Effect of Social Platform-based Education on Primipara Women's Perception of Lactational Amenorrhea and its Basic Criteria as a Contraceptive Method

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Abstract

Background: Lactational Amenorrhea Method (LAM) is a natural contraceptive method that is extremely safe, effective, affordable, and accessible to a large number of mothers during the first six months postpartum. **Aim:** This research aimed to evaluate effect of social platform-based education on primipara women's perception of lactational amenorrhea and its basic criteria as a contraceptive method. **Research design:** A quasi-experimental research design (One-Group, pre-posttest) was utilized. Setting: The research was conducted at postpartum unit and Obstetrics and Gynecological out-patient clinic at Benha University hospitals. **Sampling:** A purposive sample of 140 women attending the above-mentioned setting for six months and fulfill inclusion and exclusion criteria was recruited. **Tools of data collection:** A structured self-administered survey measuring demographics and obstetric history, a Women's knowledge questionnaire and Women's attitude questionnaire were the three tools used. **Results:** There was a highly statistically significant difference between the pre- and post-intervention phases in terms of the sample's knowledge and attitude toward lactational amenorrhea and its basic criteria or standards. Also, there was a positive correlation between total knowledge and total attitude scores regarding lactational amenorrhea and its basic criteria before and after the intervention, which was a highly statistically significant **Conclusion:** Social platform based - education had a positive effect in improving women's knowledge and attitude regarding lactational amenorrhea as a natural contraceptive method. Recommendations: Activate planned teaching program to create awareness among women regarding on lactational amenorrhea as a natural contraceptive method in an attempt to prevented unplanned pregnancy.

Keywords: Social Platform-based Education, Lactational Amenorrhea, Contraceptive Method.

1. Introduction

It is particularly important to provide quality contraceptive counseling and services to women during the postpartum period. According to the World Health Organization (WHO), there should be at least 24 months between pregnancies because there are negative effects on both the mother and the baby when the

intervals are too short. A vital strategy for reducing maternal mortality in low and middle-income nations is postpartum family planning; however, there is still a large unmet demand for postpartum contraception around the world **(Choudhury et al., 2024)** .

Effective family planning is crucial for the well-being of both women and their families. A country can expedite the process of achieving its development objectives by implementing family planning. Ensuring universal access to family planning and other reproductive health services is a key component of the Sustainable Development Goals. Nearly 40% of the world's annual births occur without unplanned, and the vast majority of those are unwanted pregnancies. Unwanted pregnancies are more common among women after giving birth, according to epidemiological studies **(Nagar et al., 2023)**.

Lactational amenorrhea method (LAM) is a natural method of preventing unwanted pregnancies. Ovulation suppression by prolactin release is one of the physiological changes that the method depends on during lactation. There is a hormone that the pituitary gland releases called prolactin. Its primary function is milk production, but it also prevents or delays ovulation **(Nagtalon-Ramos et al., 2024)**.

To be eligible for the LAM, a woman must meet three basic requirements: 1) she must be exclusively nursing her baby, 2) she must have been menstrual-free since giving birth, and 3) she must be less than six months postpartum. There are three more conditions that, when met, increase lactation's contraceptive effect: (1) No extra feedings are given; (2) Each nursing session lasts longer than four minutes; and (3) There is no more than a three-hour break during the day and a six-hour break during the night, respectively, between each nursing session. A factor that influences the efficacy of LAM is the frequency of lactation. With a 98% success rate when implemented appropriately, the Lactational Amenorrhea Method (MAL) is an extremely effective natural contraceptive **(Riana, 2024).**

Breast milk is essential for the development and passive immunity of the

baby, and the LAM contraceptive will help the mother produce the best milk possible. On top of that, it gives the baby the best possible nourishment to ensure healthy growth and development. Breast and ovarian cancer are less likely to occur, anemia is less common, the mother-infant bond is stronger, and the mother's overall health and well-being are enhanced by the Lactation Amenorrhea Method. Benefits for children include better development and growth, lessening the likelihood of allergies, raising IQ, and strengthening immunity to a host of diseases. Reduced household expenditures might help families pay for essentials like formula milk, maternity and child health care, and birth control **(Botirova, 2024)** .

In addition, lactational amenorrhea has the following drawbacks: limited efficacy (i.e., the breastfeeding interval must be regulated) and short-term protection (limited to six months). When the quantity of breast milk decreases, alternative methods should be implemented; it does not guarantee protection against sexually transmitted infections and other sexually transmitted diseases (e.g., AIDS, hepatitis B virus) **(Gafurovna , 2023)** .

When the infant reaches six months of age, supplementary feeding commences, or menstruation resumes, LAM is no longer a reliable method of contraception and should be replaced with an alternative family planning method. The risk of pregnancy is elevated when breast feeding decreases, particularly the cessation of night feeds or the introduction of formula or solids, where pumping replaces nursing, menstruation occurs, and the woman is more than six months postpartum **(Calik-Ksepka et al., 2022)**.

One of the most recent educational methodologies is electronic education. This educational content is delivered through the integration of a variety of technologies and apparatus. These apparatus and technologies include multimedia software, computer simulation modeling, compact disks, complex networks such as the internet and extranet, and electronic media. The integration of multiple media into social platform education facilitates the interaction between women and software, extending the scope of electronic education. By doing so, education becomes more effective and creativity is fostered **(Elsaba**

et al., 2022).

In order to expedite communication, disseminate accurate information, and raise awareness of self-care, alternative therapies, and support, social media is being utilized more frequently in the healthcare environment. Social-platform education is primarily concerned with assisting individuals in acquiring increasing levels of knowledge and proficiency. There is an advantage to social-platform education in that it is user-friendly for individuals with limited literacy skills **(El Tahry et al., 2022)**.

Midwives have both private and public duties in assisting with family planning programs and providing access to contraception, since family planning is a program of the government. As a midwife, your perspective on women's health, values, and history greatly affect how well you can help them with family planning and contraception. Furthermore, the midwife's understanding of the midwifery perspective on family planning and contraception, the various methods of hormonal and non-hormonal methods of birth control, the potential risks and complications of these methods, the midwife's role in decision-making, the promotion and prevention of family planning and contraception, counseling on and counseling for contraception, services for women after abortion, emergency contraception, counseling on and counseling for contraception, services based on evidence, and the provision of these services are all impacted **(Azizah et al., 2023)**.

Significance of the study

Egypt needs to be ready to tackle the problem of women's autonomy if it wants to reduce its high total fertility rate, which the country is still dealing with. As a crucial component of pregnancy safety, the World Health Organization suggests a minimum of two years between births to reduce the incidence of maternal and fetal hazards in each pregnancy **(Hassan et al., 2024)** .

Lactational amenorrhea is a reliable, natural, and inexpensive method of postpartum contraception. Developing nations and low-resource communities, like Egypt, can benefit from the lactational amenorrhea method of family

planning. Therefore, many women can benefit from this approach because it is easily accessible, does not cause side effects, and yields excellent results when the basic principles are adhered to **(Nagar et al., 2023)**.

Due to a lack of knowledge about the parameters and associated criteria of LAM, its effectiveness as a conservative method of contraception is diminished among postpartum women, which can lead to pregnancy. It is estimated that over 90% of women around the world would prefer to delay having more children after giving birth. By teaching moms about the importance of LAM for their babies and the advantages of breastfeeding, LAM can help reduce the number of unintended pregnancies **(Malik et al., 2022).** Social platform education is one of the most recent educational strategies that incorporates a variety of media to make it more interactive, appealing, and user-friendly for women. This improves the efficacy of education and fosters creativity **(Elgendy et al., 2024)**.

