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Women's perceptions, knowledge and breastfeeding decision-making

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I don't know how I know this, I just do: Women's breastfeeding knowledge and the potential of non-professional sources

"In examining one's field observations, one should allow the data to speak as loudly as the theories, so that they mutually inform each other."

(Snow et al., 2003)

Abstract

In this study, we aimed to improve understanding of the sources from which Dutch women obtain breastfeeding knowledge. We collected empirical data by conducting 26 in-depth interviews with 13 women who intended to breastfeed. Data were analysed by applying grounded theory, with Kleinman's health care systems theory as a sensitizing concept. We identified five inductive themes: pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula. The potential of non-professional sources (a popular sector, a folk sector, and nature), is not fully utilised. Addressing these sources can contribute to a supportive environment for breastfeeding women.

Introduction

This study was part of a qualitative research project in the northern part of the Netherlands on the reasons that underlie breastfeeding women's decisions to stop or continue breastfeeding in the first month after delivery. In a previous part of the research we identified 'learning about breastfeeding' as a deductive-inductive theme, however, we know little about the origins of women's breastfeeding knowledge. In this study, we aimed to improve our understanding of the sources from which women obtain their breastfeeding knowledge. We used empirical qualitative data from two series of in-depth interviews that were conducted in 2008 and 2011 with women from different socioeconomic backgrounds. These data were analysed by applying grounded theory (Charmaz, 2001; Glaser & Strauss, 1967; Strauss & Corbin, 1998) and analytic questioning (Hennink et al., 2011), using the framework of Kleinman's theory of local health care systems (LHCS) (Kleinman, 1980) as a deductive sensitising concept. Sensitising concepts are background ideas that inform the exploration of the overall research problem, and offer ways of seeing, organising, and understanding experience (Blumer, 1954; Bowen, 2006; Charmaz et al., 2003; Thornberg, 2012).

Kleinman developed his theory of local health care systems in the borderland between medicine, psychiatry, and medical anthropology, based on a medical pluralism paradigm (Leslie, 1980). This model represents the different sectors in which health care activities take place, and provides a framework for identifying which sectors are important to patients or community members. In our research, Kleinman's theory provided the framework for a deeper understanding of the different sources used to obtain breastfeeding knowledge.

Kleinman conceptualised a local health care system as three interrelated sectors of health activities: a popular sector, a professional sector, and a folk sector, as presented in Figure 1.

In the popular sector, patients or community members perform all health activities that are individual-, family-, or community-based (Kleinman, 1980). These activities are non-professional and non-specialist, and concern beliefs, choices and decisions, roles, relationships, interaction settings and institutions (Kleinman, 1980).

The professional sector is the domain of medical and other health care providers, health educators, and researchers. In this sector, health activities are performed by specialist professionals, and involve biomedical knowledge (Kleinman, 1980; Meadows et al., 2001).

The folk sector is non-professional, but the activities in this sector are specialised, and based on a combination of professional and popular knowledge (Kleinman, 1980). The orientation of practitioners in the folk sector might be both sacred and secular (Kleinman, 1980).

According to Kleinman, health issues are initially perceived at the individual or family level. Therefore, health activities are first initiated in the popular sector. Subsequently, community members may consult the professional and folk sectors, and then return to the popular sector to evaluate the information or services provided and make decisions about health. When searching for information, people move in and out of the popular sector, using it as a base from which to evaluate services provided by the professional sector (Meadows et al., 2001); they also move from one health care source to another (Nyamongo, 2002). There is a continuous transfer of knowledge between these interconnected sectors within a health care system (Kleinman, 1980). Knowledge is distributed through interpersonal communication, both within the context of the extended family and the society as a whole (Gaioni, 2002). The importance of the sectors, the overlap between activities in these sectors, and the way interaction between the sectors is realised varies, and is context/time-specific for each community (Kleinman, 1980).

Kleinman developed his theory using data on Taiwanese health care, which was characterised by both Chinese-style and Western-style cultural features. This theory has been applied in different cultural settings and to different health issues, such as the use of formal and informal health care sources by female adolescents (Gibbon, 1998), preventive health care in midlife women (Meadows et al., 2001), and self-care (Sánchez, 2007). Kleinman's model has also been used to address health topics such as malaria (Nyamongo, 2002), social health insurance (Fenenga et al., 2013), and ethnoveterinary medicine (Nyamanga et al., 2008). The model provides a tool that generates insight into the different sectors of a health care system and the way community members move within and between these sectors with regard to a variety of health-related questions. In this study, we applied the model to improve understanding of the sources women use to obtain breastfeeding knowledge in the Netherlands.

