The Effect of Sexual Education and Counseling Based on the Ex-PLISSIT Model on the Sexual Life in Primigravidas

Nermin Altunbaş[1] 🆔, Zehra Gölbaşi[2] 🆔

[1] Sivas Cumhuriyet University, Faculty of Health Sciences, Department of Public Health Nursing, Sivas, Türkiye.
[2] Lokman Hekim University, Faculty of Health Sciences, Department of Obstetrics and Gynecology Nursing, Ankara, Türkiye.

Correspondence Author: Nermin Altunbaş
E-mail: altunbas5858@gmail.com

ABSTRACT

Objective: This study was conducted to determine the effect of sexual education and counseling based on the Ex-PLISSIT model on sexual function, attitudes towards sexuality during pregnancy, sexual distress, and quality of sexual life in primigravidas.

Methods: This study was carried out on 62 primigravidas in a pretest posttest, a quasi-experimental control group. Primigravidas meeting the inclusion criteria were assigned to the groups by simple random sampling method. The intervention group received training and counseling sessions twice. The control group received routine care during the follow-up period. The results were compared with the evaluation forms 10 weeks after each training and counseling session. The forms were administered to the control group at the same time as the intervention group.

Results: The mean scores of the intervention and control groups' attitude towards sexuality during pregnancy in the second test (95%CI=2.33-19.01; d=0.65, p=.013) and in the posttest (95%CI=2.28-19.34; d=0.64, p=.015) were statistically significantly different. Sexual life quality scale mean scores of the intervention and control groups were statistically significant in the second test (95%CI=8.27-18.54; d=1.33, p=.000) and the posttest (95%CI=12.14-22.01; d=1.76, p=.000) level was different. In addition, the mean scores of the intervention group were higher after sexual education and counseling based on the Ex-PLISSIT model.

Conclusion: In this study, sexual education and counseling based on the Ex-PLISSIT model positively affected primigravida's attitudes towards sexuality and their quality of sexual life. Therefore, this model can be used as a cost-effective and simple counseling method to improve the sexual life.

Keywords: Ex-PLISSIT model, Primigravida, sexual counseling, sexual education, sexual life

1. INTRODUCTION

Pregnancy, which is one of the physiological changes that affect sexual health, is a process that plays an important role in women's sexual functions and behaviors, and sexual problems are experienced intensely (1). In this process, sexual life is affected by anatomical, physiological and mental changes and differences occur in the sexual response cycle (2). Pregnancy symptoms and negative beliefs and feelings of couples about sexuality during pregnancy can cause long-term reductions in sexual activity. However, sexuality is important in maintaining a positive relationship of couples (3,4). In a study, it was determined that 40% of pregnant women had a negative attitude towards sexuality during pregnancy (5). In some studies, it has been reported that sexual function generally decreases during pregnancy, especially in the first and third trimesters (6,7).

To maintain a healthy pregnancy and a healthy family relationship, it is very momentous to maintain harmony and communication between spouses, to enhance the quality of life of women, to prevent sexual problems that may occur in the postpartum period, and to raise awareness by correcting false information. Although it is a factor affecting general health and quality of life, sexual problems during pregnancy can be caused by privacy, lack of communication, lack of guidance, etc. It is known that it is still a neglected condition for various reasons (8). The World Health Organization reports that, in addition to interventions for sexual dysfunctions, identifying and addressing sexual anxiety and problems are important basic factors in the improvement of sexual health services. But sexual health is often overlooked by healthcare providers. Those who have sexual health problems usually do not seek help for it (9,10). Therefore, it is important to evaluate sexual health during pregnancy. There are some models (ALARM, ALLOW, BETTER, Ex-PLISSIT and PLISSIT models) that can be used by health professionals to evaluate sexual wellness and provide a solution-oriented approach to sexual problems. Among these models, PLISSIT and Ex-PLISSIT models, which are widely used, easy to apply and effective, are accepted as safe tools (11,12).

The absence of a guideline in the literature based on a systematic model for the sexual health of pregnant women has also been identified as an important deficiency. With model-based sexual education and counseling, it is possible to contribute to the prevention of sexual problems in

pregnancy by eliminating the concerns of primigravidas and their partners, creating reliable information, correcting false information and beliefs.

The aim of this study is to determine the effect of sexual education and counseling based on the Ex-PLISSIT model on sexual function, attitudes towards sexuality during pregnancy, sexual distress, and quality of sexual life in primigravidas.

The following hypotheses were tested:

H1: The sexual education and counseling for primigravidas developed according to the Ex-PLISSIT model increases women's sexual function during pregnancy.
H2: The sexual education and counseling for primigravidas developed according to the Ex-PLISSIT model increases women's positive attitudes toward sexuality during pregnancy.
H3: The sexual education and counseling for primigravidas developed according to the Ex-PLISSIT model reduces pregnant women's sexual distress.
H4: The sexual education and counseling for primigravidas developed according to the Ex-PLISSIT model increases the quality of sexual life of pregnant women.

2. METHODS

2.1. Design and Sample

This study is in the type of pretest and posttest, a quasi-experimental research with a control group.

The study was conducted in the obstetrics and gynecology outpatient clinics of a hospital.

Sample size was calculated by power analysis. Power analysis showed that a minimum number of individuals should be included in the sample (Power-G 3.1). In order to keep the sample size at the maximum level, the p-rate was set as 0.50. The sample consisted of 70 primigravida (35 in the intervention group and 35 in the control group). For each group, uptake of 35 primigravida provided a margin of error of 5%, an effect size of 30%, and a population representation (power) of 80%. The population of the study consisted of 357 pregnant women who applied to the outpatient clinic for pregnancy control.

