

REVIEW

AN EMERGING TREND IN INFANT FEEDING PRACTICE: A SCOPING REVIEW ON BREASTMILK SHARING

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Abstract

Aim: The aims of this scoping review were to identify the type of available evidence and map rapidly the key concepts underpinning milk sharing research. *Design:* Scoping review. *Methods:* Initially, the Scopus, ScienceDirect and EBSCOhost databases were searched. The keywords used were “milk sharing,” “expressed breastmilk donation,” “peer,” “online” and “internet” and a combination of the Boolean operators “AND” and “OR.” The snowballing technique was used to identify grey literature. The inclusion criteria were citations in English and Malay languages focusing on milk sharing. The review selection was performed by two independent reviewers. *Results:* The search identified two theses and 23 journal articles from 2010 to December 2019 that varied in terms of subject areas, aims, and methodologies. The majority of studies included were conducted in Western countries. Key findings identified the emerging concept of shared breastmilk, characteristics of donor and recipient mothers, facilitating factors for milk sharing, an individual’s perception versus informed decision and transparency, the perception of “breast is the best” versus a bottle feeding culture, stigma surrounding milk sharing, a lack of involvement of health care providers in decision-making, problems with accessing human milk from the milk bank, and conflicting issues from a religious perspective. *Conclusion:* Milk sharing is a relatively contemporary infant feeding practice that raises several important issues. However, the existing literature is limited to the exploration of milk sharing practice from a Western perspective. This justifies the need for future research as infant feeding is deeply rooted within religious beliefs and the socio-cultural context.

Keywords: breastmilk sharing, expressed breastmilk, infant feeding, scoping review, social network.**Introduction**

Non-maternal nursing originated from wet nursing that existed in many cultures around the world, notably in the ancient Greek and Roman civilizations, as well as during the Industrial Revolution in the 18th and 19th centuries (Campbell, 1989; Fulminante, 2015; Rahbari, 2020; Stevens et al., 2009). Modern-day milk banking, established in the early 20th century in response to the need for infant survival, was inspired by the wet nursing practice (DeMarchis et al., 2017). The modern milk bank and wet nursing are different in terms of regulation and procedure. The milk bank is regulated by a medical institution and abides by a strict standard operating procedure (PATH, 2019). At present, milk banks are only available in Australia, European countries, and the United States. Milk banks are considered highly controversial among the Muslim community due to religious issues (Bawany et al., 2016).

With the aid of information technology, non-maternal nursing has been taken one step further. Milk exchanges are now facilitated through websites and social networks. A review of the literature suggested that during the past 10 years, more information has become available on contemporary milk sharing practice (Akre et al., 2011). It corresponds with the establishment of the first internet-based milk sharing organization, Eats on Feets, in 2010. Through its website and Facebook page, women are able to share breastmilk safely and ethically (“Eats on Feets – Community Breastmilk Sharing”, 2010).

Aim

The specific aims of this scoping review were: 1) to conduct a systematic search of published and grey literature; 2) to map the characteristics and range of methodologies used; and 3) to map the literature on the sharing of milk to illuminate the gap in knowledge on this subject. This review was guided by a series of questions with the aim of mapping the literature on milk sharing. The questions were: 1) What are the characteristics and methodologies

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used in the research on milk sharing? 2) What is known from the existing literature about milk sharing?

Methods

Design

A scoping review was used due to the scarcity of evidence on the topic under study. A review protocol was developed to maintain the rigour of the review process following the Joanna Brigg's Institute methodology for scoping reviews (Peters et al., 2015).

Eligibility criteria

The search was limited to research articles published in English and Malay due to lack of resources for translation. Research articles, case studies, and theses were included in this review while conference proceedings, commentaries, books, book series, and book chapters were excluded. A timeframe from 2010 until the present time was used to observe the evolution of research on milk sharing and it was consistent with the emergence of milk sharing in social networks in the 2010s (Akre et al., 2011). Studies that explicitly mention milk donations to institutionalized milk banks or which are related to milk selling and buying activities were also excluded.

Search Strategy

A multi-method search strategy was employed to ensure that the findings were robust. The search was primarily conducted in August 2018 and repeated in January 2020. Scopus, Science Direct, and EBSCOhost were selected due to their robustness and availability of a wide variety of subject areas. The search strategy was formed upon consultation with librarians. The initial search string consisted of terms such as *milk sharing*, *expressed breastmilk donation*, *peer*, *online*, and *internet*. Next, the authors expanded the search process by relying on keywords suggested by the Scopus database: *human*, *breastmilk*, *breast feeding*, *milk banks*, *social media*, and *social support*. Keywords were combined with Boolean operators AND, OR and NOT and the search query was customized to tailor to the specific database requirements. Additionally, the snowballing technique of checking references was used to find relevant citations that were not identified in the initial search. Citations that were found and identified within the search period were included for review.

