

Effect of Supportive Educational Intervention on Knowledge and Self Care Practices Regarding Prevention of Breast Engorgement among Primiparous Women

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Abstract

Background: Breast engorgement is a physiological condition that appears in the first 14 days after childbirth and is characterized by interstitial edema, vascular and lymphatic congestion, and painful breast enlargement resulting from a sudden surge in milk volume. **Aim of the study:** Was to evaluate the effect of supportive educational intervention on knowledge and self-care practices regarding the prevention of breast engorgement among primiparous women. **Subjects and Methods: Research design:** Quasi-experimental design (pre- & post-test) one group was used to investigate the current study. **Setting:** The study was conducted at the outpatient antenatal clinic at Zagazig University Hospital. **Subjects:** A purposive sample of 70 primiparous women was included in the study. **Tools of data collection:** Three tools were used: a structured interview questionnaire, a questionnaire of knowledge of primiparous women regarding breastfeeding, breast engorgement, and an observational checklist for primiparous women's self-care practices regarding the prevention of breast engorgement. **Results:** After the implementation of the supportive educational intervention, there was a highly statistically significant increase in primiparous women's knowledge and self-care practices regarding the prevention of breast engorgement, and the vast majority of them didn't have breast engorgement during the first postpartum week. In addition, there was a highly significant statistical positive correlation between total primiparous women's knowledge score and their total self-care practices score regarding the prevention of breast engorgement pre- and post-intervention. There was a highly significant statistical negative correlation between total primiparous women's knowledge score, total self-care practices score, and their complaint of breast engorgement post-intervention. **Conclusion:** The research hypothesis was achieved as the majority of the primiparous women had good knowledge and satisfactory levels of self-care practices regarding the prevention of breast engorgement after the implementation of the supportive educational intervention. **Recommendations:** Maternity nurses and other healthcare professionals should teach women how to prevent breast engorgement as a primary topic in antenatal sessions. Additionally, it helps to increase their knowledge and self-care practices by distributing pamphlets, booklets, and drawings of the strategies of preventing breast engorgement during antenatal visits.

Keywords: Breast Engorgement, Knowledge, Prevention, Primiparous Women, Self-care practices.

Introduction:

Breast engorgement is the term for the physiological fullness of both breasts, which typically appears between the third and fifth day after birth. When mature milk is released, it's usually a comforting sign. Because of the alveolar ducts' retention of milk, the degree of vascular and lymphatic compression might vary, as can its recurrence (Mangesi & Zakarija-Grkovic, 2018).

Breast engorgement is a common minor pain experienced by breastfeeding moms,

especially those who are primiparous. The tissue surrounding the milk ducts swells as a result of the breast receiving more blood (Abd El-hady et al., 2021). In Egypt the prevalence of breast engorgement was 82% while in the United States it ranged from 65% to 75% in 2019 (Abdallah et al., 2018).

Among the symptoms include; appearance of shiny, diffusely red skin and edematous enlarged breasts and usually the pain is intense. Also there is a poor flow of milk and the woman might have a fever,

but it normally goes away in a day or two. Fever can happen in 15% of cases; however it usually lasts less than a day and is less than 39 degrees (**Giuliani, 2018**).

Engorgement can manifest in four distinct ways: intense engorgement that lasts for up to 14 days; several engorgement peaks followed by resolution; a single, painful, firm breast experience after alleviation of symptoms; and minor breast changes. These patterns demonstrate how different mothers had varying experiences with engorgement (**Riedel, 2020**).

Inadequate management of engorgement can result in complications like painful nipples, difficulty latching, decreased baby intake of breast milk, decreased supply of breast milk, destruction of the alveoli, which produce breast milk, stasis in the milk, clogged ducts, mastitis, and pain that makes a mother less willing to continue breastfeeding (**Moon & Humenick, 2019**).

The prevention of breast engorgement is a critical responsibility of the maternity nurse because she needs to give the woman all the necessary information on breastfeeding, the position of the breast, and continuous self-care practices to avoid breast engorgement before, during, and after breastfeeding. Before breastfeeding, the nurse should advise the woman to rub her nipples between her thumb and index finger for a few minutes gently to soften the areolae and start the letdown reflex. Then gently express some breast milk until the areolae are soft (**Storr, 2020**).

In addition, she should advise the woman to make sure that the baby is positioned correctly and latching, provide breast compressions if the baby is not sucking or swallowing, and teach her the essential self-care practices for breastfeeding (**Al Jassir et al., 2021**). Moreover, she ought to encourage the woman to always wear a supportive and well-fitting bra and should inform her about self-care measures following breastfeeding. Avoid bras with under wires. When necessary, take analgesics, and give the baby exclusively breast milk (**Stamp & Casanova, 2018**).

Significance of the study:

Breast engorgement reduces blood flow and milk production by increasing pressure in the milk ducts, causing milk stasis inside the breast. These factors have a major impact on milk production. The danger of infection will rise as a result of some alveolar and myoepithelial cells shrinking and dying off as a result of increased milk pressure. This is because the lymphatic system is not eliminating bacteria at the regular rate. Additionally, it negatively impacts the letdown mechanism because of a weak latch, which can lead to serious breast issues like mastitis, breast abscesses, sore nipples, and blocked milk ducts (**John et al., 2020**). It shows that in 2019, In Egypt, 82% of women had breast engorgement, compared to 65% to 75% elsewhere (**Indrani & Sowmya, 2021**). Thus, the current study was conducted.

Aim of the study:

The aim of the study was to evaluate the effect of supportive educational intervention on knowledge and self-care practices regarding prevention of breast engorgement among primiparous women

Research hypothesis:

When the supportive educational intervention is put into practice, primiparous women's self-care behaviors and knowledge about preventing breast engorgement will be improved.

Subjects and Methods:

Research design:

The present research study was investigated using a quazi experimental design (pre & posttest) with one group.

