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Original research

A Comparitive Study of the Effectiveness of Yoga-based Intervention and Positivie-oriented Intervention on Sleep Quality of Pregnant Women with Recurrent Abortion

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Abstract

Introduction: The purpose of this study was to comparitive study of the effectiveness of yoga-based intervention and positivie-oriented intervention on sleep quality of pregnant women with recurrent abortion.

Method: This semi-experimental study was conducted with a pretest-posttest design with control group and follow-up 2 month. The statistical population was all pregnant women with recurrent abortion, referring to the health centers of Qazvin city in the winter of 2024. In the first stage, 45 women with experience of more than 2 recurrent abortion were selected and and then randomly divided into 2 experimental groups (15 wonen in each group) and a control group (15 women) were replaced and experimental groups underwent yoga-based intervention and positivie-oriented intervention, but the control group received no training and remained in the waiting list. To collect data Pittsburgh sleep quality Index (PSQI) of Buysse and et al. Data analysis was performed using SPSS-28 software with analysis of variance with repeated measures and Bonferroni.

Findings: The results of the study showed that of both interventions had a significant effect on sleep quality ($P<0.05$). In addition, the results of Bonferroni post hoc test showed that yoga-based intervention has a greater effect than the positivie-oriented intervention on reducing sleep quality. ($P<0.05$).

Conclusion: It can be concluded that in addition to the effectiveness of both treatments, the priority of using yoga-based intervention in improving sleep quality of women who have women with recurrent abortion.

Keyword: positivie-oriented intervention, recurrent abortion, sleep quality, yoga-based intervention

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Introduction:

Reproductive competence is highly valued in most cultures, and the desire to have children is one of the most fundamental human drives (1 , 2). Although becoming pregnant seems natural, it is a very complex and critical process. One of the dangerous events in this regard is spontaneous abortion (3, 4, and 5). If attempts to become pregnant and have children fail, it can turn into an emotionally destructive experience known as Recurrent Abortion (6); so that some women may not realize it and consider the bleeding from the miscarriage as a normal menstrual period. (7). To determine whether a woman has recurrent abortion, she must have experienced at least 2 or 3 abortions during her lifetime, and these miscarriages should occur between the 20th and 24th weeks of pregnancy (8). Therefore, two or more miscarriages or biochemical pregnancy losses are considered recurrent abortion, and conditions such as immune deficiency, endocrine dysfunction, and obesity are all associated with an increased risk of abortion (9). Research has shown that pregnancy and motherhood are considered enjoyable and developmental events in women's lives; however, sometimes due to numerous physiological and psychological changes, it may be accompanied by uncontrollable anxiety (10). In fact, although environmental factors such as air pollution and psychological factors such as experiencing various psychological pressures can be determinants for recurrent abortion (11), the experience of abortion itself can be a stressor for pregnant women, leading them to experience various psychological problems and disorders such as feelings of guilt and loss (12) and depression (13 and 14).

On the other hand, according to related research, the inability to manage the mentioned problems, including feelings of guilt and loss (12) and depression (13 and 14), can affect sleep quality, which is one of the factors of maternal and fetal health (15). Sleep quality is defined as the foundation of health, vitality, and longevity and an important part of the human life rhythm (16), playing a very important role in physical, mental, and psychological recovery (17). Research background has shown that women with recurrent implantation failure sleep an average of 7 hours and 35 minutes daily, which is 53 minutes less than the comparison group; that is, women with recurrent abortion sleep less than their healthy counterparts, which is a matter that needs attention (18). Studies show that sleep quality refers to the optimal mental and physical quality of a person's sleep (19) and lack of delay in falling asleep and an appropriate sleep duration (20). Research has shown that dream anxiety and insomnia severity are significantly higher in women with a history of primary infertility and pregnant women with a history of recurrent abortion compared to healthy pregnant women; in such a way that pregnant women with a history of primary infertility or recurrent pregnancy losses significantly more than women with healthy pregnancies experience and report dream anxiety and insomnia (21).

Therefore, women who experience recurrent abortion should undergo psychological interventions to improve issues such as poor sleep quality. One such intervention is yoga-based intervention (22 and 23), which is a mind-body-spirit practice primarily but not exclusively based on breathing techniques, meditation techniques, and physical postures (24). Interest in yoga-based interventions among pregnant women is increasing, yielding interesting results in improving various pregnancy outcomes, such as labor pain (25), reducing pregnancy anxiety (26,

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27, and 28), and improving the sleep quality of pregnant women (23, 29, 30, and 31). On the other hand, positivity intervention or positive psychology intervention (PPIs) is defined as interventions aimed at enhancing well-being through pathways consistent with positive psychology theory, resulting in individuals experiencing greater health, higher quality of life, and lower levels of depression and anxiety (32).

Considering the emphasis of clinical therapeutic specialists on using culturally-centered positive interventions (33), another intervention that plays a significant role in reducing problems for pregnant women is positivity intervention (34). Positive psychology by Csikszentmihalyi & Seligman (35) is considered the "science of positive subjective experience, positive individual traits." Positive psychology emphasizes positive experiences (such as well-being, happiness, satisfaction, hope, and optimism) and positive individual traits (such as perseverance, authenticity, and purpose) (36). Moreover, positive psychology focuses on happiness and positive thinking (37), aiming to further strengthen an individual's strengths and values in psychologically challenging situations (38). Unlike traditional psychology, which primarily focuses on pathologies (i.e., what is damaged) and aims to analyze them, positive psychology understands that all individuals, instead of focusing on what they lack, should focus on their strengths and potentials (39). Reviews indicate that positive psychology interventions, based on Seligman's holistic perspective, have significant potential for coping with difficult and ambiguous psychological conditions; thus, clinical examination of such interventions for vulnerable groups is emphasized (36, 37). Research background indicates that positive psychology-based intervention has had significant impacts on improving sleep quality (40, 41).

Moreover, regarding the importance of comparing yoga-based intervention and positivie-oriented intervention, it can be said that the main difference between yoga and positivity intervention is that yoga originates from Eastern culture while positivity intervention originates from Western culture (42). Therefore, comparing the effectiveness of these two interventions in the Iranian society, as an Eastern culture, can help therapists and psychologists identify a more effective intervention and use it to help women with recurrent abortions. Additionally, in terms of the importance of this research, it can be noted that recurrent abortions can occur for various reasons, including the quality of the male sperm (43), antiphospholipid antibody syndrome (an autoimmune disease) in women (44), cervical incompetence or weak cervix (45), uterine anomalies (46), polycystic ovarian syndrome (47), and Uterine septum, among other factors (48). What is important is the psychological and emotional problems experienced by these women as a result of recurrent abortions. According to research findings, women who have recurrent abortions experience issues such as stress, psychological distress, and poor sleep quality. (21). Furthermore, the necessity of this research lies in the fact that without such studies, it is impossible to recognize disorders like poor sleep quality in pregnant women with recurrent abortions experiences. Without psychological interventions to reduce these women's issues, we may see more significant problems, especially in their marital lives, which could put their marital relationships at risk. Therefore, research in this area is crucial. Counseling centers, psychological services, reproductive clinics, obstetrics and gynecology clinics, midwives, and related doctors

can use the results of this research to reduce sleep problems in pregnant women with abortion experiences. Alongside medical treatments to improve these women's childbirth issues, psychologists and clinical counselors can help improve reproductive and childbirth problems. Thus, this research is important and necessary and has numerous practical implications. Therefore, the research question is: Is there a difference between the effectiveness of yoga-based intervention and positivie-oriented intervention on the sleep quality of pregnant women with recurrent abortion experiences?

