

# Effect of Educational Program on Pregnant Knowledge and Practice Regarding How to Continue Breast Feeding after Returning to Work

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## Abstract

**Background:** An important factor influencing duration of breastfeeding is mother's employment status. **Aim:** To investigate the effect of educational program on pregnant knowledge and practice regarding how to continue breast feeding after returning to work. **Design:** A quasi-experimental design was utilized. **Setting:** The study was conducted at Outpatient Clinic and High risk Units of special Hospital at Beni- Suef University. **Sample:** A convenience sample of all available pregnant working women (300 women) from the previously mentioned setting. The following study **tools** were used (pre/posttests): 1) **Structured interview questionnaire** to assess pregnant working women's knowledge regarding how to continue breast milk feeding after returning to work. 2) **Working women's practice observation checklists** to assess pregnant working women's practices such as hand washing, breast care and nipple cleaning, breast massage, Daily shower, Finding the perfect pump, Staying pumped and Maintaining supply Boosting milk supply and Storing and reusing milk. **Results:** The mothers' age ranged between 30 < 34 years with mean age  $31.03 \pm 4.50$  and 45% of them had Secondary/higher educations. There was a highly statistically significant difference ( $P < .0001$ ), regarding their knowledge and practices before, immediately after, and at follow up guideline implementation about how to continue breast milk feeding after returning to work. **Conclusion:** The present study concluded that, the educational guideline had a positive effect on mothers' knowledge and practice about how to continue breast milk feeding after returning to work. **Recommendations:** Provide continuous education and training for working women regarding how to continue breast milk feeding after returning to work. Supporting legislation to provide private, hygienic lactation rooms to ensure the safe storage of expressed milk.

**Keywords:** Educational Program, Pregnant Knowledge and Practice and Breast Feeding.

## Introduction:

Breast feeding is vital for improving mothers' and their children's health. The physical confidence of the mother with her child through skin touching and eye contact helps the infant feel secure (*Jabari, et al., 2015*). Worldwide, about 60 % of children deaths are directly or indirectly linked to under nutrition. Two- thirds of children deaths are estimated to be attributed to improper feeding during the first year of life (*Acharya and Khanal., 2015*).

Exclusively breastfeeding is recommended for infants (i.e., feeding the infant only breast milk, with no supplemental

liquids or solids except for liquid medicine and vitamin/mineral supplements) for the first 6 months of life, with breastfeeding continuing for up to two years of age or longer (*Al-Binali, 2012*). Breastfeeding milk considered the gold standard of infant nutrition. It has been strongly encouraged for newborns due to the immunological properties of breast milk. Its role in gastrointestinal maturation and the establishment of the mother-child bond, thus contributing to better growth and development (*Santiago, Júnior, Freitas, & Rugolo, 2018*).

Breastfeeding milk is rich with immunoglobulin (IgA, IgG, and IgM), enzymes, cytokines, and growth factors for the infants (*La Leche League International,*

2017). Additionally, the impact of breastfeeding, that infants who are breastfed for longer periods have lower infectious morbidity and mortality, fewer dental malocclusions and higher intelligence than infants who are not breastfed or breastfed for shorter periods. Furthermore, breastfeeding may also protect against sudden infant death syndrome (SIDS), decrease the risk of necrotizing enterocolitis (NEC) for premature babies, and protect children against overweight and diabetes later in life (Dellen et al., 2019), mainly exclusive breastfeeding on an infant's healthy growth and development have been well documented and not breastfeeding increases several conditions, including gastroenteritis, respiratory tract infections, obesity, and neurodevelopmental behavioral problems.

Mothers who do not breastfeed also have increased risks of breast and ovarian cancer, obesity, type II diabetes and postpartum depression. There are important differences in health outcomes between those mothers and babies who breastfeed and those who artificially feed. Babies and others who are breastfed are less likely than formula-fed babies to suffer from nutritional, immunological, psychological and economic problems (Fadden, Siebelt, Joyce & Gavine et al., 2019)

Maternal employment has been described as a barrier to breastfeeding in several studies across many countries and cultures. Among other factors, breastfeeding may be influenced by maternal age, level of education of parents, socio-economic status, insufficient milk supply, infant health problems, method of delivery, and maternal interest (Nabulsi, 2011 and Tsai, 2013). Worldwide, the population of women becoming employed during their childbearing years is growing. Despite the benefits of breastfeeding to both the infant and mother, employment is a persistent barrier to continued breastfeeding (Tsai, 2013).

