Mansoura Nursing Journal (MNJ) Vol. 12. No. 2 – 2025 **Original Article**
Print ISSN: 2735 – 4121 Online ISSN : 2735 – 413X

Effect of Online Educational Sessions on Pregnant Mothers' Breastfeeding Self-Efficacy During Pandemics

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ABSTRACT

Background: Breastfeeding self-efficacy is an important motivating factor that influences breastfeeding success. **Aim:**To evaluate effect of online educational sessions on pregnant mothers 'breastfeeding self-efficacy during pandemics Methed. A quasi- experimental design was conducted. The study was conducted in antenatal clinic at new general hospital. A purposive sample of 212 pregnant mothers who were chosen according to eligible criteria. A structured interviewing schedule, it consists of demographic data of studies mothers, and studied pregnant mother's knowledge toward breastfeeding self-efficacy questionnaire, Iowa Infant Feeding Attitude Scale, and Breastfeeding Self-Efficacy Scale–Short Form. **Results:** The present study results shows that there was a highly statistically significant differences in intervention group for total knowledge score as it raised from 12.37± 5.16 to 19.41±2.20 with p<0.0001, also, there was a highly statistically significant differences in intervention group for total feeding Infant attitude score pre and post intervention as total score (Mean ± SD) were raised among intervention group from 52.35±7.83 pre to 65.04±8.31 post intervention with p <0.0001, Moreover. there was a highly statistically significant differences in intervention group for total breastfeeding self-efficacy pre and post the intervention as p=(<0.0001), also, there was a strong positive correlation between total knowledge score, with infant feeding attitude and prenatal breastfeeding self-efficacy score as increasing total knowledge score usually associated with prenatal breastfeeding self-efficacy score pre & post intervention. **Conclusion:** Online educational sessions had significant positive effects on the knowledge, attitude, and self- efficacy of the intervention group regarding breastfeeding. Recommendation: Implementing online educational sessions to improve pregnant women's self-efficacy regarding breastfeeding in different setting

Keywords: Attitude, Breastfeeding, Knowledge, Online Education Sessions, Self-Efficacy.

Introduction

Breastfeeding is an art, and human milk has no another exact alternative for feeding babies. Breastfeeding assists in developing the connection between the mother and baby (Padmasree, 2019). Recently, the promotion of breastfeeding has increased by

health systems in line with World Health Organization and United Nations International Children's Emergency Fund **(UNICEF)** policies, and there have been numerous efforts to support, promote and retain breastfeeding (BF**) (WHO, 2020).**

Breastfeeding self-efficacy (BFSE) refers to the woman's conviction or trust about her potential or skill to successfully conduct the breastfeeding practice (Rocha, Lolli, Fujimaki, Gasparetto, & Rocha, 2018). Breast-feeding self-efficacy is one of the important psychological and motivational factors for the beginning, success, and duration of BF. On the other hand, by using the theory of BFSE,

health care providers can adopt appropriate solutions to resolving breastfeeding problems and providing appropriate consultations (Ghasemi, et al., 2021).

Self-efficacy is the belief in one's ability to achieve the desired outcome, it's about feeling confident in your ability to complete a task or reach a goal. Self-efficacy is a key predictor of success as anyone with high self-efficacy will generally feel more capable and optimistic about their ability to succeed, while someone with low self-efficacy may feel uncertain and hesitant. Self-efficacy is important because it influences our behavior and how we interact with the world. If we don't believe in our ability to do something, we're less likely to try **(Bandura, 2020).**

International Baby- Friendly Hospital Initiative (BFHI) aims to promote and protect maternal and child health by ensuring that mothers are supported with breastfeeding importance to Mather and her baby in maternity care facilities **(Abrahams & Labbok,2022).** Giving mothers information s about benefits of Breastfeeding self-efficacy will help in made decision and confidence in her capability to breastfeed her infant. appropriate knowledge regarding Breastfeeding self-efficacy is very important for proper practice habits **(Hadisuyatmana et al., 2022)**. It's known that best source of infants' nutrition is breastfeeding which gives immunological and psychological benefits. Colostrum milk which is unique in its composition and have anti- infective factors which protect neonates from infection **(Kaleem et al., 2022).**

Egypt is one of a group of 36 countries that are responsible for 90% of global malnutrition **(UNICEF, 2022)**. Malnutrition has been cited as the main cause of two-thirds of deaths among Egyptian children under the age of five **(UNICEF, 2022)**. Breastfeeding decreases infant mortality by 17 percent, saving 800,000 children yearly according to ministry of health and population, while breastfeeding immediately after birth reduce child death by 22 percent.

Malnutrition indicators in Egypt point to an existing problem in the early childhood years, which could impact the long-term health of the population and cause an increase in-government and private expenditures on disease treatment and reduced work force productivity. According to **Lancet (2022),** breastfeeding is the optimal and most efficient solution to promote health and well-being of mothers and their infants by preventing short-term communal diseases and long-term non-communal diseases.

However, despite its benefits, breastfeeding rates in Egypt are very low and are decreasing**. (Ministry Of Health and Population & WHO, 2022).** There are several theories about factors that inform and influence breastfeeding decisions. The primary purpose of this study is to investigate the factors that impact mothers' decision to breastfeed, and how mothers who succeed in breastfeeding address breastfeeding challenges. Learning the answers to these questions would ultimately help inform interventions and policy to promote women and children's well-being and health and preventing (or reducing the severity) of diseases resulting from malnutrition.

