

Effect of Precaution Guidelines on Breast Feeding Women during COVID -19 Pandemic in Beni Suef City

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Abstract

Background: Considering the benefits of breastfeeding and the insignificant role of breast milk in the transmission of respiratory viruses, the mother can continue breastfeeding, while applying all the necessary precautions, subject to medical advice.

Aim: This study aimed to evaluate the effect of precaution guidelines on knowledge, attitude, and practice of breastfeeding women during COVID-19. **Subjects and**

Methods: Research design: a quasi-experimental (one-group pretest/posttest) research design was utilized to accomplish the aim of this study. **Setting:** The study was carried out at maternal and child healthcare center in Beni Suef City. **Subjects:**

The study included a convenience sample of 80 breastfeeding women. **Tool:** Three tools used for data collection including a structured interview schedule, a reported practice sheet, and attitude rating scale. **Results:** Out of 80 studied breastfeeding women, 18.80% had good knowledge score pre-intervention, compared with 87.50% post-intervention. Also, 23.70% of them had satisfactory practice pre-intervention, versus 90% post-intervention. Additionally, 25% had a positive attitude related to COVID-19 pre-intervention, compared with 81.30% post-intervention. Prominently, there were a statistically significant differences related to studied women knowledge, attitude, and practice at $p < 0.01$. **Conclusion:** These guidelines proved its effectiveness in improving breastfeeding women knowledge, attitude, and practices in the context of COVID-19. **Recommendations:** Precaution guidelines on COVID -19 pandemic should conducted at breastfeeding mothers attending on Maternal and Child Health Care Centers in Egypt.

Keyword: Precaution; Guidelines; Breast Feeding Women; COVID -19 Pandemic

Introduction

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the causal agent of a potentially deadly disease that is of considerable worldwide public health concern, is the cause of the new Coronavirus disease 2019 (COVID-19) ⁽¹⁻⁴⁾. In December of 2019, the new corona virus emerged in Wuhan, Central China, and quickly spread across the country. At this time, every continent on the planet has been affected ⁽⁵⁻⁷⁾. The COVID-19 epidemic is wreaking havoc on people's lives across the world. The epidemic needs immediate intervention, and when new knowledge becomes available, reliable standards for care are required ^(8,9).

So far, there is no conclusive proof that the SARS-CoV-2 virus is transmitted through breast milk to newborns delivered to mothers who have been diagnosed with COVID-19 during the perinatal period ^(5,9-13). As a result, most neonatal recommendations do not advise against nursing in women who have Covid-19, believing that the advantages exceed any potential dangers of the virus being transmitted through

breast milk. However, particular precautions must be taken ^(11,14).

Breast milk is the best source of nourishment for most babies and protects them from a variety of diseases ⁽¹⁵⁾. Breastfeeding promotes both mother and child's health, as well as providing advantages to families and having a good social and economic benefit ^(16,17). Breastfeeding prevents babies from illness and helps them stay healthy throughout their childhood. Breastfeeding is especially helpful in preventing infectious illnesses because it improves the immune system by transferring antibodies from the mother directly to the baby. Mothers with any symptoms who are nursing or practicing skin-to-skin contact, like with all confirmed or suspected COVID-19 cases, should seek medical attention immediately, and take precautions ⁽¹⁸⁾.

Breastfeeding and mother-infant interactions are normative guidelines and a standard of care ⁽¹⁹⁾. Despite recommendations for breastfeeding and other protective practices to reduce viral transmission, such as separating mother

and child temporarily during active infection, the exact numbers of maternal infant transmission are unknown due to the potentially large number of asymptomatic infected women who are not tested for COVID-19⁽²⁰⁻²²⁾.

Nursing mothers should be advised that the advantages of breastfeeding much exceed the dangers of transmission. Mother and newborn should be allowed to be together when rooming-in throughout the day and night and engage in skin-to-skin contact, including kangaroo mother care, especially soon after birth and during the initiation of breastfeeding, whether they or their infants have suspected or confirmed COVID-19⁽²³⁻²⁴⁾.

In line with Centers for Disease Control and Prevention⁽²⁵⁾ recommendations, a nursing mother who is not completely vaccinated against COVID-19 should take steps to safeguard herself and her breastfed infant. There are rare exceptions when breastfeeding or feeding expressed breast milk is not recommended. All breastfeeding people regardless of COVID-19 status who are

using breast pumps should be educated about CDC information on how to properly clean and sanitize their breast pump.