The inclusion criteria of the study; being primigravida, 8-16th to be between gestational weeks, not to have a risky pregnancy situation, not to have a sexual dysfunction diagnosis in her partner or herself, and not to be pregnant with infertility treatment. These criteria were chosen to ensure sample homogeneity and to minimize the impact on sexuality during pregnancy. Of the primigravidas who made up the universe and met the limitation criteria, 119 refused to participate in the study because they found the subject confidential or did not have time. Using simple random sampling from primigravidas meeting these criteria, 35 primigravida were initially included in the intervention group, and after this group was completed, 35 primigravida were included in the control group. Abortion occurred in two of the pregnant women in the intervention group, and one pregnant did not continue the study. Abortion occurred in three of the pregnant women in the control group, and two of the pregnant women did not continue the research. In order to evaluate the study data,

pregnant women had to participate in all steps of the application. Therefore, at the end of the study, the data of 32 pregnant women in the intervention group and 30 pregnant women in the control group were evaluated (Figure 1).
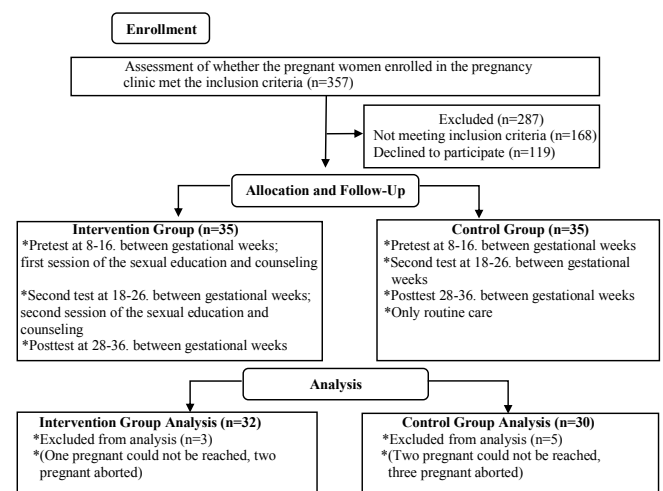

Figure 1. Flow diagram

2.2. Intervention

The aim of the intervention in the study is to determine the effect of sexual education and counseling given to primigravidas based on the ex-PLISSIT model on the sexual lives of pregnant women. The total duration of the intervention is nine months.

The researcher, who will provide sexual education and counseling to pregnant women, attended "Sexual Health for Health Professionals" and "Sexual Therapy" courses before starting the practice. These courses were given by expert sexual therapists and covered topics such as sexuality, the physiology of sexuality, factors affecting sexuality, sexual approaches in special situations, and models used in the evaluation of sexuality. Subsequently, a comprehensive literature review on sexual life during pregnancy was carried out, and a comprehensive guide to sexual life during pregnancy was prepared by compiling the information obtained. Opinions were obtained from two experts in gynecology and obstetrics and one in psychiatric nursing about the guide.

Evaluation forms were applied to the pregnant women in the intervention and control groups three times (pretest, second test, and posttest). Pregnant women in the intervention group received two times education and counseling interventions according to the Ex-PLISSIT model (between 8-16 weeks of gestation, between 18-26 weeks of gestation). There was a 10-week period between the sessions of the sexual education and counseling given to pregnant women. Interviews with the pregnant women were conducted individually. Individual Information Form, Female Sexual Function Index (FSFI), Attitude Scale Toward Sexuality During Pregnancy (ASTSP), Female Sexual Distress Scale – Revised (FSDS-R) and Sexual Life Quality Scale-Female (SQLS-F) were applied in the pretest (between 8-16 weeks of gestation). FSFI, ASTSP, FSDS-R

and SQLS-F were applied in the second test (between 18-26 weeks of gestation) and in the posttest (between 28-36 weeks of gestation). The reason for sampling pregnant women between these weeks is that the pregnancy is finalized and the interventions and evaluations are ensured to coincide with every trimester of pregnancy. Thus, the pregnant woman was kept under observation throughout her pregnancy. In the literature, it was stated that sexual education and counseling given according to the Ex-PLISSIT model can be 70%-%90 effective in solving sexual problems even in the first education (13). In the application of the intervention twice, reinforcing the information given to the pregnant woman and solving individual sexual problems were effective.

All steps of the Ex-PLISSIT model were applied sequentially in education and counseling in the first intervention (between 8-16 weeks of gestation). Sexuality of each pregnant woman was evaluated at this stage, the pregnant woman was allowed to express herself and her needs were determined. The implementation of the steps of the model was shaped according to individual requirements. Allow step was applied before each step. At the end of the session, the pregnant women were given homework to do at home, including sharing sexual feelings and thoughts with your spouse, sharing problems and concerns

about sexuality during pregnancy, taking care of your physical appearance (clothes, makeup, etc.), using alternatives to sexual intercourse, sexual life information booklet, and were asked to read the information in the booklet and share it with their spouses. In the Intensive Therapy phase of the model, two pregnant women were referred to a sex therapist because they did not find relief from their sexual problems. However, the pregnant women preferred not to see the therapist and to continue with the education and counseling. In the second intervention (between 18-26 weeks of gestation) the step of giving permission was centered and education and counseling were provided in line with the needs of the pregnant woman (Chart 1). A few examples can be given to the information given to pregnant women in the steps of the Ex-PLISSIT model, according to the guide to sexual life in pregnancy we have prepared. Step 1: Permission (How did pregnancy affect your sexual life?, What kind of concerns did you have about your sexual life during pregnancy?); Step 2: Limited Information (physiology of sexuality, sex life during pregnancy); Step 3: Special Suggestions (sexual intercourse positions during pregnancy, sexual intimacy other than sexual intercourse during pregnancy); Step 4: Intensive Therapy (referral of the pregnant woman to a specialist who has received additional training to give intensive therapy).

