

Original Paper

The Effect of Fordyce Happiness Training on Marital Satisfaction and Mental Health in Women With Premenstrual Syndrome



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ABSTRACT

Introduction: Premenstrual syndrome has several physical and psychological complications. Since healthy family relationships and normal marital interactions are affected by a woman's physical and mental health, any disorder in this area decreases marital satisfaction and consequently endangers the mental health and survival of the family.

Objective: This study aimed to determine the effect of Fordyce happiness training on marital satisfaction and mental health in women with premenstrual syndrome.

Materials and Methods: This randomized controlled trial was performed in 2018-2019. A total of 40 women with the premenstrual syndrome were selected by convenience sampling and randomly divided into experimental (n=20) and control (n=20) groups. The experimental group received six sessions of the Fordyce happiness training program at weekly intervals in groups of 10. In both groups, the level of marital satisfaction and mental health was measured by Enriching and Nurturing Relationship Issues, Communication, and Happiness (ENRICH) marital satisfaction questionnaire, and the Goldberg Mental Health questionnaire three times: before, immediately after, and 45 days after the training sessions. The Chi-square test, Fisher exact test, independent t test, and repeated measures analysis of variance were conducted to analyze the obtained data.

Results: The Mean±SD ages of the experimental and control groups were 32.45±7.33 and 33.10±6.25 years, respectively. The mean scores of mental health in the experimental group compared to the control group in the pretest, post-test, and follow-up (43.95±4.38, 41.20±5.73, 40.25±5.88) had a decreasing trend (P<0.05) but the mean scores of marital satisfactions in the experimental group (81.90±7.18, 86.35±8.16, 86.80±7.96, respectively) increased (P<0.05). However, no significant change was observed in the control group. Time significantly affects the mean changes in mental health (P=0.002) and marital satisfaction (P=0.001) in the samples. The time-group effect also shows a significant change for both variables (partial eta-squared for mental health=0.174 and marital satisfaction=0.165); the changes in the mean mental health and marital satisfaction of the research samples over time are different between the experimental and control groups; there are changes in the mean score of the two variables in three time points.

Conclusion: The findings of the present study showed that Fordyce happiness training is effective in improving the level of marital satisfaction and mental health of women with premenstrual syndrome. Therefore, it is suggested that this training program is used to adapt women psychologically to the mood and physical changes of premenstrual syndrome.

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Highlights

- Premenstrual syndrome can have adverse consequences such as marital conflict and incompatibility.
- Any disorder in marital satisfaction can damage the family's mental health and survival.
- Positive psychology-based training such as Fordyce happiness training can improve the mental health and marital satisfaction of women with premenstrual syndrome.

Plain Language Summary

Women with the premenstrual syndrome are more exposed to mental disorders that may increase their marital conflicts. It is necessary to consider strategies to improve marital satisfaction and mental health in women with this syndrome. In this regard, we can refer to stress management and creating happiness methods, such as the Fordyce happiness training program. Although studies have been performed to reduce the symptoms and complications of premenstrual syndrome using various methods, no study was conducted to investigate Fordyce happiness education on marital satisfaction and the mental health of women with premenstrual syndrome. Therefore, this study was conducted to determine the effect of this training on marital satisfaction and mental health in women with premenstrual syndrome referred to midwifery clinics in Kermanshah City, Iran. The findings of the present study showed that Fordyce happiness training is effective in improving the level of marital satisfaction and mental health of women with premenstrual syndrome.

Introduction

Menstruation is a common experience in women's lives and is an important issue regarding fertility [1]. This phenomenon plays an important role in maintaining vital balance and any change in its quality affects the physical and mental stability of women [2]. Although menstruation is a physiological event, about 75% of women of childbearing age experience symptoms such as mood swings, depression, anxiety, and interpersonal problems each month, collectively referred to as premenstrual syndrome (PMS). It can lead to complications such as broken family relationships, incompatibility of couples, and increased marital conflicts [3-6]. Studies have shown the effect of emotional and mood reactions on marital satisfaction [7, 8]. Toorani reported that emotional reactions caused by PMS could predict marital conflicts with a 95% confidence interval [9].