Maternity health care in the Netherlands is provided within a unique system of integrated clinical obstetric and midwifery home care (Kools et al., 2006). At present, 25 to 30% of Dutch women give birth at home (Lanting et al., 2005), and 95% of women employ postnatal maternity care at home for an average of seven days (Statistics Netherlands, 2011).

Women who intend to breastfeed can discuss how to breastfeed with their antenatal care providers during any of the medical consultations or in antenatal breastfeeding classes. Maternity assistants support breastfeeding initiation from day one through day eight. Additional professional information can be obtained from lactation consultants, a service which is not included in the integrated (funded) care system.

Currently, the majority of women (75%) start breastfeeding, but after one month this drops to 45% (Lanting & Rijpstra, 2011; Statistics Netherlands, 2012). These figures represent a common pattern in breastfeeding rates in most countries in the Western world,

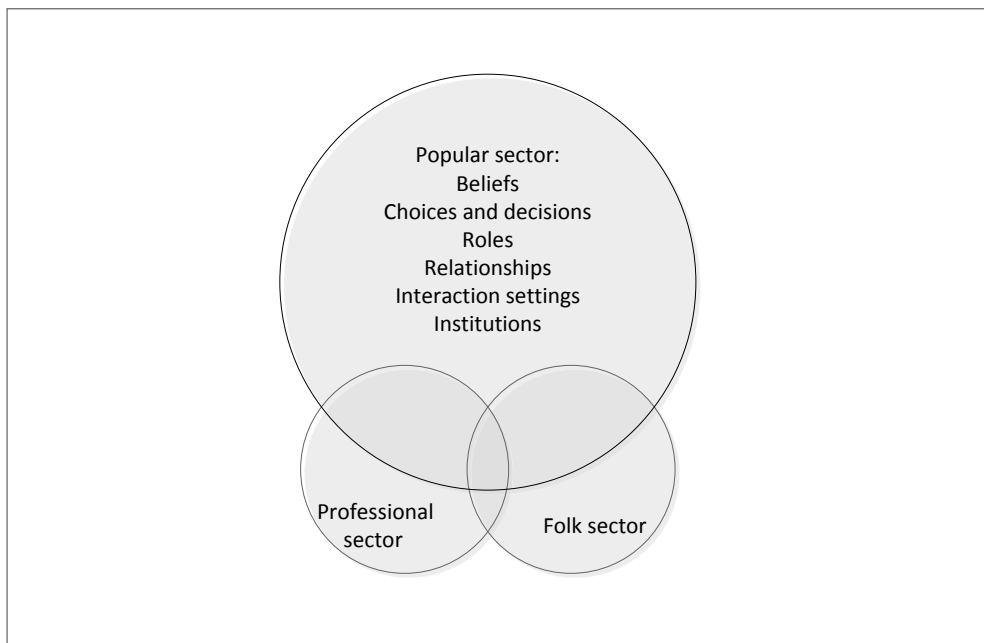


Figure 1: Kleinman's model of local health care systems (Kleinman, 1980).

with the highest dropout occurring in the first weeks after birth (MacKean & Spragins, 2012). National campaigns that target women have been developed with the aim of extending the initiation and duration of breastfeeding. These campaigns follow international guidelines (World Health Organization (WHO), 2003), which recommend exclusive breastfeeding until six months of age. A more detailed description of the background of breastfeeding in the Netherlands has been reported elsewhere.

Using Kleinman's model as a sensitising concept, we aimed to improve our understanding of how and where women obtain knowledge about breastfeeding within the context of the sociocultural and medical background of breastfeeding in the Netherlands. By linking our empirical data to theory (Snow et al., 2003), we aimed to apply the theory to a broader context than the one in which it was developed, and to generate findings that extend beyond the scope of the specific experiences of our participants in order to define implications for practice and policy.

Methods

In an earlier part of the research, we conducted prepartum and postpartum in-depth interviews up to saturation level (Glaser & Strauss, 1967) with 13 women who intended to breastfeed, resulting in a total of 26 interviews. The prepartum interviews (t₁) were

conducted in the third trimester of gestation, and the postpartum interviews (t2) between four and six weeks postpartum. We carried out two series of interviews. The first series was carried out in 2008 among eight women with middle and high socioeconomic status (SES) in the province of Friesland. Because we expected that to understand from which sources women learn about breastfeeding, women from both middle/high and low SES should be included, we also recruited women with low SES and collected data from these women's perspectives as well. This second series of interviews was carried out in 2011 among five women with low SES in the province of Groningen. Socioeconomic status was determined by educational background, according to the Dutch standard classification of education (Statistics Netherlands, 2008).