Malnutrition among Egyptian children less than five years has been associated with decreases in rates of breastfeeding. International and national research has acknowledged personal and contextual challenges that lower the chances of women

breastfeeding. These challenges contain lack of knowledge and support by medical personnel and family, negative societal attitudes, and institutional practices that inhibit breastfeeding (Sarhan, 2020). Egypt is one of a group of 36 countries that are responsible for 90% of global malnutrition (UNICEF, 2017). Malnutrition has been mentioned as the main reason of two-thirds of deaths among Egyptian children under the age of five (UNICEF, 2015). The nutritional status of children is assessed by indicators such as stunting (too short for age), wasting (too thin for height), and underweight (too thin for age category). Malnutrition pointers 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. Breastfeeding is the optimal and most effectual solution to promote health and wellbeing of mothers and their infants by preventing short-term communal diseases and long-term non-communal diseases (Sarhan, 2020).

The nurse has a vital role in educational program for pregnant working women about how to continue breastmilkfeeding after returning to work. Studies have shown that mothers receiving prenatal breastfeeding education are more likely to feed their infants only breast milk during the first 6 months of life and continue breastfeeding longer (Karanci & Yenil, 2014) noted that breastfeeding was more prevalent in working pregnant women who had access to lactation rooms and breastfeeding breaks. Providing training and consultancy to working women regarding how to continue breastfeeding while working and teaching women how to express breast milk, safe storage conditions, and mothers' legal rights are significant factors for successful breastfeeding (Yorganci Sökücü, F., & Aslan, E. 2012). However, no study has examined working pregnant women's knowledge and practice about how to continue breastfeeding during work time. Health professionals should provide training program based on the knowledge and skills working pregnant women need to successfully breastfeed to promote the health of children.

### Significance of the problem

In 2018, UNICEF issued a report on malnutrition in Egypt sustaining that one in every five children under the age of five year are stunted, and that wasting had increased since 2000. The report placed malnutrition as the second largest threat to a child's wellbeing after exposure to violence. Besides growth rate, malnutrition also impacts the child's language and cognitive development. The early introduce of other foods is a concern of public health because it exposes infants to increased infection rate, particularly diarrhoeal diseases. In some cultures, it may lead to poor infant nutrition and adversely affect growth rates. As work can be essential to economic survival for some families, it is likely that work will take precedence over breastfeeding, leading to early introduction of artificial food and early weaning. Of interest to employers, however, is likely to impact on staff absence resulting from higher rates of respiratory, ear and gastrointestinal infections, often a cause of childhood illness and maternal work absence. Potentially, enabling female employees to breastfeed when they return to work could impact on absenteeism. Employers may also benefit from retaining skilled female employees, who may consider returning to work rather than leaving.

The nurse can support for pregnant working women by meeting their needs through designing programs to improve their healthy life style (knowledge and practice) regarding the how to continue breastfeeding after returning to work or even confining in teaching classes focusing on the targeted areas of infant nutrition, express breast milk, safe storage conditions, and mothers' legal rights which is considered as significant factors for successful breastfeeding (*Karanci & Yenal, 2014*). Therefore, the current study aimed to evaluate the effect of educational program for pregnant working women about how to continue breastmilk feeding after returning to work.

### Aim of the study

To investigate the effect of educational program on pregnant working women knowledge and practice regarding how to continue breast feeding after returning to work, through the following objectives;

1. Assess the knowledge and practice of pregnant working women regarding how to continue breast feeding after returning to work
2. Design and implement an educational program for pregnant working women about how to continue breast feeding after returning to work
3. Evaluate the effect of an educational program on pregnant working women's knowledge and practice about how to continue breast feeding after returning to work

### Research hypotheses

1. There will be a statistically significant improvement in both pregnant working women's knowledge regarding How to Continue Breast Feeding after returning to Work.
2. There will be a statistically significant improvement in both pregnant working women's practice regarding How to Continue Breast Feeding after returning to work.

### Subjects and Methods

#### Research Design

A quasi-experimental research (pre/post-test) used in order to achieve the aim of the study. This design used to measure the degree of change of pregnant working women's knowledge and practice regarding how to continue breastfeeding after returning to work.

#### Research Setting

The current study conducted at the outpatient clinic and high risk Units of special Hospital at Beni-Suef University. This setting has the highest capacity of pregnant working women who coming for pregnancy follow up.

#### Research subjects:

A convenience sample of all available pregnant working women (300 women) who were following up their pregnancy and available at the time of the study. They recruited conveniently to achieve the aim of this study. The pregnant working women's knowledge and practice tested as one patch, and the comparison has been made based on pre/post-test design. Pregnant working women selected based on the availability, willingness

to participate in the study, medically stable, able to attend the intervention sessions.

### Tools of data collection:

#### 1. Structured interview questionnaire

It was designed by the researcher to assess pregnant working women's knowledge regarding how to continue breastfeeding after returning to work. It consisted of two parts:

*The first part* is demographic characteristics of pregnant working women such as age, educational level, place of residence, income status, working hours per day, field of work, gestational week, number of pregnancies and number of living children.

