

ORIGINAL ARTICLE

Effects of Husband Involvement in Prenatal Care on Couples' Intimacy and Postpartum Blues in Primiparous Women: A Quasi-Experimental Study

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ABSTRACT

Background: Husband involvement in prenatal care is a relatively new concept in Iran. This study aimed to determine the effects of husband involvement in prenatal care on couples' intimacy and postpartum blues in primiparous pregnant women.

Methods: This quasi-experimental study was performed on 72 primiparous pregnant women with a gestational age of 20-36 weeks in Rafsanjan in 2021 (January to September). After convenience sampling, the participants were assigned to control (N=36) and intervention groups (N=36). Participants in the intervention group were accompanied by their husbands and received routine prenatal care and virtual training. Participants in the control group received routine prenatal care without husband involvement. The Unidimensional Relationship Closeness Scale was completed before the intervention and two weeks after delivery, and the postpartum blues Stein questionnaire was completed one week after delivery. Data were analysed through SPSS V. 22 and using independent two-sample t-test, paired t-test, chi-square, Fisher's exact tests, and Pearson correlation coefficient with a significance level of $P < 0.05$.

Results: The results showed that 5 women (15.20%) in the intervention group and 26 (72.20%) in the control group suffered from postpartum blues after intervention ($P < 0.001$). There was no statistically significant difference in the mean of couples' intimacy between the two groups after the intervention ($P = 0.08$), but the mean score of change in the couples' intimacy was significantly different across the two groups ($P = 0.01$).

Conclusion: Husband involvement in prenatal care seems to be able to reduce the incidence of postpartum blues but may possibly increase the couples' intimacy. Therefore, it can be suggested that midwives consider husband involvement in prenatal care.

Keywords: Marriage, Mood disorders, Prenatal care, Spouses

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INTRODUCTION

Husband involvement in prenatal care is a relatively new concept in most developing countries, including Iran.¹ Men's participation refers to the roles men play and the responsibilities they hold in the field of reproductive health, as well as the protection they provide for their wives so that they can successfully manage the difficulties of their sexual and reproductive life.² Although husbands are interested in participating in pregnancy and childbirth, in many cases the lack of incentives and restrictions as well as obstacles prevent active participation in midwifery units.³ Some of these barriers include norms of the male's role, gender norms, socialization ideology, and gender ideology.⁴ Therefore, it is necessary to strengthen the facilitator and break down the barriers as much as possible to increase the husband's involvement in perinatal care.³

The rate of male involvement in prenatal care varies between societies and countries and has been reported to be as low as 25% in Iran to as high as 90% in Guatemala.^{5,6} Male involvement in prenatal care is important because of the patriarchal culture, men's lack of knowledge in the field of reproductive health, the key role of men in the promotion of women's health, and the realization of social and gender justice.² Education is essential to changing and enhancing men's beliefs and knowledge, and it can contribute to their proper functioning as husbands or fathers.⁷

Undoubtedly, men can play a crucial role during their wives' pregnancy and childbirth if they have adequate knowledge of the importance of proper prenatal care, the potential complications of pregnancy, and need for timely intervention. Knowledge and understanding of the potential complications during pregnancy by couples can make birth a joyful experience.⁸

So far, the studies conducted in the field of men's involvement, both at the global level and in Iran, have focused on issues such as family planning, acquired immunodeficiency syndrome, and sexually transmitted diseases;

other aspects of women's health, such as pregnancy and childbirth, have played a marginal role.⁹ Therefore, the participation of men in the care of women is an important strategy to achieve the development goals of the third millennium, such as promoting maternal health and empowering women.¹⁰ Husband involvement in prenatal care can increase the use of postpartum care services and improve marital relationships. Husband involvement during pregnancy can also decrease maternal postpartum depression.⁴ Postpartum blues is a non-pathological disorder characterized by a set of psychological and psychosomatic symptoms that affect women for 10-15 days after delivery.¹¹ This disorder is considered to be mild and self-limiting; however, it is a risk factor for postpartum depression or anxiety disorders.¹² The exact cause of postpartum blues is unknown.¹³ The rate of postpartum blues in the world is reported to be 50-80%,¹⁴ but the diagnosis of this disorder has been largely ignored. Therefore, early interventions to prevent and reduce the symptoms are important and necessary.^{15,16} Raising children is a central role of women, and increasing the attention of health officials to women's mental health through programs such as educating husbands to participate in prenatal care can improve the mental health of pregnant women.¹⁷

