Effect of Counseling on Self-Efficacy in Iranian Middle-Aged Women: A Randomized Controlled Clinical Trial

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Abstract

Background: Attention to women's health is considered a health priority in every country. One of the factors that promote women's general health is self-efficacy.

Objectives: The present study was conducted to determine the effect of counseling on the self-efficacy of middle-aged women.

Methods: The present randomized controlled clinical trial was conducted on 102 middle-aged women (51 women in each group) and was covered by health centers in Tabriz in 2015 - 16. Participants were randomly assigned into two groups (one group received counseling and another did not) using the block randomization stratified based on age (40 to 50 and 50 to 60) in block sizes of 4 and 6. The intervention group received counseling on health promotion over three 45-minute sessions. Sherer et al's general self-efficacy scale was completed in both groups before the intervention, and four and eight weeks after the intervention. Data were analyzed using independent t-test and repeated measures ANOVA.

Results: Before the intervention, no significant difference was observed between the two groups in terms of self-efficacy. Four and eight weeks after intervention, mean (SD) of self-efficacy scores were 69.0 (11.4) and 71.7 (11.1) respectively in the counseling group and 65.7 (13.2) and 64.9 (11.3) respectively in the control group. After the intervention, and with adjusting the baseline values, repeated measures ANOVA test showed a significantly higher mean self-efficacy score in the counseling group compared to the control group (Adjusted mean difference = 5.3; 95% confidence interval = 2.1 to 8.5; P < 0.001).

Conclusions: Counseling in middle-aged women can lead to improved self-efficacy, resulting in improved health in this age group.

Keywords: Counseling, Self-Efficacy, Middle Aged, Women

1. Background

Women are considered one of the main pillars of community and family, such that their health is the foundation of community and family health, and is particularly important to the continuity of the family and community health (1). Women's health includes their physical, psychological, social, cultural, emotional, and spiritual well-being, and is affected by physiological, social, economic, and political factors (2). In Iran, based on the 2011 census, women comprise 49.6% of the population (3). Middle-age refers to ages from 40 to 60 years (mid-adulthood period) (4, 5). Middle-age is in fact the transition period from youth to old-age. According to the 2011 census in Iran, 16% of Iranian women are in this age range (3).

Because of the increase in life expectancy, middle-age can be considered one of the most productive and important periods in a woman's life (5, 6). This period has many consequences for a woman (7), including biological and health changes, reduced physical strength, loss of friends and family members, occupational changes, changes in perspectives, the event of children's leaving home or empty nest syndrome (8, 9), gray hair, poor sight, loss of self-esteem, reduced sense of well-being and worth, depression (9-11), changes in appearance such as facial wrinkles and dry skin, bad mood, weight gain, loss of control over life, poor quality of life, and menopausal transition period (12).

The importance of women's position in the community and their role in the overall development of the country is clear to everyone; and knowledge of their health and

factors affecting it can provide the basis for proper planning and policy-making for promoting their health [13, 14]. Self-efficacy is one of the factors that can promote women's general health. The first definition of self-efficacy was proposed by Bandura as "Individual's trust in their ability to organize and perform a series of necessary measures to achieve a specific goal". This definition has been derived from Bandura's theory of social learning. In his view, an important factor for the motivation of an individual is the belief in their own ability for taking action and being effective [15].

Self-efficacy means an individual's belief in their ability to face a particular situation [16, 17]. Today, it is believed that people can successfully change their behavior and improve their health if they see themselves efficient in overcoming barriers to behavior change [18]. A sense of high self-efficacy leads to greater effort, resilience, and flexibility. People with high self-efficacy feel more capable than those with poor self-efficacy [19]. Also, self-efficacy affects one's healthy behaviors and the management of chronic diseases [20]. Previous studies also confirm this. In studies conducted on adolescent boys in the city of Sanandaj in Iran, self-efficacy was proved to promote healthy lifestyle [16]. In another study, self-efficacy was shown to be inversely related to stress and depression [21].

