

Effect of a Stress-Management Intervention Based on Self-efficacy Theory for Enriching Marital Relationships and Sleep Quality in Primigravida Women

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Abstract

Background: A woman's first pregnancy is a significant life event, and anxieties related to pregnancy and childbirth are common during this time. This study aimed to evaluate the effect of a stress-management intervention based on self-efficacy in primigravida women, as indicated by improvements in sleep quality, relationship quality, and marital satisfaction.

Methods: A quasi-experimental design with a control group was used. Inclusion criteria included being at 14–18 weeks of gestation, having no concomitant illness, and attending one of four healthcare centers in South Iran in 2022. Two centers were randomly allocated to the intervention group and the other two to the control group. Of the 128 eligible pregnant women consented to participate, 39 were randomly assigned to each condition. The intervention group completed eight weekly one-hour stress-management training sessions using a blended learning approach. Data were collected using a survey administered before and immediately after the intervention. The survey included demographic information and validated questionnaires measuring self-efficacy, marital satisfaction, relationship quality, and sleep quality. Data were analyzed using independent and paired t-tests to evaluate the efficacy of the intervention by comparing changes in mean scores between the two groups pre- and post-intervention.

Results: There were no confounding differences between participants in the two groups at the pre-test. Self-efficacy, sleep quality, marital satisfaction, and relationship quality were significantly improved in the post-test in the intervention group ($P < 0.01$). No meaningful changes were observed in the control group.

Conclusion: The results suggest that integrating stress-management workshops into routine prenatal care may be beneficial. Providing facilities and support for such interventions could enhance maternal well-being during pregnancy.

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Introduction

Pregnancy is one of the most significant and sensitive periods in a woman's life.¹ The first pregnancy is a transformative time when many women realize their identity will change forever as they embrace motherhood and their roles as partners and wives. While this period is joyful for most women, the physical, psychological, social, and emotional changes that accompany pregnancy can be highly stressful. Overall, the first pregnancy is a critical life event that requires adaptation to both physical and psychological changes to ensure the health and well-being of both mother and baby.^{2,3}

Stress during pregnancy can have undesirable effects on the pregnancy process, including sleep disorders, hyperemesis gravidarum, preeclampsia, and miscarriage. It can also complicate delivery, resulting in premature birth, low birth weight, or difficult labor.⁴ Moreover, stress may lead to mood disturbances, anxiety, decreased tolerance for daily challenges, and reliance on maladaptive emotional coping strategies. These issues can negatively impact marital satisfaction and intimacy.⁴

A significant and highly prevalent stressor during pregnancy is sleep disturbance.^{5,6} Indeed, it has been argued that all pregnant women should be screened for sleep problems and treated when necessary.⁶ However, despite the widespread nature of sleep complaints during pregnancy, they are often undertreated, and there is a lack of evidence-based interventions to address sleep disturbances in this population.⁵ This gap highlights the need for programs that equip pregnant women with the skills to engage in self-care and mitigate sleep-related problems—an intervention with potential worldwide benefits and the primary rationale for this study.

The importance of addressing sleep disturbances during pregnancy cannot be overstated. Prolonged sleep deprivation during pregnancy is associated with several adverse outcomes, including glucose intolerance, gestational hypertension, preeclampsia, premature birth, and low birth weight.^{7,8} Additionally, women who experience stress-related sleep disorders during pregnancy are at greater risk of developing psychiatric disorders compared to those without sleep disturbances.⁹ Furthermore, research has shown that sleep disorders and insomnia during pregnancy can lead to decreased sexual response in women,¹⁰ which is cited as a primary cause of up to 80% of marital conflicts and dissatisfaction.¹¹

A decrease in marital intimacy leads to a decline in marital satisfaction, an increase in conflicts, and the emergence of numerous emotional and psychological problems. It is also a significant factor in many cases of violence against women.^{9,12} Several studies have demonstrated that low marital satisfaction negatively

impacts quality of life and that there is a significant relationship between reduced marital intimacy and various challenges faced by women. This creates a vicious cycle, where diminished marital satisfaction exacerbates stress, further intensifying its associated complications.¹³

