

Quality of life among women with gestational diabetes

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SUMMARY

AUTHORS' CONTRIBUTION: (A) Study Design · (B) Data Collection · (C) Statistical Analysis · (D) Data Interpretation · (E) Manuscript Preparation · (F) Literature Search · (G) No Fund Collection

When a woman becomes pregnant and has never had diabetes before, she may develop gestational diabetes. Due to late metabolic changes during pregnancy, insulin resistance raises the requirement for insulin and can result in type 2 diabetes, which is comparable to gestational diabetes and impairs glucose tolerance. This aim of study to assess the quality of life among pregnant women and their relationship between them and with their demographic towards gestational diabetes. A descriptive study was conducted in Babylon Maternal & Children Teaching Hospital, Al-Imam AL-Sadiq Teaching Hospital at Al- Hilla City during the period from the 10th of January - 14th March 2024, the non-probability purposive sample approach consisting of 120 pregnant women who visited Babylon Maternal & Children Teaching Hospital, Al-Imam AL-Sadiq Teaching Hospital at Al- Hilla City. The questionnaire is a tool used to collection the data, the validity of the questionnaire was verified by (13) experts, data by applying descriptive and inferential statistical analysis. Results indicated that the average age of women was (27-36) years, (68.3%) were employed, (32.5%) were primary graduate, while (58.3%) of pregnant women was urban (94.2%) were not sufficient economic status. The study conducted that there is a high degree of correlation between quality of life and demographic variables. The researcher recommended enhancing social support from the family for the pregnant woman with diabetes by encouraging the pregnant mother to come with her husband during pregnancy to understand the mother's needs and the problems she may be exposed to better quality of life.

Keywords: Quality of life; Gestational diabetes

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INTRODUCTION

Pregnancy-related insulin resistance is a physiological adaptation meant to support the growing fetus, which uses glucose as its primary energy source and requires an adequate supply of carbohydrates. During pregnancy, there is a coexisting balance between this physiological insulin resistance and an adaptive rise in beta-cell insulin production [1]. GDM increases the risk of difficulties for both mother and child. These issues include pre-eclampsia, neonatal hyperbilirubinemia, hypoglycemia, respiratory distress syndrome, caesarean section, shoulder dystocia, delivery traumas, and other complications. Fetal macrosomia, a syndrome associated with gestational diabetes, mimics many of the issues associated with the condition. Women's who have had GDM are more likely to develop type 2 diabetes later in life [2]. Because of their complexities, high-risk pregnancies can have an impact on pregnant women's quality of life (QoL). Quality of life (QoL) encompasses various aspects such as an individual's physical, psychological, and social well-being [3]. In order to plan for the care of mothers and newborns and to help legislators and the health care association understand the demand for care, it is crucial to assess the quality of life, particularly for mothers who have gestational diabetes [4]. Pregnant women's and children's health is seriously at danger from gestational diabetes mellitus, a concern that is occasionally overlooked. According to the International Diabetes Federation, one in six pregnancies worldwide (13.6%) are affected by diabetes, and the disease's impact on mothers and children is increasing [3].

METHODS

Study design: A descriptive study design which was applied to assess "the quality of life among women with gestational diabetes "in Al-Hilla city during the period (4 October 2023 to 30 June 2024).

Study sample: To choose the sample, purposeful (non-probabilistic) sampling was used. 120 expectant pregnant women with gestational diabetes mellitus from "Babylon Teaching Hospital and Al-Imam AL-Sadiq Teaching Hospital" in Al Hilla City make up the study's sample.

Study instrument: The questionnaire is comprised of two parts as the following:

1st Part: Socio-demographic Characteristic.

The first part socio-demographic data contain (7) items concern the pregnant women and include (women age, level of education, occupation, residency, economic status)

2th Part: Quality of life among women with GDM

This part includes 34 items that measure the quality of life for women with GDM. Three Likert scale levels were used. The information was rated as follows: agree, disagree, have no idea (3, 2, 1).

Data collection

Data was gathered using a questionnaire format. To get verbal consent, the researcher identified herself to the subjects and gave an explanation of the study's objectives. The researcher was on hand to reply to any queries the respondents might have needed further clarification on. The interviewing techniques were used one-on-one and for (20 to 30) minute each.

Statistical analysis

The tabulation of data collected and subjected to various statistical techniques. Using Microsoft Excel (2010) and the Statistics Package Program for Social Sciences (SPSS) version 22, research findings can be obtained. The significant differences are divided into three categories: P values less than 0.01, substantial differences (0.01>P values larger than 0.05), and non-significant differences (P values greater than 0.05).

