



## **Evaluation of Knowledge, Attitude and Performance Regarding Gestational Diabetes Mellitus in Southwest of Iran**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author AK designed the study, wrote the protocol and wrote the first draft of the manuscript. Author AA managed of the study, edited the manuscript, author BR managed the analyses of the study and performed sampling. Author Maede Mohebifar managed the literature searches, performed sampling, author RM managed of the study, edited the manuscript, author SS designed the study, performed sampling, author Mostafa Madmoli managed of the study, edited the manuscript, wrote the manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background and Aim:** It seems that measuring the level of knowledge and attitude towards gestational diabetes mellitus is essential. The purpose of this study was to determine the knowledge, attitude and performance of gestational diabetes among women referring to health centers Masjed-Soleyman in 2018.

**Materials and Methods:** In this descriptive cross-sectional study, 142 women referred to health

centers in Masjed-Soleyman in Iran were evaluated by convenience sampling method. The data collection tool was a researcher-made questionnaire entitled "Assessing the level of knowledge, attitude and performance of mothers from gestational diabetes mellitus". Data analysis with spss-20 software using T-test, ANOVA and Pearson correlation coefficient was done.

**Results:** In this study, 142 women with an average age of  $38.88 \pm 16.91$  were studied. Of these, 47.9% were diploma, 31.7% higher than diploma and 20.4% were illiterate. The mean score of knowledge, attitude and performance of these individuals were  $19.14 \pm 8.94$ ,  $20.77 \pm 5.71$ , and  $8.21 \pm 3.21$  that indicating good knowledge and performance and average attitude about gestational diabetes. Female employees had significantly higher knowledge, attitude and performance than others ( $p < 0.05$ ), But there was no significant relationship between the mean scores of knowledge, attitude and practice, number of abortions, education, gestational age and information source ( $p < 0.05$ ).

**Conclusion:** The results showed that knowledge, attitude and performance in these people are at an acceptable level, but not yet ideal. It is suggested that online education programs should be developed for pregnant women with a special focus on gestational diabetes mellitus.

*Keywords: Knowledge; attitude; practice; gestational diabetes; maternal.*

## 1. INTRODUCTION

Pregnancy is associated with many anatomical and physiological changes, and healthy pregnancy requires a metabolic and hormonal adaptation that involves the hypothalamus, pituitary, parathyroid and adrenal. This metabolic adaptation provides the needs of the fetus during pregnancy. In almost all women, due to hormonal changes that occur during pregnancy, some degree of impairment of glucose tolerance can be observed, and during pregnancy, an increase in the number of secreted hormones from Placenta to the transfer of food from mother to fetus. Another group of hormones helps prevent mother's blood glucose by stopping insulin function, which makes these hormones a ground for glucose intolerance. In contrast to the cells in the pancreas of mothers, they often have the ability to produce more insulin (triple normal) to overcome the hormones of pregnancy. If the pancreas does not produce enough insulin, the blood glucose level increases and eventually leads to gestational diabetes. In fact, gestational diabetes refers to an increase in blood glucose, which is initially diagnosed during pregnancy [1]. Gestational diabetes is one of the most common complications of pregnancy [2].

This metabolic disorder, with increasing severity of side effects, is an important risk factor for short and long term for mother and child. Among its complications are macrosomia, damage during delivery, cesarean section, polyhydraminosis, preeclampsia, neonatal metabolic disorders, hypoglycemia Hypocalcemia, Hyperbilirubinemia, and late post-partum complications, including type 2 diabetes mellitus in postpartum period [3].

Risk factors that increase the likelihood of a mother having diabetes mellitus include: over 30 years of age, a history of diabetes in family members, high blood pressure, the number of pregnancies in excess of five, abortion history and early delivery [2]. The prevalence of gestational diabetes is related to the population and race, the difference in the type of data collection, the type of screening test used and the diagnostic criteria used, so that the prevalence of this disease in America and Europe reported %1.4, to 14 [4]. The lowest prevalence of gestational diabetes mellitus in Kermanshah was %0.7 and the highest prevalence was in Karaj %18.6 [5]. According to studies by Indian immigrants in the United States, Asian women are more likely to have gestational diabetes in their assessment of white women [6]. Studies have shown that religion and spirituality are important factors in adapting to diabetes and facilitating self-care activities [5].

The effect of the diet program on the increased risk of type 2 diabetes has been observed. Therefore, it seems that the diet plan has a significant effect on insulin activity during pregnancy [7]. One of the important components of the maternal diet that may affect the hemostasis and insulin function are Trans fatty acids [8]. In a study conducted in Vietnam in 2018, it was found that women who are more physically active are at a lower risk for developing gestational diabetes. This study highlights the importance of exercise and physical activity in preventing diabetes. Iran is a developing country with limited economic resources and a young population, and about 11 million of these populations are women of

reproductive age. Since the disease is a very complicated disease, it is clear that the screening of this disease is very significant [3]. A change in behavior and intervention aimed at preventing and managing diabetes before and during pregnancy is likely to be ineffective without regard to social and cultural issues. Individual training should be completed with interventions at the community level, taking into account social constraints and forms and the cultural characteristics in which people live [5].