Millions of couples experience intimate relationship dysfunction during the transitional period from pregnancy to postpartum due to changes and adjustments in the family.¹⁸ One emotional need of couples is intimacy in relationships, which provides the basis for happiness as well as feelings of worth in life and marital satisfaction.¹⁹ Intimacy is the concept of establishing a deep interpersonal relationship that requires deep knowledge or very detailed information of that person.²⁰ Intimacy is considered one of the important features of a marital relationship and a successful marriage.²¹ Decreasing intimacy reduces a couple's ability and desire to solve problems, overcome obstacles, and stand up to fears

and doubts.¹⁹ Various studies have shown that women's intimacy decreases after childbirth.^{22, 23} Numerous factors including changing lifestyles, body image issues, and tiredness can change intimacy.²⁴ Involvement in prenatal care can enhance the husbands' ability to support their wives by increasing skills, knowledge, and motivation.²⁵ Overall, men played a minor role during pregnancy, and our society faces numerous obstacles regarding men's roles in the family during pregnancy. Husband involvement is a strategy that could promote maternal and child health and reduce maternal mortality.²⁶ Since the role of husband involvement during pregnancy and its impact on marital relations and mood disorders of women after childbirth in Iranian society has received little attention, the current study aimed to determine the effects of husband involvement in prenatal care on couples' intimacy and postpartum blues.

MATERIALS AND METHODS

The target population of this quasi-experimental study was primiparous pregnant women referring to all 8 comprehensive health centers in Rafsanjan in 2021 (January to September). 10, 8, 9, 10, 9, 8, 9, and 9 participants were selected from health centers number 1 to 8, respectively. Inclusion criteria were age 15-45 years, pregnancy with a gestational age of 20-36 weeks, living with the husband, having a smart phone, no history of serious psychiatric disorders (schizophrenia or other psychotic or mood disorders) according to the medical history obtained from the pregnant woman herself, lack of using psychiatric drugs before or during pregnancy by the couple, and lack of traumatic events (e.g., death of a close relative) in the recent months. Exclusion criteria were unwillingness to continue participation at any stage of the study, the presence of the husband in less than 3 prenatal care visits in the intervention group, and the occurrence of a traumatic event during the study.

Given a 95% confidence level and 80% power, the standard deviation of 2.84 for the

depression score according to Rabieipour et al.,¹⁷ 2 units difference in the mean score of postpartum blues in the two groups, and an attrition rate of 20%, the minimum sample size was estimated to be 31 subjects in each group. To increase the study power, we ultimately selected 72 primiparous pregnant women. After convenience sampling, the participants were assigned to the control (N=36) and intervention groups (N=36).

$$n = \frac{\left(z_{1-\frac{\alpha}{2}} + z_{1-\beta}\right)^2 \times 2s^2}{d^2}$$

$$31 = \frac{(1.96 + 0.84)^2 \times 2(2.84)^2}{2^2}$$

After the approval of the proposal, the researcher went to the health centres of Rafsanjan University of Medical Sciences with written approval from the Deputy of Research and Technology and Medical Ethics Committee of Rafsanjan University of Medical Sciences. By maintaining the confidentiality of information, the contact number of primiparous pregnant women was obtained from the Integrated health system. The researcher invited the participants to the study by making a telephone call and introducing herself and aim of the study. After verbal consent, groups were created on the social network WhatsApp for each study group, and invitation letters were sent to them. The invitation was repeated by the staff of the health centers who gave a paper invitation, and written informed consent forms were taken from both groups.

The husbands of the intervention group were invited to participate in 3 out of 6 sessions of second-half pregnancy care with their wives. In these three sessions, only routine prenatal care was performed in the presence of the husband. All face-to face education plans for husbands were suspended because of the COVID-19 pandemic. Instead, the planned content regarding the couples' intimacy and postpartum blues was sent to the intervention group through WhatsApp

in 3 sessions during pregnancy, and these 3 virtual training sessions were managed by the researcher according to the gestational age at the time of entering the study. The planned content in the form of text and image was posted on WhatsApp. To ensure a thorough reading of the submitted content, the participating couples were asked to hold discussions with others in their groups. Questions from couples were also encouraged.

Educational content included a training program to increase the intimacy of couples based on Iranian indigenous culture according to a study by Kalantari et al.²⁷ The materials taught in the virtual training sessions included factors affecting intimacy in Iranian culture, communication skills, fighting with special solvable problems, and parenting and a training program to reduce and control postpartum blues (Table 1). The control group participants received routine prenatal care without the presence of their husbands. Due to the study method, it was not possible to blind the main researcher, health centre staff, or participants.

