

Impact of counselling on exclusive breast-feeding practices in a poor urban setting in Kenya: a randomized controlled trial

Sophie A Ochola^{1,2,*}, Demetre Labadarios³ and Ruth W Nduati⁴

¹Division of Human Nutrition, University of Stellenbosch, Cape Town, South Africa: ²Department of Foods, Nutrition & Dietetics, Kenyatta University, PO Box 43844 00100, Nairobi, Kenya: ³Population Health, Health Systems and Innovation, Human Science Research Council, Cape Town, South Africa: ⁴Department of Paediatrics, Faculty of Health Sciences, University of Nairobi, Nairobi, Kenya

Submitted 10 January 2012: Final revision received 19 July 2012: Accepted 17 August 2012: First published online 8 October 2012

Abstract

Objective: To determine the impact of facility-based semi-intensive and home-based intensive counselling in improving exclusive breast-feeding (EBF) in a low-resource urban setting in Kenya.

Design: A cluster randomized controlled trial in which nine villages were assigned on a 1:1:1 ratio, by computer, to two intervention groups and a control group. The home-based intensive counselling group (HBICG) received seven counselling sessions at home by trained peers, one prenatally and six postnatally. The facility-based semi-intensive counselling group (FBSICG) received only one counselling session prenatally. The control group (CG) received no counselling from the research team. Information on infant feeding practices was collected monthly for 6 months after delivery. The data-gathering team was blinded to the intervention allocation. The outcome was EBF prevalence at 6 months.

Setting: Kibera slum, Nairobi.

Subjects: A total of 360 HIV-negative women, 34–36 weeks pregnant, were selected from an antenatal clinic in Kibera; 120 per study group.

Results: Of the 360 women enrolled, 265 completed the study and were included in the analysis (CG *n* 89; FBSICG *n* 87; HBICG *n* 89). Analysis was by intention to treat. The prevalence of EBF at 6 months was 23.6% in HBICG, 9.2% in FBSICG and 5.6% in CG. HBICG mothers had four times increased likelihood to practise EBF compared with those in the CG (adjusted relative risk = 4.01; 95% CI 2.30, 7.01; *P* = 0.001). There was no significant difference between EBF rates in FBSICG and CG.

Conclusions: EBF can be promoted in low socio-economic conditions using home-based intensive counselling. One session of facility-based counselling is not sufficient to sustain EBF.

Keywords

Exclusive breast-feeding
Breast-feeding counselling
Breast-feeding promotion
Randomized controlled trial
Kenya

Exclusive breast-feeding (EBF) promotion has been estimated to be the most effective intervention for saving the lives of young children, with the potential to prevent an estimated 13% of deaths in low-resource settings⁽¹⁾. WHO recommends EBF for 6 months⁽²⁾. In Africa only 32% of infants less than 6 months of age are exclusively breast-fed. African countries making major strides in EBF for infants less than 6 months old include Rwanda (88%), Ghana (63%), Uganda (60%) and Malawi (57%)⁽³⁾. Despite an increase in EBF rate in Kenya from 13.2% in 2003⁽⁴⁾ to 32.0% in 2009 for infants less than 6 months of age, the number of children who exclusively breast-feed drops significantly with age to 13.2% at 4–5 months⁽⁵⁾.

Peer counselling has been demonstrated to promote and sustain EBF rates^(6–13); however, there is limited evidence of this from Africa⁽¹⁴⁾. At the time of the present study there was only one study that tested the impact of high-intensity individual peer counselling to promote

EBF among HIV-infected women in KwaZulu Natal, South Africa⁽¹⁰⁾. A second study in Ghana⁽¹⁵⁾ tested the impact of health professionals in promoting EBF at community level. A recent study conducted in Uganda, Burkina Faso and South Africa has shown the positive impact of low-intensity community-based individual breast-feeding peer counselling on the improvement of EBF⁽¹⁶⁾.

The WHO/UNICEF Baby-Friendly Hospital Initiative (BFHI) has shown significant positive impacts on early EBF, but these efforts are not sustained^(11,17). In Kenya, interventions to promote EBF focus on health facilities, yet only five out of eighty maternity wards are designated 'Baby Friendly' (Nutrition Officer, Division of Family Health, Ministry of Health, personal communication, May 2008). Despite the fact that 91.5% of pregnant women make at least one antenatal clinic visit, only 42.6% of deliveries take place in health facilities⁽⁵⁾. Currently efforts are in place, to a limited extent, to initiate community-based breast-feeding

*Corresponding author: Email sochola@yahoo.com; ocholasa55@gmail.com

promotion programmes, but the majority of these initiatives are in the formulation or implementation stage, and thus their feasibility and impact are yet to be tested. The objective of the present study therefore was to investigate the impact of a home-based intensive counselling strategy and a facility-based semi-intensive breast-feeding counselling strategy to improve EBF rates in a low socio-economic urban setting in Nairobi, Kenya.