Breastfeeding women should be advised to take all measures necessary to prevent infection, such as handwashing before contacting the child and using a cloth face covering when feeding at the breast. If breast milk is expressed by hand or with a breast pump, the newborn should be fed the expressed breast milk by a healthy caregiver who is not at risk for serious illness from COVID-19⁽²⁴⁾. Precautions while feeding at the breast including, a) masks should not be worn by children under the age of two, because of the danger of suffocation, b) wearing a mask during any close contact (i.e., less than 6 feet) with the child, and c) cleaning hands frequently (i.e., before and after touching their child). Recently pregnant women for at least 42 days following the end of pregnancy are at increased risk for severe COVID-19 illness. Healthcare professionals should counsel the breastfeeding mothers on the risks and benefits of continuing to feed

at the breast in the context of COVID-19 illness⁽²⁵⁻²⁶⁾.

Mothers who contract the coronavirus soon before giving birth and begin nursing, as well as those who become infected during breastfeeding, generate immunological factors (antibodies) in their milk to protect their babies and boost their own immune responses. This implies that the best approach to combat the infection and safeguard your baby is to continue to breastfeed while taking precautions⁽²⁷⁾. According to the world health organization (WHO) interim guidance May 27, mothers with suspected or confirmed COVID-19 should be encouraged to initiate and continue breastfeeding while infection control measures are implemented and should not be separated from their infants unless the mother is too sick to care for her baby⁽²⁸⁾. As we are currently confronting the fourth wave of COVID-19 globally, this study aimed at:

Aim of study

Evaluate the effect of precaution guidelines on knowledge, attitude, and practice of breast-feeding women during COVID-19 pandemic.

Subjects and Methods

Research hypothesis:

H₁: Breast feeding women's knowledge regarding precautions of breastfeeding during COVID-19 pandemic will be improved after implementing the precaution guidelines.

H₂: Breast feeding women's attitude regarding COVID-19 pandemic will be improved after implementing the precaution guidelines.

H₃: Breastfeeding women's practice regarding breastfeeding during COVID-19 pandemic will be improved after implementing the precaution guidelines.

Research design:

A quasi-experimental (one-group pretest/posttest) research design was utilized to accomplish the aim of this study.

Setting:

The study was carried out at (5) Maternal and Child Health Care Centers in Beni Suef City. These Centers named (Ghamrawi, the Green Salon, Marmah, the Military Police) and East Nile Medical Center.

Subjects:

A convenient sampling approach was used to find participants. The study enrolled 80 breast-feeding mothers from attending on the previously stated settings who agreed to participate. The study was extended for six months, from January 1st to June 30th, 2021.

Tools of Data Collection:

The current study's data were gathered using the following tools:

Tool I: A structured interview schedule

This tool was developed by the researchers in Arabic-language related to the current literature review, it consisted of two-parts as the following:

Part I: concerned with the demographic profile of the studied breast-feeding women, included sociodemographic characteristics of the studied women such as age, educational level, monthly income.... etc.

Part II: Concerned with the breast-feeding women's

knowledge regarding COVID 19 pandemic. It included 15 multiple choice questions regarding the definition of COVID-19, clinical picture, the mode of transmission, mode of prevention

Scoring system: The right answer will be scored as a single point and the wrong answer or I don't know will be scored as a zero point. These scores will be summed, converted into a percent score and the total score ranged 0 to 15. The total knowledge score was categorized as the following bad (< 60.0%), and good (\geq 60.0%).

Tool II: A reported practice sheet

It was adapted from^[29&30] This tool consists of eight items and is used to assess breastfeeding women's practice toward protecting their neonates from COVID 19 pandemic as hand washing, wearing a face mask, a proper technique related to milk expression, extra care when formula feeding.... etc.

Scoring system:

The right answer will be scored as a single point and the wrong answer will be scored as a zero point. These scores will be summed, converted into a percent score and the total score ranged 0 to 8. It will be classified into 2 categories: satisfactory if score $\geq 60.0\%$, and unsatisfactory if score $<60.0\%$.

