Original Article

The effect of a education-counseling program based on temperament in Iranian traditional medicine on sexual dysfunction in diabetic women

Somayeh Karimi-Valoujaei[1], Zahra Kashi[2], Seyede-Sedigheh Yousefi[3], Hamid Sharif Nia[4], Soghra Khani[5]

[1]Student Research Committee, Nursing and Midwifery School, Mazandaran University of Medical Science, [2]Diabetes Research Center, School of Medicine, Mazandaran University of Medical Sciences, [3]Traditional Medicine and Complementary Medicine Research Center, Mazandaran University of Medical Sciences, [4]Department of Nursing, Amol Faculty of Nursing and Midwifery, Traditional and Complementary Medicine Research Center, Addiction Institute, Mazandaran University of Medical Science, Sari, Iran, [5]Sexual and Reproductive Health Research Center, Nursing and Midwifery School, Mazandaran University of Medical Sciences, Sari, Iran

ORCID:
Somayeh Karimi-Valoujaei: https://orcid.org/0000-0002-6960-8853;
Soghra Khani: https://orcid.org/0000-0001-6958-8234

Abstract

Context: Temperament (Mizaj) as an individual factor plays an important role in physical, mental, and sexual features.

Aims: This study aims to investigate the effect of an educational program based on the temperament in Iranian traditional medicine (ITM) on sexual dysfunction in diabetic women.

Settings and Design: This was a randomized controlled trial (RCT) study conducted on 30 women with diabetes referring diabetes care centers affiliated to Imam Khomeini Hospital in the city of Sari, Iran, 2021.

Materials and Methods: The participants were assigned into intervention and control groups by simple randomization. The intervention group received a healthy lifestyle educational program based on the type of temperament in four group education sessions. The tools of Sociodemographic Medical Characteristics, Mizaj Identification Questionnaire and Female Sexual Function Index (FSFI) were used in the study.

Statistical Analysis Used: Data analysis was performed employing descriptive statistics and statistical tests including Chi square, Kolmogorov–Smirnov, repeated measures analysis of variance, independent *t*-test, and paired *t*-test.

Results: Significant differences were observed in the total score of sexual function and all the FSFI domains except lubrication between the two groups (P=0.085).

Conclusion: An educational program based on mizaj in ITM can be an appropriate approach to improve the sexual function in diabetic women.

Keywords: Diabetes, Iranian traditional medicine, Sexual, Temperament

Address for correspondence: Dr. Soghra Khani, Sexual and Reproductive Health Research Center, Nursing and Midwifery School, Mazandaran University of Medical Sciences, Sari, Iran. E-mail: s.khani@mazums.ac.ir

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INTRODUCTION

As one of the most common chronic conditions, type 2 diabetes significantly contributes to various sexual issues.[1] In this respect, female sexual dysfunction refers to any disorder in sexual desire, arousal, orgasm, and genitopelvic pain/penetration in the sexual response cycle[2,3] recognized among the major complications of type 2 diabetes in women.[4]

The leading cause of female sexual dysfunction in cases with type 2 diabetes is multifactorial; in other words, it is induced by some biological and sociopsychological factors.[5] The prevalence rate of sexual dysfunction in women affected with type 2 diabetes has been correspondingly estimated by 20%–80%, and this value has been reported at 78.7% in Iran.[6,7] It can thus seriously impair interpersonal relationships and marital intimacy, reduce quality of life, and even initiate social problems, such as crimes, sexual harassment, and mental disorders.[8-10]

A number of pharmacological and nonpharmacological approaches to prevent or treat sexual dysfunction in women suffering from type 2 diabetes have been so far introduced.[10-13] In this sense, the pharmacological interventions are accompanied by some side effects, including masculine appearance, the increased risk of breast cancer, as well as endometrial and ovarian neoplasm.[10,14] From the perspective of Iranian traditional medicine (ITM), sexual health is essential for the survival of generations as well as human body's health.[15] According to ITM, individual differences have been the most significant determinants of prognosis, prevention, and treatment in this respect.[16] In ITM, mizaj or temperament is an important individual factor, which is deeded as the main concept to define health and disease, and a turning point in pathophysiology.[15,16] There are four types of mizajin ITM, including choleric (warm and dry), sanguine (warm and wet), melancholic (cold and dry), and phlegmatic (cold and wet).[16] Therefore, physical, mental, and emotional characteristics, attitudes, psychological states, as well as sexual behaviors are subject to the type of mizajin each person.[14] According to ITM, healthy lifestyles can be recommended to restore balance in mizaj to establish and maintain sexual relationships. For example, individuals with warm and wet mizaj, viz. the sanguine, have more stamina to have sex, as compared to other temperaments, followed by the warm and dry, cold and wet, and cold and dry ones, respectively.[9]