Research Method:

The research method is applied based on the objective and is considered quantitative and quasi-experimental in terms of data collection, utilizing a pretest-posttest and 2-month follow-up design with an unequal control group. In this study, the statistical population comprised all women with recurrent abortion experiences who referred to health centers in Qazvin city during the winter of 1403. According to methodology experts like Gall et al. (51), 15 participants per group are acceptable for quasi-experimental research. Based on this, 45 participants were selected for this study (15 in the first experimental group, 15 in the second experimental group, and 15 in the control group). The sampling method was a non-random purposive method with random replacement. The inclusion criteria were having recurrent abortions based on gynecologists' expertise (more than 2 abortions), being aged 25 to 45, consenting to participate in the study, having psychiatric health (not using psychiatric medications), having a high school diploma to understand and complete the tools, and not having children (no history of successful childbirth). The exclusion criteria included simultaneous participation in other psychological interventions, unwillingness to continue participating in the study, and not adequately completing the questionnaires. Ethical approval with the code IR.IAU.TABRIZ.REC.1402.174 was obtained from the ethics committee of the Islamic Azad University, Tabriz branch. Ethical principles followed in this study included explaining the research objectives to the women, informing them about the harmlessness of participating in the sessions, allowing free withdrawal from the study, answering questions, providing results if desired, and offering intensive therapeutic intervention sessions to the control group women after the follow-up period. Data analysis was conducted at both descriptive (mean, standard deviation, percentage, and frequency) and inferential levels (multivariate MANCOVA with repeated measures, Bonferroni post hoc test, one-way ANOVA, and chi-square test). SPSS version 28 software was used for data analysis. The following tools were used for data collection.

Pittsburgh Sleep Quality Index (PSQI): This questionnaire was developed by Buysse et al. in 1989 and consists of 9 questions. However, since question 5 includes 10 sub-questions, the total questionnaire consists of 19 questions. These questions cover 7 subscales: subjective sleep quality (question 9), sleep latency (question 2 and the first item of question 5), sleep duration (question 4), habitual sleep efficiency (questions 1, 3, and 4), sleep disturbances (items 2 to 10 of question 5), use of sleeping medications (question 6), and daytime dysfunction (questions 7 and 8).(52), Each subscale is scored between 0 and 3, where scores of 0/1, 2, and 3 indicate no problem, mild, moderate, and severe problems, respectively. The sum of the seven subscale

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scores forms the total score, ranging from 0 to 21. A total score of 5 or higher indicates poor sleep quality. A higher mean score reflects worse conditions in each component for each group. The creators of the questionnaire assessed the psychometric properties of the scale and used Cronbach's alpha for reliability, obtaining a coefficient of 0.83. The validity of the questionnaire was also calculated using the validity construct, and a validity index coefficient of 6.89 was obtained. (Buysse et al., 1989). In the Persian version, the psychometric properties were examined, and a content validity coefficient of 0.83 was achieved and the sensitivity and clean coefficient with a cut-off point of 5 for the group of patients with insomnia and normal individuals were 0.94 and 0.72, respectively. The reliability coefficient using Cronbach's alpha was calculated to be 0.77.(53). In the present study, Cronbach's alpha was used to assess reliability, resulting in coefficients of 0.70 for the pre-test, 0.82 for the post-test, and 0.86 for the follow-up stage.

Therapy Sessions

Table 1: Yoga-Based Intervention Sessions Adapted from Gholipour et al. (54)

Methods	Content	time
basic movements and breathing techniques	hands in and out breathing	2 minutes
	Hands Extended with Calm Breathing	2 minutes
	Knees Extended with Wall Support Breathing	1 minute
	Breathing with Body Rotation	2 minutes
	deep relaxation	10 minutes
	Breathing While Lifting the Legs	2 minutes
	Breathing While Lifting the Hip Joint	2 minutes
	Performing Bicycle Leg Movement While Lying on the Back	2 minutes
	Lying on the Stomach, Stretching, and Calm Breathing	2 minutes
	Calm Breathing with Cat-Cow Stretch Movement	2 minutes
	Deep relaxation	5 minutes
	Knee Rotation	2 minutes
relaxation techniques	Deep relaxation	10 minutes
Pranayama	Alternate Nostril Breathing	2 minutes
	Side-Lying Shavasana	10 minutes
meditation techniques	Eye exercises	2 minutes
	Mental Imagery Techniques, Guided Visualization, and Final Relaxation	30 minutes

Table 2: Positive Psychotherapy Intervention Sessions Adapted from Seligman et al. (55)

Raw	session	Description
1	orientation	Loss of Positive Resources Sustains Depression: The role of the absence or loss of positive emotions, character strengths, and meaning in the continuation of depression and the emptiness of life; the framework of positive thinking skills, the role of educators, and the responsibilities of participants will be discussed. Homework Assignment: Participants are required to write a one-page (approximately 300 words) positive introduction about a concrete story of their own character strengths.
2	commitment	Identify Specific Strengths: Participants will identify their own specific strengths from the positive introduction and discuss situations where these specific strengths have helped them in the past. Additionally, three pathways to happiness (pleasure, commitment, and meaning) will be discussed. Homework Assignment: Participants will identify their own specific strengths.
3	commitment/ pleasure	Cultivating Specific Strengths and Positive Emotions: Discuss the development of specific strengths. Participants will prepare to shape specific behaviors to cultivate these strengths and the role of positive emotions in well-being will be discussed. Homework Assignment (Progressive): Participants will begin a gratitude journal, where they are to record three good things (big or small) that happen each day.
4	pleasure	Good Memories vs. Bad Memories: The role of good and bad memories will be discussed in terms of their impact on maintaining depressive symptoms. Participants will be encouraged to express feelings associated with anger and bitterness. The effects of remaining in a state of anger and bitterness on depression and well-being will be explained. Homework Assignment: Participants will write about three bad memories, the anger associated with them, and the pressure resulting from these memories in maintaining depression.
5	commitment/ pleasure	Forgiveness: Forgiveness is introduced as a powerful tool that can transform anger and bitterness into neutral feelings and, for some individuals, even into positive emotions.

