

Assessing the Knowledge and Perception Among Breastfeeding Mothers on Covid 19 in Bibiani Anhwiaso Bekwai District

Christiana Asiedu

College of Health and Allied Health Sciences
School of Nursing and Midwifery, Department of Adult Health
Nursing, University of Cape Coast, Ghana

Rita Opoku-Danso

College of Health and Allied Health Sciences
School of Nursing and Midwifery, Department of Adult Health
Nursing, University of Cape Coast, Ghana

Theodora Acquah

College of Education Studies, Faculty of Science and
Technology Education, Department of Science Education

ABSTRACT

Background COVID-19 pandemic has severed the plight of the global citizens. There exists dearth of knowledge among breastfeeding mothers in Ghana during the pandemic. The aim of this study is to investigate the knowledge and perception and how breastfeeding mothers are adhering to Covid 19 protocols in Bibiani Anhwiaso Bekwai districts. **Methods** A descriptive cross-sectional survey design was adopted. A questionnaire was administered to a sample of 230 mothers. The sample was selected using the multistage sampling procedure. Data was analyzed using descriptive statistics and results presented in frequency tables and percentages. **Result** It was revealed that breastfeeding mothers had excellent knowledge about COVID-19. The breastfeeding mothers had positive perceptions about breastfeeding during the pandemic but was poorly adherence to the Covid-19 protocols while breastfeeding their children. **Conclusion** It was therefore recommended that measures must be put in place by health care providers to reinforce adherence of preventive protocols to avert transmission to the virus to the vulnerable children.

INTRODUCTION

Breastfeeding also known as nursing is the feeding of babies and young children with milk from a woman's breast (Martines, 2015). Even though there has been conflicting views about breastfeeding in babies (Sullivan, 2020) evidence from World Health Organization (WHO) suggest exclusive breastfeeding in the first six months and continuing for 2 years and beyond is beneficial (Dimopoulou, Triantafyllidou, Daskalaki, & Papaevangelou, 2020; Lubbe, Botha, Niela-vilen, & Reimers, 2020). Breastfeeding is generally recognized as the gold standard for infant and breastmilk has been unanimously accepted as the best form of food for babies. The benefits extend from the mother, baby, family and nation at large and as such its adoption in our culture is now widespread.

The COVID-19 pandemic has impacted all populations including nursing mothers (Wang, Han, & Lichtfouse, 2020; Yan et al., 2020) with about five million deaths at the moments (Brown & Shenker, 2021). The virus has caused huge fear among world populace (Masjoudi, Aslani, Khazaeian, & Fathnezhad-kazemi, 2020) leading to immune depression and psychological breakdown among nations with high prevalence (Nabi et al., 2020; Shahyad & Mohammadi, 2020; Zhang et al., 2020). Since the outbreak of the pandemic vulnerable category of the populace such as children, women, elderly and people with underlying medical conditions has been implicated to be severely affected and afflicted by the virus (Lim, Li, Biswas, & Choolani, 2020; Sklaveniti, 2020).

Health expenditure in respect of the pandemic has reach it peaks across many nations (Al-jawaldeh, Hammerich, Doggui, & Engesveen, 2020), with many health systems in Europe crumbling to the high numbers of daily positive cases with severe implications on economic productivity, education and movement of goods, services and human traffic.

Due to the potential concern for transmission of infection from maternal respiratory secretions to the newborn, mothers have adopted practices such as putting on face mask, washing hands, some nursing mother too are not practicing the protocol put in place to prevent transmission of the virus to the newborn (Pace, Williams, Jarvinen, Belfort, Pace & Lackey, 2020; Peng, Ng, Amin, Goh, & Fok, 2020). These practices can create healthy and emotional implications for both mother and baby.

According to Dimopoulou et al., (2020) up to now only a few studies published has concentrated on reports of COVID-19 in pregnant women and neonates born to infected mothers. Even though the virus has been detected in breastmilk and placentas of infected mothers' experts still doubts about it effects on children through this route.

At the moment of writing, no published peer-reviewed data exists on the impact of COVID-19 on breastfeeding outcomes and decisions around infant feeding in the United Kingdom (Brown & Shenker, 2021). This shows the under explored state of COVID-19 and breastfeeding in the world body of knowledge. To our knowledge there is no single study in Ghana that examine the breastfeeding practices of lactating women during this pandemic. There exist a practical as well as knowledge researchable gap about these variables in Ghana for which this study seeks to examine.

Purpose of the Study

The main purpose of the study was to investigate the knowledge among breastfeeding mothers on Covid 19 in Bibiani Anhwiaso Bekwai Districts.

Research Questions

1. What are the levels of knowledge breastfeeding mothers have on COVID-19?
2. What are the perceptions of breastfeeding mothers on COVID-19?
3. What are the levels of adherence of COVID-19 protocols employed by breastfeeding mothers during COVID-19?

RESEARCH METHOD

Research Design

Every research is unique and therefore, research designs are developed to cater for the unique requirements of a study. Some researchers argue that in selecting a good research design, consideration should be whether the design does the job of providing reliable answers to the research questions (Polit & Beck, 2004). Descriptive survey was considered appropriate for this study due to the potential for generalising the findings or making inferences on a population as the breastfeeding mothers, who selected were just parts of a larger number of breastfeeding mothers in the district.

Study Area

The study area is the Bibiani-Anhwiaso-Bekwai District Assembly (BABDA) which lies in the North-Eastern part of the Western region and shares boundaries in the North with the Atwima district in the Ashanti Region, and in the East with the Upper Denkyira district in the Central region and the Amansie East District in the Ashanti Region respectively. On the South and West, it is bordered respectively by Wassa-Amenfi and Sefwi Wiawso District in the Western Region and bibiani is the district capital. The district has an area of 873sq km and a population of 103,256 (Census 2010) living in a total of 345 settlements which are predominantly rural. 51% of the population are females. The annual growth rate is 3.2%. The 15-59 age groups constitute 50.1% of the population, indicating a significant labor force. The major occupation in the district is farming. BABDA is located in the equatorial climate; the annual mean temperature is 26 C. The rainfall is bimodal and averages between 1200mm and 1300mm annually. The vegetation is of the equatorial rainforest type with moist semi-deciduous forests producing various tree species. The economy of the district is essentially agricultural. The agricultural sector is dominated by crop cultivation and employs 76% of the population with 55.3% female participation. Out of 62% (54240ha) of the total arable land area available, only 45.5% (39829ha) is currently under cultivation. The district has one governments hospital, five health centers and two private hospitals.



