

## ARTICLE

# INVESTIGATE AWARENESS, ATTITUDE AND PERFORMANCE TO GESTATIONAL DIABETES IN PREGNANT WOMEN REFERRED TO ZABOL'S HEALTH CENTERS IN 2014

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## ABSTRACT

Gestational diabetes is disorder in carbohydrate tolerance that is diagnosed during pregnancy for the first time. The awareness and attitude of women about gestational diabetes will be effective in disease prevention and its complications and early detection. In this descriptive-sectional study, 300 pregnant women who have referred to Zabol's health centers during 2014 were studied. For data collection, a questionnaire was set containing demographic questions, knowledge (17 questions), attitude (9 questions), and performance (8 questions) that by pregnant women was answered. Of the mothers participating in the study, 175 patients (58.3%) had average awareness, 206 patients (68.7%) had good attitude and 168 patients (56%) had good performance. Factors such as education level, age of pregnancy, source of information in attitude of pregnant women and gestational age and job is influenced on performance of pregnant women than gestational diabetes and there was not observed a significant relationship between age, the number of pregnancy times and history of abortion in pregnant women with their attitude and performance to gestational diabetes. Mother's education level and source of information of mothers, age of pregnancy and job are the most important issues influencing their attitude and performance in relation to gestational diabetes.

## INTRODUCTION

Gestational diabetes refers to any form of glucose intolerance that is diagnosed for the first time. Gestational diabetes usually starts in mid-pregnancy and continues until the end of pregnancy [1-3]. Its prevalence in different parts of the world is stated 1-14 percent that, on average happens in 2-5% of all pregnancies and is the most common metabolic disorder in pregnancy [4-6]. It almost affected 3.5% of pregnancies in England and Wales [7]. In a review article in Iran, the prevalence of gestational diabetes in eleven provinces was reported between 1.3 to 8.9 percent the lowest prevalence was related to Ardabil and the highest was related to Bandar Abbas [8]. Dramatic difference in statistics is used arising from the difference in the study population and diagnosis test. The prevalence of gestational diabetes steadily in developed countries including the United States of America, England, Australia and New Zealand is increasing [9]. Gestational diabetes as a silent disease affects the phenomenon of pregnancy, the mother and the fetus are adversely affected that is associated by severe complications such as preeclampsia, preterm delivery, caesarean section, Hydroamnios, fetal macrosomia and low birth weight and leads to adverse pregnancy outcomes and obstetric [10-15].

Among the risk factors for developing diabetes during pregnancy can be pointed by age, previous history of gestational diabetes, high body mass index, and history of hypertension in first degree relatives, smoking, belonging to particular breeds and short stature of mother [16]. Screening for gestational diabetes in pregnant women and identify risk factors can have an important role to minimize the risks and maternal and fetal complications [17]. Gestational diabetes can be divided into two groups: Asymptomatic and symptomatic and since most patients with gestational diabetes are in the group of asymptomatic and its diagnosis is difficult so that 70% of gestational diabetes are included, so in order to prevent and decrease implications in mother and fetus, early reviews of the disorder during screening is essential during pregnancy because uncontrolled diabetes to 90 percent in infants and 30 percent in mothers is associated with morbidity in addition to being at risk of developing diabetes after pregnancy as well. In gestational diabetes symptoms, such as visual disorders, bulimia, polyuria, weight loss and confusion is common and dangerous which should be controlled and in this field, collaborative role of pregnant woman to maintain her health and her fetus is very important [18].

Since pregnant women with diabetes in their care in the field of gestational diabetes due to high stress may mistake and therefore this subject disorders in the regulation of blood sugar; It must be provided necessary training to control the condition and ways to oppose it by health centers while adequate support of pregnant women in this context [19].