Chart 1. *Implementation steps of sexual education and counseling intervention based on ex-plissit model*

Tests and Sessions	Time	Techniques and Tasks
Pretest and **first session of the sexual education and counseling** 8-16. between gestational weeks	60 minute	*Obtaining written consent from pregnant women *Application of data collection forms (pretest) • Individual Information Form • The Female Sexual Function Index • Attitude Scale Toward Sexuality During Pregnancy • Female Sexual Distress Scale-Revised • Sexual Quality of Life Scale-Female *10 minute break *Sexual education and counseling based on the Ex-PLISSIT model • Permission • Limited Information • Permission-Special Suggestions • Permission-Intensive Therapy if needed *Giving homework *Giving the brochure "Sexual Life in Pregnancy" *Making an appointment for the second session after 10 weeks
Second session of the sexual education and counseling 18-26. between gestational weeks	40 minute	* Application of data collection forms (second test) • The Female Sexual Function Index • Attitude Scale Toward Sexuality During Pregnancy • Female Sexual Distress Scale-Revised • Sexual Quality of Life Scale-Female *10 minute break *Discussing homework * Sexual education and counseling based on the Ex-PLISSIT model • Permission • Limited Information • Permission-Special Suggestions • Permission-Intensive Therapy if needed * Appointment for posttest at 28-36. between weeks of pregnancy
Posttest 28-36. between gestational weeks	20 minute	* Application of data collection forms (posttest) • The Female Sexual Function Index • Attitude Scale Toward Sexuality During Pregnancy • Female Sexual Distress Scale-Revised • Sexual Quality of Life Scale-Female

The control group received routine care only. Routine care consisted of prenatal care such as blood pressure monitoring, weight monitoring, measurement of fundal height, auscultation of fetal heart rate, and laboratory testing. After completion of the application, the results of the scale were communicated to the women who requested it.

2.3. Data Collection Process

Data were collected between September 2019 and May 2020. The data of the study were collected using Individual Information Form, Female Sexual Function Index (FSFI), Attitude Scale Toward Sexuality During Pregnancy (ASTSP), Female Sexual Distress Scale-Revised (FSDS-R), and Sexual Quality of Life Scale-Female (SQLS-F).

Individual Information Form: This form contains 18 questions to evaluate the pregnant woman's age, education level, obstetric characteristics and thoughts about sexuality during pregnancy (14-17).

Female Sexual Function Index: The scale was developed to evaluate sexual function in women. The scale consists of 19 items and six subscales. The cut-off point of the scale is ≤26.55 points, which is considered to indicate a negative change in sexual function (18). The reliability coefficient of the scale is 0.98 (19). In this study, the reliability coefficient of the scale is 0.96.

Attitude Scale Toward Sexuality During Pregnancy: It evaluates the attitudes of the pregnant women and partners towards sexuality during pregnancy. The scale consists of 34 items and three subscales. The lowest score that can be obtained from the entire scale is 34, and the highest score is 170. It is accepted that as the scale score increases, the positive attitude towards sexuality increases during pregnancy. The reliability coefficient of the scale is 0.90 (20). In this study, the reliability coefficient of the scale is 0.93.

Female Sexual Distress Scale-Revised: It is a scale to measure personal distress related to sexuality in women with sexual dysfunction. The scale consists of 13 items. The lowest score that can be obtained with the FSDS-R is zero, and the highest score is 52. A higher score indicates a higher level of sexual distress (21). The cut-off point of the scale was ≥11.5 points to determine the presence of gender-related personal distress in Turkish women. The reliability coefficient of the scale is 0.98 (2). In this study, the reliability coefficient of the scale is 0.92.

Sexual Life Quality Scale-Female: The scale consists of 18 items. Each item is answered by considering the sexual life in the last four weeks. The scale score ranges from 18 to 108 and the scale score is converted to 100 using the formula (scale raw score-18) x 100/90. A high score on the scale means that the quality of sexual life is good (23). The reliability coefficient of the scale is 0.83 (24). In this study, the reliability coefficient of the scale is 0.82.

2.4. Data Analysis

Statistical analysis, IBM SPSS Statistics Implemented using for Windows, version 27.0. Continuous data were defined using the mean and 95% Confidence Interval (95% CI). Individual variables in each group were defined as frequency and percentage. It was annotated for comparison applied an independent sample t-test for continuous variables. The effect size of the difference between both conditions on individual variables was determined by calculating Cohen's d. The significance level was accepted as $p<.05$.

2.5. Ethical Considerations

The study was confirmed by a university in Non-Invasive Clinical Research Ethics Commission of Sivas Cumhuriyet University (2019-6/54-27/02/2019). Primigravidas were informed about the purpose and procedure of the study, and their consent was obtained. The study was performed according to the Helsinki rules.

3. RESULTS

A total of 62 primigravidas participated in this study (Intervention group: 32, Control group: 30). The mean age of the intervention group was 27.50 (SD=3.75; range 17-34), and the mean age of the control group was 27.00 (SD=4.28; range 22-38). The individual characteristics, sexual characteristics, thoughts and knowledge levels of the primigravidas participating in the study were similar, and no statistically significant difference was found between the groups (p>.05) (Table 1).

There was no statistically significant difference between the FSFI total and subscale mean scores in the second and posttests of primigravidas in the intervention and control groups (p>.05). However, in the second and third tests, the sexual function score of the intervention group increased compared to the control group (Table 2).

In the second test, mean total ASTSP scores of the intervention group (95%CI=2.33-19.01; d=0.65, p<.05), mean scores of beliefs and values regarding sexuality during pregnancy (95%CI=0.02-5.17; d=0.51, p<.05) and mean scores of confirming sexuality during pregnancy (95%CI=0.96-9.95; d=0.61, p<.05) were statistically significant compared to the control group. Total ASTSP score averages at the posttest (95%CI=2.28-19.34; d=0.64, p<.05), sexual beliefs and values during pregnancy (95%CI=-0.40-4.69; d=0 .43, p<.05) and confirmation of sexuality during pregnancy (95%CI=2.01-10.39; d=0.75, p<.01) subscales, there was a statistically significant difference in favor of the intervention group (Table 2).

