



The Mental Health of Breastfeeding Mothers during COVID-19 Pandemic

Nur Intan Kusuma¹, Fanny Sukmasary²

¹*Undergraduate Study Program in Midwifery, Faculty of Health Sciences, Universitas Muhammadiyah Pekajangan Pekalongan, Indonesia*

²*Diploma Three in Midwifery, Sekolah Tinggi Ilmu Kesehatan Sukabumi, Indonesia*
Corresponding author: intankusuma29@gmail.com

ABSTRACT

Background: The current widespread COVID-19 outbreak has been linked to psychological distress and increased mental health symptoms including depression, anxiety, and posttraumatic stress disorder diagnoses in during the postpartum period. The psychological distress in mothers during the postpartum period can have negative consequences for both the mother and the baby. One of negative effect could be an obstacle to optimal breastfeeding.

Purpose: This scoping review aims to provide the generate overview and present the results of previous studies related to the mental health of breastfeeding mothers during the COVID-19 pandemic.

Methods: This study was carried out using a scoping review approach in accordance with the Arksey and O'Malley's framework. The search strategy used the keywords that related to the PEOS framework. Databases included PubMed, Wiley Online Library, ScienceDirect, and Embase. The authors also appraised the article's quality by critical appraisal tool.

Results: The most of the research was conducted in developed countries (75%). The method of that articles used quantitative method of 17 articles (85%), qualitative method 2 articles (10%) and mixed method 1 article (5%). Based on an analysis of 20 articles, three themes were obtained, namely mental health issues in breastfeeding mothers, factors affecting mental health during COVID-19, the impact of poor mental health in breastfeeding mothers.

Conclusion: The Global outbreaks or pandemics have an impact including in breastfeeding mothers. Breastfeeding mothers feel that during the COVID-19 they are experiencing psychosocial problems due to internal and external factors that can influence the mother's decision to provide exclusive breastfeeding.

Keywords: *mental health; breastfeeding mothers; COVID-19*

Corresponding email: intankusuma29@gmail.com

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BACKGROUND

The widespread COVID-19 outbreak has been linked to psychological distress and increased mental health symptoms in the general population, including depression, anxiety, and posttraumatic stress disorder diagnoses, particularly in females (Chen et al., 2021). During the postpartum period, mothers are more likely to experience cognitive and behavioral issues, and psychological distress can have negative consequences for both the mother and the baby (Demissie & Bitew, 2021). In low-income countries, the estimated prevalence of postpartum depression ranges from 6.5 to 12.9%, and may be even higher. Sleep disturbance, anxiety, irritability, a sense of being overwhelmed, and an obsessional preoccupation with the baby's health and feeding are common symptoms of postpartum depression. Suicidal ideation and concerns about harming the baby have also been reported (Spinola et al., 2020).

Such policies have resulted in the separation of mothers and infants after birth, especially in cases of suspected or confirmed COVID-19 positive mothers, preventing mother-baby close contact, including breastfeeding (Pacheco et al., 2021; Pissarra et al., 2020). COVID-19-related policies (e.g., mother-infant separation) are expected to have a negative impact on maternal mental health outcomes, posing a significant challenge for the development of recommendations within maternal health care services (Doshi et al., 2021; Pacheco et al., 2021).

Previous study showed that 75% of 265 mothers experienced symptoms of postpartum depression during COVID-19. Based on the qualitative analysis, the results also showed isolation, fear, anxiety, and stress filled the days, grieving and sadness (Goyal et al., 2022). Another study found that during the COVID-19 pandemic outbreak in the world, the overall global pooled prevalence of anxiety was 33%, depression was 27%, stress was 56%, insomnia was 34%, and social dysfunction was 24% among pregnant and lactating women (Demissie & Bitew, 2021). Understanding the implications for maternal mental health due to the COVID-19 pandemic is becoming increasingly important to avoid the occurrence of severe mental disorders secondary to the breastfeeding period.

Several studies have explained the results that postpartum mental health problems among mothers could be an obstacle to optimal breastfeeding. Breastfeeding requires the mother's willingness and self efficacy to undergo the breastfeeding process (Hoff et al., 2019; Oliver et al., 2023). For mothers who are facing mental health problems, this process can be burdensome and in turn can discourage the desire to breastfeed (Gila-Díaz et al., 2020; Jeličić et al., 2022; Jiang et al., 2022). Studies have found that depressed mothers are less likely to breastfeed exclusively and are more likely to stop breastfeeding early. Another studies have also found that postpartum maternal anxiety is negatively related to initiation, duration, and exclusivity of breastfeeding. This shows the importance of identifying mental health in breastfeeding mothers.

