Comparison of infant-feeding practices in two health subdistricts with different baby-friendly status in Mpumalanga province

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Abstract

Objectives: The objective of the study was to compare the infant-feeding practices of two subdistricts with different baby-friendly status in Mpumalanga province, South Africa.

Design: This was a cross-sectional, descriptive, observational study with an analytical component. Eighteen fieldworkers assisted with the data collection, utilising two sets of interviewer-administered questionnaires – one on socio-demographic information and the other on infant-feeding practices.

Subjects: Mothers with infants from birth to six months old, attending postnatal care at public sector primary health care facilities in Emalahleni and Mbombela health subdistricts on the days of data collection were included. A total of 435 mother and infant pairs were included in the study.

Outcome measures: Five infant-feeding indicators were used, namely the early initiation of breastfeeding, exclusive breastfeeding, exclusive replacement feeding and mixed feeding rates, as well as the age at which complementary food was introduced.

Results: There was a significantly higher early initiation of breastfeeding (57% vs. 43%), exclusive breastfeeding rates (60% vs 48%), and a lower exclusive replacement feeding rate (18% vs. 33%) in Emalahleni subdistrict, where all the public sector maternity facilities are accredited as being baby friendly, compared to that in Mbombela subdistrict, where none of the public sector maternity facilities are baby friendly. The mixed feeding rate (19% vs. 15%) and the mean age of the introduction of complementary foods (50 days versus 35 days) did not differ significantly between the two subdistricts.

Conclusion: Implementation of the Baby-Friendly Hospital Initiative (BFHI) in a health subdistrict was associated with more optimal infant-feeding practices in mothers with infants aged six months and younger. It is concluded that strengthening practices prescribed within the BFHI would improve infant-feeding practices at community level.

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Introduction

Appropriate infant-feeding practices are high on the agenda of international agencies, as well as the South African National Department of Health, as reflected in recent successive policy changes which have impacted upon infant-feeding recommendations.[1-4] The World Health Organization (WHO) recommends that infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health.[5]

However, no more than 35% of infants worldwide are exclusively breastfed, even for the first four months of life.[5] Locally, data from the South African National Health and Nutrition Examination Survey (SANHANES) indicated that only 7% of infants aged 0-6 months were exclusively breastfed; 75% were breastfed, but not exclusively; and 18% were never breastfed in 2012.[6]

Since 2011, the South African government adopted the Mother and Baby Friendly Initiative. However, for the purposes of this research report, the previously used term, "Baby-Friendly Hospital Initiative" (BFHI) will be used. The BFHI is a global intervention aimed at strengthening practices which protect, promote and support breastfeeding and which optimise infant-feeding practices in maternity facilities.[2] The Ten Steps to Successful Breastfeeding has been accepted as the minimum global criteria for attaining the status of a baby-friendly hospital.[2]

Studies have shown that the benefits of the BFHI include an average annual increase in the rate of exclusive breastfeeding of infants aged

six months and younger.[7,8] A structured programme of breastfeeding promotion, compared with standard care, positively influences the initiation and duration of breastfeeding, including exclusive breastfeeding.[9]

However, as the BFHI focuses on maternity units mainly, with step 10 focusing on community support, it seems that the influence of the BFHI beyond the initiation of breastfeeding is perhaps not being maintained.[10] Interventions made only at one moment, such as in the maternity ward, and based only in hospitals, increase breastfeeding rates, but only have a short-term impact, unless combined with complementary strategies. Strengthening the implementation of step 10, which seeks the establishment of support groups for mothers who breastfeed after discharge from the maternity ward, might achieve more sustainable results.[10]

South Africa is facing a major challenge to improve exclusive breastfeeding practices, owing to complexities such as longstanding support for infant formula, and a historical lack of breastfeeding support because of the high prevalence of human immunodeficiency virus (HIV). The WHO guidelines were not implemented effectively within operational settings in South Africa, leading to inappropriate infant-feeding options, such as inappropriate replacement feeding and mixed feeding, and consequently lower HIV-free survival.[11]