People may indeed respond differently to the same stressors. It is also well-established that a person's response to stressors depends not only on genetic factors and established personality traits but also on their cognitive appraisal of the stressor, coping skills, and available resources, such as living conditions, social support structures, and knowledge gained from previous experiences.¹⁴ Most of these factors can be improved through educational intervention. Since women undergo significant physical and mental changes during pregnancy, their susceptibility to various life stressors increases, making stress management particularly important during this period.¹⁵ Stress management training encompasses multiple activities, including conceptualization, relaxation, problem-solving, cognitive-behavioral exercises, and technical skills. Interventions using a cognitive-behavioral approach to managing stressful events can equip pregnant women with practical techniques to navigate future stressors.¹⁶ Adopting a proactive approach to stress prevention during pregnancy is highly beneficial. Improving pregnant women's ability to cope with stress enhances their well-being and reduces the likelihood of adverse health outcomes.⁹

From the behavioral sciences perspective, self-efficacy is the most essential prerequisite for selecting appropriate coping behaviors in stressful situations.¹⁷ Self-efficacy pertains to an individual's confidence in their ability to undertake resilient behaviors and is a key construct in behavior change related to coping. Essentially, it reflects an individual's belief in their capacity to perform new or complex tasks and to address challenges that may arise in their life.¹⁸ This confidence fosters effort, investment, and persistence when facing problems and facilitates prompt recovery after setbacks. Self-efficacy is, therefore, a critical component for successfully transitioning into motherhood, as it influences both the mother's mental health and the child's mental health development and growth.^{19,20} Mothers with higher levels of self-efficacy are better prepared to embrace their new role and adapt to the challenges of their new circumstances.²¹

Bandura's Self-Efficacy Theory is among the prominent learning theories within the health education domain.²² Self-efficacy refers to an individual's judgment about their ability to perform the actions necessary to manage prospective circumstances.²³ The formation of self-efficacy typically derives from four sources of information: direct experience, vicarious

experience, social persuasion, and physiological or emotional states.²⁴ Self-efficacy is a multilevel and multidimensional concept divided into three aspects: first, it reflects an individual's comprehensive judgment of their ability to perform specific tasks; second, it evolves as individuals acquire relevant information and experiences; third, it encompasses an individual's overall perception process, including motivational factors. Its application across different fields and environments provides valuable insights into behavioral intentions.²⁵

Many studies have demonstrated the influence of self-efficacy on health-related behaviors across various populations, with its importance in postpartum issues being well-recognized.²⁶⁻³⁰ However, there is limited information on how self-efficacy impacts pregnancy-related stress outcomes. Additionally, marital structures and dynamics in pregnant women have been less extensively studied in this context. Therefore, the present study aimed to evaluate the effect of a stress-management educational intervention, based on self-efficacy theory, on sleep quality, marital satisfaction, and intimacy in primigravida women.

Methods

Study Design and Participants

The present study employed a quasi-experimental design with a pretest-posttest structure and a control group. This design compared outcomes between an intervention group and a control group immediately before the intervention (pre-test) and immediately after the eight-week intervention (post-test). The study was conducted in Gachsaran, Southern Iran, a county with a population of approximately 125,000, served by four healthcare centers.

Pregnant women were identified through the records maintained at participating family health centers. A simple randomization method (drawing lots) was used to allocate two healthcare centers to the intervention group and the remaining two to the control group. Eligible pregnant women were recruited using a simple random sampling method at the center level. Each eligible participant was assigned a unique number; even numbers were allocated to the experimental group, while odd numbers were allocated to the control group.

Inclusion criteria for participation were as follows: primigravida women with a gestational age between 14 and 18 weeks, residency in Gachsaran city, provision of informed consent, and completion of two self-report surveys. Exclusion criteria included a diagnosis of certain diseases or illnesses during pregnancy and, for the intervention group, absence from more than one training session. According to Jahdi et al.,³¹ a sample size of $n=32$ in each group is required to

achieve sufficient power to detect a difference at the $P<0.05$ level. To account for a potential dropout rate of approximately 20%, 39 pregnant women were recruited for each group.