Sampling Procedure

A sample consisted of a carefully selected unit that comprised all the categories of the population. Based on the target population, an estimated sample size of 230 breastfeeding mothers was selected for the study (Krejcie & Morgan, 1970). In selecting the sample, the study made use of a multi-stage sampling procedure. The first stage involved the use of the proportionate stratified sampling technique in the selection of the number of breastfeeding mothers from the two health centres. This was necessary since the two health centres varies in terms of the numerical strength and client population. The second stage involved using the proportionate stratified sampling technique in selecting the respondents based on age. Again, this was necessary because the various health centres are different in terms of the mothers ages. The third stage involved using the simple random sampling (lottery method) technique in selecting the specific mothers from each of the two health centres at random to serve as respondents.

Research Instrument

The choice of data collection instrument is invariably determined by many circumstances like the purpose of the study and time availability. A Structured Self-Administered Questionnaire was used for the study. The use of questionnaire for data collection affords greater assurance of confidentiality and anonymity to respondents. Besides, the researcher used a questionnaire study because it offers the researcher the opportunity to sample a relatively larger sample of the target population. The items on the questionnaire will be framed according to the specific objectives of the study. The questions were in two sections; section A and section B. Section A comprises of eight items about the socio demographic factors such as maternal age, parity, maternal educational level, marital and religious status. Section B; comprises of sixteen items which are both open and close ended on the knowledge on COVID-19, perception and beliefs and adherence to the COVID-19 protocols.

Data Collection Procedure

For every research data collection, permission must be sought before the research can proceed for data collection. A letter of introduction was collected from the Department of Science Education, University of Cape Coast, to seek for permission from Bibiani Anhwiaso Bekwai district health directorate and also the two health centres for the study. Further, the researcher, trained one research assistant to aid in the collection of the data. The questionnaire was administered personally to the respondents within a period of two weeks. The researcher met all the selected mothers and discussed the purpose of the study with them and sought their consents. Respondents were encouraged to ask questions for any possible clarification.

Data process and Analysis

Upon reception of the answered questionnaires, they were checked for completeness and accuracy. The data was then entered into a Microsoft Excel Sheet. This data was clean from errors and inconsistencies before analysis. The data was stored on a pen drive and PC under a password which was accessible to only the researchers and supervisor. Data was used for only the research purposes and may be used by the university and department if deemed necessary and was not in any way used for third party purposes not declared in this study. Confidentiality and anonymity were ensured as no identifiable details were collected. The study results were shared through conferences, reports to community, hospitals and possible publication of journal articles. The information would be destroyed according to the data protection act of Ghana Act 2012 thus disposed of 5 years after completion of study.

Statistical Package for Social Sciences (SPSS) version 24 was used to analyse the data. Results were presented in a computed frequency for all the various categories of variables.

All closed ended questions with yes or no responses were presented into frequency tables thus, questions on knowledge and perception on COVID-19, and adherences to preventive protocols. On these frequencies and percentages of each response for all the questions were tabulated before a summary was made. To arrive at the summary for the three-specific objective, a point was allocated for a correct response for each of the questions and a percentage stroke out of this.

Under knowledge, eight questions were evaluated with the respondents to answer from which level of knowledge was categorized into three according to the score. On perceptions about

breast feeding during the pandemic, which had four questions the summary was arrived at by scoring the correct answers also and striking out the percentage which was used to categorize. This was categorized into two positive and negative perceptions about Covid 19. Open ended questions (which were two) that demanded that the respondents offer their own written answers were analyzed by providing codes and themes for the most recurring variables and the frequencies and percentages arrived at, to summarize the information.

Validity and Reliability

To ensure the soundness and quality of results of research studies, measures such as validity and reliability are used in quantitative studies (Fitzner, 2007) and the use of “trustworthiness” or “rigor”(Creswell, 2013) in qualitative inquiries. The content validity of the instrument was established by seeking guidance and opinion of expert of measurement from the department. Face validity was examined by the supervisor, other faculty members and colleagues.

According to Fitzner, (2007) and Kim and Alamilla, (2009) reliability is the consistency of a measure and validity is about the accuracy of a research. A reliability test was carried out with the purpose of testing the consistency of the research instruments. For reliability of the instrument, a pre-test of the instrument was conducted at the St Marks Health Center with the respondents in English and Twi dialect. The inputs from the pretest were incorporated into the final tool.

Ethical Consideration

There are four stages in research ethics, namely: planning, data gathering, processing and interpretation of data as well as the dissemination of results. Hence, the respondents had the opportunity to fill their questionnaires privately, in order to ensure confidentiality. In dissemination of results, measures were taken to ensure privacy, anonymity and confidentiality of all respondents. The names of the respondents were not used or revealed throughout the research project. Approval of the study was taken from the District Health Directorate. An informed consent was obtained from the chief, opinion leaders in the community and to each respondent after adequate explanation of the study, its objectives and future implications in Ghana and the world at large. Mothers who refused to be part of the study or in the course of the study decide to quit were not forced to be member of the study since the study was purely voluntary.

RESULTS

Biographic Data

The data for the study was collected from breastfeeding mothers. The biographic data was collated to determine the age, the level of education, number of children, place of birth and age of their children. Table 1 shows that 52.7% (n = 121) of the respondents were between 25-34 years.

Table 1: Distribution of Respondents by Age

Age	Frequency	Percentage
15-24	49	21.3
25-34	121	52.7
35-44	46	20
45 & above	14	6
Total	230	100.0

Source: Field Data (2021)

Table 2 describes the educational backgrounds of the mothers, 98 respondents had JHS level representing 42.7%.

Table 2: Distribution of Respondents by Educational Level

Educational Level	Frequency	Percentage
None	60	26
JHS	98	42.7
SHS	49	21.3
Tertiary	23	10
Total	230	100

Source: Field Data (2021)

Table 3 shows the place of delivery for the respondents, home delivery were 55.3% representing 128 mothers.

Table 3: Distribution of Respondents by place of delivery

Educational Level	Frequency	Percentage
Hospital	90	39.3
Home	128	55.3
Other	12	5.3
Total	230	100.0

Source: Field Data (2021)

Level of Knowledge of breastfeeding Mothers on COVID-19

Field data showed adequate knowledge and good breast-feeding practices as majority of the mothers knew about the signs and symptoms of COVID-19 (94.0%; n = 216). On breastfeeding practices most mothers reported, COVID did not prevented them from breast feed (90%; n = 207). However, mothers felt infected mothers should not continue to breastfeed (72.0%; n = 166). Surprisingly, mothers did not subscribe to using wet nursing (73.3%; n = 169) with another woman when breastfeeding mothers were positive of having symptoms of the virus.

