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ARTICLE

Exploring the infant feeding experiences of mothers living in selected Tshwane informal settlements: a qualitative study

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Objective: The study aimed to explore and describe the infant feeding experiences of mothers of children aged 3 to 24 months, living in two selected informal settlements in Tshwane, South Africa.
Design: This exploratory qualitative study gathered data via six focus-group discussions (FGDs). These were facilitated using a semi-structured questionnaire guide with probes. Data were then transcribed, coded and thematically analysed.
Setting: The study was conducted in the two selected informal settlements in the west of Tshwane, South Africa.
Subjects: Biological mothers ($n = 28$) of infants and young children aged 3 to 24 months, living in the selected informal settlements participated. The mothers had to be living with their child with some responsibility for their daily care and feeding.
Results: Three themes with six sub-themes were identified following thematic analysis. First was the mothers' experience of infant feeding, which included their interpretations and practices of exclusive breastfeeding and complementary feeding. Second, mothers received infant feeding support from their elders based on common beliefs. The support received from healthcare workers was sometimes perceived negatively. However, healthcare workers based at healthcare facilities were important sources of exclusive breastfeeding and complementary feeding information. Third were the setting-related factors that negatively affected the mothers' ability to access nutritious food for themselves and their infants. These included household food insecurity, plus environmental and household factors affecting food storage and preparation.
Conclusion: Mothers experienced several challenging circumstances affecting their infant feeding efforts. These findings highlight the need to strengthen targeted infant feeding counselling and support for mothers living in resource-constrained environments.

Keywords: infant feeding, informal settlements, complementary feeding, communities, exclusive breastfeeding, experiences, mothers, support

Introduction

According to the World Health Organization (WHO), 75% of all deaths of children under the age of five years occurred within the first year of life in 2017.[1] The 2016 South African Health and Demographic Survey (SAHDS) has also reported a reduced but concerning infant mortality rate of 35 per 1 000 live births.[2] A significant proportion (45%) of global childhood deaths were directly or indirectly linked to undernutrition in 2011, with 11.6% of these being attributed to sub-optimal breastfeeding practices in younger children.[3–5] This is because a link between infant feeding practices, malnutrition and a number of health conditions experienced in childhood has been established.[4]

Current infant feeding guidelines advocate for exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with the introduction of timely, appropriate, safe and responsively fed solid, semi-solid or soft food until 24 months.[5] These recommended practices form the basis for infant nutrition, which is deemed essential in supporting the growth and development of children, and also contributes to lowering under-five morbidity and mortality rates.[6–8]

High breastfeeding initiation rates have been reported in South African newborns, ranging from 75% to 100%.[9] However, the improved exclusive breastfeeding (EBF) rate of 32% is still far below the WHO global EBF target of 70% by the year 2030.[2,10] The practice has been shown to be hindered by the widespread local practice of introduction of solid food (grain porridges, especially maize) and liquids before the age of six months.[9] Additionally, complementary diets lack sufficient variety to meet the requirements of a minimally acceptable diet (MAD).[2]

Sub-Saharan Africa is the region with the highest rate of informal settlements, due to rapid urbanisation.[11] Informal settlements, including those in South Africa, are characterised by a lack of basic services, sub-standard housing, unhealthy living conditions, poverty, social exclusion and inadequate health services.[12,13] In 2017, 1.6 million South African children lived in shacks within informal settlements and 43% of those children were younger than five years.[14] Children living under these conditions are more vulnerable to infections such as diarrhoea and poor nutritional intake, both of which are known to impact negatively on their nutritional and health status.[13]

There is a greater demand on mothers as the primary caregivers to nurture and feed their children adequately from birth up to 24 months and beyond.[15] Quantitative studies have shown that mothers' infant feeding intentions and choices can be influenced by the health system, significant others and external sources, including the media and the society at large, both positively or negatively.[16,17] This is because infant feeding behaviours are complex and multifactorial in nature, resulting from the interplay between the individual, health, family, cultural systems and socioeconomic conditions.[18,19]

This study aimed to explore and describe the infant feeding of mothers of infants and young children aged 3 to 24 months living in two selected informal settlements.