One of the most important interventions for enhancing people's awareness, self-efficacy, and behavior is counseling [22]. Counseling is a helpful strategy in which principles associated with choice, planning, and continuation of a reasonable and successful life are taught to the patient [23]. In fact, counseling is a face-to-face and direct relationship between the counselor and the client with the aim to help the client in coping effectively with him/herself and his/ her environment [24].

Efficacy beliefs play influential roles in adopting healthy behaviours, eliminating detrimental habits, and maintaining change [25]. Considering the concept of self-efficacy and the effect it has on people's health, self-efficacy should be increased through various strategies such as counseling. To our knowledge, this study is the first research that was to determine the effect of counseling on self-efficacy in Iranian middle-aged women. The present study attempts to assess the effect of counseling on middle-aged women's self-efficacy.

2. Methods

2.1. Study Type and Participants

The present randomized controlled clinical trial was conducted on 102 middle-aged women (51 women in each group), and was covered by health centers in the city of Tabriz in 2015 - 16. This study was a single-blind randomized controlled trial (only the data analyzer was unaware of the type of intervention received by groups).

Inclusion criteria were 40 to 60-year-old women willing to take part and having a follow-up contact number. Exclusion criteria were self-reported history of physical or psychological diseases such as diabetes, hypertension, depression, etc.; recent tragic event such as death of relatives, severe accident, serious illness of family members, financial problems, etc.; use of cigarettes, alcohol, or addictive drugs with physical and psychological effects; severe poverty (having income less than $1.90, approximately equal to 80 000 rial, per person per day according to world bank) [26]; and previous participation in self-efficacy improving counseling classes.

The present study is a part of a larger study in which the sample size was determined according to the variable of health-promoting behaviors. Self-efficacy was assessed as the secondary outcome. Sample size was determined using G*POWER-3.1.2. Based on the results obtained by Anjazab et al. and the greatest standard deviation of subcategories of health-promoting lifestyle in middle-aged women [27], taking into account $m_1 = 68.6$, and assuming 20% increase in the score of health responsibility ($m_2 = 57.2$), $sd1 = sd_2 = 14.2$, power = 90%, and $\alpha = 0.05$, sample size was found 46 women, which was raised to 51 women after accounting for 10% withdrawal.

2.2. Sampling

Sampling began after obtaining the code of ethics (REC.TBZMED.1394.900) from the ethics committee of Tabriz University of Medical Sciences, and registration in Iran's clinical trials site (code: IRCT2015122610324N27). Initial sampling was conducted by the convenience sampling method. The present clinical trial recruited 102 middle-aged women (51 women in each group) covered by health centers in the city of Tabriz (with a total of 70 health centers and bases, and sampling was conducted in one-third of these centers in 2015 - 16). The health centers in Tabriz are public, governmental, or private and first-level referral centers. Considering that premenopausal women have records at health centers, the researcher visited these centers and extracted their names from their records. Names and phone numbers of postmenopausal and under 60-year-old women were obtained from health liaison workers. Using these phone numbers, these women were contacted and assessed in terms of inclusion criteria, and those eligible were invited to attend health centers. While contacting eligible women, the researcher invited them to take part in a briefing session. In personal visits, written informed consents were obtained from middle-aged women

willing to take part, and socio-demographic characteristics and self-efficacy questionnaires were completed by the researcher through interviews with those willing to take part.

2.3. Randomization

Middle-aged women who had completed pretest questionnaires were randomly assigned into two groups (one group received counseling and the other did not) using block randomization stratified based on age (40 to 50 and 50 to 60) in block sizes of 4 and 6. Type of intervention was written on paper and put in opaque envelopes that were numbered consecutively (allocation concealment).

2.4. Intervention

Counseling group received three 45-minute sessions of counseling on the promotion of health and health-promoting behaviors with an emphasis on self-efficacy in the training room in health centers in the city of Tabriz. A minimum of 5 women and maximum of 9 attended in each group. Principles of counseling were used to establish an effective relationship, and counseling sessions had an atmosphere of respect and intimacy, which reinforced the spirit of self-confidence and provided the context for the participation of women in group discussions. By the end of the first session, an educational booklet was given to participants in the intervention group. Researcher's phone number was, also, given to them to respond to questions that may arise. The control group received routine health care.