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		Homework Assignment: Participants are to write a forgiveness letter describing an incident of wrongdoing (or sin) related to emotions. They should commit to forgiving the person who committed the wrongdoing (if necessary), though the letter does not have to be sent.
6	commitment/ pleasure	Gratitude: Gratitude is discussed as a form of enduring thankfulness, and both good and bad memories are revisited with an emphasis on highlighting gratitude. Homework Assignment: Participants are to write and present a letter expressing gratitude to someone they have never adequately thanked.
7	commitment/ pleasure	Mid-Treatment Review: The homework assignments on forgiveness and gratitude are both reviewed. This usually requires more than one session. The importance of positive emotions is discussed. Participants are encouraged to engage in discussions about their gratitude journals. Goals related to specific strengths are reviewed, and the process and progress are discussed in detail. Participants' feedback on the therapeutic benefits is solicited and discussed. Homework Assignment**:** Participants will write about ways to increase contentment and create an actionable plan for achieving contentment.
8	significance / commitment	Contentment vs. Maximization: Contentment (being good enough) versus maximization is discussed in the context of laborious but enjoyable work. Contentment is encouraged through commitment, as opposed to maximization. Homework Assignment: Participants will write about ways to increase contentment and create an actionable plan for achieving contentment.
9	commitment / significance	Optimism and Hope: Participants are guided to reflect on times when they experienced failure in an important task, when a major plan was disrupted, and when they were not accepted by someone. They are then asked to consider how, when one door closes, other doors may open. Homework Assignment: Participants should identify three doors that have closed and three doors that have opened as a result.
10	commitment /	Love and Attachment: Active-constructive responses are discussed. Participants are invited to

	significance	identify the specific strengths of significant others in their lives. Homework Assignment 1 (Progressive): Active-constructive feedback: Participants will prepare to respond actively and constructively to positive events reported by others. Homework Assignment 2: Participants will arrange a meeting to celebrate their own specific strengths and those of a person they care about.
11	significance	Strengths Family Tree: The importance of identifying the strengths of family members is discussed. Homework Assignment: Participants are asked to create a family tree that includes the strengths of family members and children. The family will gather, and a discussion will be held about the strengths of each member.
12	pleasure	Pleasure with Mindfulness: Pleasure with mindfulness is introduced as the awareness of pleasure and its intentional creation in the past. Laborious but enjoyable work is discussed as a threat to pleasure with mindfulness, and ways to protect against this threat are outlined. Homework Assignment: Participants are to design and engage in pleasurable activities. Techniques for pleasure with mindfulness will be provided.
13	significance	The Gift of Time: Regardless of financial situation, participants have the ability to grant one of the greatest gifts among all gifts to others, namely the gift of time. The discussion will focus on ways to utilize specific strengths to offer the gift of time in service to others rather than oneself. Homework Assignment: Participants are to give the gift of time by engaging in activities that involve beautiful moments of time, such as mentoring a child or providing community service, and create opportunities for leveraging their specific strengths.
14	Harmony	**Complete Life:** The concept of a complete life, which integrates pleasure, commitment, and meaning, is discussed. Progress is reviewed, and the benefits and sustainability of strengths are examined. At the end of the sessions, a review and summary of the previous sessions will be conducted, and a

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		post-test will be administered under the same conditions for the participants.

Findings:

Based on the results of the mean and standard deviation of the age of the yoga-based intervention group, 34.07 and 5.27; The mean and standard deviation of the positivity intervention age is 31.67 and 5.63; The mean and standard deviation of the age of the control group was 33.67 and 4.55, which was used to homogenize the age of the three groups using the one-way analysis of variance test. F=0.929, which is not statistically significant (sig=0.403), which indicates the homogeneity of the 3 groups in terms of age. In terms of academic, in the yoga-based intervention group, 3 people (20%) had a diploma, 4 people (26.67%) had a post-graduate degree, 6 people (40%) had a bachelor's degree, and 2 people (13.33%) had a post-graduate degree; In the positive intervention group, 0 people (0 percent) had a diploma, 4 people (26.67 percent) had a post-graduate degree, 6 people (40 percent) had a bachelor's degree, and 5 people (33.33 percent) had a post-graduate degree. In the control group, 2 people (diploma), 3 people (20%) post-diploma; 4 people (26.67 percent) had bachelor degree and 6 people (40 percent) had master degree, and these three groups were homogenous in terms of education. Chi-square = 5, this amount is not statistically significant (sig = 0.484), which indicates that the three groups are equal in terms of education.

Table 3: Mean and standard deviation of sleep quality in experimental and control groups

Variables	stage	mean			standard deviation		
		yoga	positivity	control	yoga	positivity	control
subjective sleep quality	pre-test	1.73	1.73	1.67	.70	.70	.62
	post-test	.73	.80	1.53	.46	.41	.52
	follow up	.80	.87	1.53	.41	.52	.64
sleep latency	pre-test	1.73	1.40	1.47	.70	.52	.52
	post-test	.47	.67	1.27	.52	.49	.59
	follow up	.53	.73	1.27	.52	.56	.46
sleep duration	pre-test	1.60	1.53	1.60	.63	.52	.63
	post-test	.60	.67	1.40	.63	.49	.63
	follow up	.67	.80	1.47	.72	.68	.64
habitual sleep efficiency	pre-test	1.40	1.53	1.53	.51	.52	.52
	post-test	.53	.67	1.40	.52	.49	.63

	follow up	.60	.73	1.40	.51	.46	.63
sleep disturbances	pre-test	1.60	1.67	1.53	.63	.62	.52
	post-test	.47	.53	1.40	.52	.64	.63
	follow up	.47	.53	133	.52	.64	.72
use of sleeping medication	pre-test	1.47	1.60	1.40	.52	.74	.51
	post-test	.53	.60	1.33	.52	.51	.49
	follow up	.60	.67	1.33	.51	.49	.62
daytime dysfunction	pre-test	1.47	1.53	1.53	.52	.52	.64
	post-test	.67	.67	1.53	.49	.49	.64
	follow up	.67	.80	1.60	.49	.41	.63
total sleep quality	pre-test	11.00	11.00	10.73	2.53	1.19	1.58
	post-test	4.00	4.60	9.87	1.25	1.35	1.46
	follow up	4.33	5.13	5.13	1.17	1.30	1.53

Table 3 shows the mean and standard deviation of sleep quality. After checking the statistical assumptions of repeated analysis of variance, this test was used to analyze the collected data. In order to know whether these changes obtained in the post-test and follow-up are statistically significant or not, repeated-measures analysis of variance was used. The use of this test requires compliance with some basic assumptions, these assumptions include the normality of the distribution of scores and the homogeneity of variances, which were checked first. Shapiro-Wilks test was used to check normality. Since the values of the Shapiro-Wilks test were not significant in any of the stages ($P<0.05$), it can be concluded that the distribution of scores is normal. Levine's test was also used to check the homogeneity of variances. According to the results, the index of Levin's test was not statistically significant in three stages of evaluation ($P<0.05$) and thus the assumption of equality of variances was confirmed. The research data did not question the assumption of homogeneity of variance-covariance matrices (Box's Test of Equality of Covariance Matrices); Therefore, this assumption has also been met ($P>0.05$). The significance level of the interaction effect of group and pre-test was greater than 0.05 and this indicated the homogeneity of the slope of the regression line. Considering that the assumptions of using variance analysis with repeated measurements have been met, this statistical test can be used. Since the significance level of Mauchly's Test of Sphericity for sleep quality is 0.001, the results are shown in Table 4.

