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RESEARCH ARTICLE

The Content and Sources of Breastfeeding Knowledge for New Mothers in the Netherlands

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Abstract:

Background:

In the context of decreasing breastfeeding rates and unsuccessful breastfeeding promotion campaigns, a qualitative research project in the Northern part of the Netherlands was initiated.

Objectives:

As part of the overall project, the aim of this study was to explore the content and sources of breastfeeding knowledge among primiparous women. Identifying and categorizing the content and the sources of breastfeeding knowledge could guide professionals such as midwives and maternity nurses as well as others in the women's surroundings to engage in disseminating knowledge and therefore support women in achieving their breastfeeding goals.

Methods:

We conducted 26 in-depth interviews from the emic perspective with 13 new mothers pre- and postpartum, up to saturation level. Transcripts were analysed applying thematic analysis. As sensitising concepts, the themes identified were divided into two categories: those gained from 'professional' sources and those obtained from 'popular' sources.

Results:

Five knowledge content themes were identified: (1) pros and cons of breastfeeding, (2) how breastfeeding works, (3) individual breastfeeding practice, (4) expressing milk, and (5) formula feeding. 'Professional' sources are perceived as more helpful than 'popular' sources, whereas 'intuition' was inductively identified as an important knowledge source.

Conclusion:

Limited breastfeeding practice exposure, along with the recommendations to breastfeed for six months and perceptions of breastfeeding as 'natural' at the same time, generates much pressure in women. Emphasizing all knowledge content in campaigns, addressing a variety of target groups in women's social environment, and recognizing intuition as an adequate source of knowledge supported by professionals will facilitate women in making informed infant feeding decisions.

Keywords: Breastfeeding, Intuition, Knowledge content, Knowledge sources, Netherlands, New mothers, Qualitative research.

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1. INTRODUCTION

In the Netherlands, the majority of women (80%) start breastfeeding, which drops to 57% after one month [1, 2]. These figures represent a common pattern in breastfeeding

rates in most western countries, with the highest dropout occurring in the first weeks after birth [3, 4]. Although the importance of breastfeeding in high-income countries is less evident than it is in low-to-middle income countries, as stated by several authors [5], including the Netherlands, public health campaigns that target women have been developed with the aim of extending the initiation and duration of breastfeeding. These campaigns follow international guidelines from the

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World Health Organization (WHO) [6, 7], which recommend exclusive breastfeeding until the age of six months [8]. The extension of the 2025 targets includes the aim to increase the rate of exclusive breastfeeding in the first six months up to at least 50% [7]. Although the duration of breastfeeding in the Netherlands has increased [2], the national campaigns have been more successful in increasing initiation rates than in extending duration [2, 9].

To explore the reasons that underlie women's decisions to stop or continue breastfeeding in the first month after delivery, a qualitative research project was designed in the northern part of the Netherlands [10]. This research project had been conducted from an anthropological perspective by examining breastfeeding practice in the broader context of socio-cultural and socioeconomic features, including the unique tradition of how reproductive (home) care is organized in the Netherlands.

Empirical qualitative data were collected by interviewing primiparous women. An initial study was aimed at gaining insight into the women's intentions to start breastfeeding as well as their actual breastfeeding practice [10]. Themes identified from the women's narratives in the initial study were: 'making arrangements for childbirth,' 'reflecting on the intention,' 'becoming a mother,' 'combining breastfeeding with work' and 'learning about breastfeeding' [10]. Among those themes, the theme 'learning about breastfeeding' required further examination to contribute to a better understanding of women's decisions to stop or continue breastfeeding. Therefore, we collected additional data and performed a secondary analysis of the previous and new data. This secondary analysis is addressed in this article and aims to identify and categorize the content as well as the sources of breastfeeding knowledge.

