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EFFECT OF DEPRESSION AND ANXIETY ON GESTATIONAL DIABETES IN BABYLON GOVERNMENT

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ABSTRACT: Objective: To examine anxiety levels and depression level of women diagnosed with gestational diabetes mellitus (GDM) and to compare these with glucose-tolerant (GT) women at similar stages of pregnancy. **Research Design and Methods:** Prospective longitudinal study conducted on 50 women with GDM and 50 NGDM women at 24 – 36 weeks of pregnancy. We are depended on Taylor anxiety Scale the Arabic version with reliability and Beck Depression Scale the Arabic version. **Results:** Women with GDM, compared with GT women, had a higher level of anxiety, depression scales, older, with low income, illiterate, and high BMI. **Conclusions:** Higher level of anxiety, depression scales, with low income, illiterate, and high BMI most causes of gestational diabetes.

INTRODUCTION: Gestational diabetes is most frequently diagnosed in the second trimester of pregnancy; it occurs in almost 10% of pregnancies Changes in carbohydrate metabolism which occur for the first time in pregnancy can lead to numerous fetus complications, *e.g.* infant macrosomia, greater proportion of cesarean deliveries, neonatal hypoglycemia and respiratory distress [1]. The exact mechanisms responsible for the development of GDM are poorly understood, although insulin resistance and reduced β-cell function both contribute to GDM development. Insulin sensitivity is impaired in women with GDM throughout the pregnancy, with the most significant impairment observed during the third trimester of pregnancy. These changes in insulin sensitivity are not fully resolved at postpartum, highlighting the long-term implications of GDM on metabolic control.

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In addition to changes in insulin sensitivity, β-cell function is also altered. The defect in β-cell function is expressed by a dysregulation of insulin secretion with some groups reporting reduced insulin secretion [2].

Depression is strongly linked to increased mortality in individuals with type 2 diabetes. Despite high rates of co-occurring anxiety and depression, the risk of death associated with comorbid anxiety in individuals with type 2 diabetes is poorly understood.

This study documented the excess mortality risk associated with symptoms of depression and/or anxiety comorbid with type 2 diabetes [3]. Anxiety and depression often occur together, are often present in pregnancy and persist if not treated. These disorders can have a wide range of effects not only for the mother but on the fetus, the infant, partner and other family members [4]. Women with gestational diabetes were more likely to have a cesarean section (46%) compared to women without gestational diabetes (32%), Also, the hospital costs related to delivery of infants were 18% more expensive (about $4,500) for women

with gestational diabetes than for women without gestational diabetes [5].

Method and Data Collection: The data collected from 1ed July 2015 to Augustus 2015. A structured interview were constructed with pregnant women who were attended primary center health / Babylon government to complete the questionnaire after the permission from Training and Development Center / Babel health government and the information are taken in patients room, and it was selected purposively (each patient asked for their agreement before gathering the information). The average time required for each respondent of the pregnant women has taken approximately 15-20 minutes for full questionnaire about assessing depression and anxiety among pregnant women through the interview.

This study was performed in a small two primary health centers in Babylon government which are Al Baqer center and Al-Shomaly center. All pregnant women are offered a test for GDM using the American diabetic association criteria. Women are tested in the morning at the beginning of the third trimester using a 75g glucose tolerance test (GTT) administered after an overnight fast. A diagnosis of GDM is made if the fasting glucose level is ≥5.1mmol/l (95 mg %) and/or the 2-h glucose level is ≥8.0mmol/l (140mg %) [6]. For patient convenience, a modified GTT is sometimes performed when the fasting glucose level is omitted [9].

Prospective longitudinal study conducted on 50 women with GDM and 50 NGDM women at 24 – 36 weeks of pregnancy [7]. Social support, education, and income were found to be significant factors related to perinatal depression [5, 8]. The incidence of mental health disorders subsequent to GDM was attenuated after adjustment for clinical and socioeconomic factors [9]. Measures administer include the Depression, Anxiety Stress Scale (DASS) [8].