In view of that, lifestyle represents a combination of behavioral patterns and individual habits.[17] In keeping with ITM, healthy lifestyle education (i.e., asbab-e-sitta zaruriyya [six essential factors]) and the type of mizaj implicate climatic conditions, physical activities, nutrition, sleep-wake cycle, retention and vomiting, as well as psychiatric conditions.[9]

Limited studies have so far investigated the effect of healthy lifestyle education based on temperament programs and interventions, including nutrition counseling approaches, on sexual dysfunction in women with type 2 diabetes.[4,11,12,18,19] On the other hand, the World Health Organization advocates the development and expansion of traditional medicine in health-care systems due to being welcomed by the public as well as providing safe and cost-effective services.[20]

With regard to the searches in the databases available, no survey into the effect of healthy lifestyle education based on mizaj in ITM on sexual dysfunction in women with type 2 diabetes was found, to the best of the authors' knowledge. Therefore, the present study aimed to shed light on the effectiveness of a healthy lifestyle education program based on mizaj in ITM on female sexual dysfunction in cases with type 2 diabetes.

SUBJECTS AND METHODS

Study design

This was a randomized controlled trial study (IRCT code: IRCT20161126031117N7) conducted on women with diabetes referring to Baghban Specialized clinic and Mostafavian Clinic as endocrinology and diabetes care centers affiliated to Imam Khomeini Hospital in the city of Sari, Iran, between September 2018 and June 2019.

Sample size

As no similar research was available, a pilot study was utilized to determine the sample size, so it was decided to include 15 individuals in each group, and then the final sample size of 15 in each group was determined, using the G*Power software (G*Power version 3.00.10, Germany) with effect size d = 1.3816114, α err prob = 0.05 and Power (1-β err prob) = 0.95.

Random allocation method

Upon the identification of the eligible patients, they were through simple randomization allocated to two groups: intervention and control, through drawing cards with the group names written on them (groups A or B). To avoid information exchange among the participants, the appointments were set by the secretaries, so the individuals in both groups A and B could refer to the clinics on different days.

Inclusion criteria

Age 30–55 years,[12,21] at least 1 year since there from marriage, living with a spouse, more than 6 months past from diagnosis diabetes type 2, receiving dietary or medication diabetes treatment, body mass index between <35 kg/m^2,[22] no severe marital conflicts (scores above 67in Kansas Marital Conflict Scale (KMCS),[23] sexual dysfunction (<28 from Female Sexual Function Index (FSFI),[24] no smoking and alcohol, no pregnancy, no lactation, no menopause, no use of medications affecting sexual function, no sexual dysfunction in the spouse (Asking his wife about a history of sexual problems), no history of chronic disease, hemoglobin A1c (HbA1c) >6.5%[21] without advanced complications of diabetes.

Exclusion criteria

Receiving any treatments in the field of sexual issues including pharmacological and nonpharmacological interventions during the study, being absent in more than two educational sessions.

Data gathering

Instruments

Sociodemographic-Medical Characteristics Form

The Sociodemographic-Medical Characteristic (SDMC) Form was designed by reviewing the relevant sources and the opinions of the research team. This form contained 27 items in three separate domains, i.e., 12 items related to personal characteristics, 7 items about medical conditions, and 8 items associated with reproductive-sexual status. It was completed by two groups at the beginning of the study.