Table 4: Knowledge among breastfeeding mothers on Covid-19

Variable	YES (%)	NO (%)
The COVID-19 virus spreads through droplets of infected individuals	182(79.3)	48(20.7)
COVID-19 symptoms appear within 2- 14 days.	201(87.3)	29(12.7)
The main clinical symptoms of COVID-19 are fever, cough, shortness of breath and fatigue	216(94)	14 (6.0)
In communities where COVID-19 is prevalent, should mothers breastfeed	132(57.3)	98(42.7)
Has COVID-19 prevented you from breastfeeding	23(10)	207(90)
Can a mother still breastfeed if infected by COVID-19	64(28)	166(72)
Can a wet nursing (another woman breastfed the child) be done when mother is suspected to have covid-19?	61(26.7)	169(73.3)
Should a mother continue to breastfeed if she starts to feel symptoms related to COVID-19?	80(34.7)	150(65.3)

Source: Field Data Multiple responses (2021)

Reasons why Covid 19 did not prevented mothers from breastfeeding

A total of 131 (95.6%) lactating mothers said COVID-19 pandemic did not prevent them from breastfeeding their children. The reasons offered in order of highest stated answers were as mothers stating: not being infected (36.6%), only breast milk is good for their babies (32.8%), adherence to the COVID-19 preventive protocols (12.9%) and virus is not in the community (2.2%). While about 15.2% of the mothers did not offer any reason for not stopping breast feeding.

The results reported, majority (95.6%) took the right decision not to stop breastfeeding their children because of the pandemic. However, the reasons stated for making this decision exposes a knowledge gap among the mothers in the community as many for instance would have stopped breastfeeding if the COVID-19 was recorded in the community, were infected or did not have the means (logistics) to adhere to the protocols. This is against empiric data that allow for breastfeeding by infected mothers or high prevalent areas. With only 32.6% giving the right response as breastmilk being the best nutrition approach for their children is below average and education should be ensured to maximize breastfeeding even if there were infected or the community recorded cases.

Table 5 Results show majority (50.7%; n = 117) respondents had excellent knowledge about COVID-19. This result is derived from question six as a follow up question to stopping or not, breastfeeding during the pandemic in question five of the questionnaire.

Table 5: Level of Knowledge of Lactating Mothers on COVID-19

Level of Knowledge	Frequency	Percentage
Excellent knowledge	117	50.7
Good knowledge	95	41.3
Poor knowledge	18	8.0
Total	230	100%

Field source (2021)

About 9.0% (13 respondents) of the respondents stopped breastfeeding their children due to the pandemic. The respondents however, did not offer any reason for stopping breastfeeding their children with many of them saying they “have no idea” why they stopped breastfeeding because of the pandemic. However, fear of infecting their children is an inferred reason which may be postulated for stopping breast feeding.

A total of 137 (97.6%) lactating mothers said COVID-19 pandemic did not prevent them from breastfeeding their children. The reasons offered in order of highest stated answers were as mothers stating: not being infected (36.6%), only breast milk is good for their babies (32.8%), adherence to the COVID-19 preventive protocols (12.9%) and virus is not in the community (2.2%). While about 15.2% of the mothers did not offer any reason for not stopping breast feeding.

The results reported that, majority of the mothers (97.6%) took the right decision not to stop breastfeeding their children because of the pandemic. However, the reasons stated for making this decision exposes the knowledge gap among the mothers in the community as many for instance would have stopped breastfeeding if the COVID-19 was recorded in the community, were infected or did not have the means (logistics) to adhere to the protocols. This is against empiric data that allow for breastfeeding by infected mothers or high prevalent areas. With only 32.6% giving the right response as breastmilk being the best nutrition approach for their children is below average and education should be ensured to maximize breastfeeding even if there were infected or the community recorded cases.

Perception of breastfeeding mothers on Covid-19

Data showed majority (74.0%; n = 170) agreed formula milk was not an alternative for safer feeding their babies during the pandemic. Ninety three percent (n = 214) of the respondents also indicated that there was no information from the media preventing them from breastfeeding and 98.0% (n = 225) did not have cultural and religious factors that prevented them from breastfeeding their children during the pandemic.

Table 6: Perception of Nursing Mothers on Breastfeeding during the COVID-19 Pandemic

Variables	YES (%)	NO (%)
Is infant formula milk safer or the best alternative during Covid-19 pandemic	60 (26.0)	170(74.0)
Is there any information from the media preventing you from breastfeeding	16 (7.0)	214 (93.0)
Has any religious or cultural belief prevented you from breastfeeding during the pandemic	5 (2.0)	225(98.0)
Can covid-19 virus pass through breastmilk	95 (41.3)	135(58.7)

Source: Field Data (2021)

The results in table 7 show majority (96.0%; n = 221) of the mothers has positive perceptions about breastfeeding during the pandemic. Therefore, many of the lactating mothers breastfed

their children with positive mindset that it will help with the nutrition of their children. About 4.0 % (9 out of 230) of the respondents had religious and cultural believes that prevented them from breastfeeding their children. The reasons offered for this stance was that “the child may die”. Believing the child may die if she breast-feed’s the child was expressed by two respondents with the other not offering any reason. Even though the number being minute there exist course to explore this.

Table 7: Perception of Breastfeeding during the Pandemic

Category of Perception	Frequency	Percentage
Positive Perception	221	96.0
Negative Perception	9	4.0
Total	230	100

Field source (2021)

The level of adherence to Covid-19 protocols by breastfeeding mothers during Covid 19 pandemic

From Table 8 the data showed a non-adherence to COVID-19 protocol where: (76.0%; n = 175) have not worn facemask while breastfeeding, (58.94%; n = 135) have not stayed away from crowded areas, and just 54.0% (n = 124) washed their hands with soap and water or use the alcohol-based hand sanitizer before breastfeeding. This shows a worrying situation where mothers could get themselves and their children infected with the virus.

Table 8: Adherence to COVID-19 Protocols by Mothers during the COVID-19 Pandemic

Variable	Yes (%)	No (%)
In recent days, have you worn a face mask to breastfeed?	55 (24.0)	175 (76.0)
In recent days, do you wash hands frequently with soap and water or use alcohol-based sanitizer before breastfeeding	124 (54.0)	106 (46.0)
Do you stay away from crowded places in recent times?	95 (41.1)	135 (58.9)

Field data (2021)

Results shows majority (64.7%; n = 149) of the mothers poorly adhered to COVID-19 protocols while breastfeeding their children. (see Table 9).