Methods

Setting

The study took place at two informal settlements located in the West of Tshwane, Gauteng province, South Africa. Informal settlement one consists of approximately 8 000 households, whilst informal settlement two's population was estimated to be 13 276 in 2011.[20] The settlements are inhabited by South African citizens and immigrants originally from Zimbabwe and other neighbouring countries. These areas are characterised by poverty and high unemployment, especially among women.[20,21] One-room corrugated iron shacks are the main type of housing found in these settlements. The households lack basic services such as water, sanitation, adequate electricity and refuse removal. The use of paraffin stoves and open fires for cooking is common.[22]

Study design and participants

An exploratory qualitative approach was used to address the study aim through focus-group discussions (FGDs). This is an effective method that promotes the sharing of experiences and allows for discussion that can clarify individual and shared perspectives, in order to gain a better understanding of social norms.[23] The study population was the mothers (18 years and older) of infants and young children aged 3 to 24 months, who lived in the selected informal settlements. Purposive sampling was used to recruit mothers ($n = 28$) who met the inclusion criteria and were willing to participate in the study. Study participants had to meet the following inclusion criteria: (a) be the biological mother of the infant and/or young children aged from 3 to 24 months at the time of the FGDs; (b) live in either of the two informal settlements served by the Daspoort poly-clinic; (c) be willing to participate in an FGD with other mothers in the community whom she may not know personally; (d) be able to speak Setswana or English (Shona-speaking mothers could also be included with the presence of an English-speaking translator) and (e) be 18 years or older. Eligible mothers were required to complete the study eligibility form presented by the community health workers (CHWs) and the principal investigator. Mothers whose children were recently seen by the dietitian (in the past two months), whose ages could not be verified and those who had special needs (i.e. were physically or mentally challenged) were excluded from participating in the study. Those who met the criteria were then invited to the FGDs telephonically.

Data collection

Six FGDs with an average number of five participants per FGD were conducted at central venues (creches, youth centre and mobile clinic) within the informal settlements. Before commencement of the FGDs, each participant was required to complete a 'Participant information document' written in both English and Setswana, for the purposes of explaining the study to participants, capturing their written consent to participate in the study and their basic demographic information (see Table 1). The information document was explained verbally to all the participants to ensure that the information was understood. The FGDs took place from August to November 2018. The principal investigator facilitated the discussions in Setswana or English using the two main research questions with additional probes according to a developed semi-structured FGD questioning guide. The main research questions were: 'What are your experiences with feeding your baby from birth to 12 months?', and 'What support did you receive in feeding your baby from birth to 12 months?'. The open-ended questions enabled the researcher to open the exploratory discussions on infant feeding experiences amongst mothers. The average duration of the FGDs was 40 minutes. Data saturation was reached at the end of the sixth focus group; thereafter data collection was stopped. Community health workers assisted with note taking during the FGDs and the discussions were audio recorded.

Table 1: Demographic profile of study participants

Characteristics	Value
Mean age (years ± SD)	29 ± 6
Age distribution:	(*n*, %)
> 20	1 (3.6%)
20–24	6 (21.4)
25–34	14 (50%)
35–44	7 (25%)
Education level:	(*n*, %)
Primary school	1 (3.6)
Grades 8–11	17 (60.7)
Grade 12	9 (32.1)
College diploma	1 (3.6)
Employment status:	(*n*, %)
Unemployed	16 (57.1)
Day-to-day jobs	5 (17.9)
Temporary/seasonal work	4 (14.3)
Permanent work	3 (10.7)
Marital status:	(*n*, %)
Married	9 (32.1)
Living with a partner	11 (39.3)
Single	8 (26.6)
Number of children per mother:	(*n*, %)
1	7 (25)
2–3	17 (60.7)
≥ 4	4 (14.3)
Age of youngest child (months):	(*n*, %)
3–5	4 (14.3)
6–11	10 (35.7)
12–17	9 (32.1)
18–24	5 (17.9)

Data analysis

The collected data consisted of audio recordings of the FGDs and the completed demographic information forms. The transcription of FGD data was conducted in Microsoft Word, and Microsoft Excel captured participants' demographic information (Microsoft Corp, Redmond, WA, USA). Non-verbatim transcription was conducted, and data were directly translated into English, due to resource constraints. This was done by first listening to the audio-recorded data and then typing the translated English version of what was said into Microsoft Word. The principal investigator completed the data transcription under the supervision of the study leaders. Inductive thematic data analysis based on Braun and Clarke's six-step framework was conducted.[24] Coding was done inductively, using open color-coding.