Two hundred twenty-three pregnant women from the four healthcare centers were invited to participate in this study. Of the 160 volunteers who met the inclusion criteria, 32 women did not consent to participate, resulting in a final pool of 128 eligible participants willing to participate in the study. From this pool, 39 women were randomly selected from each of the two healthcare centers to participate in each of the two groups. There were no dropouts; all 78 participants completed the study (Figure 1).

Intervention

The stress management training sessions were adapted from Randall Ross's stress management program,³² which incorporated the structures of self-efficacy theory in the intervention. The relevant content was reviewed by three health promotion and psychology experts to assess its adequacy and relevance and was validated qualitatively. The program consisted of eight training sessions based on self-efficacy theory, each lasting 45–60 minutes and held once a week. Four sessions were delivered as face-to-face classes at the healthcare center, where the training was provided through interactive lectures using PowerPoint slides, educational videos, handouts, and opportunities for questions and answers. All in-person training sessions followed the coronavirus guidelines, as did the regular antenatal care appointments. Due to the pandemic, the intervention was adapted to present four sessions online. These sessions were made available through a dedicated WhatsApp group until the completion of the training course. The WhatsApp group also provided an opportunity for support and questions in response to the educational videos. All participants expressed satisfaction with both the educational content and the program's delivery method. A summary of the training program is provided in Table 1.

Following good practice and the ethical approval conditions for the study, the educational content was also provided to the control group after the intervention and the collection of post-test questionnaires.

Data Collection

The data collection tools for this study included demographic information (age, gestational age, age at marriage, employment status, and education level) and four standard questionnaires outlined below.

*General Self-Efficacy Scale (GSES):*¹⁸ This 10-item scale is a unidimensional self-report measure of self-efficacy. The items assess successful coping and imply an internal, stable attribution of capability. The scale