*The second part* is adopted from the *Department of Obstetrics and Gynecology (2015)*, to assess pregnant working women's knowledge regarding how to continue breastfeeding after returning to work. It included 15 open-ended questions (definition of breast feeding (1 question), definition of exclusive breastfeeding (1 question), mothers' benefits of breast feeding (2 question), infants' benefits of breast feeding (1 question), maintaining methods of breast milk production while working (1 question), expressing methods of breast milk or the infant breastfed (2 question), expressing degree to empty of mothers' breast (1 question), features of the container in which breast milk is stored (2 question), storage and using of expressed breast milk (2 question), and legal rights of working women to breastfeeding (2 question). This part of the questionnaire was filled in by the educated women and by the researcher for non-educated women. This form collected three times, pre, post-intervention, and at follow-up.

A content analysis of the 15 open-ended questions' answers. Each step was given to three score levels, which are: correct and complete was scored (3), correct and incomplete scored (2) and incorrect scored (1). The total score was 45 marks (100%). The total knowledge score categorized as satisfactory knowledge at 31, 5 grades (70% or more) and unsatisfactory knowledge considered at less than 31, 5 marks (less than 70%).

#### II. Working women self-reported practice:

It adopted from *the Ministry of Health and Population, (2004)* and *Davis, (2006) (Karanci & Yenal, 2014)*. It was used to assess pregnant working women's practice as regards eight main procedures; those are hand washing (12 steps), breast care and nipple cleaning (5 steps), breast massage (6 steps), Daily shower (10 steps), Finding the perfect pump (6 steps), Staying pumped (4 steps) and Maintaining supply (8 steps) Boosting milk supply (10 steps) and Storing milk (7 steps). Time consumed for assessing each procedure took 5-10 minutes.

The scoring system was as follows: each step assigned to two score levels, which are: done was scored (2), and not done scored (1). Each subsection scored independently as hand washing (24 marks), breast care and nipple cleaning (10 marks), breast massage (12 marks), Daily shower (20 marks), Finding the perfect pump (12 marks), Staying pumped (8 marks) and Maintaining supply (16 marks) Boosting milk supply (20 marks) and Storing milk (14 marks). The total score categorized into either competent (from 80% of the total score, and more) or incompetent (less than 80% from the total score). The total practice scores equal to 136.

#### Procedures:

The study's preparatory phase started with an extensive review of relevant literature using textbooks, periodicals, and journals to search for the research problem, select the study tools, and develop the intervention program, and guiding booklet. The researcher assesses the study setting; explore the availability of the study sample. Validity and reliability of the study tools tested for its content and face validity through a panel of five experts (three professors of Neonatology and Obstetrics nursing and two professors of Gynecology Medicine). Tool reliability tested using Cronbach's alpha coefficient test. Structured interview questionnaire reliability equal to 0.996, and mothers' practice observation checklist reliability equal to 0.994.

The selected outpatient clinic and high risk Units have been chosen based on an assessment record developed by the researchers to assess the frequency, numbers, categories, and characteristics of the recurring

patients (pregnant or gynecologic emergency cases) to the outpatient clinic and high risk Units. The record also includes such data as the number of recurring patients in each one of the three shifts. This collected data to ensure the suitability of the study setting to achieve the study aims.

Official approval was gained from the administrators of the study settings to carry out the study. A clear explanation has given about the aim, nature, importance, and predictable outcomes of the study. The pilot study conducted on 10% of the total study sample to test the applicability of the study tools, estimate the time required for completion of each study tool, and to test the feasibility of the study process. The pilot study sample is then excluded from the mainstream sample as some modifications have been done.

After official permission obtained from the aforementioned settings. The study was carried out over six months started from beginning of June 2019 to the end of December 2019. The average time spent to fill in the tools was 30 minutes for the **Structured interview questionnaire**, and 45 minutes for the women self-reported practice. The settings visited by the researchers three days/week (Saturdays, Mondays & Wednesdays).

The process of data collection continued throughout five phases of pre-assessment to assess the pregnant women's learning needs, developing an educational program based on their needs, implementing the training program in the aforesaid settings. The process ended with an evaluation of the nurses' knowledge, practice, and then they were followed up three months later to test their retained knowledge and practice. The theoretical content covered the following items: definition of breast feeding, definition of exclusive breastfeeding, mothers' benefits of breast feeding, infants' benefits of breast feeding, maintaining methods of breast milk production while working, expressing methods of breast milk or the infant breastfed, expressing degree to empty of mothers' breast, features of the container in which breast milk is stored, storage and using of expressed breast milk, and legal rights of working women to breastfeeding.

The content of the practical part included the following: underlined hand washing, breast care, breast massage, daily shower. perfect pump selecting, staying pumped, maintaining boosting milk supply and storing milk and reusing.