The opposite of incompatibility between couples is marital satisfaction, which is the basis of mental health in the family. So, any laxity in life and the level of marital satisfaction, in addition to disrupting the peace of mind of family members, put the family's survival at risk [10-12]. It should be noted that mental health means having the ability to play psychological, social, and physical roles properly, and not merely the absence of illness or

mental retardation. In recent years, mental health has been defined in terms of attitudes about oneself, others, and life [13, 14].

Since health disorders affect mental health and, on the other hand, the prevalence of mood disorders is higher in women, women with this syndrome are more prone to physical and mental disorders [2, 15, 16]. According to a study, there was a significant relationship between psychological well-being and the severity of PMS symptoms among female students [17]. Therefore, it is necessary to consider strategies to improve mental health and marital satisfaction in women with PMS.

Happiness is one of the most important factors that make people resistant to hopelessness and depression in the face of problems [18-21]. Fordyce has presented a program called happiness training with the following objectives: increasing activity, increasing social relations, increasing creativity, planning and organizing, avoiding worries, decreasing expectations, increasing positive thinking, and optimism, living in the present time, developing a healthy personality, developing social personality, being yourself, eliminating negative emotions, strengthening close and sincere relationships, and prioritizing happiness. This training course begins with a review of theories of happiness. Then, the misconceptions about happiness and how it is presented are discussed. In the same way, the training sessions are based on the teaching of the mentioned principles.

This program motivates people to continue the course and internalize the feeling of happiness. According to Fordyce, personal and psychological adjustment requires a set of training [22, 23]. Fordyce's educational approach includes cognitive and behavioral components affecting happiness, and considering that women with this syndrome suffer from mood and cognitive changes, this type of training can help them in the field of mood adaptation compared to other happiness training [24]. The Fordyce training program has been used in various fields; for example, Khakpour et al. reported that Fordyce-style happiness training promotes marital adjustment of infertile couples [25].

Although many methods have been used to reduce the symptoms and complications of PMS [26, 27], Fordyce's method has received less attention. Therefore, this study was conducted to determine the effect of Fordyce happiness training on marital satisfaction and mental health in women with premenstrual syndrome referred to midwifery clinics in Kermanshah City, Iran.

Materials and Methods

This study is a randomized controlled trial study. The study population included women with symptoms of premenstrual syndrome living in Kermanshah City, Iran, from May 2018 to May 2019. The number of participants required to conduct research was determined as 20 in each group based on a study by Kamar Zarin et al. [22] and considering $\mu_1=91.4$, $\mu_2=98.47$, $S_1=3.13$, $S_2=10.32$ (based on the sample size estimation formula to compare the two means), 10% of the sample loss, at a 95% confidence interval with an 84% test power.

The inclusion criteria were obtaining a score of 20 or above from the Premenstrual Syndrome Screening Tool (PSST), obtaining a score below 142 from the 47-question Enriching and Nurturing Relationship Issues, Communication and Happiness (ENRICH) marital satisfaction questionnaire, obtaining a score of 28 to 56 from the Goldberg Mental Health (GMH) questionnaire, being married, alive spouse, aged less than 50 years, residence in Kermanshah, menstrual period between 21 to 35 days in the last six periods, not on the verge of divorce, at least 5 years of marriage, no diagnosis of acute or chronic physical and mental illness, non-dependence of the client or his spouse on drugs and psychotropic substances, interest in participating in the study, non-participation in similar training sessions, level of education at least at the end of primary school, recent lack of experience of severe stress (relative death, accident leading to severe injury financial bankruptcy, dismissal,

retirement) and single marriage. The exclusion criteria were not participating in more than two training sessions and canceling to continue participating in the research process. All participants continued their cooperation until the end of the research (Figure 1).