Kansas Marital Conflict Scale

The KMCS was comprised of 27 items, scored using a four-point Likert-type scale (never, a little, sometimes, and almost always) with points of 27–108. The score of the questionnaire is that a score between 27 and 54 is a sign of severe marital conflict, a score between 54 and 67 is a sign of moderate marital conflict, and a score above 67 is a sign of a mild marital conflict.[25] The questionnaire had high internal consistency with the Cronbach's alpha coefficients of 0.91–0.95 and 0.88–0.95 for men and women, respectively.[23,25] In Persian version of the scale, Cronbach's alpha coefficient was 0.98 and its correlation coefficient was 0.32.[26] The given scale was further submitted to the participants before intervention (education), and the respondents who scored higher than 67 were included.[23,25]

Mizaj Identification Questionnaire

The standardized Mizaj Identification Questionnaire has been the first questionnaire to identify the type of mizaj in ITM. The questionnaire was scored based on a Likert-type scale. It included 10 items, divided into two subscales: determination of warmth and coldness of mizaj (8 questions) (score 1 for cold mizaj, score 2 for temperate mizaj, and score 3 for warm mizaj) and wetness and dryness of mizaj (2 questions) (score 1 for wet mizaj, score 2 for temperate mizaj, and score 3 for drymizaj). Hence, the total scores of the first subscale ≤14 could be assigned as cold mizaj, score 15–18 as temperate, and score ≥19 as warm mizaj. The total score ≤3 could be assigned as wetness, score equal to 4 as temperate, and score ≥5 as dryness mizaj. The Cohen's kappa coefficient of 39, between 0.40 and 0.82, indicated its acceptable reliability, and the Cronbach's alpha coefficient of 0.71 showed its internal consistency.[27] This questionnaire was given to the participants before the educational interventions in the intervention group and after the completion of the project in the control group.

Female Sexual Function Index

The FSFI, developed by Rosen *et al*., consisted of 19 items, measuring sexual function in women within six independent domains over the past 4 weeks. The questionnaire was scored based on a Likert-type scale (score from zero to five). To give equal weights to the domains, the maximum score for each domain was 6, and that was 36 for the whole questionnaire. The minimum score would be 1.2 for domains of sexual desire and 0.0 for the domains and arousal, lubrication, orgasm, and pain, respectively. This value for the domain of sexual satisfaction was 0.8. Moreover, the minimum score would be 2 for the whole scale. The cutoff points for the whole questionnaire and its subscales were 28 for the total scale and 3.3, 3.4, 3.3, 3.4, 3.8, and 3.8 for sexual desire, arousal, vaginal moisture, orgasm, satisfaction, and pain, respectively. In other words, the scores less than the cutoff point denoted sexual dysfunction. In Rosen *et al*., the test–retest reliability of the whole scale had been reported by 0.88, and that had been equal to 0.79–0.86 for the subscales.[24] In Persian version, the degree of reliability was obtained through Cronbach's alpha coefficient < 0.70.[28] This questionnaire was provided to the participants in both the groups before immediately after and 8 weeks[12] after education.

Six Essential Factors Checklist (health-related life style factors in Iranian traditional medicine

This checklist was a researcher-made tool based on the six essential factors (nutrition, climate, sleep and wakefulness, retention and vomiting, exercise, and general mental Status). This checklist was made under the supervision of the research team, including a sexual and reproductive health specialist, a traditional medicine specialist, and an endocrinologist, and its validity was then

approved by three sexual and reproductive health specialists, four traditional medicine specialists, and an endocrinologist. The checklist was completed by the participants in the intervention (education) group for checking the homework. To ensure that participants complete their homework, the individuals' function about six essential factors was assessed during the follow-up on a weekly basis via phone calls.

Intervention group

The participants in the intervention group were asked to refer to the Center for Traditional Medicine in Sari, Iran, and attend at four group educational sessions. The individuals with similar mizaj were thus placed in the same group. Only one case in the intervention group had warm and dry mizaj, who was individually educated. Sessions were performed with a 1-week interval (each session lasting 90 min) by a Master's student of Counseling in Midwifery under the supervision of a reproductive health specialist. The educational content of the first session was appropriate for all mizaj groups (Anatomy, physiology,…) and then the individuals were grouped based on similar types of mizaj. From second sessions, women in the intervention group educated based on their type of mizaj. Once each session was over, the educational pamphlets were also provided to the participants. The content of the educational sessions is available in Table 1.