The professionals in two midwife clinics invited women who intended to breastfeed to participate in the research. Inclusion criteria for the prepartum interviews were that the women were primiparous, in good health, and able to speak Dutch or English. Criteria for the postpartum interviews were that the mothers and their infants were in good health and that there were no contraindications for breastfeeding. The interviewer explained to the women that she was interested in their personal experiences and opinions from their own perspectives and in their own words. The participants could withdraw from the study at any time, and anonymity was guaranteed. They all gave their informed consent. No women withdrew from the study.

The interview guides were semi-structured, and questions were open-ended with probes in variable sequences. The prepartum questions covered topics identified using the theory of planned behaviour (Ajzen, 1991; Fishbein & Ajzen, 1975), including breastfeeding knowledge (Duckett et al., 1998), as has been reported elsewhere. The interview topics thus concerned breastfeeding intentions, attitudes, social environment and norms, perceived behavioural control, and breastfeeding knowledge. The postpartum interview questions dealt with these same topics in retrospect, and included childbirth experience and actual feeding method. Contextual field notes were collected and documented. Further details on participant recruitment and data collection have been reported elsewhere.

The analysis was characterised by the interaction between inductive and deductive processes. The transcripts of both series of interviews (i.e., with middle and high SES women and with low SES women) were coded using open coding. All codes concerning learning, knowledge, or information were selected for further interpretation with grounded theory (Charmaz, 2001; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Using inductive reasoning, we arrived at multiple interpretation stages, which generated categories and inductive themes. We identified five inductive themes with regard to the women's breastfeeding knowledge: the pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding. These

themes provided the framework for the next stage in the analysis. This stage involved the analytic data search strategy of analytic questioning (Hennink et al., 2011), with the three different sectors of a health care system as deductive sensitising concepts (Blumer, 1954; Bowen, 2006; Charmaz et al., 2003; Thornberg, 2012). This analytic questioning was used to identify the sectors in Kleinman's model in the data by systematically analysing all codes concerning learning, knowledge, and information. The analytic question was 'What breastfeeding knowledge do women obtain from the popular sector, from the professional sector, and from the folk sector?' A systematic data search was performed with these questions, guided by the inductive themes, when searching the coded text fragments, transcripts, and field notes.

Information saturation (Glaser & Strauss, 1967) was initially determined during data collection once no new information was being collected. In the analysis, saturation was confirmed when no new codes were found. Groundedness of the results (Hennink et al., 2011) was attained in that all empirical data were collected from the participants' perspectives and covered the broad period of breastfeeding intentions as well as actual breastfeeding practices. The coherence between the scientific paradigm, research question, theoretical framework, research instrument, data collection, types of data analysis, and analytic questions contributed to scientific rigour (Hennink et al., 2011; Mays & Pope, 1995).

Results

Participant characteristics

The 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 gave birth at home and nine had clinical deliveries. 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 practising mixed feeding (breast milk and formula), and four were formula feeding exclusively.

Five inductive themes and the different sectors

Below we present the five inductive themes, along with examples of how the women obtained knowledge from the different sectors. The examples also show which knowledge the women perceived to be helpful. These results are summarised in Table 1.

Table 1: Five themes concerning breastfeeding knowledge from different sectors

V: Knowledge obtained and perceived as helpful

X: No knowledge obtained

O: Knowledge obtained but not perceived as helpfull

	Popular sector	Professional sector	Folk sector	Nature (incl. intuition)
The pros and cons	V	V	X	V
How it works	O	O	X	X
Individual practice	X	V	X	V
Expressing milk	X	V	X	X
Formula	O	X	X	X

1. The pros and cons of breastfeeding

The ‘pros and cons of breastfeeding’ concern the advantages and disadvantages. Among the advantages, the health benefits for mother and infant were most commonly mentioned. The disadvantages included uncertainty about whether they had enough milk, mother-to-infant transmission of diseases or medicines through breast milk, and that the father was not able to feed the baby.