Implementation of the educational guideline commanded at the previously stated settings in five sessions. At the beginning of the first session, an orientation of the educational guideline and its purpose presented. Women divided into groups, and each group involved between 9 and 10 women approximately. Each session started with a summary about what had been given through the previous sessions and the objectives of the new topic, taking into consideration the use of simple language to suit the level of women's qualifications. As well, the session ended with a summary of its content and feedback gained from others.

The time of each session ranged between 30 - 45 minutes, according to the women's needs and circumstances of the group work. The theoretical part of the guideline was presented in three sessions in the form of lectures/discussions, followed by the practical part. It consisted of two sessions in the form of demonstration and re-demonstrations using role play, simulator, real objects, discussions, brainstorming and instructed women to watch the previously obtained illustrated books with simple photos, power point and short videos for their own to be watched during breast care, massage, milk expression procedure and manual pump suction at home to enhance milk production, a refrigerator container to store the milk by buying from Cairo and Beni-Suef center and storage and reusing procedure. . . The researchers used media of conveying information as, powerpoint presentations, posters, and printed guidelines that developed and offered for nurses as a reference to use after guideline implementation ended.

The evaluation phase did twice, immediately post implementation of the educational guidelines and at one month later (follow up) by comparing changes in women's knowledge, practices, and attitudes regarding educational guidelines regarding breastfeeding,

breast milk expression and storing milk and reusing.

### Data analysis

The data collected were organized, sorted, tabulated and analyzed using the Statistical Package for Social Sciences (SPSS). They were presented in tables and charts using numbers, percentages, means, standard deviations, t-test and Chi-square ( $\chi^2$ ) test. Level of significance was considered  $p < 0.05$ .

### Results:

**Table (1)** clarifies the average age of pregnant women participating in the research was  $31.03 \pm 4.50$  years. Near to half of pregnant women were Secondary/higher educations (45%); only 23.3% were no education and 63.3% from rural areas. When asked about income, 50% of the mothers reported that their income was equal to their expenses and 31% stated that their income was higher than their expenses. Sixty percent of women were working public work and 18.3% were unregistered worker. The average gestational week for the participants was  $33.2 \pm 2.95$ . More than half of pregnant women were primiparas and did not have living children. (53.3%, 53.0% respectively)

**Figure (1)** illustrates that the sources of information for women were family (40%), followed by mass media (25%), then friends (20%), and the least medical team (15%).

**Table (2):** Shows studied pregnant working women's satisfactory knowledge about how to Continue Breast Feeding after Returning to Work in pre/posttests. Results indicated significant improvement in pregnant working women's knowledge as regards post and follow-up tests (mean percent =  $93.5 \pm 2.9$  and  $85.2 \pm 4.2$  respectively) compared to pre - test ( $22.1 \pm 8.2$ ), with t - test =  $62.2$  &  $16.8$  respectively) at  $p < 0.05$ .

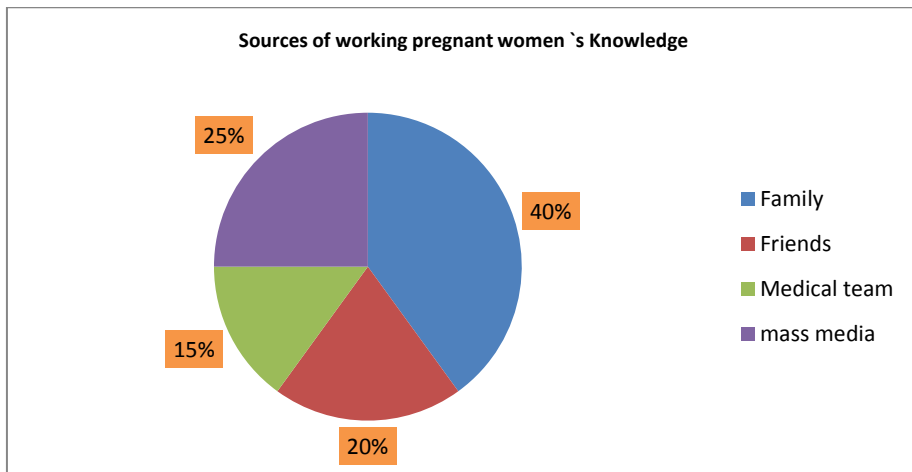
**Table (3):** Reveals the studied pregnant working women's competent practices regarding how to Continue Breastfeeding after Returning to Work in pre/posttests. Results indicated significant improvement in pregnant working women's practices as regards post and follow - up tests (mean percent =  $92.7 \pm 2.9$  and  $84.6 \pm 3.2$  respectively), compared to pre - test

( $24.1 \pm 9.5$ ), with T1 and T2 =  $68.2$  &  $14.2$  respectively  $p < 0.05$ .

**Table (4)** shows that, there were a highly statistical significance positive correlations between knowledge scores, practice and working women's age, educational level, number of living children and field of work at the post- and follow up protocol implementation ( $P < 0.001$ ). Also, this table shows that, there were statistically insignificant correlations between nurses' knowledge, practice scores and their age and educational qualification, number of living children and field of work at pre-program implementation.

