

Effects of Husband's involvement in Prenatal Care on Couples' Intimacy and Postpartum Blues among Primiparous Women

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Abstract:

Background: A husband's involvement in prenatal period can greatly lessen pain and stress, improving the quality of the pregnancy; which in turn helps women to pass through the postpartum period safely and to avoid any negative psychological changes such as postpartum blue. **Aim:** The aim of the research was to examine the incidence of postpartum depression in primiparous women and the impact of a husband's involvement in prenatal care on the intimacy of couples **Design:** A quasi-experimental research design (two groups "control/study"). **Setting:** obstetrics and gynecology outpatient clinic at Benha University hospitals in Qalioby governorate, Egypt. **Sample:** A purposive sample of (144) primiparous women was selected from the above-mentioned research settings for six months; according to inclusion criteria. **Tools:** The data collection process utilized three primary tools: a structured interviewing questionnaire (which included socio-demographic data and obstetric history), Kennerley's Postpartum Blues Questionnaire, and the Unidimensional Relationship Closeness Scale. **Results:** After intervention (one week and two weeks after delivery), the total mean score of couples' intimacy in the study group were significantly higher than the score in the control group. Also, there was highly significant difference in all symptoms of postpartum blues between control and study groups in the favor of study group. **Conclusion:** Couples' intimacy and postpartum depression among primiparous women were positively affected by husbands' participation in prenatal care **Recommendation:** Innovative approaches, including the provision of reproductive health information to spouses, the training of healthcare providers in women's care, and the provision of education on the health requirements and specific roles that men play in pregnancy and childbirth, should be developed.

Keywords: Couples' intimacy, Husband's involvement, Prenatal care, Postpartum blues, Primiparous women.

Introduction:

For women, the postpartum phase is a difficult transition period that is marked by emotional, psychological, and physical changes. The mother experiences a range of feelings, including joy, pleasure, grief, and sobbing fits, as a result of significant changes in interactions with family and other people. After giving birth, women are required to adapt to new role as mothers especially primiparous women, which results in changes in the relationship between husbands and other family members as well as changes in family functions (*Alshowkan, & Shdaifat, 2024*).

Postpartum stress may result from moms' incapacity to handle these changes. Sleep

problems, appetite loss, and unhealthy lifestyle choices are just a few of the detrimental effects on women's physical health and overall well-being. So, if stress is not treated well, postpartum blue may develop (*Tamba, and Hutasuhut, 2024*).

Postpartum blue is a major depressive episode defined as two consecutive weeks or more of depressive symptoms that start within 4 weeks of giving birth. In addition to any four of the following associated symptoms, depressive symptoms include a despondent mood or a loss of interest in activities of daily living: Fatigue, poor concentration, feelings of worthlessness or inappropriate guilt, appetite disturbance, sleep disturbance, psychomotor agitation or slowing, or suicidal ideation (*Medina, 2024*).

Comfort, care, appreciation, or assistance are all examples of support, which is a form of encouragement that an individual can receive from another person or group. Numerous significant individuals, including spouses, children, parents, siblings, relatives, and good companions, can provide assistance. Instrumental, emotional, appreciation, and informational support are the four dimensions of a husband's support. Changes in temperament or mood disorders, such as postpartum blues, are particularly prevalent among postpartum mothers. Another contributing factor to postpartum blues is the absence of spouse involvement (*Ruan, & Wu 2024*).

The husband's participation is especially crucial in societies where males are responsible for the majority of family decisions, as this reduces the incidence of maternal morbidity and mortality. During pregnancy and delivery, the husband is primarily responsible for providing assistance to the wife. Husbands' participation can significantly mitigate apprehension among pregnant women. By providing emotional support during labour, a husband can significantly reduce pain and stress, thereby enhancing the quality of the pregnancy. This, in turn, enables women to navigate the postpartum period safely and prevent any adverse psychological effects, such as postpartum blues (*Hoseini et al., 2024*).

However, the concept of a husband's participation in antenatal care is relatively new in most developing countries. To effectively manage the challenges of sexual and reproductive life, the term "men's participation" is used to define the protection that is provided to spouses, which encompasses the duties and responsibilities that men undertake in the field of reproductive health. Despite their interest in taking part in pregnancy and childbirth, spouses are frequently impeded in their active participation in midwifery units by the absence of incentives, restrictions, and obstacles. To promote the husband's participation in perinatal care, it is imperative to enhance the facilitator and mitigate the impediments. (*Dehshiri et al., 2023*).

Intimacy in partnerships is a fundamental emotional need for couples fostering pleasure,

self-worth, and marital fulfillment. The idea of intimacy is developing a close and intimate relationship with someone by learning a great deal of personal information about each other. Intimacy can vary for a variety of reasons, such as shifting lifestyles, problems with body image, and exhaustion. Participating in prenatal care can help husbands become more skilled, knowledgeable, and motivated, which will improve abilities to support wife (*Dubé et al., 2024*).

Establishing a profound interpersonal relationship necessitates a profound understanding or extremely detailed information about the individual in question. This concept is known as intimacy. One of the critical characteristics of a successful marriage and a marital relationship is intimacy. The capacity and desire of a couple to confront fears and doubts, surmount obstacles, and solve problems are adversely affected by a decrease in intimacy. Intimate relationship dysfunction is experienced by millions of couples during the transition from pregnancy to postpartum as a result of changes and adjustments in the family (*Lafontaine et al., 2024*).

Advocacy and education are crucial nursing competencies for achieving successful postpartum outcomes. Nurses play a crucial role in the healthcare system, particularly in maternal and child health. Nurses are often the first point of contact with postpartum women and husbands to provide care, increase knowledge and enhance attitudes towards postpartum blue. Emotional support, education, and referral to specialist services can also be provided by nurses when necessary. It is crucial to investigate the experiences of nurses and midwives in caring for postpartum women in order to identify current challenges and potential facilitators to enhance postpartum blue care (*Tzitiridou-Chatzopoulou et al., 2024*).

Significance :

As the most dynamic event in a woman's life cycle, postpartum can have a significant impact on both her physical and psychological well-being. Postpartum blue is a frequently occurring condition that significantly affects the health of both the mother and the infant. The

cognitive, behavioural, and motor development of neonates and young children is influenced by postpartum blue, which has both short-term and long-term effects on the family's stable state (*Shidende et al., 2024*).