Study setting:

This study was conducted at Zagazig University Hospital's outpatient prenatal clinic, Egypt. Because it is their primary prenatal care center, the previously indicated location was selected. Pregnant women from all around the Sharkia governorate receive prenatal care at the clinic. The prenatal unit is located on the second floor of the outpatient clinic building. The main room is well-equipped for examinations, while the little room is designated for the assisting nurse. This unit is adjacent to the gynecological unit, and it is open every day from 9 am to 2 pm.

Study subjects:

Seventy (70) primiparous women were chosen as a purposive sample from the aforementioned context based on the following criteria:

Inclusion criteria:

- Primiparous during their third trimester \geq 28 weeks gestation and follow antenatal visits regularly.
- Age ranges from 20-35 years old.
- Primiparous women planned to breastfeed their babies. Had a normal protruded nipple and was free of any breast problems.
- Willing to participate in the study.

Sample size calculation:

Study was done by **Sunita & Deepika (2020)** found that ,before intervention 63.3% of women had poor practice about breast engorgement, which improved to be 93.3 %of women have excellent practice to prevent breast engorgement after intervention program. Confidence level is 95%, power of study 99%. Sample size calculated using epi info version 7.2.5.0, is 70 women.

Tools for data collection:

Three instruments were employed to gather the data required to meet the study's goals: **Tool I:** a questionnaire for structured interviews.

Based on the most recent relevant literature, the researcher created it in plain Arabic (**Seddighi et al., 2017**) and (**Indrani & Sowmya, 2021**). The questionnaire was split into two sections and contained 13 open-ended and closed-ended questions in order to gather the information required to meet the study's goals:

Section 1: The sociodemographic traits of women who are primiparous It contained information on age, marital status, age at marriage, occupation, residence, educational attainment, dietary habits, and phone number.

Section 2: Obstetric history:-

It contained information about the number of gravida, the gestational age at study recruitment, the time of the first prenatal appointment, the number of antenatal visits and the mode of the current delivery.

Tool II: Questionnaire of knowledge of primiparous women regarding breast feeding.

The researcher created and employed this instrument to gauge primiparous women's understanding of understanding of breastfeeding and breast engorgement, it included (18) questions, it was divided into two parts:

Part I: Primiparous women's knowledge regarding breastfeeding characteristics (Pre & posttest)

It included (13) multiple choice questions regarding breastfeeding include; Anatomy of the breast, hormone the body uses to make breast milk, the first milk, the purpose of breastfeeding on demandetc.

Part II: Knowledge of breast engorgement among primiparous women (before and posttest): The researcher created and employed this instrument to gauge primiparous women's understanding of breast engorgement. In addition to evaluating the information's source, it featured five (5) multiple-choice questions about the definition, causes, symptoms, and women's awareness of breast engorgement prevention.

Scoring system of primiparous women knowledge:

Each question will have a score of one (1) for the right response and 0 for the wrong. To find the knowledge score percent, the total knowledge score for each case was added up and expressed as a percentage of the total corrected knowledge. Thus, the knowledge score percentage was divided into three groups: poor (<50%), fair (50-75%) and good (>75%).

Tool III: observational checklist for breast engorgement prevention self-care practices in primiparous mothers (before and after test):

The researcher created it and utilized it to evaluate the self-care practices of primiparous women for prevention of breast engorgement before, during and after breast-feeding, it included (21) items as following:

Before breast feeding:

It included (7) items whether she knew that she should: Before nursing, get a quick hot shower, breastfeed in a comfortable, calm environment while positioned comfortably...etc

During breast-feeding:

It included (10) items whether she knew that she should: oftentimes, hold her baby close

to skin. To help the infant get into an optimal positioning and latching posture, support the head of the infant higher than the abdomen in a chest-to-chest position, with the nose pointing toward the mother's nipple.....etc.

After breast-feeding:

It included (4) items whether she knew that she should: Express breast milk. After the baby finish feeding, use a breast pump to empty the breasts entirely. After nursing, for a few minutes, apply a cold (cool, moist cloth) to the softened breasts to relieve discomfort and minimize swelling..etc.

Scoring system of women's self-care practices regarding prevention of breast engorgement

will be as the following: Responses will be ranged from (1:2) where 1 referred to not done and 2 referred to done. Then the total score was calculated as following:

- Total scores \geq 60% denoted satisfactory level
- Total scores $<$ 60% denoted unsatisfactory level

Content validity and reliability:

Three specialists from the faculty members in pediatric nursing, medical and surgical nursing, and obstetrics and gynecological nursing assessed the tools once they were prepared to make sure their content was valid. They assessed the tool's understanding, application, thoroughness, lucidity, and pertinence. Every suggested change to the tools was made. The dependability of primiparous women's knowledge and self-care practices on preventing breast engorgement was assessed; the findings showed a satisfactory level of reliability with Cronbach's Alpha co-efficients of 0.807 and 0.833, respectively.

Field work:

Following official consent from the appropriate authorities at Zagazig University Hospitals, the researcher visited the previously setting. There, she met the pregnant women who met the eligibility criteria after finishing their checkup and offered to participate in the study, assuring them that the data would be kept confidential. She also sought their cooperation and explained the study's objectives, getting their written consent. Over the course of six months, from the beginning of August, 2023, to the end of

January 2024, the researcher visited the study sitting three days a week to gather data. The study was carried out in four stages: assessment, planning, implementation, and evaluation.

Preparatory phase:

This phase involved creating the study materials and creating an instructional booklet based on a thorough, current, and relevant literature review. The booklet was written in simple Arabic and included images to help women understand it better. Primiparous women received the booklets during the first session.

The researcher conducted individual interviews with primiparous women in the third trimester of pregnancy (\geq 28 weeks gestation) at the antenatal clinic while keeping their privacy. A pretest interviewing questionnaire and checklist were used to evaluate the primiparous women's knowledge and practices and to provide them an orientation on the rationale behind the supportive educational program. Between 30 and 45 minutes were spent filling out the questionnaire and checklist.

Planning and implementation phase:

Based on the needs of the women that were found throughout the pilot study and assessment phase, women were classified into 8 groups each subgroup include 8-9 women. The supportive educational intervention was implemented through 8 sessions (each session included 8-9 women); time of each session 45- 60 minutes three times weekly, the program total period is 3 weeks for each group. Then it is repeated on another group of women until reaching the total sample size.