Aim of the study:

This study aims to evaluate the effect of social platform-based education on primipara women's perception of lactational amenorrhea and its basic criteria as a contraceptive method**.**

Research hypotheses:

H1: There will be a significant improvement in women's knowledge regarding lactational amenorrhea and its basic criteria as a contraceptive method after implementation of the social platform-based education than before**.**

H2: There will be a significant positive change in women's attitude regarding lactational amenorrhea as a contraceptive method after implementation of the social platform-based education than before**.**

Operational definition:

Social platform-based education: Healthcare providers can use this innovative educational strategy to promote professionalism, increase individual awareness, provoke patients, debate healthcare rules and practice issues, promote healthy behaviors, and disseminate health information to the community through the use of internet-based tools **(Elsayed et al., 2024)**.

Conceptual definitions:

Social media platforms allow users to communicate with one another through the sharing and consumption of information through the web. This article lists mobile phones, WhatsApp, and Messenger as available social media (González-Padilla & Tortolero-Blanco, 2020)**.**

Lactational amenorrhea method (LAM) offers a means of birth control by educating and assisting mothers in their use of breastfeeding as a method of birth control. When used as directed, LAM prevents pregnancy for the first six months after giving birth with a 98% success rate **(Eticha et al., 2023)**.

2. Subjects and method

Research Design:

A quasi-experimental research design (One-Group, pre-posttest) was used to attain the aim of this research **.**

Study Setting: This research was conducted at postpartum unit and obstetrics & gynecological outpatient clinic affiliated to Obstetrics and gynecological department in Benha University Hospitals in Qaliobya governorate, Egypt. This clinic provides free and economical obstetrics and gynecologic counseling and services to all women with different social background and from different areas (urban & rural area)**.**

Sampling:

Sample type, size, criteria and technique: A purposive sample of (140) postpartum women attending the above-mentioned setting for 6 months according to following inclusion and exclusion criteria**:**

Inclusion criteria:

- Primipara woman
- Within age ranged between (18-35 years)**.**
- Delivered a viable, full-term and healthy newborn**.**
- Woman who had newborn without any health problems that may interfere with suckling as cleft lips or palate**.**
- Having smart phone**.**

Exclusion criteria:

- Illiterate women
- Woman whose infant was born more than six months ago**.**
- Stopping cooperation in the research**.**

Tools of data collection:

Three tools were used to collect data**:**

Tool I: A structured self-administered questionnaire: It was designed by researchers after reviewing a related literature. It included two parts**:**

Part (1): Personal characteristics of studied women: It consisted of 6 items which were (age, residence, educational level, occupation, monthly income and source of information)**.**

Part (2): Obstetric history of studied women: It consisted of 3 items which were (gestational age at delivery in weeks, gravida and mode of delivery) **.**

Tool II: Women's knowledge questionnaire: It was designed by researchers after reviewing a related literature **(Nagar et al., 2023), (Malik et al., 2022) and (Pirincci et al., 2016)** and translated into Arabic to measure women's knowledge regarding lactational amenorrhea and its basic criteria. It comprised of 2 sections; each part consisted of questions with total of 21-multiple-choice questions. Two incorrect answers, "I don't know," and one correct answer make up each question in the first section. A correct response is "yes," an incorrect response is "no," and a third option is "I do not know" for each question in the second section. The following were the two sections**:**

Section (1): General knowledge about lactational amenorrhea: it included "9 questions" as (concept of lactation amenorrhea, effectiveness of LAM, duration of LAM as an effective contraceptive method, benefits of LAM, disadvantages, when can LAM start, when LAM expires or is no longer effective, when LAM may be considered natural family planning and dynamic components of suckling intensity that correlate with the duration of LAM)**.**

Section (2): Knowledge regarding basic criteria or standards of lactational amenorrhea: Includes "12 questions" (baby should be under 6 months old, breastfeed only for the first 6 months, don't use pacifiers or bottles for baby, The 56-day postpartum period must pass without menstruation returning, No breastfeeding session lasts less than four minutes, There should be no more than three hours during the day and six hours at

night between each episode of breastfeeding, Avoiding schedules and breastfeeding continuously throughout the day and night, Mother should sleep with baby for night feedings, Mom should sleep next to baby for a daily-nap feeding. Mother should avoid covering baby's face when feeding to take full advantage of LAM, Mother should pacify or comfort the baby at breasts and avoiding any practice that restricts breastfeeding or separates mother from baby)**.**

Scoring algorithm :

Each multiple-choice question on general knowledge had its own weight based on the items it contained. For every question, there was a score of one for getting it right and a score of zero for getting it wrong or not knowing. The final tally was arrived at by adding up the marks for each question. We were able to get a total mean score of knowledge by taking the average of all the answers. A higher score indicates more knowledge, and the possible range is 0–21. As well as, total knowledge score was classified as the following**:**

- Adequate: ≥75% - 100% of total score (16 – 21 score)**.**
- Inadequate: <75% of total score (0 – 15 score)**.**

Tool III: Women's attitude questionnaire: It was designed by researchers after reviewing a related literature (Johnson and McQueen., 2024) (Nagar et al., 2023) and (Özsoy et al., 2022) and translated into Arabic language. It was used to assess women's attitude toward lactation amenorrhea. including: (a woman can become pregnant as soon as one month after giving birth, if she isn't using LAM or any other form of birth control, LAM can be used as a method of contraception on its own or in conjunction with others, A woman should talk to her doctor about whether or not LAM is a good fit for her. Using LAM correctly every time reduces the risk of pregnancy by 98% for the first six months after giving birth, LAM is ineffective if the woman does not adhere to the basic LAM criteria consistently. The risk of failure from a single vaginal sex attempt increases when LAM is not administered properly. Lessening the efficacy of LAM is feeding formula, pumping instead of nursing, and solid foods. When breastfeeding is reduced, fertility can return quickly. If a woman

has not adhered to the guidelines of the LAM and has engaged in unprotected sexual activity within the past five days, she should seek emergency contraception in order to avoid becoming pregnant. LAM has many advantages, such as reducing costs and LAM does not protect against STIs**.**

Scoring algorithm :

On a three-point Likert scale, we rated each statement. Three possible ratings were assigned to each statement: "agree" (2), "uncertain" (1), and "disagree" (0). By combining the scores for each statement, we were able to determine the total attitudes score. A higher total score for women's attitudes indicated a more positive attitude; the scores varied from 0 to 22. Total attitudes score was categorized into**:**

- Positive attitude: ≥75% -100% of total score (17 –26 score)**.**
- Negative attitude: < 75 % of total score (0 –16 score)**.**

Administrative approval:

A written formal approval was obtained from the dean of the faculty of nursing and then delivered to the director of Benha University hospitals to obtain the consent to conduct the study after explaining its purpose**.**

Tools validity:

Questionnaires were reviewed for validity by a panel of three obstetrics and gynecological nursing experts from Benha University. The experts made sure the questionnaires were clear, relevant, comprehensive, and applicable. Some small adjustments were necessary, such as the addition, removal, or reworking of certain components. The tools were deemed valid from the experts' point of view **.**

Tools reliability:

The reliability of tools was done by Cronbach's Alpha coefficient test, which illustrated that the internal consistency of each tool as following**:**

Tool I Cronbach alpha

Tool II: Women's knowledge questionnaire. ($\alpha = 0.83$)**.**

Tool III: Women's attitude questionnaire. ($\alpha = 0.90$)**.**

Ethical consideration:

Prior to commencing the study, the

following ethical considerations were taken into account: The Faculty of Nursing at Benha University's Scientific Research Ethical Committee gave their stamp of approval so the study could go forward. In order to carry out the study, formal approval was sought from the designated study locations. Researchers sought women's trust and confidence before administering the tools by outlining the study's purpose and significance. To ensure the women's privacy, the researchers had them sign a consent form before they could take part in the study. There was zero risk to the women's physical, social, or mental health from participating in the study. After the statistical analysis, all of the data collection tools were burned in order to protect the privacy of the women who participated. No unethical or disrespectful statements were included in the study tools. The ladies could stop participating in the study whenever they wanted**.**

Pilot study:

Using a pilot study with 10% of the total duration equal (12 women), we made sure the tools were clear, objective, feasible, and applicable. We also looked for problems that could happen during data collection and issues related to the statements, like the order and clarity of the questions. The ability to foretell the time required to gather data was an additional perk. We did not make any adjustments based on the pilot's findings. Hence, a pilot sample was utilized in the research**.**

Field work:

The research was carried out from the beginning of March, 2024 and completed at the end of August 2024 covering six months. Researchers met at the aforementioned location on Saturdays and Mondays from 9:00 a.m. to 1:00 p.m. until the allotted sample time had elapsed. Researchers interviewed women either one-on-one or in small groups; each week, they interviewed an average of two or three women. All postpartum women will receive the handout (brochure) that was left in the obstetric and gynecological outpatient clinic and the postpartum unit at the end of this research. This will ensure that the benefit is spread **.**

The current study followed a five-stage methodology that included preparatory phase, interviewing and assessment phase,

planning phase, implementation phase and evaluation phase. These phases were held in postpartum unit or in private room at the outpatient clinics, to preserve participants' privacy and maintain their confidentiality**.**

Preparatory phase:

As a first step in conducting research, the preparatory phase entailed a literature review of relevant works on the topic at hand, both domestically and abroad. This acquainted the researchers with the problem's size and gravity, which in turn helped them prepare the necessary data collection instruments. Three obstetrics and gynecological nursing faculty members from Benha University were given the tools, and then the jury results were calculated **.**

Interviewing and assessment phase:

After introducing themselves and welcoming the women to the study, the researchers explained the research's purpose, the number and frequency of social platform sessions scheduled to ensure the interventions were adhered to, and finally, they obtained the women's signed consent to participate **.**

After interviewing the women, (Tool: I) were distributed to them to assess their personal characteristics and obstetric history (Sometimes researchers help women fill out data collection tools if they are unable to do so, especially in some cases of cesarean section). Then, the researchers used (Tool: II) to assess women's knowledge regarding lactational amenorrhea and its basic criteria. After that, through using (Tool: III); women's attitude was assessed toward lactational amenorrhea and its basic criteria. After social platform-based education was put into place, the data collected during this phase served as the basis for future comparisons. These tools typically took about 15–25 minutes to finish**.**

Planning phase:

In this stage, researchers are informed women about the advantages of using social platform-based education. This approach enabled women to access educational materials through WhatsApp applications. The findings from the assessment phase informed the development of social platform-based education. In order to address the women's lack of knowledge studied and

accommodate their level of understanding, the brochure was specifically designed in simple Arabic language. In order to communicate with the women, the researchers sought their phone numbers and verified their internet access so they could join a WhatsApp group. The researchers set up a WhatsApp group to enable daily communication with the women for implementing the social-platform-based education sessions. The general objective was by the end of social platform-based education, each postnatal woman will be able to acquire essential knowledge about lactational amenorrhea and its basic criteria, positively change their attitude; so that postnatal women can apply it successfully if wants to use it as a contraceptive method**.**

Implementation phase

Lactational amenorrhea as contraception information was included in the social-platform-based education. The social-platform-based educational sessions were implemented and delivered in the form of text, posters, PowerPoint slides, video, and brochure related to lactational amenorrhea and its basic criteria **.**

In addition, the researchers sent text and audio messages detailing the goals of the social- platform-based education materials once the WhatsApp group was established. The researchers decided to share the content of each component of the educational materials weekly during the Tuesdays WhatsApp chat three sessions for three consecutive weeks. Before each session, weekly phone or WhatsApp calls were sent to them to remind them to attend the social platform-based educational session. The sessions content was as following**:**

Session (1): General knowledge regarding lactational amenorrhea such as concept of lactation amenorrhea, effectiveness of LAM ,duration of LAM as an effective contraceptive method, benefits of LAM, disadvantages, when can LAM start, when LAM expires or is no longer effective, when LAM may be considered natural family planning and dynamic components of suckling intensity that correlate with the duration of LAM**(**

Session (2): knowledge regarding basic criteria or standards of lactational amenorrhea for example, (baby should be under 6 months old, breastfeed only for the first 6 months, don't use pacifiers or

bottles for baby, The 56-day postpartum period must pass without menstruation returning, No breastfeeding session lasts less than four minutes, There should be no more than three hours during the day and six hours at night between each episode of breastfeeding, Avoiding schedules and breastfeeding continuously throughout the day and night, Mother should sleep with baby for night feedings, mom should sleep next to baby for a daily-nap feeding. Mother should avoid covering baby's face when feeding to take full advantage of LAM, Mother should pacify or comfort the baby at breasts and avoiding any practice that restricts breastfeeding or separates mother from baby). **Session (3):** Mutual conversations: between the researchers and women for clarification of any questions regarding lactational amenorrhea and its basic criteria. In order to facilitate conversation among all group members, women were encouraged to attend the meeting promptly. Also, the researchers encouraged women to interact with one another through sending brief health messages every day regarding experiences they heard about it among family, relatives and friends. These stories and experiences were narrated in the presence of a researcher in order to correct misconceptions, beliefs and wrong practices **.**

Evaluation phase:

The effectiveness of social platform-based education in improving women's knowledge and attitude regarding lactational amenorrhea was evaluated 2 weeks following the last session using the same format of tools (Tool II and Tool III) which used during the interviewing and assessment phase **.**

Statistical analysis:

Before entering any information into the computer system, it was double-checked. Finally, data will be coded, entered into a database, and analyzed with appropriate statistical tools after collection is finished. Our statistical tool of choice was SPSS, or the Statistical Package for the Social Sciences, version 25.0. Included in the descriptive statistics were means, standard deviations, percentages, and frequencies. Inferential statistics, particularly the paired t test and the chi-square test, were used to test the research hypotheses. Through the use of the correlation coefficient, we looked into the connection

between the aggregate scores of the research variables. There was no statistically significant difference when the p-value was more than 0.05, a statistically significant difference when the p-value was less than or equal to 0.05, and an extremely statistically significant difference when the p-value was less than or equal to 0.001 across all statistical tests**.**

3. Results

Table (1): shows that half (50.0%) of studied sample were in age group 25 - <30 years with a mean age of 25.69±3.89 years old. As regards the residence, less than two-thirds (60.7%) of them lived in rural areas. Regarding the educational level, more than half (54.3%) of them had secondary education. Furthermore, less than three-quarters (70.7%) of them were housewives. As well as, the majority (85.7%) of them didn't have enough monthly income**.**

Figure (1): reveals that, (67.9%) and (53.6%) of studied sample reported that relatives, friends and mothers; in addition to mass media respectively act as their sources of information about lactational amenorrhea and its basic criteria **.**