Knowledge about the pros and cons of breastfeeding emerged from the popular sector. All of the women in our study perceived that other community members in the popular sector were generally in agreement about the health benefits for infants: *They say breastfeeding is healthy. You hear this all the time* (Esmee, 1). The health benefits for women were also known: *My mother-in-law had breast cancer recently, 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). The bond between mother and infant was also commonly known to be an advantage of breastfeeding, although at the same time it was seen as a disadvantage that the father cannot feed the baby: *Some people say it's just more fun when your husband can do the feeding as well* (Lisa, 1). Uncertainty about how much the infant actually drinks was indicated as another disadvantage: *You don't know how much*

these little ones get, that's difficult. Well, the bottle is much easier then (Esmee, 1). One woman said that her husband had suggested not breastfeeding for a while because she was taking antibiotics: *And then M. [husband, dairy farm background] said, cows and babies, it's all the same, antibiotics [end up] in the milk. The GP [general practitioner] wasn't sure, though, and he said, I'll come with you to ask the pharmacist* (Trientsje, 2).

Knowledge about the pros and cons obtained from the professional sector focused predominantly on the advantages (i.e., the health benefits), which are discussed by the midwives and explained in brochures: *She [maternity care coach] made a special trip to my house to drop off a brochure* (Nienke, 1). Professionals confirmed the knowledge obtained from popular sources. Interviewer (I): Who told you that breastfeeding is healthy? *Well, the midwife said so. I: So you know it's healthy because the midwife told you? No, I knew that already, that it's healthier* (Linda, 1). The professionals had also indicated that breastfeeding is fun: *The midwife talked to me, and she told me that breastfeeding, that it's fun* (Linda, 1).

The women in the study did not mention obtaining knowledge about pros and cons from non-professional specialist sources, and thus no folk sector could be identified in the data.

Nature was also considered to be an important source of knowledge about the pros and cons of breastfeeding; the women perceived this to be a type of intuitive knowledge: *I don't know how I know this [the health benefits of breastfeeding], I just do. I think every pregnant woman does* (Esmee, 1). One mother explicitly called this 'instinct': *It's my own feeling, a kind of instinct* (Lisa, 1). And: *Well yes, that's how it should be, that's how it's originally meant to be* (Lisa, 1).

2. How breastfeeding works

Knowledge about 'how breastfeeding works' involves the principles of establishing and maintaining milk production.

Most women knew that breast milk production had to be established first. They had heard this in the popular sector, although they could not recall exactly from whom: *Well, yes, I knew it had to be established first, I'd heard about that* (Nienke, 2). However, some women thought there would be milk immediately after childbirth: *We really thought there would be milk right after birth! But that's not the case, ha-ha* (Lisa, 2).

In general, the women had no knowledge about the principle of maintaining milk production, and this was represented by phrases such as: *Well, it's just there, it's available, so why not use it* (Nienke, 1). Some women had encountered prejudices or doubt and criticism from other community members concerning how breastfeeding works, and were asked questions about whether they knew if their infant would be getting enough milk: *The people around you don't believe a baby can survive on breastfeeding. They just don't believe it* (Jeanet, 2).

When criticised by other community members, women preferred to ask professionals for support: *I think, then you have to ask people who really know what they're talking about.* I: Who are those people? *Well, the professionals* (Jeanet, 2). Only one woman explicitly said she knew how breastfeeding works, but she was a physician, and had professional knowledge: *Well, yes, I know the theory about hormones and those kind of things* (Corine, 1).

The women obtained further knowledge about how breastfeeding works from the professional sector: *Do I know how breastfeeding works? No, not at the moment. The midwife or maternity assistant will have to explain that* (Willie, 1). However, the knowledge from the professional sector about how breastfeeding works was not perceived to be satisfactory, nor was it always perceived to be helpful. One woman who attended antenatal breastfeeding classes had started to feel insecure during the discussion on how breastfeeding works: *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).

One woman experienced conflicts between the popular and the professional sector. 'Others' had told her she could do mixed feeding, for example, breastfeeding at night and bottle-feeding during the day. When she asked her midwife about this, the midwife told her this was not possible, but did not explain the principle of milk production, nor did the woman inquire further: *Because I did ask if could I breastfeed at night and bottle-feed during the day. But this wasn't practical.* Interviewer (I): Who said so? *The midwife. I said to her, I would just alternate a bit, but she said it wasn't practical. Why I don't know.* I: You don't know? *No. But it wasn't logical, so, um ... I don't know* (Linda, 1).

With regard to knowledge about how breastfeeding works, we could not identify a folk sector in the data, nor did the women mention nature as a source of knowledge.

3. Individual breastfeeding practice

Individual breastfeeding practice involves latching on, nursing positions, and solving problems when breastfeeding is difficult.