RESULTS

This presents the distribution of demographic data for (120) women who agree to the participating in the study. shows that most of study sample 60 (50.0%) were between (27-36) years age group with mean and standard deviation 29.17 ± 5.944 . Related to woman occupation this table show the high percentage for study sample 82 (68.3%) were employed. In related to education status this table also show that most of study sample 39 (32.5%) were Primary

graduate. Finally, this table show most of the women 70 (58.3%) were urban residency, and not sufficient economic statuses (**Tab. 1.**).

This **Tab. 2.** shows that overall assessment for women's responses regarding to quality of life concerning gestational diabetics were poor at mean and standard deviation 2.35 ± 0.253 .

Tab. 3. results show that overall assessment for women's responses regarding to quality of life concerning gestational diabetics were poor at mean and standard deviation 2.35 ± 0.253 .

The results in **Tab. 4.** show the differences between quality of live and socio-demographical characteristic. This table show highly significant differences between quality of live and occupation, educational status, residency, family history and economic status at p-value (0.004, 0.001, 0.001, 0.006, 0.001) which are less than 0.01. Also, this table show non-significant differences with remaining items of socio-demographical characteristic.

DISCUSSION

The socio-demographic details of the 120 women was reveal half of group (27-36) years old. The result of this study is inconsistency with Faraj, et al. [5], done in Sulaimani, Iraq in Mosul, Iraq found that more than one third the age group (28 -36) of respondents. In terms of woman occupations, this **Tab .1.** shows that more than two-thirds of the study group is employed. This study is inconsistent with a cross-sectional study conducted in Africa by Byakwaga, et al. [6], who discovered that more than half of the respondents were employed. Another study consistency with study done in Saudi Arabia by Wafa, et al. [7] who found the highest present was employed. While another's study inconsistency with study done in

Tab. 1. Distribution of demographic characteristic of women with gestational diabetes (No=120).

Demographic Data	Groups	Frequency	Percent
Age/Years	17-26	43	35.8
	27-36	60	50
	37 and more	17	14.2
	Mean \pm Std. Deviation	29.17 ± 5.944	
	Total	120	100
Occupation	Employed	82	68.3
	Not employed	38	31.7
	Total	120	100
Education Status	Not Read and write	0	0
	Read and write	14	11.7
	Primary graduate	39	32.5
	Intermediate graduate	16	13.3
	Secondary graduate	13	10.8
	Institute, College and above	38	31.7
	Total	120	100
Residency	Rural	50	41.7
	Urban	70	58.3
	Total	120	100
Economic Statuses	Sufficient	0	0
	Sufficient to some extent	7	5.8
	Not sufficient	113	94.2
	Total	120	100

Tab. 2. Assessment of the responses of study sample related quality of life concerning gestational diabetes (No=120).

S. No	Items	Groups	F	%	Mean	Std. Deviation	Assessment
1.	I faced constraints on my favorite foods and fruits	Disagree	4	3.3	2.77	0.498	Agree
		Have no Idea	20	16.7			
		Agree	96	80			
		Total	120	100			
2.	The family basket has changed due to my diet	Disagree	2	1.7	2.26	0.476	Have no idea
		Have no Idea	85	70.8			
		Agree	33	27.5			
		Total	120	100			
3.	My diet is repetitious and not diversified	Disagree	8	6.7	2.62	0.611	Agree
		Have no Idea	30	25			
		Agree	82	68.3			
		Total	120	100			
4.	I'm concerned about fetal abnormalities	Disagree	7	5.8	2.77	0.546	Agree
		Have no Idea	14	11.7			
		Agree	99	82.5			
		Total	120	100			
5.	I'm concerned about fetal and baby weight gain	Disagree	12	10	2.7	0.643	Agree
		Have no Idea	12	10			
		Agree	96	80			
		Total	120	100			
6.	I'm concerned about drug side effects on my fetus	Disagree	17	14.2	2.63	0.723	Agree
		Have no Idea	11	9.1			
		Agree	92	76.7			
		Total	120	100			
7.	I'm concerned about poor weight gain	Disagree	39	32.5	2.25	0.919	Have no idea
		Have no Idea	12	10			
		Agree	69	57.5			
		Total	120	100			
8.	I'm concerned that diabetes would be transmitted to my baby	Disagree	17	14.2	2.67	0.714	Agree
		Have no Idea	6	5			
		Agree	97	80.8			
		Total	120	100			
9.	I'm concerned about the fetal death	Disagree	17	14.2	2.65	0.718	Agree
		Have no Idea	8	6.6			
		Agree	95	79.2			
		Total	120	100			
10.	I'm concerned about the loss of fetal movement	Disagree	13	10.8	2.73	0.648	Agree
		Have no Idea	7	5.9			
		Agree	100	83.3			
		Total	120	100			
11.	I'm concerned about premature birth of my baby	Disagree	52	43.3	2	0.93	Have no idea
		Have no Idea	17	14.2			
		Agree	51	42.5			
		Total	120	100			
12.	The information from healthcare workers about the disease has helped me	Disagree	55	45.8	1.9	0.902	Have no idea
		Have no Idea	22	18.4			
		Agree	43	35.8			
		Total	120	100			
13.	I'm concerned about delayed wound healing	Disagree	73	60.8	1.61	0.823	Disagree
		Have no Idea	21	17.5			
		Agree	26	21.7			
		Total	120	100			
14.	My food is separated from the family meal	Disagree	12	10	2.53	0.673	Agree
		Have no Idea	32	26.7			
		Agree	76	63.3			
		Total	120	100			
15.	Frequent blood glucose test is difficult for me	Disagree	26	21.7	2.11	0.731	Have no idea
		Have no Idea	55	45.8			
		Agree	39	32.5			
		Total	120	100			