### KEY WORDS

Awareness, Gestational diabetes, Performance, Attitude

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Also, given that the awareness, attitude and performance of women about gestational diabetes in prevention, early diagnosis and reduce its complications can be effective, therefore, awareness and attitude towards this issue and more informing to women is considered of effective strategies [20]. Including studies that are conducted on awareness, attitude and performance of pregnant women to gestational diabetes can be noted to Ghasemzadeh and colleagues in 2005-2006 on pregnant women referred to Military family hospital that its results show that 19% had awareness and 13% had appropriate performance and attitude 28.4% was assessed well [21] Also in the study of Balali Mobidi that was conducted in 2010 and on 1000 pregnant women referred to health centers in Medical Sciences University of Kerman that 14.2% had a good awareness, 15.6% positive attitude and 53.4% score of well performance and there was a significant relationship between awareness and performance with age, education and job and there was a significant relationship between attitude and education [20]. Considering the importance of the disease and its adverse consequences in babies and mothers with and also demographic differences and the importance of this issue in the next decisions of health system to improve health services and health promotion, the present study were conducted aimed to assess the knowledge, attitude and performance of pregnant women. In this study, it is tried to assess awareness, attitude and performance of pregnant women with gestational diabetes if needed, training programs to be developed based on the findings and by raising awareness and attitude of women towards gestational diabetes reduce the incidence of disease and its consequences.

### MATERIALS AND METHODS

In this descriptive study, 300 pregnant women who were referred to health centers in 2014 using the formula of sample size ( $n = Z_{1-\alpha/2}^2 P(1-P) / d^2$ ) and random sampling method were selected and studied. For data collection, a questionnaire including four parts was given to pregnant women. The first part included demographic questions such as age, education, job, gestational age, and the number of pregnancies, history of abortion and sources of information.

The second part consisted of 17 questions, two options with Yes and No options that based on true answer gets score one and false answer gets score zero that shows the awareness of pregnant women. Part III contains nine questions about the attitude of pregnant women which was 5 options that answer to each question is placed on 5-option Likert scale from strongly disagree to strongly agree and are awarded a score of 1 to 5, that higher score indicates a positive attitude to it and attitude of pregnant women assesses gestational diabetes and Part IV is performance questions which consists of 8 questions concerning the performance of pregnant women to gestational diabetes that was as third-choice with options Yes, sometimes and no that answer one gets score one and other responses get score zero.

To classify the awareness, attitude and performance, points were divided into three parts, points less than 33 weak, 33-66 average and higher than 66 was considered good. To the awareness, score less than 7 was considered weak, 7 to 12 considered average and higher than 12 considered good and for attitude, score less than 15 considered weak, 15 to 30 points considered average and higher than 30 considered good and for performance, score below 5 considered weak, 5 to 10 points considered average and higher than 10 considered good. The validity of questionnaire was approved by the view of epidemiology, internal medicine specialists and gynecologists and obstetricians and experts in social medicine. Reliability coefficient using Cronbach alpha was obtained 89% respectively. Data analysis was conducted in SPSS18 software and using Fisher's exact test and Chi-square. The significant level was considered  $P < 0.05$ .

### RESULTS

In this study, investigating was conducted on 300 pregnant women that 64.7 percent of them were younger than 30 years and 35.3 percent of them had more than 30 years and the majority of the pregnant women were housewife with diploma education. The most important source of information was health personnel. Pregnant women demographic information in [Table 1] is presented in detail.