Table 1: Content of based on temperament education sessions in diabetic women with sexual dysfunction

Sessions	Content of educational sessions
First	Diabetes and its effects on sexual function, anatomy and physiology of the female reproductive system, sexual response cycle and sexual dysfunction, temperament, and the importance of knowing the type of temperament and sex function type of temperament, the importance of lifestyle modification training based on the teachings of traditional medicine on the basis of temperament and its effect on sexual function in women with type 2 diabetes
Second	Nutrition: Teaching healthy nutrition principles and the importance of healthy nutrition basics on the functional type of sexual function. Climate: The importance of chapters on the temperament and its measures and the importance of the climate-based temperance on sexual function
Third	Sleep and wakefulness: The characteristics of proper sleep and its measures, training the importance of proper sleep and wakefulness principles and its effect on sexual function retention (preservation of essential nutrients) and vomiting (waste disposal): Constipation prevention and treatment methods, menstrual hygiene and its measures, bathing and bathing habits and practices, sexual intercourse and related measures, stress incontinence and preventive measures from that
Fourth	Movement and rest (exercise): The characteristics of proper exercise and its measures, teaching the importance of correct principles of movement and rest on sexual function, eating disorders (general mental status): General recommendations for mental health, teaching the importance of eating disorders on sexual function

Control group

The participants in the control group attended one educational session about personal hygiene in group for 90 min, held in Mostafavian Clinic affiliated to Imam Khomeini Hospital, Sari, Iran. At the end of the project, the participants attended one 90-min intensive educational session focused on healthy lifestyles based on mizaj-centered ITM teachings. Finally, they received the relevant educational pamphlets.

Educational protocol

The initial version of the protocol of the present educational program was developed based on an extensive review of existing studies[9,29-33] under the supervision of the research team, whose the validity of protocol was then approved by three sexual and reproductive health specialists, four traditional medicine specialists, and an endocrinologist. The educational content of the protocol was further designed based on the type of mizaj (viz. all four types of temperament)

Outcome measure: The primary outcome assessed in this study was female sexual function in 6 independent domains including libido, sexual arousal, lubrication, orgasm, sexual satisfaction, and sexual pain, which were assessed using FSFI.[24]

Ethical considerations

This study was approved by the Ethics Committee of Mazandaran University of Medical Sciences (IR.MAZUMS.REC.1397.154). Written consent was obtained from the who reassured that their information was confidential and informed that they do not go on the study whenever they wished.

Statistical methods

The data were entered into the SPSS 21. Data analysis using descriptive statistics includes mean and standard deviation (SD) and frequency. To compare both the groups in terms of quantitative variables, independent *t*-test was used. Considering qualitative variables, Chi-square test and Fisher's exact test were employed. Kolmogorov–Smirnov test was also utilized to assess data normality. The comparison of the two groups in three stages was evaluated by repeated measures analysis of variance (ANOVA) and for comparison in pairs within each group paired-test group and between the two groups, independent *t*-test were used. There was not any participants' loss in the study. $P < 0.05$ was considered statistically significant.

RESULTS

Out of the total of 145 patients with type 2 diabetes, 89 cases were considered eligible ones. Finally, 30 participants were included in the study [Figure 1]. The distribution of the total score of sexual function and its all domains were normal.

The study results demonstrated no significant difference between both the groups before the intervention in terms of the SDMCs, except for the type of contraceptives ($P = 0.01$) [Table 2]. There was also no significant difference between the two groups with regard to the type of mizaj ($P = 0.7$) [Table 3].

The mean and SD of the sexual function total score in the intervention and control groups, before the educational program, were not statistically significant. As illustrated in Table 4, the repeated measures ANOVA outcomes correspondingly revealed a statistically significant difference in the intervention group in terms of the mean and SD of the FSFI total score ($P < 0.001$) and its six domains, including desire ($P < 0.001$), arousal ($P < 0.001$), orgasm ($P = 0.001$), sexual satisfaction ($P = 0.003$), and pain ($P = 0.02$) in three stages, viz. before, immediately, and 8 weeks after the intervention, but no statistically significant difference was observed in the lubrication domain ($P = 0.08$). These differences were not statistically significant in the controls [Figure 2].