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Table 4: Mauchly's Test of Sphericity for sleep quality

Variables	Mauchly's W	Approx. Chi-Square	df	Sig	Epsilon	
					Greenhouse-Geisser	Huynh-Feldt
subjective sleep quality	.35	42.77	2	.001	.61	.64
sleep latency	.42	35.29	2	.001	.63	.68
sleep duration	.28	52.27	2	.001	.58	.62
habitual sleep efficiency	.59	21.35	2	.001	.71	.76
sleep disturbances	.38	39.86	2	.001	.62	.66
use of sleeping medication	.35	42.2	2	.001	.61	.64
daytime dysfunction	.50	28.20	2	.001	.69	.71
total sleep quality	.29	50.72	2	.001	.58	.50

Based on the results of Table 4, it shows that Mauchly's Test of Sphericity for sleep quality is significant at the level of 0.001 (P value is smaller than 0.050). This finding indicates that the variance of the differences between the levels of the dependent variables is significantly different. The assumption of variance analysis of sphericity is not respected. Violation of the default assumption of sphericity causes the F statistic of variance analysis to be inaccurate. To solve this problem and increase the accuracy of the F statistic, the degrees of freedom are corrected using the Greenhouse-Geisser and Huynh-Feldt methods. Which correction method to use, according to the suggestion of Stevens (1996; cited 56), if the epsilon value is greater than 0.75, then Huon-Flat correction and if epsilon is smaller than 0.75 or there is no information about sphericity. Greenhouse-Geisser correction is used. In the present study, the epsilon value for the Greenhouse-Geyser index for sleep quality is smaller than 0.75, so Greenhouse-Geyser epsilon was used. Therefore, taking into account the Greenhouse-Geisser correction, the results of the analysis of variance test with repeated measurements are reported in Table 5 to investigate the difference of the research sample in the three stages of pre-test, post-test and follow-up of the sleep quality variable.

Table 5. Results of tests of within-subjects effects and tests of within-subjects contrasts (Greenhouse-Geisser correction) of sleep quality

Variables	Source	F	df	Sig	Partial Eta	Observed Powera
subjective sleep quality	**group**	6.74	2	.003	.24	.90
	factor	28.60	1.21	.001	.40	1.00
	factor * group	4.61	2.43	.001	.18	.81
sleep latency	**group**	5.39	2	.008	.20	.82
	factor	39.72	1.27	.001	.49	1.00
	factor * group	7.00	2.53	.001	.25	.95
sleep duration	**group**	5.09	2	.001	.19	.79
	factor	32.28	1.16	.001	.43	1.00

	factor * group	4.58	2.32	.001	.18	.79
habitual sleep efficiency	**group**	7.40	2	.001	.26	.92
	factor	43.24	1.42	.001	.51	1.00
	factor * group	6.56	2.84	.001	.24	.96
sleep disturbances	**group**	5.69	2	.001	.21	.84
	factor	62.21	1.23	.001	.60	1.00
	factor * group	9.85	2.47	.001	.32	.91
use of sleeping medication	**group**	7.09	2	.001	.25	.91
	factor	26.5	1.21	.001	.39	1.00
	factor * group	5.36	2.43	.001	.20	.87
daytime dysfunction	**group**	10.07	2	.001	.32	.98
	factor	23.15	1.34	.001	.35	1.00
	factor * group	6.56	2.67	.001	.24	.95
total sleep quality	**group**	42.35	2	.001	.67	1.00
	factor	235.50	1.17	.001	.85	1.00
	factor * group	39.95	2.34	.001	.65	1.00

The results of Table 5 showed that the intervention based on yoga and the positivity intervention has a significant effect on improving the quality of sleep. In the following, the two-by-two comparison of the pairwise comparisons of the test stages (pre-test, post-test and followup) on the improvement of sleep quality to check the durability of the results in the follow-up stage is given in Table 6.

Table 6. Benferoni post hoc test results of sleep quality to study the stability of the results

Variables	**stage**	**pairwise comparisons**	**mean difference**	**stage difference**	**Sig**
subjective sleep quality	**pre-test**	1.71	pretest-posttest	.70	.001
	post-test	1.02	pretest-follow up	.64	.001
	follow up	1.07	posttest -follow up	-.04	.994
sleep latency	**pre-test**	1.53	pretest-posttest	.73	.001
	post-test	.80	pretest-follow up	-.69	.001
	follow up	.84	posttest -follow up	-.04	.994
sleep duration	**pre-test**	1.58	pretest-posttest	.69	.001
	post-test	.90	pretest-follow up	.60	.001
	follow up	.98	posttest -follow up	-.09	.144
habitual sleep	**pre-test**	1.49	pretest-posttest	.62	.001

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efficiency	**post-test**	.87	pretest-follow up	.58	.001
	follow up	.91	posttest -follow up	-.04	.994
sleep disturbances	**pre-test**	1.600	pretest-posttest	.80	.001
	post-test	.80	pretest-follow up	.82	.001
	follow up	.79	posttest -follow up	.02	.999
use of sleeping medication	**pre-test**	1.49	pretest-posttest	.67	.001
	post-test	.82	pretest-follow up	.62	.001
	follow up	.87	posttest -follow up	.04	.994
daytime dysfunction	**pre-test**	1.51	pretest-posttest	.56	.001
	post-test	.96	pretest-follow up	.49	.001
	follow up	1.02	posttest -follow up	-.07	.561
total sleep quality	**pre-test**	10.91	pretest-posttest	4.76	.001
	post-test	6.16	pretest-follow up	4.44	.001
	follow up	6.47	posttest -follow up	-.31	.058

Based on the results of Table 6, yoga-based intervention and positivity intervention had an effect on improving sleep quality and its dimensions in the post-test stage, and its therapeutic effects were lasting and stable after 2 months. Table 7 shows the results of the follow-up test of the sleep quality, to investigate more effective treatment.

