



Determination of Women's Fertility Awareness Levels and Influencing Factors

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Abstract

Objective: In the present study, it was aimed to determine the fertility awareness levels of women of reproductive age and the factors affecting them.

Methods: The sample of the cross-sectional study based on the general survey model using a quantitative approach included 686 women aged 18-49 years who met the inclusion criteria. The data were collected online via Google Forms using the Personal Information Form and Fertility Awareness Scale (FAS). Descriptive statistics, independent samples t-test and one-way ANOVA test were used to evaluate the data. Statistical significance was taken as $p < 0.05$.

Results: The mean age of the participants was 29.56 ± 7.68 years (min:18 and max:50). The mean total score of the fertility awareness scale was 61.31 ± 12.53 , and the mean total scores of the sub-dimensions were 35.10 ± 8.08 for physical awareness and 26.21 ± 5.60 for cognitive awareness. When we look at the factors affecting the level of fertility awareness; age, educational status, employment status, occupation, presence of infertile individuals in the environment, research on fertility health and receiving fertility health education were found to be significantly related to the level of fertility awareness, while marital status was not.

Conclusion: In the study, it was determined that women's fertility awareness level was at an intermediate level. It is predicted that trainings to be organized to increase the fertility awareness levels of health professionals, especially midwives, who are the most important care and counseling providers in women's reproductive health, will contribute to the protection of fertility health.

Keywords: Fertility Awareness, Fertility, Women's Health, Midwifery

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1. Introduction

Fertility awareness is of increasing interest and importance worldwide (1). While decisions about whether or not to have children, when and how to have children are a matter of personal preference, choices in this area of life are about having the right information and awareness (2). Especially in the modern world, people's career, education and Situations such as postponing parenthood due to relationship and financial problems, changing daily activities and lifestyles due to developing technology, and increasing the incidence of non-communicable diseases such as obesity, diabetes and thyroid disorders have negative effects on fertility health (3,4). Lifestyle behaviors and personal factors affect fertility. Understanding how it affects fertility is very important to maximize fertility results and minimize fertility-related complications. It also enables women to transform their risky behaviors by being aware of the impact of their lifestyle on fertility health and thus to control their fertility potential (5,6). Providing fertility awareness is an important factor, especially for the reproductive life of women. Because this awareness plays a key role in preventing fears and concerns about fertility. Informing women about fertility and adjusting their obstetric care accordingly is of great importance for public health (7,8).



Reproduction is a basic human instinct, and fertility often plays a decisive role in women's health. Having good pre-pregnancy health and determining women's fertility awareness and increasing their awareness through training; It helps ensure successful pregnancies, healthy babies and the health of future generations. In this regard, this study aims to determine the fertility awareness levels of women of reproductive age and the affecting factors.

2. Methods

2.1. Research design

This research, in which the quantitative approach was used, was conducted in a cross-sectional design based on the general screening model.

2.2. Research sample

The sample of the study consisted of 686 women living in Turkey who met the inclusion criteria. The inclusion criteria were women between the ages of 18-49, who were able to read Turkish, who had the technological infrastructure to fill out online forms, and who volunteered to participate in the study.

2.3. Data collection

Data for the research were collected online through electronic forms (Google Forms) during the period April-July 2023. The link to the online questionnaire created on Google Forms was sent to the participants via various networks (e-mail, WhatsApp, Facebook, etc.). The online form, which each participant could fill out in about 15 minutes, was organized in such a way that participants could see all questions at the same time after logging in. In order to prevent data loss, Google Forms settings were adjusted so that no question could be left blank and all questions had to be answered.

2.4. Data collection tools

"Personal Information Form" and "Fertility Awareness Scale" were used to collect the data. In the Personal Information Form prepared by the researchers, there are 23 questions questioning women's socio-demographic characteristics (age, education level, employment status, income level, marital status) and fertility characteristics (number of pregnancies-births, infertile diagnosis, presence of infertile individuals around, receiving education on fertility health, etc.). The Fertility Awareness Scale (FAS) developed by Özşahin and Aksoy Derya (2022) is a valid and reliable measurement tool that aims to measure women's fertility awareness levels (8). The FAS is a Likert-type scale consisting of 19 items and two dimensions (Physical awareness and cognitive awareness). The assessment of the scale has a five-point Likert structure (1: Never, 2: Rarely, 3: Occasionally, 4: Most of the time, 5: Always). The lowest total score that can be obtained from the scale, which has no reversed items, is 19 and the highest total score is 95. The lowest and highest scores to be obtained from the sub-dimensions are 10-50 for Physical Awareness and 9-45 for Cognitive Awareness. In the evaluation of the FAS, the level of awareness increases as the total score increases, and if the total score is between 19-43, "awareness is low", if the score is between 44-69, "awareness is moderate", and if the score is between 70-95, "awareness is high". The cronbach alpha internal consistency coefficient for the total FAS scale was 0.887. The cronbach alpha internal consistency coefficient for the sub-dimensions was 0.623 for Physical Awareness and 0.659 for Cognitive Awareness (8). In this study, the cronbach alpha reliability coefficient was 0.828 for the total FAS, 0.786 for the Physical Awareness Subdimension and 0.598 for the Cognitive Awareness Subdimension.