Significance of the study:

Globally 44% of infants initiate breastfeeding within the first hour after birth and 40% of all infants less than six months of age are exclusively breastfed. And 45% of children are still Breastfeeding at two years of age **(WHO, 2020**).

With the advent of the new corona virus or novel pandemics virus and the serious global health problem, more than 15 million people worldwide have already been infected with Covid-19, which has caused 630,750 deaths, being declared by **(WHO, 2020)** as a global public health emergency.

There is still no consolidated evidence of vertical transmission of Corona virus, although some signs of placental alterations resulting from inflammatory processes whose suspicion falls on covid-19 have already been evidenced, the virus has not yet been found in samples of amniotic fluid, umbilical cord, and swab of the neonate or pharynx and in breast milk. Thus, there is no robust scientific evidence to prove the relationship between SARSCoV-2 transmission and breastfeeding **(International Board of Lactation Consultant Examiners, 2020).**

Online antenatal breastfeeding educational sessions are beneficial in preparing women for effective breastfeeding by promoting their confidence level, knowledge, and skills, also nurse can encourage the advancement of breastfeeding by providing teaching and positive support before birth and after hospital discharge (Flower &Willoughby, 2022). Few studies concentrated on the effect of online antenatal education on BSE of women especially during (COVID-19) pandemic. So, the researcher decides to carry out this study.

Aim of the Study

This study aims to evaluate effect of online educational sessions on pregnant mothers' breastfeeding self-efficacy during pandemics.

Research Hypothesis

The pregnant mothers who receive online educational sessions will exhibit higher breastfeeding self-efficacy compared to those who won't receive.

Research Design

A quasi- experimental design was utilized in this study.

Study Setting

The study was conducted in antenatal clinic at new general hospital which affiliated to ministry of health. Mansoura city, Dakahlia governorate, Egypt. Mansoura New General Hospital is a public hospital provides free services to women during the life cycle, such as; pregnancy,labour, postpartum and, family planning services.

Sample Type

A purposive sample was utilized in this study.

Study Subjects

Study subjects were included 212 pregnant mother were chosen according to the following criteria.

Inclusion Criteria

Pregnant mother who attends for ANC unit in new Mansoura general hospital, with gestational age from 30th to 38th, who had a normal pregnancy without complications or any medical or psychological problems, expected to have a singleton fetus, Full term and normal new-born, either by vaginally or Caesarean section, having an Android mobile phone with Wi-Fi availability, Using Facebook and What's up.

Exclusion Criteria

Pregnant mother with medical issue could significantly impact on breast feeding (BF) such as; Pregnant mother who had inverted nipple, expected to deliver a preterm new-born or a new-born with complications and/or congenital abnormality, intended to exclusive formula feed.

Sample Size:

Calculated using G power program version 3.1.9.4 using the Sample size calculation: Based on data from literature (Piro and Ahmed, 2020), considering level of significance of 5%, and power of study of 80%, the sample size can be calculated using the following formula: n = n = [2(Zα/2 + Zβ) 2 × p (1-p)]/ (p1 - p2)2, where, p = pooled proportion obtained from previous study; p1-p2 = difference in proportion of events obtained from previous study; Zα/2 (=1.96, for 5% level of significance) and Zβ (equal 0.84 for 80% power of study). Therefore, n= [2(1.96 + 0.84)2 × 0.577 × (1-0.577)]/ (0.19)2=106.0, accordingly, the sample size required is 106 in each group. Through generating random digit number by Microsoft excel 2013; the sample size required is 106 in each group. Pregnant women who assigned intervention group (n= 106) and (n=106) in control group.

Tools for Data Collection

Three tools were used as following:

Tool I: A Structured Interviewing questionnaire: This tool was designed by the researcher after reviewing the national and international relevant literature. **It consists of two parts:**

Part I: Socio- demographic & Obstetrical data of the studied Pregnant mother: As mother age, age at marriage, education, occupation, family type, telephone number, gravity, parity, gestational age, number of abortions, number of still birth.

Part II: studied pregnant mother's knowledge toward breastfeeding self-efficacy questionnaire: It was adopted from (WHOA & UNICEF, 2020). It consists of 21 items that were divided into three domains.

The first domain had (8) items relating to the benefits of breast-feeding self-efficacy for the infant as provides perfect and healthy nutrition,ect…, **The second domain** consisted of (6) items about the benefits of breastfeeding self-efficacy for the mother as, leads to uterine involution, decreases incidence of breast cancer,,ect….**The third domain consisted** of (7) question as: Do you know about early skin-to-skin contact? When the mothers must initiate the BF after childbirth?,ect…..

Scoring system Items were scored as one when answered correctly or zero when answered incorrectly. The total score of the scale ranged from 1 to 21 points, score was calculated based on the number of questions answered in which, a score less than 50% is poor, a score equal 50% to less than 75% is fair, and a score equal to or more than 75% is good (Marzo, Rou, Yin, Gill & Salam 2023).

Tool II: Iowa Infant Feeding Attitude Scale (IIFAS). It was adapted from Mora and Russell (1999) for assessment of mothers' attitude toward breastfeeding. It consists of 16 attitude questions rated by a 5-point Likert ranging from 5 (strongly agree) to 1 (strongly disagree).

According to this scale, approximately one half of the items were favourable to BF, and the remaining favourable to formula feeding. Items favouring formula feeding were reversed scored and, the total Attitude score was calculated based on the number of questions answered in which more than 75% considered good Attitude, 50-75% considered fair Attitude, and less than 50% considered poor-attitude (Mora and Russell,2023).