Ethical consideration

Ethical approval for the study was granted by the University of Pretoria's Faculty of Health Sciences Research Ethics Committee (protocol number 293/2018) in June 2018. Permission to conduct the study was obtained from the community leaders. Participants voluntarily participated after being informed about the research study and could withdraw at any time without any consequences. Individual participants' written informed consent and verbal consent to use an audio recorder during the discussions were obtained. Participants' personal information and real names were replaced with a study identification number (consisting of the focus group number, age, employment status, number of children and youngest child's age) to ensure anonymity.

Results

The ages of those enrolled in the study ranged from 18 to 44 years, with a mean age and standard deviation (SD) of 29 ± 6 years old. Additional demographic characteristics have been included in Table 1.

The findings of the FGDs are presented in Table 2. The findings of the FGDs have been presented according to the three themes, six sub-themes, categories and participants' quotes.

Experience of infant feeding

Exclusive breastfeeding

Mothers held different interpretations regarding the adequacy of breast milk for their infants in the first six months of life. Some participants viewed breast milk as a source of nutrition for their infants, providing hydration and aiding in their growth, whereas others believed that it was an inadequate form of sustenance when provided as a sole source of nutrition. The recommended duration of EBF for six months was likened to a prolonged period of food deprivation. These interpretations justified the participants' practice of early introduction of complementary food to their infants.

Introduction of complementary food

The practice of early introduction of solid food to infants, mostly in the form of soft porridge, was influenced and informed by baby-led and alternative caregiver-related factors. Sleeplessness and the continued crying of some infants, sometimes after breastfeeding, were seen as signs that complementary food was needed. According to mothers, the infants would then quieten and sleep for longer periods after being fed solid food as compared with breastfeeding only. The timing of introduction of complementary food was also influenced by the perceived expectations of alternative caregivers, such as those who looked after the infants at day-care centres while the mothers went to work. Mothers reported feeling pressured to 'teach' their infants to bottle-feed and to eat solid food to make it easier for the caregivers to care for their infants.

Support received for infant feeding

Support by elders

Mothers relied on infant feeding advice that was received from their well-meaning family members (mostly elderly females, including grandmothers). Some participants reported that they were taught to express and discard breast milk that was produced when they were separated from their infants, before feeding from the breast. This milk was considered to be 'spoiled' or 'dirty' due to the prolonged period it remained in the breast after let-down and could potentially harm the baby. Advice about how and when to start feeding solid food to their infants was also often given by the elders, usually as a way to alleviate perceived hunger in the infant. One mother reported that she was advised to introduce solid food as early as day one after discharge from the health facility after delivery.

Support by healthcare workers

Infant feeding support in the form of education and advice was also received from healthcare workers, mostly nurses, who worked at the local clinics and hospitals. The support included helping mothers to successfully initiate breastfeeding after delivery, and regular infant feeding advice covering EBF for six months, and examples of food to include for complementary feeding. One mother who received postnatal breastfeeding education and support from nurses felt confident in her breastfeeding ability and noticed its positive effect on her infant.

On the other hand, there were also mothers who did not feel adequately supported by the health system to maintain exclusive breastfeeding and to provide complementary feeding to their infants, after returning to their home environment. For example, some mothers reported having received feeding advice only when their infants were ill, or obtained the information through reading of information pamphlets available at some of the clinics.

Furthermore, misunderstanding and confusion linked to infant feeding advice received from healthcare workers was reported. One mother revealed that she was advised to replace breastfeeding with tea to avoid mixed feeding her baby when returning to work. Another mother followed the general advice to exclusively breastfeed her infant for six months, but her child developed malnutrition at the age of 12 months, due to inadequate complementary feeding support.

Factors in the setting that impact on infant feeding

Household food security

Some mothers believed that their inability to access sufficient and nutritious food for themselves negatively affected the quantity and quality of their breast milk. The perceived insufficiency of breast milk due to inadequate maternal food intake also influenced the timing of complementary food, mothers thus using it to supplement the 'watery' breast milk. In general, there was limited access to healthy food such as vegetables in the study setting, making these uncommon options for complementary feeding. This resulted in infants being fed a monotonous diet mainly consisting of soft or stiff maize-meal porridge, often served with a sauce obtained from the meat/bones.

