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Quality of Life in Women under 65 Years of Age with Diabetes and Affecting Factors: A cross-Sectional Study

Ebru Yıldız Karadeniz[1](ID) Emine Kaplan Serin[2](ID) Neslihan Atlı[3](ID)

[1]Department of Fundamentals of Nursing, Faculty of Nursing, Mersin University, Mersin, Turkey.
[2]Department of Internal Medicine Nursing, Faculty of Nursing, Mersin University, Mersin, Turkey
[3]Sanliurfa Training and Research Hospital Sanliurfa, Turkey

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Abstract

Objective: The study was conducted in the cross-sectional manner to determine the factors affecting the quality of life in women 65 years under with diabetes, to ensure the guide women in the management of the disease.

Methods: This study was conducted in the cross-sectional manner with 134 female patients with diabetes. The data were collected using the "Personal Information Form" and the “The World Health Organization Quality of Life Instrument Short Form”. Descriptive statistical analyzes were used to evaluate the data, and correlation and regression analyzes were used to evaluate the effects of independent variables.

Results: In the correlation analysis made for the relationship of some variables with the quality of life, it was determined that there was a positive significant relationship between age and duration of marriage variables, physical area, mental area, environmental area, general health, and total quality of life. It has been determined that the variables of residence, income status, duration of marriage, presence of gynecological disease, number of births, number of living children, family planning use status, fasting and postprandial blood sugar variables affect the quality of life. It was determined that the variables included in the model explained 61% of the quality of life.

Conclusion: Age, duration of marriage, geographical conditions of the place of residence and income status, quality of life also varies according to gender, as gynecological diseases experienced, pregnancy, and family planning use status, fasting and postprandial blood sugar variables affect the quality of life.

Key words: Quality of life, woman, diabetes, gender, factors affecting quality of life

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Address for correspondence/reprints:

Emine Kaplan Serin

Telephone number: +90 (324) 361 00 01

E-mail: emine_3354@hotmail.com

INTRODUCTION

Diabetes mellitus is a chronic and broad-spectrum metabolism disorder that negatively affects daily life and life expectancy activities by causing hemostasis and disruption of physical functions in the whole body with its effect on multiple organ systems (1-3). According to the International Diabetes Federation (IDF) 2019 diabetes atlas data, the diabetes prevalence of 351.7 million was reported to be slightly lower in women between the ages of 20 and 79 compared to men (9.0% versus 9.6%). However, it is reported that it will reach 417.3 million in 2030 and 486.1 million in 2045, and it will increase even more in both men and women (4). Diabetes, which causes changes in the lifestyle of individuals due to the need for continuous follow-up and treatment, negatively affects the quality of life of the individual, which is a comprehensive structure that includes physical, emotional, and social aspects (5,6).

In the studies in the literature, it has been reported that gender affects the quality of life of individuals as well as factors such as diabetes-related complications, age, drug intake routes, profession, and physical activity level (5-7). It is emphasized that the differences observed between women and men are related to various underlying causes, and the effects such as bone loss and gastrointestinal side effects that develop in the treatment selection or treatment process related to gender are more a matter of concern for women (8-10). Verma and Dadarwal reported that women experienced more depression / anxiety than men, had low physical activity and poor social conditions, and therefore their quality of life scores were low. It has been reported that there is some evidence indicating that there are differences in coping styles and psychosocial adjustment to the disease in men and women with diabetes (11). In many studies in the literature examining the factors affecting the quality of life of individuals with diabetes, it is emphasized that demographic variables are important factors, but there are only a few studies examining the effect of diabetes on the quality of life in women (12,13). In addition, the combination of physiological and emotional changes caused by diabetes and hormonal changes that occur due to some special conditions such as pregnancy, menopause, and menstruation are thought to be effective on quality of life of women. This study was planned to guide women in the management of the disease by determining the factors affecting the quality of life in women with diabetes and in determining coping strategies with the symptoms that develop due to the disease.

1. What is the mean score of the quality of life scale of women with diabetes?
2. What are the determining factors affecting the quality of life of women 65 years under with diabetes.

METHODS

Adherence to ethical standards:

Before starting the research, ethical approval from a state University Non-Interventional Ethics Committee (dated and numbered 2020 / E.9688) and application permission from the institution where the research was conducted was obtained. The patients constituting the sample of the study were explained that the purpose, duration, and personal information of the study would not be shared, and their written consent was obtained in line with the voluntary principle.