Males have historically been unable to access maternity care due to the influence of traditional culture and a variety of factors related to the delivery of health services, a lamentable reality. Understanding the relationship between husband involvement and PPD has great importance to identify risk factors, and provide support programs for mothers in the postpartum period. The development of targeted interventions and the further exploration of these relationships are essential to promote the intimacy of couples and reduce the prevalence of postpartum depression (*Öz et al., 2024*). As a result, the purpose of this study was to examine the influence of spouse involvement in prenatal care on the intimacy of couples and the prevalence of postpartum depression in primiparous women.

In eighty distinct countries or regions, the prevalence of postpartum blue was as high as 15% in the previous year, with an estimated global prevalence of 17.22%. Although this estimate is higher than the 13% prevalence rate found in a separate meta-analysis of data from high-income countries, it is lower than the 19% prevalence rate seen in studies conducted in low- and middle-income countries (*Tamba, and Hutasuhut, 2024*).

Postpartum blue can have severe consequences on both mother and child leading to increased maternal morbidity and mortality and negatively impact mother-child relationship, breastfeeding, and overall care for the child. Research indicates that postpartum blue is exceedingly prevalent among women of all cultural and ethnic backgrounds, including Egypt, where prevalence rates are reported to be significantly elevated. In Cairo, the prevalence of postpartum blue was 27.5%, it was 20% in Gharbia Governorate, 7.32% in Sohag, 20% in El-Minia, and 29.5% in Assiut. In Mansoura, the prevalence was 17.9%, and in Assiut, it was 51.7% (*Amer et al., 2024*).

Aim of the research.

The research aimed to examine the effect of husband involvement in prenatal care on couples' intimacy and postpartum blues among primiparous women

Research Hypotheses:

H1: Primiparous women who will be supported with husband involvement in prenatal care will have greater close relationship (more intimacy) with husband than who won't.

H2: Primiparous women who will be supported with husband involvement in prenatal care will be less liable to have postpartum blues than who won't.

Subjects and method

Research Design:

To accomplish the aim of this research, a quasi-experimental research design was implemented, which consisted of two groups: "control" and "study." Like a true experiment a quasi-experimental design is intended to establish a cause-and-effect relationship **between** a dependent and independent variable. Every aspect of the control and treatment groups should be identical, except for the intervention. Therefore, when employing this design, researchers endeavour to select groups that are as similar as feasible. The most prevalent form of quasi-experimental design is this (*Thomas, 2023*).

Study Setting:

The research was done at the obstetrics and gynecology outpatient clinic of Benha University hospitals in Qaliobya governorate, Egypt. This particular location was selected due to its status as the primary hospital that serves and provides care to women from a variety of social origins, as well as its extensive geographic coverage of Benha City and Qaliubya Governorate. All patients, including expectant women, are provided with complimentary and cost-effective services at these hospitals. From a variety of urban and rural regions, the hospital receives a significant number of women each

month who are seeking follow-up care during pregnancy.

Sampling:

Sampling:

Sample type, size, criteria and technique: A purposive sample of (144) primiparous women was selected from the above-mentioned research settings for six months; according to following **inclusion criteria:**

- Women age 18 -35 years.
- Gestational age of 6-12 weeks (first trimester).
- Living with the husband
- No history of serious psychiatric disorders (depression, schizophrenia or other psychotic or mood disorders...etc)
- No use of psychiatric drugs before or during pregnancy by the couple.
- Lack of traumatic events (e.g. death of a close relative) in the recent months.
- Having a smart phone.
- At least couples should read and write.

Exclusion criteria were:

- High risk pregnancy
- Presence of the husband in less than 3 prenatal care visits in the intervention group
- Absence of the husband in 2 or more prenatal visits in the intervention group
- Occurrence of a traumatic event during the study

Two groups were randomly selected from the sample: **the study group**, which consisted of 72 primiparous women who were accompanied by their husbands and received routine prenatal care in addition to designed antenatal educational sessions, and **the control group**, which consisted of 72 primiparous women who received routine prenatal care exclusively without husband involvement. In order to avoid bias through data collection, the primiparous women admitted to antenatal clinic were randomly divided so that women in the first week was assigned for control group and the women in week day was assigned for intervention group; and so on alternately until

the pre-determined duration for collecting the study sample was completed.

Tools of data collection:

Three tools were used for data collection:

Tool I: A structured Interviewing questionnaire: it was constructed by researchers after reviewing the related literature (*Dehshiri, et al., 2023*) and translated into Arabic language. It included two parts:

Part (1): Socio-demographic data of couples: it consisted of seven items: male age, male level of education, male occupation, female occupation, female age, and couples' domicile.

Part (2): Obstetrics history of primiparous women: It comprised of 4 items which were (current gestational age, gravida, history of abortion and type of delivery).

Tool II: Unidimensional Relationship Closeness Scale (URCS): It was first introduced by (*Dibble et al., 2011*). A 12-item self-report scale that evaluates the intimacy of individuals and social relationships is included in this questionnaire. These items, such as (my husband and I share significant confidential information, I often miss him when we are apart, and we have a close relationship).

Scoring system:

The Likert scale rates each item on this scale on a seven-point scale. Low values were restricted to 1.0 (strongly disagree) and indicate a complete absence of meaningful relationship closeness. The utmost close relationship was indicated by high values of 7.0 (strongly agree). The total score ranged from 12 to 84, with higher scores suggesting a more intimate relationship between the female and her spouse.

. The score of each item was summited and the total scoring will be categorized as following:

- Weakly close relationship=12 - 36 score

- Moderately close relationship=37 - 60 score
- Very close relationship=61 – 84 score

Tool III: Kennerley's Postpartum Blues Questionnaire: It was devised by (Kennerley and Gath, 1989). The 28-item questionnaire is a convenient and speedy method for initiating conversations with women regarding their emotional and mental health during the postnatal period. It was requested that a woman provide an indication of her emotional state for each of the 28 objects. These items such as (tearful, mentally tense, unable to concentrate, low spirited, not elated, helpless, find it difficult to show feelings...etc).