There are a few specific features in the medical as well as the sociocultural and socioeconomic context of breastfeeding in the Netherlands. One crucial characteristic is the high rate of home deliveries as part of the unique Dutch system of integrated maternity healthcare, including clinical obstetric as well as midwifery home care [11]. In this system, postnatal maternity nursing care at home is available from day one to day eight, and, although the rate of home deliveries has been decreased from 38% in 1991 to 18% in 2013, the majority of women (95%) make use of this home care for an average of seven days [12, 13]. In this postpartum period, maternity nurses support breastfeeding initiation and assist women in practicing feeding breast milk. Prior to that, in the prepartum period, women who intend to breastfeed receive information from their antenatal care providers during any of the medical consultations or in antenatal breastfeeding classes.

Another characteristic of the breastfeeding context in the Netherlands is that additional information and support can be obtained from lactation consultants. However, this expertise is not always included in the integrated (funded) care system, which could therefore generate differences in access to this service among women with different socioeconomic backgrounds [10].

Apart from the information from professionals, women can obtain information from non-professionals around them, such

as relatives or friends. However, considerable transformations in knowledge acquisition have occurred in society because of decreasing breastfeeding rates. The probability of women observing other women practicing breastfeeding has become minimal nowadays, and observational learning in new mothers, which relied on seeing women around them breastfeeding, has become a thing of the past [9, 14].

Additional development in breastfeeding knowledge acquisition is the use of the internet, which generates an immense increase in access to information. Some authors suggest that, from the perspective of the generation of young adults aged between 20 and 35 years, if information concerning breastfeeding is not distributed on the internet, it would be as if this information did not even exist [15]. Women's knowledge acquisition is not limited to a single type of knowledge or to one specific source, and new mothers acquire their breastfeeding knowledge from multiple sources [16].

The literature presents a variety of concepts and classifications referring to types of knowledge sources. Jordan [17] described biomedical and authoritative knowledge as professional sources of knowledge. Informal and lay knowledge are presented as popular sources of knowledge, for example, by McFadden *et al.* [18]. The categories of professional and popular sources have also been described by Kleinman [19], where 'professional sources' are further classified as specialist professional sources, and 'popular sources' generate non-specialist nonprofessional knowledge. In our analysis, we use this classification of 'professional sources' and 'popular sources' to categorize the sources of knowledge.

A better understanding of the content and sources of breastfeeding knowledge in Dutch women may contribute to theory building as well as policy development concerning infant feeding practices in high-income countries and the various ways in which breastfeeding can be understood [20]. Identifying and categorizing the content and sources of breastfeeding knowledge could guide professionals such as midwives and maternity nurses as well as others in the women's surroundings to engage in disseminating knowledge and, therefore, support women in achieving their breastfeeding goals.

2. MATERIALS AND METHODS

The research project was designed as a cyclic process [21]. This allows moving back and forth between the different stages of a research process and conducting a secondary analysis of data previously collected [21].

Data collection was done in two rounds, as described in the introduction, by interviewing two samples of primiparous women who received prenatal care from midwives in the Northern part of the Netherlands. All women were interviewed twice, prepartum and postpartum. The prepartum interviews (1) were conducted in the women's third trimester, and the postpartum interviews (2) between four and six weeks postpartum.

The series of prepartum and postpartum interviews for the first round of data collection was conducted in 2008 among a sample of eight women in the province of Friesland. The

second round, aiming to collect additional data to get insight into one specific theme identified in the first round, *i.e.*, ‘learning about breastfeeding,’ was accomplished in 2011 among a sample of five women in the province of Groningen to complement the previous sample. Friesland and Groningen are provinces in the north of the Netherlands. During the time between the first and the second round of data collection, there had been no adjustments to any of the breastfeeding guidelines, recommendations, or campaigns, neither at international (*e.g.*, by WHO) nor at the national level. Therefore the time interval has no impact on the findings. Data from both rounds were analyzed jointly to address the research question for this paper.

All women were recruited through their midwife practices. During their checkup visits in gestation week 20, their midwives inquired whether they had the intention to breastfeed and, if so, invited them to participate in the research. Apart from primiparity and the intention to breastfeed, inclusion criteria were that the women were in good health and able to speak Dutch or English. Additional criteria for the postpartum interviews were that the mothers as well as their infants were in good health and that there were no contraindications for breastfeeding.