16.	To measure fasting blood sugar, I should fast for a long time and endure hunger	Disagree	43	35.8	1.88	0.769	Have no idea
		Have no Idea	48	40			
		Agree	29	24.2			
		Total	120	100			
17.	My sexual activity has decreased due to GDM	Disagree	7	5.9	2.63	0.595	Agree
		Have no Idea	31	25.8			
		Agree	82	68.3			
		Total	120	100			
18.	I use fruits and food with low and determined amounts	Disagree	7	5.8	2.73	0.561	Agree
		Have no Idea	18	15			
		Agree	95	79.2			
		Total	120	100			
19.	I go less to the market or mall due to gestational Diabetes	Disagree	4	3.4	2.73	0.518	Agree
		Have no Idea	25	20.8			
		Agree	91	75.8			
		Total	120	100			
20.	I have feeling of thirst and dry mouth	Disagree	4	3.3	2.84	0.449	Agree
		Have no Idea	11	9.2			
		Agree	105	87.5			
		Total	120	100			
21.	I repeatedly go to the bathroom	Disagree	1	.8	2.93	0.295	Agree
		Have no Idea	7	5.9			
		Agree	112	93.3			
		Total	120	100			
22.	I have blood sugar drop	Disagree	9	7.5	2.28	0.594	Have no idea
		Have no Idea	69	57.5			
		Agree	42	35			
		Total	120	100			
23.	I get angry easily	Disagree	5	4.2	2.78	0.505	Agree
		Have no Idea	16	13.3			
		Agree	99	82.5			
		Total	120	100			
24.	I feel depressed	Disagree	2	1.7	2.84	0.41	Agree
		Have no Idea	15	12.5			
		Agree	103	85.8			
		Total	120	100			
25.	Insulin injections for several times is difficult and time consuming for me	Disagree	78	65	1.41	0.601	Disagree
		Have no Idea	35	29.2			
		Agree	7	5.8			
		Total	120	100			
26.	I adjust insulin dose based on my blood Glucose	Disagree	75	62.5	1.46	0.647	Disagree
		Have no Idea	35	29.2			
		Agree	10	8.3			
		Total	120	100			
27.	I'm concerned about my baby's blood sugar drop after birth	Disagree	76	63.3	1.62	0.862	Disagree
		Have no Idea	14	11.7			
		Agree	30	25			
		Total	120	100			
28.	I have to visit doctors with different specialties	Disagree	34	28.4	2.18	0.847	Have no idea
		Have no Idea	31	25.8			
		Agree	55	45.8			
		Total	120	100			
29.	My spouse mental and emotional support helps me tolerate the disease easier	Disagree	23	19.2	2.43	0.796	Agree
		Have no Idea	22	18.3			
		Agree	75	62.5			
		Total	120	100			