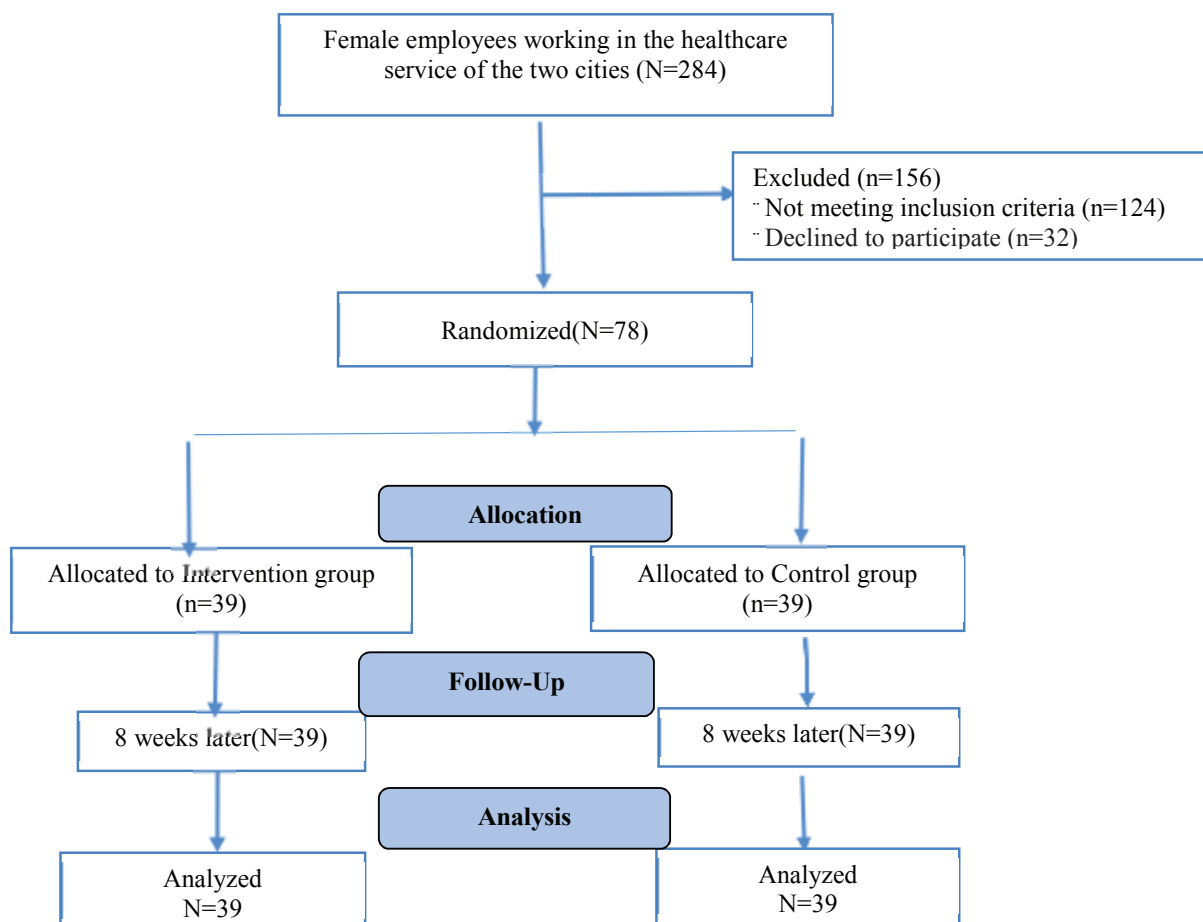


Figure 1: Consort flow chart of participants

has been translated, standardized, and validated in multiple languages, including Persian. A recent study examining the psychometric properties of the Persian version of the General Self-Efficacy Scale reported a Cronbach’s alpha coefficient of 0.94,³³ indicating its suitability for this study. Participants respond to each of the 10 items on a 4-point scale: 1=Not at all true, 2=Hardly true, 3=Moderately true, and 4=Exactly true. Scores were averaged to provide participant scores ranging from 1 to 4, with higher scores indicating greater self-efficacy.

*ENRICH Marital Satisfaction Scale.*³⁴ This is a self-report measure of a participant’s overall satisfaction with ten aspects of their marriage. This study used the 10-item Persian version, demonstrating adequate psychometric properties ($\alpha=0.74$).³⁵ Each item is scored using a 5-point Likert scale, with the results averaged to provide a range of scores from 1 to 5. Higher scores indicate greater marital satisfaction.

Experiences in Close Relationships-Revised (ECR-R).^{36,37} Relationship quality was assessed using the ECR-R, a 36-item self-report tool comprised of two 18-item subscales based on Attachment Theory: Avoidance and Anxiety. Participants indicated their level of agreement with each item on a 7-point Likert scale (1=strongly disagree to 7=strongly agree).

Composite scores for each participant were calculated by reverse scoring, where appropriate, followed by averaging the scores for the two subscales (i.e., range=1–7). Higher scores indicated higher levels of avoidance and anxiety attachment, which, in turn, reflected poorer relationship quality. Participants completed the validated Persian translation of this scale,³⁸ with items modified to be husband-specific. Good reliability has been demonstrated in several studies, including those using the Persian version: anxiety items ($\alpha=0.95$) and avoidance items ($\alpha=0.92$).³⁸

Pittsburgh Sleep Quality Index (PSQI).^{39, 40} This questionnaire consists of 19 items, each scored on a 4-point scale ranging from 0 to 3. The scores from these items are combined to form seven subscales, each with a range of 0–3, according to the formula provided by the developers.³⁹ The components of the PSQI include sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleeping pills, and daytime dysfunction. Scores for each component range from 0 to 3, with low scores indicating minimal problems and high scores indicating severe issues. Buysse et al.³⁹ reported good internal consistency for the scale ($\alpha=0.83$). Similar reliability was found in the Iranian version used in this study ($\alpha=0.79$).⁴⁰