Table 7. Benferoni post hoc test results for investigate more effective treatment

Variables	group	pairwise comparisons	treatment difference	mean difference	Sig
subjective sleep quality	**yoga**	1.09	**yoga - positivity**	-.04	.999
	positivity	1.13	**yoga - control**	-.049	.006
	control	1.58	**positivity - control**	-.044	.013
sleep latency	**yoga**	.91	**yoga - positivity**	-.02	.999
	positivity	.93	**yoga - control**	-.42	.017
	control	1.33	**positivity -**	-.40	.025

			control		
sleep duration	**yoga**	.96	**yoga - positivity**	-.04	.999
	positivity	1.00	**yoga - control**	-.053	.019
	control	1.49	**positivity - control**	-.049	.035
habitual sleep efficiency	**yoga**	.84	**yoga - positivity**	-.13	.999
	positivity	.98	**yoga - control**	-.60	.002
	control	1.44	**positivity - control**	-.47	.020
sleep disturbances	**yoga**	.84	**yoga - positivity**	-.07	.999
	positivity	.91	**yoga - control**	-.58	.011
	control	1.42	**positivity - control**	-.51	.028
use of sleeping medication	**yoga**	.87	**yoga - positivity**	-.09	.999
	positivity	.96	**yoga - control**	-.49	.003
	control	1.36	**positivity - control**	-.40	.018
daytime dysfunction	**yoga**	.93	**yoga - positivity**	-.07	.999
	positivity	1.00	**yoga - control**	-.62	.001
	control	1.56	**positivity - control**	-.56	.002
total sleep quality	**yoga**	6.64	**yoga - positivity**	0.47	.891
	positivity	6.91	**yoga - control**	-3.73	.001
	control	10.18	**positivity - control**	-3.27	.001

According to Table 7, the results showed that the average difference between the yoga-based intervention group and the control group is greater than the average difference between the positive intervention group and the control group, which indicates that the yoga intervention is more effective than the positivity intervention on sleep quality.

Discussion and Conclusion

The aim of the present study was to compare the effectiveness of yoga-based intervention and positivity intervention on the sleep quality of pregnant women with a history of recurrent abortion. The results indicated that the yoga-based intervention had a significant impact on improving the sleep quality of pregnant women with a history of recurrent abortion. This finding

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is consistent with the results of studies by He et al. (22), Afshar and Tabatabaee (23), De Orleans Casagrande et al. (30), Baklouti et al. (31), and Jiang et al. (29), which have shown that yoga positively affects sleep quality. No conflicting results were found, thus, there is no identified inconsistency with this outcome. In explaining the impact of yoga-based intervention on improving sleep quality in pregnant women with a history of recurrent abortion, it can be stated that yoga has been widely adopted in both the eastern and western hemispheres in various forms (57). Yoga is an ancient form of exercise that focuses on strength, flexibility, and breathing to enhance physical, mental, and spiritual health. There are different styles of yoga, such as Tibetan, Iyengar, and Hatha Yoga. Some styles are more intense than others, while some may emphasize different aspects, such as posture or breathing (58). The main components of yoga in Europe or America are primarily associated with physical postures (asanas), breath control (pranayama), and meditation (dhyana) (57). Yoga is also recognized as a form of physical activity that includes a mental aspect. Mindfulness, a crucial component of yoga, helps improve sleep disturbances by increasing melatonin levels, reducing excessive arousal, and addressing cardiac and respiratory abnormalities related to stress (59). Therefore, yoga practices (breathing techniques and relaxation) can help improve emotional health in anxiety, depression (60), and stress, which are key factors of insomnia (61). Hence, it is reasonable to conclude that yoga-based intervention is effective in improving the sleep quality of pregnant women with a history of recurrent abortion.

Additionally, the results showed that the positivity intervention had a significant impact on improving the sleep quality of pregnant women with a history of recurrent abortion. This finding is consistent with the results of studies by Emadian (34), Michel et al. (40), and Abdolghaderi et al. (41), which have shown that positivity intervention affects sleep quality. No conflicting results were found, thus, there is no identified inconsistency with this outcome. In explaining the impact of positivity intervention on improving sleep quality in pregnant women with a history of recurrent abortion, it can be said that positivity intervention brings out and discusses individuals' positive emotions and memories during the treatment process and pays attention to them, addressing issues related to their problems with the aim of integrating positive and negative emotions. According to the theory of positive psychology, increasing social connections and expanding friendship networks are effective in promoting mental health by raising social support (41). Furthermore people who face life problems (in this study, recurrent abortion) engage in rumination and consider it disastrous and succumb to these thoughts, experience poor sleep quality and negative emotions. On the other hand, insomnia originates from rumination about sleep, which comes to mind at bedtime and increases wakefulness during the night. Pregnant women with a history of recurrent abortion, by participating in positivity intervention sessions, can enhance positive emotions, increase self-confidence, embrace new experiences, and maintain a sense of well-being and short-term and long-term goals in life, thereby helping manage negative emotions. Therefore, positivity intervention, without focusing on negative symptoms and solely through enhancing the sense of pleasure, strengthening personal strengths and positive characteristics, and increasing the sense of meaning and purpose in life, can lead to improved sleep quality in women with a history of recurrent abortion. Hence, it is reasonable to conclude

that positivity intervention is effective in improving sleep quality in pregnant women with a history of recurrent abortion.

Ultimately, the results of the Bonferroni post-hoc test showed that the yoga-based intervention had a greater impact than the positive-oriented intervention on improving sleep quality. There is no previous research indicating that yoga-based intervention has a greater impact than positivity intervention on improving sleep quality, so the consistency or inconsistency of this result with previous research findings is not determined. In explaining the greater effectiveness of the yoga-based intervention compared to the positivity intervention on improving sleep quality in pregnant women with a history of recurrent abortion, it can be said that pregnancy is defined as a period during which significant physiological, psychological, and adaptive changes occur in women (62). Various complaints from pregnant women, especially in the third trimester, include shortness of breath, back pain, sleep disturbances, pelvic pain, abdominal cramps, leg muscle cramps, frequent urination, and discomfort from sudden contractions. One common complaint in pregnant women with a history of recurrent abortion is sleep disturbance and poor sleep quality (21). According to Lebang's research (2013; as cited in 62),) Yoga exercises are given to pregnant women according to the physical conditions of pregnant women. Yoga exercises with slow movements can be combined with controlled breathing exercises and a series of muscle relaxation and contraction stretching exercises. Yoga exercises can stimulate the relaxation response both physically and psychologically, where this response activates the parasympathetic autonomic nervous system located in the pons and medulla, leading to reduced body metabolism, improved heart rate, proper pulse, and lower blood pressure, as well as increased serotonin levels, making the body more relaxed and improving sleep. Hence, it is reasonable to conclude that yoga-based intervention is more effective than positivity intervention in improving sleep quality in pregnant women with a history of recurrent abortion.