Study Selection inc. PRISMA flow diagram

Figure 1 shows the flow diagram for the literature search in this review. Initially, an electronic database search captured a total of 87 records, while 20 other records were obtained through the snowballing

technique from the reference lists of the latest papers published. All citations found from the search were transferred to Mendeley, web-based reference manager software. A deduplication of records between databases yielded 74 records. Seventy-four articles with appropriate titles and abstracts were screened independently by JN and LK. At that point, 33 records were removed due to irrelevance. After attempts were made to contact the source author, one complete citation could not be obtained. The remaining 40 records were screened for eligibility based on the inclusion and exclusion criteria. At that stage, 15 records were excluded; two case studies that implemented a blended concept of breastmilk donation and wet nursing practice but used the term *milk sharing*, three studies on milk purchasing via public social networks, nine commentaries, position statements and editorial notes, and one experimental study. A total of 23 journal articles and two theses were found to be eligible for inclusion in the review.

Evaluation of quality of articles

All 23 journal articles included in this review were methodologically varied; a universal appraisal tool developed by Hawker et al. (2002) was used to assess the quality of the papers in general. This appraisal tool comprises of nine components that allow evaluation of the clarity of the information in the abstract and title section, introduction and aims, method and data, sampling, data analysis, ethics and bias, results, transferability or generalizability of the findings, and its implications to the policy and practice. The evaluation of the quality of articles was done independently by NA and discussed by all authors. The majority of the studies were considered high quality as they scored more than 30 points. The details of the quality scores of included articles against Hawker's appraisal tool are presented in Table 1.

Data extraction

The findings are presented according to the process where primary attention is given to a basic analysis of the extent, nature, and distribution of included studies. A systematic approach was used to describe, classify, and conceptualize the information obtained from the included citations. The authors created an analytical structure representing the aims of this analysis, consisting of the first author's name, publication year, location of the research, nature of the study, sample size, sampling technique, methods and main findings. Then the mapping process was carried out by JN and LK where any differences would be discussed by all authors to obtain clarity.