Since diabetes is a dangerous complication during pregnancy, it is important to investigate the factors affecting its development so that it can be considered effective in controlling this disorder. Therefore, this study aimed to assess the knowledge, attitude and performance regarding gestational diabetes mellitus among women referring to health centers in Masjed-Soleyman city in 2018.

## **2. MATERIALS AND METHODS**

This is a cross-sectional descriptive-analytic study in which factors related to gestational diabetes are studied. This study was performed on women referred to health centers of Masjed-Soleyman city, southwest of Iran in 2018. They had at least one pregnancy and all or some of them were at risk for gestational diabetes.

The sampling method is that the researcher, along with one of his colleagues, in the interval from one month from mid-May to mid-June at different hours from 8 am to 2 pm and on different days of the week, randomly went to health centers after the explanation of the purpose of the research, the method of implementation and obtaining consent, the knowledge, attitude and performance questionnaire on gestational diabetes is provided to the participants.

The questionnaire consists of three parts. In the first part, knowledge of the person was evaluated with the questions as follows: Is there a relationship between hypertension and gestational diabetes, Is Polyuria and neonatal Macrosomia from side effects of gestational diabetes? Fasting blood sugar is over 105 in gestational diabetes? Does stress affect Gestational Diabetes? Can Glibenclamide be used in pregnancy?. In the second part, the performance of the person is evaluated by asking questions like: Have you measured your blood

sugar before and during pregnancy? - Do you control your weight gain? Do you refrain from using salt and sugar?

Do you do mild exercise and walk daily? and in the third section, one's attitude toward gestational diabetes is being examined by asking questions such as: An ideal weight gain in pregnancy is 12 kilograms. - How does gestational diabetes increase with age? - One of the effective factors in increasing gestational diabetes is frequent pregnancies?

In addition to the mentioned cases, such as age, education level, mother's occupation, gestational age, number of pregnancy, abortion history, information resources were studied. Validity of the questionnaire was measured using face to face validity and content. In this way, the questionnaire was prepared according to the authoritative sources and books in this regard. Reliability of this questionnaire was calculated using Cronbach's alpha coefficient of 0.74. Data were collected in one step according to available tools and then data analysis was performed using SPSS 20 software, independent t tests, ANOVA and Pearson correlation coefficient.

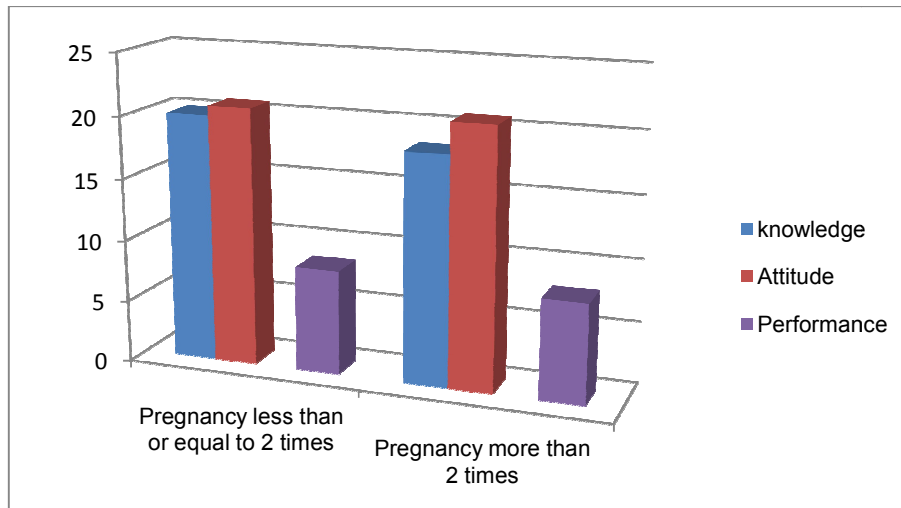
## **3. RESULTS**

In this study, 142 women with an average age of  $38.88 \pm 16.91$  were studied. Of these, 47.9% were diploma, 31.7% higher than diploma and 20.4% were illiterate. 89.4% of the housekeeper, 7% of the worker and the rest of the worker, 51.4% more than 2 times pregnant, and the rest were less than and equal to 2 times pregnancy and 29.6% had abortions.