Limitations of the Research: One of the limitations of this study was that it only focused on pregnant women with a history of recurrent abortion in the city of Qazvin. Additionally, the only tool used for data collection regarding sleep quality was a self-report questionnaire, which could lead to socially desirable responses from the women. To address these limitations, it is suggested that research be conducted in other cities and, in addition to questionnaires, other tools such as interviews be utilized. It is also recommended that similar studies be conducted on other samples, including pregnant women with gestational diabetes, fear of childbirth, and so forth. The follow-up period in this study was two months; therefore, it is suggested that future research consider a longer follow-up period (over six months or even a year) to examine the sustainability and lasting effects of the yoga-based and positivity intervention.

Application of the Research: Based on the research results, practical recommendations can be proposed. It is suggested that therapists and psychology specialists in this field use such therapeutic interventions to reduce problems faced by pregnant women with a history of recurrent abortion. Therefore, the Iranian Psychological Association and counseling and psychological services centers responsible for planning and treating sleep disorders can use the findings of such studies to improve the conditions of pregnant women with recurrent abortion

experiences. Consequently, it can be concluded that while both treatments are effective, yoga-based intervention is more effective in improving sleep disorders and sleep quality among women with a history of recurrent abortion.

Ethical Considerations: Explaining the research objectives to the participants, obtaining their informed consent, ensuring the optional nature of the research, their right to withdraw from the study, providing the results upon request, and obtaining the ethical code IR.IAU.TABRIZ.REC.1402.174 were the ethical principles adhered to in this research.

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Reference:

1. Witt WP, Harlaar N, Palmer A. The impact of COVID-19 on pregnant women and children: recommendations for health promotion. American Journal of Health Promotion, 2023; 37(2): 282-288. https://doi.org/10.1177/08901171221140641e
2. Akhteh M, Alipor A, Sarifi Saki S. Effectiveness of Stress Management Training in Reducing Anxiety and Meta-worry of Women Who Had Abortion Several Times. Health Psychology, 2014; 3(11): 120-129. (In Persian) https://dorl.net/dor/20.1001.1.23221283.1393.3.11.7.8
3. Magnus MC, Wilcox AJ, Morken NH, Weinberg CR, Håberg SE. Role of maternal age and pregnancy history in risk of miscarriage: prospective register based study. The BMJ, 2019; 364(1): 1-10. https://doi.org/10.1136/bmj.l869
4. Wesselink AK, Kirwa K, Hystad P, Kaufman JD, Szpiro AA, Willis MD, Wise LA. Ambient air pollution and rate of spontaneous abortion. Environmental Research, 2024; 246(1): 1-10. https://doi.org/10.1016/j.envres.2023.118067
5. Büyükbayrak EE, Gündoğdu NE, Gürkan N, Kahraman FR, Akalın M, Akkoç T. Immunological effects of human decidual mesenchymal stem cells in spontaneous and recurrent abortions. Journal of Reproductive Immunology, 2024; 162(1): 1-10. https://doi.org/10.1016/j.jri.2024.104193
6. Babu P, Verma V, Khadanga SS, Yadav SK, Kumar DB, Gupta A. Exploring the association between air pollution and spontaneous abortion through systematic review and bibliometric analysis. Air Quality, Atmosphere & Health, 2024; 1(1): 1-27. http://dx.doi.org/10.1007/s11869-023-01491-1
7. Shaikhomar OA, Ali ST. A Comparative Analysis of Anticardiolipin, Anti-B2-Glycoprotein-1, and Lupus Anticoagulants in Saudi Women with Recurrent Spontaneous Abortions. Journal of Personalized Medicine, 13(1): 1-10. https://doi.org/10.3390/jpm13010002
8. Jeph RB, Agarwal S, Jeph V, Tuli A, Mehta V. Correlation between Maternal Serum Vascular Endothelial Growth Factor Levels and Fetal Outcome in Females with Recurrent

Abortions. International Journal of Scientific Study, 2022; 9(12): 1-10. https://www.researchgate.net/profile/

9. Banerjee S. Role of the Proper Nutrition for Indian Women with Recurrent Pregnancy Loss (RPL). Journal of Prevention, Diagnosis and Management of Human Diseases, 2023; 3(01): 1-9. https://doi.org/10.55529/jpdmhd.31.1.9
10. Abbaszadeh H, Tavoli A, Dehshiri G. The Mediating Role of Self-Compassion in the Relationship between Body Image and Severity of Anxiety and Depression in Pregnant Women. Women's Studies Sociological and Psychological, 2023; 20(4): 166-203. (In Persian) https://doi.org/10.22051/jwsps.2022.35958.2433
11. Yang J, Chu M, Gong C, Gong X, Han B, Chen L, Zhang Y. Ambient fine particulate matter exposures and oxidative protein damage in early pregnant women. Environmental Pollution, 2023; 316(1): 1-10. https://doi.org/10.1016/j.envpol.2022.120604
12. Slot A, Krog MC, Bliddal S, Olsen LR, Nielsen HS, Kolte AM. Feelings of guilt and loss of control dominate in stress and depression inventories from women with recurrent pregnancy loss. The European Journal of Contraception & Reproductive Health Care, 2022; 27(2): 153-158. https://doi.org/10.1080/13625187.2021.1943740
13. Gao R, Qin L, Bai P. Self-Reported Depression among Chinese Women with Recurrent Pregnancy Loss: Focusing on Associated Risk Factors. Journal of Clinical Medicine, 2022; 11(24): 1-10. https://doi.org/10.3390%2Fjcm11247474
14. Otani-Matsuura A, Sugiura-Ogasawara M, Ebara T, Matsuki T, Tamada H, Yamada Y, Kamijima M. Depression symptoms during pregnancy and postpartum in patients with recurrent pregnancy loss and infertility: The Japan environment and children's study. Journal of Reproductive Immunology, 2022; 152(1): 1-10. https://doi.org/10.1016/j.jri.2022.103659
15. Qin L, Luo Y, Chang H, Zhang H, Zhu Z, Du Y, Wu H. The association between serum orexin-A levels and sleep quality in pregnant women. Sleep Medicine, 2023; 101(1): 93-98. https://doi.org/10.1016/j.sleep.2022.10.019
16. Damato TM, Tebar WR, Oliveira CB, Saraiva BT, Morelhao PK, Ritti-Dias RM, Christofaro DG. Relationship of sleep quality with screen-based sedentary time and physical activity in adolescents—the moderating effect of body mass index. Sleep and Breathing, 2022; 1(2): 1-8. https://doi.org/10.1007/s11325-021-02519-5
17. Di Muzio M, Diella G, Di Simone E, Novelli L, Alfonsi V, Scarpelli S, Annarumma L, Salfi F, Pazzaglia M, Giannini AM, De Gennaro L. Nurses and Night Shifts: Poor sleep quality exacerbates psychomotor performance. Frontiers in Neuroscience, 2020; 14(2): 10-21. https://doi.org/10.3389/fnins.2020.579938
18. Stocker LJ, Cagampang FR, Lu S, Ladyman T, Cheong YC. Is sleep deficit associated with infertility and recurrent pregnancy losses? Results from a prospective cohort study. Acta Obstetricia et Gynecologica Scandinavica, 2021; 100(2): 302-313. https://doi.org/10.1111/aogs.14008