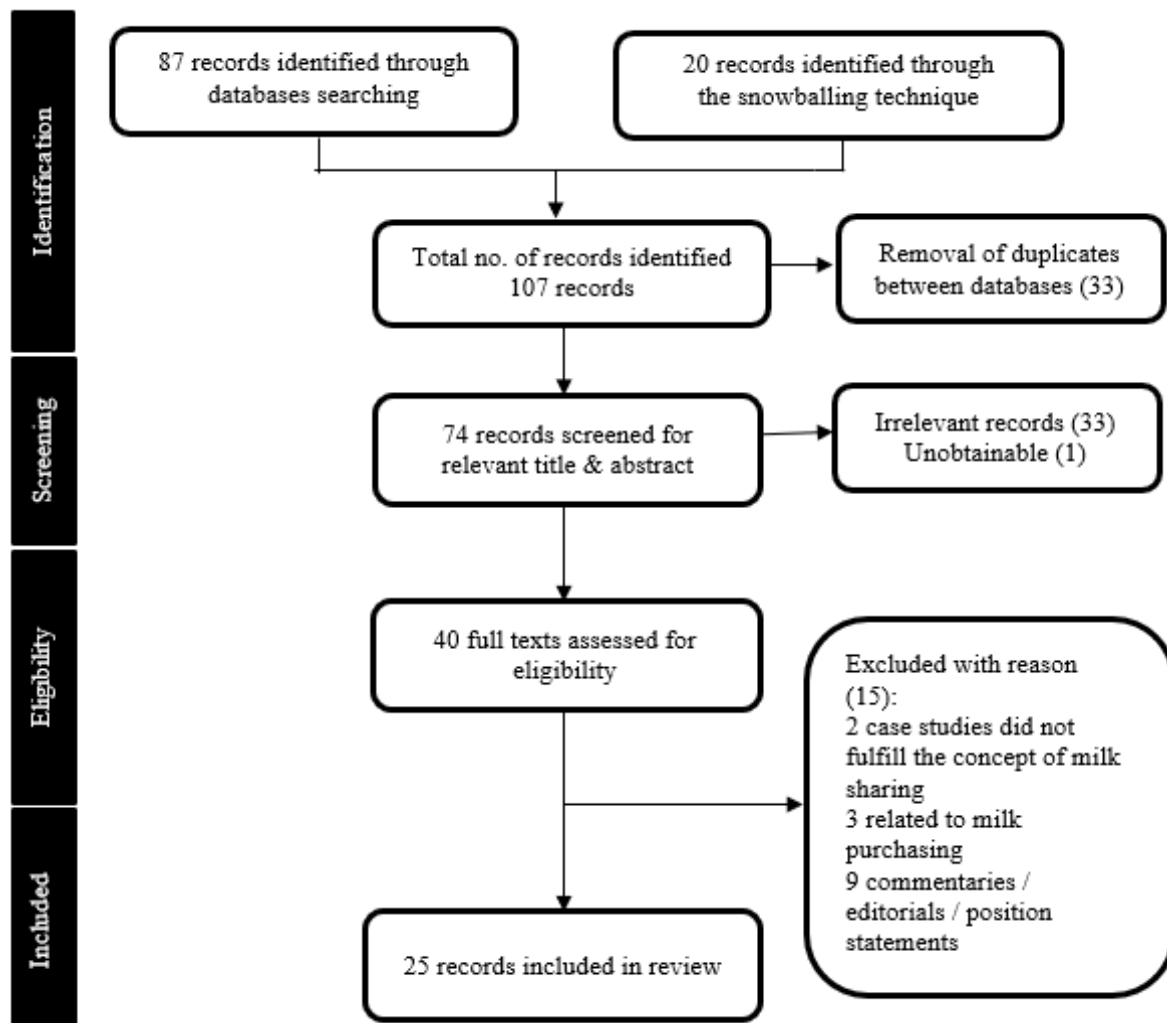


Figure 1 Flow diagram of study selection, following the PRISMA guideline

Results

General characteristics of included citations

The majority of citations used in this review were journal articles. In terms of subject areas, a majority of the included studies were on health science, with only five on social science and one on human science. This review was based on 25 studies in three countries / regions: 17 studies were conducted in the United States and North America, seven in Australia and one in Turkey. In terms of the years of publication, one was published in 2012, two were published in 2013, six were published in 2014, two were published in 2015, five were published in 2016, two were published in 2017, six were published in 2018, and one was published in 2019.

Methodological characteristics of included citations

In terms of methodology that underpinned the existing studies, eight of them were quantitative, 13 were

qualitative, and four were mixed-method studies. From the 13 qualitative studies, two were discourse analyses while the rest applied various research paradigms as follows: eight descriptive qualitative, two ethnographic, and one grounded theory study. The qualitative studies also employed triangulation via use of different methods (Smith, 2017), different types of informants (Gribble, 2013; 2014a; 2014b; 2018; McCloskey & Karandikar, 2018; O’Sullivan et al., 2016; Smith, 2017), use of purposive sampling (Carter et al., 2015; Smith, 2017; Thorley, 2012), and adoption of well-recognized qualitative data analysis (Carter & Reyes-Foster, 2016; Gribble, 2013; 2014a; 2014b; 2018; MacDonald et al., 2016; Papanicolaou, 2013; Perrin et al., 2016; Smith, 2017; Thorley, 2012).

Similarly, mixed-method studies included in this review also incorporated strong quantitative and qualitative components such as the application of overlapping methods while collecting data (Reyes-Foster & Carter, 2018), adoption of well-established

qualitative data analysis (Perrin et al., 2014; Reyes-Foster & Carter, 2018), and large sample sizes from multiple settings (Palmquist & Doehler, 2016; Perrin et al., 2014; Reyes-Foster & Carter, 2018).

In the same way, the strengths of quantitative studies lie in the use of validated instruments for data collection (Cassar-Uhl & Liberatos, 2018; Keim et al., 2014; Onat & Karakoç, 2019), recruitment of large samples (Cassar-Uhl & Liberatos, 2018; Gribble, 2014c; Onat & Karakoç, 2019, Palmquist & Doehler, 2014; Reyes-Foster et al., 2015; 2017; Schafer et al., 2018), and involvement of participants from multiple settings (Keim et al., 2014). Details of the methodological characteristics of citations included in this scoping review are presented in Table 1.

Key findings across the literature

The key findings of this review are summarized in Figure 2.

The concept of milk sharing

The authors found that the terms *informal milk sharing* (Onat & Karakoç, 2019; O’Sullivan et al., 2016), *peer-to-peer milk sharing* (Carter et al., 2018; Gribble, 2014a, 2014b; McCloskey & Karandikar, 2018; Perrin et al., 2016; Reyes-Foster et al., 2017), *milk sharing via the internet* (Keim et al., 2014) and *internet-based peer-to-peer milk sharing* (Gribble, 2013, 2018) were used across the literature. Regardless of the term used, it refers to the milk exchange activity that is facilitated by social networks. These social networks serve as a platform where mothers can request and donate expressed breastmilk and the milk is freely provided and collected for feeding a recipient child.