2.5. Data Collection Tools

In the present study, socio-demographic characteristics questionnaire and Sherer's general self-efficacy scale were used.

socio-demographic characteristics questionnaire contained questions about age, marital status, the number of children, menstruation state, education, occupation, spouse's education and occupation, BMI, adequacy of income, place of residence, marital satisfaction, and participation in religious meetings. Validity of this questionnaire was assessed through content and face validity.

Self-efficacy was assessed using Sherer et al.'s general self-efficacy scale which contained 17 items based on Likert scale from totally agree to totally disagree. Each item was scored from 1 to 5 points. Items 1, 3, 8, 9, 13, and 15 were scored from right to left, and the rest in reverse (from left to right). Hence, maximum score obtainable by a person was 85 and minimum score was 17. This scale was translated and validated in Iran by Bakhtiari Barati in 1996, and Cronbach's alpha for this scale was reported 0.79 (28). In

this study, Cronbach's alpha for this scale was determined 0.845 through pilot test on 20 middle-aged women.

2.6. Analysis of Data

Data were analyzed in SPSS-21. Normal distribution of quantitative variables was determined using Kolmogorov-Smirnov test. All variables had normal distribution. To compare groups in terms of socio-demographic characteristics, independent T-Test, Chi-square, Chi-square for trend, and Fisher's exact tests were used, and groups were compared in terms of mean self-efficacy scores before intervention using independent T-Test, and after intervention using repeated measures ANOVA. Significance level was considered as $P < 0.05$.

3. Results

The present study began in February 2015 and ended in September 2016. A total of 400 middle-aged women were assessed in terms of eligibility criteria, of whom, 102 who were eligible to take part were assigned into counseling and control groups. Participants in both groups were followed-up until the end of the study, and there were no withdrawals (Figure 1).

Table 1 presents socio-demographic characteristics of participants by groups. Counseling and control groups were similar with no significant difference between them in terms of age, marital status, age at marriage, number of children, menstruation state, BMI, education, spouse's education, occupation, spouses' occupation, adequacy of income, place of residence, or participation in religious meetings.

Mean (standard deviation) of self-efficacy score before the intervention was 60.7 (10.5) in counseling group and 61.0 (10.2) in control, and independent T-Test showed no significant difference between them (P = 0.879). Four weeks and eight weeks after intervention, mean (standard deviation) of self-efficacy scores were 69.0 (11.4) and 71.7 (11.1), respectively, in counseling group and 65.7 (13.2) and 64.9 (11.3), respectively, in control group. Based on repeated measures ANOVA test and after controlling baseline values, mean self-efficacy score was significantly higher in the counseling group compared to the control group (adjusted mean difference = 5.3; 95% confidence interval = 2.1 to 8.5; P < 0.001) (Table 2 and Figure 2).