Tool III: Attitude Rating Scale:

Three-point Likert rating scale developed by the researchers in the Arabic language after reviewing the current updated literature review^[31&32] to assess the attitude of women regarding breastfeeding during COVID 19. It consisted of eight items related to the stigma of COVID-19 disease, mothers' contact with the doctor in case of having symptoms that resemble those of COVID-19.... etc.

Scoring system:

Each statement will be assigned a score according to women's responses. Responses “agree”, “sometimes”, and

“disagree” were respectively scored 3, 2, and 1. The scoring will be reversed for negative statements; the scores of the items are summed up and converted into a percentage score and ranged from 8 to 24. It was classified into 2 categories: positive attitude if score $\geq 60\%$, and negative attitude if score $< 60\%$.

The preparatory phase:

A literature review, tool development, and evaluating the validity and reliability of the study's produced tools were all part of this phase. This includes a review of previous and current related literature and studies, as well as a familiarization with the different parts of the study research problems utilizing accessible books, journals, magazines, and articles. A statistician used Cronbach's alpha coefficient test in SPSS software version 21 to separate all questions on instrument and compute all correlation values for them, ensuring that the produced tool was reliable. It was done on 10% of the breast-feeding

women in the study (n=8), and the findings were Cronbach's =0.84.

Pilot study:

A pilot research was conducted with a group of eight breast-feeding women. It is carried out prior to data collection to assess the feasibility, duration, cost, and adverse events of a full-scale research project and to enhance the study design. The appropriate changes were made as a result. Those who participated in the pilot study were excluded from the main study sample.

Fieldwork:

The researchers were available at MCH center for two days a week for each setting, in the morning shift from 8.00 a.m. to 2.00 p.m. Data was collected over a six-month period from January 1st to June 30th, 2021, for the pretest, precaution guidelines sessions implementation, and posttest. The data was gathered through interviews with the breast-feeding mothers. Women were interviewed one by one. Each interview took 10-15 minutes to complete.

The framework of the study was carried out through the following four phases:

I. Assessment phase:

Assessment of mother's knowledge, attitude, and practices regarding breastfeeding during COVID-19 before the implementation of precaution guidelines sessions was done.

II. Planning phase:

Based on the findings of the assessment phase; goals, priorities, and expected outcomes will be formulated to meet mother's needs of knowledge and practices regarding breastfeeding precautions during COVID-19.

III. Implementation phase:

Booklets, boosters, and brochures for teaching the studied participants were prepared by researchers in simple Arabic language. Implementation of the precaution guidelines sessions was carried out at the previously mentioned settings. The precaution guidelines consisted of 3 sessions once every week & every session continued

for 20- 30 minutes. The first session focused on the correct relevant knowledge related covid-19. The second session focused on mother's correct practices and precautions regarding breastfeeding in context COVID-19. The third session concerned with correct the breastfeeding women's negative attitudes regarding breastfeeding during pandemic COVID-19.

IV. Evaluation phase:

Re-evaluation of breastfeeding women's knowledge, attitude, and practice regarding breastfeeding during COVID-19 immediately after implementing the precaution guidelines sessions and were compared with pretest results.

Administrative design:

An official permission was obtained through proper communication.

Ethical Considerations:

The research approval was obtained from the director of MCH center. Informed consent was also acquired from each mother once the researchers told them of the study's purpose. Furthermore, moms

who volunteered to participate in the research were told that all information obtained would be kept private. They also have the option to leave the study at any moment.

Statistical Analysis:

Data was sorted, classified, and the results were shown in tables. The Statistical Package for the Social Sciences was used to analyze the data on a suitable personal computer (SPSS Inc; version 21; IBM Corp., Armonk, NY, USA). The one-sample Kolmogorov–Smirnov test was used to determine the data's normality. Numbers and percentages were used to describe qualitative data. Continuous variables were presented as means \pm standard deviation. The *t*-test was used to compare two means. The results were considered significant when the probability of error is less than 5% ($p < 0.05$) and highly significant when the probability of error is less than 0.1% ($p < 0.001$).

Results:

Table 1 shows that out of 80 breastfeeding women who responded to be included in the study, 41 (51.2%) of

them were in the range of age 30– <40 years with a mean of 31.93 ± 5.20 . Among the participants, 37 (46.3%) graduated from elementary schools, and only 7 (8.7%) had a bachelor's education. Of all respondents, 56 (70%) had insufficient monthly income. Additionally, 71 (88.7%) did not suffer from previous COVID-19 infection, the vast majority of them 76 (95%) didn't attend training courses related to COVID-19.