Until March 2012, the practice in eight provinces, including Mpumalanga, was to supply infant formula free of charge to HIV-positive women who opted to practise replacement feeding. This contradiction in approach, which facilitated free-of-charge infant formula, and according to which exclusive breastfeeding was simultaneously recommended[12] as the most appropriate feeding option, necessitated policy changes in line with the WHO recommendations.[1]

Following the Tshwane declaration in support of breastfeeding,[4] the National Department of Health committed itself to strengthening interventions aimed at the advocacy and promotion of breastfeeding, including the BFHI, and phasing out the routine supply of free infant formula at health facilities. National targets have been set for 65% of public hospitals to have been accredited as being baby friendly by 2013, and 90% by 2016.[13]

The purpose of the study was to investigate if there were any differences in the infant-feeding practices of mothers residing in Emalahleni subdistrict, where all of the public health facilities offering maternity services are baby friendly; compared to those of mothers residing in Mbombela subdistrict, where none of the public health maternity services are so. As an intervention aimed at supporting breastfeeding, the BFHI supports the early establishment of breastfeeding practices, as well as community-based support for breastfeeding. If, in this study, it was proved that the intervention had a positive outcome on infant-feeding practices in the community, it should be further strengthened and supported.

At the time of the study, 22 of the 31 baby friendly-accredited health facilities in Mpumalanga were located in Nkangala district, including the four public health maternity facilities in Emalahleni subdistrict. By contrast, only two hospitals in Ehlanzeni district, and none of the health facilities in Mbombela subdistrict, were accredited as being baby friendly at the time.

Method

The study was cross-sectional, descriptive and observational in design, with an analytical component. Data were collected in the Emalahleni and Mbombela subdistricts of Mpumalanga province, between March and April 2012.

Sample selection

Based on the estimated population size for children aged six months and younger (2 968 in Emalahleni and 5 474 in Mbombela subdistricts),[14] a sample size of 220 subjects was aimed for in each subdisitrict, with a confidence level of 95% and a standard error of 5.

The plan was that mother and infant pairs would be selected randomly to participate in this study. Practically, all of the mother and infant pairs who met the entry criteria were selected at each of the participating health facilities owing to lower-than-anticipated daily clinic attendance. Each facility was visited on more than one day until the targeted number of respondents was reached or exceeded.

Inclusion criteria

Mother and infant pairs whose infants had been born at a public health facility within the same subdistrict in the preceding six months, who were attending postnatal care or well infant clinics at CHCs within the Emalahleni or Mbombela subdistricts during the period of data collection, were included in this study.

The mothers had to reside within the boundaries of the two local municipalities at the time of the study, and to have delivered a live-born infant weighing more than 2 500 g.

Of the 521 mothers attending postnatal follow-up care at the study sites on the dates of the data collection, 435 (84%) met the inclusion criteria.

Exclusion criteria

Based on the likelihood of infant-feeding practices being affected by certain factors, mother and infant pairs were excluded from this study if the infant:

- Was older than six months at the time of data collection.
- Was born at a private health facility or a public health facility outside the two identified subdistricts.
- Weighed less than 2 500 g at birth, or was born premature (before 36 weeks' gestation).
- Was a twin or triplet.

Data collection

Eighteen fieldworkers were selected from a group of local, home-based caregivers and assisted with the data collection. A training session was conducted in each subdistrict to orientate fieldworkers on the data-collection tools, and the concepts of informed consent and confidentiality. This included structured role play, to allow the fieldworkers to familiarise themselves with the data-collection tools. Three fieldworker supervisors with a nutrition background assisted with the supervision and support of the fieldworkers.

Two sets of interviewer-administered questionnaires were developed by the primary researcher. One addressed general biographical and socio-demographic information, and the other infant-feeding practices. Some of the questions in the infant-feeding practice questionnaire were derived from the external assessment tool of the BFHI.[15] These questionnaires were translated into the local languages and the fieldworkers were able to conduct structured interviews with the participants in their home language.