Scoring System:

if the item was "present", it was given a score "1", and if "absent", a score of "0". Total score was ranged from 0 to 28, the higher scores indicate more severity of women's postpartum blues. The score of each item was summited and *the total scoring will be categorized as following:*

- No postpartum blues=0
- Mild postpartum blues=1-9
- Moderate postpartum blues=10-18
- Severe postpartum blues=19-28

Tools validity:

Questionnaires were assessed for validity by a panel of three experts in the field of obstetrics and gynecological nursing at Benha University. The objective was to guarantee that the tools were relevant, comprehensive, applicable, and clear. Modifications were unnecessary. From the specialists' perspective, the tools were legitimate.

Tools reliability:

The reliability of tools was done by Cronbach's Alpha coefficient test, which revealed that the internal consistency of research tools as following:

Tool	Cronbach's alpha value
Tool II: Unidimensional Relationship Closeness Scale (URCS).	Internal consistency ($\alpha=0.87$).
Tool III: Kennerley's Postpartum Blues Questionnaire.	Internal consistency ($\alpha=0.99$).

Ethical consideration:

Before the research commences, the following ethical considerations would be assessed: In order to complete the study, the scientific research ethical committee of the nursing faculty at Benha University granted its sanction REC-OBSN-P67. The designated study settings granted official permission for the completion of the study. In order to establish women's confidence and trust, the researchers provided an explanation of the study's objectives and significance prior to implementing the tools. It was ensured that the researchers obtained notarized consent from women to participate in the study and maintained confidentiality. There were no physical, social, or psychological hazards to the women during the course of the study. The confidentiality of the women who participated was ensured by the destruction of all data collection tools following the statistical analysis. The study's tools were designed to ensure that the study did not contain any unethical statements and did not violate human rights. Women were permitted to discontinue their studies at any moment.

Pilot study:

To evaluate the clarity, objectivity, feasibility, and applicability of the tools, as well as to identify potential obstacles and issues that could impede data collection and to identify any unique issues with the statements, such as the sequence of questions and clarity, the pilot study was conducted on 10% of the total sample duration (3 weeks, which included "11 women"). It also facilitated the estimation of the time required for data collection. In order to prevent contamination of the sample, the pilot sample was excluded from the study and modifications were implemented in accordance with the prototype results.

Field work:

The research was carried out from the beginning of April, 2024 and completed at the end of August 2024 covering six months. The researchers conducted the study twice/ week (Mondays and Wednesdays) from 9.00 a.m. to 1 p.m. at previously mentioned setting until completion of the predetermined duration. The woman in control group or couples in intervention group were interviewed small groups by the researchers before or after obstetrician consultation; on average of 2-4 women were interviewed /week. At the end of this research the handout (booklet) was left in obstetric and gynecological outpatient clinic to be provided to all pregnant women, so the benefit is spread.

The preparation, interviewing, and assessment phases, as well as the planning, implementation, and evaluation phases, comprised the conduct of the current research. This phase was conducted in a private chamber at the antenatal clinic to ensure the privacy and confidentiality of the participants.

Preparatory phase:

The initial stage of the research is the preparatory phase, during which the researchers conducted a comprehensive review of the relevant literature on the research problem, both domestically and internationally. This enabled the researchers to gain a comprehensive understanding of the problem's severity and magnitude, which in turn facilitated the development of the necessary data collection tools. The jury results were concluded after the tools were disseminated to three experts in the field of obstetrics and gynecological nursing at the Benha University faculty.

Interviewing and assessment phase:

Researchers introduced themselves to each participant, greeted the woman in the control group and the couples in the intervention group, explained the purpose of the research, and obtained signed consent to participate in the study. They also provided participants with all the necessary information, such as the number and frequency of sessions, scheduled visits, and

interventions to ensure their adherence. The woman in control group or couples in intervention group were interviewed firstly to assess their socio-demographic data of couples and obstetric history of primiparous women (**Tool: I**). Then, the researchers used (**Tool: II**) to assess couples' intimacy (the closeness of woman and her husband and their social relationships). But, (**Tool: III**) was used through one week and two weeks after delivery to assess primiparous women's postpartum blues.

Planning phase:

Researchers devised educational sessions on antenatal health instructions, couples' intimacy, and postpartum blues in the form of a printed booklet that was illustrated with coloured images, based on the results obtained during the assessment phase. In order to accommodate the examined couples' deficiencies in knowledge and to ensure their comprehension, the booklet was composed in a straightforward Arabic language. The number of sessions, their contents, instructional media, and various teaching methodologies are quantified. These objectives were established to be achieved upon the conclusion of the educational sessions. The primary objective was to ensure that each couple would be able to acquire the necessary knowledge regarding antenatal health instructions, couples' intimacy, and postpartum blues by the conclusion of the educational sessions. Additionally, the goal was to effectively improve the intimacy between the couple and mitigate the severity of postpartum blues.

Educational material (booklet):

It was designed and revised to give the couples comprehensive information and instructions. The booklet included the following two parts; **first part** was simple explanation about antenatal health instructions. **The second part** was detailed explanation about couples' intimacy. **The third part** was detailed explanation about postpartum blues.

Implementation phase**For study group**

The researcher designed and implemented the educational sessions on the basis of husband involvement in prenatal care through eight

separate scheduled sessions throughout journey of pregnancy. These sessions were distributed over the two halves of the pregnancy, so that the first three sessions were conducted in the first half of pregnancy, before 20 weeks, over a period of two consecutive weeks, while the remaining five sessions were conducted in the second half of pregnancy, after 20 weeks, over the course of three consecutive weeks as much as possible.

Couples were recruited into (12) In each cohort, there were six couples. Each meeting was conducted in a private room at the outpatient clinic of Benha University Hospitals promptly following the conclusion of the assessment phase. Each session lasted approximately 50-60 minutes, contingent upon their feedback and accomplishments. The first session commenced with an orientation of the session's contents for the couples. The following session commenced with a review of the previous session and the objectives of the new session. In order to accommodate the couples' comprehension levels, plain Arabic language was employed. Few minutes were allotted at the conclusion of each session to allow couples to inquire about the session's contents and to rectify any misunderstandings. All women were informed of the time of the subsequent session.

Lectures, downloaded videos, group discussions, critical thinking, problem-solving, and ideation were among the instructional methods employed. The booklet was disseminated to all recruited couples in the study from the first session to accomplish its objectives, as well as useful tools such as laptop and PowerPoint presentations. Instructional media are also provided. Moreover, the researchers employed supportive tools that serve as stimulus control to facilitate the desired changes. These tools include decals and posters that emphasize and reinforce the concepts and the impact of the husband's involvement in prenatal care.