Regarding the breastfeeding women's knowledge, table 2 illustrated that as regard COVID definition, 15% of participants had good knowledge pre-intervention compared to 92.5% post-intervention. Moreover, 18.7% of them had good knowledge related to the clinical picture of COVID-19 pre-intervention, versus 78.7% post-intervention. Concerning preventable ways of COVID transmission, 17.5% had good knowledge pre-intervention, which significantly changed to 73.7% post-intervention. Furthermore, related to the mode of the transmission 30% had good knowledge pre-intervention

compared with 87.5% post-intervention. About signs and symptoms that appear at infant-related COVID-19, the knowledge level improved from 28.8% to 90% pre/post-intervention respectively. Finally considering the benefits and challenges of breastfeeding, 38.8% of breast-feeding women had good knowledge pre-intervention compared with 95% post-intervention. Additionally, there were a highly statistically significant differences at $p < 0.01$ for all.

Concerning the total knowledge score about COVID-19, figure 1 reveals that 18.80% of the total participants had good level of knowledge score pre-intervention, compared with 87.50% post-intervention with a highly statistically significant difference at $t = 18.663$, and $p < 0.01$.

Regarding studied women's practices related breastfeeding in context COVID-19, table 3 revealed that 36.3% of participant's women had satisfactory practice regarding regular hand washing pre-intervention compared to 90.0% post-intervention. As regard, the

precaution of wearing mask during breastfeeding, 25.0% of them had satisfactory practice pre-intervention, versus 80.0% post-intervention. Moreover, 23.8% had satisfactory practice related to the proper technique of milk expression pre-intervention, which significantly increased to 83.3% post-intervention. Related to extra care of formula feeding, transmission 38.8% had satisfactory practice pre-intervention compared with 93.8% post-intervention. Furthermore, 20% of them regularly wipe and disinfect surfaces pre-intervention, compared with 81.3%. Considering avoiding coughing and sneezing in front of infants, 27.5% of breast-feeding women had satisfactory practice pre-intervention compared with 97.5% post-intervention. Additionally, there were a highly statistically significant differences at $p < 0.01$ for all.

Regarding to the level of their reported practice related COVID-19, **figure 2** revealed that 23.70% of the breast-feed women had satisfactory practice pre-intervention, versus 90% post-intervention with a highly statistically

significant difference at $t = 19.025$, and $p < 0.01$.

Figure 3 demonstrated that 25% of the total respondents to the questionnaire had a positive attitude related to COVID-19 pre-intervention, compared with 81.30% post-intervention with a highly statistically significant difference at $t = 19.654$, and $p < 0.01$

Table (1) :Distribution of studied breast-feeding women according to their characteristics (n=80)

Items	No	%
Age		
20 - <30	27	33.8
30 - <40	41	51.2
40 or more	12	15
Mean (SD) 31.93±5.20		
Educational level		
Not read and write	7	8.7
Read and write	13	16.3
Primary	16	20
Elementary schools (Preparatory& Secondary)	37	46.3
Bachelor	7	8.7
Monthly income		
Sufficient	24	30
Insufficient	56	70
Suffered from previous COVID-19 infection		
Yes	9	11.3
No	71	88.7
Training courses related COVID-19		
Yes	4	5
No	76	95

Table (2): Distribution of studied breast-feeding women related their knowledge level at pre and post intervention (n=80)

Items	Pre			Post			T test P value
	Good		Bad	Good		Bad	
	No %	%	No	No %	%	No	
Definitions of COVID-19	12	15	68	74	92.5	6	14.202 <0.01**
		85			7.5		
Clinical picture of COVID-19	15	18.7	65	63	78.7	17	13.044 <0.01**
		81.3			21.3		
Ways of prevention transmission COVID-19 to their infant	14	17.5	66	59	73.7	21	14.963 <0.01**
		82.5			26.3		
Mode of transmission of COVID-19	24	30	56	70	87.5	10	12.717 <0.01**
		70			12.5		
Signs and symptoms appear at infant related COVID-19	23	28.8	57	72	90	8	11.500 <0.01**
		71.2			10		
Benefits and challenge of breast feeding	31	38.8	49	76	95	4	15.098 <0.01**
		61.2			5		