Tool III: Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF): It was adapted from by Dennis (2023) to measure BSE. It consists of 14 positive statements of a 5-point Likert type scale. A response of '1' indicates that the mothers strongly disagrees or not at all confident and response of '5' indicates that the mothers strongly agrees or very confident with the statement.

The scores were range from 14 to 70, with higher scores indicating higher levels of Breastfeeding Self-Efficacy, the total practices score was calculated based on the number of questions answered in which more than 75% was considered good practice, 50-75% was considered fair practice and less than 50% was considered poor practice.

Validity of the Study

Content validity of data collection tools was determined through extensive reviewed national and international literature. Also, the adapted tool was translated into Arabic by Arabic expertise then content validity were tested and juried by five specialists in woman's health and midwifery nursing field and the recommended modifications were done accordingly.

Reliability of the Study

Tools of data collection were tested for its reliability by using statistical package for Social Science (SPSS) version 20. The tools were tested for their reliability by using Cronbach's alpha test in statistical package for social science (SPSS) version 20. The Cronbach's alpha value (internal consistency) of the knowledge tool was 0.874, and of the attitude tool was 0.891, and of the self-efficacy tool was 0.902.

Pilot Study

A pilot study was conducted on 10 % of the study sample (21women) to evaluate the clarity and applicability of the data collection tools. As well as the tool's feasibility, objectivity, and consistency, also to identify ambiguity in the tool. It also made it easier to estimate how long it will take to complete the questionnaire. The results of the pilot indicated that the statements of the questionnaire were clear and relevant, and few words and items modified, and some sentences paraphrased. As a result of the modifications, the pilot sample was eliminated from the study sample.

Study Procedure

The present study was conducted through three phases, (preparatory phase Implementations phase, Evaluations phase).

The preparatory phase

During the preparatory phase, the researcher reviewed the literature and prepared the required tools and checked its validity and reliability.

An official letter from the Faculty of Nursing, Mansoura University was obtained to the director of new general hospital. And head of obstetrics and gynaecology department to obtain official permission for conducting the study after explaining its aim.

In preparation the researcher had prepared educational session and educational content in the line of directions of ROCG, ACOG, WHO, CDC, FIGO.

The Implementations phase

A direct interview technique was used by the researcher to gather the required information before the intervention.

The researcher reviewed the daily appointment schedule of pregnant women in ante natal care clinic from 9a.m to 2p.m for 3 days weekly in new Mansoura general hospital until study sample is completed.

Then, the researcher was introduced herself to pregnant mother and purpose of the study was explained, joining and accepting the researcher request to join the study.

Determination of eligible-pregnant mothers was based on the selection criteria.

After that formal consent was obtained after explaining the purpose of the study and the process of intervention the eligible mothers were allocated either into the intervention or control group randomly upon agreement and researcher checked the inclusion criteria and exclusion criteria were recruited to study group with an equal ratio (1:1), Socio demographic & obstetric data was completed and a baseline of mother's knowledge, attitude and prenatal BSE scale was completed for both groups as a pre-test by the researcher.

Control group was consisted of (106) pregnant women, that was received routine antenatal care which included checking weight, blood pressure, urine for protein and sugar, and fatal heart rate.

Intervention group was consisted of (106) pregnant women who were received 3 online educational sessions and booklet on breastfeeding self-efficacy.

The researcher was obtained contact number of pregnant women to what's up group, pregnant women was given URL link for web site so they can access the website in home.

During these sessions, the researcher had explained all contents of the booklet to the mother.

In addition, some related videos were displayed for approximately 15 min that facilitated the educational process.

The Researcher given an opportunity to the mother who did not understand the information given in online session, booklet, or videos to make a contact with the researcher for further clarification through zoom meeting.

These interactive online media a group with these features was allowed women see, hear, and interact with the researcher and with each other during the study period.

In the first online session

It included information about simply benefits of breast feeding (BF) for infant and mother, initiation of breast-feeding BF, benefits of skin-to-skin contact, common position of breast feeding BF. Moreover, other information as baby attachment to the breast, signs of effective sucking, methods of milk expression, successful breast feeding (BF).

In the second online session:

It included most common problems that lactating mothers encountered during the initial stages of BF, and how these challenges were overcome.

In the third online session

Researcher explained the role of self-efficacy in breastfeeding in order to explain and predict behaviour in her framework. Also breastfeeding during pandemics were discussed by the end of online educational session, educational material was given to breast feeding mother in control group.

The evaluation phase: -

Post-test of knowledge, attitude and prenatal BSE scale had taken for both intervention and control group two weeks after the pretest. - Post-test of knowledge, attitude and prenatal BSE scale had taken for both intervention and control group two weeks after the pretest.

The researcher had met all mothers in both groups again and filling out the postnatal BASES-SF and inquired on infant feeding status during first visit to the hospital after birth.