Session 1 Anatomy of the breast, hormone the body uses to make breast milk, the first milk, and the purpose of breastfeeding on demand, the potential benefit of breastfeeding for the mother and newborn. **Session 2** infant hunger cues, signs that baby is full, the length of the feeding, the frequency, common breast problems faced by breastfeeding mothers. **Session 3** positions of breast feeding. **Session 4** definition, causes, signs and symptoms of breast engorgement. **Session 5,6&7** self-care practices before, during and after breast feeding for prevention of breast engorgement. **Session 8** Practical part in which each woman re-demonstrated the

practices individually. Each session started with a summary of the goals from the previous and current sessions. The teaching strategies were used which included group discussions, demonstrations, and re-demonstration, were chosen to fit the needs of small group instruction. Additionally, during the supportive educational sessions appropriate methods for teaching included power point presentations, images, lab models—such as a newborn model used to instruct moms on proper breastfeeding technique and positions—and a breast model to demonstrate the anatomy of the female breast and demonstrate self-care practices.

- **Evaluation Phase:**

In order to assess the impact of the supportive educational intervention on knowledge and self-care practices, the researcher administered a post-test immediately following the implementation of the supportive educational intervention. Additionally, the researcher used the same pretest tools at the postpartum unit prior to the discharge from the maternity hospital to assess the self-care practices of the mother and her newborn. Within three to seven days of birth, the women were also contacted to enquire about the occurrence of breast engorgement and to provide appropriate referrals to postnatal outpatient clinics.

- **Pilot study:**

Before starting the main investigation, a pilot study was conducted to evaluate the study's viability and the tools' clarity. About 10% (7) of the women in the pilot sample met the predetermined requirements. This pilot study was carried out one month before the data was gathered. The pilot study's objectives were to determine the tools' viability and identify any issues with the statement's clarity and sequence. Estimating the amount of time required for women to complete the study's instruments was also beneficial. Following the pilot study, it was discovered that the tool's questions were pertinent and understandable, however a few terms needed to be changed for clarification. The primary study sample did not include the pilot sample participants.

- **Administration and ethical consideration:**

An official approval was obtained for data collection by submitting an official letter from the faculty of nursing to the relevant authorities in the study setting. The nursing and medical personnel who were in charge of providing care for women were contacted to gain their cooperation.

The scientific and ethics committee of Zagazig University's nursing faculty provided ethical approval code **D.ZU.NU.R/184/13/6/2023**. All ethical considerations were made throughout the course of the study, and the subjects' confidentiality and identity were protected by the researcher. Prior to each woman's involvement, the researcher gave a brief explanation of the study's purpose and its nature. The study provided women with the assurance that the data collected would be kept private and utilized only for research purposes.

- **Statistical analysis:**

The collected data were organized, coded, entered using Microsoft Excel software. The Statistical Package for the Social Sciences (SPSS) version 20.0 software was then used to import and analyze the data. The following tests were employed to determine whether differences were significant: the Chi square test (χ^2) was used to determine whether there was a difference and an association between the qualitative and quantitative variables. The quantitative data type was represented by numbers and percentages, while the quantitative continuous group was represented by mean \pm SD. Quantitative independent group differences were analyzed using paired t. P values were set at <0.05 for significant results and <0.001 for highly significant results.

Results:

Table 1 shows the socio-demographic data of the studied primiparous women. It clarifies that, 42.9% of the studied women were in the age group 25-<30 years, the mean \pm SD of women's age was 25.73 \pm 4.025 years. As regard to educational level, 35.7% of them have secondary education. Also, 58.6% of them were housewife. Moreover, 71.4% of them were residing in rural areas. Furthermore, 95.7% of them were married. Regarding age at marriage, 47.1% of them got married at the age of 20 - < 25 years, the mean \pm SD of women's age at marriage was 22.87 \pm 2.99 years. Also, the vast majority (90.0%) of them were non vegetarian.

Table 2 shows the obstetric history of the studied primiparous women. It reveals that, 80.0% of the studied primiparous women were primigravida. Moreover, the mean \pm SD of women's gestational age at recruitment in the study was 32.19 \pm 1.53 weeks. Also, the mean \pm SD of time of initial antenatal visit was 2.66 \pm 1.15weeks. Moreover, 68.6% of them have 15-20 antenatal visits. Also, 81.4% of the studied women give birth by cesarean section.

Figure 1 displays the source of information about breast feeding and breast engorgement. It shows that, 70.0% of the studied primiparous women have their information from family members and relatives.

Table 3 demonstrates that all subscales of primiparous women's knowledge about breastfeeding and breast engorgement significantly improved after the supportive educational intervention was implemented, with a highly significant difference at ($P < 0.01$) when compared to before the educational sessions were given. As proof, this table shows that 14.3% of the primiparous women in the study had a strong overall knowledge score prior to the supportive educational intervention's adoption. However, following the execution of the educational intervention, it changed to 80.0%, with a statistically significant difference at $p < 0.01$.

Figure 2 shows that, 14.3% of the studied primiparous women have good level of total knowledge score at pre

implementation of educational intervention. While changed to be 80.0% at post implementation of supportive educational intervention.

Figure 3 demonstrates that, prior to the adoption of the supportive educational intervention, 14.3% of the examined primiparous women had adequate self-care practices for preventing breast engorgement. However, after the educational intervention was put into place, it changed to 88.6%.

Figure 4 presents the distribution of the studied primiparous women according to complain of breast engorgement post implementation of the supportive educational intervention. It shows the vast majority (90.0%) of the studied primiparous women don't have breast engorgement post implementation of educational program. While only (10.0%) of them had breast engorgement during the first postpartum week (7days postpartum).