4. Discussion

The present interventional study was conducted to determine the effect of counseling on the self-efficacy of middle-aged women in the city of Tabriz. In this
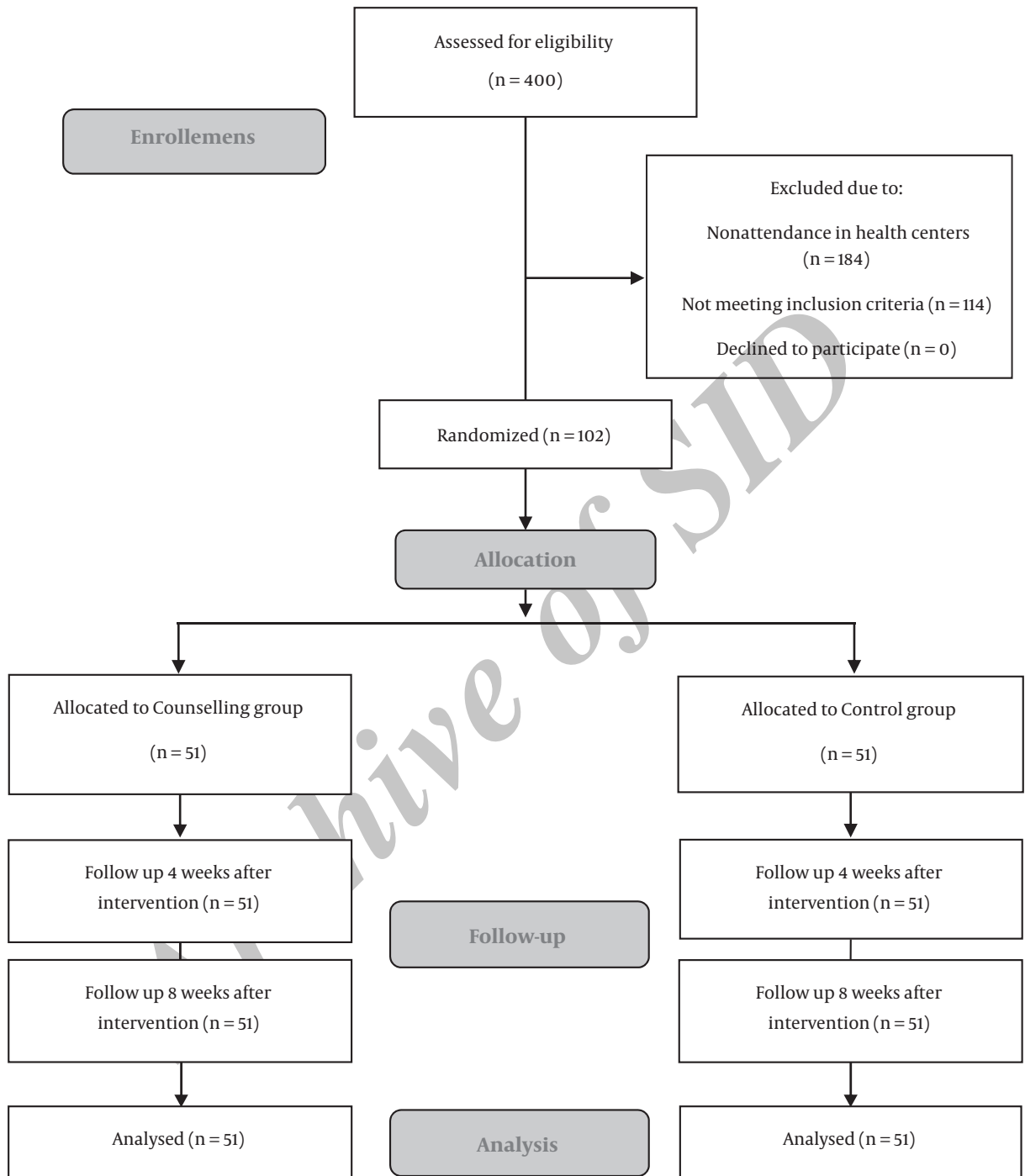
Figure 1. Flowchart of the Study

study, Counseling improved self-efficacy in the intervention group compared to the control group.Considering that no similar study addressing the effect of counseling on self-efficacy of middle-aged women could be found, studies assessing the effect of counseling and education on other groups were used. In an experimental study (2010), the results showed the significant effect of education on students' self-efficacy in nutrition behaviors (29). In an-

Table 2. Comparison of Self-Efficacy Score at Different Time-Points by the Study Groups

Time of Assessment	Counseling Group[a,b]	Control Group[a,b]	Time Effect, P Value[c]	Time & Group Effect, P Value[c]
Before intervention	60.7 (10.5)	61 (10.2)	0.995	0.021
After 4 weeks	69.0 (11.4)	65.7 (13.2)		
After 8 weeks	71.7 (11.1)	64.9 (11.3)		
Comparision between groups	Counseling with Control Adjusted mean difference (95% CI[d])		P value	
Before intervention	-0.3 (-4.2 to 3.8)		0.879[e]	
After 4 weeks	3.6 (-0.2 to 7.4)		0.065[f]	
After 8 weeks	7.0 (3.9 to 10.2)		< 0.001[f]	