There was no statistically significant difference between the mean FSDS-R values of the primigravidas in the intervention and control groups in the second and last test (p>.05). However, in the second and third tests, the FSDS-R score of the intervention group decreased compared to the control group (Table 2).

Intervention group between the second-test mean SQLS-F score (95%CI=8.27-18.54; d=1.33, p<.001) and the post-test mean SQLS-F score (95%CI=12.14-22.01; d=1.76, p<.001) a statistically significant difference was found in favor of (Table 2).

Table 1. The comparison of the individual characteristics of the pregnant

Variables	Intervention group (n=32)	Control group (n=30)	χ^2; p
	n (%)	n (%)	
Age			
17-25 ages	3 (9.4)	8 (26.7)	3.325; .190 [a]
26-34 ages	21 (65.6)	17 (56.7)	
≥35 ages	8 (25.0)	5 (16.6)	
Educational level			
Secondary school	1 (3.1)	2 (6.7)	0.720; .698 [a]
High school	3 (9.4)	4 (13.3)	
University and above	28 (87.5)	24 (80.0)	
Occupational status			
Yes	22 (68.8)	19 (63.3)	0.203; .652 [a]
No	10 (31.2)	11 (36.7)	
Partner's age			
23-27 ages	5 (15.6)	8 (26.7)	1.730; .421 [a]
28-32 ages	21 (65.6)	19 (63.3)	
≥33 ages	6 (18.8)	3 (10.0)	
Partners' educational school			
Secondary school	3 (9.2)	1 (3.3)	1.049; .592 [a]
High school	6 (18.8)	5 (16.7)	
University and above	23 (71.9)	24 (80.0)	
Income status			
More than expenses	9 (28.1)	7 (23.3)	1.704; .427 [a]
Equal to expenses	21 (65.9)	18 (60.0)	
Less than expenses	2 (6.0)	5 (16.7)	
Married ages			
17-25 ages	8 (25.0)	12 (40.0)	1.594; .451 [a]
26-34 ages	20 (62.5)	15 (50.0)	
≥35 ages	4 (12.5)	3 (10.0)	
Assessment of marriage			
Middle	4 (12.5)	0 (0.0)	4.930; .085 [a]
Good	7 (21.6)	11 (36.7)	
Very good	11 (65.9)	19 (63.3)	
Pregnancy planning status			
Planned	27 (84.4)	26 (86.7)	0.066; .798 [a]
Unplanned	5 (15.6)	4 (13.3)	
Can coitus be continued during pregnancy?			
Yes	24 (75.0)	19 (63.3)	0.992; .319 [a]
No	8 (25.0)	11 (36.7)	
Do you find it safe to maintain coitus during pregnancy?			
Yes	13 (40.6)	14 (46.6)	3.440; .179 [a]
No	4 (12.5)	8 (26.7)	
No idea	15 (46.9)	8 (26.7)	
Sex during your partner's pregnancy what is his thought about it?			
Positive	17 (53.1)	19 (63.3)	4.513; .105 [a]
Negative	5 (15.6)	8 (26.7)	
No idea	10 (31.3)	3 (10.0)	
Having sex during pregnancy does it harm the fetus?			
Yes	1 (3.1)	3 (10.0)	1.664; .435 [a]
No	18 (56.3)	18 (60.0)	
No idea	13 (40.6)	9 (30.0)	
Do you know the coitus positions that can be used during pregnancy?			
Yes	12 (37.5)	14 (46.7)	5.226; .054 [a]
No	6 (18.7)	0 (0.0)	
No idea	14 (43.8)	16 (53.3)	

Is sex just coitus?			
Yes	4 (12.5)	5 (16.7)	0.217; .642ᵃ
No	28 (87.5)	25 (83.3)	
Have you a sex-related problem is there?			
Yes	7 (21.9)	1 (3.3)	4.737; .054ᵃ
No	25 (78.1)	29 (96.7)	
You did get it information on sexual life in pregnancy?			
Yes	10 (31.2)	11 (36.7)	0.203; .652ᵃ
No	22 (68.8)	19 (63.3)	
You did get it information from whom about sexual life in pregnancy?			
Physician	5 (15.6)	8 (26.7)	
Nurse-Midwife	1 (3.1)	1 (3.3)	4.052; .542ᵃ
Media	1 (3.1)	0 (0)	
Internet	3 (9.4)	2 (6.7)	
	x̄±SD / (min-max)	x̄±SD / (min-max)	
Age mean	27.50±3.75 (17-34)	27.00±4.28 (22-38)	
Age of partner mean	29.25±2.27 (23-34)	29.37±3.56 (24-41)	
Marriage age	26.06±3.70 (17-33)	25.50±4.29 (21-38)	

a: chi-square test

Table 2. *The comparison of the pretest-posttest scale scores of the intervention and control groups*