The prepartum interviews were conducted at the midwife clinics and took 30-45 minutes. The postpartum interviews were conducted at the participants’ homes and took 45-60 minutes. One infant’s father was present at the prepartum interview, and one was present at the postpartum interview. During the postpartum interviews, all infants were present in the same or a different room.

The interview guides covered topics derived from the theory of planned behavior [22, 23], including breastfeeding knowledge [24]. The prepartum interview questions thus concerned breastfeeding intentions, attitudes, social environment, and norms, perceived behavioral control, and breastfeeding knowledge [9]. The postpartum interview questions dealt with these same topics in retrospect and included childbirth experience and actual feeding practice. The interview guides were semi-structured, and questions were open-ended with probes in variable sequences. The interview guide for the second round of data collection included additional probes to get a deeper understanding of the content and sources of breastfeeding knowledge.

The records of all interviews were anonymized and transcribed *ad verbatim* for analysis. These transcripts were first analyzed by open coding, applying the principles of grounded theory [25 - 27]. One key theme identified in the initial study was ‘learning about breastfeeding’ [9], which was selected for further analysis, along with additional data collected in the second round. Analysis of the additional data was performed according to the same procedure [25 - 27]. Subsequently, the concepts’ professional sources and popular sources were used as sensitizing concepts for the deductive categorization of those five knowledge themes, after which cross categorization was conducted. Sensitizing concepts are background ideas that inform the exploration of the research problem and offer ways of seeing, organizing, and understanding experiences [28 - 31]. This process included analytic questioning [21], which was accomplished by a

thorough analysis of all codes that were covered by the five inductive knowledge content themes and by exploring whether the source of this knowledge was professional or popular.

A total of 26 interviews (13 prepartum and 13 postpartum) were conducted, at which point the analysis indicated that data saturation had been achieved [26], as no new codes emerged.

Before starting the interviews, written informed consent was given by all participants. The women could withdraw from the study at any time without explanation. Ethical approval was obtained from the Institutional Review Board.

Particular consideration had been given to data collection ethics, such as the researcher’s positionality. As a cultural anthropologist, the first author had conducted ethnographic fieldwork in different foreign cultures but had never done so in her own culture. She had been a breastfeeding mother herself once, and, as Hoppe [32] had also pointed out, the women talked openly to her because they felt she had been through the same experience [32]. The disadvantages of being familiar with the research topic are that knowledge and experience can also block the researcher from recognizing unexpected issues [21]. The author was reflecting continuously on her own experiences and positionality [33]. She explained to the women that she was interested in their personal experiences and opinions from their own perspectives and in their own words. All responses would be considered equally right or relevant. The author indicated that since she was a researcher and not a physician, midwife, nurse, or social worker, she would not give her opinion or provide information. At the same time, she assured them that the information in their narratives would be treated confidentially and would not be shared with other professionals. In doing so, minimizing risks of harm or discomfort was accomplished [21].

Data analysis ethics included achieving consensus among the authors concerning interpretation and coding of data, and overall reflexivity generated scientific rigor. Reporting was accomplished according to the Consolidated Criteria for Reporting Qualitative Research (COREQ).

3. RESULTS

3.1. Participant Characteristics

Participants were thirteen primiparous women aged 20 to 31 who intended to breastfeed. All women were Dutch. Eleven women were employed for a minimum of 8 hours a week. All participants were in good health. Four women had home deliveries, and nine gave birth at the hospital. They all started feeding their newborns with their own milk. Two women initially expressed breast milk, while the other eleven fed directly from the breast. Between 4 and 6 weeks postpartum, six women were breastfeeding exclusively, three were practicing mixed feeding, and four were formula feeding exclusively.