The characteristics of donor and recipient mothers

Milk sharing is predominantly practiced by young mothers who are within the reproductive age group, possess a high level of education, are employed, gave birth to a single baby, and mothers of premature babies (Carter et al., 2018; Cassar-Uhl & Liberatos, 2018; Gribble, 2013, 2014a, 2014b; McCloskey & Karandikar, 2018; Papanicolaou, 2013; Perrin et al., 2016; Reyes-Foster & Carter, 2018; Reyes-Foster et al., 2017; Schafer et al., 2018; Smith, 2017; Thorley, 2012). However, there are slight differences in terms of the age range of participants across the literature. It varies from 18 to 58 years (Reyes-Foster et al., 2017; Schafer et al., 2018) to 21 to 45 years (Gribble, 2013, 2014a, 2014c; McCloskey & Karandikar, 2018). A discrepancy in maternal parity was also seen in the study by Reyes-Foster et al. (2017) where 61.5% of the participants were multigravida. Additionally, milk sharing has become a choice in infant feeding practice for adoptive parenting (Palmquist & Doehler, 2016).

The facilitating factors of milk sharing

The facilitating factors involved in milk sharing are categorized into three aspects: the donor mother, recipient mother, and recipient infant. Perception of the significant value of breastmilk, altruism, surplus breastmilk, staying apart from the biological child or the child’s death are the codes that make up this category. From the donor’s perspective, the ability to produce extra breastmilk and the perception of the significant value of breastmilk motivate them to participate in milk sharing, and a sense of satisfaction is derived from helping infants in need (Gribble, 2013; Perrin et al., 2016). This perception causes them to be selective in choosing to whom their milk should be given and they prefer milk sharing via social networks over donating it to the institutionalized milk bank. In addition, excellent communication between donor mothers and recipient mothers would establish trust and enable a relationship to be developed between them; this is particularly important among Muslims. Mothers’ concerns on this issue were highlighted in studies by Gribble (2013) and Thorley (2012). Therefore, being in touch following milk sharing is vital to avoid problems related to milk kinship.

The concerns of recipient mothers include the inability to breastfeed or produce breastmilk, breastfeeding difficulties, experience of using infant formula, feeling guilty for not providing breastmilk, perception of the value of breastmilk, religious order, and the nature of being a mother (Carter et al., 2015; Gribble, 2013; Keim et al., 2014; McCloskey & Karandikar, 2018; O’Sullivan et al., 2016; Perrin et al., 2014; Schafer et al., 2018; Smith, 2017; Thorley, 2012). Carter et al. (2015) and MacDonald et al. (2016) also state that milk sharing has become a solution for lesbian, gay, bisexual, transgender, queer, two-spirits, and other persons who engage in parenting. Infants’ health conditions such as failure to thrive, formula intolerance, food allergy, and tongue-tie have been found to influence mothers’ decision to choose milk sharing (Gribble, 2014b; Palmquist & Doehler, 2014; Thorley, 2012). In contrast, Carter et al. (2015) found that infants’ health problems are not the main factor, as feeding an infant using non-maternal breastmilk is a parental choice rather than a medical necessity. The findings are supported by a recent study claiming that feeding of an infant by adoptive parents using the infant’s non-biological mother’s milk is influenced by the sense of “being a mother” (Carter et al., 2018).

An individual’s perception versus informed decisions and transparency

Safety issues pose the main challenges in milk sharing practice. Therefore, both parties, that is the donor and the recipient, adopt several strategies to mitigate the

Table 1 Methodological characteristics of included studies (Part 1)

First author	Year	Country	Study design (Quality score)	Sample size	Sampling procedure	Data collection	Data analysis	Findings
Onat	2019	Turkey	quantitative (26)	435 (371 non-milk sharers, 48 milk donors, 16 milk recipients)	convenience sampling of mothers in a social media group	online survey	descriptive statistic	religious concern is the barrier to share milk among Muslims; strategies taken to adhere to religious rules
Reyes-Foster	2018	US	mixed method (32)	390	convenience sampling for the quantitative part; purposive sampling for the qualitative part	observation, semi-structured interview, online survey	quantitative: descriptive statistic qualitative: grounded theory analysis	distinguished features between milk exchange & milk selling; importance of safe milk handling practice
Cassar-Uhl	2018	US	quantitative (32)	475	voluntary sampling of mothers in social media self-identified as having low milk supply	online survey	descriptive & chi square test	milk sharing is high among mothers with low milk supply
Carter	2018	US	mixed method (34)	392	voluntary sampling of mothers in online breastfeeding and milk sharing groups	online survey	quantitative: descriptive statistic qualitative: social constructionist	mothers' perception of the value of breastmilk influenced them to choose milk sharing over formula feeding; feeding infants using non-biological mothers' milk is influenced by the sense of "being a mother"
Schafer	2018	US	quantitative (34)	205	voluntary sampling of milk recipients	online survey	descriptive & multivariate analyses	breastfeeding difficulty associated with negative emotions; milk sharing associated with social stigma