Multi-stage sampling was performed after obtaining permission from Kermanshah University of Medical Sciences. First, the city of Kermanshah was divided into 8 clusters based on the 8 districts of the municipality. Then, from each cluster, a midwifery office was randomly selected, and sampling was done in an accessible manner and from among the clients to the mentioned offices for one year. The study samples were selected from women who were diagnosed with PMS according to the screening questionnaire. The number of sample sizes for each office was considered to be 5, who were divided into experimental and control groups using a simple randomization method, so that 20 times the letter A and 20 times the letter B were written separately on paper and placed in a container. Participants were asked to remove a piece of paper from the container, and once selected, the sheets were not returned to the container. The selected letters A and B were assigned to the experimental and control groups, respectively.

The office of one of the members of the research team was considered the place of training. Before the intervention, the demographic information form, ENRICH marital satisfaction questionnaire, and GHQ were completed as the first test by all samples using the self-reporting method.

The study tools used consisted of these instruments:

1. Demographic information including age, employment status, education of self and spouse, monthly income, number of pregnancies, number of live children, age of marriage, age of onset of menstruation, and use of contraception.
2. PSST is scored on a 4-point scale of general, mild, moderate, and severe, so they were scored 0-3. To diagnose moderate or severe PMS, the following three conditions must be met: 1) at least one case from option 1 to 2 is moderate or severe, 2) in addition to the previous case, from option 1 to 14, at least 4 cases are moderate or severe, and 3) there should be a moderate or severe case in the effect of symptoms on life (last 5 options). To be in the moderate to severe group, a person must meet the following conditions: A) at least one of the first 4 questions has been answered moderately or severely, B) from the first 14 questions, at least

Table 1. Content of the educational program

Meetings	Targets	Contents
1 st	Familiarity with meeting members and with how to do the job	Introducing the participants, setting the rules of the sessions, explaining the research, and asking and answering questions about menstruation and pre-existing syndrome and the impact of its negative aspects on life. Describing happiness from the perspective of each audience. Examining the factors related to happiness, such as wealth, social personality, education, gender, age, etc. and their role in life with the help of the audience.
2 nd	Introducing the formula of happiness, introducing general techniques of happiness, presenting the technique of increasing physical activity	Mentioning a summary of the previous session, presenting a happiness formula based on the personality of individuals (using the two dimensions of extraversion - introversion and stability - neuroticism), explaining that to increase happiness, it is necessary to move from introversion to extraversion and from neurosis to be consistent. The members were asked to start an activity to increase physical activity, such as brisk walking, running, exercising with the TV, taking classes such as aerobics and fitness, or specialized sports they each wanted.
3 rd	Providing the technique of developing optimism and creativity	Mentioning a summary of the previous session, discussing optimism with the explanation that if we are constantly looking for positive aspects, we will find ways to achieve them. Creativity comes along with opportunities, do not follow previous habits. Then two types of insights were described: pessimism and optimism. The members were asked for their opinions, and each gave an example. The members were asked to write down the main demands of their lives (do not modify them) and now think about how they can achieve these things.
4 th	Teaching the technique of increasing intimacy and focusing on the present	Mentioning a summary of previous sessions, presenting techniques for increasing intimacy, such as social networking friends, and presenting the technique of living in the present, explaining that whatever you do, enjoy it for the sake of it, not pursue the ultimate goal.
5 th	Providing the planning techniques	Attendees were asked to write down (do not modify) the main desires and goals of their lives, write the path they can take to achieve them, and then focus on smaller, more personal goals.
6 th	Browsing the trained techniques	Reviewing the summary of the discussion and practice of the taught techniques; at the end, thank the members for their cooperation with the researchers

4 cases have been answered moderately or severely, C) at least one of the last 5 questions has been answered moderately or severely, and the other persons in the category are in a mild group [28]. In this study, the Persian version of this tool was used [29-30]. It should be noted that the Cronbach α value of the PSST questionnaire in the present study was 0.84.