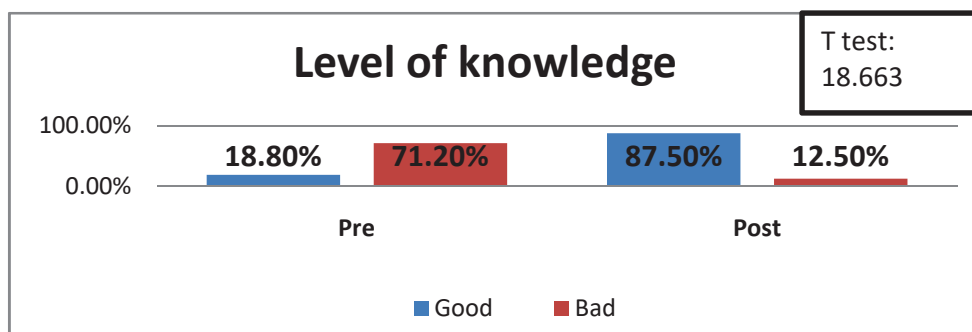


Figure (1): Distribution of studied breast-feeding women related to level of knowledge regarding COVID-19 at pre and post intervention (n=80)

Table (3): Distribution of studied breast-feeding women related their practice at pre and post intervention (n=80)

Items	Pre			Post			T test P value
	Satisfactory			Satisfactory			
	Unsatisfactory			Unsatisfactory			
	No %	%	No	No %	%	No	
Wash hands regularly	29	36.3	51	72	90	8	13.465 <0.01**
		63.7			10		
Wear face mask during breast feeding	20	25	60	64	80	16	11.474 <0.01**
		75			20		
Proper technique related expression milk “Using breast pump”	19	23.8	61	75	93.8	5	12.055 <0.01**
		76.2			6.2		
Extra care when formula feeding	31	38.8	49	75	93.8	5	12.467 <0.01**
		61.2			6.2		
Wipe and disinfect surfaces regularly	16	20	64	65	81.3	15	16.887 <0.01**
		80			18.7		
Use a bottle to feed babies with expressed breast milk when too sick	30	37.5	50	71	88.8	9	14.691 <0.01**
		62.5			11.2		
Avoid coughing and sneezing front the infant	22	27.5	58	78	97.5	2	15.711 <0.01**
		72.5			2.5		
Wash breast and nipple with soap and water before breast feeding	14	17.5	66	70	87.5	10	12.600 <0.01**
		82.5			12.5		

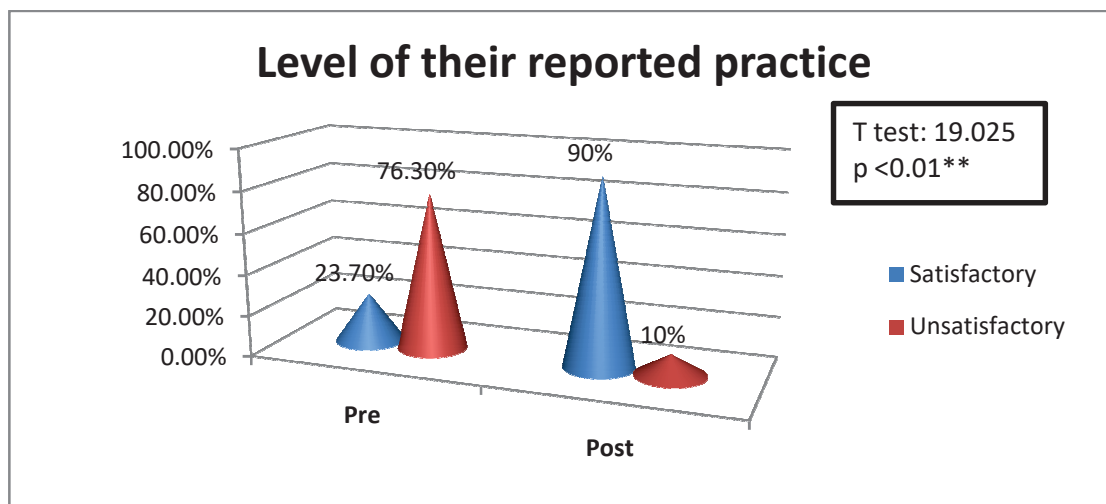


Figure (2): Distribution of studied breast-feeding women related to level of their reported practice regarding COVID-19 at pre and post intervention (n=80)