	Pretest		Second test		Posttest	
	x̄±SD / t; p (95%CI)		x̄±SD / t; p (95%CI) / d		x̄±SD / t; p (95%CI) / d	
	Intervention group (n=32)	Control group (n=30)	Intervention group (n=32)	Control group (n=30)	Intervention group (n=32)	Control group (n=30)
The Female Sexual Function Index and sub-dimensions						
Sexual desire	3.00±0.76	3.18±0.92	3.48±0.90	3.32±0.87	3.16±1.15	2.98±0.77
	t=-0.740; p=.462ᵃ (-0.61-0.25)		t=-0.841; p=.404ᵃ (-0.29-0.69)		t=-0.750; p=.456ᵃ (-0.32-0.69)	
Sexual arousal	2.44±1.91	3.17±1.59	3.34±1.53	3.29±1.37	3.22±1.45	2.70±1.61
	t=-1.610; p=.113ᵃ (-1.62-0.18)		t=0.153; p=.879ᵃ (-0.69-0.80)		t=1.314; p=.184ᵃ (-0.26-1.31)	
Lubrication	3.01±2.20	3.72±2.08	3.99±1.53	3.84±1.70	3.59±1.72	2.89±2.04
	t=-1.284; p=.204ᵃ (-1.79-0.39)		t=0.374; p=.710ᵃ (-0.67-0.98)		t=1.462; p=.149ᵃ (-0.26-1.66)	
Orgasm	2.72±2.03	3.41±1.93	3.86±1.58	3.53±1.61	3.33±1.79	2.85±2.08
	t=-1.364; p=.178ᵃ (-1.70-0.39)		t=0.811; p=.421ᵃ (-0.48-1.14)		t=0.982; p=.330ᵃ (-0.50-1.48)	
Satisfaction	3.58±1.66	4.13±1.75	4.65±1.09	4.02±1.42	4.11±1.47	3.61±1.53
	t=-1.255; p=.214ᵃ (-1.42-0.32)		t=1.937; p=.057ᵃ (-0.02-1.27)		t=1.308; p=.196ᵃ (-0.26-1.26)	
Pain	2.92±2.36	3.38±2.11	4.12±2.04	3.36±2.09	3.73±2.08	2.61±2.13
	t=0.808; p=.422ᵃ (-1.60-0.68)		t=1.455; p=.151ᵃ (-0.29-1.82)		t=2.098; p=.060ᵃ (0.05-2.20)	
Total score	17.70±9.96	21.00±9.09	23.46±7.30	21.37±7.64	21.17±8.31	17.65±9.22
	t=-1.369; p=.179ᵃ (-0.34-0.11)		t=1.104; p=.274ᵃ (-0.11-0.39)		t=1.580; p=.119ᵃ (-0.06-0.36)	
Attitude Scale Toward Sexuality During Pregnancy and sub-dimensions						
Anxiety about Sexual Intercourse during Pregnancy	30.81±6.21	33.36±7.50	36.18±5.80	33.56±6.60	35.53±6.02	33.06±6.20
	t=-1.463; p=.149ᵃ (-6.05-0.94)		t=-1.663; p=.102ᵃ (-0.53-5.77)		t=-1.587; p=.118ᵃ (-0.64-5.57)	
Dysfunctional Beliefs and Values about Sexuality during Pregnancy	41.25±5.25	42.83±5.23	45.06±4.48	42.46±5.60	45.78±4.52	42.63±5.47
	t=-1.188; p=.240ᵃ (-4.25-1.08)		**t=2.019; p=.048ᵃ (0.02-5.17) / d= 0.51**		**t=2.017; p=.049ᵃ (-0.40-4.69) / d=0.43**	
Approving Sexuality during Pregnancy	47.87±7.32	48.63±8.43	54.71±7.56	49.26±10.03	55.03±7.84	48.83±8.65
	t=-0.379; p=.706ᵃ (-4.77-3.25)		**t=2.426; p=.018ᵃ (0.96, 9.95) / d=0.61**		**t=2.958; p=.004ᵃ (2.01-10.39) / d=0.75**	
Total score	119.93±6.91	124.83±19.09	135.96±14.89	125.30±17.87	136.34±15.14	124.53±18.36
	t=-1.065; p=.291ᵃ (-14.09-4.30)		**t=2.559; p=.013ᵃ (2.33-19.01) / d=0.65**		**t=2.519; p=.015ᵃ (2.28-19.34) / d=0.64**	
Female Sexual Distress Scale-Revised						
Total score	11.53±10.34	4.43±6.92	5.28±3.92	6.93±8.10	6.56±7.14	8.66±9.12
	t=3.193; p=.003ᵃ (-0.53—0.08)		t=-1.010; p=.307ᵃ (-0.10-0.25)		t=-1.015; p=.314ᵃ (-0.25-0.22)	
Sexual Quality of Life Scale-Female						
Total score	68.85±11.15	69.40±8.20	81.73±8.20	68.33±11.79	85.97±9.36	68.89±10.08
	t=-.228; p=.820ᵃ (-5.40-4.29)		**t=5.223; p=.000ᵃ (8.27-18.54) / d=1.33**		**t=6.915; p=.000ᵃ (12.14-22.01) / d=1.76**	

a: Independent sample t test

4. DISCUSSION

The aim of this study was to determine the effect of sexual education and counseling based on the Ex-PLISSIT model on the sexual life of primigravidas. First, the individual characteristics of primigravidas and some thoughts and knowledge levels about sexuality during pregnancy were evaluated. It was examined whether the characteristics of primigravidas in the intervention and control groups were similar. Both groups were homogeneous in terms of these variables.

The sexual functions of primigravidas, their attitudes towards sexuality during pregnancy, their sexual distress and sexual life quality and their subscales were evaluated with the obtained data.