The husbands of the intervention group were invited to participate in 8 sessions with their wives (3 in of first-half pregnancy and 5 second-half pregnancy) as following:

3 Sessions first-half of pregnancy:

○ **First session:** General knowledge about antenatal care and its importance, antenatal examinations and investigations.

○ **Second session:** Health education and instruction should be followed during pregnancy (diet, rest and sleep, exercises, clothing, shoes, bathing, teeth, breasts, bowel, coitus, travelling, medications, exposure to irradiation, smoking and warning (danger) signs & symptoms).

○ **Third session:** Common minor discomforts of pregnancy and relief measures (morning sickness, fainting, fatigue, urinary urgency and frequency, ptialism, heartburn, backache, shortness of breath, constipation, leg cramps, ankle edema, insomnia or sleep difficulties, leucorrhea, varicosities, breast enlargement and hemorrhoids).

5 Sessions of second-half pregnancy:

○ **Fourth session:** Couples' intimacy (definition, types of intimacy in relationships, factors help to build or rebuild intimacy and impact of intimacy on physical, emotional, intellectual and spiritual aspects).

○ **Fifth session:** Communication skills and fighting with special solvable problems to enhance marital relationships and overcome obstacles to intimacy

○ **Sixth session:** Postpartum blues (definition, duration, etiology, risk factors, symptoms and signs, diagnosis and prognosis).

○ **Seventh session:** Prevention and management of postpartum blues symptoms.

○ **Eighth session:** Parenting (Motherhood and fatherhood).

Finally, throughout period between implementation and evaluation phases, the researchers followed up with the couples through phone calling or using social media like WhatsApp messages for assuring that the couples followed the instructions; additionally, in order to answer couples' questions and enhancing implementation the delivered educational sessions.

For control group

Women in the control group received routine prenatal care without husband

involvement. The women of control group were followed and evaluated as the same in the study group.

Evaluation phase:

For study group: the effectiveness of educational sessions on the basis of husband involvement in prenatal care in improving the couples' intimacy reducing the severity of postpartum blues among primiparous women was evaluated twice; one week then two weeks after delivery after implementation of educational sessions; using the same format of tools (Tool II and Tool III) which used during the assessment phase. Note: (Tool III) wasn't assessed in assessment phase as pretest because postpartum blues occur after delivery. **For control group:** the women of control group received routine prenatal care, didn't receive any educational sessions by the researchers and were followed and evaluated as the same in the study group.

Statistical analysis:

Different instructional strategies were implemented, including lectures, group discussions, downloaded videos, critical thinking, problem-solving, and ideation. In order to accomplish its objectives, the booklet was disseminated to all recruited couples in the study from the first session, in addition to helpful tools such as laptops and PowerPoint presentations. Additionally, the researchers employed supportive tools that serve as stimulus control to facilitate the desired changes. These tools include decals and posters that further emphasize and reinforce the concepts and the impact of the husband's involvement in prenatal care.

Results:

Table (1): Reveals that, less than half and about two-fifths (48.6% & 40.3%) of females in both control and study groups were in the same age group (18 - <25 years) with a mean age of 25.43±4.34 and 26.25±4.29 years old respectively; while more than two-fifths and half (41.7% & 50.0%) of husbands in both control and study groups were in the same age group (31 - 40 years) with a mean age of 32.30±6.16 and 33.80±5.12 years old respectively. Pertaining to the level of education, it was illustrated that more than half and less than two-thirds (55.6% & 63.9%) of females in both control and study groups had university

education respectively; while on the other hand, nearly two-thirds (63.9% & 69.4%) of husbands in both control and study groups had university education respectively. According to the occupation, less than two-thirds and less than three-quarters (63.9% & 73.6%) of females in both control and study groups were housewives respectively; while more than three-quarters (79.2% & 76.4%) of husbands in both control and study groups were self-employed. Concerning residence, (51.4% & 56.9%) of the studied couples in both control and study groups lived in the rural area respectively. Therefore, there was no statistically significant difference between the studied couples in both control and study groups regarding socio-demographic data ($p > 0.05$) that reflected group homogeneity.

Table (2): Elaborates that the mean of current gestational age of both control and study groups were 9.10±1.39 and 9.49±1.19 weeks respectively. In relation to gravida, the vast majority (94.4% & 90.3%) of both control and study groups respectively were primigravida. As well as, more than two-thirds and less than two-thirds (69.4% & 62.5%) of both control and study groups had cesarean section respectively. Therefore, there was no statistically significant difference between both control and study groups regarding previous and current obstetric history ($p > 0.05$) that reflected group homogeneity.

Table (3): Shows that, there is no statistically significant difference in the total mean score of couples' intimacy between the two groups before intervention ($P > 0.05$). However, after intervention (one week and two weeks after delivery), the total mean score of couples' intimacy in the study group were significantly higher than the score in the control group ($P \leq 0.001$).

Figure (1): Illustrates that (34.7% and 31.9%) of couples in both control and study groups respectively were in very close relationship before intervention. Meanwhile, after intervention (one week and two weeks after delivery), (33.5% and 58.3%) and (33.5% and 61.1%) of couples in both control and study groups respectively were in very close relationship.

Table (4): denotes that after intervention (one week and two weeks after delivery), there was highly significant difference in all symptoms of postpartum blues between control and study groups in the favor of study group ($P \leq 0.001$).

Figure (2): Illustrates that; one week and two weeks after delivery, less than one-fifth and more than two-fifths (19.4% & 40.3%) and (18.1% & 43.1) of females in both control and study groups respectively had mild postpartum blues.

Table (5): clarifies that; there was a highly statistical significant positive correlation between total couples' intimacy score and total postpartum blues score in both groups after intervention (one week and two weeks after delivery) ($P \leq 0.001$).

Table (1) Distribution of the studied couples in both groups according to their socio-demographic data (n=144).