Table 1: Educational session's table

Session	Educational content	Application of self-efficacy theory	Educational method	Educational media
1- In person	Introduction: Overview of the stress management training program with learning outcomes.	Sensitizing mothers by reminding them of past successful experiences (before pregnancy) in controlling stress.	-Lecture -question and answer -collaborative learning techniques	-PowerPoint -Educational Clip
2- In person	Relaxation: Learning to control physical stress responses. Information to promote self-care to manage physical and emotional stress symptoms, and body relaxation in the form of an interactive lecture. Practical relaxation exercise: Learning to control physical stress responses	Paying attention to the physiological reactions of the mother's stress through training to control physical responses to stress.	-Lecture -question and answer -collaborative learning techniques	-PowerPoint -Educational Clip
3- Online	Self-mastery: Learning to control behavioral responses to stress. Information on self-care to alleviate stress, manage behavioral symptoms, delay maladaptive behaviors, and communication skills in the form of an educational clip.	Paying attention to the mother's physiological reactions to stress through training to control stress behavioral responses/ verbal encouragement and positive feedback to succeed in managing stressful situations.	-Lecture -question and answer -collaborative learning techniques	-PowerPoint -Educational Clip -handouts
4- In person	Creative thinking: Learning to control cognitive responses to stress. Provision of information to support self-care using cognitive reconstruction techniques in the form of an interactive lecture	Paying attention to the emotional reactions of the mother's stress through training to control the cognitive responses of stress/ verbal encouragement and positive feedback to succeed in managing stressful situations.	-Lecture -question and answer -Collaborative learning techniques	-PowerPoint -Educational Clip
5- Online	Stress inoculation training. Learning to stop dealing with predictable stressful situations. Provision of examples and materials to identify repetitive stress stimuli and stress inoculation in the form of an educational clip	Asking people to express their successful experiences in controlling physical, behavioral, and cognitive responses to stress (providing a role model)/ verbal encouragement and positive feedback to succeed in managing stressful situations.	-Lecture -question and answer -Say positive experiences	-PowerPoint -Educational Clip -handouts
6- In person	Cooling down: Identifying severe stress symptoms and using physical, behavioral, and cognitive strategies to control anger. Interactive lecture with examples.	Asking people to express their successful experiences in controlling physical, behavioral, and cognitive responses to stress (providing a role model)/ verbal encouragement and positive feedback to succeed in managing stressful situations	-Lecture -question and answer - Say positive experiences	-PowerPoint -Educational Clip
7- Online	Developing resilience to stressors. Provide content in the form of educational clips to find relevant stabilizing activities and problem-solving for one's situation. This included learning to plan for relaxation and rejuvenation.	- Paying attention to the physiological and emotional reactions to the mother's stress through the training of planning for rest/ verbal encouragement and positive feedback to implement the exercises of the previous session at home successfully.	-Lecture -question and answer -Collaborative learning techniques	-PowerPoint -Educational Clip -handouts
8- Online	Capitalization: Gaining skills in restraint as a lifelong asset. Prevention of stress and coping with consecutive or recurring problems. Presenting materials to learn skills in the form of an educational clip	Remembering successful experiences during the training course in controlling behavioral, physical, and cognitive stress responses and verbal encouragement in stress control	-Lecture -question and answer -Say positive experiences	-PowerPoint -Educational Clip -handouts

Statistical Analysis

The data were analyzed using SPSS software (version 24). Normality tests were conducted, followed by applying paired sample t-tests and independent sample t-tests. The significance level was set at 0.05.

Results

Based on the results of the Kolmogorov-Smirnov test, the data distribution of all research variables for both pre-test and post-test periods in the experimental and

control groups was normal. Regarding demographic characteristics, the highest frequency in both the experimental and control groups was 26 to 30 years. The largest educational category in both groups was individuals with a bachelor's degree.

As shown in Table 2, the independent t-test results confirmed no statistically significant differences between the two groups of pregnant women before the intervention in the eight measures of sleep quality. After the intervention, paired t-tests indicated significant improvements in the sleep quality scores

Table 2: Average of sleep quality score and their dimensions comparison before and after training sessions for intervention and control groups