The women in our study did not obtain useful knowledge about breastfeeding practice from the popular sector. Some women expected that their mothers or mothers-in-law would be able to give them advice. However, some of these new grandmothers with breastfeeding experience did not believe it would be helpful to learn this from others. One woman told her mother-in-law she was thinking about attending antenatal breastfeeding classes. The mother-in-law responded negatively: *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).

Women whose own mothers had no breastfeeding experience did not expect these (inexperienced) grandmothers to give them advice: *My mother didn't breastfeed, so she can't*

give me advice (Sanne, 1). Watching others breastfeed in public did not occur frequently in the popular sector, and was limited to a few occasions. I: Have you ever seen a woman breastfeed? *Yes, once, my aunt* (Nienke, 1). At the same time, the observation that 'others' breastfeed led some women to believe they should be able to practise breastfeeding as well. These others were not relatives or community members, but anonymous or imaginary others: *Women in Africa can do it too* (Esmee, 1).

Women who had perceived problems indicated that they often felt criticised when other community members made disapproving remarks: *That woman 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).

The professional sector was most important to women when it came to obtaining knowledge about breastfeeding practice. One woman who attended antenatal breastfeeding classes, where latching on and nursing positions were discussed, was explicitly satisfied: *They show you how to latch on and those kinds of things—it was very useful to me* (Rhodee, 2). Postpartum, all mothers received professional maternity assistant services: *That's what the maternity assistant is for, to help you* (Trientsje, 1). The women indicated feeling dependent on the maternity assistants' services, which turned out to be very helpful: *She [maternity assistant] really pulled me through* (Lisa, 2), or not helpful at all: *The maternity assistant was here, but she was writing ... they just keep writing in that booklet of theirs, for a long time* (Linda, 2).

We were not able to identify a folk sector. Some women knew they could consult a lactation specialist, especially for problem-solving. However, they did not make use of this service, for example, because it was too expensive: *You can also ask a lactation expert, but you pay a lot for that!* (Willie, 1).

Nature was perceived as important. In the prepartum period, all of the women expected to learn from nature, because it is a natural practice: *It's natural, so I think nature will show you how things work* (Willie, 1). Nature was also perceived as taking the lead when relying on the infant: *And apart from that, she [the baby] will definitely know what to do* (Corine, 2).

In the interaction between knowledge from nature and knowledge from professional sources, women perceived both conflicts and correspondences. One mother wanted to rely on her intuition. Although initially she did not feel supported by the maternity assistant, in the end she felt satisfied: *And particularly with all those charts, that really didn't work for me at all ... We [woman and maternity assistant] agreed we wouldn't put any more charts in the booklet ... but just use my intuition, and then it went much better* (Tiny, 2). Women frequently felt that knowledge from nature (including their maternal intuition) was acknowledged by professionals. The women felt comfortable when this happened: *The doctor said, nature doesn't keep track of the time, either* (Jeanet, 2). And: *So I rang them [baby clinic] ... She*

[maternity nurse at baby clinic] *said, you know yourself what's best. I don't need to tell you. You'll know yourself. You'll be able to feel what's best. Now, my intuition tells me to use the bottle and just stop breastfeeding* (Henriette, 2).

4. Expressing milk

Breast milk is expressed when combining breastfeeding with work outside the home, or when establishing milk production in the immediate postpartum period.

Although expressing breast milk was frequently discussed by other community members in the popular sector, it was not clear exactly whom these others were, and there was only limited sharing of knowledge and experiences. Generally, in the prepartum period, the women were uncomfortable with the idea of expressing milk: *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 quite a normal common practice among her colleagues, but she also 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).

If necessary, professionals discussed expressing milk when mothers anticipated combining breastfeeding with work. In antenatal breastfeeding classes, expressing milk was usually discussed in one session: *In the breastfeeding class, we spent one evening on the topic of expressing milk* (Rhodee, 1). In the immediate postpartum period, some professionals suggested expressing milk to establish milk production, which they apparently regarded as an appropriate method from their perspective: *In the evening I started expressing milk straightaway. I: Was anybody helping you then? The first time, they helped me, yes* (Willie, 2).

No folk knowledge on expressing milk was identified in the data, nor did the women in our study perceive nature or maternal intuition as a source of knowledge on expressing milk.

5. Formula feeding

Knowledge about formula feeding involves different types of formula, preparation methods, and bottle-feeding materials.