OBJECTIVE

This scoping review aims to provide the generate overview and present the results of previous studies related to the mental health of breastfeeding mothers during the COVID-19 pandemic.

METHODS

This study was carried out using a scoping review approach in accordance with the Arksey and O'Malley's framework with some stages including: identifying the review

questions, determining relevant sources, selecting articles, charting the data and then finally compiling, summarizing and reporting the results (Arksey & O'Malley, 2015).

Identifying the review questions

The authors used the PEOs framework in identifying the review questions.

Tabel 1. PEOs Framework

P (Population)	E (Exposure)	O (Outcomes)	S (Study)
Breastfeeding mothers	COVID-19	Mental health	All research studies/ study design related to mental health of breastfeeding mothers during COVID-19

Based on the framework, determined that the scoping review question is "How is the mental health of breastfeeding mothers during COVID-19?" .

Determining relevant sources

The authors determined the inclusion and exclusion criteria used as the scoping review sources. The inclusion criteria such as original researches that written in english, published between 2020-2023, free accessed in full text and discussed mental health in breastfeeding mothers during COVID-19. The exclusion criteria were review articles and opinion papers/ commentary. The search strategy used the keywords that related to the PEOs framework. The authors searched for articles using the PubMed database, Wiley Online Library, ScienceDirect, and Embase. Keywords and boolean operators were added in advance search in the literature search process in the database.

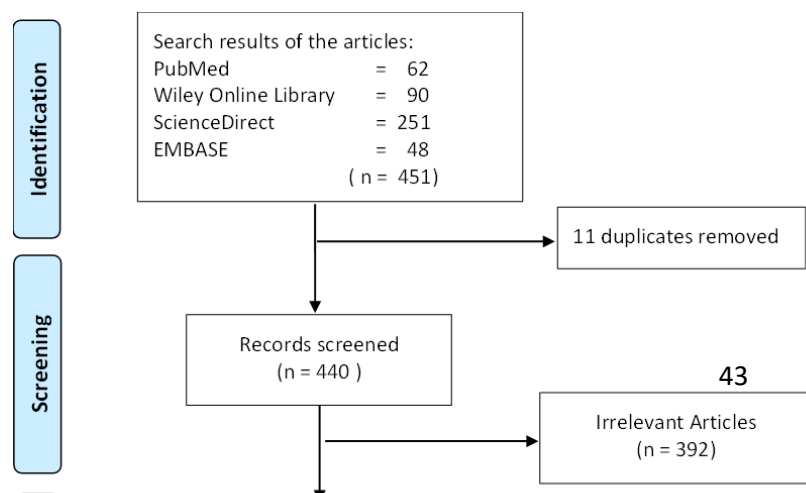
Tabel 2. Keywords in determining relevant sources

Database	Keywords	Result
PubMed	('mental health'/exp OR 'mental health' OR (mental AND ('health'/exp OR health))) AND ('breastfeeding mothers' OR (('breastfeeding'/exp OR breastfeeding) AND ('mothers'/exp OR mothers))) AND ('covid 19'/exp OR 'covid 19')	62
Wiley Online Library	((mental health) AND (breastfeeding mothers)) AND (COVID-19)	90
ScienceDirect	((mental health) AND (breastfeeding mothers or breastfeeding women)) AND (COVID-19)	251
EMBASE	("mental health") AND (breastfeeding mothers)) AND (COVID-19)"	48

Selecting articles

The authors screened articles using covidence.org and then the screening process was documented with PRISMA flowchart. The following is the PRISMA flowchart in this study:

Figure 1. PRISMA flowchart



Charting the data

Table 3. Data Charting

Code	Title/Author/ year	Country	Aim	Type of Research	Data Collection	Participants / Sample Size	Result
A1	COVID-19-related stress in postpartum women from Argentina during the second wave in 2021: Identification of impairing and protective factors/ (Miranda et al., 2022)	Argentina	to maternal pandemic stress levels and associations with postnatal women's demographic, reproductive, and pandemic stress factors	Quantitative research/ An online cross-sectional survey	Data was collected using questionnaire and the 10-item version of the PSS-C in Latin American Spanish instrument to assess the pandemic-related perceived stress.	300 women, aged 18–49 years, up to 12 months postpartum	The Stress and Coping subscales received scores of 17.31 (6.52), 9.70 (4.61), and 7.61 (2.77), respectively. Having a history of mood disorders, pregnancy loss, and an unhealthy child during the pandemic predisposed to increased stress, whereas working and breastfeeding promoted coping.
A2	Mental Health & Parental Concerns during COVID-19: The Experiences of New Mothers Amidst Social Isolation/ (Ollivier et al., 2021)	Canada	To understand the impact of the COVID-19 pandemic on mothers/parents who are caring for a child 0-12 months of age	Qualitative research/ feminist post structuralism (FPS)	Data was collected through an online survey including three major open-ended questions, one of which asked new mothers/parents to describe how the COVID-19 pandemic affected their parenting experiences.	68 new parents who cared for a newborn aged 0 to 12 months	The results showed that participants expressed feelings of worry, anxiety, loneliness, isolation, and stress about their mental health and socialization.
A3	Triggering of postpartum depression and insomnia with cognitive impairment in Argentinian women during the pandemic COVID-19 social isolation in relation to reproductive and health factors/ (Miranda et al., 2021)	Argentina	To assess the mental health of postpartum mothers including postpartum depression, insomnia, and cognitive impairment during COVID-19	Quantitative research/ A cross-sectional survey	Data was obtained by several instruments including The Insomnia Severity Index (ISI), The Postpartum Depression Screening Scale-Short Form (PDSS-SF) in Spanish, The Brief Metamemory and Metaconcentration Scale (BMMS) and The	305 postpartum women	The results of the study showed that 37% of women reported postpartum depression, 46% reported insomnia, 42% reported memory impairment, 60% reported low metaconcentration, 50% reported low metamemory, and 23% reported low breastfeeding efficacy. Furthermore, significant relationships were discovered demonstrating that social isolation promoted postpartum depression and insomnia, both of which

					Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF).		harmed female cognition and efficacy.
A4	Effects of the COVID-19 pandemic on perinatal mental health in Spain: Positive and negative outcomes/ (Chaves et al., 2021)	Spain	To describe the impact of the COVID-19 pandemic on maternal and perinatal mental health in Spain.	Quantitative research/ a cross-sectional survey study	Data were collected using The Edinburgh Postnatal Depression Scale, the Positive and Negative Affect Schedule, and the Satisfaction With Life Scale	The sample included 724 women (N = 450 pregnancy, N = 274 postpartum)	According to the findings, 58% of women reported depressive symptoms. In addition, 51% of women reported anxiety symptoms. Postpartum life satisfaction was significantly predicted by perceptions of baby's health and sleep, perceptions of their own health, and marital status.
A5	Social support and mental health in maternity: Effects of the COVID-19 pandemic/ (Tania et al., 2023)	Spain	To describe and analyze the social support and mental health of mothers.	Quantitative research/ cross-sectional study	Data were collected using the DUKE-UNC-11 and GHQ-12 questionnaires.	179 women with children older than 6 months	The results showed that during the pandemic, 75.8% of the sample perceived normal social support. Within the dimensions of social support, women reported receiving satisfactory confidential support while receiving inadequate affective support.
A6	Maternal mental health and coping during the COVID-19 lockdown in the UK: Data from the COVID-19 New Mum Study/ (Dib et al., 2020)	United Kingdom	To assess how mothers are feeling and coping during lockdown, and to identify the potential pathways that can assist them	Quantitative research/ descriptive	Data was collected by an online survey. Information and links to the survey were shared on social media including Facebook, Twitter, and Instagram.	1329 mothers fully completed the survey	The majority of the 1329 participants reported feeling down (56%), lonely (59%), irritable (62%), and worried (71%), but 70% felt able to cope. Support for her own health (95% CI 0.004-0.235), contacting infant support groups (95% CI 0.003 to 0.252), and the infant's gestational age (95% CI 0.000-0.063) all predicted better mental health.
A7	Breastfeeding Patterns and Stress Among Lactating Women in Pune During the COVID-19	India	to assess the prevalence of stress caused by COVID-19 in lactating women, rate of exclusive	Quantitative research/ descriptive	Perceived stress scale (PSS) was used to measure the level of	126 lactating mothers	The results showed that mothers were found to be moderately stressed in 75.4% of cases. The exclusive breastfeeding (EBF) rate was 62.7%.