Variable	Group	Before intervention Mean±SD	After intervention Mean±SD	*P value
Overall sleep quality	Intervention	1.55±0.43	2.12±0.39	<0.001
	Control	1.45±0.39	1.48±0.26	0.377
	**P value	0.905	<0.001	
Sleep quality	Intervention	1.67±0.81	2.1±0.91	0.022
	Control	1.54±1.17	1.05±0.72	0.06
	**P value	0.574	<0.001	
Sleep latency	Intervention	1.6±0.4	1.24±0.25	<0.001
	Control	1.62±0.57	1.56±0.56	0.634
	**P value	0.909	0.002	
Sleep duration	Intervention	1.72±0.51	2.41±0.68	<0.001
	Control	1.79±0.86	1.79±0.7	1.000
	**P value	0.633	<0.001	
Sleep efficiency	Intervention	1.36±0.65	1.88±0.61	<0.001
	Control	1.36±0.28	1.46±0.45	0.214
	**P value	0.984	<0.001	
Sleep disturbance	Intervention	1.49±0.6	0.95±0.51	<0.001
	Control	1.49±0.65	1.38±0.42	0.449
	**P value	1.000	<0.001	
Use of sleeping pills	Intervention	1.9±0.72	0.79±0.5	<0.001
	Control	1.95±0.6	1.77±0.67	0.242
	**P value	0.734	<0.001	
Daytime dysfunction	Intervention	1.73±0.71	0.92±0.35	<0.001
	Control	1.71±0.66	1.76±0.43	0.703
	**P value	0.868	<0.001	

*Paired t-test; ** Independent t-test

in the intervention group from pre-test to post-test. At the same time, no meaningful difference was observed in the sleep quality scores for the control group. Independent t-tests also revealed a statistically significant difference between the two groups in sleep quality indicators after the intervention.

Regarding marital satisfaction, the independent t-test results confirmed no statistically significant difference between the two groups of pregnant women before the intervention. However, after the intervention, paired t-tests indicated significant improvements in marital satisfaction within the intervention group, while no meaningful changes were observed in the control group. Additionally, an independent t-test revealed a statistically significant difference in marital satisfaction between the two groups following the intervention (Table 3).

As shown in Table 4, the independent t-test results confirmed no statistically significant differences between the two groups of pregnant women in the

three measures of relationship quality before the intervention. Following the intervention, paired t-tests indicated significant improvements in the relationship quality scores within the intervention group, while no meaningful changes were observed in the control group. Additionally, independent t-tests revealed a statistically significant difference in relationship quality between the two groups after the intervention.

Concerning general self-efficacy, the findings indicated no statistically significant differences between the self-efficacy scores of pregnant women in the intervention and control groups before the intervention. After the intervention, paired t-tests revealed substantial improvements in self-efficacy scores within the intervention group, while no meaningful changes were observed in the control group. Furthermore, an independent t-test demonstrated a statistically significant difference in general self-efficacy scores between the two groups following the intervention (Table 5).

Table 3: Average scores of marital satisfaction comparison before and after training for the intervention and control groups

Variable	Group	Before intervention Mean±SD	After intervention Mean±SD	*P value
Marital Satisfaction	Intervention	2.73±0.29	3.01±0.46	<0.005
	Control	2.71±0.34	2.79±0.22	0.186
	**P-value	0.721	<0.001	

*Paired t-test; **Independent t-test

Table 4: Average scores of marital intimacy variable and its dimensions comparison before and after training for the intervention and control groups

Variable	Group	Before intervention Mean±SD	After intervention Mean±SD	*P value
Marital intimacy	Intervention	3.47±0.43	3.85±0.36	<0.001
	Control	3.43±0.36	3.50±0.35	0.354
	**P value	0.71	<0.001	
Anxiety	Intervention	3.25±0.38	3.66±0.46	<0.001
	Control	3.20±0.36	3.21±0.44	0.879
	**P value	0.542	<0.001	
Avoidance	Intervention	3.67±0.51	4.12±0.39	<0.001
	Control	3.66±0.39	3.79±0.48	0.183
	**P value	0.879	<0.001	

*Paired t-test; **Independent t-test

Table 5: Average scores of self-efficacy variable comparison before and after training for the intervention and control groups

Variable	Group	Before intervention Mean±SD	After intervention Mean±SD	*P value
Self-efficacy	Intervention	2.73±0.47	3.07±0.41	0.005
	Control	2.73±0.41	2.75±0.44	0.742
	**P value	0.979	0.001	

*Paired t-test; ** Independent t-test

Discussion

This study aimed to evaluate the effect of a stress management educational intervention based on self-efficacy theory in primigravida women, focusing on sleep quality, marital satisfaction, and intimacy. The findings revealed significant differences between the intervention and control groups across all measured areas, strongly suggesting that the intervention was beneficial.