Table 9: Level of Adherence to COVID-19 Protocols by Mothers during the Pandemic

Level of Adherence	Frequency	Percentage
Good Adherence	81	35.3
Poor Adherence	149	64.7
Total	230	100

Source: Field Data (year)

DISCUSSIONS

Knowledge of Nursing Mothers on COVID-19

Since the outbreak of the COVID-19 in China in about December 2019, knowledge about the virus has been at the center of all the health organization (Esegbona-Adeigbe, 2020). Knowledge about health problems has been a major bench mark for influencing health seeking behaviors , healthy health lifestyles, influencing perceptions and practices of the world populace (Mackian, 2003). According to Cheema, Partridge, Kair, Kuhn-riordon, Silva, Bettinelli, Blumberg, (2020) there exist incomplete understanding of virus pathogenesis and transmission potential in pregnant women at this time and leading to anxiety about breastfeeding recommendations for suspected or confirmed COVID-19 infected mothers and even other lactating mothers.

In this study lactating mothers showed increased knowledge about the COVID-19 virus and the pandemic in general. With about 51.3% of the mothers having excellent knowledge about the pandemic. This study concur with a survey in Nigeria (Anozie & Ikeotuonye, 2020), in Iran (Honarvar, Lankarani, Kharmandar, & Shaygani, 2020) and in Ethiopia (Bekele, Tolossa, Tsegaye, Teshome, & Bekele, 2020) where knowledge about COVID-19 was high. This similarity is because many countries around the world spent most resources for the fight against the virus aside acquiring Personal Protective Equipment (PPE) to emancipate the people on gaining knowledge about the virus. Since most countries saw increased knowledge as a major area of curbing spread and minimizing exposure to the virus. The study is inconsistent with a survey in Nigeria (Bo & Ob, 2017) where majority (56.4%) had medium knowledge about the virus among ANC attendants. This may be accounted for by the aggressive and comprehensive approach by the media in Ghana and the high literacy rate of the populace in this current study. Even though there has been controversies about the breastfeeding by infected or suspected mothers the WHO, (2020) encouraged the initiation or continuation of breastfeeding. Mothers should be encouraged to know the benefits of breastfeeding substantially outweigh the potential risks for transmission. Therefore, in this study where none of the respondents were suspects or confirmed of the virus results on the question of breastfeeding shows 44.4% of the respondents were of the view that in communities where the virus is prevalent should stop breastfeeding. This shows a rather poor understanding of evidence-based knowledge on breastfeeding and COVID-19. While a majority (71.4%) of mothers were of the view that mothers should not breastfeed shows a gap in knowledge, which need to be enforced by health care providers to consummate with the high knowledge about the virus. These responses are in clear contradiction of where evidence suggest positive or suspected mothers to continued breastfeeding as is the best way to improve health of the children.

Results shows 95.6% of the mothers did not stop breastfeeding due to the virus. This is positive to meet the WHO recommendations. Reasons for this decision showed, only breastmilk is good for the baby (32.8%) and am not infected (36.6%) being the often-cited reason in this study. The former being the best answer however, showed little lower reason shows why mothers have to continue breastfeed their infants. There is the need for empowerment for the mothers to inculcate this positive stance. Reasons for wanting to stop breastfeeding however, differ from Brown & Shenker, (2021) in UK where the most common reason for cessation was due to insufficient professional support, physical issues such as difficulties with latch, exhaustion, insufficient milk and pain. The differences may be due to the constant accessibility of the health system by the populace in UK compared to Ghana where many mothers have accessibility

problems with health care. Also, the physical resilience and toughness of African women and especially in this study where most of the lactating women are farmers. Unemployment of the respondents also provided them with much time to breastfeed as against in the study in UK where most were employed.

Among general population for instance in Nepal among health care professionals and student (35%) had poor knowledge (Neupane, Shrestha, Adhikari, Angadi, & Shrestha, 2020) which is inconsistent with this study. This finding in Nepal is rather surprising, as it's expected that health professionals and students with formal education will be well abreast with the virus. The low knowledge is because the country recorded its first case late in 2020 and had averagely a low prevalence rate of the virus.

Most notable was also the impact of the mass media in contributing to knowledge, perception and practices of breastfeeding. Evidence from the data shows 92.36 % mothers said there were no information from them that sought to misinform them about breastfeeding during the pandemic. Thus, information from the media did not prevent them from breast feeding. This goes to confirm the role of the media during this pandemic as the major driver to prevention and cultivation of healthy lifestyles (Chesser, Ham, & Woods, 2020; Freitas-jesus, Rodrigues, & Surita, 2020). This shows the media should be used as a weapon to empower, inform and reinforce knowledge, perceptions and attitudes of breastfeeding amidst the pandemic. However, it's critical for the media to provide specific information for different categories of populations especially pregnant and lactating mothers.

Perception of Nursing Mothers on Breastfeeding During COVID-19 Pandemic

Perceptions are often informed by knowledge. Results show in this study majority of the mothers had positive perceptions about breastfeeding during the pandemic. As such these mothers despite the pandemic showed resilience in continuous breastfeeding of their children. The results buttress on a study in Italy where neonates of infected COVID-19 lactating mothers were tested positive. These neonates became positive for the virus on day 7 of life and even developed transient mild dyspnea but got better as such it's recommended that breastfeeding of the children despite the status of the children is beneficial (Agosti, Tzialla, Varsalone, Testa, Ballerini, Lunghi, G, 2020). This is affirmed by Dimopoulou et al., (2020) recommending infected mothers who are not in poor conditions to continue breastfeeding. This result concurs with (Freitas-jesus et al., 2020; Honarvar et al., 2020) where pregnant women had good perceptions about COVID-19 and their pregnancy outcomes. According to Sullivan, (2020) infected mothers should wear mask, and practice proper hand washing for which respondents in this study are familiar with. Therefore, there is the need for strict adherence of lactating mothers while breastfeeding their children whether a suspect or confirmed patient. This becomes crucial as adherence to the preventive measures will ensure the fear surrounding the possible infection of the neonates is reduced. The results are in contrast with a study in Greece where since at the beginning of the pandemic, most healthcare workers and parents failed to implement recommended breastfeeding practice (Dimopoulou et al., (2020). As there exists disruption of breastfeeding, separation problems between child and maternal relationship. Many mothers' willingness to cultivate positive breastfeeding practices in this study is accounted for the much lesser anxiety, fear and psychological impact of the virus in Africa where the prevalence has since been low compared to health experts' expectations. With positive outlook of mothers there need to be deep seated concerted efforts to adhere to hygienic

practices to safeguard the health of their children. The study results (7%) concur with Brown & Shenker, (2021) in UK where about 13% of the respondents stopped breast feeding but for the reasons offered for stopping there exist differences as in this study no particular reason was given. But in the study in UK mothers explained they were not ready. In that study about 68.9 % of the mothers has introduced formula foods for which they had not initially planned but for the pandemic.