30.	People's empathy helps me to tolerate the disease	Disagree	50	41.7	1.91	0.86	Have no idea
		Have no Idea	31	25.8			
		Agree	39	32.5			
		Total	120	100			
31.	The positive experience of the people around me about the disease has helped me	Disagree	72	60	1.64	0.848	Disagree
		Have no Idea	19	15.8			
		Agree	29	24.2			
		Total	120	100			
32.	The information I receive about the disease from the media and the internet has helped me	Disagree	44	36.7	2.09	0.907	Have no idea
		Have no Idea	21	17.5			
		Agree	55	45.8			
		Total	120	100			
33.	Prayer with God has helped me tolerate the disease	Disagree	0	0	2.99	0.091	Agree
		Have no Idea	1	0.8			
		Agree	119	99.2			
		Total	120	100			
34.	I am obsessed with the disease	Disagree	9	7.5	2.43	0.632	Agree
		Have no Idea	50	41.7			
		Agree	61	50.8			
		Total	120	100			

Tab. 3. Overall assessment of the responses of study sample related to quality of life (No=120).

Main Domain	Groups	F	%	M.S	Std. Deviation	Assessment
QoL	Good (QoL)	2	1.6	2.35	0.253	Poor quality of life
	Acceptance(QoL)	59	49.2			
	Poor (QoL)	59	49.2			
	Total	120	100			

F= Frequency, %= percentage, M.s=Mean, Std. Deviation=(Standard Deviation), Mean of scale=2, cut off point (0.66), (good quality of life=1-1.66), Acceptance quality of life= 1.67-2.33), (poor quality of life=2.34-3)

Saudi Arabia conducted by Alnaim, et al. [8], who justify more than three quarters unemployment. Regarding the study sample's educational level, it was found that more of one quarter of the women's were Primary graduate. While another study inconsistency with in Egypt who found that the their study nearly two thirds of women's with secondary education [9]. According to residency, the presented study results clarified that more than half of women's were live in urban areas. On the other hand, this study more supported with cross-sectional study done on 417 women in Central Ethiopia who found that more than half of the study sample from urban areas, and not sufficient status [10].

According to the findings of the present study, **Tab. 2.** showed that the majority of participants had good response level toward QoL for women with GDM concerning high-risk pregnancy such as (low or loss of fetal movement), perceived constraints, and complications of GDM like (premature, fetal death, baby weight gain & fetal abnormalitie). These results are corroborated by a study done by Shama, et al. [11] that was carried out in Egypt to investigate the relationship between GDM and QoL and discovered that participants' height was associated with information on intrauterine mortality, neonatal death, and obstetrical problems. The current findings are inconsistent with study conducted in Egypt by Malik, et al. [4] who evaluated the quality of life for women with GDM. They discovered that over 25% of the women reported low QoL in GDM-related problems.

According to the study's results, which are being presented, women's responses regarding the quality of life for gestational diabetics agreed with the dietary recommendations, such as using low- and determined-amount fruits and vegetables and changing the family basket to include more interesting foods. According to a research conducted in Australia by Bernier, et al. [12], nutritional interventions started early in pregnancy can improve glucose in people at risk for GDM and enhance care trajectories and policies for pregnant people at risk for GDM. These findings are consistent with the findings of this study.

According to our results, the **Tab. 3.** show that overall assessment for women's responses regarding to quality of life concerning gestational diabetics were poor at mean and standard deviation 2.35 ± 0.253 . This study consistence with cross-sectional carried out study done in Morocco who found that the quality of life among woman with gestational diabetics were low [13]. Which means that the quality of life decreased during pregnancy? It can be explained by the numerous biochemical, physiological changes which occur during this period. Another study who reported that the poor level of QoL among women's with GDM same result from presented study [14].

Tab. 4. Show the differences between quality of life and socio-demographical characteristic. This table show highly significant differences between quality of life and

Tab. 4. Differences between quality of life with socio-demographical characteristic (No=120).