Data collection tools in this study comprised a demographic characteristics checklist (female age, female marriage age, female history of remarriage, female level of education, female occupation, history of infertility, history of abortion, male age, male marriage age, male history of remarriage, male level of education, male occupation), the Unidimensional Relationship Closeness Scale (URCS), and the postpartum blues Stein questionnaire. The URCS was first introduced by Dibble et al. in 2011.²⁸ This questionnaire is a 12-item self-report scale that assesses the closeness of individuals

and social relationships. Each item on this scale is rated on a 7-point Likert scale; Low values are limited to 1.0 (strongly disagree) and reflect a complete lack of meaningful relationship closeness. High values are limited to 7.0 (strongly agree) and indicate a maximum close relationship. The reliability and validity of URCS were assessed using college-dating couples, female friends and strangers, friends, and family members. The results showed that the scale was unidimensional, with high reliability across all relationship types ($\alpha=0.96$).²⁸ Alimoradi et al. (2019) translated the URCS into Persian according to international standard guidelines. Accordingly, the reliability of the test-retest assay of the Persian URCS at 2-week intervals was 0.91, and Cronbach's correlation coefficient was 0.88. In addition, the one-dimensional structure of the URCS was confirmed.²⁹ In the present study, the reliability of the questionnaire was confirmed by Cronbach's alpha α of 0.87.

The Stein's postpartum blues questionnaire was designed by Stein in 1980.³⁰ It consists of 13 questions. The first eight questions have a total score range of 0 to 21; one statement has a score range of 0 to 4, three statements have a score range of 0 to 3, and four statements have a score range of 0 to 2, and in the last five questions, yes and no answers are scored 1 and 0 points, respectively. On a general scale with a score of 0-26, a score of 8 or higher usually indicates that significant mood swings have occurred.³⁰ This questionnaire was confirmed by Karimi et al., using the content validity method. The reliability of this questionnaire in Karimi's study was 0.90.^{31,32} To determine the validity of the Persian version of Stein

Table 1: Topics of virtual training sessions in the intervention group

| Sessions | Educational content |
|----------------|--|
| First session | <ul style="list-style-type: none"> ● Factors affecting intimacy in Iranian Culture ● Etiology and diagnosis of postpartum blues |
| Second session | <ul style="list-style-type: none"> ● Communication skills ● Fighting with special solvable problems ● Risk factors and symptoms of postpartum blues |
| Third session | <ul style="list-style-type: none"> ● Parenting ● Management of postpartum blues symptoms |

maternity blues questionnaire, at first two translator translated the questionnaire from English to Persian. Next, two other experts re-translated the Persian version into English; after translation, a psychologist confirmed the new Persian draft, and finally the validity of questionnaire was confirmed. For evaluation of the reliability, along 3-10 days postpartum 10 women completed Stein maternity blues questionnaire and Edinburgh questionnaire; then, the correlation of the two questionnaires was evaluated using correlation coefficient ($r=0.90$). In addition, the reliability of the questionnaire was evaluated using test retest. The correlation of the results was revealed ($r=0.90$).³¹ In this study, the reliability of the questionnaire was confirmed by Cronbach's alpha α of 0.81. Moreover, the URCS was completed twice through interviews with participants, once before the intervention and then two weeks postpartum. The Stein questionnaire was completed just one week postpartum. Both questionnaires were completed by the participants in the control and intervention groups by phone calls.

Results are presented as mean \pm standard deviation (SD) for numeric variables and summarized by absolute frequencies and percentages for categorical variables. Numeric variables were compared using the independent two-sample t-test in the intervention and control groups, while the paired t-test was used to assess the within-group differences. Categorical variables were compared using the chi-square or Fisher's exact test, as appropriate. The non-parametric Kolmogorov-Smirnov test was used to evaluate whether numeric variables met the normal distribution. The test indicated that the presumption of normality was met ($P>0.05$). Also, we used the Pearson correlation coefficient to examine the relationship between the URCS and the postpartum blues Stein questionnaire.

Statistical analysis was performed using the statistical software SPSS version 22.0 for windows (IBM SPSS Inc., Chicago, IL, USA). All P values were 2-tailed, with statistical

significance defined by $P<0.05$.

The code of ethics for this study was obtained from the Ethics Committee of Rafsanjan University of Medical Sciences (IR.RUMS.REC.1399.205). The goals of the study were explained to the participants and informed written consent was obtained from them. They could withdraw at any time during the research without any changes in prenatal care.

RESULTS

In this study, 72 primiparous pregnant women were enrolled; at the end of the study, 36 women in the control group and 33 in the intervention group remained (two couples withdrew from the study due to the husband's absence from routine prenatal care sessions and one non-response to the follow-up call). The two couples were excluded because the working hours of the health centres did not correspond with their free hours.