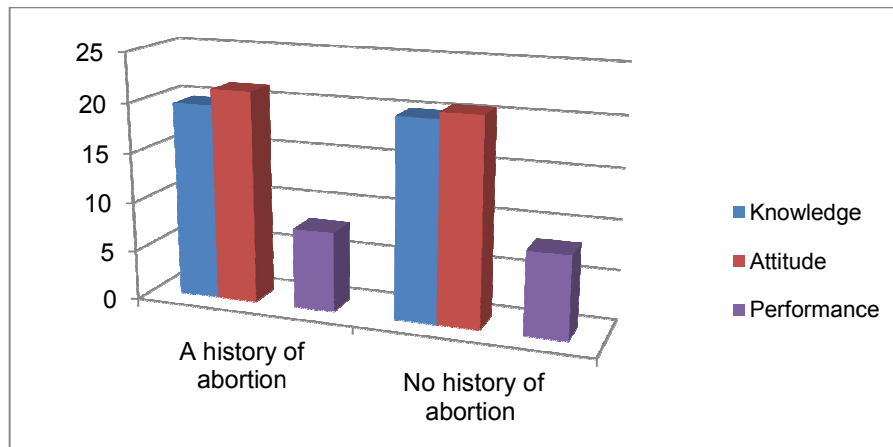
The mean scores of knowledge, attitude and performance of these individuals were  $19.14 \pm 8.94$ ,  $20.77 \pm 5.71$ , and  $8.21 \pm 3/21$ , indicating good knowledge and performance, and an average attitude about GDM. 4.2% had poor knowledge, 11.3% had poor performance and 7.7% had poor attitude.

Of these, 50 percent of radio and television, 25.4 percent of health workers, and the rest of their friends and magazines and the newspaper had their data on GDM.

Employed women had a significant statistically significant level of knowledge, attitude and performance than others ( $p < 0.05$ ). However, there was no significant relationship between the



**Fig. 1. Mean scores of knowledge, attitude and performance regarding gestational diabetes in terms of the number of pregnancies**



**Fig. 2. Mean scores of knowledge, attitude and performance regarding gestational diabetes based on abortion history**

mean scores of knowledge, attitude and practice, number of abortions, education, gestational age, and information source ( $p < 0.05$ ). (Figs. 1 and 2) There was a direct and significant correlation between knowledge, attitude and performance ( $p < 0.001$ ), but there was a direct and non-significant correlation between age and the three items ( $p > 0.05$ ).

#### 4. DISCUSSION AND CONCLUSION

In the current study, which was performed among 142 women, 4.2% of the subjects had poor knowledge, 11.3% of them had poor performance and 7.7% of them had poor attitude. Employee women have significantly higher

knowledge, attitude and performance than other people. It is possible that the search and proper use of high quality information sources by people with a higher education level would justify their attitude, awareness and better performance than other female participants. In a study conducted among Saudi women, 54% of the participants were aware of the risk factors for gestational diabetes mellitus and 15.9% did not have much knowledge [9]. This would raise the need for more awareness of mothers.

There is also a significant relationship between BMI and diabetes in many studies, all of which suggest that weight gain plays a role in the development of diabetes, and thus the

importance of mobility and exercise in life is more evident [10]. Another study showed that the use of western food patterns (high consumption of sweets, mayonnaise, soft drinks, salty meals, red meat, tea and coffee and low consumption of low-fat dairy, whole grains and whole grains) was associated with an increased risk of gestational diabetes [7].

In another study, using Pearson correlation coefficient, it was found that there is an inverse relationship between the levels of GCT (Glucose Challenge Test) and vitamin D [6]. Zang et al. showed that excessive consumption of Trans fatty acids may interfere with glucose tolerance in pregnancy. Zang believes that fast food intake during pregnancy, along with low physical activity in pregnant women, mistakenly suppresses the rest of their usual physical activity they are involved in the onset of gestational diabetes [6]. In a study Quoted Hedavati, 63% of Italian women were normal, but 32% had pre-diabetes [10]. In another study, the prevalence of gestational diabetes mellitus was estimated to be 6.6%, and it was found that complications of pregnant mothers with diabetes are more prevalent than pregnant mothers without diabetes, which include: blood pressure, vaginal infection, premature rupture of the embryo [11]. In a study in South Africa that looked at the prevalence of diabetes in pregnant women and women who were trying to become pregnant and admitted to hospital, 725 mothers were examined, 35 of them with type 1 diabetes, 194 with type 2 diabetes, and 192 people with gestational diabetes [12], which requires more attention and attention to the disease. Considering the results of this study, it is possible to increase awareness of people especially women who are planning to have a pregnancy. In this regard, newspapers, audio and TVs can be held, classes are held to educate people about gestational diabetes and its complications on Mothers.

### CONSENT

As per international standard, patient's written consent has been collected and preserved by the author(s).

### ETHICAL APPROVAL

It is not applicable.

### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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