First, sexual function scores of primigravidas were measured. The mean score obtained was below the cut-off point of FSFI of 26.55 (Intervention group: 17.70±9.96; Control group: 21.00±9.09). The aim was to improve sexual function after counseling. FSFI scores did not rise above the cut-off point after counseling, but increased after the first (Intervention group: 23.46±7.30; Control group: 21.37±7.64) and second session (Intervention group: 21.17±8.31; Control group: 17.65±9.22) of counseling in the intervention group. The score after the first session was slightly higher than the second session. It can be thought that the coinciding of the second evaluation with the second trimester may be effective in this. In some studies, it has been determined that sexual function during pregnancy is higher in the second trimester. In addition, it is stated that some pregnancy-related symptoms, lack of knowledge and myths about sexuality during pregnancy can negatively affect sexual function (2-4,6,7,25). This information supports our results. However, in our study, it was determined that education and counseling based on the Ex-PLISSIT model were not effective on sexual function in primigravidas. Therefore, our first hypothesis was rejected. Considering the studies conducted in the world, the studies in which counseling based on the Ex-PLISSIT model were given to primigravidas were very limited. Generally, the PLISSIT model was used. According to Ziaei et al. (26) reported that the sexual function level of pregnant women increased with sexual education and counseling given using the Ex-PLISSIT model. In this study, pregnant women were evaluated four weeks after the counseling and their sexual function scores were better than our study in the first measurement. There was a statistically significant difference between the FSFI mean scores of the intervention group and the control group. In our study, no significant difference was found between the mean scores. One of the reasons for this may be that the FSFI scores of primigravidas were quite low in the first measurement in our study. Another reason is Ziaei et al.(26). It may be that they made an evaluation in their studies four weeks after the counseling. In our study, the evaluation was made 10 weeks after the counseling. Therefore, the period in our study may be a long time interval for the evaluation of sexual function during pregnancy. Since there are not enough studies investigating the effect of counseling based on the

Ex-PLISSIT model on primigravidas, it may be recommended to increase studies on this subject. Counseling based on the PLISSIT model, which is a similar model in pregnant women, was effective in improving sexual function (27,28). It was seen in the literature that other studies based on the Ex-PLISSIT model were conducted in different sample groups such as Multiple Sclerosis, Systemic Lupus Erythematosus and postpartum women. In these studies, it was determined that counseling was effective in improving sexual function (29-33). It is thought that the randomized controlled studies and the shorter measurement intervals compared to our study may have an effect on the results. In addition, since sexual function in pregnant women is affected by many factors and is below the cut-off point, it is recommended to develop a scale for the evaluation of sexual function specific to pregnant women. Thus, sexual function during pregnancy can be evaluated more effectively.

One of the factors affecting sexual life during pregnancy is the attitude towards sexuality during pregnancy. During the prenatal period, health professionals are recommended to help pregnant women maintain their positive attitudes towards sexuality (25). In our study, it was determined that the level of positive attitudes towards sexuality in primigravidas increased with sexual education and counseling in both measurements, and the intervention was effective in attitudes towards sexuality in pregnant women. Therefore, our second hypothesis was accepted. However, counseling had no effect on anxiety about sexual intercourse during pregnancy. In a study, it was reported that 88.8% of pregnant women had negative attitudes towards sexuality during pregnancy, and these primigravidas experienced stress and anxiety due to their limited knowledge on the subject (4). In addition, the low education level of the spouses negatively affected the sexual attitudes of the pregnant women (5). In support of this, lack of knowledge is emphasized as the most important factor in the emergence of sexual problems (33). For this reason, there is a need for training and counseling programs to create positive attitudes and raise awareness about sexuality during pregnancy. The results of the study also support our study and revealed that sexual education and counseling during pregnancy increase the knowledge and positive attitudes of pregnant women about sexuality (20).

Research suggests that couples should be provided with sexual counseling by a health professional and their sexual distress should be evaluated using effective measurement tools (21,22). In this study, it was determined that the sexual distress scores of primigravidas decreased after sexual education and counseling, but there was no significant change compared to the control group. Therefore, our third hypothesis was rejected. Similar to our study, in the study of Topatan and Koç (34) it was determined that the sexual information given to pregnant women did not change the level of sexual distress during pregnancy. According to these results, it is thought that physiological factors, cultural structure of the society, lack of knowledge and myths may be more effective in sexual distress experienced during

pregnancy. It has been reported that counseling given to non-pregnant women based on the PLISSIT model is effective in reducing sexual distress (35). In our study, sexual problems could have been solved more effectively if we had included pregnant women and their spouses for counseling sessions. However, in our society, individuals are hesitant to talk about sexual problems and they think that these problems are private. Therefore, we could not include spouses in our study. We recommend researchers to counsel primigravidas with their spouses.

It is known that the quality of sexual life changes negatively as the gestational week increases (36). In this study, it was determined that the quality of sexual life in primigravidas increased significantly compared to the control group as the pregnancy progressed with the sexual education and counseling provided. Therefore, our last hypothesis was accepted. In a study, it was reported that the quality of sexual life of women increased after the training program, as in this study (15). It was determined that sexual education and counseling based on the Ex-PLISSIT model in women with Multiple Sclerosis increased the sex quality of life scores, but there was no significant increase. Some diseases can prevent the increase in the quality of sexual life (14). In a study, it was determined that the health education given to pregnant women was effective in increasing the sexual quality of life scores from the first trimester to the last trimester of pregnancy (37). Another study reveals that the educational initiative is effective in increasing the sexual satisfaction of pregnant women (38).

Although our findings were compared with other studies, we think that the studies on the effect of counseling based on the Ex-PLISSIT model on the sexual life of primigravidas are insufficient. Therefore, it was very difficult for us to compare the superiority of the methods against each other. In addition, we suggest conducting a quasi-experimental studies to evaluate attitudes towards sexuality, sexual distress and sexual quality of life in primigravidas during pregnancy.

Study design, follow-up and intervention times, sample size and type, cultural and geographical differences may be effective in the differences in some results from the literature. Despite these limitations, our study was established with a solid foundation for the use of standard questionnaires with proven reliability, since the Ex-PLISSIT model is one of the most effective models that is easy to implement, given its design. This study is especially valuable in terms of the new information that primigravidas have brought to the literature in terms of their attitudes towards sexuality during pregnancy and their sexual life quality.