Factors in the environment and household affecting food preparation and storage

The factors affecting food access, preparation and storage reported by mothers included household rodent infestation, and the lack of refrigerators and inadequate paraffin. These factors affected the safe storage of food in the households, the purchasing of vegetables and the regularity of cooking meals. For example, a lack of money to buy paraffin or to pay for electricity for food preparation was reported. As a result, some mothers opted for ready-to-eat bottled infant food, as this was thought to be a more affordable option. In addition, the lack of cold storage facilities at the day-care centres for perishable food and expressed breast milk also affected how

Table 2: Main and sub-themes that emerged as mothers' experiences of infant feeding

Theme	Sub-theme	Supporting quotes
Experience of infant feeding	Exclusive breastfeeding	'I know that breast milk is divided into three, the one that quenches the baby's thirst, the one that gives food to the baby and the milk that builds muscles … . From birth until six months' (FG5P3, 22 years old, UE, mother of 1 infant aged 5 months) 'According to me six months is too much for the baby because even as an adult you eat three times a day. In the morning you eat, midday you eat and in the evening, you eat. But you want the baby to survive by breastfeeding him only? You see, so according to me six months is too much' (FG1P2, 28 years, UE, mother of 2; youngest aged 12 months) 'Also think about yourself … can you survive three days without eating? When you are pregnant, they tell you that the baby eats any food that you eat … . This child was obviously eating while in the womb. So after birth he is no longer eating? He must eat' (FG5P7, 31 years old, E, mother of 4; youngest aged 17 months)
	Introduction of complementary food	'I started feeding my baby solids at 1 month and 2 weeks [of age] because when I exclusively breastfed him, he only slept for a short while, the next thing he woke up and cried. I breastfed him, I breastfed non-stop, and he cried non-stop … . My mother prepared food for him … . After that he never gave me a problem again … . He was able to sleep for a long time in the daytime after eating' (FG5P2, 26 years old, UE, mother of 2; youngest aged 11 months) 'Sometimes you will leave your baby at the creche, he is not the only baby at the creche there are other children … . So, you must teach the baby from home. My baby started creche at the age of two months because I was going back to work. I had already taught him at home that you must eat and suck the bottle. I also gave him water so that when he came to the creche it would not be difficult' (FG5P7, 31 years old, E, mother of 4; youngest aged 17 months)
Support received for infant feeding	Support by the elders based on common beliefs	'With my first born I was a student. I used to breastfeed before and after going to school. When I returned, I first expressed the dirty milk, when I was done I gave him (the breast) with fresh milk … that is how they taught us, the older people … . They tell us that it becomes dirty because I spent most of the time at school … . (FG1P2, 28 years, UE, mother of 2; youngest aged 12 months) 'I was given 3 months of [maternity] leave after giving birth. After 3 months I was going to work and coming back home with my breasts full of milk. When the breasts are full of milk, they are painful, the milk changes and is not good for the baby because you spend the whole day with that milk in your breasts' (FG2P4, 34 years old, E, mother of 2; youngest aged 24 months) 'My baby was premature just like FG3P4, so the first few days she was just drinking 8 ml, then as time went on, I gave more breast milk. When I came back home, my grandmother taught me how to feed the baby. I then started to give her the porridge and my baby was growing' (FG3P2, 22 years old, UE, mother of 1 infant aged 9 months) 'When I came from the hospital, my mother said we must feed my baby bottled baby food … . Our mothers say that a baby must eat on the first day when they come from the hospital because the baby is hungry' (FG6P1, 32 years old, E, mothers of 3 children, youngest aged 6 months)
	Support by the healthcare workers not always perceived positively	'After giving birth to my second baby, the nurses taught me about breastfeeding. On the first day they said we must give the baby the first milk because it is more important for the baby. I was supposed to give the baby breast milk every two hours until he was three months old … .. I just did what the nurse said … my baby was born prematurely, but he gained weight every day because of the many things I learned at the hospital' (FG3P4, 35 years old, UE, mother of 2; youngest aged 15 months) 'At the clinic, they tell you how to feed your baby and the kind of food you must give … . I feed my baby the foods I was told about such as butternut, mashed potato and others … (FG1P2, 28 years, UE, mother of 2; youngest aged 12 months) 'I also attend the clinic but they haven't told me anything. I read about what a 9-month-old baby eats from the pamphlets that were placed there … . I only received advice when I was told not to feed [solids] the baby until he is six months old' (FG1P3,25 years, UE, mother of 2; youngest aged 9 months) 'At the clinic they only asked me about what I fed my baby when he was sick, but if he is not sick, they don't ask or tell you anything. (FG2P1, 35 years old, E, mother of 4; youngest aged 9 months) 'We were also advised to give Rooibos tea at the clinic … a mother who doesn't have money to buy milk [formula] should rather give Rooibos tea to her baby instead of giving both formula milk and breastfeeding … so I don't know what I must do. I am confused' (FG2P1, 35 years old, E, mother of 4; youngest aged 9 months) 'Nurses said we must give our children food from six months. When your child is one year old, they complain again saying your child must be seen by