Objective and type of the study:

The study was conducted in the cross-sectional manner to determine the factors affecting the quality of life in women 65 years under with diabetes, to ensure the guide women in the management of the disease.

Population and sample of the study:

The population of the study consisted of 152 woman patients who were diagnosed with diabetes who applied to the internal medicine outpatient clinic of the training and research hospital between 01.12.2020 and 15.01.2021. The sample of the study, on the other hand, consists of 134 patients who applied to the internal medicine outpatient clinic on the dates of data collection, accepted to participate in the study and met the inclusion criteria (married and female patients under 65 years of age diagnosed with diabetes).

Data Collection:

The data were collected using the "Personal Information Form" and the “The World Health Organization Quality of Life Instrument Short Form (WHOQOL-BREF-TR)”.

Personal Information Form:

In the Personal Information Form developed by researchers in line with the literature (14-16), there were 22 questions which focused on the sociodemographic characteristics (age, gender, marital status, work experience) and obstetric characteristics (whether they had any children of womans, presence of gynecological disease).

The World Health Organization Quality of Life Instrument Short Form Turkish Version (WHOQOL-BREF-TR):

Health-related quality of life scale was developed by WHO, and its validity and reliability study in our country was conducted by Eser et al. In 1999. The scale has two versions: long (WHOQOL-100) and short (WHOQOL-27) forms. The scale measures physical, mental, social and environmental well-being and consists of 26 questions. When using the Turkish version (the 27th question is the national question), the environmental area score is named environment-TR. In this case, Environment-TR field score is used instead of environmental score. Total quality of life score is minimum 27, can vary between a maximum of 135. The higher the score, the higher the quality of life (14). The Cronbach's alpha internal consistency coefficient was found to be

α=0.89, and the Cronbach's alpha internal consistency coefficient of this study was found to be α=0.89.

Statistical Analysis:

After the data were coded by the researchers, data analysis was performed by using IBM SPSS (Statistical Package for the Social Sciences) Statistics 25. Descriptive statistical analyzes (mean, median, standard deviation, frequency, 25th and 75th percentiles) were used to evaluate the data. The conformity to the normal distribution of the data was examined with the Shaphiro Wilk test. Analysis of variables conforming to normal distribution was performed with Student's t test or ANOVA. Mann-Whitney U or Kruskal Wallis tests were used for variables that did not show normal distribution. Bonferroni correction was made according to the number of groups. Spearman correlation and multiple linear regression analysis (enter method) were used to evaluate the effects of independent variables. The scale reliability coefficient was determined with Cronbach's Alpha. 95% confidence interval and p-value less than 0.05 were taken into account in the evaluation of the obtained results.

RESULTS

It was determined that the median age of the patients participating in the study was 52 (49-55), the median BMI was 30.45 (27.63-32.88), and the median duration of marriage was 32 (26-36) years**.** In addition, 97% of them were housewives, 46.3% of them were primary school graduates, 61.9% of them reside in the city center and 56.7% of them have moderate income. It was determined that 85.1% of the participants did not smoke, 86.6% did not have a gynecological disease, and 90.3% did not use a family planning (FP) method. It was found that the median number of births of the patients was 5 (4-7), and the number of surviving children was 5 (4-6) (Table 1, Table 3).

Considering the characteristics of the disease, it was determined that 43.3% of the participants were followed up with a diagnosis of diabetes for 6-10 years, 48.5% received oral antidiabetic (OAD) treatment, 66.4% had a disease other than diabetes, 64.9% had another diabetic family member. It was determined that 85.1% did not receive training for diabetes management, 45.5% did an average of 30 minutes of walking exercise per day. The median fasting blood glucose (FBG) of the patients was 180 (140-200), and the median postprandial blood glucose (PBG) was 340 (287.5-400) (Table 2, Table 3).