Table (2): illustrates that, gestational age at delivery of more than two-fifths (43.6%) of the studied sample was between 39- 40 weeks with mean gestational age of 9.69±2.18 weeks. As well as, the majority (92.1%) of them were primigravida. Concerning mode of delivery, less than two-thirds (65.0%) of them delivered by the cesarean section**.**

Table (3): evident that the post-intervention phase's results were highly significantly difference from the pre-intervention phase's results in favor of the post-intervention phase with respect to all items of the examined sample's knowledge about lactational amenorrhea ($p \leq 0.001$)**.**

Table (4): evident that the post-intervention phase results were highly significantly difference from the pre-intervention phase for all items of the studied sample's knowledge about basic criteria or standards of lactational amenorrhea ($p \leq 0.001$)**.**

Table (5): demonstrates that the total mean scores of the examined sample's knowledges of lactational amenorrhea and

its basic criteria or standards were highly significantly difference between the pre-intervention and post-intervention phases (P≤0.001). The total mean score of knowledge increased from 9.85±3.48 to 16.57±2.96**.**

Figure (2): found that, prior to the intervention, 41.4% of the sample had sufficient knowledge about lactational amenorrhea and its basic criteria or standards, and after the intervention, 82.9% had the same level of knowledge. Although, it was found that, before the intervention, 58.6% of the sample lacked sufficient knowledge, and after the intervention, 17.1%**.**

Table (6): evident that the results of the post-intervention phase were significantly different from those of the pre-intervention phase, with a highly statistically significant difference in favor of the post-intervention phase with respect to the attitude of the studied sample toward lactational amenorrhea and its basic criteria or standards (P≤0.001)**.**

Fig. (3): displays that, (32.1%) and (71.4%) of studied sample had positive attitude regarding lactational amenorrhea and its basic criteria at pre and post-intervention phases respectively. While, it was revealed that (67.9%) and (28.6%) of studied sample had negative attitude at pre and post-intervention phases respectively

.

Table (7): explains that, prior to the intervention, the educational level of the sample was a statistically significant relation with their total knowledge score on lactational amenorrhea and its basic criteria (P≤0.05). While general sample characteristics were no statistically significant relation to total knowledge score at post-intervention phases (P> 0.05)**.**

Table (8): explains that, prior to the intervention, the educational level of the sample was a statistically significant relation with their total attitude score about lactational amenorrhea and its basic criteria (P≤0.05). Despite this, post-intervention, there was no statistically significant relation between total attitude score and demographic variables of the sample (P> 0.05) **.**

Table (9): clarifies that, there was a

highly statistically positive correlation between total knowledge score and total attitude scores regarding lactational amenorrhea and its basic criteria at pre-intervention and post-intervention phase ($P \leq 0.001$)**.**

4. Discussion

Several hundred million women around the world use the lactational amenorrhea method, which has been incorporated into numerous educational programs. The LAM protocol requires three things to be in place before a woman can follow it: to be in the first six months after giving birth, to be amenorrhea, and to breastfeed exclusively, with no more than six hours between each feeding and four hours during the day **(Antonelli et al, 2023)** .

Social media platforms are used by billions of people worldwide. In general, the term refers to internet-based tools that allow individuals and communities to exchange ideas, information, images and other content. Healthcare providers use social media to promote professionalism, increase woman awareness, provoke discussions about healthcare policies and practices, promote healthy lifestyles and inform the public about health issues **(Elsayed et al, 2024)**.

The current study found that, when looking at the overall characteristics of the women who were studied, half of the sample fell within the 25-<30 age bracket, with an average age of 25.69±3.89 years. Fewer than two-thirds of them called rural areas their home. In terms of their degree of education, over 50% of them had completed secondary school. In addition, married women made up less than 75% of their total. More importantly, most of them did not have sufficient monthly income**.**

This result was similar to **(Eticha et al, 2023)** who revealed that the majority of the study participants were 21–30 years old and less than one third of them were secondary education. As well as, this result was supported by **(Eticha et al, 2023)** who found that the mean age of participants was 25.8 (±4.7) years, less than two-thirds of the respondents were housewives and less than one third of them was secondary education. The similarity in personal and demographic characteristics between our current research and the two other studies cited

may be attributed to the similarity in the features of the study samples were taken**.** Concerning source of information, more than two-thirds and more than half of studied sample reported that relatives, friends and mothers; in addition to mass media respectively act as their sources of information about lactational amenorrhea and its basic criteria. This study findings matched with **(Azizah et al, 2023)** who revealed all respondents were mostly sourced about LAM from electronic media (92%). In the same vein, the result of current study agreed with **(Kusuma et al., 2024)** who pointed out most of the respondents were obtained information about post-partum family planning (PPFP) from exposure to media. These results support the important and fundamental role played by social media via the Internet in the information acquired by women in particular, especially in this modern technological era. Therefore, it should be included as one of the educational means used in health education **.**

As regard obstetric history, gestational age at delivery of more than two-fifths of the studied sample was between 39- 40 weeks with mean gestational age of 38.69±2.18 weeks. As well as, the majority of them were primigravida. Concerning mode of delivery, less than two-thirds of them delivered by cesarean section **.**

When comparing the results of the pre- and post-intervention phases of the study, the current research found that the post-intervention phase a highly statistically significant difference about basic criteria or standards of lactational amenorrhea, as well as all other items related to lactational amenorrhea. This difference was a highly statistically significant ($p \leq 0.001$). The knowledge of the studied sample about lactational amenorrhea and its basic criteria or standards was also a highly statistically significant difference between the pre- and post-intervention phases ($P \leq 0.001$). The total mean score of knowledge was improved from 9.85±3.48 to 16.57±2.96. In terms of total knowledge score, over half of the sample had adequate knowledge about lactational amenorrhea before the intervention and most of the sample had adequate knowledge after the intervention. Yet, both before and after the intervention, it became clear that some members of the

sample lacked sufficient knowledge **.**

The researchers speculate that this result could be attributed to the fact that the social platform-based education materials were created using clear, concise Arabic and included appropriate images and videos for clarity. They also used one of the most popular and straightforward approaches available: social platform-based education**.**

The present research findings were in the same harmony with **(Nagar et al., 2023)** who found that less than two-thirds of women who use LAM are aware of it, and that over a third of women who don't use it are aware of it as a method of contraception. (P=0.01). Furthermore, the present study's findings were consistent with (Malik et al., 2022) who showed that most moms (80%) were unaware of LAM as a method to prevent pregnancy and that nearly half of the mothers (43.1%) did not take any measures to delay their next pregnancy. This finding was consistent with that of the same contextual (Riana, 2024) who demonstrated that most respondents had little knowledge about the lactation amenorrhea method **.**

The current study indicated a highly significant difference between the pre- and post-intervention phases in terms of the sample's attitude toward lactational amenorrhea and its basic criteria or standards, with the post-intervention phase coming out on top ($P \leq 0.001$).