(*Continued*)

Table 2: Continued.

Theme	Sub-theme	Supporting quotes
		the dietitian because he doesn't eat meat. When you start feeding bottled baby food at six months, when will he start eating meat? I cannot start with both pap and meat at six months' (FG5P5, 26 years old, E, mother of 2; youngest aged 15 months)
Factors in the setting that affect infant feeding	Household food security affected both maternal and infant nutrition	'There is a difference in breast milk … . when you have eaten enough food, it becomes white … but if you haven't eaten it becomes like water … (FG1P3, 25 years, UE, mother of 2; youngest aged 9 months) 'The amount of milk that you make is also affected by how much food you eat. If you have enough food and are eating enough then your body can make milk regardless of the size of your breast' (FG2P1, 35 years old, E, mother of 4; youngest aged 9 months) 'I breastfed my baby for only four months then I gave porridge. I cannot eat enough because I don't have enough money for food … . So, it is better to feed my baby porridge so that he can sleep. I know that is not right, but I don't want my baby to cry for a long time' (FG3P1, 35 years, UE, mother of 4; youngest aged 5 months) 'When we talk about vegetables like butternut, we don't eat them every day. If I buy a butternut, I cook it once or twice a month only … (FG1P1, 22 years, UE, mother of 1 child aged 6 months) 'Most of the time I give my baby pap and soup … ' (FG2P2, 27 years old, E, mother of 3; youngest aged 9 months)
	Environmental and household factors affecting food storage and preparation	'I made porridge for the baby, then took my older child to creche. Leaving the porridge to cool down. When I returned, I found that the rat had eaten it … ' (FG6P5, 28 years old, UE, mother of 2; youngest aged 4 months) 'I once bought potatoes, planning to make some mash for the baby. I placed them in a bowl to cook the next day. I felt so powerless when I returned to find that a rat had eaten the potatoes … ' (FG6P1, 32 years old, E, mother of 3; youngest aged 6 months) 'I believe paraffin is more expensive than all the baby food including bottled baby food. This is why I make sure that I have the instant sorghum meal which I can prepare whenever I don't have paraffin, so that my child can still eat' (FG1P3, 25 years, UE, mother of 2; youngest aged 9 months) 'Money is also a problem, it is not only an issue of access to electricity, because even if you have electricity, you might not have money to buy the food' (FG2P1, 35 years old, E, mother of 4; youngest aged 9 months) 'I think that it is good to express your breast milk and leave it for the baby. But in our situation here, I don't believe that it will work because there is no electricity and a refrigerator at the crèche, so there is no space to store the milk. There is also no microwave that can be used to warm up the milk … (FG2P1, 35 years old, E, mother of 4; youngest aged 9 months) 'I can try to cook rice and make a treat for him but now it is summer, the food becomes rotten because the shacks are hot and there are no refrigerators' (FG1P1, 22 years, UE, mother of 1 aged 6 months)

infants were fed even in the absence of their mothers. Two participants revealed that rats had eaten food that they had saved and prepared for their infants on at least one occasion. This was due to the inadequate storage facilities within the households and poor refuse removal services in the setting.