We are depended on Taylor anxiety Scale the Arabic version with reliability (Al-Haj, 1997) and (Mikhail, 2003) and Beck Depression Scale the Arabic version with reliability (Radwan, 2003) as the following details of each Scale was used. Sociodemographic characteristics of the sample include age, gender, and marital status, level of education, residence, occupation and occupation type. Anxiety scale Anxiety scale assesses emotional responses and feeling.

It consists of 50 items, disrupted equally to five domains, which are restlessness, embarrassment, sensitivity, physiological anxiety, self- confidence domains. Answering by yes or no (no = zero and yes = one) the final degrees of scale ware between 0-50 degrees, and divided the levels of anxiety, according to this scale to four levels as follow.

Depression Scale Depression Scale consists of 21 items of statements, each item presented one symptom of depression (sadness, pessimism, sense of failure, loss of pleasure, guilty feelings, punishment feelings, self-dislike, self-criticalness, suicidal thoughts or wishes, crying, agitation ,social withdrawal, indecisiveness, change body image and shape, tiredness or fatigue, changes in sleeping pattern, loss of energy, changes in appetite, decreased weight, loss of interest in sex and preoccupation with health) responses to each item were (not at all = 0, a little = 1, some = 2, a lot = 3) the degrees of scale were ranging between 0-63 degrees, and divided the levels of depression, according to this scale to four levels.

TABLE 1: ANXIETY SCALE AND DEPRESSION SCALE

Anxiety scale	Depression Scale
0 - 16: normal anxiety	0 -11 no depression
17 - 24: mild anxiety	12 -19 mild depressions
25 - 35: moderate anxiety	20 - 27 moderate depression
36 - 50: severe anxiety	28 - 63 severe depression

Statistical Analysis: The investigator used the appropriate statistical methods in the data of analysis by using SPSS version 20, which include the following statistical methods. Standard deviation and significant

RESULT: The results of the present study were analyzed through the application of statistical procedures, which were interpreted based on the sample responses to the self-reported questionnaires and semi self-structural, the researcher is present the results as following.

Socio - Demographic Characterizes: The tables below show that the highest percentages of pregnant women were (40%) (26-30) years old; illiterate (44%); (46%) Rural, (44%) Unemployed and (10%) Government employee. The **Table 2**

below show the BMI, 0-h fasting blood glucose, 2-h fasting glucose level and history of diabetes for Women with GDM are more than Women without GDM.

TABLE 2: DISTRIBUTION OF PREGNANT BY SOCIO- DEMOGRAPHIC CHARACTERISTICS

Variable			SD	
Age (year)	**Women with GDM (n = 50)**	**Women without GDM (n = 50)**	**Value**	**Sig.**
15-20	1	4	6.8	0.018
21-25	11	13		
26-30	18	16		
31-40	20	17		
Total	50	50		
Income	Women with GDM (n = 50)	Women without GDM (n = 50)		
	600 $ - 700 $	850$ - 1100$		
Marital status	Women with GDM (n = 50)	Women without GDM (n = 50)	DS	
			Value	Sig.
Married	41	47	22.2	0.000353
Widowed	9	3		
Total	50	50		
Level of education	Women with GDM (n = 50)	Women without GDM (n = 50)	DS	
			Value	Sig
Illiterate	22	11	7.4	0.4
Primary	12	28		
Secondary	7	13		
Academic	9	8		
Total	50	50		
Residence	Women with GDM (n = 50)	Women without GDM (n = 50)	SD	
			Value	Sig.
Urban	27	31	5.16	0.24
Rural	23	19		
Total	50	50		
Occupation	Women with GDM (n = 50)	Women without GDM (n = 50)		
Employee	11	17		
Un employee	22	11		
Housewife	17	22		
Total	50	50		
Occupation type	Women with GDM (n = 50)	Women without GDM (n = 50)		
Government employee	10	15		
Free works	1	2		
Total	11	17		