	Pandemic/ (Azad et al., 2022)		breastfeeding, and its association with different demographic factors		perceived stress experienced.		EBF was significantly negatively associated with moderate stress and testing positive for COVID-19 ($P<0.001$).
A8	Impact of Maternal-Newborn Separation in Italian Women with Suspected COVID-19 Infection on Psychopathological Symptoms and Quality of Interactions during Breastfeeding/(Cimino & Cerniglia, 2023)	Italy	to compare the psychopathological symptoms of mothers suspected of having COVID-19 infection before delivery and separated from their babies to mothers who were not separated from their babies.	Quantitative research	Data were collected by using the Feeding Scale-Observational Scale, the SVIA (Scala di Valutazione delle Interazioni Alimentari) and the Symptom Check-List-90-R (SCL-90-R).	180 postpartum women during the pandemic period	The results showed that mothers who were separated from their infants had more anxiety, depression, and obsessive-compulsive symptoms, as well as a lower quality of feeding interactions, on all SVIA subscales (mother's affective state; interactive conflict; food refusal behavior; dyad's affective state).
A9	Postpartum maternal anxiety and depression during COVID-19 pandemic: Rates, risk factors and relations with maternal bonding/(Benarous et al., 2023)	France	To assess the prevalence of clinically significant anxiety and depressive symptoms in a sample of women, as well as the associated risk factors and their relationships with maternal bonding.	Quantitative research/ single-center observational study	Data were collected by several questionnaires such as Edinburgh postnatal depression scale (EPDS), state-trait anxiety inventory y-form (STAI-Y), the MIBS (Mother-Infant bonding), Coronavirus health impact survey questionnaire (CRISIS)	127 postpartum mothers	Perinatal clinically significant symptoms occurred at a rate of 17% for depression (EPDS cut-off ≥ 12) and 15% for anxiety (STAI-YA cut-off ≥ 40). Breastfeeding was associated with a lower EPDS total score.
A10	Maternal mental health and well-being during the COVID-19 pandemic in Beijing, China/ (Wei et al., 2021)	China	To assess the impact of the coronavirus disease 2019 (COVID-19) pandemic on breastfeeding women and to identify predictors of maternal mental health and coping.	Quantitative research	Data was collected through an online questionnaire. The questionnaire was adapted from the UK COVID-19 New Mum Survey.	2233 mothers with a breast-fed infant ≤ 18 months of age during the COVID-19 pandemic	The results showed that during the lockdown, 29.9%, 20.0%, and 34.7% of the 2233 participants felt down, lonely, and worried, respectively; however, 85.3% felt able to cope.
A11	Maternal mental health and breastfeeding amidst the Covid-19 pandemic:	Spain	To assess the impact of the first wave of the COVID-19 pandemic on women who	Quantitative research/ cross-sectional study	A clinical interview plus three psychometric tests (EPDS: Edinburgh	91 postpartum mothers	The results showed that the EPDS is positive in 25% of the sample, requiring further evaluation to rule out depressive symptoms.