Discussion

Our findings showed that EBF for the first six months of life followed by the introduction of timely, safe and diverse complementary food were generally not part of the study mothers' infant feeding experience. This was because mothers generally held an incorrect interpretation regarding the adequacy of breast milk as a sole source of sustenance for infants during the first six months. The interpretation that EBF infants were surviving without 'food', plus the need by mothers to soothe crying infants and to carry out the feeding advice received from supportive elders resulted in the low EBF practices in this setting. In the current study, early infant feeding decisions were taken and influenced by supportive and more experienced elders. Following the postpartum discharge of mothers and neonates. This is a time when mothers are most vulnerable and need help, support and advice to cope with any childrearing challenges that may be experienced. Mothers who had to return to work also felt pressured to adhere to the infant feeding expectations of alternative caregivers at community-based day-care centres. This often resulted in the early introduction of formula feeding and water via the bottle together with soft/semi-solid foods.

Healthcare worker support to help mothers initiate breastfeeding was well received. However, infant feeding support was inconsistent during routine visits and some messages were found by some mothers to be confusing. Setting and household-related challenges affecting infant feeding included household food insecurity and pest infestation and the absence of proper food storage facilities. These negatively affected the breastfeeding mothers' ability to access healthy and sufficient food for themselves and their infants.

Inadequate infant feeding practices have been widely reported among South African mothers from different settings.[9] This has been largely due to the early supplementation of breast milk with other foods or liquids in the first six months of life, similar to the current study.[9] Other South African qualitative studies have investigated the mothers' experiences and perceptions of infant feeding and the reasons behind early mixed-feeding in HIV-infected and uninfected mothers.[25–27] Similar to the current study, Nor *et al*. found that mothers living in rural and peri-urban locations of KwaZulu-Natal misunderstood

the promotional message of 'exclusive' breastfeeding taught by community peer counsellors. However, the term in that study was understood to mean avoiding the 'mixing' of two different milks,[25] whereas mothers in the current study did not consider breast milk as a sufficient source of sustenance. Goon *et al*. studied the reasons behind early mixed feeding of HIV-exposed infants in the Eastern Cape, South Africa and they also found that mothers were driven by newborn-led cues, including inconsolable crying and the need to protect their health, similar to this study.[26] Evidence of mothers trying to safeguard the health of the infant with feeding emerged in the study focusing on HIV-infected mothers.[26] Poor socioeconomic conditions, the return to work and the influence of elders were also identified reasons for stopping EBF.[27] The influence of the family on the mothers' feeding intentions was more evident in younger mothers.[27]

Breastfeeding support from the mothers' families, communities and the healthcare system is recommended by the WHO.[28] The mothers' elders provided much-needed post-natal support and infant feeding advice to mothers in this study, albeit it was not always supportive of recommended practices, similar to the findings of Trafford *et al*.[27] For example, advice based on common beliefs encouraged working or studying mothers to first express and discard the breast milk that was produced during the separation from their infants before feeding from the breast. This is notable because there were no formal primary health care services located in the two informal settlements during the study period. Mothers had access to outreach health services only on limited days and had to travel out of the informal settlements for primary care.

Healthcare workers, especially nursing staff, are the trusted sources of infant feeding advice and can enable mothers to follow desirable practices.[16, 29] Their advice has been associated with a higher percentage of infants presenting with normal weight-for-age z-scores as compared with infants of mothers who relied on other information sources.[30] Mothers in this study generally felt supported by healthcare workers, especially for breastfeeding initiation in the hospital environment. Feeding advice was also commonly provided to a mother presenting with an ill infant rather than one that was healthy. Inadequate availability of complementary feeding advice and the mothers' perception of mixed messages affected their reliance on healthcare workers as a source of infant feeding. Similar findings pertaining to the existence of incorrect advice not supportive of EBF given to mothers by healthcare workers was also found in a diverse population of South African mothers.[16]

South African studies suggest that children living in rural, formal and urban informal households are most significantly affected by food insecurity.[31,32] Similarly, evidence of household food insecurity as a barrier to both breastfeeding and complementary feeding was found in the current study. A qualitative study conducted in two urban slums in Kenya also found that inadequate food intake affected the mother's perceived ability to produce enough breast milk, thus weakening her capability to breastfeed exclusively.[33] Although these are perceptions based on qualitative findings, it is true that a number of biological and behavioural factors in both the mother and infant are known to affect breast milk production and ejection.[34] Some of the biological reasons include maternal anxiety and depression, body mass index, illness, mode of delivery, parity and the infants' birthweight and suckling ability.[34,35] Thus, some of the mothers' experiences of reduced breast-milk quantity affecting their breastfeeding practice warrant further investigation.