The demographic characteristics of the couples in the intervention and control groups were not statistically different ($P>0.05$) (Table 2). The chi-square test showed that the distribution of delivery type, delivery satisfaction, and neonatal gender in the intervention and control groups was not statistically different ($P>0.05$) (Table 3).

Results of the two independent samples t-test showed that the mean scores of the couples' intimacy between the intervention and control groups before the intervention ($P=0.88$) and after it ($P=0.08$) were not statistically significant. Paired t-test also showed that the mean scores of couples' intimacy in the intervention group before and after the intervention ($P=0.058$) and in the control group before and after the intervention ($P=0.08$) were not statistically significant (Table 4).

The independent samples t-test showed that the mean changes (before and after) in the couples' intimacy score were significantly higher in the intervention group than the control group ($P=0.01$) (Table 4). This indicates that the mean score for couples'

Table 2: Comparison of couples' demographic characteristics in the intervention and control groups

| Variable | Intervention group (N=33) Mean±SD | Control group (N=36) Mean±SD | P value |
|-----------------------------|---|------------------------------------|---------|
| Female age (years) | 27.76±5.72 | 26.97±4.57 | 0.52* |
| Female marriage age (years) | 23.79±5.01 | 23.69±5.05 | 0.93* |
| Male age (years) | 33.30±5.73 | 32.36±5.07 | 0.47* |
| Male Marriage age (years) | 29.33±5.09 | 29.08±6.02 | 0.85* |
| | N (%) | N (%) | |
| Female Level of Education | | | 0.28** |
| Under Diploma | 3 (9.10) | 2 (5.60) | |
| Diploma | 8 (24.20) | 15 (41.70) | |
| Higher than diploma | 22 (66.70) | 19 (52.80) | |
| History of remarriage | | | 0.66** |
| Yes | 3 (9.10) | 2 (5.60) | |
| No | 30 (90.90) | 34 (94.40) | |
| Male Level of Education | | | 0.40** |
| Under Diploma | 3 (9.10) | 2 (5.60) | |
| Diploma | 7 (21.20) | 13 (36.10) | |
| Higher than diploma | 23 (69.70) | 21 (58.30) | |
| History of remarriage | | | 0.99** |
| Yes | 1 (3.00) | 1 (2.80) | |
| No | 32 (97.00) | 35 (97.20) | |
| Female Occupation | | | 0.55*** |
| Housewife | 25 (75.80) | 25 (69.40) | |
| Employed | 8 (24.20) | 11 (30.60) | |
| History of infertility | | | 0.86*** |
| Yes | 6 (18.20) | 6 (16.70) | |
| No | 27 (81.80) | 30 (83.30) | |
| History of abortion | | | 0.86*** |
| Yes | 5 (15.20) | 6 (16.70) | |
| No | 28 (84.80) | 30 (83.30) | |
| Male Occupation | | | 0.79*** |
| Employee | 12 (36.40) | 12 (33.30) | |
| Self-employed | 21 (63.60) | 24 (66.70) | |

*Independent two-sample t-test; **Fisher's exact test; ***Chi-square test

Table 3: Comparison of delivery type, delivery satisfaction, and neonatal gender in the intervention and control groups

| Variable | Intervention group (N=33) N (%) | Control group (N=36) N (%) | P value* |
|-----------------------|---------------------------------------|----------------------------------|----------|
| Type of delivery | | | 0.78 |
| Vaginal delivery | 10 (30.30) | 12 (33.30) | |
| Cesarean section | 23 (69.70) | 24 (66.70) | |
| Delivery satisfaction | | | 0.67 |
| Yes | 27 (81.80) | 28 (77.80) | |
| No | 6 (18.20) | 8 (22.20) | |
| Neonatal gender | | | 0.51 |
| Girl | 13 (39.40) | 17 (47.20) | |
| Boy | 20 (60.60) | 19 (52.80) | |

*Chi-square test

Table 4: Comparison of mean score of couples' intimacy before and after the intervention in intervention and control groups

| Variable | Intervention group (N=33) Mean±SD | Control group (N=36) Mean±SD | P value* |
|--|---|------------------------------------|----------|
| Mean score of couples' intimacy | | | |
| Before intervention | 6.30±0.75 | 6.33±0.58 | 0.88 |
| After intervention | 6.46±0.53 | 6.19±0.75 | 0.08 |
| P value** | 0.058 | 0.08 | |
| Mean change score of couples' intimacy | 0.16±0.46 | -0.14±0.46 | 0.01 |

*Independent two-sample t test, **Paired t-test

intimacy increased after the intervention in the intervention group, while in the control group, it decreased.