**Table (1):** Distribution of the Studied Pregnant Working Women According to their Demographic Characteristics (n=300).

<b>Demographic characteristics</b>	<b>No</b>	<b>%</b>
<b>Age (years)</b>		
≤20 to 24	25	8.3
25 to 29	95	31.7
30 to 34	105	35.0
35 to 39	60	20.0
> 40	15	5.0
Mean ± SD	31.03 ± 4.50	
<b>Women's education</b>		
No education	70	23.3
Primary	95	31.7
Secondary	100	33.3
Higher	35	11.7
<b>Place of residence</b>		
Urban	110	36.7
Rural	190	63.3
<b>Income status</b>		
Higher income than expense	93	31.0
Equal income and expense	150	50.0
Lower income than expense	57	19.0
<b>Work hours per day</b>		
8	180	60.0
9–14	120	40.0
<b>Field of work</b>		
Public work	180	60.0
Private work	65	21.7
Unregistered worker	55	18.3
<b>Gestational week: Mean ± SD</b>	32.5 ± 3.75	
<b>Number of pregnancies</b>		
1	160	53.3
2	77	25.7
3+	63	21.0
<b>Number of living children</b>		
0	159	53.0
1	110	36.7
2+	31	10.3



**Fig (1)** Distribution of working pregnant women regarding the Source of Knowledge about Continue Breast Feeding after Returning to Work.

**Table (2):** Comparison between Percentage of Pregnant Working Women`s Satisfactory Knowledge about Continue Breast Feeding after Returning to Work Pre/Post and Follow up (n=300)

Items	Women`s satisfactory knowledge		
	Pre-test	Post-test	Follow-test
	Satisfactory	Satisfactory	Satisfactory
Breast feeding definition	22.0	92.0	85.5
Definition of exclusive breastfeeding			
Mothers`benefits of breast feeding	20.0	97.0	82.0
Infants`benefits of breast feeding	35.0	90.0	85.0
Maintaining methods of breast milk production while working	22.0	93.0	85.5
Expressing methods of breast milk or the infant breastfed?	20.0	96.0	82.0
Expressing degree to empty of mothers`breast	30.0	90.0	90.0
Features of the container in which breast milk is stored	20.6	90.0	82.0
storage and using of expressedbreast milk	23.5	93.0	85.3
Legal rights of working women to breastfeeding	15.0	87.0	82.0
<b>Mean ± SD</b>	<b>22.1±8.2</b>	<b>93.5±2.9</b>	<b>85.2±4.2</b>
<b>T-test</b>	<b>T1= 62.2* pre-intervention versus post-intervention</b>		
<b>P value</b>	<b>T2 = 16.8* post -intervention versus follow- up</b>		

**Table (3):** Comparison between Percentage ofPregnant Working Women`s Satisfactory Knowledge about Continue Breast Feeding after Returning to Work Pre/Post and Follow up (n=300)

Practices regarding Continue Breast Milk Feeding after Returning to Work	Women`s competent practices		
	Pre-test	Post-test	Follow-test
	competent	competent	competent
	%	%	%
Hand washing	22.0	92.0	85.5
Nipple cleaning	20.0	96.0	82.0
Daily shower	35.0	90.0	85.0
Finding the perfect pump	40.6	91.0	79.0
Staying pumped	23.5	92.0	84.3
Maintaining supply	22.0	92.0	85.5
Boosting milk supply	25.0	94.0	85.0
Storing milk and reusing	20.0	96.0	82.0
<b>Mean ± SD</b>	<b>24.1±9.5</b>	<b>92.7±2.9</b>	<b>84.6±3.2</b>
<b>T-test</b>	<b>T1 = 68.2* pre-intervention versus post-intervention</b>		
<b>P value</b>	<b>T2 = 14.2* post -intervention versus follow- up</b>		

\* Significant P < 0.05



**Table (4):** Correlation coefficient between pregnant working women`s total knowledge/practices regarding educational program intervention (pre, post & follow-up) and pregnant working women`s demographic characteristics (n=300).

Variables		Age		Educational level		Field of work		Number of living children	
		r	P	r	P	r	p	r	p
Knowledge	Pre program	0.72	>0.05*	0.145	>0.05*	0.377	>0.05*	0.166	>0.05*
	Post program	0.544	0.001**	0.245	0.001**	0.246	0.001**	0.35	>0.05
	Follow up	0.451	0.02*	0.364	0.001**	0.422	0.001**	0.413	0.001**
Practices	Pre program	0.22	>0.05*	0.24	>0.05*	0.172	>0.05*	0.120	>0.05*
	Post program	0.433	0.001**	0.405	0.001**	0.263	0.001**	0.322	0.001**
	Follow up	0.532	0.001*	0.42	0.001**	0.344	0.001**	0.481	0.001**

\* Statistically insignificant ( $p > 0.05$ )\*\* Highly statistical significant correlation ( $P < 0.001$ )

## Discussion

The World Health Organization recommends to initiating breastfeeding within the first hour of birth. Remaining to breastfeed after returning to work is a serious problem for new mothers. The benefits of breastfeeding for the first 6 to 12 months of life are established, yet most breastfeeding mothers dissuade their infants when they return to work *Acharya & Khanal, (2015)*. This study aimed to evaluate the effect of educational program for pregnant working women about how to continue breastfeeding after returning to work.