3. Fowers and Olson designed ENRICH marital satisfaction questionnaire in the United States [31]. This tool has 12 subscales and 47 questions scored on a 5-point Likert scale. If the total score of all expressions is less than 30, it indicates severe dissatisfaction of spouses with marital relations; a score of 30 to 40 indicates dissatisfaction; a score of 40 to 60 indicates relative satisfaction; a score of 60 to 70 indicates high satisfaction, and scores above 70 indicate extraordinary satisfaction with marital satisfaction. The validity and reliability of this tool have been confirmed in Iranian studies [32-33]. In the present study, its reliability was calculated as 0.89 using the alpha coefficient method.

4. The 28-item GHQ form of the mental health questionnaire was designed by Goldberg and Hiller [34]. The questions in this questionnaire examine a person's mental state in the last month. Their answers are scored on a 4-point Likert scale with a minimum score of 28 and a maximum score of 112. A lower score means better mental health. The validity and reliability of this tool have been confirmed in Iranian studies [35-36]. In the present study, the Cronbach α coefficient of the mentioned questionnaire was calculated to be 0.88.

The training process in the experimental group was based on teaching the principles of happiness by the Fordyce method (including 8 cognitive principles and 6 behavioral principles, as mentioned), using lectures, group discussions, and questions and answers in six weekly sessions of 60-90 minutes. The content of the educational program of the present study is presented in Table 1. Immediately after the end of the intervention, the second evaluation and after 45 days, the third evaluation was performed. The Chi-square test, Fisher exact

Table 2. Demographic and fertility variables between the experimental and control groups

Variables	Mean±SD		p*
	Experimental	Control	
Age (y)	32.45±7.338	33.10±6.257	0.77
Menstrual age (y)	11.25±1.293	11.95±0.276	0.63
Duration of marriage (y)	9.40±5.707	10.90±6.129	0.43
Monthly family income (US \$)	503.63±193.27	450.90±177.27	0.37

* The independent t-tests.

test, repeated measures analysis of variance, and independent t-test were used to compare the studied variables between the experimental and control groups. The significance level in all tests was considered <0.05. SPSS v.20 software was used to analyze the extracted data.

Results

The Mean±SD ages of the experimental and the control groups were 32.45±7.33 and 33.10±6.25 years, respectively. Also, the groups were not significantly different in terms of age, menstrual age, duration of the marriage, monthly family income, education and spouse, and the use of contraceptive methods. The results of demographic information of research samples are given in [tables 2](#) and [3](#). The results showed that 55% of the women had two or fewer pregnancies, and 45% had three or four pregnancies, of which two had the highest percentage (35%). Also, 25% of the research units had no or 1 child, and the rest of the samples had 2 or more children. The Chi-square test results showed that the two groups were similar regarding the number of pregnancies and children.

The results of the repeated measures analysis of variance in evaluating the effectiveness of the Fordyce happiness training program on the variables of mental health and marital satisfaction of the participants are presented in [Table 4](#). Time significantly affects the changes in mental health ($P=0.002$) and marital satisfaction ($P=0.001$) in the samples. Because the time-group effect also shows a significant change for both variables (partial eta-squared for mental health=0.174 and marital satisfaction=0.165), the changes in the mean mental health and marital satisfaction of the participants are not the same between the experimental and control groups; there are changes in the mean score of the two variables in three times. The mean changes of the two variables over time show that the mean scores of mental health in the experimental group in the pretest, post-test, and follow-up had a decreasing trend (43.95±4.38, 41.20±5.73, and 40.25±5.88, respectively). However, the mean scores of marital satisfactions in the experimental group had an increasing trend in three stages of measurement (81.90±7.18, 86.35±8.16, and 86.80±7.96, respectively) ([Figures 2](#) and [3](#)). The results of the independent t-test also showed that after the educational

Table 3. Distribution of absolute and relative frequency of education level and contraception

Variables		No. (%)			p*
		Experiment	Control	Total	
Level of Education	Diploma and less	17(85)	15(75)	32(80)	0.659
	University	3(15)	5(25)	8(20)	
Spouse's Education level	Diploma and less	17(85)	14(70)	31(77.5)	0.511
	University	3(15)	6(30)	9(22.5)	
Using of Contraception	yes	19(95)	16(80)	35(87.5)	0.171
	No	1(5)	4(20)	5(12.5)	

* The Fisher exact test.