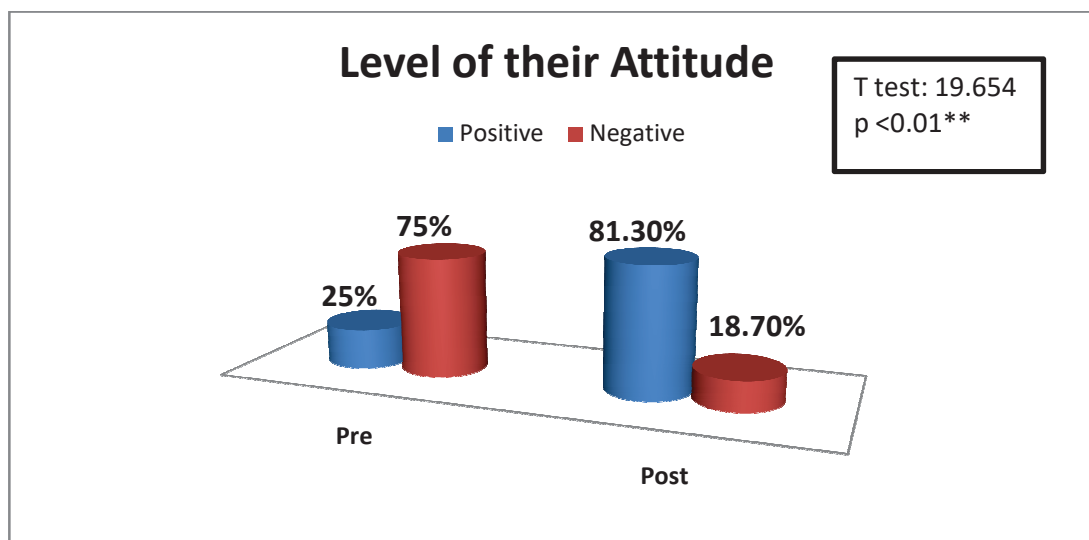


Figure (3): Distribution of studied breast-feeding women related to level of their attitude regarding COVID-19 at pre and post intervention (n=80)

Discussion:

Mothers with COVID-19 (or suspected COVID-19) can breastfeed their babies if they take appropriate precautions⁽³⁰⁾. As a result of the lack of evidence regarding direct transmission through breast milk, the main concerns about SARS-CoV-2 in addition to evidence of contact and aerosol dissemination with mother and infant in close proximity when breastfeeding, the recommendations of the guidelines are measures relevant to breastfeeding in the context of COVID-19. Therefore, either affected or suspected COVID-19 infected mothers should be informed about the importance of breastfeeding, and that this goal can be achieved by adopting appropriate respiratory hygiene, precautions, and safety practices⁽³³⁾. The WHO's recommendations on Infection Prevention and Control (IPC) are that mother with suspected, probable, or confirmed COVID-19 should be counseled about droplet and contact precautions during contact with their infant^[34]. Hence, this study aimed to evaluate the effect of precaution

guidelines on knowledge, attitude, and practice of breastfeeding women during COVID-19 pandemic.

The current study findings reported a significant improve on breast feeding women's knowledge, attitude, and practice regarding breastfeeding during COVID-19 after implementing the precaution guidelines. The current study findings were supported by Lima et al. (2020)⁽¹¹⁾ who revealed in their study entitled "Breastfeeding consultancy during the COVID-19 pandemic" that it was noticed that all studied mothers were breastfeeding and practicing social distancing as recommended by the health authorities, in addition to basic personal hygiene care, such as hand washing, use of 70% alcohol and more frequent baths. With the baby, it was observed that the breastfeeding women maintained routine care but emphasizing the cleaning of the house and the restrictions of visits. From view of researchers the restriction of visits, although it is a recommendation for this moment of pandemic, has repercussions on the absence of the support network

(mothers, sisters, grandparents) much needed for some women.