Statistical analysis

The Collected data were sorted, organized, categorized and transferred into specially designed formats and then analysed using the Statistical Package for Social Sciences (SPSS) version 22. The data were properly tabulated and presented. Statistical descriptive measures as numbers, percentage, mean and standard deviation (mean± SD) for quantitative data were used. Associations between categorical variables were tested using chi-square test(x2). The association in this study was consider statistically significant at P-value≤ 0.05 and highly statistically significant at a P-value < 0.001

Ethical Considerations

An official permission was taken from the Research Ethics committee of the Faculty of Nursing, Mansoura University. A written formal consent was obtained from all participants after explaining the nature and purpose of the study. Participation in the study is voluntary and each participant has the right to withdraw from the study at any time. Anonymity, privacy, safety and confidentiality were unconditionally assured throughout the whole study. The study subjects were informed that result will be used as a component of the necessary research for doctor a study as well as for publication and education

Results

Table1 shows that there is no statistically significant differences between both groups as both groups were matched as p >0.05, which 23.6% & 37.7% of the studied mothers respectively among intervention group & control group had aged 25 <30 years. Also 60.4% & 62.3% respectively had secondary education among both intervention group and control group while 65.1% & 63.2% respectively were housewife among both intervention group and control group. And 60.4% & 62.3% respectively were from rural area & As well as 65.1%, and 70.8% respectively were nuclear family type among both intervention group and control group.

Table2 shows that there was no statistically significant differences between both groups as both groups were matched as p >0.05. in which 36.8%, and 45.3% of studied pregnant mothers were between 32 to 34 weeks of gestation in both intervention, and control group respectively. Among them (50.9% & 55.7%) respectively were prim gravida and 53.8& and 57.5% were prim parous. Also 76.4% and 79.2% hadn't aborted yet, nor did 91.4 and 90.6% have still birth among both intervention, and control group respectively.

Table3: Shows that there was a highly statistically significant differences in intervention group for total knowledge score (Mean ± SD) as it raised from 12.37± 5.16 to 19.41±2.20 with p<0.0001**.,Also there was a highly statistically significant differences among both group pre and post intervention as p <0.0001

Table4: Shows that there was a highly statistically significant differences in intervention group for total feeding Infant attitude score pre and post intervention as total score (Mean ± SD) were raised among intervention group from 52.35±7.83 pre to 65.04±8.31 post intervention p <0.0001 **.

Table 5 shows that there was a highly statistically significant differences in intervention group for total breastfeeding self-efficacy pre and post the intervention as p=(<0.0001)**

Table 6 shows that there was a strong positive correlation between total knowledge score, with infant feeding attitude and prenatal breastfeeding self-efficacy score as increasing total knowledge score usually associated with prenatal breastfeeding self-efficacy score pre & post1 intervention as p=(<0.001)**

Table7 shows that there was a statistically significant correlation between studied women total knowledge score, and all demographic characteristics except level of educations post intervention as p=< 0.001, also there was a statistically significant correlation between studied women total breastfeeding self-efficacy score and all demographic characteristics post the intervention as p=< 0.001for all.

Table8 shows that there was a statistically significant correlation between studied women total knowledge score, and number of gravida post intervention as p=0.38, also there was a statistically significant correlation between studied women total breastfeeding self-efficacy score and Weeks of gestation and number of gravida post the intervention as p=(0.011&0.020) respectively.

Figure 1 shows Source of information about breastfeeding among the studied

Women of both groups pre intervention (N=2012)

Figure 2 shows there was a highly statistically significant differences in intervention group for total prenatal breastfeeding self-efficacy pre and post the intervention as p= (<0.0001),also total intervention (Mean ± SD) were raised among intervention group from 66.98±7.91 pre to 82.27±13.87 post intervention. While there was no statistically significant differences in control group for total prenatal breastfeeding self-efficacy pre and post the intervention as p=0.220.

Figure 3 shows that there was no statistically significant differences in control group for total feeding attitude score pre and post intervention as p =0.064 there was a highly statistically significant differences in intervention group for total feeding Infant attitude score pre and post intervention as total score (Mean ± SD) were raised among intervention group from 52.35±7.83 pre to 65.04±8.31 post intervention p <0.0001 **

Table 1: Distribution of the Studied Pregnant Mothers According to Their Demographic Characteristics.

Variables	Intervention group		Control group		Significance test
	No (106)	(%)	No (106)	(%)	χ2 (p)
Age (Years)					
20 - <25	27	25.5	18	17.0	χ2 5.771 (p) (0.124)
25 - <30	25	23.6	40	37.7	
30 - 35	26	24.5	25	23.6	
>35	28	26.4	23	21.7	
Mean ± SD	29.99± 7.22		29.82± 5.80		t=0.189 (0.850)
Age at marriage (Years)					
18- <25	66	62.3	71	67.0	χ2 3.026 (p) (0.220)
25 - <30	24	22.6	27	25.5	
30 - 35	16	15.1	8	7.5	
Mean ± SD	23.02± 4.125		22.93± 3.62		t=0.177 (0.860)
Educational level					
Primary education	23	21.7	19	17.9	χ2 0.512 (p) (0.774)
Secondary education	64	60.4	66	62.3	
University education	19	17.9	21	19.8	
Occupation					

Employee	37	34.9	39	36.8	χ2 0.491 (p) (0.483)
Housewife	69	65.1	67	63.2	
Residence					
Rural	64	60.4	66	62.3	χ2 0.080 (p) (0.778)
Urban	42	39.6	40	37.7	
Family type					
Nuclear	69	65.1	75	70.8	χ2 0.779 (p) (0.462)
Extended	37	34.9	31	29.2	

(*) Statistically significant at p ≤0.05, χ2 = chi square

Table 2: Distribution of the studied pregnant mothers according to their obstetric data