The women did not obtain useful knowledge about formula from the popular sector. They thought it would be obvious: *Just reading the back [of the box]* (Nienke, 2), but when explicitly asked about it, they said they did not know: *I have no idea how to make a bottle, how to do that* (Sandra, 1). They thought that community members, such as their relatives, would know: *The grandmothers [who are going to baby-sit] can make a bottle then, they know how to do that* (Linda, 1). However, it became complicated in the immediate postpartum period when parents became concerned whether their newborn was getting enough milk. When

parents decided to buy formula as a supplement, it was often the father who had to choose from a range of different types of formula and bottle-feeding materials: *He went there on Monday to buy formula. First he bought the standard kind, and later he went for formula for colicky babies, and now we have hungry baby formula* (Linda, 2), and: *We had this bottle and used different positions, but it was just pouring all over, it ran all over her face* (Nienke, 2).

Professionals such as midwives and maternity assistants did not distribute information on formula, nor was formula discussed in breastfeeding classes: *We didn't discuss formula in class* (Rhodee, 1). The only feedback from professionals was the advice that infants should not be fed hungry baby formula (because it satisfies the infant too easily, which has an adverse influence on breast milk supply): *First we had hungry baby formula, but we were told not to use that* (Jeanet, 2).

The knowledge from the popular and professional sectors conflicted when professionals did not explain why parents should not use hungry baby formula while in the popular sector it was being suggested they should use it: *We gave her hungry baby formula at first, but she [maternity assistant] said we shouldn't. We're giving it to her again now, though* (Linda, 2).

Because the women did not obtain knowledge from specialist non-professional sources, the folk sector could not be identified.

The mothers did not mention nature or intuition as a source of formula feeding knowledge.

Discussion

By applying grounded theory and Kleinman's theory of local health care systems (LHCS) as a sensitising concept, we found that the women in our study obtained knowledge concerning the pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding. Knowledge was obtained from the popular sector, which comprised significant others such as relatives, friends, neighbours, colleagues, and community members who were farther removed from the women (perceived as anonymous others referred to as 'they'). Knowledge was also obtained from the professional sector, comprising specialist professionals such as general practitioners, midwives, maternity nurses, and maternity assistants. Nature, including maternal intuition, was perceived as a particular source of knowledge. Following Kleinman's model, nature could have been included in the popular sector, i.e. in the individual-based oriented part of this sector. However, because the women in our study explicitly mentioned the importance of nature and intuition, we identified it as a separate, inductive, sector, and added it to the deductive-inductive model. Other studies have also confirmed the importance of intuitive

knowledge as a specific knowledge source (Ryan et al., 2001). The women in our study did not obtain knowledge from non-professional specialist individuals or institutions in the Netherlands. As a result, we could not identify a folk sector as explicitly present according to Kleinman's model. As a consequence, we integrated this sector into the other sectors in the deductive-inductive model.

Using Kleinman's model to interpret our data shows that in the health care system of the women in our study, regarding breastfeeding, the popular sector is relatively small, the professional sector is manifest, the folk sector is not explicitly present, and nature is a separate sector, as represented in our deductive-inductive model in Figure 2.

The smaller size of the popular sector - as compared to the deductive model - as a source of knowledge has considerable consequences for women who intend to breastfeed, as will become clear when discussing the five themes in connection to the different sectors.

Our data show that the 'pros and cons of breastfeeding' were well known by the women interviewed. Predominant among these pros and cons was knowledge about the health benefits, which was obtained from popular as well as professional sources and from nature (including intuition). This knowledge was generally perceived as being present in all sectors, and may or may not have been the result of campaigns. Earlier research in the Netherlands has also shown that 48% of women who start breastfeeding do so because of the health benefits (Lanting & Wouwe, 2007).

Obtaining knowledge from the different sectors was perceived to be more difficult where the four other themes were concerned. For 'how breastfeeding works', knowledge sharing among women and their relatives or other community members was not perceived to be helpful, nor were the health care professionals or nature perceived to contribute to this knowledge. There was also limited knowledge sharing among women for 'individual breastfeeding practice'; this knowledge was obtained from professionals instead, although nature was also perceived to contribute here. As a result, some women found that they did not know how breastfeeding works nor how to practise breastfeeding. Also for the themes 'expressing milk' and 'formula', the women perceived limitations in the sharing of knowledge from both popular and professional sources, while nature did not provide knowledge here either. For example, one woman in our study knew exactly which colleagues were expressing milk at work, but these women did not exchange information on how to do this.

Consequently, we identified substantial gaps in breastfeeding knowledge on these four themes, particularly in combination with some of the sectors.