Table 4. Comparison of mean score of mental health and marital satisfaction based on time and group effects

Variables	Effects	Sum of Squares	df	Mean of Squares	F	P*	Partial Eta-squared
Mental Health	Time	80.27	1.75	45.85	7.36	0.002	0.167
	Time×Group	84.47	1.75	48.25	8.03	0.001	0.174
Marital Satisfaction	Time	188.81	1.81	104.32	13.30	0.001	0.264
	Time×Group	84.47	1.75	48.25	8.03	0.002	0.165

* Analysis of variance with repeated measures.

intervention, the changes in the mean score of mental health were significant between the two groups, regarding the posttest compared to the pretest ($P=0.002$) and the follow-up compared to the pretest ($P=0.005$). In addition, regarding the comparison of changes in the mean scores of marital satisfactions in the posttest to the pretest ($P=0.004$) and the follow-up to the pretest ($P=0.003$), a significant difference was observed between the two groups (Table 5).

Discussion

This study aimed to determine the effect of Fordyce happiness training on marital satisfaction and mental health of women with PMS referred to midwifery clinics in Kermanshah City, Iran. Overall, the results showed that the Fordyce happiness training program improves marital satisfaction and mental health in women with PMS in the intervention group, which is consistent with the findings of other researchers [22, 37-39].

In explaining these results, it can be said that Fordyce happiness training is a kind of cognitive reconstruction

and reduces the level of expectations, relieves tension and anxiety, strengthens optimistic thoughts and presence in the present, prioritizes happiness, eliminates negative emotions, strengthens and improves positive communication with oneself and others and promotes physical and psychological health of people [40]. It can have a positive effect on the quality of life of women as well as their marital relationships, which has been shown in various studies [9, 41]. Because Fordyce happiness training leads to happy living and what the learner feels about herself, it changes the attitude of others towards the individual, thus leading to the promotion of mental health and, consequently, marital satisfaction. Happiness is a concept that depends on people's satisfaction with life and the mental feeling of satisfaction. So, the satisfaction and pleasure experienced by each couple when considering different aspects of their life together mean marital satisfaction [42].

Patients with premenstrual syndrome will learn about the physiological and psychological changes in their bodies and moods during the time of suffering from this syndrome and what problems will arise for them, and

Table 5. Comparing changes in the mean scores of mental health and marital satisfaction of research groups in three measurements

Variables	Mean Changes	Groups	Mean±SD	Test statistics	df	P*
Mental health	Posttest to the pretest	Experimental	-2.75±0.75	3.42	38	0.002
		Control	0.95±0.78			
	Follow-up to the pretest	Experimental	-3.70±0.86	2.96	38	0.005
		Control	-0.30±0.76			
Marital satisfaction	Posttest to the pretest	Experimental	4.45±1.03	-3.08	30	0.004
		Control	0.79±0.59			
	Follow-up to the pretest	Experimental	4.90±0.99	2.96	37	0.003
		Control	0.63±0.94			

* The t-test.