**Table 1:** Demographic information of pregnant women referred to Zabol's health centers in 2014

| Percent | Number |                     | Percent | Number |                     | Percent | Number |                  | Percent | Number |        |
|---------|--------|---------------------|---------|--------|---------------------|---------|--------|------------------|---------|--------|--------|
| 40/3    | 121    | Radio and TV        | 6/7     | 20     | Illiterate          | 75      | 225    | Housewife        |         |        | Job    |
| 10/7    | 32     | Internet            | 34/7    | 104    | Less than a diploma | 25      | 75     | Employee         |         |        |        |
| 19/3    | 58     | Friends             | 42/3    | 127    | Diploma             | 64/7    | 194    | Under 30 years   |         |        | Age    |
| 4       | 12     | Books and magazines | 16/3    | 49     | Higher Education    | 35/3    | 106    | Over 30 years    |         |        |        |
| 25/7    | 77     | Health personnel    | 24      | 72     | First three months  | 26      | 78     | Once             |         |        | Parity |
| 76/7    | 230    | No                  | 36/7    | 110    | Second three months | 33      | 99     | Twice            |         |        |        |
| 23/3    | 70     | Yes                 | 39/3    | 118    | Third three months  | 41      | 123    | More than double |         |        |        |

Results of the survey conducted on pregnant women in terms of awareness, attitude, and their performance to gestational diabetes in the [Table 2] are provided.

**Table 2:** Awareness, attitude and performance of pregnant women to

gestational diabetes in referred to Zabol's health centers in 2014

| Performance |         | Attitude |         | Awareness |         |         |
|-------------|---------|----------|---------|-----------|---------|---------|
| Number      | Percent | Number   | Percent | Number    | Percent |         |
| 6           | 18      | 0        | 0       | 5         | 15      | Weak    |
| 38          | 114     | 31/3     | 94      | 58/3      | 175     | Average |
| 56          | 168     | 68/7     | 206     | 36/7      | 110     | Good    |
| 100         | 300     | 100      | 300     | 100       | 300     | Total   |

People in terms of educational level are placed in four categories: no education, under diploma, diploma and higher education. Among them, 20 patients (6.7%) were illiterate that awareness in 4 patients (20%) was good, 14 patients (70%) were moderate and 2 patients (10%) weak, performance of 10 patients (50%) good, 8 (40%) average, 2 patients (10%) were weak, 5 patients (25%) had moderate attitude, and 15 patients (75%) had good attitude.

Education Level of 104 people (34.7%) was under diploma that attitude of 41 people (39.4%) was obtained good, 59 people (56.7%) average and 4 people (3.8%) weak and performance of 53 people (51%) good, 41 people (39.4%) average, 10 people (9.6%) were obtained weak and attitude of 47 people (45.2%) was reported average and 57 people (54.8%) were reported to be good. Education of 127 people (42.3%) was Diploma and Associate Degree that awareness of 44 people (6/34%) was obtained good, 78 people (61.6%) average and performance of 73 people (57.5%) good, 50 people (39.4%) average, 4 people (3.9%) weak and attitude of 33 patients (26%) average and 94 patients (74%) was obtained good. Education Level of 49 people (16.3%) was BA or higher that awareness of 21 patients (42%) was obtained good, 24 patients (49%) average and 4 patients (8.2%) weak, performance of 32 patients (65.3%) good, 15 people (30.6%) average, 2 people (4.1%) weak and attitude of 9 people (18.4%) average and 40 people (81.6%) was obtained good. The chi-square test results indicate that there is a significant relationship between the level of education of pregnant women and their attitudes toward gestational diabetes in the sense that with higher educational level, the attitude of pregnant women with gestational diabetes will improve (P-Value <0/05) but there wasn't observed any relationship with awareness and their performance (P-Value>0/05).

Occupational groups of pregnant women included housewife and employed. 225 people (75%) of them were housewives that 76% had good awareness, 60.9% average awareness, 12% poor awareness, 51.6% had good performance, 41.3% average performance, 7.1% had poor performance. Of 75 persons, 25% (45.3%) had good awareness, 50.7% had average awareness, 3% poor awareness, 28% had moderate attitude, 69.3 % good performance, 28% moderate performance, and 2.7% had poor performance. The chi-square test results indicate that there is a significant relationship between the job of pregnant women and their performance in gestational diabetes so that better performance was seen among employed women (P-Value <0/05). But with awareness and their attitude was not observed a significant association (P-Value > 0/05).