There was only limited sharing of breastfeeding knowledge between the women in our study and significant others such as their mothers or mothers-in-law, and also others farther removed from them. The literature reports that, in breastfeeding practice,

significant others are generally close relatives such as the women's mothers or mothers-in-law (i.e., the infants' grandmothers) (Grassley & Eschiti, 2008; Heinig et al., 2009). Ryan et al. (2001) suggest that the sharing of breastfeeding knowledge between generations must be considered within the context of infant feeding trends in a country, region, or community. The context in the Netherlands shows that many grandmothers of today did not practice breastfeeding themselves and therefore have no breastfeeding experience (Bulk-Bunschoten et al., 2001). However, also the grandmothers who did practise breastfeeding themselves, and are thus experienced relatives, were mentioned not to share knowledge with their daughters or daughters-in-law.

The only example of the infant's father being a source of knowledge was indicated

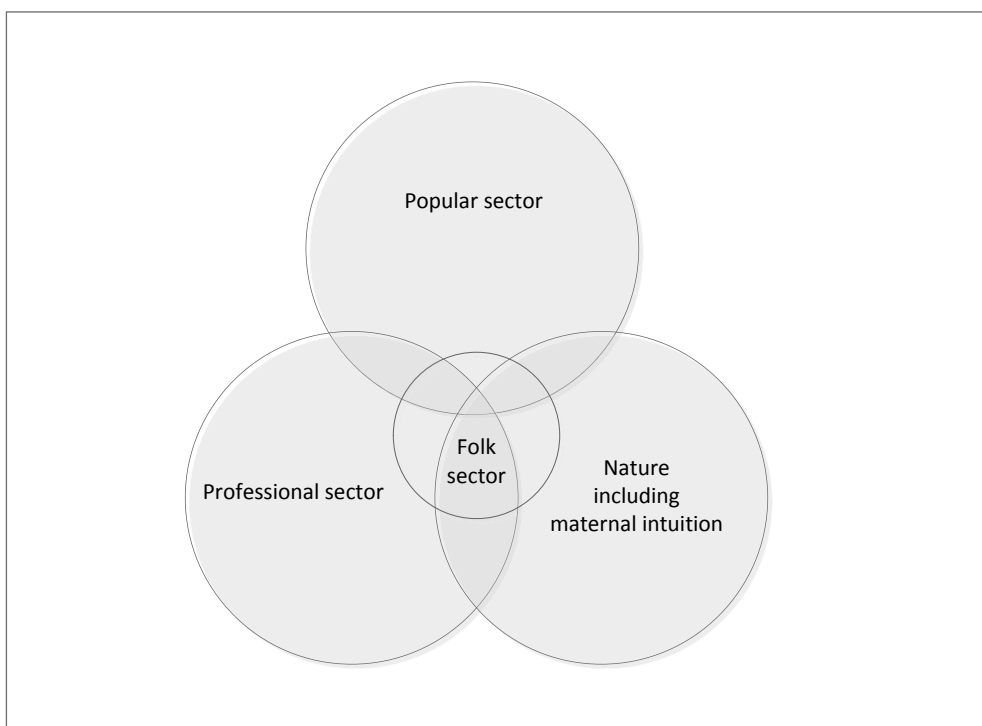


Figure 2: Deductive-inductive model: professional and non-professional sectors

by one woman: this father had mentioned his concerns about the mother-to-infant transmission of antibiotics. Researchers have reported that although the infant's father is usually important in supporting the mother's attitude toward breastfeeding, he is generally not perceived as a knowledge source (Hauck & Irurita, 2003). Further research could explore the limited knowledge sharing among significant others, especially the infant's father.

Others who were farther removed (such as anonymous others referred to as ‘they’) were often perceived as making normative and critical comments, and therefore did not generally contribute to a supportive environment for women who intended to breastfeed. Researchers have also reported an increase in prejudiced comments by others (Fahlquist & Roeser, 2011; Hauck & Irurita, 2003; Rijk et al., 2008). Breastfeeding seems to induce comments rather than knowledge sharing among community members, and breastfeeding has become a moral issue (Ryan et al., 2010).