The research questionnaires were reviewed by an experienced national BFHI assessor and pre-tested prior to data collection. A total of 11 mothers were interviewed as part of the pre-testing. Changes were not made to the questionnaires after this process.

Data analysis

The data were entered in Microsoft® Excel® 2007. Statistica® version 8 was used to analyse the data. Both descriptive and inferential statistics were used to analyse and compare the data for the two subdistricts.

Ethical considerations

The study was approved by the Committee for Human Research, Faculty of Medicine and Health Sciences, Stellenbosch University (S11/12/051); as well as at the Research and Ethics Committee of the Mpumalanga Department of Health.

Each participant provided informed consent. The informed consent form was read by or to each participant in their local language, and signed by the participant and the fieldworker collecting the data.

Patient identification information was omitted from study-related material to ensure participant confidentiality. Each participant was allocated a subject identification number which was used on all of the study material and documentation to further ensure confidentiality.

Results

A total of 435 mothers met the inclusion criteria as part of this research project, i.e. 217 (50%) from Mbombela subdistrict and 218 (50%) from Emalahleni subdistrict (Table I).

Table I: Participant representation per selected health facility

Subdistrict	n (%)
Mbombela	
Matsulu CHC	39 (18)
Kanyamazane CHC	34 (16)
Bhuga CHC	46 (21)
Kabokweni CHC	68 (31)
Phola Nsikazi CHC	30 (14)
Subtotal	**217 (50)**
Emalahleni	
Empumelelweni CHC	79 (36)
Siphosensimbi CHC	70 (32)
Phola CHC	69 (32)
Subtotal	**218 (50)**
Total	**435 (100)**

CHC: community health centre

Socio-demographic information

The average age of the respondents (mothers) was 26 years. Infants' (n = 435) ages varied from one day to five months. In total, 53 infants (12%) were one month of age and younger, 113 (26%) were 1-2 months' old, 82 (19%) were 2-3 months' old, 73 (17%) aged 3-4 months, 58 (13%) 4-5 months and 56 (13%) 5-6 months. More than two thirds of the infants (160, 37%) in the study were first-born children, while 141 (32%) had one sibling, 79 (18%) two siblings, and 55 (13%) (n = 55) three or more siblings.

Infant-feeding practices

Infant-feeding option chosen before delivery of the infant

In Mbombela, 51% of mothers had chosen exclusive breastfeeding, 35% exclusive replacement feeding (giving infant formula only, with no other food or drink) and 14% mixed feeding as their infant-feeding choice, before delivery. Mixed feeding in this context included both the practices of mixed breastfeeding (other food or drink being given to an infant who is breastfed) and mixed replacement feeding (other food or drink being given to an infant receiving replacement formula feeds). Eighty per cent of the mothers chose exclusive breastfeeding, 11% exclusive replacement feeding and 9% mixed feeding in Emalahleni subdistrict.

Using Pearson's chi-square test with which to compare the infant-feeding options, significantly more mothers in Emalahleni subdistrict (p-value < 0.001) chose exclusive breastfeeding, while significantly more mothers in Mbombela subdistrict (p-value < 0.001) chose exclusive replacement feeding as the infant-feeding option of choice before delivery. However, the choice of mixed feeding did not differ significantly between the two subdistricts (p-value 0.123).

The first feed given to infants after birth

Sixty-four per cent of the infants received breast milk, and 35% infant formula, as a first feed, in Mbombela subdistrict. In addition, one infant received water and one sweetened water as a first feed.

Eighty-nine per cent of the infants received breast milk, and 12% infant formula, as a first feed in Emalahleni subdistrict. No other feeds were given as a first feed to infants in Emalahleni subdistrict.

Using Pearson's chi-square analysis, the preference for infant formula as a first feed differed significantly between the two subdistricts (p-value < 0.001), but the preference for breast milk as a first feed did not differ significantly between them (p-value 0.104).