Comparing the results including the mean scores of the quality of life related to the sociodemographic characteristics of the patients, it was determined that the mean scores of the total quality of life, physical health and general health sub-dimensions of the retired were statistically significantly higher than the mean scores of housewives. In addition, it was determined that the mean scores of social field, environmental field, general health sub-

dimensions, and total quality of life were higher with a statistically significant difference in literate patients. According to the place of residence of the patients, it was observed that the mean scores of the physical health (center-village, center-county), social field (center-county), environmental field (center-village, center-county) sub-dimensions and total quality of life of those living in the village were statistically significantly higher (center-village, center-county) ($p<0.05$). It was found that the social field and environmental field sub-dimensions and total quality of life mean scores of the patients who evaluated their own income as low were lower, and the difference between them was significant. It was determined that the mean scores of the physical

health sub-dimension of non-smokers were higher than the mean scores of the patients using it with a statistically significant difference. It was found that the mean scores of the psychological and social field sub-dimension of the patients without gynecological disease, and the mean scores of the social field sub-dimension of the patients who used FP were high and the difference was significant (Table 1).

The comparison of the average quality of life scores according to the characteristics related to the disease is shown in Table 2. According to the duration of the disease, it was determined that the physical health score of women who were diabetic for 11 or more years, and the general health and quality of life score averages of those who had 1-5 years were higher, and the difference within the group was significant. In the comparison of the average quality of life scores according to the treatment method; It was observed that OAD users' mental, social, environmental, general, and total health score averages were found to be higher with a statistically significant difference. It was found that the average physical, social and total quality of life score of those who did not have any other chronic diseases other than diabetes was higher with a statistically significant difference. Social, environmental, general, and total quality of life mean scores were found to be significantly higher in those with a family history of diabetes and those who received training on diabetes management (Table 2).

In the correlation analysis made for the relationship between some variables and the quality of life in patients, it was determined that there was a positive significant relationship between age and duration of marriage variables and physical field, mental field, environmental field, general health and total quality of life. While a negative relationship was found between exercise duration and social field, a positive relationship was found between FBG and mental, social, and general health. A positive relationship was found between PBG and social field (Table 3).

The multiple regression model established to find the predictors of the quality of life variable

is statistically significant (p <0.05). It was determined that the variables of residence, income status, duration of marriage, presence of gynecological disease, number of births, number of living children, FP status, FBG and PBG variables affect the quality of life of the patients and the variables included in the model explain 61% of the quality of life (Table 4).

Table 1. Comparison of mean quality of life scores according to sociodemographic variables

	n (%)	Physical Area	Mental Area	Social Area	Environmental Area	General Health	Total Quality of Life
Profession							
Housewives	130 (97)	11.61±3.35	12.21±3.26	6.07±2.66	16.16±4.89	3.60±1.27	49.67±12.37
Retired	4 (3)	18±00	14±00	5±00	18±00	5±00	60±00
p^a		**0.002**	0.131	0.429	0.370	**0.019**	**0.017**
Education Status							
Illiterate	39 (29.1)	11.92±3.46	11.69±4.32	5.35±2.81	15.94±5.84	3.20+1.55	48.12±16.02
Literate	23 (17.2)	12.69±3.58	13.47±2.92	7.30±3.23$^{\Omega}$	17.39±5.42	3.95±1.18$^{\Omega}$	54.82±12.94$^{\Omega}$
Primary School Graduates	62 (46.3)	11.37±3.13	12.19±2.61	5.88±2.24^{w}	16.43±3.77	3.88±0.97$^{\Omega}$	49.77±8.98
High School	10 (7.5)	12.00±5.16	12.20±1.54	6.80±1.54	13.20±4.13^{w}	3.20±1.54	47.40±10.84
p^b		0435	0.105	**0.011**	**0.036**	**0.045**	**0.022**
Living Place							
Province veya City center olmalı	83 (61.9)	11.08±3.27	11.97±3.31	5.55±2.56	15.22+4.40	3.50±1.20	47.34±11.15
County	38 (28.4)	12.52±3.21*	12.42±2.34	6.89±2.65*	17.28+4.24*	3.84±1.1	52.97±10.54*
Village	13 (9.7)	14.30±4.15*	14.69±4.55	6.69±2.39	19.38+6.98*	4.00±2.04	58.07±18.46*
p^b		**0.004**	0.130	**0.033**	**0.026**	0.229	**0.011**
Income Status							
Low	29 (21.6)	12.20±3.85	13.17±4.00	7.34±3.06	18.31±6.63	4.03±1.52	55.06±16.77
Medium	76 (56.7)	11.51±3.09	12.15±1.90	6.15±2.21^{E}	16.02±2.99^{E}	3.55±1.01	49.40±7.06^{E}
High	29 (21.6)	12.17±4.05	11.65±4.74	4.44±2.44^{E,R}	14.62±5.94^{E}	3.51±1.59	46.41±16.26^{E}
p^b		0.785	0.132	**0.000**	**0.013**	0.137	**0.030**
Smoking							
Yes	20 (14.9)	9.85±2.20	13.05±2.28	6.10±1.82	16.80±3.22	4.15±0.67	49.95±6.86
No	114 (85.1)	12.14±3.55	12.13±3.35	6.03±2.75	16.11±5.06	3.56±1.34	49.99±3.06
p^a		**0.007**	0.206	0.777	0.181	0.065	0.851
Presence of Gynecological Disease							
Yes	18 (13.4)	12.00±4.82	10.55±3.03	4.38±2.32	14.94±3.93	3.27±1.36	45.16±12.03
No	116 (86.6)	11.77±3.24	12.53±3.18	6.30±2.59	16.41±4.93	3.70±1.26	50.73±12.24
p^a		0.714	**0.022**	**0.003**	0.202	0.230	0.091
FP Use Status							
Yes	13 (9.7)	11.23±4.12	12.38±2.59	8.07±1.75	16.00±6.73	3.46±1.66	51.15±15.06
No	121 (90.3)	11.86±3.41	12.25±3.29	5.82±2.62	16.23±4.61	3.66±1.24	49.85±12.05
p^a		0.436	0.460	**0.002**	0.794	0.599	0.665