The limited knowledge sharing in the popular sector has considerable consequences, because, according to Kleinman’s theory, the popular sector is the domain where community members start their health activities (Kleinman, 1980). Our study shows that women would rather turn to the other sectors to obtain breastfeeding knowledge. However, obtaining knowledge from the other sectors also turned out to be unsatisfactory, as shown by the example of formula feeding. All our participants intended to breastfeed, and they did not obtain knowledge about formula in advance. Consequently, when some of them considered using formula it was because they were concerned about their child, which may explain why formula was identified as a specific inductive theme in our study. However, professionals did not distribute information on formula to women who intended to breastfeed, in accordance with the international code for marketing breast milk substitutes (WHO, 1981). This code was recognised internationally (Innocenti, 1991), which was a considerable achievement. We argue that the restrictions placed on health professionals for the distribution of formula feeding information for educational purposes do not contribute to a wider understanding of the effects of feeding particular types of formula, such as hungry baby formula.

In other studies in which Kleinman’s model was applied, researchers have reported that people move back and forth between and within the different sectors, perceiving both conflicts and correspondences (Gaioni, 2002; Nyamanga et al., 2008; Nyamongo, 2002; Meadows et al., 2001; Sánchez, 2007). With regard to conflicts concerning different sources of breastfeeding knowledge, Hauck and Irurita (2003) reported that “if advice from one source conflicted with other sources, mothers became confused but then verified the suitability of that advice with perceived credible sources” (p. 72). Conflicting advice might be confusing to mothers, although, as Graffy and Taylor (2005) indicated in their study on breastfeeding, “consistency is not the whole story, since some women valued being given a number of suggestions to try” (p.185). In our study, the women did not perceive conflicting advice; instead, they perceived the limited knowledge sharing in the popular sector.

Correspondences were found when women relied on their maternal intuition and were supported by professionals in doing so. The women felt comfortable when they perceived this recognition. However, this recognition remained limited to the domain of women’s individual-based orientation, and was not shared with others in the community.

We propose that not only individual women but also their relatives and community members could be involved in this recognition of maternal intuition as a knowledge source.

Our study is characterised by the interaction of inductive and deductive processes. By linking empirical data to theory, we achieved a refined understanding of how women obtain breastfeeding knowledge and from which sources. Nowadays, Kleinman's model is criticised as being too simplistic to explain the contemporary knowledge sharing that takes place using new media such as online fora or social media (Stevenson et al., 2003). We argue that the strength of the model is that it can be applied universally, regardless of the media used. The model allows reflection on the transfer of knowledge from the professional sector to the popular sector through health messages and campaigns in the Netherlands, and on determining which target group these messages are aimed at. In response to disappointing breastfeeding rates, advocates of breastfeeding have often assumed that information campaigns targeted at mothers have failed to get their message across, and that what is needed is even more campaigns (Kukla, 2006). Our findings show that, rather than simply repeating the same message to women, a more constructive approach might involve addressing significant as well as anonymous others in the popular sector, among them younger community members (including male adolescents, future mothers and fathers, and future others) (Goulet et al., 2003; Vari et al., 2013). Other authors also recommend addressing community members, including employers, who have the potential to make substantial contributions to creating a supportive environment for breastfeeding women (Kukla, 2006).

Our research indicates that knowledge concerning the pros and cons of breastfeeding is present from different sources. We argue that women also need to be able to share knowledge about how breastfeeding works and how to practice breastfeeding if they want to. New media such as online fora and social media would be conducive to this development.

Although the women in our study did not use non-professional specialist sources and we could therefore not identify a folk sector (as in Kleinman's model), non-professional specialists could potentially also play a role. Informal woman-to-woman support from non-professional sources (i.e., the popular sector, the folk sector, and nature) can help mothers to share their knowledge and seek the support they need to achieve their breastfeeding goals (Hauck & Irurita, 2003). Women could benefit from an environment in which not only the pros and cons but also other helpful and non-prejudiced breastfeeding knowledge is available from women and community members, not only from professional sources but also from popular sources, folk sources, and nature. Then not only the women themselves but also others in their environment will have knowledge about breastfeeding, even if they don't know how they know it.

Conclusion

The women in our study obtained knowledge concerning the pros and cons of breastfeeding, how breastfeeding works, individual breastfeeding practice, expressing milk, and formula feeding from the different sectors of their local health care system. These sectors are the popular sector, the professional sector, and nature (which includes the women's own maternal intuition). The popular sector comprised significant and anonymous others. Knowledge sharing in the popular sector was limited, and prejudices often predominated. Mothers felt comfortable when they relied on their maternal intuition, especially when this was acknowledged by professionals. The potential of addressing non-professional sources, i.e. a popular sector, a folk sector, and nature, is not fully utilised in the Netherlands. Health care professionals need to take into account that these non-professional sources can contribute to a supportive environment for breastfeeding women.

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