Table 4 demonstrates that there was a significantly significant correlation between the educational level of primiparous women and their overall knowledge at pre-intervention ($P = < 0.01$). Additionally, a statistically significant correlation was found between their age and the age at marriage ($P = < 0.05$). However, there was no statistically significant correlation between their dietary pattern, family income, marital status, occupation, or place of residence ($P = > 0.05$). Furthermore, the findings show a statistically significant relationship between the educational level of primiparous women and their total knowledge at post-intervention ($P = < 0.05$). However, their age, occupation, place of residence, marital status, age at marriage, family income, and eating habits did not have a statistically significant relationship with each other ($P = > 0.05$).

Table 5 presents that, there was highly statistically significant relation between total primiparous women' self-care practices at pre-intervention and their age at marriage at ($P = < 0.01$). Also, there was statistically significant relation with their age and educational level at ($P = < 0.05$). While, there was no statistically significant relation with their occupation, residence, marital status, family income and dietary pattern at ($P = > 0.05$). In addition, the results reveal that,

there was statistically significant relation between total primiparous women's self-care practices at post-intervention and their age at marriage at ($P < 0.05$). While, there was no statistically significant relation with their age, educational level, occupation, residence, marital status, age at marriage, and dietary pattern at ($P > 0.05$).

Table 6 shows that, at $p < 0.01$ between the before and post implementation of the educational program, there was a high significant statistical positive association between the total knowledge score of primiparous women and their total self-care practices score regarding avoidance of breast engorgement.

Table 7 shows that, after the execution of the educational program, there was a high significant statistical negative association ($p < 0.01$) between the overall knowledge score of primiparous women, the total self-care practices score, and their complaint of breast engorgement.

Discussion:

During the postpartum period many physiological and psychological changes and issues are common among women. The most prevalent issue with breastfeeding, breast engorgement is thought to be a major factor that hinders breastfeeding, particularly for primipara women in the early weeks of motherhood (**Hassan et al., 2020**). The nurse has a vital role in the treatment of breast issues, she might take on a range of responsibilities, including therapeutic, educational, diagnostic, and preventive to help women, especially primiparas, prepare for breastfeeding. The nurse should focus on preventing breast problems from the beginning of pregnancy by enrolling into prenatal care classes. Self-care practices are actions taken to improve one's health and facilitate peaceful breastfeeding (**AbdEl-hady et al., 2021**).

Primiparous women are not aware of the methods available for managing breast engorgement after giving birth due to lack of their knowledge and practices. So, health education initiatives are required to increase women's understanding of postpartum breast issues and their ability to take care of their breasts, which may help to further

avoid breast engorgement (**Soliman et al., 2020**).

Thus, the purpose of this study was to assess how supportive educational interventions affected primiparous women's knowledge and self-care practices related to preventing breast engorgement.

More than two-fifths of the studied primiparous women were in the 25–30 age range, according to the sociodemographic data of the women. This could be because of the marriage culture and the fact that this is the typical age of marriage and childbearing in Egypt.

This result was supported by **Hamranani et al. (2023)** who carried out a study on the topic of "Lactation Counselling Improves Success of Breastfeeding" and discovered that the average age of the study's respondents was between 25 and 30 years old. However, a long-term investigation conducted by **Renuka et al. (2020)** revealed that over half of the women in the study were between the ages of 21 and 25. This could be because the study individuals were different. Moreover, the current study revealed that more than one third of the studied women had secondary education. Also, more than half of them were housewives. This could be related to the social and financial strains of attending college. Furthermore, social expectations and cultural norms may place a higher priority on family responsibilities than on obtaining further education or finding work outside the home.

This result matched with **Liani et al. (2023)** they carried out a survey in Genius and discovered that the majority of respondents were housewives with only a minimum education, specifically elementary to junior high school. In the same context, a research conducted at Linggang Bigung Health Centre by **Louise et al. (2023)** reported that more than one third of mothers had a high school education and most of them were not working.

Less than three-quarters of the women in the present survey lived in rural areas, according to the report. In addition, most of them were married. This outcome was comparable to a study carried out by **Ibrahiem et al. (2022)** the study's "planned teaching program through booklet for primigravida women regarding lactation

problems" revealed that the majority of the mothers in the study were married and lived in rural areas. Conversely, a study conducted by **KiratRai & ArkierupaiaShadap, (2022)** stated that three fifths of the studied mothers were from urban areas .this may be related to difference in study setting.

Based on the obstetric history of the women under study, the majority of them were primigravida, according to the current study. On the contrary, a study conducted by **Napisah et al. (2021)** in Indonesia stated that most of the studied women were multigravida this due to difference in subjects of the study.

Additionally, the present study portrayed that the women gestational age at recruitment in the study was 32 weeks. Also, the time of initial antenatal visit was 2weeks. This provided enough time for the supportive educational intervention and self-care practices for primi para women, to be conducted. Consistently, these findings agreed with **Ibrahiem et al. (2022)** whose study found that most of the studied women started to follow up at the first trimester. In contrast, a study performed by **Liani et al. (2023)**, reported that the largest proportion of the studied mothers were in the second trimester at the time of the study. This may attributed to the eligibility criteria of the present study subjects.

Regarding the sources of information about breast feeding and breast engorgement among the studied primiparous women, the current study highlighted that more than two thirds of the studied primiparous women have their information from family members and relatives. This could be because the majority of them live in rural areas, which suggests that cultural and familial influences have a big impact on how these groups understand and practice breastfeeding. These findings were compatible with **Kumar and Mundhra, (2021)** who conducted "A cross-sectional study of knowledge, attitude, and practice towards breastfeeding among postnatal mothers delivering at a tertiary care center in Garhwal, India" and found that over half of the mothers primarily relied on friends and family for information about breastfeeding. Accordingly, a study conducted by **Hassan et al. (2020)**. Their

research revealed that the majority of the women in the study learnt about breast feeding and breast engorgement from their relatives.