Sleep quality was assessed using the overall Pittsburgh Sleep Quality Index (PSQI) score and its seven components. Analyses comparing the pre- and post-intervention PSQI scores in the experimental and control groups indicated that the intervention significantly improved sleep quality in first-time pregnant women. These results align with previous studies.^{2, 41, 42} For instance, Bandoli et al.⁴² found that self-efficacy accounts for 14% of sleep quality variability in pregnant women. Similarly, Alipour et al.² demonstrated that relaxation techniques, grounded in self-efficacy theory, enhance coping mechanisms, reduce stress, anxiety, and depression, and improve well-being in pregnant women. Fisher et al.⁴³ also reported that a brief psychological group program for primigravida parents effectively reduced postpartum mental disorders in women.

Although the topics and methods of these studies vary, their collective findings, like those of this study, highlight the value of training in coping strategies for improving sleep quality and reducing pregnancy-related anxiety.

Not all intervention programs aimed at improving sleep quality in women have produced positive

outcomes. For instance, a behavioral-educational intervention delivered during the early postpartum period—both in the hospital and in the first weeks at home—failed to improve maternal and infant sleep or other health outcomes in the initial months postpartum. While the contexts of early pregnancy and early postpartum differ significantly, the study by Stemler et al.⁴⁴ highlights the influence of uncontrolled factors on the effectiveness of behavioral-educational interventions for improving sleep quality.

In the context of the present study, it is worth noting that sleep problems during pregnancy are often linked to stress. Emotional factors, such as anxiety about childbirth, childcare responsibilities, and adapting to the new role of motherhood, can significantly disrupt normal sleep patterns.⁴⁵ The intervention used in this study, grounded in self-efficacy theory and incorporating tailored coping strategies, demonstrated how such stressors can be effectively managed. Techniques such as mental imagery and fostering a positive mindset during the training sessions played a key role in mitigating these stress-related sleep disturbances, resulting in improved sleep quality for participants.

The results of the marital satisfaction variable demonstrate that the intervention was effective. There was a significant improvement in marital satisfaction among the primigravida women after the intervention compared to both their pre-intervention scores and those of the control group. This finding aligns with the work of Bandoli et al.⁴² and Fisher et al.⁴¹ However, Bradbury et al.⁴⁶ argue that while educational interventions can yield immediate positive effects, these impacts may not persist in the long term. While

this might suggest a limited benefit duration, we contend that the immediate improvements in marital satisfaction are still valuable.

The inability of Bradbury et al.³⁸ to confirm the long-term effectiveness of stress immunization training on marital satisfaction underscores the presence of uncontrolled factors that can influence satisfaction throughout the lengthy course of a marriage. Nonetheless, the present study's findings suggest that primigravida women who succeed in making changes in themselves and their lifestyles following the intervention are likely to experience improvements in their marital relationships as well. Qualitative feedback from participants during the face-to-face sessions revealed that many women developed a renewed sense of connection and positive emotions in their marriages, accompanied by a sense of hope for the future.

Conversely, women who remain dissatisfied in their relationships and perceive themselves as unable to adapt to their circumstances may not derive the same fulfillment or positive feelings from their marriages. However, the intervention offered a fresh perspective on life for those who embraced the lifestyle changes introduced during the sessions, enabling them to rediscover joy and meaning in their relationships.⁴⁷ Even if the effects are limited to the short term, as Bradbury et al.³⁸ suggest, the immediate improvements represent a meaningful step forward.

Regarding relationship quality and its attachment-theory-based dimensions, the results demonstrated that the intervention effectively enhanced relationship quality among the primigravida women who participated in the self-efficacy-based stress management training. This improvement was not observed in the control group, despite both groups experiencing the same stages of pregnancy. These findings align with Bandoli et al.⁴² and Fisher et al.⁴¹

The results of the present study can be further understood by considering the impact of in-person educational stress management interventions on marital communication. Such interventions equip individuals with the skills to communicate more effectively and navigate challenges together as a couple. When life skills are appropriately applied, disruptions in marital life can be minimized, and marital intimacy can increase. As such, psychological interventions, like the one used in this study, can play a vital role in reducing stress and anxiety in pregnant women, which in turn improves marital intimacy and relationship quality.⁴⁷