3.2. Content of Breastfeeding Knowledge: Five Inductive Knowledge Themes

Five inductive knowledge themes were identified: ‘the pros and cons of breastfeeding,’ ‘how breastfeeding works,’ ‘individual breastfeeding practice,’ ‘expressing milk,’ and

'formula feeding.' These themes are presented below, along with quotes, with whether they came from the prepartum (1) or postpartum (2) interviews indicated in brackets. The participants' colloquial language from their narratives was retained to reflect the emic perspective. All names reported are pseudonyms to guarantee confidentiality and anonymity.

3.2.1. *The Pros and Cons of Breastfeeding*

The theme 'pros and cons of breastfeeding' concerns knowledge about the advantages and disadvantages of breastfeeding. Among the advantages, health benefits were most commonly mentioned. Breastfeeding was considered healthy by all women, referring to the infant's as well as the mother's health, as expressed by Esmee and Trientsje:

They say breastfeeding is healthy for your baby. That's what you hear all the time (Esmee, 1).

My mother-in-law had breast cancer recently, and it just turned out fine,

but, well, she just never breastfed my boyfriend. My sister-in-law, she just had her baby, and she was scared ... she started breastfeeding immediately. Well, it doesn't mean you won't get it, but anyhow, all of these things, yes... (Trientsje, 1).

Disadvantages of breastfeeding include uncertainty about how much the infant actually drinks and the father not being able to feed the baby.

You don't know how much these little ones get; that's difficult. Well, the bottle is much easier (Esmee, 1).

Some people say it's just more fun when your husband can do the feeding as well (Lisa, 1).

3.2.2. *How Breastfeeding Works*

Knowledge about 'how breastfeeding works' involves the principles of establishing and maintaining milk production. In general, the women were unaware of these concepts and believed that breastmilk would be available soon after childbirth. Lisa has a dairy farmer's background, and she thought she knew about milk production, which was not the case, which surprised her, whereas Nienke thought that breastmilk would just be available:

We really thought there would be milk right after birth! But that's not the case, ha-ha (Lisa, 2).

Well, it's just there, it's available, so why not use it (Nienke, 1).

One woman, Linda, had heard that she could do mixed feeding, *i.e.*, breastfeeding at night and bottlefeeding during the day. When she asked her midwife about this, she was told that this was not possible. The midwife did not explain why this would not be possible.

Because I did ask if I could breastfeed at night and bottle-feed during the day. But this wasn't practical. Interviewer (I): Who said so? Participant (P): The midwife. I said to her I would just alternate a bit, but she said it wasn't practical. I don't know why. (I): You don't know why? (P): No. But it wasn't logical, so, um ... I don't know (Linda, 1).

Linda had difficulties in fully understanding the basic principles of supply and demand, which probably

could have been the reason for the midwife's response. Unfortunately, this response did not contribute to increasing knowledge.

3.2.3. *Individual Breastfeeding Practice*

'Individual breastfeeding practice' involves latching on and nursing positions. In the prenatal interviews, all of the women stated that breastfeeding would be effective because they perceived it as a natural practise and that the maternity nurse's services would be beneficial. As evidenced by Willie and Trientsje's comments, they did not expect or prepare for breastfeeding, preferring instead to wait for 'nature' or the maternity nurse to educate.

It's natural, so I think nature will show you (Willie, 1).

That's what the maternity nurse is for, to help you (Trientsje, 1).

One woman, Rhodee, had attended antenatal breastfeeding classes, where latching on and nursing positions were discussed.

They show you how to latch on and those kinds of things - it was very helpful to me (Rhodee, 2).

Women whose own mothers had no breastfeeding experience did not expect these (inexperienced) grandmothers to give them advice on 'individual breastfeeding practice' such as latching on and nursing positions. Usually, the maternity nurse was found to be most helpful.

My mother didn't breastfeed, so she couldn't give me advice (Sanne, 1).

She [maternity nurse] really pulled me through (Lisa, 2).

3.2.4. *Expressing Milk*

Generally, the women were uncomfortable with the idea of 'expressing milk,' which was explained by Jeanet, who exhibited some kind of aversion;

They say you'll have to express milk then, well, no way, I'm not a dairy cow (Jeanet, 1).