Variables	Intervention group		Control group		Significance test
	no (106)	(%)	no (106)	(%)	
Weeks of gestation					
30 - 31	35	33.0	24	22.6	χ2 3.042 (p) (0.218)
32 - 34	39	36.8	48	45.3	
35 - 38	32	30.2	34	32.1	
Gravidity					
Prim gravida	54	50.9	59	55.7	χ2 0.474 (p) (0.491)
Multigravida	52	49.1	47	44.3	
Parity					
Prim parous	57	53.8	61	57.5	χ2.306 (p) (0.580)
Multiparous	49	46.2	45	42.5	
N. of abortion					
Non-aborted	81	76.4	84	79.2	χ2.246 (p) (0.620)
Aborted	25	23.6	22	20.8	
N. of still birth					
No	96	91.4	96	90.6	χ2 0.779 (p) (0.462)
Yes	9	8.6	10	9.4	

(*) Statistically significant at p ≤0.05, χ2 = chi square

Table 3: Comparison of pregnant mothers' total knowledge regards breastfeeding self-efficacy in the intervention and control groups pre and post intervention.

Knowledge Level	Intervention group				Control group				Significance test χ2	
	Pre		Post		Pre		Post			
	n=106	(%)	n=106	(%)	n=106	(%)	n=106	(%)	$(p)^1$	$(p)^2$
Poor	44	41.5	0	0.0	40	37.7	28	26.4	0.527 (0.768)	80.199 (<0.0001)**
Average	37	34.9	15	14.2	42	39.6	50	47.2		
Good	25	23.6	91	85.8	24	22.6	28	26.4		
Total score (Mean ± SD)	12.37± 5.16		19.41±2.20		12.49±4.69		13.07±3.82			
t (p)	t =13.212, p=(<0.0001)**				t =1.042, p=0.319					

Table 4: Comparison of the studied pregnant mothers' total infant feeding attitude in the intervention and control groups pre and post intervention.

Infant Feeding Attitude	Intervention group				Control group				Test of significant χ2	
	Pre		Post		Pre		Post			
	N=106	(%)	N=106	(%)	N=106	(%)	N=106	(%)	(p)[1]	(p)[2]
Negative attitude	63	59.4	2	1.9	64	60.4	60	56.6	χ2 0.020	χ2 76.685
Positive attitude	43	40.6	104	98.1	42	39.6	46	43.4	P 0.889	P<0.0001
Total score (Mean ± SD)	52.35±7.83		65.04±8.31		53.10±8.936		53.77±9.05			
t (p)	t=23.894, p(<0.0001)**				t=2.002,p=0.064					

Table 5: Comparison of the studied pregnant mothers' total breastfeeding self-efficacy in the intervention and control group pre and post intervention.

Breastfeeding Self-Efficacy	Intervention group				Control group				Test of significant χ2	
	Pre		Post		Pre		Post		(p)1	(p)2
	N=106	(%)	N=106	(%)	N=106	(%)	N=106	(%)		
Low self-efficacy	38	35.8	3	2.8	39	36.8	36	34.0	0.040	34.218
High self-efficacy	68	64.2	103	97.2	67	63.2	70	66.0	(0.687)	(<0.0001) **
Total score (Mean ± SD)	47.28±7.04		57.69±9.21		46.54±7.64		47.19±7.75			
t (p)	t=17.400, p=(<0.0001)**				t=2.004, p=0.054					

(*) Statistically significant at p ≤0.05, χ2 = chi square

Table 6: Correlation between total knowledge score, infant feeding attitude and prenatal breastfeeding self-efficacy score in the intervention group (n=106).

Item		Total knowledge score	
		Pre	Post1
Infant Feeding Attitude	r	0.853	0.672
	p	(<0.001)**	(<0.001)**
Prenatal Breastfeeding Self-Efficacy	r	0.735	0.847
	p	(<0.001)**	(<0.001)**

(*) Statistically significant at p ≤0.05, χ2 = chi square

Table7:Correlation between Total Knowledge Score, and Breastfeeding Self-Efficacy Score and demographic characteristics in the Intervention Group Post the intervention (n=106)

Variables	Knowledge		Prenatal Breastfeeding Self-Efficacy	
	r	p	r	p
Age (Years)	.649	<0.001**	.356	<0.001**
Age at marriage	.726	<0.001**	.480	<0.001**
Educational level	.032	0.745	.416	<0.001**
Occupation	-.349	<0.001**	-.505	<0.001**
Family type	-.806	<0.001**	-.792	<0.001**
Residence	.480	<0.001**	.702	<0.001**

(*) Statistically significant at p ≤0.05, χ2 = chi square

Table 8: Correlation between Total Knowledge Score, and Breastfeeding Self-Efficacy Score and obstetric data in the Intervention Group Post intervention(n=106)

Variables	Knowledge		Prenatal Breastfeeding Self-Efficacy	
	r	p	r	p
Weeks of gestation (week)	.028	.773	.247	.011*
Gravidity	.202	.038*	.040	.686
Paraity	.170	.082	.029	.765
N. OFAbortion	.128	.191	.226	.020*
O. OF Still birth	.045	.645	.006	.953