19. Brown C, Beardslee J, Frick PJ, Steinberg LD, Cauffman E. Perceived sleep quality predicts aggressive offending in adolescence and young adulthood. Journal of Child Psychology and Psychiatry, 2022; 1(2): 1-10. https://doi.org/10.1111/jcpp.13646
20. Casagrande M, Forte G, Favieri F, Corbo I. Sleep Quality and Aging: A Systematic Review on Healthy Older People, Mild Cognitive Impairment and Alzheimer's Disease. International Journal of Environmental Research and Public Health, 2022; 19(14): 1-10. https://doi.org/10.3390%2Fijerph19148457
21. Gül DK, Ayça Ş. Relation of recurrent pregnancy loss and infertility on dream anxiety and insomnia. Cukurova Medical Journal, 2021; 46(1): 248-254. https://dergipark.org.tr/en/pub/cumj/issue/59504/839060
22. He L, Huang T, Deng Y, Zhou T. The Effects of Yoga Interventions on Sleep Quality in Adults People with Depression and Anxiety: A Meta-Analysis of Randomized Controlled Trials. Human Biology, 2024; 1(2): 433-444. https://humbiol.org/Home/article/view/24
23. Afshar M, Tabatabaee F. The Effectiveness Yoga-Based Mindfulness on Quality of Life in Pregnant Women. International Journal of Medical Science and Clinical Research Studies, 2023; 3(4): 788-791. https://doi.org/10.47191/ijmscrs/v3-i4-40
24. Villar-Alises O, Martinez-Miranda P, Martinez-Calderon J. Prenatal yoga-based interventions may improve mental health during pregnancy: An overview of systematic reviews with meta-analysis. International Journal of Environmental Research and Public Health, 2023; 20(2): 1-10. https://doi.org/10.3390%2Fijerph20021556
25. Curtis K, Weinrib A, Katz J. Systematic review of yoga for pregnant women: current status and future directions. Evidence-Based Complementary and Alternative Medicine, 2012; 1(1): 1-10. https://doi.org/10.1155/2012/715942
26. Ganjekar S, Harve VS, Bhargav H, Kukreti P, Dere S, Thukral U, Thamke P, Puri M, Krishnamurthy MN. The Pregnancy Tele-yoga Module to Combat Stress, Anxiety, and Depression Associated with Pregnancy: An Exploratory Open-label Multicentric Study. International Journal of Yoga, 2024; 17(1): 46-52. http://dx.doi.org/10.4103/ijoy.ijoy_1_24
27. Nurhidayah N, Gani, NF, Muthahharah M, Hasnah H. Combination of Prenatal Gentle Yoga with Dhikr to Reduce The Anxiety Level of Pregnant Women. Diversity: Disease Preventive of Research Integrity, 2024; 77-83. https://doi.org/10.24252/diversity.v4i2.45902
28. Atunisa AS, Siauta JA. The Effect of Prenatal Yoga on Pregnant Women's Anxiety in Facing Labour. Health and Technology Journal, 2024; 2(2): 161-166. https://doi.org/10.53713/htechj.v2i2
29. Jiang Q, Wu Z, Zhou L, Dunlop J, Chen P. Effects of yoga intervention during pregnancy: a review for current status. American journal of perinatology, 2015; 32(06): 503-514. https://doi.org/10.1055/s-0034-1396701
30. De Orleans Casagrande P, Coimbra DR, de Souza LC, Andrade A. Effects of yoga on depressive symptoms, anxiety, sleep quality, and mood in patients with rheumatic diseases:

Systematic review and meta-analysis. PM&R, 2023; 15(7): 899-915. https://doi.org/10.1002/pmrj.12867

31. Baklouti S, Fekih-Romdhane F, Guelmami N, Bonsaksen T, Baklouti H, Aloui A, Masmoudi L, Souissi N, Jarraya M. The effect of web-based Hatha yoga on psychological distress and sleep quality in older adults: A randomized controlled trial. Complementary Therapies in Clinical Practice, 2023; 50(1): 1-10. https://doi.org/10.1016/j.ctcp.2022.101715
32. Carr A, Cullen K, Keeney C, Canning C, Mooney O, Chinseallaigh E, O'Dowd A. Effectiveness of positive psychology interventions: A systematic review and meta-analysis. The Journal of Positive Psychology, 2021; 16(6): 749–769. https://doi.org/10.1080/17439760.2020.1818807
33. Facco FL, Wolsk J, Patel SR, Hubel C, Gallaher M, Cashmere JD, Wisniewski S. A trial of positive airway pressure for the treatment of sleep apnea in pregnancy. American Journal of Obstetrics & Gynecology MFM, 2023; 5(3): 1-10. https://doi.org/10.1016/j.ajogmf.2022.100840
34. Emadian SO. The Effectiveness of Positive Thinking Training on Childbirth Fear, and Childbirth Self-efficacy in Pregnant Women in Sari. Journal of Applied Family Therapy, 2022; 3(2): 482-495. (In Persian) https://doi.org/10.22034/aftj.2022.326439.1366
35. Seligman MEP, Csikszentmihalyi M. Positive psychology: An introduction. American Psychologist, 2000; 55(1): 5–14. https://doi.org/10.1037/0003-066X.55.1.5
36. Brakus JJ, Chen W, Schmitt B, Zarantonello L. Experiences and happiness: The role of gender. Psychology & Marketing, 2022; 1(2): 1-10. http://dx.doi.org/10.1002/mar.21677
37. Waters L, Algoe SB, Dutton J, Emmons R, Fredrickson BL, Heaphy E, Steger M. Positive psychology in a pandemic: Buffering, bolstering, and building mental health. The Journal of Positive Psychology, 2022; 17(3): 303-323. https://doi.org/10.1080/17439760.2021.1871945
38. Kotera Y, Green P, Sheffield D. Positive psychology for mental wellbeing of UK therapeutic students: relationships with engagement, motivation, resilience and self-compassion. International Journal of Mental Health and Addiction, 2022; 20(3): 1611-1626. https://doi.org/10.1007/s11469-020-00466-y
39. Passmore J, Oades, LG. Positive psychology coaching–a model for coaching practice. Coaching Practiced, 2022; 1(2): 447-455. http://dx.doi.org/10.1002/9781119835714.ch46
40. Michel A, Groß C, Hoppe A, González-Morales MG, Steidle A, O'Shea D. Mindfulness and positive activities at work: Intervention effects on motivation-related constructs, sleep quality, and fatigue. Journal of Occupational and Organizational Psychology, 2021; 94(2): 309-337. https://doi.org/10.1111/joop.12345
41. Abdolghaderi M, Narimani M, Atadokht, A, Abolghasemi, A, Kafie M, Hatamian H. The Effect of a Positive Treatment Approach on Improving Sleep and Reducing Pain in Patients with Multiple Sclerosis. Health Psychology, 2022; 11(42): 117-130. (In Persian) https://doi.org/10.30473/hpj.2022.59167.5234