Demographic Data	Value	Quality Of Life			Total	Test	D.f.	P-Value Ass.	
		Good	Acceptance	Poor					
Age/Years	17–26	F	2	23	18	43	1.374**	4	0.257 N.S
		%	4.70%	53.50%	41.90%	100.00%			
	27–36	F	0	25	35	60			
		%	0.00%	41.70%	58.30%	100.00%			
	37 and more	F	0	11	6	17			
		%	0.00%	64.70%	35.30%	100.00%			
Total	F	2	59	59	120				
	%	1.60%	49.20%	49.20%	100.00%				
Occupation	Employed	F	2	48	32	82	21.361*	2	0.001 H.S
		%	2.40%	58.50%	39.00%	100.00%			
	Not Employed	F	0	11	27	38			
		%	0.00%	28.90%	71.10%	100.00%			
	Total	F	2	59	59	120			
		%	1.60%	49.20%	49.20%	100.00%			
Education Status	Not read and write	F	0	0	0	0	7.059**	8	0.001 H.S
		%	0.00%	0	0	0			
	Read and write	F	0	5	9	14			
		%	0.00%	35.70%	64.30%	100.00%			
	Primary graduate	F	2	28	9	39			
		%	5.10%	71.80%	23.10%	100.00%			
	Intermediate graduate	F	0	11	5	16			
		%	0.00%	68.80%	31.30%	100.00%			
	Secondary graduate	F	0	7	6	13			
		%	0.00%	53.80%	46.20%	100.00%			
Institute, College & above	F	0	8	30	38				
	%	0.00%	21.10%	78.90%	100.00%				
Total	F	2	59	59	120				
	%	1.60%	49.20%	49.20%	100.00%				
Residency	Rural	F	1	36	13	50	16.934*	2	0.001 H.S
		%	2.00%	72.00%	26.00%	100.00%			
	Urban	F	1	23	46	70			
		%	1.40%	32.90%	65.70%	100.00%			
	Total	F	2	59	59	120			
		%	1.60%	49.20%	49.20%	100.00%			
B.M.I	Underweight	F	0	0	0	0	0.717**	6	0.49 N.S
		%	0	0	0	0			
	Normal weight	F	0	5	8	13			
		%	0.00%	38.50%	61.50%	100.00%			
	Over weight	F	0	35	17	52			
		%	0.00%	67.30%	32.70%	100.00%			
	Obesity	F	2	16	31	49			
		%	4.10%	32.70%	63.30%	100.00%			
Extreme obesity	F	0	3	3	6				
	%	0.00%	50.00%	50.00%	100.00%				
Total	F	2	59	59	120				
	%	1.60%	49.20%	49.20%	100.00%				
Family history	No	F	1	11	17	29	11.023*	2	0.006 H.S
		%	3.40%	37.90%	58.60%	100.00%			
	Yes	F	1	48	42	91			
		%	1.10%	52.70%	46.20%	100.00%			
	Total	F	2	59	59	120			
		%	1.60%	49.20%	49.20%	100.00%			
Economic Status	Not sufficient	F	2	58	53	113	8.386**	4	0.001 H.S
		%	1.80%	51.30%	46.90%	100.00%			
	Sufficient to some extent	F	0	1	6	7			
		%	0.00%	14.30%	85.70%	100.00%			
	Sufficient	F	0	0	0	0			
		%	0	0	0	0			
	Total	F	2	59	59	120			
		%	1.60%	49.20%	49.20%	100.00%			

*= t. test , **= ANOVA test, d.f= degree of freedom, p-value=probability value, Ass= assessment, N.S= non-significant, H.S= highly significant

occupation, educational status, residency, family history and socio-economic status at p-value (0.004, 0.001, 0.001, 0.006, 0.001) which are less than 0.01. Also, this table show non-significant differences with remaining items of socio-demographical characteristic. In regard to observation of this study, the current study was a significantly relationship between QoL among pregnant women with GD and level of education. Our results regarding education level consistence the sample consisted conducted in West Bank, Palestine using a cross-sectional design [15]. The study revealed a statistically significant link between quality of life scores and levels of education and employment. Another study consistence with presented study. Accordingly in this study, The current study discovered a highly significant difference in QoL between pregnant women with GD and those who do not have a job. The study findings of Naghavi, et al. [16], was published in Kerman, Iran confirmed this conclusion by stating that community members are engaged in a variety of jobs. Job women how antenatal is provided in various societies, the present study found is show highly correlation relationship between QoL Women with GD and residency. This conclusion was reinforced by the study results of in Kerman, Iran, social class and place

of residence have an impact on therapy compliance. All residents in urban areas were more compliant with therapy than those in rural areas for a variety of reasons, including accessibility to therapy centers, ease of travel, difficulty remember exercises, knowledge of a different study conducted [17]. The stated quality of life was also related to residence. Urban dwellers rated the highest overall quality of life (QoL), perceived health, and environmental quality of life. Another study consistence with presented study done by Bień, et al. [18].

CONCLUSION

The highest percentage of women were in the age group (27-36) years, more than two thirds percentage for study sample employed ,more of one quarter were primary graduate, living in urban areas, and majority of the participants were low for socio-economical statuses, highly significant differences between quality of life and socio demographic. Enhancing social support from the family for the pregnant woman with diabetes by encouraging the pregnant mother to come with her husband during pregnancy to understand the mother's needs and the problems she may be exposed to better quality of life.

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