Socio-demographic data	Control group n=72		Study group n=72		X2	P value
	No	%	No	%		
Female age (years):						
18 - <25	35	48.6	29	40.3	1.14	0.564
25 - <30	23	31.9	25	34.7		
30 - 35	14	19.5	18	25.0		
Mean ± SD =	25.43±4.34		26.25±4.29		-	-
Female level of education:						
Read/write	6	8.3	9	12.5	3.25	0.354
Primary education	10	13.9	5	6.9		
Secondary education	16	22.2	12	16.7		
University education	40	55.6	46	63.9		
Female occupation:						
Housewife	46	63.9	53	73.6	1.58	0.208
Working	26	36.1	19	26.4		
Male age (years):						
20 - 30	24	33.3	20	27.8	1.02	0.598
31 - 40	30	41.7	36	50.0		
> 40	18`	25.0	16`	22.2		
Mean ± SD =	32.30±6.16		33.80±5.12		-	-
Male level of education:						
Read/write	5	6.9	6	8.3	9.51	0.813
Primary education	7	9.7	5	6.9		
Secondary education	14	19.4	11	15.3		
University education	46	63.9	50	69.4		
Male occupation:						
Employed	15	20.8	17	23.6	0.161	0.688
Self-employed	57	79.2	55	76.4		
Couples' residence:						
Rural	37	51.4	41	56.9	0.448	0.503
Urban	35	48.6	31	43.1		

Table (2): Distribution of the studied sample in both groups according to their obstetric history (n=144).

Obstetric history	Control group n=72		Study group n=72		X2	P value
	No	%	No	%		
Current gestational age in weeks:						
Mean ± SD =	9.10±1.39		9.49±1.19		Independent t-test= 1.79	0.075
Gravida:						
Primigravida	68	94.4	65	90.3	0.886	0.347
Multigravida	4	5.6	7	9.7		
History of abortion:						
No	68	94.4	65	90.3	5.73	0.125
Once	2	2.8	4	5.6		
Twice or more	2	2.8	3	4.2		
Type of delivery:						
Vaginal delivery	22	30.6	27	37.5	0.773	0.379
Cesarean section	50	69.4	45	62.5		

Table (3): Mean scores of couples' intimacy of the studied sample in both groups before intervention and after intervention (one week and two weeks after delivery) (n=144).

Couples' intimacy		Possible score	Control group n=72 Mean $\pm$ SD	Study group n=72 Mean $\pm$ SD	Independent t-test	P value
Relationship with husband is close.						
Before intervention		1/7	5.33 $\pm$ 1.40	5.14 $\pm$ 1.52	0.778	0.438
After intervention	One week after delivery		5.15 $\pm$ 1.39	6.01 $\pm$ 1.06	4.16	0.000**
	Two weeks after delivery		5.00 $\pm$ 1.43	6.24 $\pm$ 1.10	5.79	0.000**
Missing husband a great deal, when we are apart.						
Before intervention		1/7	5.33 $\pm$ 1.03	5.47 $\pm$ 0.96	0.833	0.406
After intervention	One week after delivery		5.17 $\pm$ 1.06	5.76 $\pm$ 1.08	3.34	0.001**
	Two weeks after delivery		5.17 $\pm$ 1.06	5.94 $\pm$ 1.07	4.37	0.000**
Disclosing important personal things to each other.						
Before intervention		1/7	5.00 $\pm$ 1.40	4.88 $\pm$ 1.50	0.516	0.607
After intervention	One week after delivery		4.83 $\pm$ 1.27	5.79 $\pm$ 1.26	4.51	0.000**
	Two weeks after delivery		4.63 $\pm$ 1.27	5.93 $\pm$ 1.33	6.00	0.000**
Having a strong connection.						
Before intervention		1/7	5.24 $\pm$ 1.01	5.18 $\pm$ 0.84	0.357	0.721
After intervention	One week after delivery		5.07 $\pm$ 0.95	5.63 $\pm$ 0.98	3.43	0.001**
	Two weeks after delivery		5.07 $\pm$ 0.95	5.86 $\pm$ 1.15	4.48	0.000**
Wanting to spend time together.						
Before intervention		1/7	5.56 $\pm$ 0.90	5.43 $\pm$ 0.88	0.839	0.403

After intervention	One week after delivery		5.56±0.90	6.06±0.82	3.48	0.001**
	Two weeks after delivery		5.56±0.90	6.39±0.84	5.71	0.000**
Being sure of relationship with my husband.						
Before intervention		1/7	4.86±0.93	4.64±0.98	1.38	0.168
After intervention	One week after delivery		4.76±0.97	5.67±1.15	5.08	0.000**
	Two weeks after delivery		4.76±0.97	5.81±1.04	6.20	0.000**
Husband is a priority in my life.						
Before intervention		1/7	5.33±1.40	5.14±1.52	0.778	0.438
After intervention	One week after delivery		5.17±1.06	5.76±1.08	3.34	0.001**
	Two weeks after delivery		5.07±0.95	5.86±1.15	4.48	0.000**
Doing a lot of things together.						
Before intervention		1/7	3.39±1.31	3.64±1.42	1.09	0.276
After intervention	One week after delivery		3.39±1.31	4.86±1.68	5.85	0.000**
	Two weeks after delivery		3.39±1.31	5.28±1.32	8.58	0.000**
Having free time I choose to spend it alone with my husband.						
Before intervention		1/7	5.56±0.90	5.43±0.88	0.839	0.403
After intervention	One week after delivery		5.56±0.90	6.39±0.84	5.71	0.000**
	Two weeks after delivery		5.40±1.00	6.64±0.69	8.58	0.000**
Thinking about husband a lot.						
Before intervention		1/7	5.50±1.06	5.46±1.08	0.233	0.816
After intervention	One week after delivery		5.33±1.19	5.94±0.90	3.45	0.001**
	Two weeks after delivery		5.33±1.19	6.21±1.00	4.74	0.000**
Relationship with husband is important in life.						
Before intervention		1/7	5.83±0.80	5.78±0.80	0.413	0.680
After intervention	One week after delivery		5.83±0.80	6.40±0.85	4.12	0.000**
	Two weeks after delivery		5.83±0.80	6.67±0.80	6.21	0.000**
Considering husband when making important decisions.						
Before intervention		1/7	5.89±1.00	5.93±0.87	0.266	0.791
After intervention	One week after delivery		5.89±1.00	6.53±0.80	4.22	0.000**
	Two weeks after delivery		5.89±1.00	6.88±0.33	7.93	0.000**
Total Mean ± SD						
Before intervention		12/84	62.81±4.55	62.25±3.48	0.842	0.401
After intervention	One week after delivery		61.70±3.82	70.80±4.51	13.04	0.000**
	Two weeks after delivery		61.09±4.10	73.69±4.79	16.94	0.000**