*FBG: Fasting Blood Glucose, Ω: difference with the illiterate, w: difference with the literate, *: difference with the center, E: difference with the bad, R: difference with the middle, P^a: Mann-Whitney U, P^b: Kruskal Wallis tests, P^c: Independet t test*

Table 3. Relationship of some variables with quality of life

	Median(Q1,Q3)	Physical Area	Mental Area	Social Area	Environmental Area	General Health	Total Quality of Life Scale
		12 (8-14)	12 (11-14)	6 (4-8)	16 (14-19)	4 (3-5)	51 (44-57)
Age (year)	52 (49-55)	**0.263****	**0.306****	0.013	**0.385****	**0.328****	**0.343****
Body Mass Index	30.45 (27.63-32.88)	0.137	-0.070	0.017	-0.025	0.086	0.023
Duration of the marriage	32(26-36)	**0.358****	**0.408****	**0.106**	**0.463****	**0.483****	**0.463****
Number of births	5 (4-7)	0.012	0.005	-0.010	0.057	-0.103	0.014
	5(4-6)	0.028	0.139	0.111	**0.199***	0.001	0.146
Exercise min / day	30 (30-45)	-0.063	-0.009	**-0.184***	-0.023	0.050	0.005
FBG	180 (140-200)	0.023	**0.230****	**0.251****	0.105	**0.178***	0.167
PBG	340 (287.5-400)	-0.160	0.082	**0.197***	0.030	0.017	0.008

*FBG: Fasting Blood Glucose (n=69), PBG: Postprandial Blood Glucose (54), Q1: first quartile, Q3: third quartile, *p<0.05, **p<0.001*

Table 2. Comparison of average quality of life scores according to the characteristics of the disease