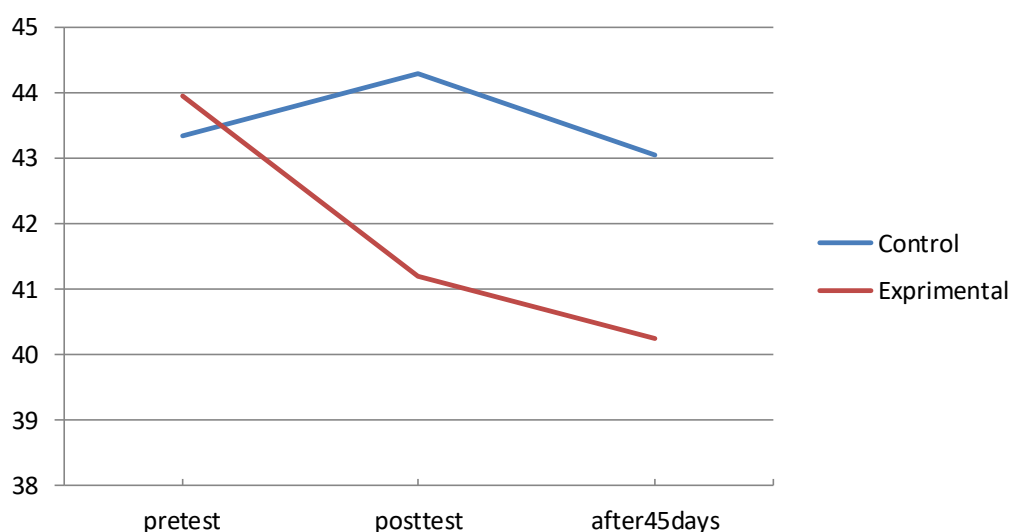


Figure 2. Descriptive diagram of the trend of changes in the mean score of mental health in three measurements

the strategies to deal with this. People with this educational method can take more advantage of their capacities and abilities and become more resistant to the stresses of life, which ultimately leads to an increase in their mental health. People who feel more happiness in life consider stimuli predictable and controllable. From their point of view, problems and unpleasant experiences are understandable and preventable. This way of looking at life and its events can lead to the psychological coherence of people and reduce interpersonal tensions and conflicts since emotional reactions, anxiety, depression, and stress caused by premenstrual syndrome disrupt interpersonal relationships. This perspective is especially effective between spouses and plays a

role in predicting marital conflicts. Therefore, efforts should be made with the necessary training, including teaching happiness to women with premenstrual syndrome, to decrease interpersonal tensions in the family and the reactions of those around you, especially the spouse, which will be controllable.

Therefore, using this educational program and allocating time and money for it can have a significant impact on improving women's mental health and reducing family conflicts, increasing marital satisfaction of couples, and ultimately leading to strengthening the foundation of the family as the most basic social unit of society.

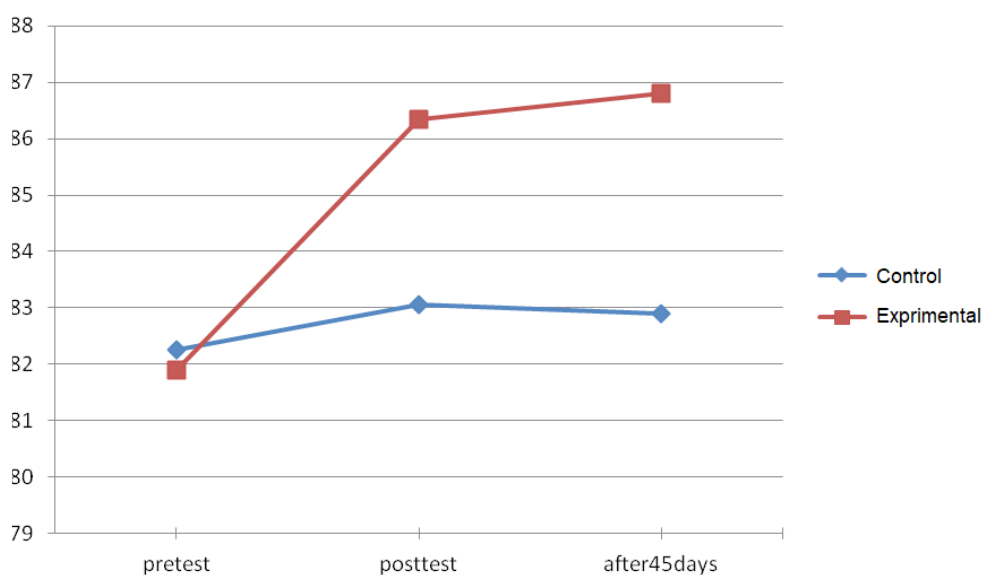


Figure 3. Descriptive diagram of the trend of changes in the average score of marital satisfaction in three measurements