Using the univariate test of significance (p-value < 0.001), as well as the Mann-Whitney U test (p-value < 0.001) the mother's age significantly related to the choice of the first feed in the combined sample. Older mothers (a mean age of 29 years) tended to give infant formula as a first feed, and younger mothers (a mean age of 26 years) opted to give breast milk as a first feed.

On further analysis, the same trend was found in Mbombela subdistrict, where the mother's age significantly influenced the first feed (p-value < 0.001). This was not found in Emalahleni subdistrict (p-value 0.470).

Early initiation of breastfeeding

Of the 328 infants in both subdistricts combined who received breast milk as a first feed, 188 (57%) were placed to the breast within an hour, and 140 (43%) after the first hour (Table II).

Table II: A comparison of the timing of the initiation of breastfeeding between the subdistricts

Subdistrict	After the first hour	Within an hour	Total
Emalahleni	57	134	191
Mbombela	83	54	137
Total	**140**	**188**	**328**

Significantly more infants were breastfed within an hour of birth in Emalahleni subdistrict than in Mbombela subdistrict (p-value < 0.001).

Feeding practices at the time of the study

The feeding practices at the time of the study with respect to the infants for whom the delivery method was reported, i.e. n = 434, were as follows: 234 (54%) were exclusively breastfed, 110 (25%) exclusively replacement fed, 74 (17%) were mixed breastfed, 16 (4%) were mixed replacement fed (received other food or drink in addition to infant formula), and 1 infant (0%) was given soft porridge only and no milk.

Table III summarises the infant-feeding practices of the participants at the time of the study, according to age group.

In comparison, the exclusive breastfeeding rate for all participants in Emalahleni subdistrict was significantly higher than that in Mbombela subdistrict (Table IV). The mixed breastfeeding, exclusive replacement feeding and mixed replacement feeding rates were significantly higher in Mbombela subdistrict.

Table V illustrates the cumulative infant-feeding practices per age category at the time of the study, where only 15% of infants aged one month or younger received exclusive replacement feeding. The proportion of infants who received exclusive replacement feeding gradually increased with age; with up to 25% of infants aged six months and younger receiving exclusive replacement feeding.

Of the 434 infants for whom the delivery method was reported, 357 (82%) were born via normal vaginal delivery and 77 (18%) by Caesarean section. Overall, significantly more infants who were

Table III: Infant-feeding practices at the time of the study according to age category

Feeding practices at the time of the study	< 1 month	1-2 months	2-3 months	3-4 months	4-5 months	5-6 months	Total (0-6 months)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Exclusive breastfeeding	41 (77)	77 (68)	44 (54)	30 (41)	22 (38)	20 (36)	234 (54)
Mixed breastfeeding	4 (8)	9 (8)	13 (16)	14 (19)	17 (29)	17 (30)	74 (17)
Exclusive replacement feeding	8 (15)	26 (23)	23 (28)	28 (39)	12 (21)	13 (23)	110 (25)
Mixed replacement feeding	-	1 (1)	2 (2)	1 (1)	7 (12)	5 (9)	16 (3)
Soft porridge only	-	-	-	-	-	1 (2)	1 (1)
Total	**53 (100)**	**113 (100)**	**82 (100)**	**73 (100)**	**58 (100)**	**56 (100)**	**435 (100)**

Table IV: Infant-feeding practices at the time of the study by subdistrict

Infant-feeding practices at the time of the study	Emalahleni subdistrict	Mbombela subdistrict	p-value
	n (%)	n (%)	
Exclusive breastfeeding	131 (60)	103 (48)	0.067
Mixed feeding	47 (22)	43 (20)	0.673
Exclusive replacement feeding	39 (18)	71 (32)	0.005
Soft porridge only	1 (0)	0 (0)	
Total	**218 (100)**	**217 (100)**	

Table V: Cumulative infant-feeding practices at the time of the study by age category