Only one mother perceived 'expressing milk' as a common practice among her colleagues, although she did not discuss the actual practice of 'expressing' milk with others.

I work with 100 women. There's always someone pregnant at work, so I know how things go, they just take a key, and they go sit somewhere and express milk, and that's it (Rhodee, 1).

Breastfeeding mothers who decided to work were advised by their maternity nurses to express milk. In antenatal breastfeeding classes, 'expressing milk' was usually discussed in one specific session.

In the breastfeeding class, we spent one evening on the topic of expressing milk (Rhodee, 1).

3.2.5. Formula Feeding

Knowledge about 'formula feeding' involves different types of formula, preparation methods, and bottle-feeding materials. All women in our study intended to start breastfeeding, and had no intention of 'formula feeding.' If the subject came up in the interviews, they indicated that they thought it would be obvious, but when explicitly asked, it turned out that they did not know. They thought that their relatives, for example, the infants' grandmothers, would know how to practice bottle-feeding.

Just reading the back [of the box] (Nienke, 2).

I have no idea how to make a bottle, how to do that (Sandra, 1).

The grandmothers [who are going to babysit] can make a bottle then; they know how to do that (Linda, 1).

In the immediate postpartum period, breastfeeding became complicated when parents started to worry whether their newborn was getting enough milk. When parents decided to buy formula as a supplement, it was often the infant's father who had to choose from a range of different types of formula and bottle-feeding materials;

He [father] went there on Monday to buy formula. First, he bought the standard type, and later he went for the formula for colicky babies, and now we have the hungry baby formula [a type of formula that takes longer for infants to digest] (Linda, 2).

We had this bottle and used different positions, but it was pouring all over; it ran all over her face (Nienke, 2).

3.3. Sources of Breastfeeding Knowledge: Professional Sources, Popular Sources, and Intuition

Using 'professional sources' and 'popular sources' as sensitising concepts, the second step of the analysis revealed the women's perceptions about the sources of their breastfeeding knowledge. Nature, including maternal intuition, was perceived as a specific knowledge source, from our analysis, inductively identified as 'intuition.'

3.3.1. Professional Sources

'Professional sources' involve specialist knowledge from professionals such as midwives, maternity nurses, maternity coaches, or physicians.

She [maternity care coach] made a trip to my house, especially for it to drop off a brochure (Nienke, 1).

Professional knowledge concerning 'the pros and cons of breastfeeding' focused on the health benefits, therefore confirming what the women knew already.

(I): Who told you that breastfeeding is healthy? (P): Well, the midwife said so. (I):

So, you know it's healthy because the midwife told you? (P): No, I knew that already, that it's healthier (Linda, 1).

Professional knowledge concerning 'how breastfeeding works' was often not perceived to be helpful. One woman who attended antenatal breastfeeding classes was perceived to lose

confidence during the class, as was expressed by Tiny, who felt nervous about breastfeeding:

Already during the classes, I noticed I was starting to feel insecure. Like, I hope it will work, because ... because I hope I'll be able to remember it all! (Tiny, 1).

In 'individual breastfeeding practice,' the women indicated the importance of the maternity nurses' services. In all cases, the women felt rather dependent on these services, which was perceived as helpful in Lisa's case, but not helpful at all in Linda's case:

I thought, there's something wrong. Then, the woman [maternity nurse] said, just wait a bit, don't panic, you need to stay calm. She said, I'll come to weigh the baby on Wednesday (Lisa, 2).

The maternity nurse was here, but she was writing, they just keep writing (Linda, 2).

When 'expressing milk' was involved, it was only the professionals from whom helpful knowledge was obtained.

In the evening, I started expressing milk straightaway. (I): Was anybody helping you then? (P): The first time, the nurse helped me, yes (Willie, 2).