In relation to the total knowledge score regarding breastfeeding and breast engorgement among primiparous women, The current study shown that, when compared to before the educational sessions were given, there was a highly statistically significant improvement in all subscales of knowledge regarding breastfeeding and breast engorgement after the educational intervention was implemented. As proof, prior to the supporting educational intervention, less than one-fifth of the primiparous women in the study had good overall knowledge scores on nursing and breast engorgement, respectively. However, after the educational intervention was put into place, most of them improved. This may be due to the focused and targeted strategy of the educational intervention, which most likely addressed specific knowledge gaps regarding nursing and breast engorgement among primiparous women. By offering scheduled sessions designed to improve information about breastfeeding, participants were probably able to get in-depth awareness of the topic.

These results were supported by a study carried out by **Awad et al. (2023)** "Effect of Prenatal Educational Program on Knowledge and Self Care Practices Regarding Prevention of Breast Problems among Lactating Primiparous Women" revealed that, prior to the intervention, almost two-fifths of the women in the study knew very little about breastfeeding concerns. However, following the implementation of the instructional program, the majority of them possessed good knowledge. Furthermore, these results were in line with **Sunita and Deepika, (2020)** who carried out a study in Haryana and found that most mothers had low pre-test knowledge scores, but that most of them had appropriate knowledge levels following structured education programs. The mothers' level of knowledge significantly increased.

Less than one-fifth of the primiparous women in the study had adequate self-care practices for preventing breast engorgement

prior to the implementation of the educational intervention, but most of them showed improvement after the supportive educational intervention. This was in the line with a study performed by **Oliveira et al. (2021)**, entitled "prenatal clinical demonstration for the management of breast engorgement prevention" discovered that most mothers had a satisfactory level of practice following instruction and claimed that health education that includes clinical demonstration can successfully manage breast engorgement, ensure appropriate breastfeeding technique, and encourage protective behaviors against breastfeeding. Likewise, a study carried out by **Mohammed and Shehata, (2021)** reported that the majority of mothers had adequate practices post intervention and confirmed that the educational module has enhanced the mothers' self-care practices and has a favorable impact on reducing breast issues.

Concerning complain of breast engorgement post implementation of the supportive educational intervention during the first postpartum week, the present study indicated that the majority of them didn't have breast engorgement post implementation of educational intervention, while only one tenth of them had breast engorgement during the first postpartum week. This may due to the effectiveness of the supportive educational intervention in improving women knowledge and practices regarding breast feeding and prevention of breast engorgement.

These results were in harmony with a study carried out by **Gavhale and Moon, (2021)** discovered that on the third day following instruction, over three-quarters of postpartum moms had normal breast engorgement scores. They came to the conclusion that the score for breast engorgement dropped after breastfeeding instruction. Preventing breast engorgement requires effective locational counseling. Additionally, a study conducted by **Yadav et al. (2022)** at a teaching institution, India" proved that breast engorgement was decreased and breastfeeding practices were improved as a result of the prenatal lactation counseling.

Considering relation between socio-demographic data of the studied primiparous women and their total

knowledge at pre and post implementation of supportive educational intervention, the present study result showed that there was highly statistically significant relation with their educational level. Also, there was statistically significant relation with their age and age at marriage. While, there was no statistically significant relation with their occupation, residence, marital status, and dietary pattern. These results suggest that women with higher levels of education, who are older and married, are more likely to know excellent things about engorgement and breastfeeding. Accordingly, a study conducted by **Kumar and Mundhra, (2021)** reported that old age, education and marriage ages of mother have a positive effect on their knowledge about breast feeding. On contrary, **Rudrappa et al. (2020)** south India" and reported that occupation, economic status, religion were found to be significant associates of their knowledge.

The current study found a highly statistically significant relationship between the age at marriage of the primiparous women under study and their overall self-care practices regarding the prevention of breast engorgement before and after the implementation of supportive educational intervention. Additionally, there was a statistically significant correlation between their educational attainment and age. However, there was no statistically significant correlation between their food habits, marital status, place of residence, and occupation. This suggests that married, older women with greater education levels seem to practice self-care to a reasonable degree, preventing breast engorgement. In the same scene, **Prakash, (2020)** whose study mentioned that there was a statistical significant relationship between total self-practice scores and both women's educational level and age. Also, **Widayati et al. (2021)** carried out a Lactation Counselling for Postpartum Mothers study and found a substantial correlation between the mothers' education, age, and marital age and their level of breastfeeding practice.

Pertaining to correlation between total primiparous women' knowledge score and their total self-care practices

score regarding prevention of breast engorgement, the current study highlighted that there was high statistical significant positive correlation between total primiparous women' knowledge score and their total self-care practices score at pre and post implementation of supportive educational intervention. Possible explanations for this include the tendency for primiparous women's self-care practices to improve in parallel with increased knowledge related to preventing breast engorgement. As a consequence of the educational program, individuals will probably apply what they have learned about effective preventative measures to improve their own self-care practices. Likewise, **Louise et al. (2023)** and **Awad et al. (2023)** whose studies confirmed that there was significant positive correlation between knowledge and self-care practices regarding prevention of breast problems among lactating primiparous women pre and post the educational program.

Considering correlation between total primiparous women' knowledge score, total self-care practices score and their complain of breast engorgement post implementation of supportive educational intervention, the present study portrayed that there was high significant statistical negative correlation between total primiparous women' knowledge score, total self-care practices score and their complain of breast engorgement post implementation of supportive educational intervention. This could be due to the improved knowledge and awareness that primiparous women received from the educational intervention about how to prevent and treat breast engorgement. As their knowledge increases, they are more likely to adopt effective self-care practices aimed at mitigating breast engorgement issues. In the same context, **Varghese and Patwa, (2020)** whose study declared that breast engorgement complaints significantly decreased when postpartum moms were better informed and equipped to manage their breast engorgement at home. These findings were compatible with **Gavhale and Moon, (2021)** whose study found that after

locational counseling, breast engorgement score was reduced and added that there was significant negative correlation between mothers' knowledge and practice regarding breast engorgement and their breast engorgement score.

Conclusion:

Based on the results of this study, it can be concluded that the research hypothesis was met because, following the implementation of the supportive educational intervention, the majority of primiparous women had good knowledge and a satisfactory level of self-care practices regarding the prevention of breast engorgement. In the end, there was a very statistically significant correlation between the educational attainment of primiparous women and their overall good knowledge.