Table 1 Methodological characteristics of included studies (Part 2)

First author	Year	Country	Study design (Quality score)	Sample size	Sampling procedure	Data collection	Data analysis	Findings
McCloskey	2018	US	qualitative (basic) (36)	20	convenience sampling of women who had experiences with milk sharing	semi-structured online interview	grounded theory analysis	challenges that influence mothers to be involved in milk sharing are due to difficulties in accessing breastmilk from the milk bank; lack of societal acceptance of milk sharing leads to stigma; facilitators for milk sharing: informed decision-making & transparency from both parties & support received from health care providers
Reyes-Foster	2017	US	quantitative (34)	321	convenience sampling of individuals in the milk sharing community	online survey	descriptive, univariate & multivariate analyses	milk sharers have good handling practice of expressed human milk
Carter	2016	US	qualitative (discourse analysis) (32)	34 newspapers	purposive sampling	-	interpretive analysis	milk banks are portrayed as receiving institutional support from the government and medical institution; peer milk sharing is portrayed as receiving warning from various institutions due to the risks
Palmquist	2016	US	mixed method (36)	661 donors, 206 recipients	voluntary sampling	online survey	descriptive & univariate analyses	participants perception on the risk of milk sharing is reflected by strategies taken to minimize the risk

Table 1 Methodological characteristics of included studies (Part 3)

First author	Year	Country	Study design (Quality score)	Sample size	Sampling procedure	Data collection	Data analysis	Findings
O'Sullivan	2016	US	qualitative (basic) (36)	41	purposive sampling of mothers who had experiences with milk sharing	semi-structured, face-to-face interview	thematic analysis	awareness of human milk sharing; consideration of human milk sharing; concerns about human milk sharing; motivations for human milk sharing; routes of human milk sharing
Perrin	2016	US	qualitative (grounded theory) (36)	27	stratified purposive sampling	semi-structured telephone interview	constant comparison analysis	perception of the goodness of breastmilk, sources of information regarding milk exchange, concerns & knowledge about milk sharing & the sense of helping the others
MacDonald	2016	US	qualitative (basic) (36)	22	convenience sampling of individuals self-identified as transmasculine	online interview	interpretive analysis	participants' experiences of gender dysphoria, chest masculinization surgery before pregnancy or after weaning, accessing lactation care as a transmasculine person
Carter	2015	US	qualitative (discourse analysis) (34)	30 newspaper articles	purposive sampling	-	feminist critical discourse	breastmilk from the milk bank is viewed as lifesaving, milk donation is altruistic, obtaining milk is a responsible action; breastmilk obtained via milk sharing has risks, mothers involved are not fully informed of the risks & it is an irresponsible decision

Table 1 Methodological characteristics of included studies (Part 4)

First author	Year	Country	Study design (Quality score)	Sample size	Sampling procedure	Data collection	Data analysis	Findings
Reyes-Foster	2015	US	quantitative (34)	392	convenience sampling	online survey	descriptive & univariate analyses	milk sharing is complex, donor & recipient mothers are overlapping; cross nursing & milk exchange occurs
Keim	2014	US	quantitative (32)	254 postings on milk sharing websites	purposive sampling	milk sharing postings	descriptive, univariate, & bivariate analyses	concurrently contents of the postings include the purpose of donating / seeking milk, health behaviour, milk handling practice & strategy taken to minimize the risk; the readability of the content was measured using Flesch-Kincaid Grade Level
Perrin	2014	US	mixed method (36)	3-month facebook postings	universal sampling	milk sharing posting	qualitative content analysis	the process of milk exchange in the social network
Palmquist	2014	US	quantitative (32)	661 milk donors, 206 milk recipients	voluntary sampling	online survey	descriptive & parametric tests	both donors and recipients reported higher than the national average for household income, maternal educational attainment, breastfeeding exclusivity 0–6 months, and breastfeeding duration
Papanicolaou	2013	US	qualitative (basic) (not applicable)	13	purposive sampling of women in the milk sharing community	semi-structured online & offline interviews	qualitative content analysis	commitment to provide breastmilk, virtual nature of relationship & making the private public

Table 1 Methodological characteristics of included studies (Part 5)