2.5. Data evaluation

The data of the study were analyzed using SPSS 22.0 (Statistical Package for Social Sciences) software. The sociodemographic, obstetric and fertility health characteristics of the participants were analyzed

using descriptive statistics (percentage, frequency, minimum-highest and median values). Frequency, percentage and median values were used in the analysis. Kolmogorov-Smirnov analysis, skewness kurtosis values, box plot and Normal Q-Q plot were used for the conformity of the data to normal distribution. For normally distributed data, parametric test statistics "t-test in independent groups" was used to compare the measurement values of two independent groups and "One-way ANOVA" was used to compare three or more independent groups. Statistical significance value was taken as $p < 0.05$.

2.6. The ethical dimension of the research

Ethics committee approval for the current study was obtained from the Non-Interventional Clinical Research Ethics Committee of a state university (Meeting Date-Number: 05.04.2023-2023/04 and Decision No: 2023/04-12). Care was taken to ensure that the participants included in the study were voluntary and willing, and it was stated that they were free to participate in the study or not. The research was conducted in accordance with the rules of the Declaration of Helsinki.

3. Results

The mean age of the women who participated in the study was 29.56 ± 7.68 years (min:18 and max:50). Information about the descriptive characteristics of the participants is presented in Table 1.

Table 1. Distribution of Participants According to Their Identifying Characteristics

Variable (N=686)	n	%
Age groups		
18-29	399	58.2
30 and above	287	41.8
Education level		
Middle School	95	13.8
High School	192	28.0
University	195	28.4
Postgraduate	204	29.7
Employment status		
Working	334	48.7
Not working	352	51.3
Occupation		
Health professional	195	28.4
Other	491	71.6
Place of residence		
Province	527	76.8
District	117	17.1
Town-village	42	6.1
Income Level		
Income less than expenditure	184	26.8
Income matches expenditure	386	56.3
Income more than expenditure	116	16.9
Marital status		
Married	372	54.2
Single	314	45.8
Total	686	100

When the obstetric and fertility health characteristics of the participants given in Table 2 were examined, it was found that 384 women (55.8%) had never experienced pregnancy, 405 (59.0%) had never given birth, 411 (59.9%) had experienced fear of not being able to conceive, 374 (54.5%) had individuals diagnosed as infertile in their environment, 348 (50.7%) had done research on fertility health, and 464 (67.6%) had received fertility health education.

Table 2. Distribution of Participants According to Obstetric and Fertility Health Characteristics

Variable (N=686)	n	%
Number of pregnancies		
None	383	55.8
Primigravida	107	15.6
Multigravida	196	28.6
Number of births		
None	405	59.0
Primiparous	107	15.7
Multipar	174	25.1
Fear of not being able to pregnant		
Yes	275	40.1
No	411	59.9
Presence of infertile individuals in the environment		
Yes	374	54.5
No	312	45.5
İnfertilite tanısı alma		
Yes	27	3.9
No	659	96.1
Research on fertility health		
Yes	348	50.7
No	338	49.3
Receive fertility health education		
Yes	222	32.4
No	464	67.6
Total	686	100

Table 3 presents the findings regarding the responses to the measurement tool. When the reliability coefficient was analyzed, it was determined that the answers given for the Fertility Awareness Scale were reliable (Table 3).