Of total 300 pregnant women, 70 women (23 percent) had abortion history. In mothers with a history of abortion: awareness of 30 women (42.9%) was obtained good, 35 women (50%) average, 5 women (7.1%) poor and performance of 36 women (51.4%) good, 31 women (44.3 percent) medium, 3 women (4.3%) poor and attitude of 26 women (37.1 percent) average and 44 women (62.9) was obtained good. In women with no history of abortion: Awareness of 80 women (34.8%) was reported good, 140 women (60.9%) average, 10 women (4.3%) poor and performance of 132 women (57.4%) good, 83 women (36.1%) average, 15 women (6.5%) poor and attitude of 68 women (29.6%) average and 162 women (70.4%) was reported to be good. The chi-square test results indicate that there is no significant relationship between the history of abortion in pregnant women, awareness, attitude and their performance to gestational diabetes (P-Value > 0/05).

In women who were pregnant in less than 2 times, awareness of 65 women (36.7%) was obtained good, 104 women (58.8%) average, 8 women (4.5%) poor and performance of the 101 women (57%) good, 35 women (36.7%) average, 11 women (6.3%) poor and attitude of 59 women (33.3%) average and 118 women (66.6%) was obtained good and in women who were pregnant more than 2 times, awareness of 45 women (36.6%) good, 71 women (57.7%) average, 7 women 5.7% poor and performance of 67 women (54.5%) good, 49 women (39.8%) average, 7 women (5.7%) poor and attitude of 35 women (28.5%) average and 88 women (71.5%) were reported to be good. The chi-square test results indicate that there is no significant relationship between the number of pregnancy times of pregnant women and awareness, attitude and their performance to gestational diabetes (P-Value>0/05).

Pregnant women who had gestational age less than 12 weeks, 31.9% has good awareness, 56.9% good performance and 70.8% had good attitude. The chi-square test results indicate that there is no significant relationship between pregnant women's gestational age and their awareness than gestational diabetes (P-Value>0/05), but there was not observed a significant relationship between attitude and their performance that whatever gestational age was more, better attitude and performance was seen (P-Value <0/05). Finally those who used resources, books, magazines and newspapers, 75% had average awareness and 91.7% good attitude and 83.3% had good performance which was significantly different than the others. The chi-square test results indicate that there is no significant relationship between the source of information in pregnant women and awareness and their performance than gestational diabetes

( $P\text{-Value} > 0/05$ ), but according to Fisher's exact test with their attitude was observed a significant relationship ( $P\text{-Value} < 0/05$ ).

## DISCUSSION AND CONCLUSION

Of the 300 women participating in the study, 175 women (58.3%) had average awareness, 206 women (68.7%) had good attitude and 168 women (56%) had good performance as well as factors such as level of education, gestational age, source of information in attitude, gestational age and job are influenced on performance of pregnant women than gestational diabetes ( $P\text{-Value} < 0/05$ ). In the study of Dr. Ghasemzadeh on 200 pregnant women, 62% had average awareness, 77% positive attitude and 69% had moderate performance, however, in this study, pregnant women older than 25 years and obesity is considered a risk factor for gestational diabetes and had a good attitude about the effect of maternal age in the incidence of gestational diabetes. In our study, pregnant women at every level of education had a good attitude toward gestational diabetes that this attitude in people with higher education was significantly higher than those under diploma that the results corresponded with the results of the study of Dr. Ghasemzadeh. It shows the impact of education on attitudes, it seems increasing the level of education of pregnant women at any stage caused to increase their awareness and thus create a positive effect on their attitude toward gestational diabetes actually it can be expected that having a regular training program is effective in increasing awareness and following changing attitudes of pregnant women [15].