Methods

Study site

The study was conducted in the Kibera slum, Nairobi, Kenya. Kibera is densely populated and not well served with basic services such as health facilities, adequate safe water and sanitation services. The average house size is 3 m × 3 m, with an average household size of four or five people.

Study design

The study was a cluster randomized controlled trial conducted from April 2006 to April 2008. The study was composed of three study groups: (i) a control group, referred to as CG; (ii) an experimental group 1, referred to as the facility-based, semi-intensive counselling group (FBSICG); and (iii) an experimental group 2, referred to as the home-based intensive counselling group (HBICG).

The study was approved by the Ethical Committee for Human Research, University of Stellenbosch, Cape Town (N04/07/105) and the Kenya Medical Research Institute (KEMRI) National Ethical Review Committee (KEMRI/RES/7/3/1). In addition, consent was given by the Nairobi City Council to recruit study participants at the Lang'ata Health Centre (PHD/MPH/R1 VOL1 (12) 2005).

Sample size calculation

The required sample size was 360, i.e. 120 per study group. This was calculated based on the following considerations: 90% power of the test; 10% pre-intervention prevalence rate; 30% post-intervention prevalence rate; and 5% level of significance. This formula gave a sample size of ninety-eight, inflated by 20% to make it 120 because of the possible mobility of study subjects living in informal settlements.

Randomization

Nine out of the ten villages in Kibera were randomly assigned to the three study groups on a 1:1:1 ratio. Villages rather than women were randomized to prevent cross-contamination of expected influences if close neighbours were assigned to different study groups. The randomization was computer-generated using the Microsoft[®] Excel 2003 software package. A woman was assigned to a study group based on the village of residence. The identification and placement of the participants into the three study groups was conducted by the principal investigator at the Lang'ata Health Centre in Kibera, assisted by the nurse-in-charge of

the antenatal clinic. The health centre was not designated 'Baby Friendly' at the time of the study.

Study participants

The study participants were pregnant HIV-negative women reporting at the health centre for antenatal services. The inclusion criteria were: (i) in the third trimester of pregnancy, 34–36 weeks' gestation; (ii) HIV negative; (iii) intention to stay in Kibera for at least 6 months after delivery; (iv) willing to be visited at home; (v) absence of documented chronic diseases such as diabetes mellitus, renal disease, heart disease or any other chronic disease, and no eclampsia in a previous pregnancy; and (vi) willing to be included in the study. The purpose of the study was explained to the eligible mothers, without revealing the study hypotheses. Recruitment was based on informed written consent by signature or thumb print. The randomization was done during the first contact with the mother. The screening process continued until 120 eligible study participants were recruited into each of the three study groups.

Selection and training of peer counsellors

Three females with a minimum of secondary level of education and residing in the study area were recruited as breast-feeding counsellors. The counselling content for training included: (i) benefits of breast-feeding, with an emphasis on EBF; (ii) preparation for breast-feeding; (iii) initiation and management of common breast-feeding problems; and (iv) introduction of complementary foods. The content was based on the WHO/UNICEF counselling course⁽¹⁸⁾ and a book, *Helping Mothers to Breastfeed*⁽¹⁹⁾. The training was conducted by the principal investigator over 40 h. Counselling skills were taught through demonstration and role play, followed by practical training in an area similar to, but not, the study site.

Selection and training of enumerators

Three enumerators (different from the peer counsellors) were selected based on the same criteria as those for breast-feeding counsellors. The enumerators underwent a 5 d training conducted by the principal investigator. The role of the enumerators was to conduct monthly interviews with the mothers to solicit for information on their infant feeding practices.

Blinding design

Only the investigator and the peer breast-feeding counsellors were aware of the treatment given to the experimental groups. The hypotheses of the study could not be concealed from the peer counsellors, since they were offering education to mothers and encouraging the practice of EBF. The enumerators conducting the interviews to determine breast-feeding practices were blinded to the study hypotheses to avoid any likelihood of bias in the way they asked questions, even though they were trained to ask questions in a standard way. There was no contact between

the enumerators and the breast-feeding counsellors. The nurse-in-charge at the Lang'ata health facility was blinded to the intervention allocation.