Furthermore, there was a strong statistically significant positive association between the total self-care practices score of primiparous women and their knowledge score before and after the intervention regarding preventing breast engorgement. Following the implementation of a supportive educational intervention, there was a strong statistical negative association between the overall knowledge score of primiparous women, the total self-care practices score, and their complaint of breast engorgement.

Recommendations:

Based on findings, the study recommended:

- Prenatal classes should focus on preventing breast engorgement, and maternity nurses and other healthcare professionals should make this a priority. In order to improve their awareness and self-care practices, booklets or leaflets with illustrations of breast-engorgement avoidance strategies should also be distributed during prenatal appointments.
- To increase awareness of breast engorgement prevention, the study should be repeated with a bigger sample size from other countries.

Table (1): Frequency distribution of the studied primiparous women according to their socio-demographic data (n=70).

Socio-demographic data	No.	%
Age (years)		
20-<25	27	38.6
25-<30	30	42.9
30-35	13	18.5
Range	20-35	
Mean ± SD	25.73±4.025	
Educational level		
Illiterate	8	11.4
basic education	17	24.3
Secondary education	25	35.7
University education	20	28.6
Occupation		
Housewife	41	58.6
Working	29	41.4
Residence		
Urban	20	28.6
Rural	50	71.4
Marital status		
Married	67	95.7
Divorced	1	1.4
Widow	2	2.9
Age at marriage (years)		
Range	18-30	
Mean ± SD	22.87±2.99	
Dietary pattern		
Vegetarian	7	10.0
Non vegetarian	63	90.0

Table (2): Frequency distribution of the studied primiparous women according to their obstetric history (n=70).

Obstetric history	No.	%
Gravidity		
One	56	80.0
Two	10	14.3
Three	4	5.7
Gestational age at recruitment in the study (Weeks)		
Range	28-35	
Mean ± SD	32.19±1.53	
Time of initial antenatal visit (Weeks)		
Range	2-7	
Mean ± SD	2.66±1.15	
Number of antenatal visits		
Range	9-19	
Mean ± SD	15.17±2.32	
Mode of delivery		
Normal delivery	13	18.6
Cesarean section	57	81.4

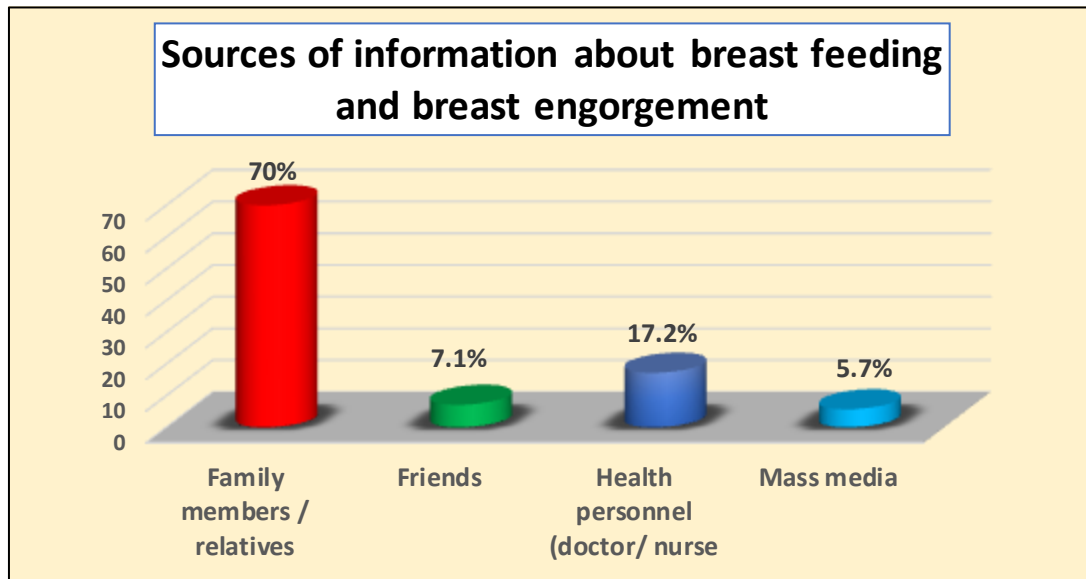


Figure (1): Percentage distribution of the studied primiparous women according to their sources of information about breast feeding and breast engorgement (n=70).

Table (3): Comparison between total primiparous women's knowledge regarding breastfeeding and breast engorgement at pre and post implementation of educational program (n=70).

Items	Pre intervention						Post intervention						X ²	P-value
	Good		Fair		Poor		Good		Fair		Poor			
	No.	%	N	%	N	%	N	%	No.	%	N	%		
Breastfeeding	10	14.3	22	31.4	38	54.3	58	82.9	9	12.8	3	4.3	69.21	0.00
Breast engorgement	8	11.4	14	20.0	48	68.6	57	81.4	10	14.3	3	4.3	77.31	0.00
Total knowledge score	10	14.3	16	22.8	44	62.9	56	80.0	10	14.3	4	5.7	66.77	0.00
Mean SD	7.42±3.74						15.21±2.15						t=17.3	0.00
													7	0**