Regarding the self-efficacy variable, the findings demonstrated significant differences in self-efficacy scores for primigravida women before and after the intervention in the experimental group compared to

the control group. These results align with those of Alipour et al.,² Aslantekin Özçoban et al.,⁴⁸ Fallahian et al.,⁴⁹ and Fisher et al.⁴¹ Aslantekin Özçoban et al.³⁹ highlighted that improving the health literacy and self-efficacy of pregnant women has significant, lifelong benefits, enabling them to navigate health-related challenges better. Similarly, Fallahian et al.⁴⁹ emphasized that psychological well-being training enhances self-acceptance, interpersonal relationships, self-acceptance, and mastery over one's environment, ultimately boosting self-esteem and self-efficacy.

In the present study, the stress management educational intervention yielded numerous benefits, particularly fostering improved self-efficacy among participants. Theoretically, self-efficacy develops from past successes and failures. However, in novel situations such as a first pregnancy, targeted training can guide individuals to take on challenging tasks and cope effectively. As stress management interventions have been shown to enhance self-efficacy⁴⁹ significantly, their use is strongly recommended during pregnancy, especially for primigravida women.

Strengths and Limitations

This study is the first to examine the effects of teaching stress management behaviors on sleep quality, relationship quality, and marital satisfaction, based on self-efficacy theory, among pregnant women in Iran. The intervention demonstrated clear benefits for participants, contributing valuable insights to this area of research. However, like other studies, it also faced certain limitations.

One notable limitation was the inability to implement individual randomization or utilize a randomized controlled trial, considered the gold standard for evaluating interventions. This constraint arose from the unique characteristics of the sample population and the close relationships among participants. Additionally, the study focused exclusively on primigravida women aged 20 to 35 years in Gachsaran County, limiting the generalizability of the findings to other age groups, regions, or populations with differing cultural, social, or economic backgrounds.

Future research should replicate this study in diverse age groups and communities with varying characteristics, allowing for broader comparisons and a better understanding of the intervention's effectiveness across different populations. Finally, the study acknowledges the potential influence of additional factors, such as socioeconomic status, personality traits, and social support, on sleep quality, self-efficacy, relationship quality, and marital satisfaction. Incorporating these variables into future studies could help refine and tailor the intervention for optimal outcomes.

Conclusion

The findings of this study indicate that stress management training can significantly improve sleep quality, self-efficacy, marital satisfaction, and relationship quality among primigravida women. Incorporating stress management training into antenatal care programs can provide meaningful psychosocial support for pregnant women, reducing anxiety and stress during this critical period. Such programs need not rely solely on face-to-face interaction; pregnant women may benefit from diverse educational formats, including printed materials, online resources, and both in-person and group online sessions.

This study also guides future research into psychological factors influencing sleep quality, self-efficacy, marital satisfaction, and intimacy among pregnant women. Sharing these findings through specialized working groups and training workshops can empower health service psychologists to apply these insights in improving maternal well-being. Future research should explore the conceptual model of this study across different cultural, social, and economic contexts and compare the results to those of the present study. Additionally, follow-up tests at varying time intervals are necessary to assess the stability of the training effects. If proven effective, policymakers should facilitate stress management workshops as part of routine prenatal care.

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Ethics Approval and Consent to Participate

The protocol of this study was approved by the Research Council and Ethics Committee of Shiraz University of Medical Sciences and Health Services (SUMS) (IR.SUMS.REC.1400.306). All methods were carried out following relevant guidelines and regulations. Written informed consent was obtained from all participants before data collection.

Availability of Data and Materials

All data generated or analyzed during this study are included in this published article. Additionally, the datasets used in this study are available from the corresponding author upon reasonable request.

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Authors' Contribution

ZA: Data collection, training sessions, statistical analysis, article drafting. LG: Research management, study design, resource coordination, and training sessions. Mh K: Scientific advisor. FN: Writing – original draft, review, and editing. RC: Writing – review and editing. All authors reviewed and approved the final manuscript.

Conflict of Interest: None declared.

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