Lactational amenorrhea and its basic criteria were viewed with a negative light by fewer than one-third of the sample before the intervention and by less than three-quarters afterward. Prior to the intervention, more than two-thirds of the sample had a negative attitude; however, after the intervention, less than one-third maintained that attitude. The positive effect of social media nursing education on women's knowledge and attitude and shows that they are eager to learn new things and expand their expertise. It also underlined how closely knowledge and attitude are related, with knowledge acquisition leading to improved attitude **.**

In the same context, this result was similar to (Sey-Sawo et al, 2023) who found that compared to the comparison group, the intervention group had a higher proportion of women with positive attitudes across all

attitude variables and a higher mean attitude score (P<0.05). On top of that, the outcome was consistent with **(Mohammed et al., 2024)** who reported that 54.5% of postpartum women were better attitude towards post-partum family planning (PPFP) such as LAM and the mean attitude index score toward post-partum family planning (PPFP) was 38.8 ± 5.56 with a range from 24 to 50**.**

On the other hand, the results of our research disagreed with **(Harahap & Sari, 2022)** demonstrated that most participants had attitude on the lactation amenorrhea method as a method of contraception for nursing mothers. This contradiction between our research result and the result of this study may be due to that the majority of study participants were highly educated which helped them in acquisition information about LAM and this reflected on their attitudes**.**

When examining the relation between general characteristics and (total knowledge and attitude scores) (P≤0.05), the current study discovered a statistically significant relation between the participants' pre-intervention educational level and their total knowledge and attitude scores regarding lactational amenorrhea and its basic criteria. There was no statistically significant correlation (P> 0.05) between the sample's general characteristics and total knowledge and attitude scores after the intervention. These results are attributed to the fact that the higher the educational level of women, the more positively it affects their attitude and level of information and attitude acquisition on health topics that concern them, as they become more aware and careful in searching for correct information from reliable sources **.**

This result of current study was consistent with **(Malik et al., 2022)** the factors linked to education and access to genuine information about LAM were determined to have a significant relationship (p <0.05). Moreover, **(Olukunle et al, 2023)** underscored the statistically significant associations between education level (p=0.001) and good knowledge of methods of birth control, including LAM**.** There was a highly statistically significantly positive correlation between the two variables at both the pre- and post-intervention phases of the current study

regarding the sample's total knowledge and attitude scores regarding lactational amenorrhea and its basic criteria (P≤ 0.001). This study's findings were consistent with those of **(Mufdlilah et al., 2021)** who discovered correlation between mothers' ability to use LAM as a form of natural birth control (knowledge, attitude & behavior) and their level of education and experience with method. From the researchers' point of view, these results reflected the clear and reciprocal effect between information and attitudes, as the more information women have about a certain topic, the better their attitudes toward the same topic **.**

5. Conclusion

Based on the results of the present research, it was concluded that; the social platform based - education had a positive effect in improving women's knowledge and attitude regarding LAM as a natural contraceptive method with a highly statistically significant difference between the results of post-intervention phase compared to pre- intervention phase in favor of post- intervention regarding studied sample's knowledge and attitude toward lactational amenorrhea and its basic criteria or standards with (P≤0.001). As well as, there was a highly significant statistical positive correlation between total knowledge score and total attitude scores regarding lactational amenorrhea and its basic criteria at pre-intervention and post-intervention phase (P≤ 0.001). Therefore, the research aim was achieved and study hypotheses were supported **.**

6. Recommendations

In the light of the current research findings, the following recommendations were suggested**:**

- Activate planned teaching program to create awareness among women regarding on LAM as a natural contraceptive method in an attempt to prevented unplanned pregnancy**.**
- A social platform-based education to improve women 's knowledge and practices regarding family planning counselling should be encouraged**.**

Further researches:

- Nurses should be trained to integrate social platform-based education when giving the women good counseling about LAM that should remain one of the options offered to breastfeeding women

with stress on its criteria and when it becomes ineffective**.**

- Integrating the social platform-based education as innovative health education strategies in different maternity health centers**.**
- Replication of the current study on a larger probability sample and in other settings is recommended to achieve generalizability**.**

"Acknowledgments**":**

- **"**The authors would like to thank postnatal women who participated in the current research and spent their precious time. Authors also express the deepest appreciation to the director of Benha University hospitals, head of obstetrics and gynecological department for their support to our research, as well as the "jury committee for their support**".**

Table (1) Distribution of the studied sample according to their general characteristics (n=140).

General characteristics	No	%
Age:		
18 - <25	47	33.6
25 - <30	70	50.0
30 - <35	23	16.4
Mean ± SD = 25.69±3.89		
Residence:		
Rural	85	60.7
Urban	55	39.3
Level of education:		
Read and write	4	2.9
Primary education	9	6.4
Secondary education	76	54.3
University education	51	36.4
Occupation:		
Employee	41	29.3
Housewife	99	70.7
Monthly income:		
Enough	20	14.3
Not enough	120	85.7

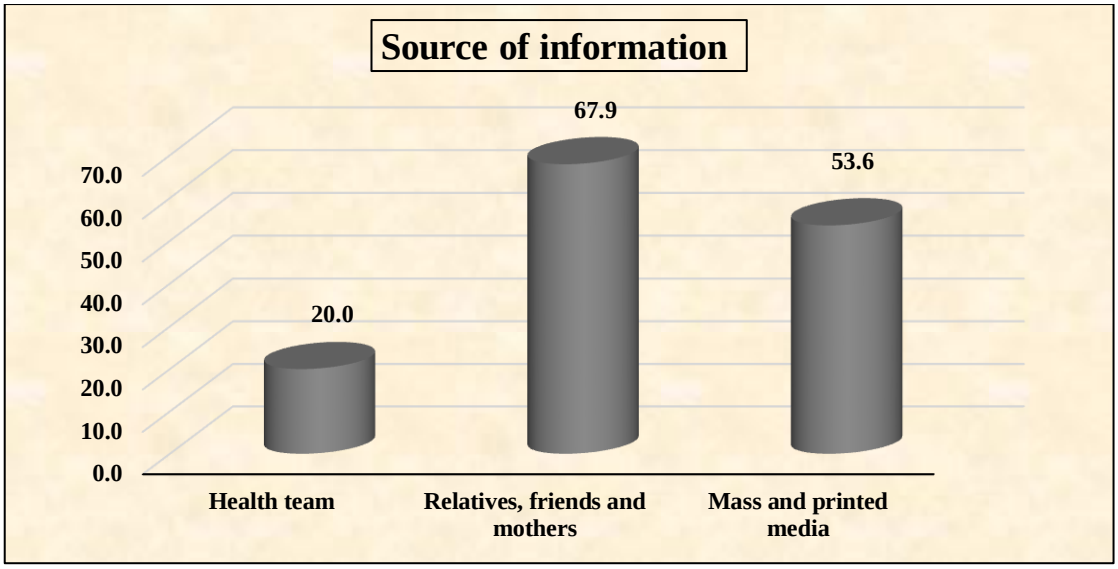

Figure (1): Percentage distribution of studied sample regarding their source of information about lactational amenorrhea and its basic criteria (n = 140).

Table (2): Distribution of the studied sample regarding their obstetric history (n=140).

Obstetric history	**No**	**%**
Gestational age at delivery in weeks:		
37 - 38 weeks	50	35.7
39- 40 weeks	61	43.6
41 – 42 weeks	29	20.7
Mean ± SD = 38.69±2.18		
Gravida:		
Primigravida	129	92.1
Multigravida	11	7.9
Mode of delivery:		
Normal vaginal delivery	49	35.0
Cesarean section	91	65.0

Table (3): Distribution of studied sample according to their general knowledge regarding lactational amenorrhea at pre- intervention and post- intervention phases (n=140).