First author	Year	Country	Study design (Quality score)	Sample size	Sampling procedure	Data collection	Data analysis	Findings
Gribble	2018	Australia	qualitative (basic) (35)	97 milk donors, 41 milk recipients	convenience sampling	online survey	conventional content analysis	developing personal relationship between milk sharers is important; milk kinship established following milk sharing
Smith	2017	Australia	qualitative (ethnographic) (not applicable)	13	purposive sampling of women who experience milk insufficiency	in-depth interview, observation	grounded theory analysis	milk sharing is an alternative for women that experience milk insufficiency
Gribble	2014a	Australia	qualitative (basic) (35)	97 milk donors	convenience sampling	online survey	conventional content analysis	milk sharing is motivated by helping the others
Gribble	2014b	Australia	qualitative (basic) (34)	41 milk recipients	convenience sampling of milk recipients on a facebook page	online survey	conventional content analysis	milk sharing is an alternative when mothers face breastfeeding difficulties
Gribble	2014c	Australia	quantitative (32)	97 milk donors, 41 milk recipients	convenience sampling of milk sharers in the milk sharing community	online survey	conventional content analysis	milk sharing provides an alternative solution for mothers who are unable to breastfeed; strategies to minimize health risks; for Muslim mothers, additional concerns related to religious rules
Gribble	2013	Australia	qualitative (basic) (36)	98 milk donors, 41 milk recipients	convenience sampling	online survey	conventional content analysis	milk sharing is an alternative when the milk bank is not available; mothers donate to a peer using internet-based milk sharing networks due to doubts about the process in the milk bank
Thorley	2012	Australia	qualitative (ethnographic) (35)	22	purposive sampling	online interview	thematic analysis	cultural issues related to milk and consent

risks. This is manifested in milk sharing advertisements on the internet that provide information concerning the donors’ health status, lifestyle, and their hygiene and handling practice (Gribble, 2014c; Keim et al., 2014; Onat & Karakoç, 2019; Palmquist & Doehler, 2016; Reyes-Foster & Carter, 2018; Reyes-Foster et al., 2017). For Muslim milk sharers, additional aspects are reported to uphold the Islamic religious principle. They deal with their concerns regarding the implications of milk kinship by finding infants of the same gender, limiting the number of donors or recipients, and getting to

know each other (Onat & Karakoç, 2019; Thorley, 2012).

The perception of “breast is the best” versus a bottle-feeding culture

It was learnt that the mothers’ decision to use non-biological mother’s milk is driven by their awareness of its nutritional benefits (Carter & Reyes-Foster, 2016) and it is intensified by the mother’s desire to breastmilk, as breastfeeding has been perceived as a symbol of maternal love (Carter et al., 2018; Gribble, 2018; MacDonald et al., 2016; Smith, 2017).