(*) Statistically significant at p ≤0.05, $\chi 2$ = chi square

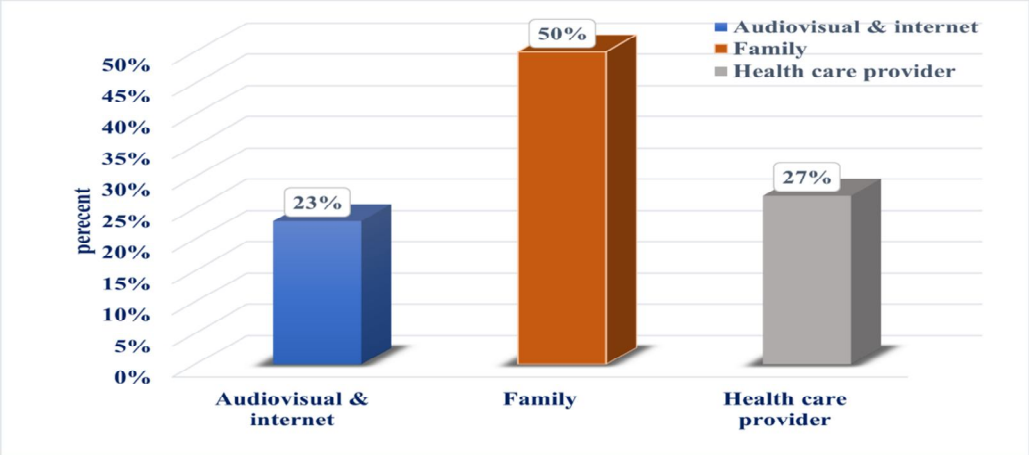

Figure 1:Shows Source of information about breastfeeding among the studied Women of both groups pre intervention (N=2012)

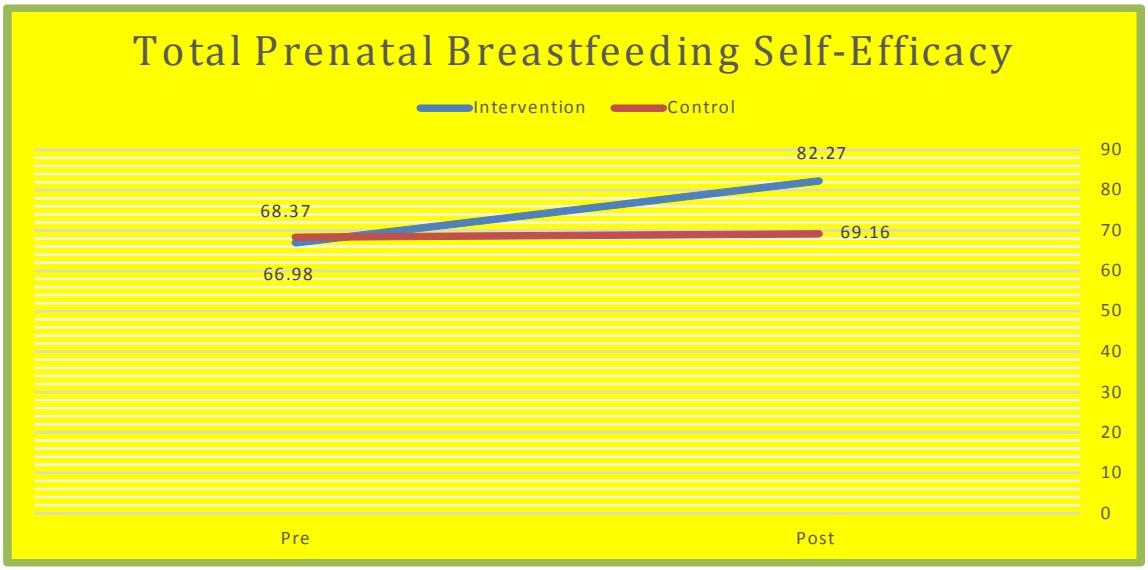

Figure-2:Comparison of the studied pregnant mothers' total prenatal breastfeeding self-efficacy in the intervention and control groups pre and post the intervention.

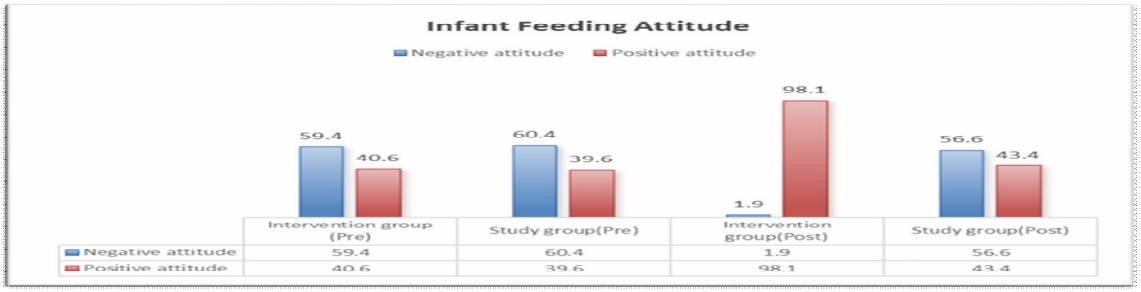

Figure III: Comparison of pregnant mothers' total knowledge toward breastfeeding self-efficacy in the intervention and control groups pre and post the intervention.

Discussion

Concerning studied pregnant mothers according to their knowledge toward benefits of breastfeeding self-efficacy to mother:

The present study finding revealed that there was a statistically significant differences post intervention for all items as p- value (> 0.001). Also, there was increase in total knowledge toward the domains of benefits of breastfeeding self-efficacy among both groups post intervention. While there was no statistically significant differences among both groups pre intervention for all items as p- value (< 0.05).

The present study finding was in agreement with Hanafi et al (2014) who evaluate the Impact of health education on knowledge of, attitude to and practice of breastfeeding among women attending primary health care centers in Almadinah Almunawwarah, Kingdom of Saudi Arabia they reported significant differences within the intervention group in knowledge and attitude after nursing education.