	n (%)	Physical Area	Mental Area	Social Area	Environmental Area	General Health	Total Quality of Life
Duration of the Disease							
Less than 1 year	17 (12.7)	10.11±2.39	10.94±5.11	6.00±3.64	14.70±5.12	2.76±1.56	44.52±14.65
1-5 years	49 (36.6)	11.14±3.14	11.95±2.03	6.00±2.39	16.10±4.06	3.95±1.09[d]	49.16±9.43
6-10 years	58 (43.3)	12.65±3.55[d,q]	13.00±3.01	6.41±2.50	16.84±5.40	3.63±1.18[d]	52.55±12.92
11 years and above	10 (7.5)	13.33±4.7[d]	11.80±4.51	4.20±1.93	15.70±4.16	3.70±1.63	48.40±14.89
p[b]		**0.033***	0.069	0.082	0.882	**0.028***	0.264
Treatment Method							
OAD	65 (48.5)	11.73±3.67	13.53±3.34	6.27±2.55	17.30±4.72	3.75±1.25	52.23±12.32
Insulin	63 (47)	12.04±3.41	12.04±2.20[h]	6.19±2.54	15.87±4.36	3.79±1.09	49.95±10.38
Diet only	6 (4.5)	10±0.00	5±0.00[h,m]	2±0.00[h,m]	8±0.00[h,m]	1±0.00[h,m]	26±0.00[h,m]
p[b]		0.320	**0.000****	**0.001***	**0.000****	**0.000****	**0.000****
Any Other Chronic Disease Other Than Diabetes							
Yes	89 (66.4)	11.38±3.69	11.88±2.95	5.71±2.62	15.74±4.18	3.56±1.16	48.29±10.70
No	45 (33.6)	12.64±3.58	13.02±3.63	6.68±2.54	17.15±5.83	3.82±1.48	53.33±14.56
p[c]		**0.047***	0.054	**0.044***	0.110	0.268	**0.025**
Family History of Diabetes							
Yes	87 (64.9)	12.09±3.68	12.63±2.69	6.81±2.60	17.04±4.87	3.82±1.27	52.41±11.92
No	47 (35.1)	11.27±3.02	11.59±3.98	4.61±2.03	14.68±4.37	3.31±1.23	45.48±11.86
p[c]		0.197	0.076	**0.000****	**0.006***	**0.028***	**0.002***
Educational Status for Diabetes							
Yes	20 (14.9)	11.75±2.04	10.55±5.20	4.05±2.16	13.55±4.92	2.55±1.53	42.45±14.55
No	114 (85.1)	11.81±3.68	12.57±2.66	6.39±2.55	16.68±4.67	3.84±1.13	51.30±11.44
p[a]		0.609	0.085	**0.000****	**0.025***	**0.000****	**0.040***
Exercise practice							
Yes	61 (45.5)	11.18±2.58	12.13±3.59	6.49±2.78	15.80±4.85	3.54+1.45	49.14±12.65
No	73 (54.5)	12.32±4.02	12.38±2.90	5.67±2.45	16.56±4.81	3.73+1.11	50.68±12.07
p[c]		0.057	0.654	0.072	0.367	0.373	0.474

*OAD: Oral Antidiabetic Drugs, d: difference with the Less than 1 year, q: difference with the 1-5 years, h: difference with the OAD, m: difference with the insulin, P[a]: Mann-Whitney U, P[b]: Kruskal Wallis tests, P[c]: Independent t test *p<0.05, **p<0.001*

Table 4. Multiple Regression Analysis Results for Quality of **Life**

Quality of Life	B	SE	B	t	p
(Constant)	23.874	7.429		3.214	.002
Living Place[a]	4.377	1.334	.238	3.280	.001
Income Status[b]	-5.219	1.274	-.280	-4.097	.000
Duration of the marriage	.485	.096	.355	5.058	.000
Presence of Gynecological Disease[c]	13.412	2.229	.373	6.017	.000
Number of births	-5.929	1.130	-.887	-5.248	.000
Number of children	7.180	1.209	.983	5.938	.000
FP Use Status[d]	-8.412	2.530	-.203	-3.325	.001
FBG	.093	.015	.726	6.332	.000
PBG	-.053	.009	-.745	-6.078	.000
	R:0.781	R^2:0.610	AdjR^2:0.581	p:0.000	

*FP Use Status: using family planning method, FBG: Fasting Blood Glucose, PBG: Postprandial Blood Glucose, a:, b: bad, c: yes, d: no, It was significant at the 95% confidence interval *p<0.05, **p<0.001*

DISCUSSION

Quality of life, which is a concept related to the determination of individual clinical evaluation of the patient's own health status, is adversely affected by the symptoms and serious complications caused by diabetes, which is a chronic and progressive disease, and causes significant changes in patients' lives (12). In the

literature, in parallel with the data of this research presented, besides complications, different descriptive characteristics such as profession, education, economic status, smoking, environment, education for diabetes and being a diabetic family member, treatment type, duration of diabetes, and having a secondary chronic disease were observed to be effective on chronic disease management. Thus, it was observed that the quality of life in different areas was negatively affected. In a pilot study conducted in Turkey, where Koç (2015) examined the quality of life and related factors in patients with diabetes, while it was determined that diabetes affects the quality of life of the patients negatively by 96.1%, it has been reported that gender, age, marital status, income, diabetes treatment type, duration of diabetes, diabetes complications and the presence of comorbid diseases have a significant effect on quality of life (15). In Yıldız Aslan's study, 70% of the patients with diabetes had a chronic disease other than diabetes. In these studies, it was stated that the duration of the disease and a secondary chronic disease negatively affect the quality of life (17). It is essential not to ignore the conditions that affect the quality of life in disease management. It is important to give holistic care to patients and improve their quality of life.