The current study results showed that the mean age of working women was  $31.03 \pm 4.50$  years. Similar findings reported by *Karanci & Yenel, (2014)*, who mentioned that 34.6 % were in between 30 to 34 years. Also, three quarter of Karanci`s studied sample had completed their high education *Karanci & Yenel, (2014)*, which is similar to the present study findings as about half of pregnant women were Secondary/higher education, only less than one quarter were no education. Moreover, more than half of studied sample were from rural areas, also this finding agreed with *Tsai, (2013)*, who reported that 74.6% of participants were 30–39 years old, and 71.7% had college and higher degrees. Additionally, this finding disagreed with *Jabari, et al. (2015)*, which showed that the mean age of participant mothers ( $\pm$ SD) was  $35.8 \pm 6.2$  years. More than half of mothers had secondary school level of education. This results supported by *Balkam et al., (2011)* found that, the respondents were primarily older (mean age 34.4 years, range 25–46 years), well-educated, high-income mothers compared with estimates from a random sample of new mothers.

As regards working women`s income, half of the mothers reported that their income was equal to their expenses and less than one third of them stated that their income was higher than their expenses and the average gestational week for the participants was  $33.2 \pm 2.95$ . More than half of the working women were primiparas and did not have living children. This results supported by *Karanci & Yenel, (2014)* stated that, more than half of the mothers reported that their income was equal to their expenses and 35.9% stated that their income was higher than their expenses, the mean gestational week of women was  $32.5 \pm 3.75$  and (53.3%) of the respondents were primiparas. According to work hours per day, the present study showed that more than half of the women averaged 8 hours of work/day. This finding unsupported by *Tsai, (2013)* found that only 15.7% of the mothers averaged 8 hours of work/day. This younger age prevalence was due to early marriage. Early marriage occurs due to poor economic situation for some families that mainly prevent females from continuing their education and lead them to get married early. This supported by the finding of the current study showed the more than half of the study sample had illiterate & primary and secondary. In addition, there`s wrong cultural beliefs and traditions in some areas as rural areas that suppose girls to get married early or they will be considered as spinsters if they reach the age of 20 without getting married.

The current study result illustrated that the main sources of information for women were family and followed by mass media. This results not proved by *Karanci & Yenel, (2014)* who found that, although half of the pregnant women (50.8%) received training on breastfeeding, only 46.9% of these pregnant women received

information on how to continue breastfeeding while working. Nurses or midwives (54.5%), books or magazines (46.2%), and the Internet (26.5%) were cited as sources of information. This manual fills this gap by helping as a holistic resource for caregivers to use in order to achieve a high quality of life for both themselves and their infant. so, for this reason, it is important to approach the subject, so that health education programs and guidelines could bring significant improvement in their knowledge and practice about breastfeeding problems with working mothers, so communication with mothers is a necessary factor in solving problems and howto Continue Breast Milk Feeding after Returning to Work

In relation to working women`s knowledge regarding howto Continue Breast Milk Feeding after Returning to Work.In the present studyindicated significant improvement in pregnant working women`s knowledge as regards post and follow-up tests compared to pre – test as regards the following: definition of breast feeding, definition of exclusive breastfeeding, mothers `benefits of breast feeding, infants `benefits of breast feeding, maintaining methods of breast milk production while working, expressing methods of breast milk or the infant breastfed, expressing degree to empty of mothers `breast, features of the container in which breast milk is stored, storage and using of expressed breast milk, and legal rights of working women to breastfeeding.This results proved by **Karanci & Yenil, (2014)** who found that, pregnant women who received information about how to continue breastfeeding while working via training also demonstrated higher knowledge score averages than those who did not receive any education on this issue this may be due to that.

Additionally, **Tsai, (2013)** who suggested that to encourage and increase the rate of continued breastfeeding, workplaces should establish dedicated breastfeeding rooms and maintain a comfortable and clean environment. Furthermore, employers should provide encouragement and support for working mothers to continue breastfeeding after returning to work. Furthermore (**Mosleh J, et al. 2015**) reported that mothers who were working full time had a significantly negative effect on breastfeeding duration. By 6 months after delivery, 26.1 % of employed mothers employed exclusively fed their

infants, compared with 35% of nonworking mothers. Form the researcher point of view this problem due to busy working hours and work regulations that do not allow escorting children to the workplace and this problem is one of the serious problems that presents in each community and can be avoided and by appropriate awareness and good knowledge of the working women, community and professional experience of the health services providers. Form the researcher point of view improving working women`s knowledge regarding howto Continue BreastFeeding after Returning to Work is the main aim of the study and this improve reported in this study indicated the research hypothesis regarding knowledge was achieved.