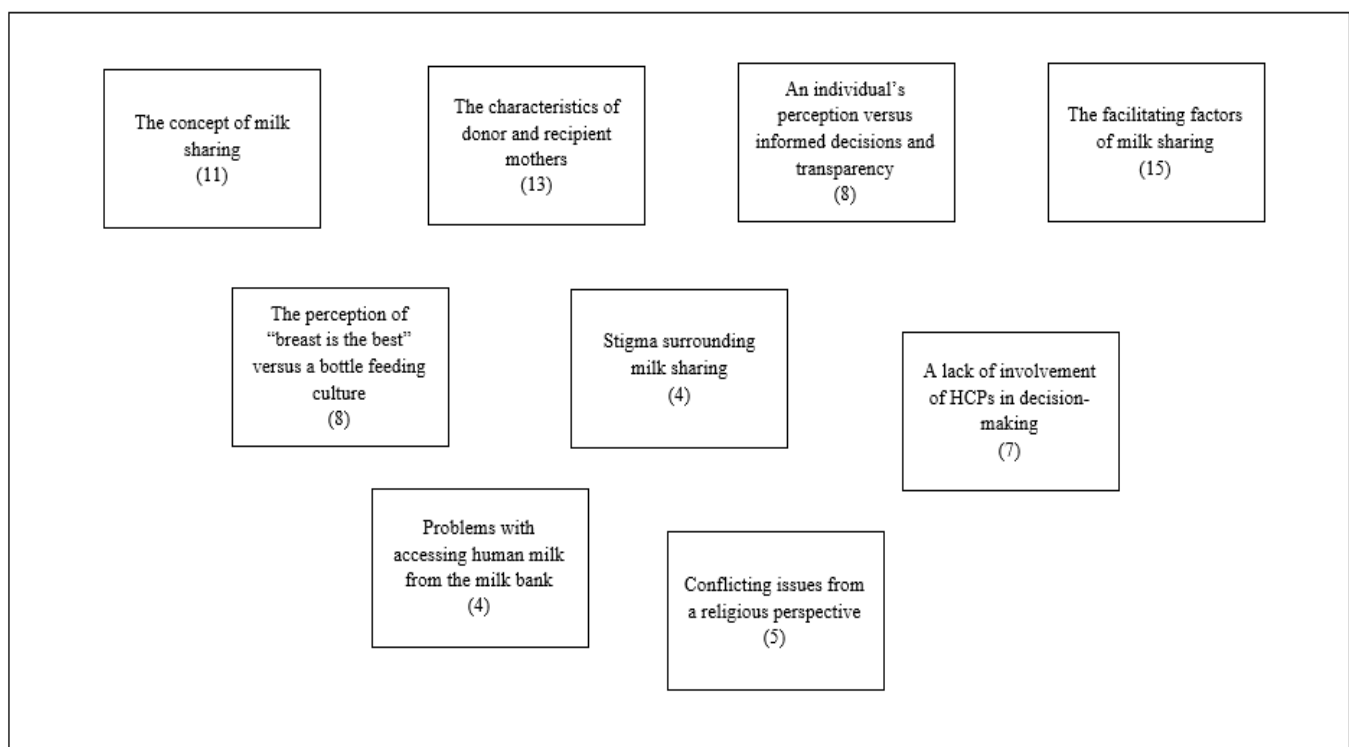


Figure 2 Key findings of the review measured by numbers of studies

This perception, however, might present complications as mothers may experience challenges to sustain the breastfeeding practice. Therefore, feeding their infants using non-maternal breastmilk seems to be an alternative for these unfortunate mothers (McCloskey & Karandikar, 2018; Schafer et al., 2018; Thorley, 2012).

Stigma surrounding milk sharing

Stigma that exists around milk sharing is due to a lack of awareness and acceptance of milk sharing. This stigma may negatively influence the emotional responses of recipient mothers (Schafer et al., 2018). In contrast, the existing literature also indicates that providing milk is associated with positive attitudes when compared to receiving it (Onat & Karakoç, 2019; McCloskey & Karandikar, 2018; O’Sullivan et al., 2016).

A lack of involvement of health care providers (HCPs) in decision-making

An individual’s decision to participate in milk sharing without medical consideration would result in adverse effects to the donor and recipient mothers, and their infants. However, a review of the literature found that the lack of HCP’s involvement is due to lack of awareness on the use of non-biological mother’s milk (Perrin et al., 2016; Reyes-Foster et al., 2015) and bottle feeding seems to be an ideal option for infant feeding difficulties (McCloskey & Karandikar, 2018; Perrin et al., 2016; Reyes-Foster et al., 2015). Nevertheless, a few studies in the literature reported that mothers received support from health care providers in terms of information, referrals, and emotional support (Gribble, 2014c; McCloskey & Karandikar, 2018; Papanicolaou, 2013). Lactation

consultants, midwives, childbirth instructors, doulas, and nurses were among the sources cited in the studies.

Problems with accessing human milk from the milk bank

Difficulties in accessing human milk from the milk bank stem from the unavailability of the milk bank and inaccessibility of breastmilk from the milk bank. The unavailability of the milk bank is the main factor that influences a mother's decision to engage in milk exchange via offline or online methods (Gribble, 2013). Additionally, difficulty to access breastmilk due to the policy requirements imposed by the milk bank also causes mothers to choose milk sharing over milk banking (McCloskey & Karandikar, 2018). Another reason identified is the women's desire to preserve the quality of breastmilk, thus preferring to share milk with a peer rather than milk banking, as they believe the pasteurization process destroys its nutritive contents (Gribble, 2013; McCloskey & Karandikar, 2018; Perrin et al., 2016).

Conflicting issues from a religious perspective

Different opinions on milk banking and milk sharing as expressed via social networks were reported in Onat and Karakoç's (2019) study. More than half of the milk donors and recipients in their study preferred the milk bank to milk sharing due to concerns regarding the legal relationship. However, a few citations reported on how participants negotiated their religious understanding while practicing milk sharing (Gribble, 2014c, 2018; Thorley, 2012; Onat & Karakoç, 2019).

Discussion

Research into breastmilk sharing via social networks started to become more intense in 2012, which corresponds with wide internet coverage, extensive use of internet-capable smartphones and mobile social apps (Noyes, 2020). As a result, the growing number of social network users have greatly influenced milk exchange. This review was based on 25 studies in three countries / regions: the United States and North America, Australia, and Turkey. The fact that research into milk sharing activity was mainly conducted in Western countries could be explained by the early development of information technology and wider access to the internet in those countries (Baker, 2013). However, there is inconsistency in the concept of milk sharing activity as it interchangeably refers to the blended concept of breastmilk donation and wet nursing practice to overcome the ethical issues surrounding milk banking specifically in the Muslim community (Al-Naqeeb et al., 2000; Hsu et al., 2012). Wet nursing is the practice of a non-biological mother directly breastfeeding another woman's child while

receiving remuneration for her lactation labour (AlHreashy, 2018). On the other hand, milk donation refers to the collection and distribution of expressed breast milk in the institutionalized milk bank. Therefore, it must be done under medical prescription where an eligible donor needs to be screened and the milk donated must undergo the pasteurization process before distribution to the eligible infant (DeMarchis et al., 2017).