Table 3. Distribution of Participants' Total and Subscale Scores on the Fertility Awareness Scale

Scale (n=686)	Mean±SD	Median	Min. - Max.	Cronbach-α coefficient
Physical awareness	35.10±8.08	37.0	12.0 - 50.0	0.786
Cognitive awareness	26.21±5.60	26.0	11.0 - 44.0	0.598
Scale total	61.31±12.53	63.0	25.0 - 91.0	0.828

In the study, a statistically significant difference was found in the sub-dimension and total scores of the Fertility Awareness Scale according to age group ($t=2.666, p=0.008$; $t=2.201, p=0.028$; $t=2.690, p=0.007$, respectively). The scores in the 18-29 young adult age group were significantly higher than those in the 30 and over middle adult age group (Table 4). According to the educational status of the participants in the study, there was a statistically significant difference in terms of FAS sub-dimension and total scores ($F=41.647, p=0.000$; $F=7.991, p=0.000$; $F=28.324, p=0.00$, respectively). According to the results of the Post-Hoc Tamhane's T2 test applied to determine between which subgroups the educational status differed, high school graduates had higher scores than middle school, university graduates had higher scores than high school and middle school, and postgraduate graduates had higher scores than the others. The difference was statistically significant in terms of total and physical awareness sub-dimension scores according to employment status ($t=3.420, p=0.001$; $t=4.118, p=0.000$, respectively). The scores of working women were significantly higher than those of non-working women (Table 4). There was a statistically significant difference in the sub-dimensions and total scores of the FFQ according to the occupations of the women ($t=5.783, p=0.000$; $t=3.082, p=0.002$; $t=5.075, p=0.000$,

respectively). Women who were health professionals had significantly higher scores than women in other professions (Table 4).

It was determined that there was a statistically significant difference in terms of total and physical awareness sub-dimension scores according to the presence of infertile individuals in the environment ($t=2.788$, $p=0.005$; $t=3.162$, $p=0.002$, respectively). The scores of women who had infertile individuals in their environment were significantly higher than those who did not (Table 4). The difference was found to be statistically significant in terms of FQF sub-dimensions and total scores according to research on fertility health ($t=7.954$, $p=0.000$; $t=5.190$, $p=0.000$; $t=7.470$, $p=0.000$, respectively). The scores of women who conducted research were significantly higher than those who did not (Table 4). The difference was statistically significant in terms of FQF subscale and total scores ($t=10.744$, $p=0.000$; $t=8.205$, $p=0.000$; $t=10.770$, $p=0.000$, respectively). The scores of women who received training were significantly higher than those who did not (Table 4).

Table 4. Comparison of total and Subscale Scores of Fertility Awareness Scale With Some Variables

Variables	n	Physical awareness Mean±SD	Cognitive awareness Mean±SD	Scale total Mean±SD
Age group				
18-29	399	35.81±7.49	26.61±5.40	62.42±11.73
30 and above	287	34.11±8.75	25.66±5.83	59.77±13.43
Statistical analysis* Possibility		t=2.666 p=0.008	t=2.201 p=0.028	t=2.690 p=0.007
Education level				
Middle School	95	28.41±8.67	23.73±5.25	52.14±13.30
High School	192	33.53±8.82	26.22±5.68	59.75±13.55
University	195	37.35±6.37	26.64±5.65	63.99±10.53
Postgraduate	204	37.54±6.28	26.95±5.35	64.50±10.51
Statistical analysis* Possibility		F=41.647 p=0.000	F=7.991 p=0.000	F=28.324 p=0.000
Marital status				
Married	372	34.77±8.69	26.16±5.77	60.94±13.32
Single	314	35.49±7.29	26.27±5.40	61.76±11.52
Statistical analysis* Possibility		t=1.183 p=0.237	t=0.236 p=0.813	t=0.868 P=0.386
Employment status				
Yes	334	36.38±7.64	26.59±5.85	62.98±12.21
No	352	33.88±8.31	25.85±5.33	59.73±12.61
Statistical analysis* Possibility		t=4.118 p=0.000	t=1.733 p=0.084	t=3.420 p=0.001
Occupation				
Health professional	195	37.97±6.93	27.40±5.47	65.37±11.39
Other	413	34.29±8.09	25.88±5.76	60.17±12.59
Statistical analysis* Possibility		t=5.783 p=0.000	t=3.082 p=0.002	t=5.075 p=0.000
Presence of infertile individuals in the environment				
Yes	374	35.99±7.70	26.54±5.36	62.54±11.79
No	312	34.03±8.41	25.81±5.86	59.84±13.24
Statistical analysis* Possibility		t=3.162 p=0.002	t=1.703 p=0.089	t=2.788 P=0.005
Research on fertility health				
Yes	348	37.42±6.90	27.29±5.28	64.71±10.96
No	338	32.71±8.51	25.10±5.71	57.81±13.08

Statistical analysis* Possibility		t=7.954 p=0.000	t=5.190 p=0.000	t=7.470 p=0.000
Receive fertility health education				
Yes	222	39.06±5.69	28.63±5.36	67.70±9.73
No	464	33.20±8.37	25.05±5.34	58.26±12.57
Statistical analysis* Possibility		t=10.744 p=0.000	t=8.205 p=0.000	t=10.770 p=0.000

* In the data with normal distribution, "t-test in independent groups" test statistics were used to compare the measurement values of two independent groups and "One-way ANOVA" test statistics were used to compare three or more independent groups.