	cross-sectional study in Catalonia (Spain)/ (Nicolás-López et al., 2022)		gave birth during the immediate post-lockdown period		Postnatal Depression Scale, PBQ: Postpartum Bonding Questionnaire and STAI-S: State-Trait Anxiety Inventory)		The STAI-state and PBQ tests show no abnormalities in anxiety levels or mother-child bonding because 100% of the mothers score below the cut-off points in both tests (34 and 26 respectively).
A12	Wellbeing of Breastfeeding Women in Australia and New Zealand during the COVID-19 Pandemic: A Cross-Sectional Study/ (Sakalidis et al., 2021)	Australia and New Zealand	To investigate the effect of the pandemic on feeding choices and maternal wellbeing amongst breastfeeding mothers living in Australian and New Zealand	Quantitative research / cross-sectional study	Participants were invited to complete an identical online questionnaire. Infant feeding practices study questionnaire, Perceived Stress Scale, General functioning subscale of the McMaster Family Assessment Device (FAD), The Mental Health Continuum-Short Form (MHC-SF), Perinatal Anxiety Screening Scale (PASS), Brief Infant Sleep Questionnaire (BISQ)	364 participants, breastfeeding a healthy term infant aged 0–7 months, and living in Australia or New Zealand	The results showed that the majority of women (82% of them) were exclusively breastfeeding. During the pandemic, partial breastfeeding was associated with perceived low milk supply and a longer pregnancy duration. Lower levels of family functioning, increased perceived stress, and perinatal anxiety were all associated with poor mental health and wellbeing.
A13	Breastfeeding Experiences During the COVID-19 Lockdown in the United Kingdom: An Exploratory Study Into Maternal Opinions and Emotional States/ (Pacheco et al., 2021)	United Kingdom	To investigate maternal emotional states and personal opinions, as well as support received during the UK lockdown.	Quantitative research / cross-sectional study	Data were collected through an online questionnaire including the demographic questionnaire the Generalised Anxiety Disorder Questionnaire (GAD-7), the Patient Health Questionnaire (PHQ-9)	Mothers of children aged 0–36 months (N = 4018).	The results of the study showed that even if a mother had COVID-19 symptoms, participants strongly agreed on the importance of breastfeeding. Participants who had more than one child displayed more negative emotional states, specifically anxiety symptoms.
A14	Longitudinal changes in wellbeing amongst breastfeeding women in Australia and New Zealand	Australia and New Zealand	To investigate the longitudinal effect of the COVID-19 pandemic on breastfeeding and maternal wellbeing	Quantitative research / cross-sectional study	Data were collected through using Infant Feeding Practices Study Questionnaire (IFPS II), Perceived Stress	Mothers (n=246) completed an online survey every 4 weeks for 6 months	Shorter full breastfeeding duration was associated with low milk supply, increased infant day sleep duration, primiparity, and being pregnant more days during the

	during the COVID-19 pandemic/(Sakali dis et al., 2022)				Scale (PSS), General Functioning subscale (GF6+) of the McMaster Family Assessment Device (FAD), Mental Health Continuum-Short Form (MHC-SF), Perinatal Anxiety Screening Scale (PASS), Brief Infant Sleep Questionnaire (BISQ).	that examined feeding methods, maternal mental wellbeing, worries, challenges, and positive experiences during the pandemic.	pandemic. Women were also more likely to have stopped full breastfeeding over time in later surveys. Higher PSS scores were associated with oversupply. Lower PSS scores were associated with higher mental wellbeing scores and reports of parental/family relationship anxiety. Poorer MHC-SF mental wellbeing was associated with poorer family functioning and higher PSS and PASS scores.
A15	Women's postpartum experiences in Canada during the COVID-19 pandemic: a qualitative study/ (Rice & Williams, 2021)	Canada	To investigate mothers who gave birth during the pandemic were affected by policies aimed at limiting interpersonal contact in order to reduce SARS-CoV-2 transmission in hospitals and in the early postpartum weeks.	Qualitative research/ descriptive	Data were collected by semistructured telephone interviews	57 postpartum women	The results showed that there were four themes: a negative postpartum experience in the hospital due to there was no a support person(s); poor postpartum mental health, particularly in women with preexisting mental health conditions and those who had had medically complicated deliveries; asking for help despite public health regulations prohibiting it; and breastfeeding problems due to limited in-person follow-up care and a lack of in-person breastfeeding support.
A16	Impact of the COVID-19 pandemic on Swiss pregnant and breastfeeding women – a cross-sectional study covering the first pandemic wave/ (Ceulemans et al., 2021)	Belgium, Ireland, Norway, the Netherlands, the United Kingdom and Switzerland	To investigate how this pandemic affected pregnant and breastfeeding women.	Quantitative research / cross-sectional study	Data were collected through an online questionnaire	2064 respondents participated in the survey (1161 using the French, 868 the German and 35 the Italian questionnaires), including 1501 breastfeeding and 563	The results showed that 11.6% (170/1467) of participants who completed validated screening tests for mental health symptoms (Edinburgh Postnatal Depression Scale, Generalized Anxiety Disorder 7, Perceived Stress Scale) had a score compatible with symptoms of major depression, severe