In the study, it was determined that individuals who are retired and continue their lives in the village, who do not smoke, who have been diagnosed with diabetes for more than 11 years and who have a second chronic disease have a moderate quality of life in the physical field. This result suggests that living in settlements far from mega-urban environments where physical activity areas are limited due to the effect of developed industry and technology, along with fresh air, abundant oxygen and reliable food consumption opportunities, healthy lifestyle behaviors and therefore the quality of life in the physical space are positively affected. In parallel with this study, in Gökpınar's study, the total quality of life score of those living in the village is higher than those living in the city (16). In contrast to this study presented in Yıldız Aslan's study, the Total Quality of Life score of those living in villages and townships is significantly lower than those living in the city (17).

It was determined that the mental domain quality of life in women who do not have any gynecological disease and who use OAD was found to be at a significantly moderate level. Parsons et al. (2006) reported that increased FBG levels and diabetes caused the development of lower urinary tract symptoms. It has been determined that the emotional effects and mood changes of some gynecological conditions that are due to the normal physiology of the woman, such as menopause, menstruation and pregnancy, which are experienced with diabetes, affect the quality of life. Therefore, in the study in

question, it can be said that women without any gynecological problems felt more secure and thought that they were successful in diabetes management using only OAD, and the psychiatric life quality increased to a moderate level (18).

In women whose living area is village, who are literate, whose income is low, who do not have a gynecological disease, who use one of the family planning methods, who are treated with OAD, who have no other disease other than diabetes, who have diabetes in their family and who have not received any education on diabetes, the social field quality of life was found to be low with a significant difference. Considering that this finding of the study is associated with the lowest quality of life in social life in women with a diabetes duration of 11 years or more, it can be said that as the duration of the illness increases, mental well-being, energy and physical function skills decrease, the risk of chronic complications increases and the quality of life of individuals decreases by restricting their participation in daily life. In the study by Bilgin et al. examining the relationship between diabetes and quality of life, it was reported that the mean scores of social function perception were statistically significantly lower in women (19).

The "environmental field" quality of life is significantly higher for women who live in the village, who are literate, who use OAD, who state that their income is low, who have diabetes in their family and who do not receive education for diabetes. It can be said that the reason for this result is that women have the opportunity to consume organic healthy foods due to life in the village, engage in physical activity thanks to agricultural and livestock work, and exhibit healthy lifestyle behaviors in line with the conditions of the region where they live.

In the study, according to the lowest and highest score that can be obtained from the scale, it can be said that the quality of life of the patients in the physical and mental health field is moderate, the quality of life in the social and general health is low, and the quality of life in the environmental field is higher than the average. Similar to the findings of this research, in the study of Tavakkoli and Denhghan, it was determined that the psychiatric life quality of the patients was at a moderate level. It is thought that the skills of coping with the complications caused by chronic diseases have important effects on the psychological health of individuals (20). In the thesis of Güneş examining the relationship between quality of life and hopelessness in patients with type 2 DM, it was reported that the quality of life in the mental, social, and environmental fields was above the middle level (21). In the study where Gen examined the relationship between the quality of life and depression and anxiety levels in individuals with diabetes, it was found that the general health score of the quality of

life in women was statistically significantly lower than that of men. It can be said that the different levels of the results obtained from the fields of quality of life in this study and other studies in the literature are due to the differences in the geographical region, sociodemographic characteristics, and lifestyle behaviors of the participants (22).

CONCLUSION

In addition to age, duration of marriage, geographical conditions of the place of residence, income status, gynecological diseases experienced in women due to their normal physiology, pregnancy and medical treatments used for these affect the perceptions, preferences, and decision-making processes of the patient in the management of a disease.

Limitations of the study

The most important limitation of the study is that it is cross-sectional and conducted in a single province and in a single hospital so data cannot be generalized.

Ethics Committee Approval: Appropriate permission for the study was obtained from the Committee of Non-Interventional Ethics of Munzur University (approval no:25.06.2020-4).

Peer-review: Externally peer-reviewed.

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