According to working women`s practice regarding howto Continue BreastFeeding after Returning to Work.The present study indicated significant improvement in pregnant working women`s practice as regards post and follow-up tests compared to pre – test as regards the following: hand washing, breast care, breast massage and daily shower, finding the perfect pump, staying pumped, maintaining boosting milk supply and storing milk and reusing. This results conducted by **Balkam et al., (2011)**who demonstrated that, the workplace lactation program had a positive impact on duration of breastfeeding for the women who participated. **Anderson and Louise, (2006)** recommended that should include providing pregnant staff with information about breastfeeding support that they should expect andcould therefore plan to use, including access to facilities to express and to store breast milk, to enable them to work flexible hours and to take rest breaks during working hours.Moreover, **Al dasoqi et al, (2018)** who found that , there is a need for increasing health care providers and public awareness about the role of intrapartum medications and procedures on the initiation and continuation of BF.

Mothers play an active role in helping and breastfeeding their children and caring with them effectively. Wherever, training mothers about Practice related to howto Continue BreastFeeding after Returning to Work as using of manual suctioning pump, maintaining supply boosting milk supply and storing milk, reusingand informing women about breastfeeding services provided at the workplace and collaborating with employers to provide necessary conditions at the

workplace for breastfeeding and milk expression; during work period is very important role **Karanci & Yenai, (2014)**. The researcher opinion is improving working women`s practice regarding how to Continue BreastFeeding after Returning to Work is the main aim of the study and this improve reported in this study indicated the research hypothesis regarding practice was achieved.

Finally the current study illustrated that, there were a highly statistical significance positive correlations between knowledge scores, practice and working women`s age, educational level, number of living children and field of work at the post- and follow up protocol implementation ( $P < 0.001$ ). This results of current study conducted by **Acharya and Khanal, (2015)** who established that, there is association between a mother`s educational status and her likelihood of early initiation of breastfeeding increases, long-term approaches to prioritizing education for women and girls should be explored. Additionally, **Al dasoqiet al, (2018)** Sociodemographic characteristics of mothers influences initiation of breast feeding and optimal exclusive breast feeding. In other hand, this findings disagreed with **Karanci & Yenai, (2014)** who determined that, the type of job did not affect knowledge scores about continuing breastfeeding after returning to work

## Conclusion

Based on the results of the present study, it can be concluded that, there were highly statistically significance improvements in working women`s knowledge and practice post- immediately and at follow up after educational program intervention. Moreover, there were a significant positive correlation between working women`s knowledge and practice age and level of education at pre and follow up and immediately after guidelines intervention phases.

## Recommendation

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

1. Provide continuous education and training for working women regarding how to

continue breast milk feeding after returning to work

2. supporting legislation to provide private, hygienic lactation rooms to ensure the safe storage of expressed milk

## References

- Acharya P., and Khanal V., (2015)**:The effect of mother`s educational status on early initiation of breastfeeding; further analysis of three consecutive Nepal Demographic and Health Surveys. BMC Public Health (2015) 15:1069. DOI 10.1186/s12889-015-2405-y
- Acharya P and Khanal V., (2015)**:The effect of mother`s educational status
- Al dasoqi K., Safadi R., Badran E., Basha AS., Jordan S and Ahmad M., (2018)**. Initiation and continuation of breastfeeding among Jordanian first-time mothers: a prospective cohort study. International Journal of Women`s Health, 2018:10.
- AL-BINALI A.M., (2012)**: Breastfeeding knowledge, attitude and practice among school teachers in Abha female educational district, southwestern Saudi Arabia. Int. Breastfeed J., 7: 10, 2012.
- Anderson JK, and Louise M. W (2006)**: Breastfeeding works: the role of employers in supporting women who wish to breastfeed and work in four on early initiation of breastfeeding: further analysis of three consecutive Nepal organizations in England. Journal of Public Health, | Vol. 28, No. 3, pp. 183–191 | doi:10.1093/pubmed/fdl012 | Advance Access Publication 22 July 2006
- Anderson J K., & Wallace L M., (2012)**: Breastfeeding works: the role of employers in supporting women who wish to breastfeed and work in four organizations in England Journal of Public Health | Vol. 28, No. 3, pp. 183–191 | doi:10.1093/pubmed/fdl012 | Advance Access Publication.