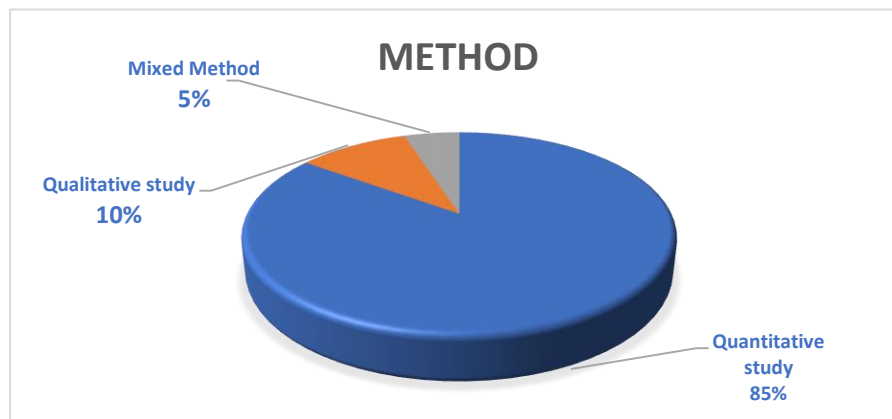
						pregnant women.	anxiety, or high perceived stress.
A17	Mental health status of pregnant and breastfeeding women during the COVID-19 pandemic—A multinational cross-sectional study/ (Lambelet & Ceulemans, 2021)	Ireland, Norway, Switzerland, the Netherlands, and the UK	To assess the mental health status of pregnant and breastfeeding women during the pandemic, and to explore potential associations between depressive symptoms, anxiety, and stress and women's sociodemographic, health, and reproductive characteristics.	Quantitative research/ A multinational cross-sectional study	Data were collected by online questionnaire such as The Edinburgh Depression Scale (EDS), the Generalized Anxiety Disorder seven-item scale (GAD-7), and the Perceived Stress Scale (PSS).	9041 women participated (including 3907 pregnant and 5134 breastfeeding women).	The pregnancy cohort had a 15% prevalence of major depressive symptoms (EDS ≥ 13) and the breastfeeding cohort had a 13% prevalence. 11% and 10% of pregnant and breastfeeding women, respectively, had moderate to severe generalized anxiety symptoms (GAD 10). Pregnant and breastfeeding women had PSS scores of 14.1 6.6 and 13.7 6.6, respectively.
A18	Postnatal mental health during the COVID-19 pandemic: Impact on mothers' postnatal sense of security and on mother-to-infant bonding/(Schaming & Wendland, 2023)	France	To evaluate the impact of the COVID-19 pandemic context on maternal sense of security and on mother-to-child bonding in the postpartum.	Mixed method/ comparative quantitative study and a qualitative component.	The participants' socio-demographic and perinatal data were collected using an ad-hoc questionnaire specific to the postnatal period. Mother-Infant bonding was assessed using the Postpartum Bonding Questionnaire (PBQ). Mothers' postnatal sense of security was evaluated using the mothers' version of the Parents' Postnatal Sense of Security Instrument (PPSSI), The Edinburgh Postnatal Depression Scale (EPDS) used to measure symptoms of postnatal depression.	Two samples of French-speaking mothers in the first six months after their childbirth, recruited before the pandemic (N=874) and during the pandemic (N=721)	The results showed that mother-child bonding disturbances as measured by PBQ and emotional security levels as measured by PPSSI did not differ significantly between samples. Both samples revealed a high prevalence of women at risk of postnatal depression. The main causes of insecurity were fears of contamination, social isolation, and a lack of support. Lack of closeness with relatives and friends, limited presence of the partner in the maternity ward, and early interactions with the newborn while wearing a mask appear to have altered mother-child bonding during the pandemic.
A19	Study of Anxiety, Fear and	India	To study anxiety, fear	Quantitative research	Data were collected by	62 respondents	The results showed that on the EPDS, a mean of