In this study, slightly more than half (55.56%) of the respondent indicated breastfeeding should continue among mothers in high prevalent COVID-19 areas. This shows a deeper understanding of the benefits of breastfeeding for their children despite challenges brought by the pandemic. This opinions of the mothers concur with Sohail and Dar, (2020) and Vafaei, Roozmeh, Hessami, Kasraeian, Asadi, Faraji, Khadije and Bazrafshan (2020)s where gynecology specialist, nurses and midwives cited fear of transmission of the virus to children may affect the wellbeing of lactating mother and success of breastfeeding especially in high prevalence areas. With social and family support identified as an important intervention to lessen the plight of mothers to adhere to breastfeeding, the results in this study goes to confirm the abundance of familial support pregnant and breastfeeding women in the world during the pandemic (Tutnjević & Lakić, 2020; Yue, Liu, Wang, Zhang, Wu, Li, & Yang, 2020).

However, results contradict evidence-based research published in the Lancet Journal on breast feeding by infected or suspected mothers of COVID-19 virus (Mcbryde, 2020). As 71.53% and 66.67%, mothers felt infected mothers should not continue to breastfeed and those with symptoms cannot still breastfeed respectively. The reportage of stopping breastfeeding in infected or suspected mothers is inconsistent with Sohail and Dar, (2020) who conducted a systematic review and concluded breast feeding is encouraged either with full protection of transmission of droplet infection or may expressing milk manually. Due to poor hygienic practices in many African countries, manual expressing of breastmilk for children is not laudable. Especially, in countries where breastmilk banks exist, researchers propose the patronage of these is affirmed (Martins-filho, Santos, & Jr, 2020). Hence, making the only option for breastfeeding mothers in Africa to be breastfeeding while adhering to practices such as wearing facemask and washing hands properly since there are no breastmilk banks.

Fear and myths surrounding the pandemic especially in Ghana as reported by Kwabena and Shankar, (2020) and the importance placed on children is implicated for the mothers not wanting to breastfeed their children if they are infected or have symptoms. The about infecting children should be dispelled as a study among infected pregnant and breastfeeding women in Germany showed no fetal distress at birth, and average birth weight was and throat swab, urine, and feces of all neonates were test for COVID-19 were negative. SARS-CoV-2 RT-PCR in breast milk and amniotic fluid was also negative. With none of the neonates developing clinical, radiologic, hematologic, or biochemical evidence of COVID-19. No vertical transmission of SARS-CoV-2 (Liu et al., 2020).

Infected mothers are left with wet nursing if there necessarily have to be an alternative to mother not breastfeeding child due to ill health(Martins-Filho et al., 2020). Surprisingly, mothers did not subscribe to using wet nursing with another woman. When lactating mothers are infected or having symptoms of the disease. The result shows serious bondage mothers had for their children and not wanting other women to breastfeed their children. This implies that

even though mothers are hesitant to breastfeed their children when infected, could be empowered to provide exclusive breastfeeding base on health care providers education and family support.

Fear of infecting children are the reasons why some mother wants to stop breastfeeding during the pandemic. This results is consistent with Liu et al., (2020) in China among health workers and in Turkey (Yassa, Birol, Yirmibes, Usta, & Haydar, 2020) among breastfeeding women affecting their work and their perceptions about exclusive breastfeeding. The findings reflect in Turkey where; mothers (52%) reported that they felt vulnerable and predominantly were concerned about breastfeeding their children (80%), constantly thinking that (35.5%) they might infect their children during breastfeeding. Half of the women (50%) also reported that they either had no idea about or think that breastfeeding is not safe during the outbreak (Yassa et al., 2020). Counseling flow keys helping pregnant women to overcome misleads, regarding the COVID-19 outbreak is proposed is envisaged.

Despite all the gloom and worry about breastfeeding during the pandemic (Liu et al., 2020; Sohail & Dar, 2020), majority of the breastfeeding mothers (91.3%) did not stop breastfeeding their children and stated that, they have not being infected (36.6%), only breast milk is good for their babies (32.8%), will adhere to the COVID-19 preventive protocols (12.9%) and virus is not in the community (2.2%). The reasons espoused for not stopping breastfeeding amidst the pandemic shows a knowledge gap and a possible bad breastfeeding practice among the mothers should they be infected or record any case in the community. This is because public education has not focused on specific populations such as children, pregnant and breastfeeding women.

Positive perceptions and breastfeeding practicing were seen in this study. Thus, majority of the mothers (72.92%) agreed that formula milk was not a good alternative for safer feeding. Also, 97.92% representing majority of the mothers stated that no cultural and religious factors prevented them from breastfeeding their children during the pandemic. Hence, does not want to resort to formula feeds that causes gastrointestinal problems. This reflect exactly in Italy where just 27% of breastfeeding mothers used formula feeding as against 70% who exclusively breastfeed their children (Stampini, Monzani, Caristia, & Maggiore, 2020). The study result is however inconsistent with the study in Italy among breastfeeding mothers because respondents in the current study appeared disturbed about their breastfeeding practices and were influenced marginally. Compared to Stampini et al., (2020) where slightly more than half (56.1%) of mothers said the pandemic and its restrictions did not influence their breastfeeding practices.

Level of Adherence to COVID-19 Protocols by Mothers During COVID-19 Pandemic

Results shows mothers had poor adherence (64.1%) to COVID-19 preventive protocols. This is a surprising finding are there was high knowledge and positive perceptions about COVID-19. This study therefore inconsistent with a study in India (Tomar, Singh, Suman, Raj, & Nathiya, 2020) where high knowledge translated into proper adherence to prevention protocols. This difference could be because of the general indiscipline of the populace in Ghana especially with relatively lower prevalence compared to China.