[a] n = 51
[b] Values are expressed as mean (SD) unless otherwise indicated.
[c] The results are according to repeated measures analysis with adjusting the baseline value. The effect of the time was not significant but the results showed a significant Time × Group interaction effect on self-efficacy.
[d] 95% confidence interval
[e] Independent T-Test
[f] The results are according to ANCOVA test with adjusting the baseline value.
Abbreviations: SD, Standard Deviation
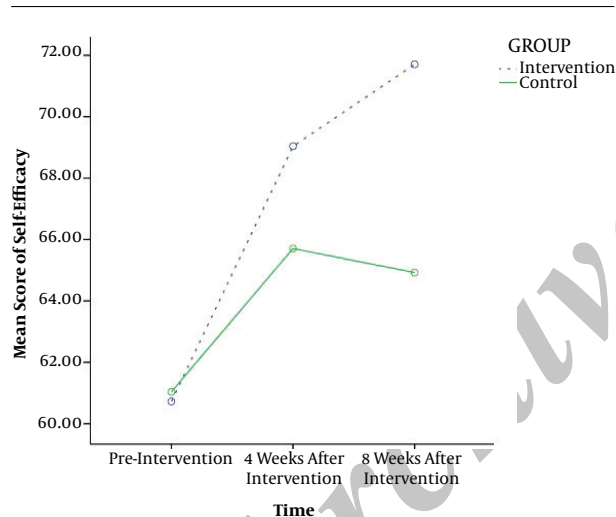
Figure 2. Trend in the Mean Score of Self-Efficacy at the Pre-Intervention, Four Weeks and Eight Weeks after the End of Intervention by the Study Groups According to Repeated Measures ANOVA.

other study, the effect of counseling on self-efficacy and short-term breastfeeding outcomes among primiparous mothers in Wuhan, China was assessed, and participants in the intervention group showed significantly more increases in breastfeeding self-efficacy, exclusive breastfeeding and duration of breastfeeding comparing to participants in the control group at 4 and 8 weeks postpartum (30). Also, the results of an interventional study among primiparous women showed that training women has a positive effect in increasing their self-efficacy and improving their functional status (31). The results of a study conducted on 64 male and female high school students in Chaharmahal and Bakhtiari province showed the positive effect of group counseling on self-efficacy (32).

In a study conducted in Turkey on the effect of education on the self-efficacy of patients with chronic obstructive pulmonary disease, 60 patients were assessed in education-receiving and control groups, and the analysis of the data showed a significant improvement in patients' self-efficacy (33). A study conducted in Pennsylvania showed positive effects of educational intervention on self-efficacy and awareness of women for preventing community domestic (34). In a study comparing lecture and educational package methods for increasing self-efficacy, educational package had a greater effect on self-efficacy of girls than lectures (35). The findings of a quasi-experimental survey on pregnant women showed that a health education program promoted self-efficacy of oral health performance in pregnant women (36). Also, in a clinical trial conducted on 100 patients with type 2 diabetes, using an empowerment program had positive effects on self-efficacy in these patients (37). According to the results obtained in the above-mentioned studies, it can be said that counseling and education have a significant role in enhancing people' self-efficacy.

"Self-efficacy theory postulates that people acquire information to evaluate efficacy beliefs from four primary sources: (a) enactive mastery experiences (actual performances); (b) observation of others (vicarious experiences); (c) forms of persuasion, both verbal and otherwise; and (d) physiological and affective states from which people partly judge their capableness, strength, and vulnerability to dysfunction" (38). Knowing what to do and believing one can

do it are not the only determinants of behavior. A person, also, must know how to do it (skills) and want to do the behavior (incentives). Thus, health education programs must include knowledge of what to do, skills to do it, and incentives for doing it (39).

Various studies have, also, shown self-efficacy to have a direct relationship with improved psychological and physical health. A study showed an inverse relationship between self-efficacy and depression (40). In another study, a significant relationship was found between increased self-efficacy and reduced stress, anxiety, and depression (41). Also, a study conducted on adolescent girls in 2015 showed the positive effect of self-efficacy on improved lifestyle (17). Thus, it is necessary that the counseling sessions regarding promoting self-efficacy be held by health care providers in health centers for all women in different age groups.