DISCUSSION

This study aimed to examine the effect of the healthy lifestyle intervention program based on the health-related lifestyle factors (six essential factors) on sexual dysfunction in women with type 2 diabetes. In a population-based meta-analysis (2018), examining the impact of six health-related lifestyle factors on male and female sexual dysfunction, lifestyle modifications had been considered an effective and safe method in reducing such a condition in both genders.[34] Based on the findings of the present study, the healthy lifestyle education program based on mizaj in women with type 2 diabetes had a significant effect on the FSFI total score, and the domains of desire, arousal, orgasm, sexual satisfaction, and pain, but no significant difference was observed in lubrication. The results could be further justified by the fact that vaginal lubrication is caused by vascular responses and patients with type 2 diabetes are prone to vascular disorders since the production of nitric oxide as a vasodilator decreases and blood supply process is disrupted in veins.[35] Therefore, it seems that providing educational programs for lifestyle modifications in patients with type 2 diabetes cannot prevent vascular disorders. Therefore, a longer follow-up was needed to increase the lubrication scores. The results were additionally consistent with the findings of the study on the impact of an education program based on the Predisposing, Reinforcing, and Enabling Causes in Educational Diagnosis and Evaluation model of health-related factors (2017),[4] among the common features in the mentioned research. The content of the educational program in the given research was also similar to that of the protocol utilized in the present study. Moreover, the activities in the educational program were comprised of lifestyle modifications, including diet, exercise, weight control, sleep, stress management, and other early prevention strategies, such as smoking cessation and substance abuse withdrawal, but education based on the type of mizaj had not been taken into account. However, the number of educational sessions, the length of follow-up, and the age group of women were in agreement with those in the present study. One other survey had correspondingly aimed at examining the effect of a counseling program based on the Permission-Limited Information-Specific Suggestion-Intensive Therapy model on the sexual function of women with type 2 diabetes (2018), which was in conflict with the results here.[11] The assumption behind the differences in the results could be that, unlike the present study, counseling had been practiced individually during eight sessions, but the number of sessions in the present study was four. Although lifestyle modifications might have been accomplished in the counseling sessions to deal with sexual problems, prolonged follow-up for 6 months might have elevated the FSFI total scores in women with type 2 diabetes, or the use of lubricants had been recommended in the absence of lubrication, which might have led to temporary relief and satisfaction.

The research results in Iran in 2016 also did not match the reports in the present study.[12] This discrepancy was probably found in the content of the educational sessions, as this study reflected on issues linked to sexuality and their solutions. Another reason for the inconsistent results was the inclusion of individuals with other chronic diseases.

In line with the present study, the effect of traditional medicine on female sexual dysfunction had been investigated in Iran (2018), indicating that the use of traditional medicine had augmented the FSFI total score and its six domains, except for pain, in women.[19] The disagreement in the results could be attributed to the differences in educational sessions with the subsequent ones. In the present study, the educational sessions were repeated weekly, but they had been held every 2 weeks in the given survey.[17] As well, the intervention had been performed on the women of reproductive age without any underlying diseases. The content of the protocol of the traditional medicine-based educational group was also similar to that in the present study, but education based on the type of mizaj had not been considered.

The results of another study in 2016 had comparably demonstrated that the Mediterranean diet had been much more effective in improving the FSFI total scores in women with type 2 diabetes.[18] It seems that the reason for this