Infant-feeding practices at the time of the study	< 1 month	< 2 months	< 3 months	< 4 months	< 5 months	< 6 months
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Exclusive breastfeeding	41 (77)	118 (71)	162 (65)	192 (60)	214 (56)	234 (54)
Mixed breastfeeding	4 (8)	13 (8)	26 (11)	40 (12)	57 (15)	74 (17)
Exclusive replacement feeding	8 (15)	34 (20)	57 (23)	85 (27)	97 (26)	110 (25)
Mixed replacement feeding	-	1 (1)	3 (1)	4 (1)	11 (3)	16 (4)
Soft porridge only	-	-	-	-	-	1 (0)
Total	**53 (100)**	**166 (100)**	**248 (100)**	**321 (100**	**379 (100)**	**435 (100)**

delivered by Caesarean, compared to infants delivered through a normal vaginal birth received infant formula as a first feed, i.e. 36% vs. 20%.

The relationship between the number of siblings and the feeding practice at the time of the study was an important finding. Mothers of first-born infants in this study were more likely to practise any form of mixed feeding. In contrast, mothers with at least one older child were more likely to practise either exclusive breastfeeding or exclusive replacement feeding. The number of siblings was significant in relation to current infant-feeding practice using the univariate test of significance (p-value 0.017).

Where a form of mixed feeding was practised (n = 91), infant formula (49%) was the most common feed given to infants as an alternative to breastmilk, followed by soft porridge (37%), a combination of infant formula and soft porridge (7%), as well as commercial complementary foods (2%), sweetened water (2%), yoghurt (1%), water (1%) and juice (1%).

The age at which complementary food was introduced

Overall, 72 (17%) infants had received complementary food at a mean age of introduction at 45 days. Of these, 42 (58%) received complementary food before one month of age, and all of them by four months of age.

Infants in Emalahleni subdistrict were introduced to complementary food at a mean age of 50 days, compared to those in Mbombela subdistrict who received complementary food for the first time at a mean age of 35 days. This difference was not statistically significant (p-value 0.07).

Twenty-eight mothers reported the discontinuation of breastfeeding. The mean age of discontinuation was one month. Of these mothers, 21 (75%) discontinued breastfeeding by the time the infant was one month old. The median age of discontinuation was 17 days.

Reasons cited for the discontinuation of breastfeeding included not having enough milk (27%), the mothers having ill health (22%) or needing to go back to work (18%) or studies (13%), the infants refusing breast milk (11%), the infants' medical condition (1%), the mothers' choice (1%) and the mothers' HIV status (1%).

Sources of information on infant feeding

Most mothers (66%) reported that healthcare workers had influenced their choice of infant feed, followed by their own mothers (8%), their own decision (4%), advice from their grandmothers (4%) or other unspecified relatives (4%), their mother-in-laws (4%) or the respondents' sisters (3%) or aunts (3%). Other influences included their life partners (3%) or their own fathers (1%).

The majority of mothers (95%) reported that healthcare workers were their main source of information on infant-feeding practices, while 20 (5%) said that they would consult a relative if they needed information.

Discussion

A number of international studies have illustrated a significant association between the BFHI and increased breastfeeding rates, as well as the duration of breastfeeding.[7,8,14,16-18] However, contradictory findings have been reported from studies in Australia,[19] Brazil[20] and the UK.[21] It was suggested in such studies that it was likely that policies that aimed to increase the proportion of maternity units participating in the BFHI would result in an increase breastfeeding initiation, but not its duration.

In this study, the hypothesis was that there would be significant differences between the feeding practices of babies born in facilities with baby-friendly status compared to those born in facilities without it. The hypothesis was supported for three of the five indicators tested. The early initiation of breastfeeding, exclusive breastfeeding rate and exclusive replacement feeding rate differed significantly between the two subdistricts. However, the age of introduction of complementary food, as well as the mixed feeding rate, did not differ significantly between the two subdistricts.