Using a standard questionnaire for assessing self-efficacy was a strong point of this study. As researcher (data collector) was not blinded; for preventing detection bias, adequate training was provided to data collector and the same method (interview) was used for collecting data in two groups of study. The present study limitations included the absence of a proper place for counseling among people resulting in their poor cooperation with the researcher. This limitation was resolved by explaining the study objectives and gaining participants' trust via observing ethical issues. This shows the need for the presence of counselors in health centers, so that people get familiarized with the position of counseling.

4.1. Conclusion

The present study results showed counseling in middle-aged women can enhance their self-efficacy. Thus, given the importance of women's position in the community and, also, considering the results obtained which confirm the effectiveness of counseling in increasing women's self-efficacy, efforts should be made to improve the self-efficacy of middle-aged women, and thus improve their healthy lifestyle using counseling experts in health centers in order to have a healthy and dynamic community.

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Footnote

Authors' Contribution: The first author (Vahideh Karim-lou) of this paper enrolled participants and assigned par-

ticipants to interventions. However, a person from research team (Sakineh Mohammad-Alizadeh Charandabi), not involved in the sampling, generated allocation sequence.

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Table 1. Socio-Demographic Characteristics of the Participants

Socio-Demographic Characteristics	Counselling Group[a,b]	Control Group[a,b]	P Value
Age, y	46.6 (5.3)	47.2 (5)	0.578[c]
Body Mass Index (kg\m²)	28.7 (4.2)	21 (4.9)	0.460[c]
Marriage age	20.5 (4)	21 (4.9)	0.540[c]
Level of Education			0.313[d]
Illiterate	4 (7.8)	5 (9.8)	
Primary school	12 (23.5)	5 (9.8)	
Secondary school	11 (21.6)	12 (23.5)	
High School	4 (7.8)	5 (9.8)	
Diploma	18 (35.3)	21 (41.2)	
University	2 (3.9)	3 (5.9)	
Participant's job			0.567[e]
Housewife	43 (84.3)	45 (88.2)	
Employed	8 (15.7)	6 (11.8)	
Number of children			0.897[e]
1 - 2	28 (54.9)	25 (50.0)	
3 - 5	20 (39.2)	22 (44.0)	
Higher than 5	3 (5.9)	3 (6.0)	
Marital status			1.000[e]
Single	3 (5.9)	4 (7.8)	
Married	48 (94.1)	47 (92.2)	
Husband's job			0.611[f]
Employed	17 (34.0)	14 (28.0)	
Worker	6 (12.0)	6 (12.0)	
Shopkeeper	6 (12.0)	10 (20.0)	
Freelancer	15 (30.0)	8 (16.0)	
Other	6 (12.0)	12 (24.0)	
Spouse's education level			0.689[d]
Illiterate	2 (4.0)	4 (7.8)	
Secondary school	8 (16.0)	4 (7.8)	
Secondary school	6 (12.0)	9 (17.6)	
High School	3 (6.0)	3 (5.9)	
Diploma	16 (32.0)	21 (42.2)	
University	15 (30.0)	10 (19.6)	
Family income			0.866[d]
Enough	6 (11.8)	10 (19.6)	
Quite enough	37 (72.5)	30 (58.8)	
Inadequate	8 (15.7)	11 (21.6)	
Religious meetings			1.000[e]
Yes	36 (70.6)	36 (70,6)	

No	15 (29.4)	15 (29.4)	
Menstrual periods			0.473[f]
Requalr	26 (51.0)	20 (39.2)	
Irregualr	12 (23,5)	16 (31.4)	
Monopause	13 (25.5)	15 (29.4)	
Marital Satisfaction			0.136[e]
Totally satisfied	11 (22.4)	18 (36.0)	
Fairly satisfied	28 (57.1)	26 (52.0)	
Dissatisfied	4 (8.2)	2 (4.0)	
No idea	6 (12.2)	4 (8.0)	
Home status			0.525[e]
Personal	42 (82.4)	37 (72.5)	
Rented home	6 (11.8)	9 (17.6)	
Parents home	3 (5.9)	5 (9.8)	

[a]The data were presented by No. (%) unless it has been shown with that indicate mean (Standard deviation)
[b]n = 51
[c]Independent T-Test
[d]Chi-square by trend
[e]Fishers exact test
[f]Chi-square test