	Depression Associated with Breastfeeding in COVID-positive Mothers/ (Doshi et al., 2021)		and depression associated with breastfeeding in coronavirus disease (COVID)-positive mothers.	/Prospective Cross-Sectional Observational	three standard scales to measure fear anxiety, and depression namely fear of coronavirus disease-2019 (COVID-19) scale (FCV-19S), corona disease anxiety scale (CDAS), and Edinburgh postnatal depression scale (EPDS).	(breastfeeding mothers with COVID-19 positive)	17 was obtained, which is higher than the cutoff value. Except in a few cases, FCV-19S and CDAS did not show extreme results. According to the breastfeeding questionnaire, most women are afraid of transmitting the infection to their newborns and are lack of knowledge of the importance of breast milk in warding off other infections.
A20	Psychosocial experiences of postnatal women during the COVID-19 pandemic. A UK-wide study of prevalence rates and risk factors for clinically relevant depression and anxiety/ (Fallon et al., 2021)	United Kingdom	To explore the psychosocial experiences of women in the early postnatal period, describe prevalence rates of clinically relevant maternal anxiety and depression and explore whether psychosocial change occurring as a result of COVID-19.	Quantitative research/A cross-sectional survey design	Data were collected using COVID-19 specific questions, and a battery of validated psychosocial measures, including the EPDS and STAI-S which were used to collect prevalence rates of clinically relevant depression and anxiety respectively.	614 mothers with infants aged between birth and 12 weeks.	Seventy women (11.4%) reported a current clinical depression diagnosis, and 264 mothers (43%) reported an EPDS score of ≥ 13 , indicating clinically relevant depression. A total of 137 women (18.4%) reported a current clinical diagnosis of anxiety, and 373 mothers (61%) reported a STAI-S score of 40, indicating clinically relevant anxiety.

After data charting, the authors appraised the article's quality by critical appraisal tool. A critical appraisal is a method of carefully and methodically examining a study in order to assess its reliability, meaning, and relevance in order to provide guidance about the importance of practice, evidence-based decision-making, and health policy (Al-Jundi & Sakka, 2017). Twenty articles were assessed using the Hawker checklist (Hawker et al., 2020). The following grades are assigned to the total score of the assessment results: Grade A is considered Good (score 28-36), Grade B is considered Good Enough (score 19-27), Grade C is considered Poor (score 10-18), and Grade D is considered Bad (score 1 – 9). According to the assessment, a total of 20 articles used in this study were included in the Grade A/ Good.

RESULTS

The characteristics of the articles based on the research method, the articles in this scoping review used a quantitative method of 17 articles (85%), a qualitative method 2 articles (10%) and a mixed method 1 article (5%).



Based on the articles of this review, we found three themes that described in table 4. The themes including mental health issues in breastfeeding mothers, factors affecting mental health in breastfeeding mothers during COVID-19 and the impact of poor mental health in breastfeeding mothers.

Tabel 4. Mapping Themes

Themes	Sub Themes	Article
Mental health issues in breastfeeding mothers	- Anxiety	A2, A4, A8, A12, A16, A17, A20
	- Worry	A1, A2, A6, A10
	- Stress	A1, A2, A7, A12, A16
	- Mood disorder	A2
	- Feeling down	A6, A10
	- Loneliness	A3, A4, A6, A10
	- Depressive symptoms/ Depression	A8, A9, A11, A16, A17, A18, A19, A20
Factors affecting mental health in breastfeeding mothers during COVID-19	- Social isolation	A2, A3, A18
	- Social support	A5, A6, A10, A13, A14, A15, A18
	- Lack of knowledge	A19
	- COVID-19 positive	A7, A19
The impact of poor mental health in breastfeeding mothers	- Breastfeeding difficulties	A12, A14, A15
	- Low breastfeeding efficacy	A3, A9
	- Stop breastfeeding	A14
	- Can't be exclusive breastfeeding	A7, A17
	- Disturbed mother-infant bonding	A12, A18

DISCUSSION

Based on an analysis of 20 articles, three themes were obtained, namely mental health issues in breastfeeding mothers, factors affecting mental health during COVID-19, the impact of poor mental health in breastfeeding mothers.

Mental health issues in breastfeeding mothers

The COVID-19 pandemic has an impact on the mental health of breastfeeding mothers. Based on the studies obtained in this review, it showed that there were anxiety, worry, stress, mood disorder, feeling down, loneliness and depressive symptoms/ depression among breastfeeding mothers. These results were obtained through a questionnaire to assess their mental health condition (Benarous et al., 2023; Chaves et al., 2021; Cimino & Cerniglia, 2023; Lambelet & Ceulemans, 2021). Previous research has shown that this pandemic condition is closely related to psychological distress and an increase in symptoms of mental health problems in the wider community, including symptoms of depression, anxiety, trauma, especially in women. Another study discovered that postpartum women experience depression, loneliness, and fear; attention is drawn to

the increasing risk of postpartum depression with significant prevalence values (Prandini et al., 2022).