Professional knowledge regarding 'formula feeding' was not disseminated during the prepartum period, as Rhodée mentioned, but rather during the postpartum period, as Linda described. Linda's narration confirms that knowledge from 'professional sources' contradicted with what was told by peers or relatives, that is, from 'popular sources.' This occurred when the nurse disapproved of the use of hungry baby formula because it satisfies the infant too easily, which has an adverse influence on breast milk supply, whereas peers and relatives encouraged to use this type of formula.

We didn't discuss formulas in class (Rhodée, 1).

We gave her hungry baby formula at first, but she [maternity nurse] said we shouldn't.

We're giving it to her again now, though (Linda, 2).

3.3.2. Popular Sources

'Popular sources' involve lay or non-specialist knowledge from important persons in the women's surroundings, such as the infants' father, the women's mother and mother-in-law (the grandmothers), other relatives, and friends and colleagues, who can be referred to as 'significant others.' Additional 'others' are community members or imaginary others, often addressed as 'they' by the women. The 'they' also include anonymous others on the internet.

That's what they say on the Internet, you can read everything there (Willie, 1).

'Popular sources' were helpful in providing knowledge about the 'pros and cons of breastfeeding,' with the focus on the health benefits for the infant and the mother, which was generally agreed upon among community members.

When knowledge of 'how breastfeeding works' was concerned, 'popular sources' were less helpful or even doubtful. Some women indicated that they did not feel

comfortable because of prejudices or critical comments from others.

The people around you don't believe a baby can survive on breastfeeding. They just don't believe it (Jeanet, 2).

Concerning 'individual breastfeeding practice,' there was no knowledge obtained from 'popular sources.'

Most women's mothers or mothers-in-law did not have breastfeeding experience themselves.

Henriette explained that her mother-in-law did have experience, though this was not helpful at all, since she had made criticizing comments when Henriette had told her that she considered attending breastfeeding classes.

My mother-in-law told me: 'You don't need classes for that! We managed [to breastfeed without antenatal classes], so you can do it too' (Henriette, 1).

Additionally, Henriette also felt criticized by another woman in her environment for not having asked her for advice.

She said I should have asked her instead, because she has lots of experience. But that woman doesn't even know what I've tried, she has no idea (Henriette, 2).

As shown above, Henriette was criticized by her mother-in-law for attending a breastfeeding class in search of information, and she was also criticized by a community member for not asking her advice. Henriette felt a lot of pressure to adhere to the breastfeeding guidelines as well as to listen to the advice of two different experienced women, which made her nervous. In the case of criticism from community members, looking for professional support was perceived as the best strategy, as was stated by Jeanet:

I think, then you should ask people who really know what they're talking about. (I): Who are those people? (P): Well, the professionals (Jeanet, 2).

Because it was rare to see other women breastfeed, breastfeeding practise exposure was limited to a few occasions. At the same time, the observation that 'other women' practice breastfeeding led some women to believe they should be able to do that as well, regardless of whether these other women were real or imaginary.

(I): Have you ever seen a woman breastfeed? (P): Yes once, I've seen my aunt breastfeeding once (Nienke, 1).

The women in Africa can manage as well (Esmee, 1).

Although 'expressing milk' was frequently discussed among community members, there was no sharing of knowledge or experiences. Concerning 'formula feeding,' the women thought that knowledge would be available if necessary and that their relatives would know how to make a bottle. Consequently, this notion did not contribute to knowledge sharing.

3.3.3. Intuition

'Intuition' was an important knowledge source when the 'pros and cons of breastfeeding' were concerned, referred to by the women as 'natural' or 'intuitive knowledge' or 'instinct,' as was expressed by Esmee and Lisa:

I don't know how I know this [the health benefits of breastfeeding], I just do. I think every pregnant woman does (Esmee, 1).

It's my own feeling, a kind of instinct (Lisa, 1).

'Intuition' was not useful in 'how breastfeeding works,' 'expressing milk,' and 'formula feeding,' but it was when 'individual breastfeeding practice' was involved. Most women expected that because breastfeeding is natural, their 'individual breastfeeding practice' would work out well when adhering to nature taking the lead, as expressed by Willie:

It's natural, so I think nature will show you (Willie, 1).