The results showed that 5 women (15.20%) in the intervention group and 26 (72.20%) in the control group suffered from postpartum blues. The chi-square test results showed that the rate of postpartum blues was significantly lower in the intervention group than in the control group ($P < 0.001$). In addition, a weak and inverse correlation was observed between the couple's intimacy score and postpartum blue score ($r = -0.10$, $P = 0.37$). Due to the non-significant correlation between these two variables, it does not seem that the reduction of postpartum blues in the intervention group is the reason for the significant increase in the mean changes in the couple's intimacy score in the intervention group.

DISCUSSION

The results of the present study showed that the mean scores of couples' intimacy in the intervention group before and after the intervention and in the control group before and after it were not statistically significant. It seems that the reason for the non-significant difference in the mean scores of the couples' intimacy between the two groups after the intervention might be the small sample size in the present study. However, the mean change score was significantly different across the two groups. It seems that the husband's involvement in prenatal care and virtual training may be the reason for significant increase in the mean changes in the intervention group compared to

the control group. No significant correlation was found between the couples' intimacy and postpartum blues.

The findings of a qualitative study also showed key ways in which male involvement interventions can improve the couples' emotional relationships.³³ In a study conducted in Iran, women's sexual satisfaction and intimacy were compared during pregnancy and after delivery. Their results showed that women had lower sexual satisfaction and intimacy issues (emotional, sexual, and physical) in the postpartum period than during pregnancy.²² In another study, data from a large cohort study on pregnancy also showed that emotional satisfaction in intimate relationships decreased after the birth of the first child and did not return to the level of pregnancy at any stage in the first 4 years after delivery; this is consistent with the control group results of the present study.²³ According to the results of the above studies, the present study presented a practical solution used to prevent the reduction of intimacy after childbirth. It seems that the husband's involvement in prenatal care and virtual training can prevent the decrease in the couple's intimacy after childbirth and to some extent help to increase the couple's intimacy. In addition, a grounded theory study found that the active participation of the husband during pregnancy strengthened the couple's relationship after childbirth which is somewhat consistent with the current study results.³⁴ It seems that the reason for the alignment is the positive effect of men's participation.

The findings of the present study showed that the incidence of postpartum blues was

significantly lower in the intervention group than in the control group. A previous study showed that a significant correlation existed between husband involvement in prenatal care and promotion of women's mental health, reduction of postpartum depression, and better use of health services.¹⁷ In addition, a cross-sectional study showed that more support from the husband was significantly associated with a reduction in postpartum depression, which is consistent with the results of the present study. Their study further suggested that the role of the husband as a supportive source should be optimized to prevent postpartum depression.³⁵ The results of a systematic review and meta-analysis also revealed that male involvement was significantly associated with a reduced chance of postpartum depression as well as better use of maternal health services.³⁶ Although the variable of postpartum depression was not investigated in the present study, the reduction of postpartum blues in the intervention group can affect the reduction of postpartum depression. The results of the cross-sectional study revealed a significant relationship between husband's support and the prevalence of postpartum blues. Women who had a low level of support from their husbands were 2.3 times more likely to experience postpartum blues than those who had good support; this is in the same line with our results.³⁷ It seems that male involvement may allow couples to talk openly about issues and problems during pregnancy and after childbirth. In countries like Iran, where men are rarely exposed to the recommendations of healthcare professionals, this intervention may provide an opportunity to increase the men's information and awareness.

As the strength points of this study, we should declare that our study was one of the first attempts at a facility-based intervention to involve husbands in prenatal care in Iran and evaluate intimacy and postpartum blues. This study could easily be adapted or replicated for use in similar studies in the future. Among the practical limitations of the present study, it can be mentioned that it was difficult to coordinate

couples to participate in routine prenatal care sessions and the implementation of the training face-to-face due to the Coronavirus pandemic and the lack of correspondence between health center hours and men's free hours. These practical limitations led to some study limitations, including the low participation of couples in the study during sampling and the dropout of participants in the intervention group. Furthermore, due to the study method, it was not possible to blind the main researcher, health center staff, or participants.

CONCLUSION

Husband involvement in prenatal care seems to be able to reduce the incidence of postpartum blues but may possibly increase the couples' intimacy. Midwives must provide couples with the necessity of involvement and education during pregnancy to promote maternal health and marital relationship. Given that the discussion of husbands' involvement in matters related to pregnancy and women's health is a relatively new and challenging topic in Iran, it is suggested that future experimental studies should be conducted on a larger sample size and that face-to-face training sessions should be used for couples' education.

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