Ahead study has shown that the majority of mothers in the use of any source of information had a good attitude and the attitude of people who have used books and magazines and newspapers than those who used other resources have been higher. In fact, it seems that the use of source of studies, books and magazines despite its low number among consumers, due to the reliability of the source of study and along with increasing the attitude with increasing education caused more impact of it than other sources of studies on the attitude of pregnant women than gestational diabetes. According to that 58.3 percent of pregnant women had moderate awareness, doing training programs, especially in terms of production, promotion of valid and understandable training books for the general public seems to be essential and given the delicate role of health personnel in raising awareness of women needs to be held such training programs. The subjects had good awareness about the definition and fasting blood glucose in gestational diabetes. But in the study of Dr. Ghasemzadeh [15] as well as most mothers did not have good awareness in this field, it can be said that changes in pregnancy blood sugar in textbooks in the field of obstetrics and Maternity in recent years and emphasis on the health system on correct definition of the problem [21] caused to raise awareness of pregnant women about this issue but still awareness about dimensions of problem and diabetes complications and strategies for dealing with it is remained in an unacceptable level that need to be investigated and further action. Most people considered urination as a sign of gestational diabetes and had a good awareness and attitude towards this issue, they also have a positive attitude about blood sugar control in the second trimester of pregnancy and showed a good performance in relation to this topic which represents the positive role of health system in following and suitable referring of pregnant women.

A high percentage of pregnant women reported that they act to their physician orders about health remedies that notes important role of doctors, especially family physicians. Most pregnant women not had positive attitude about the effect of increasing the number of pregnancy on gestational diabetes. It means that increasing pregnancies considered a factor to increase gestational diabetes while it has no scientific basis and it may be considered among the reasons for such thinking among pregnant women, high level of education and not wanting to be pregnant, it seems to be done in this field sufficient information. In the study of Ghasemzadeh [15], the majority of women in the second trimester of pregnancy had a good attitude to gestational diabetes, whereas in our study, most pregnant women in any age of pregnancy had a good attitude and good performance to gestational diabetes that the attitude and performance was significantly higher in the third quarter, perhaps the cause of increasing attitude of pregnant women due to pregnancy gestational diabetes by increasing age of pregnancy, especially in the third quarter can be stated as that by increasing gestational age, these women are covered by higher social protection from family and society in terms of their health status and their fetuses as well as increasing self-care behaviors, including blood sugar control, diet and exercise can also be a factor influencing this phenomenon.

In the study of Balali Mobidi that was conducted on 1000 pregnant women, 14.2% had good awareness, 15.6% positive attitude and 53.4% received a good performance score, which there was a significant relationship between awareness and performance with age, education and occupation and there was a significant relationship between attitude and education [20]. While awareness of pregnant women in our study had no relationship with any of the variables and just the job of pregnant women had relationship with performance than their gestational diabetes that a better performance status was observed in employed women that seems that given the level of higher education in both studies, employed women show better performance than diabetes, because these women with higher education that caused to increase awareness and their attitude and followed by it is an agent in order to improve their behavior (performance) in this field. In the study of Shrestha and colleagues that was conducted on 590 pregnant women in Nepal, 241 women (41%) of the participants had heard gestational diabetes about diabetes and in aged over 30 years old, 75% of them had no knowledge of gestational diabetes. Also education had a positive impact on awareness and their attitude ie people with higher education had a higher knowledge

level. While in the present study, age and education had no significant effect on awareness of participants on gestational diabetes, but the level of education had a positive effect on their attitudes and this indicates that the more the education of pregnant women is higher, it will have a positive effect on attitude and their performance in the field of gestational diabetes [22].

Finally, given the positive correlation between education level and attitude of pregnant women with gestational diabetes, planning is considered essential to increase the overall level of education and education of mothers. It also appears to be due to the recent policy of the Ministry of Health to increase the quality of services to pregnant women, health care system of area in identifying and the timely referral of pregnant women has acted as desirable as the performance of pregnant women has improved, but in the field of increasing awareness of mothers, measure or long-term planning is necessary. It also seems family physicians in level one and specialists in level two should consider more time for training of pregnant women.

#### CONFLICT OF INTEREST

Authors declare no conflict of interest.

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