Previous research has suggested that breastfeeding influences maternal mood and stress reactivity. When compared to formula-fed mothers, breastfeeding mothers reported lower levels of anxiety, negative moods, and stress (Krol & Grossmann, 2018). Breastfeeding, in fact, promotes hormonal processes that induce the release of oxytocin, an important hormone associated with maternal bonding, as well as attenuates the cortisol response to stress, which, when consistently high, is one of the most significant risk factors for the development of psychiatric disorders (Rivi et al., 2020). Therefore, efforts are needed, including relaxation techniques, physical exercise, and professional support so that mothers can continue to breastfeed so that their mental health condition is maintained, rather than only focusing on COVID-19 which actually results in poor mental health (Prandini et al., 2022).

Factors affecting mental health in breastfeeding mothers during COVID-19

This review shows that there are several causes that affect the mental health of mothers during the COVID-19 pandemic, including social isolation, social support, lack of knowledge to breastfeed and COVID-19 positive. In line with previous research, almost pregnant and postpartum women reported that feeling more isolated during the pandemic had a negative impact on their mental health and well-being (such as emotional distress, panic attacks, and fear) (Oliver et al., 2023; Pinedo et al., 2021). In such difficult circumstances, where social support is more important than ever and it is difficult to maintain the desired level or quality of social contact, the perception of loneliness may have a greater impact on mental health. Loneliness as "the unpleasant experience that occurs when a person's network of social relations is deficient in some important way, either quantitative or qualitative". Thus, loneliness is a subjective phenomenon and a distressing experience that stems from a deficit in personal relationships. Another cause of health problems in breastfeeding mothers is the lack of knowledge about breastfeeding, especially for mothers with COVID-19. This has resulted in fears of transmitting COVID-19 to infants (Azad et al., 2022; Doshi et al., 2021). In fact, WHO has recommended that mothers with COVID-19 can still breastfeed their babies by observing health protocols (World Health Organization., 2021).

The impact of poor mental health in breastfeeding mothers

Some of the impacts of poor mental health on breastfeeding women during the COVID-19 pandemic in this study include breastfeeding difficulties, low breastfeeding efficacy, stop breastfeeding, can't be exclusive breastfeeding and disturbed mother-infant bonding. The previous studies showed that breastfeeding beliefs, which have been found to be critical for breastfeeding practices, can also be exacerbated by postnatal mental health problems (Jiang et al., 2022; Ngo et al., 2019; Spatz et al., 2023; Sun et al., 2017; Tucker & O'Malley, 2022; Zubaran & Foresti, 2018). Existing global literature suggests that maternal depression affects breastfeeding beliefs such as self-efficacy (a mother's confidence in her ability to breastfeed her baby) and attitude (a mother's viewpoint and stance on breastfeeding). Maternal depression and anxiety have been linked to lower breastfeeding self-efficacy. Another study also described that prenatal and postnatal anxiety have also been identified as having a negative impact on breastfeeding duration. Maternal depression and stress have also been linked to less favorable attitudes toward breastfeeding, such as being skeptical or unsupportive of the practice. Anxiety may also

be linked to mother stress, which can interfere with oxytocin release, affecting the milk ejection reflex and having a physiologically negative impact on breastfeeding. Breastfeeding beliefs have been shown to be associated with not only higher rates of exclusive breastfeeding but also other measures of breastfeeding outcomes, such as the duration the infant is breastfed and the mother's satisfaction with breastfeeding. As a result, it is critical to preserve the mental health in breastfeeding mothers in order to face and endure the breastfeeding process successfully and achieve optimal breastfeeding outcomes.

CONCLUSION

The mental health conditions of breastfeeding mothers during the COVID-19 pandemic were reported to experience anxiety, worry, mood disorders, feeling down, stress, loneliness, depressive symptoms and postpartum depression. This may be because during the pandemic there were social restrictions so mothers felt they did not get adequate support. Lack of knowledge about breastfeeding for mothers with COVID-19 in breastfeeding is also one of the causes of concern and anxiety for mothers regarding the transmission of COVID-19 to their babies. The poor condition of the mother's mental health has an impact on breastfeeding difficulties, disruption of mother and baby bonding, low breastfeeding efficacy, unable to achieve exclusive breastfeeding and even cessation of breastfeeding. Therefore, efforts are needed to maintain the mental health of breastfeeding mothers during a pandemic so that mothers can avoid mental health disorders so that they do not interfere with the breastfeeding process.

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