Milk sharing was identified as being predominantly practiced by young mothers within the reproductive age group, which is consistent with global statistics reporting that 76% of social network users are women aged 25 to 34 years (Noyes, 2020). This age distribution falls within the active reproductive age group (Oats & Abrahams, 2015). People in this age group, known as Generation Y or digital natives, are open-minded and expressive; they depend on social networking as the preferred and powerful communication tool (Woodman & Wyn, 2014). Moreover, it is undeniable that information technology and social networks play a significant role in promoting and educating the public on breastfeeding. This is supported by mothers' enthusiasm to seek information which is augmented by internet literacy (Sulaiman et al., 2016).

The findings of this review suggest that the public are aware of the importance of breastmilk for infant survival, and the idea of breastmilk donation is becoming more acceptable. The findings provide a new perspective on the use of non-biological mothers' milk. It acknowledges the influencing factors and barriers related to non-maternal nursing, allowing HCPs to understand it from the perspectives of individuals. Besides, the findings are useful in the development of a breastmilk donation framework by reflecting on individual experiences. In terms of clinical practice, this review assists HCPs in educating and supporting mothers through informed decision-making. However, milk sharing activity is still extensively debated in society, specifically among HCPs (Akre et al., 2011). Open discussion on the pros and cons of infant feeding as well as on the protection measures if milk sharing was chosen would be useful. This is consistent with the finding by White et al. (2016) that HCPs and the community need to work together to mitigate the risks as this initiative has a significant impact in normalizing breastfeeding practice in the millennial era.

This review provides evidence for HCPs, especially concerning current issues surrounding infant and child feeding. It seems to be a wakeup call for HCPs to engage with the community using social media which has become the preferred communication platform

nowadays (Tankovska, 2021). Moreover, milk sharing is a new challenge to the HCPs who are bound by medical ethics, including principles of respect for autonomous decision, non-maleficence, beneficence, and justice (Gribble, 2012). The main concerns are regarding the safety of milk sharing, as well as health and morality issues for the parties involved, that is the donor mother, recipient mother, and their infants. Nonetheless, a series of questions need to be answered by the milk donor and recipient mother such as: Do we need it? Can we rely on the process? What are the implications? What mechanisms can be used to minimize the possible risks? What are the moral issues surrounding this practice?

Knowledge gap

This review provides an insight into many issues that are worthy of further study. Individual experience in milk sharing is significant since addressing this aspect could assist HCPs in developing a framework for breastmilk donation programs using a multidisciplinary approach that suits the needs of the local context. However, the existing literature is limited to understanding the issue from a Western perspective as research on milk sharing has been conducted mainly in that setting. This justifies the need for understanding individual experiences in other regions. For example, mothers living in Muslim and multiracial countries would perceive and experience milk sharing differently from Western mothers. In addition, reviews on the literature show that too little attention has been paid to the emotional aspects of milk sharing, as well as to religious concerns surrounding this activity. These two aspects are crucial as breastfeeding and motherhood are deeply rooted within religious beliefs and socio-cultural viewpoints. An exploration into conflicting issues of this practice, especially from the religious and health care perspectives, is highly required as the lack of in-depth understanding of these issues would bring negative consequences.

Limitation of study

This review used the standard framework of conducting a scoping review that allows rigorous and systematic analysis when the subject area had not been reviewed comprehensively. Even though this review included a relatively small number of citations, the search was conducted in three main databases of scientific literature that cover a wide variety of subject areas. Nevertheless, the strengths of this paper lie in several aspects: 1) adherence to standardized scoping review guidelines; 2) consultation with a reference librarian to make maximum use of the search strategy; 3) setting the parameters by defining the concept of milk sharing; 4) a systematic and iterative process of

data analysis; and 5) team analysis to promote data analysis transparency.

Conclusion

The use of non-biological mothers' breastmilk is connected to maintaining a child's life, an individual's freedom of belief, and moral values. This topic is extensively debated within society due to its unforeseen implications. Without doubt, milk sharing seems to be the easiest and fastest system as compared to wet nursing and milk banking as the process becomes more accessible and faster with the help of information and technology. This scoping review has identified and summarized the nature of research on milk sharing. This review recognizes the knowledge gap in the research on infant feeding practice. It also provides insights for HCPs on the root causes before implementing an effective action plan by acknowledging individual experience, specifically in breastfeeding promotion and education programs.

Ethical aspects and conflict of interest

The authors declare that they have no conflict of interest.

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Author contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by JN, LK, CT and MS. The draft of the manuscript was written by JN and commented by LK, CT and MS. The manuscript was critically revised by LK and MS. The final approval was made by LK, CT and MS.

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