**A Highly Statistically significant $p \leq 0.001$

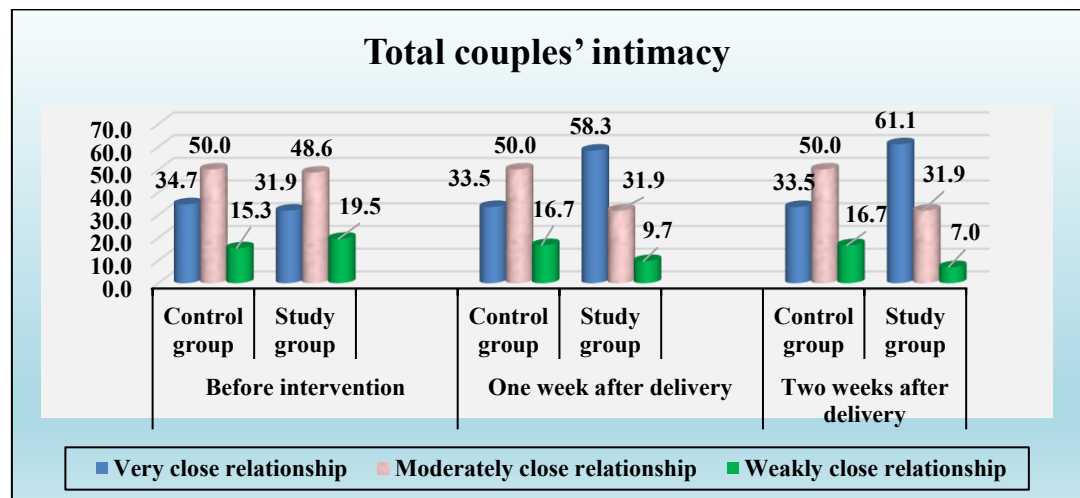


Figure (1): Distribution of studied sample (control and study groups) regarding their total couples' intimacy before intervention and after intervention (one week and two weeks after delivery) (n=144).

Table (4): Distribution of the studied sample in both groups according to their postpartum blues after intervention (one week and two weeks after delivery) (n=144).

Symptoms of postpartum blues	One week after delivery						Two weeks after delivery					
	Control group n=72		Study group n=72		X ²	P-value	Control group n=72		Study group n=72		X ²	P-value
	Present		Present				Present		Present			
	No.	%	No.	%			No.	%	No.	%		
Tearful	40	55.6	19	26.4	12.66	0.000**	44	61.1	20	27.8	16.20	0.000**
Mentally tense	19	26.4	4	5.6	11.64	0.000**	21	29.2	4	5.6	13.98	0.000**
Unable to concentrate	59	81.9	23	31.9	36.70	0.000**	62	86.1	25	34.7	39.75	0.000**
Low spirited	31	43.1	14	19.4	9.34	0.002*	36	50.0	15	20.8	13.38	0.000**
Not elated	25	34.7	6	8.3	14.84	0.000**	29	40.3	6	8.3	19.96	0.000**
Helpless	12	16.7	0	0.0	13.09	0.000**	10	13.9	0	0.0	10.74	0.000**
Difficult to show feelings	36	50.0	15	20.8	13.38	0.000**	36	50.0	15	20.8	13.38	0.000**
Alert	8	11.1	0	0.0	8.47	0.004*	6	8.3	0	0.0	6.02	0.012*
Forgetful, muddled	41	56.9	20	27.8	12.54	0.000**	48	66.7	22	30.6	18.79	0.000**
Anxious	55	76.4	26	36.1	23.73	0.000**	60	83.3	25	34.7	35.17	0.000**
Wish to be alone	37	51.4	15	20.8	14.56	0.000**	43	59.7	16	22.2	20.93	0.000**
Mentally not relaxed	19	26.4	4	5.6	11.64	0.000**	21	29.2	4	5.6	13.98	0.000**
Brooding on things	29	40.3	13	18.1	8.60	0.000**	36	50.0	15	20.8	13.38	0.000**
Feeling sorry for myself	23	31.9	6	8.3	12.47	0.003*	30	41.7	6	8.3	21.33	0.000**
Emotionally numb	31	43.1	14	19.4	9.34	0.002*	36	50.0	15	20.8	13.38	0.000**
Depressed	57	79.2	27	37.5	25.71	0.000**	62	86.1	27	37.5	36.03	0.000**

Over-emotional	55	76.4	26	36.1	23.73	0.000**	60	83.3	25	34.7	35.17	0.000**
Unhappy	13	18.1	3	4.2	7.19	0.007*	18	25.0	4	5.6	10.51	0.001**
Unconfident	20	27.8	8	11.1	6.38	0.012*	27	37.5	9	12.5	12.00	0.001**
Changeable spirit	31	43.1	14	19.4	9.34	0.002*	36	50.0	15	20.8	13.38	0.000**
Tired	62	86.1	21	29.2	47.81	0.000**	66	91.7	19	26.4	63.42	0.000**
Irritable	33	45.8	11	15.3	15.84	0.000**	38	52.8	13	18.1	18.97	0.000**
Crying, not able to stop	40	55.6	19	26.4	12.66	0.000**	44	61.1	20	27.8	16.20	0.000**
Not Lively	62	86.1	21	29.2	47.81	0.000**	66	91.7	19	26.4	63.42	0.000**
Over-sensitive	36	50.0	15	20.8	13.38	0.000**	36	50.0	15	20.8	13.38	0.000**
Up and down in the mood	47	65.3	19	26.4	21.93	0.000**	52	72.2	17	23.6	34.08	0.000**
Restless	58	80.6	23	31.9	34.58	0.000**	54	75.0	18	25.0	36.00	0.000**
Not calm, tranquil	13	18.1	3	4.2	7.19	0.007*	18	25.0	4	5.6	10.51	0.001**