Knowledge items	Pre-intervention				Post-intervention				X^2	p-value
	Correct		Incorrect or don't know		Correct		Incorrect or don't know			
	No	%	No	%	No	%	No	%		
Concept of lactation amenorrhea	86	61.4	54	38.6	121	86.4	19	13.6	22.69	**0.000****
Effectiveness of LAM	79	56.4	61	43.6	118	84.3	22	15.7	26.04	**0.000****
Duration of LAM as an effective contraceptive method	49	35.0	91	65.0	98	70.0	42	30.0	34.38	**0.000****
Benefits of LAM	85	60.7	55	39.3	122	87.1	18	12.9	25.36	**0.000****
Disadvantages of LAM	79	56.4	61	43.6	110	78.6	30	21.4	15.64	**0.000****
When can LAM start	65	46.4	75	53.6	120	85.7	20	14.3	48.19	**0.000****
When LAM expires or is no longer effective	40	28.6	100	71.4	105	75.0	35	25.0	60.43	**0.000****
When LAM may be considered natural family planning	53	37.9	87	62.1	115	82.1	25	17.9	57.20	**0.000****
Dynamic components of suckling intensity that correlate with the duration of LAM	39	27.9	101	72.1	97	69.3	43	30.7	48.09	**0.000****

*A Statistical significant $p \leq 0.0$ **A Highly Statistical significant $p \leq 0.001$

Table (4): Distribution of studied sample according to their knowledge regarding basic criteria or standards of lactational amenorrhea at pre- intervention and post- intervention phases (n=140).

Knowledge items	Pre-intervention				Post-intervention				X^2	p-value
	Correct		Incorrect or don't know		Correct		Incorrect or don't know			
	No	%	No	%	No	%	No	%		
Baby should be under 6 months old	37	26.4	103	73.6	94	67.1	46	32.9	123.53	**0.000****

breastfeed only for the first 6 months	40	28.6	100	71.4	100	71.4	40	28.6	122.44	**0.000****
Don't use pacifiers or bottles for baby.	40	28.6	100	71.4	100	71.4	40	28.6	122.44	**0.000****
The 56-day postpartum period must pass without menstruation returning	33	23.6	107	76.4	104	74.3	36	25.7	141.56	**0.000****
No breastfeeding session lasts less than four minutes	51	36.4	89	63.6	108	77.1	32	22.9	107.08	**0.000****
There should be no more than three hours during the day and six hours at night between each episode of breastfeeding.	46	32.9	94	67.1	120	85.7	20	14.3	126.19	**0.000****
Avoiding schedules and breastfeeding continuously throughout the day and night.	66	47.1	74	52.9	130	92.9	10	7.1	94.65	**0.000****
Mother should sleep with baby for night feedings.	78	55.7	62	44.3	130	92.9	10	7.1	74.73	**0.000****
Mom should sleep next to baby for a daily-nap feeding	68	48.6	72	51.4	125	89.3	15	10.7	88.26	**0.000****
Mother should avoid covering baby's face when feeding to take full advantage of LAM.	21	15.0	119	85.0	99	70.7	41	29.3	167.59	**0.000****
Mother should pacify or comfort the baby at breasts.	89	63.6	51	36.4	140	100.0	0	0.0	62.35	**0.000****
Avoiding any practice that restricts breastfeeding or separates mother from baby.	54	38.6	86	61.4	126	90.0	14	10.0	114.38	**0.000****

*A Statistical significant $p \leq 0.0$ **A Highly Statistical significant $p \leq 0.001$

Table (5): Mean Scores of studied sample's knowledge regarding lactational amenorrhea and its basic criteria or standards at pre-intervention and post-intervention phases (n=140).

Knowledge domains	Min./Max. score	Pre-intervention Mean ± SD	Post-intervention Mean ± SD	Paired t test	P-value
General knowledge regarding lactational amenorrhea.	0/9	4.75±1.70	6.70±1.52	23.61	0.000**
Knowledge regarding basic criteria or standards of lactational amenorrhea.	0/12	5.10±2.35	9.87±2.52	20.13	0.000**
Total score	**0/21**	**9.85±3.48**	**16.57±2.96**	**24.15**	**0.000****

*A Statistical significant p ≤ 0.0 **A Highly Statistical significant p ≤ 0.001

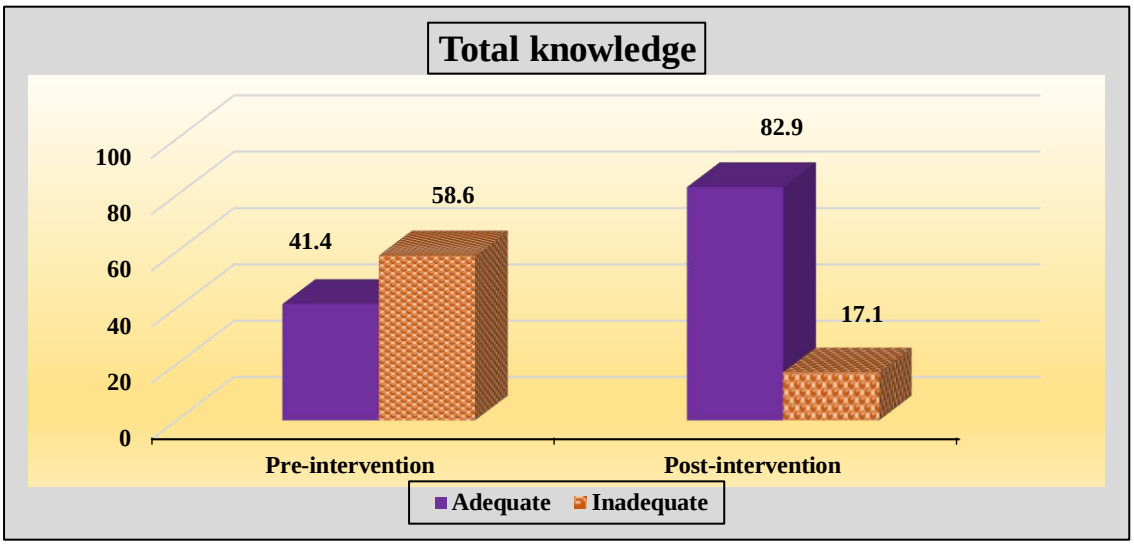

Figure (2): Percentage distribution of studied sample regarding their total knowledge score about lactational amenorrhea and its basic criteria or standards at pre-intervention and post- intervention phases (n = 140).

Table (6): Distribution of studied sample according to their attitude regarding lactational amenorrhea at pre-intervention and post- intervention phases (n=140).

Attitude	Pre-intervention						Post-intervention						X^2	p-value
	Agree		Uncertain		Disagree		Agree		Uncertain		Disagree			
	No	%	No	%	No	%	No	%	No	%	No	%		
Woman can become pregnant as soon as one month after giving birth, if she isn't using LAM or any other form of birth control.	69	49.3	33	23.6	38	27.1	140	0	0	0.0	0	0.0	**95.12**	**0.000****
LAM can be used as a method of contraception on its own or in conjunction with others.	47	33.6	65	46.4	28	20.0	85	60.7	42	30.0	13	9.3	**21.37**	**0.000****
Woman should talk to her doctor about whether or not LAM is a good fit for her.	39	27.9	68	48.6	33	23.6	98	70.0	31	22.1	11	7.9	**50.23**	**0.000****
LAM correctly every time reduces the risk of pregnancy by 98% for the first six months after giving birth.	31	22.1	29	20.7	80	57.1	88	62.9	38	27.1	14	10.0	**74.85**	**0.000****
LAM is ineffective if the woman does not adhere to the basic LAM criteria consistently.	30	21.4	56	40.0	54	38.6	100	71.4	40	28.6	0	0.0	**94.53**	**0.000****