Early initiation of breastfeeding

Significantly more infants were put to the breast within an hour of birth in Emalahleni subdistrict, where the maternity facilities were baby friendly. However, the early initiation rate in this subdistrict was lower than what was expected in facilities which had been accredited as baby friendly. This may indicate that the baby-friendly practices were not consistently implemented. The further strenghthening thereof should be encouraged.

Although the majority of infants received breast milk as a first feed, almost a quarter received infant formula. In such instances, the mother's perception of "not having enough milk" was cited as the most common reason for not giving breast milk as a first feed.

Older mothers tended to give infant formula as a first feed, while younger mothers preferred to give breast milk. This concurs with the findings of an earlier study in Mpumalanga province, where the mother's age was associated with choosing infant formula as the feed method.[22] This may indicate that younger mothers are more likely to follow the advice of healthcare workers who promote exclusive breastfeeding.

Similar to several studies in which a Caesarean section was found to be a persistent barrier to the early initiation of breastfeeding,[23-26] in this study, significantly more infants delivered by Caesarean section received infant formula as a first feed, compared to those delivered via normal vaginal delivery. This finding pinpoints another area of concern, and the need for potential intervention with regard to the promotion of exclusive breastfeeding.

Exclusive breastfeeding

Before delivery, more mothers made a decision to exclusively breastfeed in Emalahleni subdistrict compared to those in Mbombela subdistrict. Almost all of the mothers reported that they had received antenatal counselling on how to feed their infants, and the majority indicated that healthcare workers had influenced their choice of infant feed. A deduction can be made from this finding that healthcare workers in Emalahleni subdistrict predominantly promoted breastfeeding to mothers-to-be, and that those in Mbombela subdistrict principally promoted infant formula feeding.

Overall, the exclusive breastfeeding rate for participants aged six months and younger in this study was significantly higher than that reported in the SANHANES,[6] i.e. 54% compared to 7%. The exclusive breastfeeding rate of infants aged 5-6 months in this study was 36%. This is similar to data from 94 developing countries, where the prevalence of exclusive breastfeeding was found to be 39% at six months.[27]

These findings are encouraging if the health and developmental benefits of breastfeeding are taken into consideration, as the promotion of exclusive breastfeeding up to six months is a national health priority. It seems as if the BFHI may be an effective intervention with which to promote breastfeeding beyond early initiation and practices in maternity facilities, similar to the findings of Abrahams and Labbok (in 14 developing countries).[7]

Exclusive replacement feeding

The overall exclusive replacement feeding rate in Mbombela subdistrict was significantly higher than that in Emalahleni subdistrict. The exclusive replacement feeding rate in Emalahleni subdistrict progressively declined with respect to younger infants (these infants were born after the Tshwane declaration and related policy announcement), compared to that for the older infants. The same did not apply to Mbombela subdistrict, where the policy announcement did not seem to have had the same effect in increasing exclusive breastfeeding. Considering the time of data collection for this study, which coincided with the phasing out of free infant formula, the promotion of exclusive breastfeeding may have contributed to the lower exclusive replacement feeding rate for younger infants in this study. It is possible that the policy directive may not have been well communicated and implemented in Mbombela subdistrict, resulting in a slower transition to the new recommendations.

Mixed feeding

It was concerning to note that the mixed feeding rate in Emalahleni subdistrict was slightly higher compared to that in Mbombela subdistrict. In addition, the exclusive breastfeeding rate in Emalahleni subdistrict progressively decreased according to the age of the infant. The mixed feeding rate increased as a result.

Although exclusive breastfeeding was promoted in the subdistrict with accredited baby-friendly facilities, it seems that mothers were not advised on the dangers associated with mixed feeding, not in practising exclusive breastfeeding for the first six months of life, or that other barriers existed which affected their ability to sustain exclusive breastfeeding.