- Balkam J. A. J., Cadwell K. and Fein S. B. (2011):** Effect of Components of a Workplace Lactation Program on Breastfeeding Duration Among Employees of a Public-Sector Employer *Matern Child Health J* (2011) 15:677–683 DOI 10.1007/s10995-010-0620-9
- Davis, M. (2006).** The premature infant located at [www.prematureinfanthealth.org](http://www.prematureinfanthealth.org). doi: 10.3390/nu7010663.
- Dellen S. A., Wisse B., Mobach M. P. & Dijkstra A., (2019):** The effect of a breastfeeding support program on breastfeeding duration and exclusivity: a quasi-experiment *BMC Public Health* (2019) 19:993 [https:// doi. org/ 10. 1186/ s12889- 019-7331-y](https://doi.org/10.1186/s12889-019-7331-y).
- Department of Obstetrics and Gynecology (2015):** Increasing Breast Milk Supply, Von Voigtl, and er Women's Hospital, Michigan Medicine. Demographic and Health Surveys. *BMC Public Health*, (2015) 15:1069.
- Jabari M., Al-Hussein K., Al-Sayed M., Al-Faris, A., Al-Shaya, A., & Al-Shehri, H., (2015):** Breastfeeding Practices among Employed Saudi Mothers *Med. J. Cairo Univ., Vol. 83, No. 1, December: 1159-1163, 2015.* [www. medical journalofcairouniversity.net](http://www.medicaljournalofcairouniversity.net)
- Karanci, G. &Yenal, K., (2014):** Breastfeeding knowledge among working pregnant women in Turkey. *Workplace Health & Safety*, VOL. 62, NO.4, 2014.
- La Leche League International (2017):** What is colostrum? How does it benefit baby? 2016 [Cited on: March 04, 2017]. Available from: [http://www. llli.org/ faq/colostrum.html](http://www.llli.org/faq/colostrum.html).
- McFadden A., Siebelt L., Joyce L. M., GavineA., Girard LC.,Symon A. &MacGillivray S., (2019):** Counseling interventions to enable women to initiate and continue breastfeeding: a systematic review and meta-analysis *McFadden et al. International Breastfeeding Journal* (2019) 14:42 : [https:// doi. org/ 10. 1186/ s13006-019- 0235-8](https://doi.org/10.1186/s13006-019-0235-8).
- Ministry of Health and Population (2004):** Basic essential obstetric care: Protocol for physicians, Arab Republic of Egypt, Chap. 12.
- Mosleh J., Khalid A., Mohammed A., Abdullah A., Abdullah A., and Hassan A., (2015):** Breastfeeding Practices among Employed Saudi Mothers *Med. J. Cairo Univ., Vol. 83, No. 1, December: 1159-1163, 2015* [www. medical journal of cairouniversity.net](http://www.medicaljournalofcairouniversity.net)
- Nabulsi N.:** Why are breastfeeding rates low in Leba-non? a qualitative study. *B.M.C. Pediatr.*, 11: 75, 2011.
- Santiagoa, L. T.C., Júnior, J. D.M., Freitas, N. A. &Rugolo C. S. (2018):** Colostrum fat and energy content: effect of gestational age and fetal growth. UniversidadeEstadualPaulista, Botucatu, SP, Brazil. Received on April 6, 2017; approved on August 13, 2017; available online on June 21, 2018.
- Sarhan, A. (2020):** Positive deviance inquiry of breastfeeding in Egypt [Master's thesis, the American University in Cairo].AUC Knowledge Fountain. <https://fount.aucegypt.edu/etds/815>
- Tsai S., (2013):** Impact of a Breastfeeding-Friendly Workplace on an Employed Mother's Intention to Continue Breastfeeding After Returning to Work. *Breastfeed. Med.*, 8 (2): 210-6, 2013.
- UNICEF (1 May 2018):** *Improving breastfeeding, complementary foods and feeding practices.* Retrieved from: [https://www.unicef.org/nutrition/index\\_ breastfeeding.html](https://www.unicef.org/nutrition/index_breastfeeding.html)
- UNICEF (2018):** *Child Malnutrition: Unfolding the Situation in Egypt.* Retrieved from: [https:// www. unicef. org/ egypt/ reports/ unicef- egypt- data- snapshot](https://www.unicef.org/egypt/reports/unicef-egypt-data-snapshot).

**Unicef (2015):Breast feeding. Retrieved from:** [https:// www. unicef. org/ nutrition/ index 24824.html](https://www.unicef.org/nutrition/index_24824.html).

**UNICEF (2017):** *The Global Breastfeeding Collective*. Retrieved from: [https:// www. unicef. org/ nutrition/ index\\_ 98470.html](https://www.unicef.org/nutrition/index_98470.html)

**YorganciSökücü, F., &Aslan, E. (2012):** The effect of woman's work status on breast-feeding.*Florence Nightingale Journal of Nursing*, 20, 62-68.