When relying on the infant or perceiving breastfeeding practise as it should be, participants said that 'intuition' was useful.

And apart from that, she [the baby] will definitely know what to do (Corine, 2).

Well, yes, that's how it should be, that's how it's originally meant to be (Lisa, 1).

In the interaction between 'intuition' and 'professional sources,' women perceived discrepancies as well as correspondences. The women felt comfortable and confident when their intuition was acknowledged by professionals.

The doctor said, nature doesn't keep track of the time, either (Jeanet, 2).

And particularly with all those schemes, in the beginning, that really didn't work for me at all. Later, we [woman and maternity nurse] agreed we wouldn't use those schemes anymore, but just use my intuition, and it went much better right away (Tiny, 2).

Table 1. Cross-categorization of knowledge content and knowledge sources.

	Professional sources	Popular sources	Intuition
The pros and cons	V	V	V
How it works	O	O	X
Individual practice	V	X	V
Expressing milk	V	X	X
Formula	X	O	X

V: Knowledge obtained and perceived as helpful.
 X: No knowledge obtained.
 O: Knowledge obtained but not perceived as helpful.

3.4. Knowledge Content and Knowledge Sources Cross-Categorized

Cross-categorization uncovers how the knowledge content themes are addressed across the different knowledge sources and whether this is perceived as helpful or not helpful, which is presented in Table 1. Some of the themes are poorly covered, especially 'how breastfeeding works' and 'formula feeding.' The themes 'individual breastfeeding practice' and 'expressing milk' are covered by at least one knowledge source. Only the theme 'pros and cons of breastfeeding' is rather well-addressed, although this involves predominantly one component, that is, health benefits.

4. DISCUSSION

The aim of this study was to identify and categorize the content and sources of breastfeeding knowledge in a population of primiparous mothers in the northern part of the Netherlands. Five knowledge content themes were identified: the pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding. Knowledge from professional sources was present and helpful for some of the knowledge themes. The benefit from popular sources, however, was perceived as limited.

When further examining the women's popular sources, we found that the infants' grandmothers were no important source of knowledge, even though they are essential significant others in the women's environment [34, 35]. Most grandmothers had not practiced breastfeeding themselves and, therefore, could not share their experiences. This has also been described by other researchers [14]. Furthermore, Grassley & Eschiti [34] found that the sharing of experiences between generations is limited.

The second group of significant others involved the infants' fathers. As suggested by the result of the earlier study of this research project [9], fathers were important in supporting the women's intentions, but not in contributing to knowledge acquisition. Hauck & Irurita [36] also found that although the infant's father is usually important in supporting the woman's attitude toward breastfeeding, he is generally not perceived as a knowledge source.

A third group representing popular sources consists of 'others,' referred to as 'they.' These others were often perceived as making normative and critical comments, therefore, not contributing to knowledge dissemination. Previous researchers have reported prejudiced comments by 'others' as well [36 - 39].

The limited dissemination of knowledge from popular sources has substantial consequences because it is from those sources where community members start their health activities [19]. As a result, women should begin their search for breastfeeding information from non-professional sources, which they may find in their intuition. Also other researchers have corroborated the perception of intuitive knowledge as a satisfactory knowledge source [40, 41].

4.1. Intuition

Relying on intuition was reinforced by the perception of breastfeeding as a natural practice as part of natural motherhood [42, 43]. Women's expectations for nature to take the lead, however, resulted in disappointing breastfeeding experiences.

Other researchers also concluded that the premise of breastfeeding as natural is a cultural construct, which may have an adverse impact on women's well-being [44]. Relying on nature alone is therefore not satisfactory, and additional support from professional sources might be required. However, as breastfeeding has gotten more professionalised, it has also become more medicalized, which contradicts women's expectations of breastfeeding as a natural practice.