The introduction of complementary food

The majority of infants who were given other feeds apart from milk had received complementary food by one month of age, and all of them by four months. In practice, food other than breast milk is frequently fed to infants before the recommended age of six months. MacIntyre et al found that 34% of infants in a study group in Ga-Rankuwa received complementary food by seven weeks of age, despite a breastfeeding initiation rate of 99%.[28] Similarly, it was found in studies in KwaZulu-Natal[29] and Limpopo[30] that complementary food was introduced at an average age of three months, and that exclusive breastfeeding up to the age of six months was almost non-existent. It was also found in an earlier study in Mpumalanga that complementary food was introduced at one month in 36%, and before four months in 92%, of cases.[31]

This highlights the critical need for members of the public health system to promote exclusive breastfeeding for six months, and also to provide support to breastfeeding mothers so that they can achieve this goal. As a first step, community healthcare workers should be adequately trained in lactation management in order to provide appropriate advice and support to mothers, to prevent and overcome breastfeeding challenges, and to prevent the early introduction of complementary food by sustaining the supply of breast milk in mothers.

This support should further be strengthened through breastfeeding support groups, as prescribed in step 10 of the Ten Steps to Successful Breastfeeding,[2] as well as social mobilisation, such as community dialogue and breastfeeding campaigns. In addition, the regulations relating to foodstuffs for infants and children,[32] published in December 2012, should prevent the undue marketing and promotion of inappropriate foodstuff for infants and children, and further protect exclusive breastfeeding.

Influences on infant-feeding decisions and the source of infant-feeding information

A mother's choice of infant feed is often influenced by external factors. As an example, in a rural Limpopo district,[31] approximately 45% of the mothers reported having introduced complementary food because they had been advised to do so by relatives, friends or healthcare workers. In addition, 35% introduced complementary food because their infants "were hungry" or "had not been sleeping" (4%). Additional reasons cited for not practising exclusive breastfeeding included giving water to prevent constipation, giving infant formula because of the perception that breast milk was insufficient for their infant's needs,[33] the mothers' need to return to their studies or work,[30] and for health reasons.

Similarly, most mothers (66%) in this study reported that healthcare workers had influenced their choice of infant feed. The vast majority (95%) said that healthcare workers were their main source of information on infant-feeding practices, again stressing the importance of healthcare workers remaining informed on infant-feeding recommendations.

Information on the respondents' HIV status was not collected in this study. In this regard, the lower HIV prevalence (29%) in pregnant women in Emalahleni subdistrict compared to that in Mbombela subdistrict (35%) was noted, and may have played a role in the choice of infant feed by the respondents at the time of transition with respect to the infant-feeding recommendations for HIV-exposed infants.

Conclusion

The findings of this study illustrate that the infant-feeding practices of mothers residing in a subdistrict where all the public health maternity facilities were baby friendly were more optimal with regard

to the early initiation of breastfeeding and exclusive breastfeeding, compared to those in the subdistrict where none of the facilities were baby friendly. It appears that the BFHI was successful in improving infant-feeding practices for at least the first six months of life. This supports the national directive of transforming public health maternity sections to be baby friendly by 2015.

Recommendations

In order to further optimise infant-feeding practices:

- Attention in infant-feeding policies should be paid to infants who are vulnerable to not being breastfed, including infants born by Caesarean section, and those born to older mothers and those with other children.
- As the main source of infant-feeding information, healthcare workers should keep up to date on infant-feeding recommendations. Breastfeeding promotion must be communicated widely, including messages which target the womens' partners and grandmothers, because of the influence that these individuals have on infant-feeding options and practices.
- A combination of breastfeeding-promotion systems, including the BFHI and community-based interventions, is needed to increase and sustain exclusive breastfeeding rates.
- Greater effort should be made to implement and sustain BFHI in all the subdistricts.

The BFHI provides a framework for all of the above recommendations. Therefore, efforts to achieve and sustain the baby-friendly accreditation of all public health maternity facilities should be effected in public health structures at all levels of care.

Further implementation of the BFHI continues in Mpumalanga province. Since this study, 19 additional public health maternity facilities in Mpumalanga province have been accredited as being baby friendly. This includes seven facilities in Ehlanzeni subdistrict, of which one hospital and one CHC are located in Mbombela subdistrict.

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