The risk of failure from a single vaginal sex attempt increases when LAM is not administered properly.,. While LAM has many advantages, such as reducing costs, it	30	21.4	66	47.1	44	31.4	100	71.4	35	25.0	5	3.6	**78.24**	**0.000****
Lessening the efficacy of LAM is feeding formula, pumping instead of nursing, and solid foods.	64	45.7	36	25.7	40	28.6	106	75.7	20	14.3	14	10.0	**27.46**	**0.000****
When breastfeeding is reduced, fertility can return quickly.	21	15.0	42	30.0	77	55.0	81	57.9	37	26.4	22	15.7	**66.16**	**0.000****
If a woman has not adhered to the guidelines of the LAM and has engaged in unprotected sexual activity within the past five days, she should seek emergency contraception in order to avoid becoming pregnant.	20	14.3	80	57.1	40	28.6	115	82.1	25	17.9	0	0.0	**135.66**	**0.000****
LAM has many advantages, such as reducing costs.	51	36.4	67	47.9	22	15.7	88	62.9	27	19.3	25	17.9	**27.06**	**0.000****
LAM does not protect against STIs.	99	70.7	30	21.4	11	7.9	140	0	0	0.0	0	0.0	**48.03**	**0.000****

*A Statistical significant $p \leq 0.05$ **A Highly Statistical significant $p \leq 0.001$

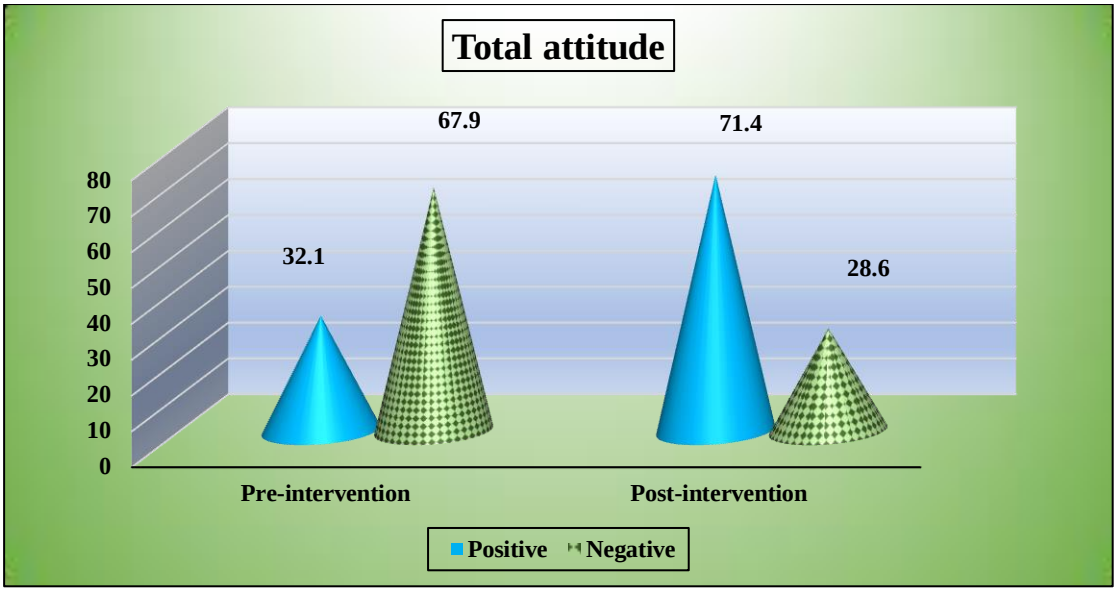

Figure (3): Percentage distribution of studied sample regarding their total attitude regarding lactational amenorrhea and its basic criteria at pre- intervention and post-intervention phases (n=140).

Table (7): Relation between total knowledge score and general characteristics of the studied sample at pre-intervention and post-intervention phases (n=140).

General characteristics	Total knowledge											
	Pre-intervention						Post-intervention					
	Adequate n=(58)		Inadequate n=(82)		Chi - square test	P-value	Adequate n=(116)		Inadequate n=(24)		Chi - square test	P-value
	No	%	No	%			No	%	No	%		
Age:												
18 - <25	20	34.5	27	32.9	**0.502**	**0.778**	39	33.6	8	33.3	**0.373**	**0.830**
25 - <30	30	51.7	40	48.8			57	49.1	13	54.2		
30 - <35	8	13.8	15	18.3			20	17.2	3	12.5		
Residence:												
Rural	37	63.8	48	58.5	**0.394**	**0.530**	70	60.3	15	62.5	**0.03**	**0.844**

Urban	21	36.2	34	41.5			46	39.7	9	37.5	**9**	
Educational level:												
Read and write	0	0.0	4	4.9	**12.18**	**0.007***	3	2.6	1	4.2	**0.414**	**0.937**
Primary education	2	3.4	7	8.5			7	6.0	2	8.3		
Secondary education	26	44.8	50	61.0			63	54.3	13	54.2		
University education	30	51.7	21	25.6			43	37.1	8	33.3		
Occupation:												
Employee	18	31.0	23	28.0	**0.146**	**0.702**	34	29.3	7	29.2	**0.001**	**0.989**
Housewife	40	69.0	59	72.0			82	70.7	17	70.8		
Monthly income:												
Enough	10	17.2	10	12.2	**0.706**	**0.401**	16	13.8	4	16.7	**0.134**	**0.714**
Not enough	48	82.8	72	87.8			100	86.2	20	83.3		

*A Statistical significant p ≤ 0.05 **A Highly Statistical significant p ≤ 0.001

Table (8): Relation between total attitude score and general characteristics of the studied sample at pre-intervention and post-intervention phases (n=140).

General characteristics	Total attitude											
	Pre-intervention						Post-intervention					
	Satisfactory n=(45)		Unsatisfactory n=(95)		Chi - square test	P-value	Satisfactory n=(100)		Unsatisfactory n=(40)		Chi - square test	P-value
	No	%	No	%			No	%	No	%		
Age:												
18 - <25	16	35.6	31	32.6	**0.481**	**0.786**	30	31.6	17	42.5	**2.48**	**0.288**
25 - <30	23	51.1	47	49.5			54	56.8	16	40.0		

30 - <35	6	13.3	17	17.9			16	16.8	7	17.5		
Residence:												
Rural	30	66.7	55	57.9	**0.985**	**0.321**	59	62.1	26	65.0	**0.431**	**0.511**
Urban	15	33.3	40	42.1			41	43.2	14	35.0		
Educational level:												
Read and write	2	4.4	2	2.1	**13.08**	**0.004***	3	3.2	1	2.5	**1.37**	**0.711**
Primary education	3	6.7	6	6.3			5	5.3	4	10.0		
Secondary education	25	55.6	51	53.7			54	56.8	22	55.0		
University education	15	33.3	36	37.9			38	40.0	13	32.5		
Occupation:												
Employee	14	31.1	27	28.4	**0.107**	**0.744**	26	27.4	15	37.5	**1.82**	**0.177**
Housewife	31	68.9	68	71.6			74	77.9	25	62.5		
Monthly income:												
Enough	7	15.6	13	13.7	**0.087**	**0.768**	13	13.7	7	17.5	**0.473**	**0.492**
Not enough	38	84.4	82	86.3			87	91.6	33	82.5		

*A Statistical significant $p \leq 0.05$ **A Highly Statistical significant $p \leq 0.001$

Table (9): Correlation between total knowledge and attitude scores of the studied sample regarding lactational amenorrhea and its basic criteria at pre and post intervention phases (n=140).