Similarly, the result is a confirmation to the assertion by Anozie and Ikeotuonye, (2020) in Nigeria, Bekele et al., (2020) in Ethiopia and Ahorsu, Imani, Lin, Timpka, Broström, Updegraff and Pakpour (2020) where despite the high knowledge on COVID-19, there is still poor practices of preventive measure such as wearing of mask, hand hygiene and avoiding crowds. This result sprouts out the need for meticulous attention by citizens in many countries to prevent spread of the virus. With only 24.0% of the mothers wearing mask in this study means many of the vulnerable children could be prone to the infections from their mothers.

Due to the virulence of the virus best practice recommended by gynecologists and other experts demands that proper adherence to preventive protocols be used by mothers (Obeidat, Saadeh, Obeidat, Khasawneh, Khader, & Alfaqih, 2020; Poon, Yang, Kapur, Melamed, Dao, Divakar & Di, 2020). Requiring avoiding crowded areas with their children and they themselves, practicing hand hygiene before and after breastfeeding their children and wearing face mask during breastfeeding. However, in this study the result show that majority (76.0%) of the mothers do not wear facemask while breastfeeding, more than half of the mothers (58.9%) have not been staying away from crowded areas, and just slightly more than half of them (54.0%) have been washing their hands with soap and water or hand hygiene with alcohol-based hand sanitizer before and after breastfeeding.

This results contradicts a cross-sectional study in Nigeria (Anikwe, Ogah, Anikwe, Okorochukwu & Ikeoha, 2020) and a systematic review (Coelho-Ravagnani, Corgosinho, La, Ziegler, Marques, Prado & Mota, 2020) where majority of breastfeeding mothers showed a good attitude and preventive practice of COVID-19 infection with majority wearing mask and washing hands. For instance, with just a little above average of mothers practicing hand hygiene before breastfeeding is problematic and could expose their children to the infection. The sub-optimal adherence to wearing facemask among mothers in this study could be attributed partly to indiscipline, inadequate accessibility facemask and the high cost of these materials in the country since the outbreak of the pandemic (Kenu, Frimpong, & Kwadwo Koram, 2020; Upoalkpajor 2020).

The results also show a much less (54.0%) in this study compare to about 80% in Turkey (Marim et al., 2020) adherence to hand washing before breastfeeding and normal feeding of children during the pandemic. Availability of hygiene facilities and enforcement of COVID-19 preventive measures in Turkey than in this setting is implicated for the high practice of hand washing. Other empiric data shows washing of the nipples before breastfeeding which has been seen to be encouraged among Belgium mothers (Donders, Lonn, Tsiakalos, Mendling, Oliveira, De, Judlin, & Donders, 2020). Poor adherence in the setting is a surprising result since the mothers showed adequate knowledge as such strict implementations of the penalties on social distancing, wearing of mask and hand hygiene practices should be enforced by security agencies led by the Ghana police service.

Also, many mothers (58.9%) did not avoid crowded areas during the pandemic as a means of protecting themselves from the pandemic. This preventive measure was not adhered to by mothers as against higher rates (84%) in Abeokuta-Nigeria among University Community (Noah, Akorede, Oluwatoyin, & Koyuum, 2020). The difference in adherence is due to high educational literacy among the university community than in this study.

Even though the study concur good knowledge on COVID-19, it is not also familiar with a study in Saudi Arabia where there was good adherence among female populace than males (Al-hanawi, 2020) with women showing more optimistic attitudes, and good practices toward COVID-19, than men. However, in this study where only women were sampled there was less adherence when their children health depended on their discipline and strict adherences. The difference may be accounted for by the rural setting of this study compared to the urban nature of the study in Saudi Arabia where the setting where participants were sampled experience a lockdown.

To maximize adherence and forestall any infection of mothers and the vulnerable children involvement of traditional authorities such as chiefs, opinion leaders and faith leaders is paramount. This is because of the reverences rural folks have for these set of people in their communities. Community information services should also be used to provide population specific education for mothers, children and other vulnerable sections of the community. Health workers are encouraged to pay home visits to these mothers to reinforce the wearing of face mask and washing of hands before breastfeeding. If possible, washing of their nipple before breastfeeding their children.

CONCLUSION

The study concluded that breastfeeding mothers had adequate knowledge about COVID-19 pandemic in general and this may be accounted for by the aggressive and comprehensive approach by the media in Ghana and the high literacy rate of the populace in this current study.

Perceptions are often informed by knowledge and this study shows majority of the mothers had positive (97.91%) perceptions about breastfeeding during the pandemic. As such these mothers despite the pandemic showed resilience in continuous breastfeeding of their children. Despite all the gloom and worry about breastfeeding during pandemic. Majority (95.6%) did not stop breastfeeding and could be due to health education done at antenatal care and postnatal care services. Also, the study shows mothers had poor adherence (61.1%) to COVID-19 preventive protocols, this was because mothers believe they are not infected and have not travel since the pandemic. Some mothers also think the virus does not exist in the district and therefore Covid 19 only infect those who have travelled outside Ghana. Again, though breastfeeding mother in the Bibiani Anhwiaso Bekwai district had adequate knowledge and positive perceptions about the COVID-19 pandemic adherence was poor. As such the positive breastfeeding practices inculcated by the breastfeeding mothers were ruined by poor adherence approaches to COVID-19 preventive protocols.

ACKNOWLEDGEMENTS

The authors would like to thank all respondents for their willingness to participate in the study. Without whose consent this research work would not have come into existence.