Moreover, Somayeh et al. (2014) they study The Effect of Intervention Program on Breastfeeding Self-Efficacy and Duration of Exclusive Breastfeeding in Pregnant Women in Ahvaz, Iran, they reported that The breastfeeding self-efficacy in the intervention group increased significantly compared to the control group one month after delivery. Moreover, the present study results were in line with a previous meta-analysis, which is conducted by Marzieh et al. (2018) who study the effects of a prenatal breastfeeding self-efficacy intervention on breastfeeding self-efficacy and breastfeeding outcomes. They showed that participants in the intervention group had significantly higher mean Breastfeeding Self-Efficacy Scale–Short Form scores and rates of exclusive breastfeeding than those in the control group.

Also Roselyn et al. (2020) who evaluate the effectiveness of theory-based educational interventions on breastfeeding self-efficacy and exclusive breastfeeding. They reported that Theory-based educational interventions were effective in improving breastfeeding self-efficacy. Also, Safiya & Hamdia (2020) who evaluate the role of nursing intervention on mother's breastfeeding self-efficacy. They reported that Breastfeeding self-efficacy during pregnancy and following two months of delivery in the experimental group was significantly higher. The experimental group had a higher level of knowledge and attitude in comparison with subjects in the control group.

Also Brockway et al. (2017) investigated the effect of education or support based interventions on improvement of BSE. The results indicated that the mothers in the intervention groups had significantly higher BSE score compared to the mothers in the control groups.

While the present study result was disagreement with Guo et al.(2015) who study Efficacy of the theory of planned behavior in predicting breastfeeding, they reported that there was not seen any significant difference in the term of class format, time of education, and mode of class (face-to face or mobile education) on the BSE. The difference in study results may be due to difference in inclusion criteria and number of sample of each study.

In contrast with present study results, El Harit (2015) who study The effect of an antenatal breastfeeding intervention on breastfeeding self-efficacy and intention among Inner City adolescents; The results reported no significant differences in prenatal BSE scores in pre and post-intervention (an antenatal educational intervention) this difference between the results of our study and others study may be due to difference in sample size, difference in design and the characteristics variation of participants as parity

The present study results indicated that the mothers in the intervention groups had significantly higher BSE score compared to the mothers in the control groups. This finding was supported by Brockway et al.(2017) in faculty of nursing, university of calgary, calgary, ab, canada to assess interventions to improve breastfeeding self-efficacy, they reported that breastfeeding self-efficacy is a modifiable factor that practitioners can target to improve breastfeeding rates in mothers of full-term infants.

The present study findings suggest that the prenatal nursing intervention was effective in increasing postnatal BSE which lead to enhancing the BF practice after two months of birth. In consequence, a higher postnatal BSE score associated with a higher level of BF practice in both groups of study. This finding was supported by Aguirre, (2023) in Japanese to assess impact of a self-efficacy intervention on BSE and exclusive BF supports positive effectiveness of antenatal education on increasing BSE but, sometimes the context and circumstances may impact on the effectiveness of the interventions.

The current study revealed that, increased mothers knowledge after intervention that breastfeeding provides many health benefits for mothers. This finding in agreement with Kenyan et al., (2020) in Francis Xavier University, Canada to assess exclusive breastfeeding knowledge and attitudes among mothers. They reported that, the majority of the mothers agree that breastfeeding is beneficial and important to mother. These findings highlight the importance of the antenatal classes' sessions and the teaching material administered to the mothers regarding health benefits of breastfeeding.

In the present study postnatal BSE was found to be a predictor of BF in experimental group but not regarding other variables such as age, age at marriage, educational level, occupation, type of family, gravity, parity and lactation history. Although many studies in the region were done on knowledge and attitude of breastfeeding, but the present study is the first one which examined the BSE of mothers through nursing intervention.

This finding is not compatible with Hawsawi, et al. (2022) in Arab countries to assess knowledge, attitudes, practices, barriers and facilitators to skin-to-skin contact among Arabian mothers, they reported that the majority of mothers expressed a positive attitude towards skin to skin contact and should be practiced immediately after delivery. This may be due to the mothers have more education about skin to skin contact importance from health care professionals.

The current study revealed that there was increase in total knowledge. This results in same line with a cross-sectional study by Warille, Onyango, & Osano, (2017) in Sudanese to investigate the knowledge and practice of exclusive breastfeeding among women with children aged between 9 and 12 months, the researchers reported that nearly two thirds of the mothers giving exclusive breastfeeding until 6 months old. Also Branco, et al. (2023) in Portugal to assess the prevalence and predictive factors of exclusive breastfeeding of life and they reported that nearly two thirds of the mothers giving exclusive breastfeeding until 6 months old. The current study finding was in contrast with cross-sectional study conducted by Abou-ElWafa & El-Gilany (2019) in Mansoura to assess effect of maternal work and exclusive breastfeeding, Egypt. They reported that exclusive breastfeeding rate is low among working mothers.

Regard correlation between variables:

The present study finding revealed positive correlation between the BSES-SF and the participants' total knowledge and total attitude scores, which indicated that good knowledge of and a positive attitude regarding breastfeeding help to improve BFSE. The findings of this study were in agreement with an experimental study conducted by Iliadou et al., (2018) to investigate the effectiveness of a midwife-led BFSE education program. The researchers observed a positive correlation between the participants' knowledge, attitude, and BFSE in the intervention groups.