Variables	Total knowledge			
	Pre- intervention		Post- intervention	
	R	P-value	R	P-value
Total attitude	0.621	0.000**	0.509	0.000**

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

7. References:

Antonelli, A., Giannini, A., Fidecicchi, T., Ardito, M., Genazzani, A. R., Simoncini, T., & Gabriele, M. F. (2023). Amenorrhea Associated with Contraception and the Postpartum Period. In Amenorrhea: Volume 10: Frontiers in Gynecological Endocrinology Cham: Springer International Publishing .(pp. 123-131).

Azizah, N., Rahmawati, V. E., Jannah, S. R., Suyati, S., & Khusniyah, Z. (2023). Mother's Knowledge About Lactation Amenorrhea Method (Lam) Of Breastfeeding. Jurnal Keperawatan Muhammadiyah, 19-23.

Botirova, M. R. (2024). THE IMPORTANCE OF MODERN TYPES OF CONTRACEPTION IN THE REPORODTIVE HEALTH OF WOMEN. Ta'limda raqamli texnologiyalarni tadbiq etishning zamonaviy tendensiyalari va rivojlanish omillari, 33(1), 70-76 .

Calik-Ksepka, A., Stradczuk, M., Czarnecka, K., Grymowicz, M., & Smolarczyk, R. (2022). Lactational amenorrhea: neuroendocrine pathways controlling fertility and bone turnover. International journal of molecular sciences, 23(3), 1-16

Choudhury, N., Wu, W. J., Khatri, R., Tiwari, A., Thapa, A., Adhikari, S., ... & Sapkota, S. (2024). "Even things they won't share with their sisters-in-law"–Assessing an integrated Community Health Worker intervention on person-centered postpartum contraception in rural Nepal ,medRxiv, https://doi.org/10.1101/2024.05.23.24307832

El Tahry, S. E., Aly, A. A., Mohammed, E. M., Mohammed, S.E. M.M., & Ibrahim, N. I. I., (2022). Effect of social-platform educational instructions on self-efficacy and self esteem of patients with coronary artery diseases. Egyptian Journal of Health Care, 13(1), 1888-1906 .

Elgendy, N. S. A. S., Osman, A. A. S., Elezaby, H. H., & Ahmed, S. M., (2024). Effect of Social-Platform-Based Educational Guidelines on First-Time Mothers' knowledge and Practices regarding their Children's Oral Health. Egyptian Journal of Health Care, 15(2), 36-51.

Elsaba, H. A. H.F., El-Bastwese, R.

M. G., Younes, M. M.A., Khalifa Garas Girgis, T.K. G.G., & Thabet, H.A., (2022). Effect of Social-Platform Educational Program on Primigravida Women's Knowledge regarding Vitamin D Deficiency during Pregnancy. Egyptian Journal of Health Care, 13(4), 1363-1374**.**

Elsayed, A. I. I., Alaswad, N. K., Ayed, M. M. A., Mohamed, M. F., & El Sayed, H. I.(2024). Effect of Social-Platform Based-Education of Nurses' Performance Regarding the Care of Children Undergoing Liver Surgeries. Egyptian Journal of Health Care, 15(4), 109-124**.**

Eticha, T. G., Girma, S., Mamo, G., Asefa, F., Birhanu, A., Taye, B., ... & Tura, A. K. (2023). Effectiveness of Lactational Amenorrhea Method in Ethiopia: A Multi-Center Prospective Cohort Study. Open Access Journal of Contraception, 149-157**.**

Eticha, T. G., Girma, S., Mamo, G., Asefa, F., Birhanu, A., Taye, B., ... & Tura, A. K. (2023). Knowledge of lactation amenorrhea method among postpartum women in Ethiopia: a facility-based cross-sectional study. Scientific Reports, 13(1), 1-8**.**

Gafurovna, R. N. (2023). problems of restoration of menstruation and reproductive function after childbirth. academia science repository, 4(5), 320-326**.**

González-Padilla, D. A., & Tortolero-Blanco, L. (2020). Social media influence in the COVID-19 Pandemic. International braz j urol, 46(Suppl 1), 120-124 **.**

Harahap, R. N., & Sari, J. (2022). Relationship between Knowledge and Mother's Attitudes about Using the Lactational Amenorrhoea Method as Contraception for Breastfeeding Mothers at Uptd Puskesmas Kotanopan in 2022. Science Midwifery, 10(5), 3594-3602 **.**

Hassan, H. E., Eid, S. E., & Farag, D. S.S. (2024). Utilization of Emergency Contraceptive Pills as a Backup for Lactational Amenorrhea Method of postpartum contraception and Nursing Implication. Egyptian Journal of Health Care, 15(1), 17-31**.**

Johnson TC and McQueen J.(2024): What Is the Lactational Amenorrhea Method of Birth Control?. Available at: https://www.webmd.com/sex/birth-control/lactational-amenorrhea-birth-control-method-overview

Kusuma, I. R., Damayanti, R., Prasetyo, S., & Andriani, H. (2024). Continuity of care and socio-

demographic predictors of postpartum family planning utilization among women with a high-risk pregnancy in Indonesia: case-control study. Bali Medical Journal, 13(3), 984-990**.**

Sey-Sawo, J., Adeyemo, F. O., & Okojie, O. H. (2023). Effects of postpartum family planning counselling on contraceptives knowledge, attitude and intention among women attending a general hospital in the Gambia: A randomized controlled trial. Open Access Journal of Contraception, 61-72**.**

Malik, B. T., Butt, M. S., Saleem, J., Bukhari, G. M. J., & Ishaq, M. (2022). Factors Associated with Knowledge of Lactational Amenorrhea as a Contraceptive Method. Journal of The Society of Obstetricians and Gynaecologists of Pakistan, 12(2), 110-115 **.**

Mohammed, H. M., Zaky, M. A., & Hany, A. M. (2024). Postpartum family planning among women attending maternal and child health centers in Assiut Governorate, Upper Egypt. Journal of the Egyptian Public Health Association, 99(13), 1-12 **.**

Mufdlilah, M., Bintangdari Johan, R., & Ratna Ningsih, S. (2021). Breastfeeding knowledge and behavior in lactational amenorrhea method (LAM) as a natural contraceptive **.** Kesmas. 16(4): 242-249

Nagar RN, Hany AM and Mohammed MA. (2023): Knowledge, Attitude and Practice of Lactational Amenorrhea as Contraception method among Women Attending primary health care units in Qena city. SVU-International Journal of Medical Sciences, 6(1), 56-66**.**

Nagtalon-Ramos, J., Reymann, K., & Wood, A. (2024). Navigating Postpartum Contraceptive Options for Primary Care Providers. The Journal for Nurse Practitioners.20(9):1-20

Olukunle, T. A., Ogunbode, O. O., & Abdus-salam, R. A. (2023). Knowledge, attitude and readiness to use contraceptives among postpartum women at a tertiary hospital in southwest Nigeria. Medical Journal of Zambia, 50(3), 1-12

Özsoy S, Aksu H, Akdolun Balkaya N and Demirsoy Horta G. (2018): Knowledge and Opinions of Postpartum Mothers About the Lactational Amenorrhea Method: The Turkish Experience". Breastfeeding Medicine,13 (1):70–74**.**

Pirincci, E., Tasdemir, R., & Oguzoncul, A. (2016). Knowledge of lactational amenorrhea as a contraceptive method among mothers of infants aged 0–6 months in a district, Eastern Turkey. International Journal of Community Medicine and Public Health, 3(6):1363-70

Riana, N. (2024). Analysis of Breastfeeding Behavior with Duration of Amenorrhea at Nulle Health Center, West Amanuban District: Knowledge of Lactation Amenorhea Method. Midwifery Research Journal, 1(5), 147-153**.**