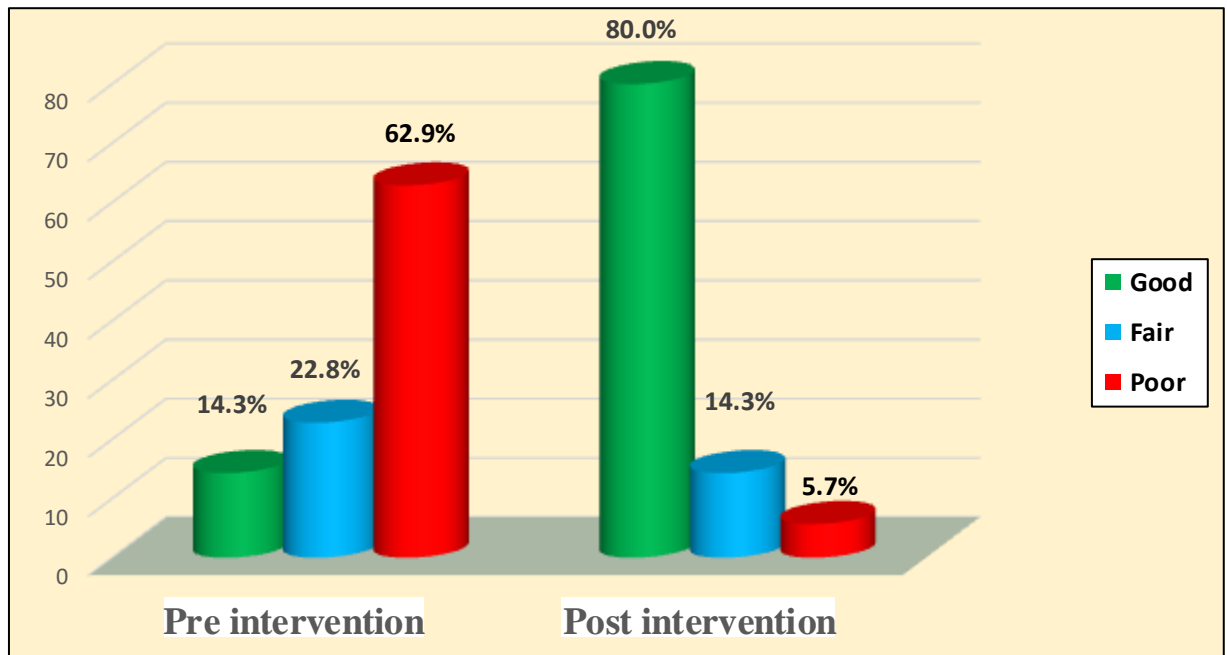


Figure (2): Percentage distribution of the studied primiparous women according to their total knowledge regarding breastfeeding and breast engorgement at pre and post implementation of educational program (n=70).

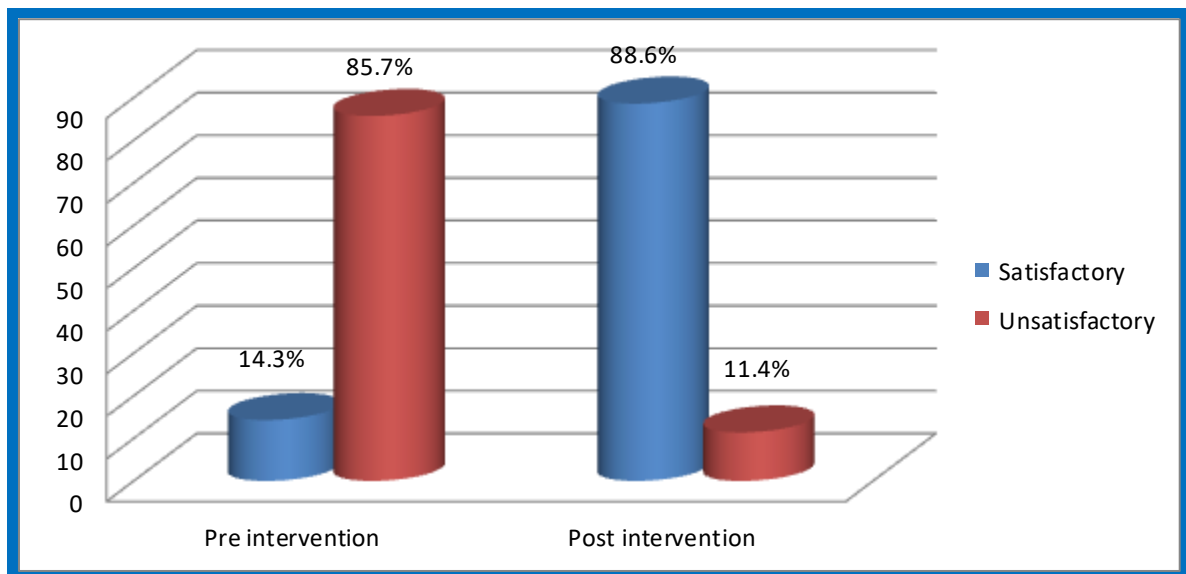


Figure (3): Percentage distribution of the studied primiparous women according to their total self-care practices regarding prevention of breast engorgement at pre and post implementation of educational program (n=70).

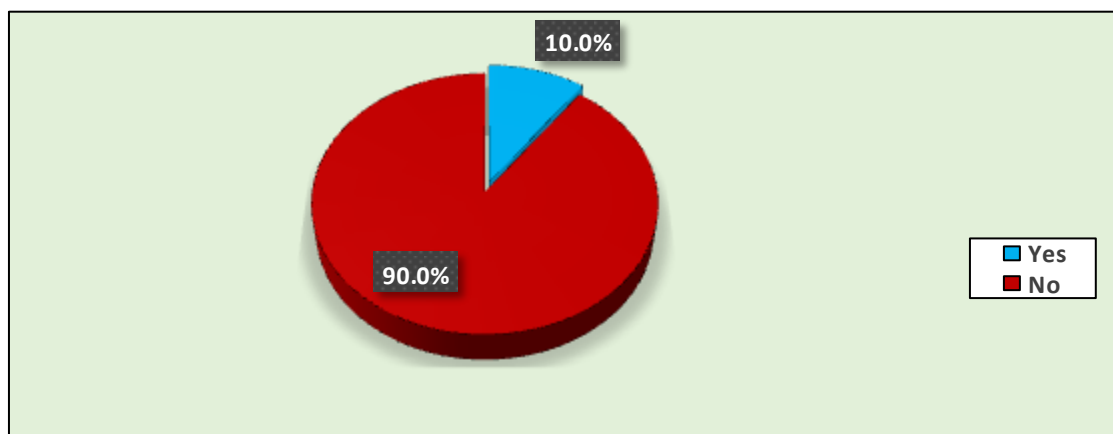


Figure (4): Percentage distribution of the studied primiparous women according to complain of breast engorgement post implementation of educational program (n=70).