References

- Agosti, M., Tzialla, C., Varsalone, F. F., Testa, L., Ballerini, C., Lunghi, G., & Pugni, L. (2020). Evaluation of Rooming-in Practice for Neonates Born to Mothers With Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Italy. *JAMAPediatrics*. <https://doi.org/10.1001/jamapediatrics.2020.5086>
- Ahorsu, D. K., Imani, V., Lin, C., Timpka, T., Broström, A., Updegraff, J. A., & Pakpour, A. H. (2020). Associations Between Fear of COVID-19, Mental Health, and Preventive Behaviours Across Pregnant Women and Husbands: An Actor-Partner Interdependence Modelling.
- Al-hanawi, M. K. (2020). Knowledge, Attitude and Practice Toward COVID-19 Among the Public in the Kingdom of Saudi Arabia: A Cross-Sectional Study. 8(May), 1–10. <https://doi.org/10.3389/fpubh.2020.00217>
- Al-jawaldeh, A., Hammerich, A., Doggui, R., & Engesveen, K. (2020). Implementation of WHO Recommended Policies and Interventions on Healthy Diet in the Countries of the Eastern Mediterranean Region: From Policy to Action. *Nutrients*, 12, 1–19.
- Anikwe, C. C., Ogah, C. O., Anikwe, I. H., Okorochukwu, B. C., & Ikeoha, C. C. (2020). Coronavirus disease 2019: Knowledge, attitude, and practice of pregnant women in a tertiary hospital in Abakaliki, southeast Nigeria. (June), 1–6. <https://doi.org/10.1002/ijgo.13293>
- Anozie, J. I. N. J. K. A. B. O., & Ikeotunye, A. C. (2020). Knowledge and practice of preventive measures against COVID-19 infection among pregnant women in a low-resource African setting.
- Beck, D. F., & Polit, C. (2003). *Nursing Research: Principles and Methods* (7th ed.). New York: Lippincott Williams & Wilkins.
- Bekele, D., Tolossa, T., Tsegaye, R., Teshome, W., & Bekele, D. (2020). The knowledge and practice towards COVID-19 pandemic prevention among residents of Ethiopia: An Online Cross-Sectional Study Corresponding Author:
- Bo, O., & Ob, A. (2017). Knowledge and Attitude of Women and Its Influence on Antenatal Care Attendance in Southwestern Nigeria. *Journal of Nutrition and Health Sciences*, 4(2).
- Brown, A., & Shenker, N. (2021). Experiences of breastfeeding during COVID - 19: Lessons for future practical and emotional support. *Maternal & Child Nutrition*, (June 2020), 1–15. <https://doi.org/10.1111/mcn.13088>
- Cheema, R., Partridge, E., Kair, M. P. H. L. R., Kuhn-riordon, M. A. S. K. M., Silva, A. I., Bettinelli, C. M. E., ... Blumberg, D. (2020). Protecting Breastfeeding during the COVID-19 Pandemic. *American Journal of Perinatology*, 95817.
- Chesser, A., Ham, A. D., & Woods, N. K. (2020). Assessment of COVID-19 Knowledge Among University Students: Implications for Future Risk Communication Strategies. 0–3. <https://doi.org/10.1177/1090198120931420>
- Coelho-ravagnani, C. D. F., Corgosinho, F. C., La, F., Ziegler, F., Marques, C., Prado, M., ... Mota, F. (2020). Dietary recommendations during the COVID-19 pandemic. 0(0), 1–14. <https://doi.org/10.1093/nutrit/nuaa067>
- Creswell, J. W. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. (Third). London: SAGE Publications, Inc.
- Dimopoulou, D., Triantafyllidou, P., Daskalaki, A., & Papaevangelou, V. (2020). Breastfeeding during the novel coronavirus (COVID-19) pandemic: guidelines and challenges. *The Journal of Maternal-Fetal & Neonatal Medicine*, 0(0), 1–7. <https://doi.org/10.1080/14767058.2020.1838481>
- Donders, F., Lonn, R., Tsiakalos, A., Mendling, W., Oliveira, M. De, Judlin, P., ... Donders, G. G. G. (2020). ISIDOG Recommendations Concerning COVID-19 and Pregnancy. 1–23.
- Esegbona-adeigbe, S. (2020). Impact of COVID-19 on antenatal care provision. *European Journal of Midwifery*, 4(April), 4–5. <https://doi.org/10.35500/jghs.2020.2.e4>
- Fitzner, K. (2007). Reliability and Validity. *Review of Reliability and Validity*, 35(5), 775–777. <https://doi.org/10.1177/0145721707308172>
- Freitas-jesus, J. V., Rodrigues, L., & Surita, F. G. (2020). The experience of women infected by the COVID-19 during pregnancy in Brazil: a qualitative study protocol. 1–7.

GSS. (2010). Sefwi bibiani-anhwiaso- bekwai district.

Honarvar, B., Lankarani, K. B., Kharmandar, A., & Shaygani, F. (2020). Knowledge , attitudes , risk perceptions , and practices of adults toward COVID-19 : a population and field-based study from Iran. *International Journal of Public Health*, 65(6), 731–739. <https://doi.org/10.1007/s00038-020-01406-2>

Kenu, E., Frimpong, J. A., & Kwadwo A. Koram. (2020). Responding to the COVID-19 pandemic in Ghana. 54(January), 72–73. <https://doi.org/10.7861/clinmed.2019-coron>

Kim, B. S. K., & Alamilla, S. G. (2009). Latino/a Values Scale: Development, Reliability, and Validity. *Measurement and Evaluation in Counseling and Development*, 42(2), 71–91.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.

Kwabena, A., & Shankar, S. (2020). Application of Geospatial Technologies in the COVID - 19 Fight of Ghana. *Transactions of the Indian National Academy of Engineering*, 5(2), 193–204. <https://doi.org/10.1007/s41403-020-00145-3>

Lackey, K. A., Donovan, S. M., Pace, R. M., Järvinen, K. M., McGuire, M. A., Williams, J. E., ... Meehan, C. L. (2020). SARS-CoV-2 and human milk : What is the evidence ? *Maternal & Child Nutrition*, (April), 1–12. <https://doi.org/10.1111/mcn.13032>

Lim, L. M., Li, S., Biswas, A., & Choolani, M. (2020). Special Report and pregnancy. *The American Journal of Obstetrics & Gynecology*, 222(6), 521–531. <https://doi.org/10.1016/j.ajog.2020.03.021>

Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., ... Yang, B. X. (n.d.). Articles The experiences of health-care providers during the COVID-19 crisis in China : a qualitative study. *The Lancet Global Health*, 8(6), e790–e798. [https://doi.org/10.1016/S2214-109X\(20\)30204-7](https://doi.org/10.1016/S2214-109X(20)30204-7)

Liu, W., Wang, J., Li, W., Zhou, Z., Liu, S., & Rong, Z. (2020). Clinical characteristics of 19 neonates born to mothers with. 14(2), 193–198.

Mackian, S. (2003). A review of health seeking behaviour : problems and prospects. *Health Systems Development*, 27.

Marim, F., Karadogan, D., Eyuboglu, T. S., Emiralioglu, N., Gurkan, C. G., Toreyin, Z. N., ... Serifoglu, I. (2020). Lessons Learned so Far from the Pandemic : A Review on Pregnants and Neonates with COVID-19. 52(2), 202–210. <https://doi.org/10.5152/eurasianjmed.2020.20118>

Martines, J. (2015). Breastfeeding and maternal health outcomes : a systematic review and meta-analysis. *Acta Paediatrica*, 96–113. <https://doi.org/10.1111/apa.13102>

Martins-filho, P. R., Santos, V. S., & Jr, H. P. S. (2020). To breastfeed or not to breastfeed ? Lack of evidence on the presence of SARS-CoV-2 in breastmilk of pregnant women with COVID-19. 1–5.