TABLE 3: DISTRIBUTION OF PREGNANT BY SOCIO- DEMOGRAPHIC CHARACTERISTICS

	Women with GDM (n = 50)	**Women without GDM (n = 50)**
Weight (kg)	71.3 ± 20.2	70.0 ± 12.3
Height (m)	1.61 ± 0.07	1.66 ± 0.08
BMI (kg/m^2)	27.4 ± 7.2	24.6 ± 3.8
0-h Fasting glucose level (mmol/l)	5.4 ± 0.5	4.4 ± 0.3
(mg %)	97.2 ± 9	79.2 ± 5.4
2-h Fasting glucose level (mmol/l)	8.7 ± 1.0	5.5 ± 1.1
(mg %)	156.6 ± 18	99.0 ± 19.8
Family history of diabetes (%)	30	16
Living with partner (%)	96	90

TABLE 4: DISTRIBUTION OF DEPRESSED PREGNANT WOMEN ACCORDING TO THEIR LEVEL OF DEPRESSION

Level of depression	**Score of depression**	**Women with GDM (n = 50)**	**Women without GDM (n = 50)**	**SD**	
				Value	**Sig**
No depression	0-11	2	8		
Mild depression	12-19	5	13	7.65	0.17
Moderate depression	20-27	17	12		
Severe depression	28-63	26	17		
Total	63	50	50		

TABLE 5: DISTRIBUTION OF CASES (ANXIETY PATIENTS) ACCORDING TO THEIR LEVEL OF ANXIETY

Level of anxiety	Score of anxiety	Women with GDM (n = 50)	Women without GDM (n = 50)	SD Value	SD Sig
Normal anxiety	0-16	1	5	8.0	
Mild anxiety	17-24	6	11		0.045
Moderate anxiety	25-35	19	16		
Severe anxiety	36-50	24	18		
Total	50	50	50		

Depression Scale: The table below shows that high levels relative to depression items are sadness and guilty feelings, moderated level items are indecisiveness and agitation, low-level items are Social withdrawal and changes in appetite. We are found that (26) cases of Women with GDM have Severe level of depression as compare with 12 cases of Women without GDM of depression.

Anxiety Scale: We are found that (24) cases of Women with GDM have Severe level of anxiety as compare with 18 cases of Women without GDM according scale of anxiety.

The **Fig. 2** below show that the highest percentage of Women with GDM (48%) of the cases have Severe anxiety level, (38%) of the cases have Moderate anxiety level, (12%) of the cases have mild anxiety level and (2%) of the cases have normal anxiety level.

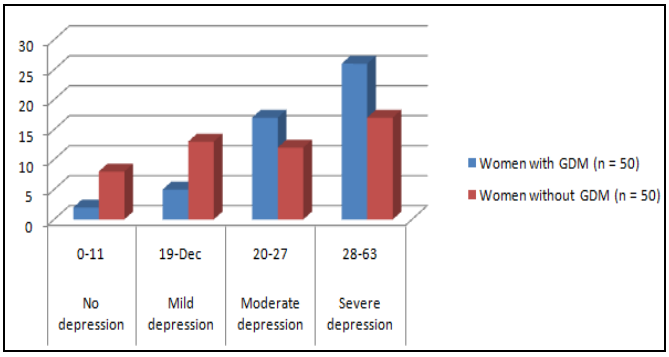

FIG. 1: DISTRIBUTION OF PATIENTS SAMPLE ACCORDING TO DEPRESSION LEVEL

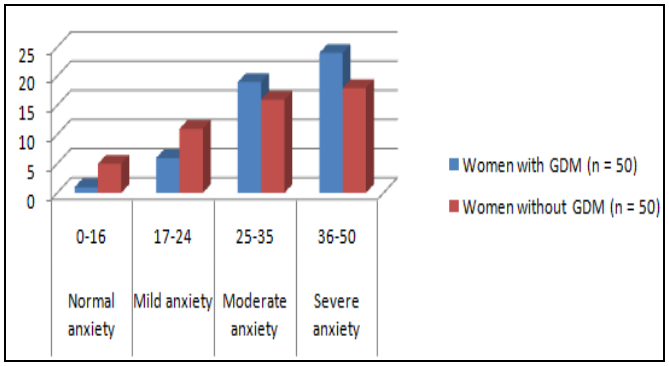

FIG. 2: DISTRIBUTION ACCORDING TO ANXIETY LEVEL

DISCUSSION: Prenatal depression and gestational diabetes are common complications during pregnancy. This study found that women with GDM had higher rates of depression as well as higher mean depression scores, it was determined that women with GDM were more likely to suffer from depression than women without GDM when controlling for age, marital status, and BMI.