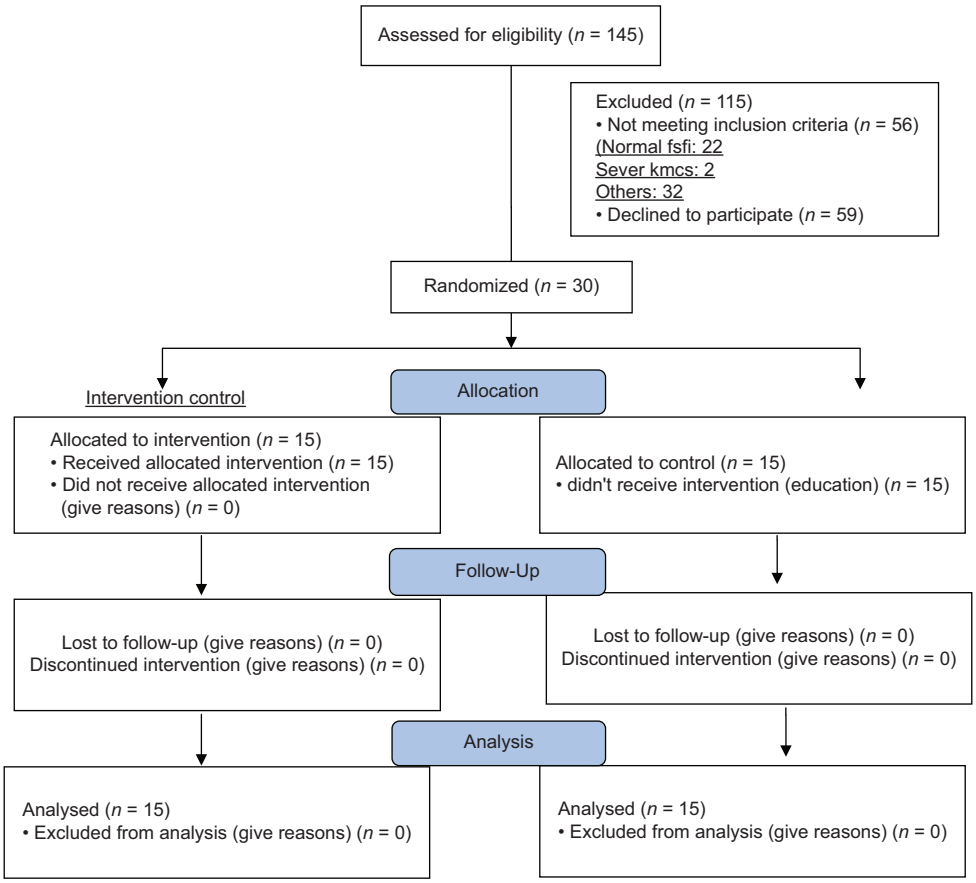

Figure 1: Enrollment of participants in the study

contrast was that women who had been newly diagnosed with type 2 diabetes with no advanced vascular disorders had been included in this study. Moreover, the prolonged follow-up was another reason for the discrepancy in the results. In their study, the main objective was to investigate the effect of lifestyle interventions on sexual dysfunction in women with type 2 diabetes.

In a study in 2013, the FSFI total score and all its domains had enhanced in the intervention group, compared to those in the controls, except for the genitopelvic pain/penetration.[36] The reason for these inconsistent results could be attributed to the differences in the number of educational sessions, individual and group sessions, as well as the length of follow-ups. Postmenopausal women were further excluded in the present study, but women in the age range of 45–76 had been included in the mentioned research, which might justify the descending trend in estrogen levels at menopause and vaginal atrophy, leading to genitopelvic pain/penetration as well. This study did not focus on other lifestyle components as well as education based on the type of mizajin each person.

The present study had some limitations, including the absence of husbands in the educational sessions, the low levels of education among the participants, and the short follow-up in the educational sessions. One other limitation was the participants' uncertainty about the correct implementation of the Six Essential Factors Checklist, despite several phone calls made to ensure its proper execution. Among the strengths of the present study was random allocation, the use of a control group, multistage patient evaluation, and the appointments set on odd and even days by the secretaries of the clinics in order not to let the individuals in the study groups exchange their information.

CONCLUSION

Based on the study findings, confirming the positive effect of the educational program based on mizaj in ITM on sexual function in women with type 2 diabetes, the Midwifery and Counseling in Midwifery graduates are advised to take specialized courses in traditional medicine and acquire the skills needed to identify mizaj in order to implement this program as an easy, inexpensive, and uncomplicated method in sexual and reproductive health clinics and health-care centers, to improve sexual function.