Limitations of the study

This study has several limitations. Randomization could not be done while determining the sample group, and pregnant women who met the inclusion criteria by simple random sampling according to the sample number determined according to the power analysis in both groups were included. In addition, the fact that the spouses of pregnant women were not included in the counseling sessions is another limitation. The participation of the spouses can help pregnant women to solve their sexual problems.

5. CONCLUSION

According to the findings, sexual education and counseling based on the EX-PLISSIT model has a positive effect on the sexual life of primigravidas. It is effective in supporting women's positive attitudes towards sexuality during pregnancy and increasing their sexual life quality. It is also an effective method in improving the relationships of primigravidas with their spouses, and in providing useful solutions for sexual dysfunction and sexual distress experienced during pregnancy.

For this reason, the Ex-PLISSIT model is recommended for primigravidas as a cost-effective and simple counseling method to improve sexual life.

In addition, considering the decrease in mean sexual function score and increase in sexual distress in the control group, it is recommended to include spouses in future studies.

REFERENCES

[1] Bjelica A, Cetkovic N, Pjevic AT, Segedi LM. The phenomenon of pregnancy-a psychological view. Ginekol Pol. 2018;89(2):102-106. DOI:10.5603/GP.a2018.0017.

[2] Aksoy A, Vefikuluçay Yılmaz D, Yılmaz M. Gebelikte cinsel yaşantiyi neler etkiler? Journal of Adnan Menderes University Health Sciences Faculty 2019;3(1):45-53. (Turkish)

[3] Jawed Wessel S, Santo J, Irwin J. Sexual activity and attitudes as predictors of sexual satisfaction during pregnancy: A multi-level model describing the sexuality of couples in the first 12 weeks. Arch Sex Behav. 2019; 48:843-854. DOI:10.1007/s10508.018.1317-1.

[4] Khalesi ZB, Bokaie M, Attari SM. Effect of pregnancy on sexual function of couples. Afr Health Sci. 2018;18(2): 227-234. DOI:10.4314/ahs.v18i2.5.

[5] Alan Dikmen H, Gönenç İM, Özaydın P. Sexuality during pregnancy: Attitudes, self-efficacy and self-consciousness. Women & Health 2023;7(63):518-530. DOI:10.1080/03630.242.2023.2234503.

[6] Bilge Ç, Mecdi Kaydırak M, Öner Ö, Balkaya NA. Gebelikte cinsel işlev ve cinsel memnuniyetin değerlendirilmesi. İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi 2021;9(2):684-693. DOI:10.33715/inonusaglik.820979.

[7] Akyuz MD, Turfan EC, Oner SC, Sakar T, Aktay DM. Sexual functions in pregnancy: Different situations in near geography: A case study on Turkey, Iran and Greece. J Matern Fetal Neonatal Med. 2020; 33(2):222-229. DOI:10.1080/14767.058.2018.1488164.

[8] Banaei M, Torkzahrani S, Ozgoli G, Azad M, Mahmoudikohani F, Yabandeh AP. Addressing the sexual function of women during first six month after delivery: A quasi-experimental study. Mater Sociomed 2018;30(2): 136. DOI:10.5455/msm.2018.30.136-140.

[9] World Health Organization. Sexual health and its linkages to reproductive health: An operational approach. Accessed [16 July 2023]. https://www.who.int/publications/i/item/978.924.151288.

[10] Brites L, Silva S, Andreoli L, Inês L. Effectiveness of reproductive health counseling of women with systemic lupus erythematosus: Observational cross-sectional study at an academic lupus clinic. Rheumatol Int 2021;41(2):403-408. DOI:10.1007/s00296.020.04671-9.

[11] Almeida NG, Britto DF, Figueiredo JV, Moreira TMM, Carvalho REFL, Fialho AVM. PLISSIT model: Sexual counseling for breast cancer survivors. Rev Bras Enferm 2019;72(4):1109-1113. DOI:10.1590/0034-7167-2018-0525.

[12] Tuncer M, Yeşiltepe Oskay Ü. Sexual counseling with the PLISSIT model: A systematic review. J Sex Marital Ther 2022;48(3):309-318. DOI:10.1080/0092623X.2021.199.8270 .

[13] Taylor B, Davis S. Using the extended PLISSIT model to address sexual healtcare needs. Nurs Stand. 2006;21(11):35-40. DOI:10.7748/ns2006.11.21.11.35.c6382.

[14] Barzandig RA, Jahdi NS, Nourizadeh R, Malakouti J, Mousavi S, Dokhtvasi G. The effect of counseling based on Ex-PLISSIT model on sexual dysfunction and quality of sexual life of married women with Multiple Sclerosis: A randomized controlled clinical trial. Sex Disabil. 2020;38(11):271-284. DOI:10.1007/s111.950.2009617-4.

[15] Dangesaraki MM, Maasoumi R, Hamzehgardeshi Z, Kharaghani R. Effect of the Ex-PLISSIT model on sexual function and sexual quality of life among women after hysterectomy: A randomised controlled trial. Sex Health. 2019;16(3):225-232. DOI:10.1071/SH18107.

[16] Rostamkhani F, Moghadam R, Khoei M, Jafari F, Ozgoli G. Effect of counseling using PLISSIT model on sexual function of pregnant women. PCNM. 2016;6(1):18-28.

[17] Khezreian F, Jalali A, Kaboudi M, Salari N. Counseling based on PLISSIT model and sexual function among pregnant women. Pharmacophore 2017; 8(2):50-53.

[18] Rosen R, Brown C, Heiman J. The female sexual function index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther. 2000; 26(2):191-208. DOI:10.1080/009.262.300278597.

[19] Aygin D, Aslan FE. Kadın cinsel işlev ölçeğinin Türkçeye uyarlanması. Turkiye Klinikleri J Med Sci 2005; 25:393-399. (Turkish)

[20] Sezer NY, Erenel AŞ. Development of an attitude scale toward sexuality during pregnancy. J Sex Marital Ther. 2021; 47(5):492-507. DOI:10.1080/0092623X.2021.191.1892.