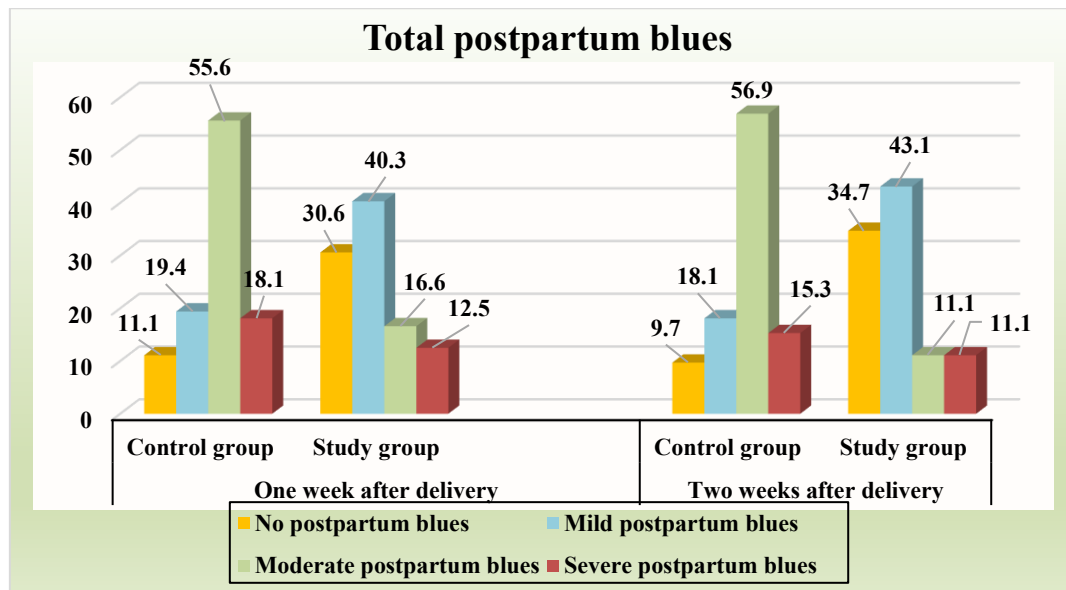


Figure (2): Distribution of studied sample (control and study groups) regarding their total postpartum blues after intervention (one week and two weeks after delivery) (n=144).

Table (5): Correlation between total couples' intimacy score and total postpartum blues score in control and study groups after intervention (one week and two weeks after delivery) (n=144).

Variables	Total couples' intimacy score							
	Control group (n=43)				Study group (n=43)			
	One week after delivery		Two weeks after delivery		One week after delivery		Two weeks after delivery	
	r	P-value	r	P-value	r	P-value	r	P-value
Total postpartum blues score	0.527	0.000**	0.558	0.000**	0.449	0.000**	0.516	0.000**

**A Highly Statistical significant $p \leq 0.001$

Discussion

In the field of spouses' involvement, there have been numerous studies conducted, with a particular emphasis on family planning, acquired immunodeficiency syndrome, sexually transmitted diseases, and other aspects of women's health, including maternity and labour. Husband involvement is a form of encouragement for the wife that takes the form of solace, caring, acknowledgment, or assistance from the husband. A relatively novel and challenging subject is the involvement of husbands in women's health and pregnancy (*Dehshiri et al., 2023*).

There have been numerous investigations conducted in the field of spouses' involvement, with a focus on topics such as family planning, acquired immunodeficiency syndrome, sexually transmitted diseases, and other aspects of women's health, such as pregnancy and childbirth. A husband's involvement in his wife's life is defined by various forms of encouragement, including solace, care, appreciation, and assistance. Spouses' involvement in women's health and pregnancy is a relatively novel and challenging topic (*Tamba, and Hutahut, 2024*).

The results of this research confirmed the aforementioned hypotheses and this was clarified by discussing the following results in terms of the relationship between husband involvement in prenatal care on couples' intimacy and postpartum blues among primiparous women.

Men's involvement in antenatal care (ANC) has been poorly demonstrated due to the effect of culture, religion, ignorance and socio-

economic factors (*Odawa et al 2023*). Regarding the personal characteristics of the women under investigation, the current study demonstrated that less than half and approximately two-fifths of the women in the control and study groups were in the same age group (18 - < 25 years), with a mean age of 25.43 ± 4.34 and 26.25 ± 4.29 years, respectively. Conversely, the control and study groups had a mean age of 32.30 ± 6.16 and 33.80 ± 5.12 years, respectively, and more than two-fifths and half of the spouses were in the same age category (31 - 40 years). This interpretation suggested that younger men were more supportive, whereas elderly men were opposed to the notion of men partaking in antenatal care. In addition, a husband who is significantly older than his wife may believe that his wife necessitates assistance and care during her pregnancy.

Pertaining to the level of education, it was illustrated that more than half and less than two-thirds of females in both control and study groups had university education respectively; while on the other hand, nearly two-thirds of husbands in both control and study groups had university education respectively. Researchers believe that education level is an important factor as it can create gaps in understanding, perception and participation.

According to the occupation, housewives comprised less than two-thirds and less than three-quarters of the female population in the control and study groups, respectively. Conversely, over 75% of spouses in both the control and study categories were self-employed. It was clarified that informal personnel were more likely to visit the clinic than their formal counterparts. As a result, spouses are able to

spend a greater amount of time with their wives than those who are employed and have limited leisure time.

With regard to domicile, the control and study groups each had over half of their spouses residing in rural areas. It is regrettable that certain rural regions continue to regard pregnancy and childbirth as exclusively female responsibilities as a result of cultural standards, according to researchers. Finally, the most recent research findings indicated that there was no statistically significant difference between the couples in the control and study groups with respect to socio-demographic data that reflected group homogeneity.

In accordance with these results, (Dehshiri et al., 2023) The intervention and control groups had a mean age of 27.76 ± 5.72 and 26.97 ± 4.57 , respectively. Over half of the study groups and their husbands had completed university education. Over two-thirds of the study groups were housewives. Statistically, there was no significant difference between the demographic characteristics of the couples in the control and intervention groups ($P > 0.05$). Also, the results nearly came in the same line with (Qi et al., 2022) who cleared that more than two thirds of the studied groups were less than 30 years and university education and the majority of the studied woman lived in rural areas. Additionally (Öz et al., 2024) The study revealed that the mean age of the women was 23.82 ± 2.60 , but over two-thirds of the women lived in urban areas. Additionally (Odawa et al 2023) The study revealed that the majority of the spouses were self-employed, had a higher level of education, and were between the ages of 28 and 49.