Masjoudi, M., Aslani, A., Khazaeian, S., & Fathnezhad-kazemi, A. (2020). Explaining the experience of prenatal care and investigating the association between psychological factors with self-care in pregnant women during COVID-19 pandemic : a mixed method study protocol. 1–7.

Mcbryde, E. (2020). Management of pregnant women infected with COVID-19. *The Lancet Infectious Diseases*, 20(5), 513–514. [https://doi.org/10.1016/S1473-3099\(20\)30191-2](https://doi.org/10.1016/S1473-3099(20)30191-2)

Nabi, G., Siddique, R., Xiaoyan, W., Ullah, R., Xue, M., & Khan, S. (2020). COVID-19 induced psychosocial stressors during gestation : possible maternal and neonatal consequences. *Current Medical Research and Opinion*, 0(0), 1–2. <https://doi.org/10.1080/03007995.2020.1815003>

Neupane, H. C., Shrestha, N., Adhikari, S., Angadi, S., & Shrestha, B. K. (2020). Knowledge of Health Care Professionals and Medical Students Regarding Covid-19 in a Tertiary Care Hospital in Nepal. *J Nepal Med Assoc*, 58(227), 480–486. <https://doi.org/10.31729/jnma.4995>

Noah, A., Akorede, O., Oluwatoyin, P., & Koyuum, A. (2020). University community-based survey on the knowledge, attitude and perception about COVID-19 pandemic: The Federal University of Agriculture, Abeokuta, Nigeria as a case study. (June), 1–30. <https://doi.org/10.20944/preprints202006.0185.v1>

- Obeidat, N., Saadeh, R., Obeidat, M., Khasawneh, W., Khader, Y., & Alfaqih, M. (2020). Perceptions of obstetricians and pediatricians about the risk of COVID - 19 for pregnant women and newborns. (May), 306–311. <https://doi.org/10.1002/ijgo.13264>
- Pace, R. M., Williams, J. E., Järvinen, K. M., Belfort, M. B., Pace, C. D. W., Lackey, K. A., ... McGuire, M. K. (2020). COVID-19 and human milk: SARS-CoV-2, antibodies, and neutralizing capacity. *International License*, 1–20.
- Peng, Y., Ng, M., Amin, Z., Goh, X. L., & Fok, D. (2020). Breastfeeding in COVID-19 : A Pragmatic Approach. *Clinical Opinion*, 1(212).
- Poon, L. C., Yang, H., Kapur, A., Melamed, N., Dao, B., Divakar, H., ... Di, C. (2020). Global interim guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium from FIGO and allied partners : Information for healthcare professionals. (March), 273–286. <https://doi.org/10.1002/ijgo.13156>
- Shahyad, S., & Mohammadi, M. T. (2020). Psychological Impacts of Covid-19 Outbreak on Mental Health Status of Society Individuals : A Narrative Review. *داجیا دیدج سوریوانورک کی طسوت هک ، دش شرازگ نیچ ناهوو رهش رد دیدج ینوقع یرامیب کی شرتسگ ، 2161 ربماسد نایاپ رد*. 192–184), 2(22).
- Sklaveniti, D. (2020). Antenatal visit model in low-risk pregnancy during pandemic COVID-19 : A call for adjustments. *European Journal of Midwifery*, (April), 4–5. <https://doi.org/10.1186/s12884-015-0762-2>
- Sohail, S., & Dar, L. R. (2020). Pandemic of COVID-19 and Pregnancy. 36.
- Stampini, V., Monzani, A., Caristia, S., & Maggiore, A. O. (n.d.). A Survey Among Italian Pregnant Women and New-mothers During the COVID-19 Pandemic Lockdown . 1–16.
- Sullivan, S. E. (2020). Best Practices for COVID-19 – Positive or Exposed Mothers — Breastfeeding and Pumping Milk. *JAMAPEDIATRICS PATIENT PAGE Best*, 174(12), 2021. <https://doi.org/10.1001/jamapediatrics.2020.3341>
- Tomar, B. S., Singh, P., Suman, S., Raj, P., & Nathiya, D. (2020). Indian community ' s Knowledge , Attitude & Practice towards.
- Tutnjević, & Lakić, S. (2020). Psychological impact of the COVID-19 pandemic on pregnant women in Bosnia and Herzegovina and Serbia. 1, 1–31.
- Upoalkpajor, J. N., & Upoalkpajor, C. B. (2020). The Impact of COVID-19 on Education in Ghana. *Asian Journal of Education and Social Studies*, 9(1), 23–33. <https://doi.org/10.9734/AJESS/2020/v9i130238>
- Vafaei, H., Roozmeh, S., Hessami, K., Kasraeian, M., Asadi, N., Faraji, A., & Khadije Bazrafshan, N. S. (2020). Obstetrics Healthcare Providers ' Mental Health and Quality of Life During COVID-19 Pandemic : Multicenter Study from Eight Cities in Iran. 563–571.
- Wang, X., Han, J., & Lichtfouse, E. (2020). Unprotected mothers and infants breastfeeding in public amenities during the COVID - 19 pandemic. *Environmental Chemistry Letters*, 18(5), 1447–1450. <https://doi.org/10.1007/s10311-020-01054-1>
- WHO. (2020). Breastfeeding and COVID-19.
- Yassa, M., Birol, P., Yirmibes, C., Usta, C., & Haydar, A. (2020). Near-term pregnant women ' s attitude toward , concern about and knowledge of the COVID-19 pandemic. *The Journal of Maternal-Fetal & Neonatal Medicine*, 0(0), 1–8. <https://doi.org/10.1080/14767058.2020.1763947>
- Yue, C., Liu, C., Wang, J., Zhang, M., Wu, H., Li, C., & Yang, X. (2020). Association between social support and anxiety among pregnant women in the third trimester during the coronavirus disease 2019 (COVID-19) epidemic in Qingdao , China : The mediating effect of risk perception. (308). <https://doi.org/10.1177/0020764020941567>
- Zhang, J., Zhang, Y., Huo, S., Ma, Y., Ke, Y., Wang, P., & Zhao, A. (2020). Emotional Eating in Pregnant Women during the COVID-19 Pandemic and Its Association with Dietary.