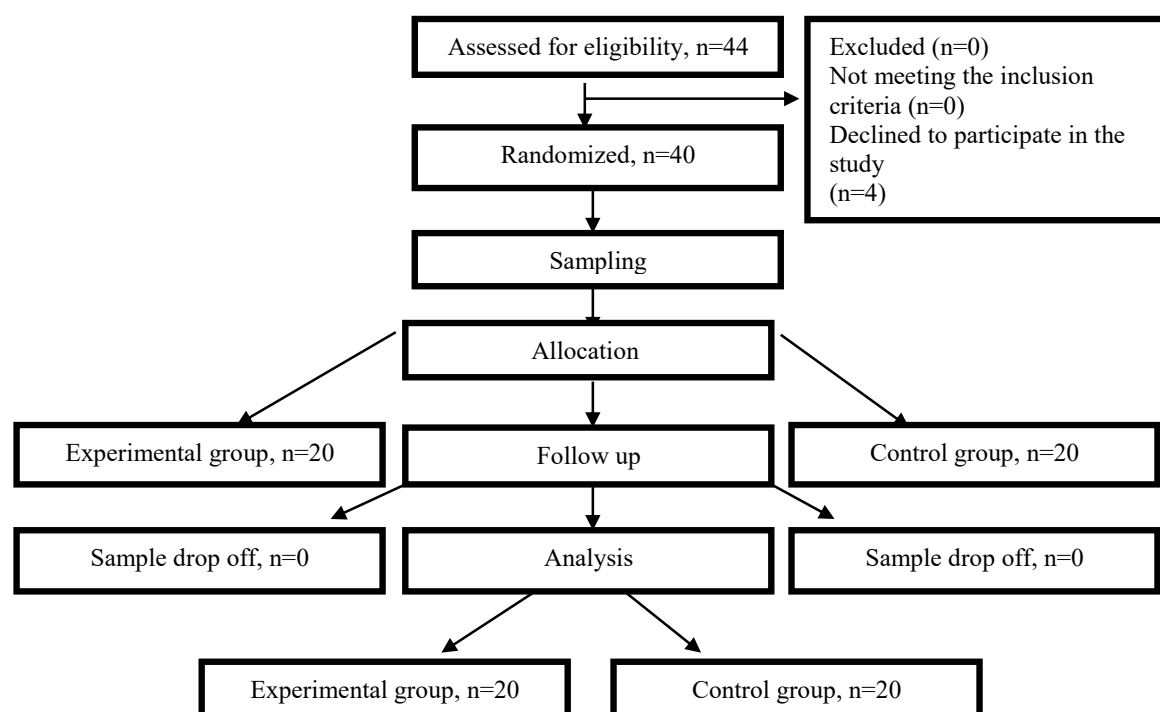


Figure 1. Consort (consolidated standards of reporting trials) flow diagram

It is suggested that in future research, the effectiveness of Fordyce happiness training be studied on various aspects of health, in other groups, in a longer period, and with increasing the number of training sessions. The limitation of the study was that it was conducted in the city of Kermanshah with a specific Kurdish socio-cultural context. So, our findings could not be generalized to other societies with different cultural and social conditions. Therefore, it is suggested that this research be repeated in the wider geographical dimensions and different cultures of the country.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of [Kermanshah University of Medical Sciences](#) (Code: IR.KUMS.REC.1397.047 and IRCT20130812014333N94).

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Authors' contributions

Conceptualization and design: Marzieh Kaboudi and Fereshteh Abdolrahmi; Conceptualization, Supervision, and investigation All authors. All authors approved article's final version.

Conflict of interest

The authors declared no conflict of interest.

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