In terms of obstetric history, the results of the present research elaborated that the mean of current gestational age of both control and study groups were 9.10 ± 1.39 and 9.49 ± 1.19 weeks respectively. In relation to gravida, the vast majority of both control and study groups respectively were primigravida. The number of children and experience are two factors that the researchers believe have a significant impact on the involvement of spouses in the care of expectant women. Consequently, they selected a study sample of women who would give birth for the first time. Additionally, cesarean sections

were performed on over two-thirds and less than two-thirds of the control and study groups, respectively. This percentage may explain the steady increase in the rate of caesarean births worldwide and in Egypt in particular. Lastly, the most recent research findings indicated that there was no statistically significant difference between the control and study groups in terms of their previous and current obstetric histories ($p > 0.05$), which was indicative of group homogeneity.

This result was matched to (Qi et al., 2022) who clarified that more than half of the studied women were primigravida. Also, this result was congruent with (Dehshiri et al., 2023) who found that more than two-thirds of the intervention and control groups had cesarean section respectively.

At the time of pregnancy, demand for cooperation is more to ensure the safety of mother and fetus. Male partner involvement in ANC is essential for the mother's health and the growth of the fetus. Male partners who attended ANC visits are benefited from getting first-hand information about the wives' health and the unborn babies, hence contributing to identifying and preventing danger signs of pregnancy and increasing couples' intimacy (Ratnaningrum, and Suryaningsih, 2024).

Before the intervention, the current results indicated that there was an instatistically significant difference in the total mean score of couples' intimacy between the two groups. Nevertheless, the cumulative mean score of couples' intimacy in the study group was significantly higher than that of the control group after the intervention (one week and two weeks after delivery).

The results were confirmed by the fact that over one-third and less than one-third of couples in the control and study groups were in a very intimate relationship prior to the intervention. In the meantime, the control and study groups were in very intimate relationships with over one-third and over half of their couples, respectively, after one week of intervention and two weeks after delivery. This can be attributed to the fact that the combined implications of incorporating health education and spouse

support during the perinatal period can have a beneficial impact on the intimacy of couples.

These results were consistent with (*Dehshiri et al., 2023*) whose results indicated that the intervention group experienced significantly greater mean alterations in the couples' intimacy measure than the control group ($P=0.01$) (independent samples t-test). Following the intervention, the intervention group's mean score for couples' intimacy increased, while the control group's score decreased, according to these findings. Also, (*Uzun et al., 2024*) In conclusion, the study found that spousal support was significantly predicted by paternal role perception, and that spousal support had an effective impact on the intimacy of couples.

As well as, this result matched with (*Adetutu et al., 2024*) who verified that spouses can assist in the acquisition and processing of information during the counselling process. This also underscores the significance of incorporating the companion into consultations regarding pregnancy-related decisions, while also considering contextual factors, thereby enhancing the intimacy between couples.. Additionally, (*Öz et al., 2024*) summarized the results and found that spousal support has a great effect on couples' attachment.

Postpartum blue affects not only the mental health of moms, but also the growth of babies and the health of the family as a whole down the road. Because of this, it is very important to find and understand the things that cause postpartum blue, especially at the social and psychological levels that can be controlled, so that successful plans for prevention and management can be made (*Liu et al., 2024*).

After the intervention (one and two weeks after giving birth), there was a highly significant difference between the control and study groups in all signs of postpartum blues, with the study group outperforming the control group.

Mild postpartum depression were experienced by less than one-fifth and more than two-fifths of females in the control and study groups, respectively, one week and two weeks after delivery, serving as confirmation of the

results. This could be attributed to the husband's involvement in antenatal visits, which may prevent postpartum blues by recognizing the combined effects of integrating both education and support during the prenatal period and contemplating the intimacy of the couple. However, this also emphasizes the significance of focusing on the prevention of postpartum blues.

This result was congruent with (*Dehshiri et al., 2023*) who showed that the chi-square test results showed that the risk of postpartum sadness was much lower in the help group compared to the control group. Also, (*Putri, 2023*) stated that there was a highly significant difference in all postpartum depression symptoms between the control and study groups ($P 0.001$). This outcome was consistent with (*Istiana, and Janah, 2024*) who said that the husband's help during the postpartum time had the most important effect on the risk of postpartum depression. Because of this, there was a very big difference ($P 0.001$) in all the signs of postpartum sadness between the control group and the study group.

The findings of the current study demonstrated a highly statistically significant positive correlation between the total intimacy score of couples and the total postpartum depression score in both groups following the intervention, which occurred one week and two weeks after delivery. This may be attributable to the fact that the husband's attention, appreciation, and emotional and physical support can encourage postpartum mothers to maintain their health during the perinatal period.

This result was attached to (*Liu et al., 2024*) according to whom women with safe attachment styles were much less likely to have postpartum depression than women with unstable attachment styles. Support from a spouse was found to help protect against postpartum depression in the stable attachment group. Attachment style was found to be a possible interactive factor that affected how support from a spouse affected postpartum depression. Moreover, this result was in line with

(Medina, 2024) who found that the significant predictors of postpartum blue were the lower education and lower partner support.

Also, this result was attached to (Pratiwi *et al.*, 2024) who asserted that there was a correlation between the incidence of postpartum depression and the support of one's spouse, with a p-value of 0.007. Increasingly, (Tamba, and Hutasuhut, 2024) showed a link between the amount of help mothers got from their husbands and the presence of postpartum sadness in those women. Wives who did not have postpartum sadness are more likely to get a lot of help from their partners.

Conclusion:

Based on the findings of the current study, it was concluded that husband's participation in prenatal care positively influenced couples' intimacy and reduced postpartum blues among primiparous women. There was a highly statistically significant difference in the mean scores of couples' intimacy and postpartum blues between the intervention and control groups following the intervention. Additionally, a strong statistically significant positive correlation was found between the total scores of couples' intimacy and postpartum blues in both groups after the intervention. Therefore, the research's hypotheses were validated, and the research aim was successfully achieved.

Recommendations:

Based on the findings of the present research, the following recommendations can be suggested:

- 1- Implementing novel approaches, including training healthcare providers in women's care, providing reproductive health information to their spouses, and providing education on the health needs and specific roles that men play in pregnancy and childbirth.
- 2- Community-based education for both men and women, workplace-based education for expectant fathers, family and community education, and social mobilization campaigns that target husbands, midwives, and

other community members regarding the roles of men in MNCH services.

- 3- Assessing feasibility and acceptability of context-appropriate strategies for engaging fathers is useful in addressing concerns regarding challenges to engaging fathers.

Further research:

- Creating more awareness on danger signs of pregnancy, birth preparedness and complications readiness both at community and institutional level in order to increase male involvement in birth preparedness and complication readiness.

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