Infants in the current study were commonly fed soft or stiff maize porridge with soup (reported to be either tomato and onion gravy or the thickened liquid derived from meat), with very little use of vegetables and fruit. These findings highlight the negative impact of poverty and food insecurity on the infant feeding decisions and practices carried out by mothers.[36] Socioeconomic constraints experienced in such settings have been shown to affect the diversity of the complementary feeding diet of most study participants.[37] The study done in urban slum settings in Kenya also found that less than 50% of the children below the age of 12 months in that setting consumed a diet with adequate dietary diversity.[38]

The lack of electricity also made the regular consumption of perishable food (such as fresh vegetables, dairy and meat) impractical and unfeasible in other South African informal settlement settings.[39] Similarly, the absence of refrigerators required to store expressed breast milk (EBM) and perishable food was noted in the current study. This affected EBF sustenance upon the mother's return to work, and the timing and adequacy of complementary feeding. As a result, some mothers reported choosing ready-to-eat infant food instead of cooked meals due to the high cost of paraffin. Such food products are often higher in added sodium and sugars as compared with home-cooked meals.[40] The current study findings support those of Kabir and Maitrot *et al*., who found that poor socioeconomic conditions and the lack of resources affected mothers' food choices and the frequency of cooking meals.[41]

This study has several strengths and limitations. A key strength was employing the qualitative research approach to conduct FGDs in various venues within the selected informal settlements. This allowed the researcher to experience the study setting and allowed for prolonged engagement and exploration of the topic. The descriptive and exploratory nature of the enquiry helped to identify issues that limited the infant feeding efforts of mothers in this study. In addition, the FGDs enabled participants to discuss and share their individual experiences, concerns, encounters and coping strategies related to infant feeding.

The core questions that were asked required mothers to recall practices that were conducted from childbirth , which therefore could have resulted in recall bias. Another limitation was the possible introduction of social desirability or approval bias because of self-reporting of personal experiences in a group context of the FGDs.[42] The FGDs were facilitated mainly in Setswana, Sepedi and English, which were well understood by most participants. However, a few dominant voices led the discussions in the different groups.[43] The study may not be applied to the wider population.

Conclusion

Our qualitative study highlights the challenging experiences of mothers around the feeding of their children in the first year of life. These were further exacerbated by the under-resourced setting of the informal settlement in which they lived. The setting-related challenges that affected infant feeding in this study included household food insecurity affecting both breastfeeding mothers and infant complementary feeding, lack of

proper storage facilities for perishable foods due to the lack of electricity in many households and household pest infestation resulting from poor waste removal services. Other experiences that influenced the infant feeding decisions and practices of mothers were their individual interpretations of healthcare workers' infant feeding messages in the context of their well-meaning elders' and alternative caregivers' support, advice and feeding expectations. These findings highlight that healthcare providers for mothers and young children should be aware and mindful of the alternative messages that mothers are receiving and the potential impact that the setting where mothers live can have on infant feeding. It is therefore important to strengthen targeted multisectoral interventions to address the challenges that may hinder the ability of mothers to feed their infants successfully within similar contexts.

Recommendations

Infant feeding education, counselling and ongoing support must be strengthened for mothers and supportive family members of infants and young children together with their supportive community members, especially during the first year of the child's life. Other support structures including community-based caregivers (early childhood development sector) and community health workers can also be equipped to support sound infant feeding practices through targeted education and training.[44] Access to targeted community health outreach services and social services should be improved to assist vulnerable mothers living in under-resourced communities.

Enforcement of longer paid maternity leave policies in the informal work sectors may help promote EBF in similar populations. Future research in similar settings should investigate the extent to which the factors that were uncovered by this study affect infant feeding, and the impact posed by the challenges of poor food storage and handling on the availability and feeding of nutritious complementary food to infants and young children.

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