This contradiction may generate even more pressure on women [45]. They feel that they should adhere to the breastfeeding recommendations for the health benefits of their infants, but they also feel pressured to act naturally in accordance with natural motherhood principles. [46]. Focusing on the 'natural' aspects of breastfeeding can be problematic since it can lead to feelings of guilt, shame, and pressure [47], which can lead to women doing a lot of moral work. [48]. A more valuable approach is suggested by Miller [46], *i.e.*, "move towards a more collaborative, consensual model of authoritative knowledge, in which different types of knowledge can be accommodated and shared."

After all, intuition and knowledge from professional sources both involve a specialist or expert knowledge [46]. Health professionals can play an important role in the integration of intuition and professional sources, as demonstrated by other authors [40].

4.2. Reconsidering Campaigns

To improve breastfeeding rates, advocates of breastfeeding have often assumed that campaigns targeted at mothers have failed and that in response to this, more campaigns need to be developed and implemented [49]. However, our findings suggest that acknowledging women's perceptions of which knowledge they need and from which sources might be more helpful and effective. Rather than repeating the same messages about health benefits, a more constructive approach might be to also include the other breastfeeding knowledge content, such as the pros (beyond health benefits), as well as the cons, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding. Information about formula could be appropriate after failed breastfeeding attempts; however, distribution of such information interferes with the restrictions formulated in the Innocenti Declaration [50]. This does not contribute to supporting women in solving problems when breastfeeding is difficult. If more adequate and non-prejudiced knowledge about how breastfeeding works and about the use of the formula is available, and suggestions from a variety of sources are provided, women can benefit and thus make informed decisions. Women value being provided varied suggestions, according to other research [51].

In addition, we recommend targeting peers, families, and friends, which enhances the dissemination of knowledge among women and people in their environment. Mothers are able to share knowledge and seek the care they need through the support of other women [36]. Additionally, other community members, including employers, have the potential to make substantial contributions to creating a supportive environment for breastfeeding women [49]. Addressing a wider variety of target groups, including younger community members, such as male adolescents and future parents [52, 53], will encourage knowledge dissemination. In campaigns, it should be acknowledged that women benefit from obtaining information from different sources, including everything they learn on their own [46]. This will contribute to ensuring more freedom of choice for new mothers and their families instead of strongly encouraging breastfeeding, which often has autonomy-undermining messages [54].

CONCLUSION

Using empirical data from the emic point of view in a population of primiparous mothers in the northern part of the Netherlands, five knowledge content themes were identified: the pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding. Knowledge from professional sources was present and helpful in some of the knowledge themes. However, the usefulness of popular sources was limited. Intuition was inductively identified as a specialist, non-professional knowledge source. Women must rely on additional sources other than the knowledge shared by their colleagues, relatives, and friends due to limited exposure to practising breastfeeding. In doing so, they perceive the pressure to follow breastfeeding recommendations and perform according to the standards of natural motherhood at the same time. This study's contribution to the breastfeeding discourse is twofold: first, it contributes to theory building concerning professional and popular knowledge sources by identifying intuition as an inductive concept of specialist non-professional knowledge. Second, messages from breastfeeding campaigns should address not only the health benefits of breastfeeding but also all knowledge content themes and target peers, relatives, and friends, according to recommendations for breastfeeding practise. Recognizing intuition as an adequate expert source of knowledge supported by professionals will facilitate women in making informed decisions, thus contributing to a supportive environment for breastfeeding women in the Netherlands.

LIST OF ABBREVIATIONS

COREQ = Consolidated Criteria for Reporting Qualitative Research

WHO = World Health Organization

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the Research Ethics Committee of the Faculty of Spatial Sciences at the University of Groningen, chaired by Dr. Frans J. Sijtsma.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All human research procedures were followed in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent was obtained from each participant prior to the study for publication of this research.

STANDARDS OF REPORTING

COREQ guidelines and methodologies were followed in this study.

AVAILABILITY OF DATA AND MATERIALS

Not applicable.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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