4. Discussion

Understanding fertility and the reproductive cycle is essential both for the effective use of contraceptives and for planning pregnancy. In particular, inadequate fertility awareness is known to be a major contributing factor to the failure of many couples to achieve their goal of parenthood (2). In this study, which was conducted to determine the fertility awareness levels of women of childbearing age and the factors affecting them, it was determined that the fertility awareness levels of the participants were at an intermediate level. Similarly, in Özşahin's (2020) study, fertility awareness was determined as medium level, and in Özşahin and Altıparmak's (2021) study, it was reported that fertility awareness was high in more than half of the participants (7,10). While studies in the literature emphasize the significant lack of knowledge on fertility awareness, it is important to consider the need for education on this issue (8,11,12,13).

When the factors affecting the level of fertility awareness are analyzed, it is seen that age is an important variable. Because it is estimated that the tendency to postpone childbearing affects age-related fertility awareness (14). In our study, the awareness of the 18-29 age group was found to be significantly higher than the 30 and over age group (Table 4). Similarly, it is stated in the literature that there is a decrease in fertility awareness levels with advancing age and that women are mostly aware of the possible difficulties they may encounter in conception if they postpone childbearing (15,16).

In our study, another factor affecting fertility awareness was educational status and it was found that the level of fertility awareness increased with increasing educational level (Table 4). It was determined that the results of other studies in the literature were similar to our findings (12,17). Özşahin and Altıparmak (2021) also found that there was a significant correlation between educational level and fertility awareness and that those with a university degree had higher scale scores (10). At this point, it can be concluded that women with a higher level of education have a higher level of knowledge about the importance of fertility, fertility options, fertility probability and especially the potential risks associated with infertility, but it should not be ignored that every woman who receives effective counseling can learn what the changes in her body mean and have control over her fertility (8,18).

In our study, fertility awareness level was analyzed according to marital status and it was found that being married or single did not make a significant difference in terms of fertility awareness (Table 4). In another study conducted with students, the level of fertility knowledge was found to be higher in married students compared to single students (19). It is thought that this may be due to the difference in the sample groups of the two studies.

In our study, it was found that the employment status of the participants affected the level of fertility awareness, and it was observed that working women had higher levels of awareness (Table 4). This may be associated with many factors such as higher education levels, social relations and information sources of working women. In addition, the occupation of the participants in the study was also a determining factor in the level of fertility awareness (Table 4). The higher level of awareness of women who are health professionals compared to other occupational groups may be related to understanding

the anatomy and physiology of the reproductive system and the relationship between them and being more aware of the factors that may negatively affect fertility (4,8). However, contrary to this view, there are also studies indicating that the awareness of health professionals is lower (16,20).

It is known that the people in the immediate environment and their opinions and experiences play an important role in women's decisions, especially regarding their fertility (21). In our study, the awareness levels of those who were surrounded by infertile individuals were found to be significantly higher (Table 4). This may be due to the fact that the attitudes of individuals are influenced by the social environment, and people who observe a negative situation think of genetic factors and associate them with themselves.

In our study, the level of fertility awareness was found to be high among women who conducted research on fertility health and received education on fertility health (Table 4). This result shows that education has an important place in raising awareness of women about fertility health and is an effective dynamic in dealing with misinformation and attitudes. It is a fact that education always has a positive effect on improving knowledge, attitudes and awareness. In the literature, it is important to determine the factors affecting the level of fertility awareness and to organize education programs with emphasis on preventable risk factors (5,10).

5. Conclusion and Recommendations

In the study, it was determined that the fertility awareness level of the women was at a moderate level, and it was found that age, educational status, employment status, occupation, presence of infertile individuals in the environment, research on fertility health and receiving fertility health education were associated with the fertility awareness levels of the participants. This study emphasizes the importance of information and trainings to be given by health professionals in order to have accurate knowledge and awareness about fertility health, which has an impact on women's quality of life. It is predicted that trainings to be organized to increase the fertility awareness levels of health professionals, especially midwives, who are the most important care and counseling providers in women's reproductive health, will contribute to the protection of fertility health. In addition, it is recommended to enrich the literature on fertility awareness in different and larger sample groups due to the limited number of studies on the subject in our country.

Limitations

The data used in the present study were filled in according to women's self-reports. For this reason, the data represent only the women who participated in the research.

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