On the other hand, contradictory findings were reported by **Adhikari et al. (2020)**⁽³⁵⁾ in a cross-sectional study entitled “Evaluation of knowledge, attitude, practice, and hospital experience regarding COVID-19 among post-partum mothers at a tertiary care center. **Adhikari et al. (2020)**⁽³⁵⁾ showed that out of a total of 203 postpartum women who participated in the study. Almost all the participants had heard of COVID-19. The majority of them were aware of how COVID-19 is transmitted and its preventive measures. Most of the participants knew that COVID-19 has effects on pregnancy. Almost all participants wore a mask during their hospital stay. All women washed their hands with soap and water or an alcohol-based sanitizer, but some did not wash their hands before and after breastfeeding (2.5%). The majority of mothers were wearing the mask while breastfeeding their baby from view the researchers these results may be because of the majority of participants have

elementary school education and health awareness through various media.

Regarding the mother’s attitude, the result of current study showed that only one quarter of studied breastfeeding women had a positive attitude related to COVID-19 pre-intervention compared with more than three quarters of the post-intervention, other similar finding illustrated in a qualitative study carried by **De Oliveira et al. (2020)**⁽³⁶⁾ which evaluated the feelings of women in the period of the Zika virus epidemic showed reports of feelings of concern, fear, and uncertainty in contracting the disease, as well as in generating harms to their baby.

Moreover, across sectional study conducted by **Gonçalves-Ferriet al. (2020)**⁽²¹⁾ entitled “The impact of coronavirus outbreak on breastfeeding guidelines among Brazilian hospitals and maternity services” demonstrated that among hygiene measures, washing hands and the use of masks were recommended, but other body surfaces as mother’s face, and breasts were not specified. Also, all hospitals evaluated in this study recommend maintaining

breastfeeding and distancing by at least 2m in the home environment.

From the results of the current study, it was revealed that almost all the participants followed proper hand hygiene after touching objects or while breastfeeding after the intervention⁽³⁷⁾. They reported that hand washing and hand rubbing with an alcohol-containing disinfectant is the simplest and most effective way to prevent the spread of respiratory infections such as COVID - 19. Also, a study conducted by **Davanzo et al. (2020)**⁽³⁸⁾ concluded that hand washing and face mask use by mothers can reduce transmission of COVID-19 to newborns.

After implementing the precaution guidelines intervention on breastfeeding women during COVID-19, the objective and hypotheses were largely achieved as the results indicated that the majority of the breastfeeding women had good knowledge and most of them obtained satisfactory practices regard COVID - 19 after the intervention. From view of the researchers these improvements may be due to the impact of the precaution guidelines intervention, which was

introduced to the breast feeding women and they were also excited to participate in the intervention and ready to attend future health education programs as they mentioned.

Opposite to our study findings⁽³²⁾ in a study entitled “Knowledge, attitude and practices towards covid-19 outbreak in Maharashtra State”, revealed that the study participants overall KAP level towards Covid-19 was 23.31% of the respondents had good knowledge score, 99% of the respondents had good practice score and 38% of the respondents had positive attitude towards covid-19. Moreover, ^[31] in a study aimed to assess the knowledge, practices and attitude of mothers on newborn care during COVID-19 Pandemic, revealed the average knowledge, practices and attitude scores to be 70.90%, 79.45% and 81.72% and also, the results of current study disagreed with study on knowledge, attitude, and practices of mothers towards children immunization during COVID-19 Pandemic by **Khalil and Mohamed(2020)**⁽³⁹⁾ who found that about half of the mothers have a good

level of knowledge and the majority of them had a satisfactory level of practice without intervention and also, in disagreement with results of the study by **Khaton** on awareness and practices of rural mothers regarding COVID-19 Pandemic and their role in protecting their families who shows that about two thirds of mothers had good knowledge scores and half of them had satisfactory practices scores⁽⁴⁰⁾.

Conclusion

Based on the results of the current study, it was concluded that the precaution guidelines effectively improve mother's knowledge, attitude, and practices regarding breastfeeding during COVID-19.

Recommendation

Based on the previous findings we can recommend that more efforts should be made to properly advise, encourage, and support mothers with breastfeeding, even in instances when the mother has confirmed or suspected COVID-19 infection. These guidelines should be adapted to local healthcare facilities, counseling principles for breastfeeding with necessary modifications applied to

COVID-19 is also recommended. Additionally, this study recommends antenatal counseling regarding the benefits and management of breastfeeding in the context of COVID-19.

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