Table (4): Relation between sociodemographic data of the studied primiparous women and their total knowledge at pre and post implementation of educational program plan (n=70).

Socio-demographic data	Total knowledge pre-intervention						X ²	P-Value	Total knowledge post-intervention						X ²	P-Value	
	Good (n=10)		Fair (n=16)		Poor (n=44)				Good (n=56)		Fair (n=10)		Poor (n=4)				
	No	%	No.	%	No.	%			No	%	No	%	No	%			
Age (years)	20-<25	4	40.0	6	37.5	17	38.6	12.65	0.013*	21	37.5	4	40.0	2	20.0	1.01	0.908
	25-<30	2	20.0	4	25.0	24	54.5			24	42.9	4	40.0	2	20.0	3	
	30-35	4	40.0	6	37.5	3	6.8			11	19.6	2	20.0	0	0.0		
Education level	Illiterate	0	0.0	2	12.5	6	13.6	19.31	0.004**	2	3.6	3	30.0	3	75.0	14.1	0.028*
	Basic	0	0.0	4	25.0	13	29.5			10	17.8	6	60.0	1	25.0	5	
	Secondary	2	20.0	4	25.0	19	43.2			24	45.9	1	10.0	0	0.0		
	University	8	80.0	6	37.5	6	13.6			20	35.7	0	0.0	0	0.0		
Occupation	Housewife	8	80.0	6	37.5	27	61.4	4.961	0.084	32	57.1	7	70.0	2	50.0	0.70	0.702
	Working	2	20.0	10	62.5	17	38.6			24	42.9	3	30.0	2	50.0	6	
Residence	Urban	0	0.0	2	12.5	3	6.8	1.469	0.480	4	7.1	1	10.0	0	0.0	0.43	0.806
	Rural	10	100.0	14	87.5	41	93.2			52	92.9	9	90.0	4	100.0	1	
Marital status	Married	10	100.0	16	100.0	41	93.2	1.852	0.763	54	96.4	9	90.0	4	100.0	2.42	0.659
	Divorced	0	0.0	0	0.0	1	2.3			1	1.8	0	0.0	0	0.0	0	
	Widow	0	0.0	0	0.0	2	4.5			1	1.8	1	10.0	0	0.0		
Age at marriage (years)	<20	2	20.0	4	25.0	13	29.5	14.52	0.024*	14	25.0	4	40.0	1	25.0	6.97	0.324
	20-<25	4	40.0	10	62.5	19	43.2			27	48.2	5	50.0	1	25.0	0	
	25-<30	2	20.0	2	12.5	12	27.3			14	25.0	0	0.0	2	50.0		
	30-35	2	20.0	0	0.0	0	0.0			1	1.8	1	10.0	0	0.0		
Dietary pattern	Vegetarian	0	0.0	2	12.5	5	11.4	1.313	0.519	6	10.7	1	10.0	0	0.0	0.47	0.788
	Non vegetarian	10	100.0	14	87.5	39	88.6			50	89.3	9	90.0	4	100.0	6	

Table (5): Relation between socio-demographic data of the studied primiparous women and their total self-care practices regarding prevention of breast engorgement at pre and post implementation of educational program plan (n=70).

Socio-demographic data	Total self-care practices pre-intervention				X ²	P-Value	Total self-care practices post-intervention				X ²	P-Value		
	Satisfactory (n=10)		Unsatisfactory (n=60)				Satisfactory (n=62)		Unsatisfactory (n=8)					
	N	%	No	%			No	%	No	%				
Age (years)	20-<25	0	0.0	27	45.0	8.18	0.017*	25	40.3	2	25.0	4.28	0.117	
	25-<30	6	60.0	24	40.0			5	24	38.7	6			75.0
	30-35	4	40.0	9	15.0			13	21.0	0	0.0			
Education level	Illiterate	0	0.0	8	13.3	7.69	0.021*	6	9.7	2	25.0	3.07	0.381	
	Basic	0	0.0	17	28.3			2	15	24.2	2			25.0
	Secondary	3	30.0	22	36.7			24	38.7	1	12.5			
	University	7	70.0	13	21.7			17	27.4	3	37.5			
Occupation	Housewife	6	60.0	35	58.3	FET	0.603	36	58.1	5	62.5	FET	0.563	
	Working	4	40.0	25	41.7			1.00	26	41.9	3			37.5
Residence	Urban	0	0.0	5	8.3	FET	0.451	5	8.1	0	0.0	FET	0.535	
	Rural	1	100.0	55	91.7			1.00	57	91.9	8			100.0
Marital status	Married	1	100.0	57	95.0	0.52	0.770	59	95.2	8	100.0	0.40	0.817	
	Divorced	0	0.0	1	1.7			1	1.6	0	0.0			
	Widow	0	0.0	2	3.3			2	3.2	0	0.0			
Age at marriage (years)	<20	1	10.0	18	30.0	13.3	0.004*	17	27.4	2	25.0	8.78	0.032*	
	20-<25	5	50.0	28	46.7			2	32	51.6	1			12.5
	25-<30	2	20.0	14	23.3			11	17.7	5	62.5			
	30-35	2	20.0	0	0.0			2	3.2	0	0.0			
Dietary pattern	Vegetarian	2	20.0	5	8.3	FET	0.260	7	11.3	0	0.0	FET	0.410	
	Non vegetarian	8	80.0	55	91.7			0.26	55	88.7	8			100.0

Table (6): Correlation between total primiparous women' knowledge score and their total self-care practices score regarding prevention of breast engorgement at pre and post implementation of educational program (n=70).

Variables	Total self-care practices score		
		Pre	Post
Total knowledge score	r	0.467	0.357
	p	0.000**	0.002**

Table (7): Correlation between total primiparous women' knowledge score, total self-care practices score and their complain of breast engorgement post implementation of educational program (n=70).

Variables	Complain of breast engorgement at post-intervention	
	r	p-value
Total knowledge score	-0.440-	0.000**
Total self-care practices score	-0.928-	0.000**

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