Since the present study was the first attempt in the related literature worldwide, to the best of the authors' knowledge,

Table 2: Comparison of sociodemographic characteristics of diabetic women with sexual dysfunction in education and control group

Variable	Educational program based on temperament (*n*=15)	Control (*n*=15)	*P*
Age of the woman (years), mean±SD	44.53±5.97	44.13±4.99	0.84
Age of the spouse (years), mean±SD	47.93±7.47	48.66±5.51	0.76
Number of children, mean±SD	2.06±0.70	2.6±0.82	0.06
BMI (kg/m^2), mean±SD	27.71±4.12	29.79±4.42	0.19
Duration of marriage (years), mean±SD	24±6.55	23.66±6.62	0.89
Duration of diabetes (years), mean±SD	8±6.66	8.10±3.87	0.96
Average sexual intercourse (/week), mean±SD	1.26±0.70	1.13±0.74	0.61
HbA1C before the intervention, mean±SD	7.34±1.63	8.05±1.97	0.29
Female of education, *n* (%)			
Middle school	8 (53.3)	8 (53.3)	0.68
High school diploma and undergraduate	7 (46.7)	7 (46.7)	
Female occupation, *n* (%)			
Housewife	15 (100)	13 (86.7)	0.24
Employee	0	2 (13.3)	
Place of living, *n* (%)			
City	11 (73.3)	13 (86.7)	0.32
Village	4 (26.7)	2 (13.3)	
Hypothyroidism, *n* (%)			
Yes	5 (33.3)	2 (13.3)	0.19
No	10 (66.7)	13 (86.7)	
Hypertension, *n* (%)			
Yes	5 (333)	5 (333)	0.65
No	10 (66.7)	10 (66.7)	
Depression, *n* (%)			
Yes	7 (46.7)	6 (40)	0.5
No	8 (53.3)	6 (60)	
Type of contraceptive method, *n* (%)			
Hormonal methods	4 (26.7)	0	0.01
Nonhormonal methods	3 (20)	3 (20)	
Not using the method	8 (53.3)	12 (80)	

SD: Standard deviation, BMI: Body mass index, HbA1C: Hemoglobin A1c

Table 3: Comparison of frequency distribution and percentage of subjects in type of mizaj of diabetic women with sexual dysfunction in education and control groups

Mizaj	Educational program based on temperament, *n* (%)	Control, *n* (%)	*P*
Cold and dry	5 (33.3)	3 (20)	0.7
Cold and wet	9 (60)	11 (73.3)	
Warm and dry	1 (6.7)	1 (6.7)	

Table 4: Comparison of two groups of education and control in total sexual function score and its six domains

Domain	Evaluation in three stages	Mean±SD		*P* (between groups)	*P* (RMANOVA)
		Intervention group (*n*=15)	Control group (*n*=15)		
Desire	Before intervention	3.16±0.92	3.12±0.56	0.88	<0.001
	after the intervention	3.52±0.93	2.96±0.69	0.07	
	8 weeks after intervention	4.24±0.65	3±0.68	<0.001	
Arousal	Before intervention	3.42±0.75	3.40±0.79	0.94	<0.001
	after the intervention	3.70±0.92	3.34±0.78	0.26	
	8 weeks after intervention	4.42±0.77	3.42±0.73	0.001	
Lubrication	Before intervention	4.24±0.77	4.02±1.02	0.51	0.085
	after the intervention	4.36±0.6	4.12±0.85	0.38	
	8 weeks after intervention	4.70±0.55	4±0.79	0.009	
Orgasm	Before intervention	4.18±0.83	4.32±0.75	0.65	0.001
	after the intervention	4.4±0.78	4.18±0.76	0.43	
	8 weeks after intervention	4.66±0.71	4.4±0.78	0.34	
Satisfaction	Before intervention	4.21±0.72	4.58±0.85	0.2	0.003
	after the intervention	4.85±0.83	4.5±0.79	0.25	
	8 weeks after intervention	4.98±0.47	4.5±0.7	0.03	
Pain	Before intervention	4.64±1.11	4.72±1.27	0.85	0.02
	after the intervention	4.58±1.34	4.69±1.23	0.82	
	8 weeks after intervention	5.12±0.98	4.64±1.3	0.26	
Total	Before intervention	23.86±2.9	24.16±2.9	0.78	<0.001
	after the intervention	25.42±3.39	23.80±2.91	0.17	
	8 weeks after intervention	28.13±2.56	23.96±3.09	0.001	

ANOVA: Analysis of variance, RMANOVA: Repeated measures ANOVA, SD: Standard deviation