42. Pimple J, Agrawal T. Efficacy of practicing positive psychological interventions, yoga, and mindfulness meditation in COVID-19 lockdown. Int J Indian Psychol, 2020; 8(2), 293-303. https://doi.org/10.25215/0802.239
43. Li J, Luo L, Diao, J Li Y, Zhang, S Chen L, Qin J. Male sperm quality and risk of recurrent spontaneous abortion in Chinese couples: A systematic review and meta-analysis. Medicine, 2021; 100(10): 1-10. https://doi.org/10.1097%2FMD.0000000000024828
44. Bi M, Meng L, Bai L. Effects of Comprehensive Nursing Based on Orem's Self-Care Theory on Symptom Improvement and Pregnancy Outcome in Patients with Antiphospholipid Syndrome: A Retrospective Cohort Study. Computational and Mathematical Methods in Medicine, 2022; 1(2): 1-10. https://doi.org/10.1155%2F2022%2F4133812
45. Marchand G, Masoud, AT, Azadi A, Govindan M, Ware K, King A, Sainz K. Efficacy of laparoscopic and trans-abdominal cerclage (TAC) in patients with cervical insufficiency: A systematic review and meta-analysis. European Journal of Obstetrics & Gynecology and Reproductive Biology, 2022; 1(2): 1-10. https://doi.org/10.1016/j.ejogrb.2022.01.002
46. Pervaiz S, Naeem MA, Ali A, John A, Batool N. Frequency Of Uterine Anomalies Associated with Persistent Miscarriages in Pregnancy on Ultrasound: Uterine Anomalies Associated with Persistent Miscarriages. Pakistan Journal of Health Sciences, 2022; 1(2): 55-58. https://doi.org/10.54393/pjhs.v3i01.54
47. Gad MS, Ghonim SM, Abd EL-Hamid, ES. Prophylactic measure in women with early recurrent pregnancy loss, polycystic ovary syndrome, and hyperhomocysteinemia. Menoufia Medical Journal, 2022; 35(2): 1-10. https://doi.org/10.4103/mmj.mmj_147_21
48. Lan Z, He R, Long Y, Zhou S, Xia G, Jing F, Ouyang Y. Reproductive outcomes after uterine septum resection in patients with recurrent miscarriage or infertility: a retrospective study in Chinese women. Archives of Gynecology and Obstetrics, 2022; 1(2): 1-9. https://doi.org/10.1007/s00404-022-06794-9
49. Elsharkawy NB, Mohamed SM, Awad MH, Ouda MM. Effect of Happiness Counseling on Depression, Anxiety, and Stress in Women with Recurrent Miscarriage. International Journal of Women's Health, 2021; 13(1): 1-10. https://doi.org/10.2147%2FIJWH.S283946
50. Lin H, Xu C. Psychological Problems of Pregnant Women and Progress of Psychological Guidance in Recurrent Miscarriage. Health, 2021; 13(7): 729-735. http://dx.doi.org/10.4236/health.2021.137056
51. Gall MD, Gall JP, Borg WR. Educational research: an introduction (8. utg.). AE Burvikovs, Red.) USA: Pearson. 2007. https://www.scirp.org/reference/ReferencesPapers?ReferenceID=1035831
52. Buysse DJ, Reynolds III, CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry research, 1989; 28(2): 193-213. https://doi.org/10.1016/0165-1781(89)90047-4

53. Farrahi Moghaddam J, Nakhaee N, Sheibani V, Garrusi B, Amirkafi A. Reliability and validity of the Persian version of the Pittsburgh Sleep Quality Index (PSQI-P). Sleep and Breathing, 2012; 16(1): 79-82. https://doi.org/10.1007/s11325-010-0478-5
54. Gholipour S, Memari E, Shojaedin S. Effects of 14 Weeks Yoga Training on Labor Pain and Pregnancy Outcomes in Primiparous Women. Sarem Journal of Medical Research, 2019; 4 (2): 93-98. (In Persian) http://dx.doi.org/10.29252/sjrm.4.2.93
55. Seligman EP, Steen TA, Park N, Peterson C. Positive Psychology Progress: Empirical Validation of Interventions. American Psychologist, 2005; 60(5): 410–421. https://doi.org/10.1037/0003-066X.60.5.410
56. Torabi A A, Afrooz, G A, Hassani, F, Golshani, F. Designing a Family-Centered Behavioral Management Program (FBMP) and Evaluating its Effectiveness in Marital Satisfaction of Parents of Children with ADHD. Quarterly Journal of Family and Research, 2021; 18 (3): 25-42. (In Persian) http://dorl.net/dor/20.1001.1.26766728.1400.18.3.2.5
57. Wang WL, Chen KH, Pan YC, Yang, SN, Chan YY. The effect of yoga on sleep quality and insomnia in women with sleep problems: a systematic review and meta-analysis. BMC psychiatry, 2020; 20(1): 1-19. https://doi.org/10.1186/s12888-020-02566-4
58. Bower JE, Garet D, Sternlieb B, Ganz PA, Irwin MR, Olmstead R, Greendale G. Yoga for persistent fatigue in breast cancer survivors: a randomized controlled trial. Cancer, 2012; 118(15): 3766-3775. https://doi.org/10.1002/cncr.26702
59. Zeichner SB, Zeichner RL, Gogineni K, Shatil S, Ioachimescu O. Cognitive behavioral therapy for insomnia, mindfulness, and yoga in patients with breast cancer with sleep disturbance: a literature review. Breast cancer: basic and clinical research, 2017; 11(1): 1-10. https://doi.org/10.1177/1178223417745564
60. Cramer H, Lauche R, Anheyer D, Pilkington K, de Manincor M, Dobos G, Ward L. Yoga for anxiety: A systematic review and meta-analysis of randomized controlled trials. Depression and anxiety, 2018; 35(9): 830-843. https://doi.org/10.1002/da.22762
61. Turmel D, Carlier S, Bruyneel AV, Bruyneel M. Tailored individual Yoga practice improves sleep quality, fatigue, anxiety, and depression in chronic insomnia disorder. BMC psychiatry, 2022; 22(1): 267. https://doi.org/10.1186/s12888-022-03936-w
62. Azward H, Ramadhany S, Pelupessy N, Usman AN, Bara FT. Prenatal yoga exercise improves sleep quality in the third trimester of pregnant women. Gaceta Sanitaria, 2021; 35(1): 258-262. https://doi.org/10.1016/j.gaceta.2021.10.030