Also, the current study finding revealed that there was highly statistically significant association between all demographic characteristics except mother's education, with total knowledge score. This finding in agreement with Adeola, Mojisola & Jamila, (2023) in Nigerian to assess the impact of maternal demographics on knowledge of exclusive breastfeeding among nursing. They reported that there was significantly associated between knowledge of breastfeeding with age, occupation, and marital status.

Also, the present study revealed that, there were significant impact of socio-demographic characteristics such as age, mothers' knowledge of breastfeeding. This finding was similarly with Omar, et al. (2022) in Dubai to assess factors associated with knowledge and practice of optimal breastfeeding among mothers. They reported that there was significantly associated between knowledge on breastfeeding with age, occupation,

and marital status.

Moreover, The current study finding revealed that there were highly statistically significant association between studied mothers' total knowledge score and infant feeding attitude scores and prenatal self-efficacy. This was in agreement with Gizaw, Sopory, & Morankar, (2022) in Ethiopia to investigated breastfeeding knowledge, attitude, and self-efficacy among mothers with infant and young child they found that a positive infant breastfeeding attitude was associated with as increasing total knowledge score usually associated with prenatal breastfeeding self-efficacy score pre &post intervention. Also this was in line with a cross-sectional study conducted in Jordan by Alkhaldi, et al. (2023) to determine the breastfeeding attitudes among mothers and, the researchers found that a positive breastfeeding attitude was associated with infant feeding attitude scores and prenatal self-efficacy.

Also**,** The study result found a statistically significant correlation between studied women total knowledge score, and demographic characteristics and Breastfeeding Self-Efficacy Score, and all demographic characteristics except level of educations post intervention as studied mothers aged 20-30 years. Also most of them had secondary education and were housewife were from rural area so reported significant improvement in

BF practices in the experimental group, and high self-efficacy practice and confidence which shows the effectiveness of prenatal self-efficacy counseling in improving breastfeeding practices.

While the present study result was disagree with Tsegaye, Ajema, Shiferaw& Yirgu (2019) in Ethiopia to assess the level of exclusive breastfeeding practice in remote and pastoralist community, they found that uneducated mothers exclusively breastfeed their child. Also, Kandeel et al. (2018) in Egypt to assess determinants of Exclusive Breastfeeding in a Sample of Egyptian Infants, they reported that illiterate mothers and housewives preferred exclusive breastfeeding rather than mixed feeding. Moreover, Kamal et al., (2021) to assess Breastfeeding practice and perception among women attending Primary Health Care Center in Giza, Egypt they studied effect of work on practice level of breastfeeding, and it was that poor practice level was found more likely among women with longer working. As well as, Tollah et al. (2023) in Kapodistrian University of Athens, Aretaieio Hospital, assess Knowledge Gaps and Current Evidence Regarding Breastfeeding Issues in Mothers with Chronic Diseases They didn't find a statistically significant relationship between maternal age, education, occupation, and breastfeeding practices. This variation may be due to differences in study variables, sample size and study setting.

On the other hand, Kandeel et al. (2018) found that younger mothers than 25 years had a higher tendency to choose artificial feeding rather than exclusive breastfeeding.In addition, Senosy et al. (2020) found significant influence of being a working mother in increasing the practice of exclusive breastfeeding. The association found in the current study might be due to the role of education in improving awareness about EBF practice. Furthermore, Kumera & Haidar (2021) found that the major enabling factors to good self-efficacy practice score were higher education. This is also in agreement with Abd Alfataha, Mohamady & Farg (2022) who concluded that more than half of the studied working mothers had adequate practice regarding breastfeeding than non-working mothers. This strongly suggests that mothers need continuous education and support to be able to breastfeed.

This study found a significant relationship between weeks of gestation and number of gravida among primipara. In the same line Kandeel et al. (2018) who surveyed the determinants of exclusive breastfeeding in a sample of Egyptian infants found the likelihood of artificial or mixed feeding against EBF was higher among multigravida Similarly, Samayam& Krishna (2017) to assess maternal factors influencing exclusive breastfeeding of babies at six weeks of age reported that primipara was more likely to deviate from exclusive breastfeeding at six weeks postnatal age. These results are also supported by Gebretsadik, Tadesse, Mamo, Adhanu& Mulugeta (2022) in Ethiopa to assess knowledge, attitude, and determinants of exclusive breastfeeding during COVID‑19 pandemic among lactating mothers and they reported that the increase in parity was associated with increased of BF practice.

In addition George, Mgongo, & Van Rie (2022) in Tanzania to assess effects of parity on duration of exclusive breastfeeding reported that among children. They reported that initiated BF, children in higher birth order experienced longer durations of BF compared with the lower birth order children Inversely, Mohamed, Ochola & Owino (2018) in Kenya to compared knowledge, attitudes and practices on exclusive breastfeeding between primiparous and multiparous mothers reported no significant differences in the practice of exclusive breastfeeding among primiparous and multiparous mothers.

Thus, the aim of the present study was achieved through the present study findings, which revealed that total knowledge scores, attitude scores, and self-efficacy scores were higher in the intervention group than in the control group.

Conclusion

Depending on the study findings, the study hypotheses were accepted. There were significant improvements in the intervention group's knowledge, attitude, and self-efficacy regarding breastfeeding as compared with the control group.

Recommendations

- Implementing further online educational sessions to improve pregnant women's BFSE.

Further research

- Investigate effect of applying self-efficacy breastfeeding package on maternity nurses' performance.

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