بمرض السكري في المستقبل. كما أظهرت الدراسة علاقة ما بين سكر الحمل والبدانة وكذلك التاريخ المرضي للأسرة والعمر والأنشطة البدنية. كما أظهرت النتائج افتقار عينة الدراسة إلى المعرفة المتعلقة بسكري الحمل كالنظام الغذائي والتمارين، وعليه يوصي الباحثون بالقيام بأنشطة تثقيفية لرفع وعي السيدات بسكر الحمل وكيفية التعامل معه إلى جانب توفير رعاية إضافية للنساء المصابات بسكر الحمل.

الكلمات المفتاحية: عوامل خطر السكري، سكري الحمل، الرياض.