[21] DeRogatis L, Clayton A, D'Agostino DL, Wunderlich G, Fu Y. Validation of the female sexual distress scale-revised for assessing distress in women with hypoactive sexual desire disorder. J Sex Med 2008; 5(2):357-364. DOI:10.1111/j.17436.109.2011.02385.x.

[22] Aydın S, Onaran Öİ, Topalan K, Aydın ÇA, Dansuk R. Development and validation of Turkish version of the female sexual distress scale-revised. Sex Med 2016; 4(1):e43-50. DOI:10.1016/j.esxm.2015.12.003.

[23] Symonds T, Boolell M, Quirk F. Development of a questionnaire on sexual quality of life in women. J Sex Marital Ther. 2005;1(5):385-397. DOI:10.1080/009.262.30591006502.

[24] Tuğut N, Gölbaşı Z. Cinsel yaşam kalitesi ölçeği-Kadın Türkçe versiyonunun geçerlik ve güvenirlik çalışması. Cumhuriyet Tıp Dergisi 2010;32(2):172-180. (Turkish)

[25] Oh EJ, Kim MJ. Factors affecting the sexual function of pregnant women. Korean J Women Health Nurs 2019;25(1):73-85. DOI:10.4069/kjwhn.2019.25.1.73.

[26] Ziaei T, Keramat A, Kharaghani R, Haseli A, Ahmadnia E. Comparing the effect of extended plissit model and group counseling on sexual function and satisfaction of pregnant women: A randomized clinical trial. J Caring Sci 2022;11(1):1-8. DOI:10.34172/jcs.2022.06.

[27] Nejati B, Masoumi SZ, Parsa P, Karami M, Mortazavi A. Effect of counselling based on the PLISSIT model on pregnant women's sexual satisfaction: A randomised controlled trial. Fam Med Prim Care Rev 2020;22(1):43-48. DOI:10.5114/fmpcr.2019.90163.

[28] Shahbazi Z, Khalili AF, Sattarzadeh N, Kamalifard M. The effect of sexual counseling based on PLISSIT model on sexual function of pregnant women: A randomized controlled clinical trial. IJWHR. 2018;7(3):372-379. DOI:10.15296/ijwhr.2019.6125.

[29] Azari Barzandig R, Sattarzadeh Jahdi N, Nourizadeh R, Malakouti J, Mousavi S, Dokhtvasi G. The effect of counseling based on EX-PLISSIT model on sexual dysfunction and quality of sexual life of married women with multiple sclerosis: A randomized controlled clinical trial. Sex Disabil 2020;38(2):271-284. DOI:10.1007/s11195.020.09617-4.

[30] Daneshfar F, Moghadam ZB, Khakbazan Z, Nabavi SM, Nayeri N, Ghasemzadeh S, Montazeri A. The influence of Ex-PLISSIT (extended permission, limited information, specific suggestions, intensive therapy) model on intimacy and sexuality of married women with multiple sclerosis. Sex Disabil 2017;35(4):399-414. DOI:10.1007/s11195.017.9482-z.

[31] Mohammadi Z, Maasoumi R, Vosoughi N, Eftekhar T, Soleimani M, Montazeri A. The effect of the EX-PLISSIT model-based psychosexual counseling on improving sexual function and sexual quality of life in gynecologic cancer survivors: A randomized controlled clinical trial. Supportive Care in Cancer 2022;30(11):9117-9126. DOI:10.1007/s00520.022.07332-8.

[32] Nazari S, Karamatkar M, Moghdehipanah H, Olfati F. The effect of ex-PLISSIT model on sexual satisfaction in women with multiple sclerosis. Sex Disabil 2023;41(2):1-11. DOI:10.1007/s11195.023.09787-x.

[33] Shami M, Montazeri A, Taherah F, Behboodi Moghadam Z. The effect of sexual counseling based on ex-plİssİt model on improving the sexual function of married women with systemic lupus erythematosus: A Randomized controlled trial. Sex

Disabil 2023;41(2):451-466. DOI:10.1007/s11195.023.09776-0.

[34] Topatan S, Koç E. Gebelik döneminde yaşanan kadın cinsel sıkıntı durumu ve ilişkili faktörler. FÜ Sağ Bil Tıp Derg. 2020;34(1):13-19. (Turkish)

[35] Farnam F, Janghorbani M, Raisi F, Merghati Khoei E. Compare the effectiveness of PLISSIT and sexual health models on women's sexual problems in Tehran, Iran: A randomized controlled trial. J Sex Med 2014;11(11):2679-2689. DOI:10.1111/jsm.12659.

[36] Çavuş E, Beyazıt F. Gebeliğin farklı evrelerinde cinsel aktiviteyi ve cinselliğe bağlı yaşam kalitesini etkileyen faktörlerin değerlendirilmesi. İstanbul Tıp Dergisi 2019;20 (3):234-240. DOI:10.4274/imj.galenos.2018.37267. (Turkish)

[37] Alizadeh S, Riazi H, Alavi Majd H, Ozgoli G. The effect of sexual health education on sexual activity, sexual quality of life, and sexual violence in pregnancy: A prospective randomized controlled trial. BMC Pregnancy Childbirth. 2021;26;21(1):334-345. DOI:10.1186/s12884.021.03803-8.

[38] Heidari M, Amin Shokravi F, Zayeri F, Azin SA, Merghati Khoei E. Sexual life during pregnancy: Effect of an educational intervention on the sexuality of Iranian couples: A quasiexperimental study. J Sex Marital Ther 2018;44(1):45-55. DOI:1.1080/0092623X.2017.131.3799.