Areefa SMAK *et al.*, 2014 found that age more than 35 years of the mother as one of the major correlation factors for developing GDM. Also Radhia Khan *et al.*, 2013 found that age of GDM were significantly higher at as compared to healthy pregnant women [10].

The findings of the present study show that the majority of the studied patients with low income as compare with high income and this result is almost similar to that Areefa SMAK *et al.*, 2014 found that the most GDM significant associated demographic factors with low income. This study found that the women with GDM had a higher BMI and this agreement with Buchanan, T.A. and A.H. Xiang 2005 who's found that with increase weight can increase rate of occur of GDM. In addition to Radhia Khan *et al.*, 2013 found that BMI of GDM were significantly higher at as compared to healthy pregnant women [10].

The findings of the present study show that the women with GDM had high depression scale as compared with that without GDM. This agreement with Khurshid Natasha *et al.*, 2013 whom found that Depression was higher in GDM subjects (25.92 %) compared to without-GDM subjects (10.38%) [11]. In addition to Elina Engberg *et al.*, 2015 where found that the women at high risk for GDM, 17% had high risk for depression compared to 11% of the pregnant women [12].

Also Caroline A *et al.*, 2005 found that women with GDM had high depression scale as compare with those without GDM [6]. In addition, Mary Alice

Byrn 2011 found that women with GDM were found to have higher depression scores than these without GDM [5]. The findings of the present study show that the women with GDM had high depression scale as compared with that without GDM. Mary Alice Byrn 2011 found that women with GDM had higher anxiety scores than women without GDM [5]. Also Suzie Daniells *et al*., 2003 Women with GDM had a higher level of anxiety as compared with women without GDM [7].

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REFERENCES:

1. Zwolińska-Kloc M *et al*.: Relations between gestational diabetes and postpartum depressive disorders and symptoms. Archives of Psychiatry and Psychotherapy 2017; 19(1): 43-46.
2. Kenna LA *et al*.: β-Cell death is decreased in women with gestational diabetes mellitus. Diabetology and metabolic syndrome 2016; 8(1): 60.
3. Mina TH *et al*.: Prenatal exposure to very severe maternal obesity is associated with adverse neuropsychiatric outcomes in children. Psychological medicine 2017; 47(2): 353-362.
4. Anniverno R *et al*.: Anxiety disorders in pregnancy and the postpartum period. INTECH Open Access Publisher 2013.
5. Byrn MA: Gestational Diabetes, Depression, and the Impact on Maternal Child Health Outcomes 2011.
6. Crowther CA *et al*.: Effect of treatment of gestational diabetes mellitus on pregnancy outcomes. New England Journal of Medicine 2005; 352(24): 2477-2486.
7. Daniells S *et al*.: Gestational Diabetes Mellitus is a diagnosis associated with an increase in maternal anxiety and stress in the short and intermediate term? Diabetes care 2003; 26(2): 385-389.
8. Moore PN, Kinsman RA and Dirks JF: Subscales to the Taylor Manifest Anxiety Scale in three chronically ill populations. Journal of clinical psychology 1984; 40(6): 1431-1433.
9. Walmer R *et al*.: Mental health disorders subsequent to gestational diabetes mellitus differ by race / ethnicity. Depress Anxiety 2015.
10. Khan R, Ali K and Khan Z: Socio-demographic risk factors of Gestational Diabetes Mellitus. Pakistan journal of medical sciences 2013; 29(3): 843.
11. Natasha K, Hussain A and Khan AA: Prevalence of depression among subjects with and without gestational diabetes mellitus in Bangladesh: a hospital based study. Journal of Diabetes and Metabolic Disorders 2015; 14(1): 1-9.
12. Engberg E *et al*.: A cross-sectional study of antenatal depressive symptoms in women at high risk for gestational diabetes mellitus. Journal of psychosomatic research, 2015.

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