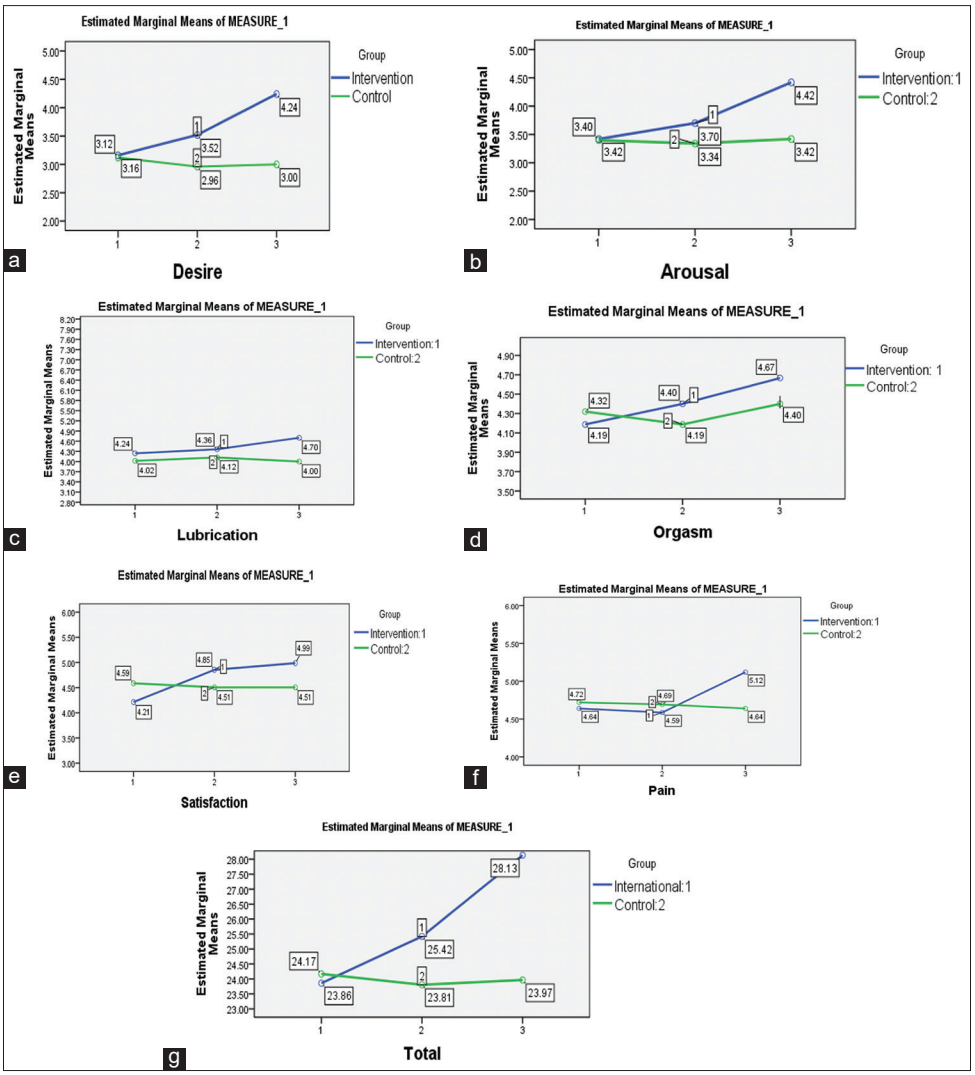

Figure 2: (a-g) Total score of female sexual function and its domains in control and intervention groups using RMANOVA with repeated measures. RMANOVA: Repeated measures analysis of variance

it is of utmost importance to do further research to make the final decisions on the exact mechanism of traditional medicine and its relationship with the type of mizaj as well as its effects on sexual function.

Conflicts of interest

There are no conflicts of interest.

Authors' contributions

S.K and S.kh conceived the initial idea of and designed the study. H.ShN performed the statistical analysis. S.Kh contributed to intervention design and to draft the manuscript. S.K helped to recruit the participants. Z.K and S-S.Y helped to intervention design and to draft the manuscript. All authors read and approved the final manuscript.

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