Description of interventions

Control group (CG)

Mothers in the CG received only the usual standard health and nutrition education offered at the Lang'ata Health Centre by the health staff (Nutrition Officer, personal communication, January 2006). The standard nutrition education was offered to women in group sessions, not on a consistent basis but rather depending on time constraints and staff availability to conduct such sessions. Nutrition education was allocated about a third of the time allowed for health education (1 h/week). Breast-feeding promotion was one out of about ten topics covered during such sessions. No additional counselling on breast-feeding, by the research team, was provided to the study participants in this group.

Facility-based semi-intensive counselling group (FBSICG)

The mothers in FBSICG received one session of one-on-one counselling at the Lang'ata Health Centre conducted by the investigator and the breast-feeding counsellors during the first week after enrolment into the study. The counselling lasted 30–40 min. The counselling content was structured around the benefits of EBF; preparation for breast-feeding; initiation and sustainability of breast-feeding; positioning and attachment of baby to the breast during feeding; and prevention and management of breast-feeding challenges such as gorged and cracked nipples^(18,19). The mothers in the FBSICG therefore received counselling focused on breast-feeding; this was different from that received in the general health and nutrition education by the CG. Furthermore, the one-on-one approach offered mothers individualized attention; therefore the counsellor could address individual maternal problems and concerns. This approach also offered mothers an opportunity to ask for clarification on issues affecting them individually.

After this session with the research team, mothers in this group did not receive any other continued education or breast-feeding support postpartum. Nevertheless, these counselling encounters with the mothers were important, given that many mothers did not attend the clinic consistently and were thus likely to miss out altogether on health and nutrition education.

Home-based intensive counselling group (HBICG)

The HBICG mothers were visited in their homes where they received a total of seven counselling sessions. The counselling sessions were scheduled as follows: the first session (prenatally), within the first week after enrolment into the study; the second during the first week after delivery; and the third to seventh monthly up to 5 months postpartum. The content was similar to that given to the mothers in FBSICG, but repeated at the additional counselling sessions

depending on individual maternal needs as requested by the mothers. The HBICG received more detailed counselling and continued breast-feeding support up to 5 months after delivery, whereas the mothers in FBSICG did not receive this treatment. Additionally, mothers in HBICG had more practical exposure to issues such as attachment and position of baby at the breast during breast-feeding and expression of breast milk. The mothers were freer to seek clarification on breast-feeding issues at home than at the health facility; this was because of the rapport between the mothers and counsellors. The counselling sessions took place at the maternal house to allow for uninterrupted privacy.

Determination of breast-feeding practices

The primary outcome was the prevalence of EBF at 1, 3 and 6 months determined on 24 h recalls. The secondary outcome was cumulative (since birth) EBF determined at 6 months. Infants who received only breast milk and/or medicines or oral rehydration solutions were categorized as exclusively breast-fed⁽²⁾.

Interviews

The study questionnaires were developed and face-validated. The questionnaires were subjected to multiple pre-tests during their development and finally piloted-tested and refined for clarity and accuracy. A total of four interviews were conducted for the CG and FBSICG: a baseline interview within the first week after enrolment into the study; the second interview within the first month after delivery; the third interview within the third month; and the fourth and final interview at 6 months after delivery. A total of seven interviews were conducted for the HBICG as follows: a baseline interview within the first week of enrolment into the study; the second interview within the first month after delivery; and the rest (third to seventh) monthly with the final interview at 6 months (24 weeks).

Pilot-testing

All of the study procedures were pilot-tested among thirty-two females from an area in Nairobi comparable to the study site. The feedback was used to make the necessary respective changes.

Statistical analysis

Data were analysed using the statistical software packages STATISTICA version 8 and SPSS version 15.0. Continuous data with a normal distribution were assessed using the *t* test and ANOVA, with the Mann–Whitney test used for data with a non-normal distribution. The χ^2 test and cluster-adjusted relative risk (ARR) were used to test relationships between categorical variables. The prevalence rates of EBF were assessed cross-sectionally at 1, 3 and 6 months based on feeding patterns over 24 h. Cumulative (since birth) EBF rates were assessed by Kaplan–Meir survival analysis. Analysis was by intention to treat. The significance level was set at $P < 0.05$.

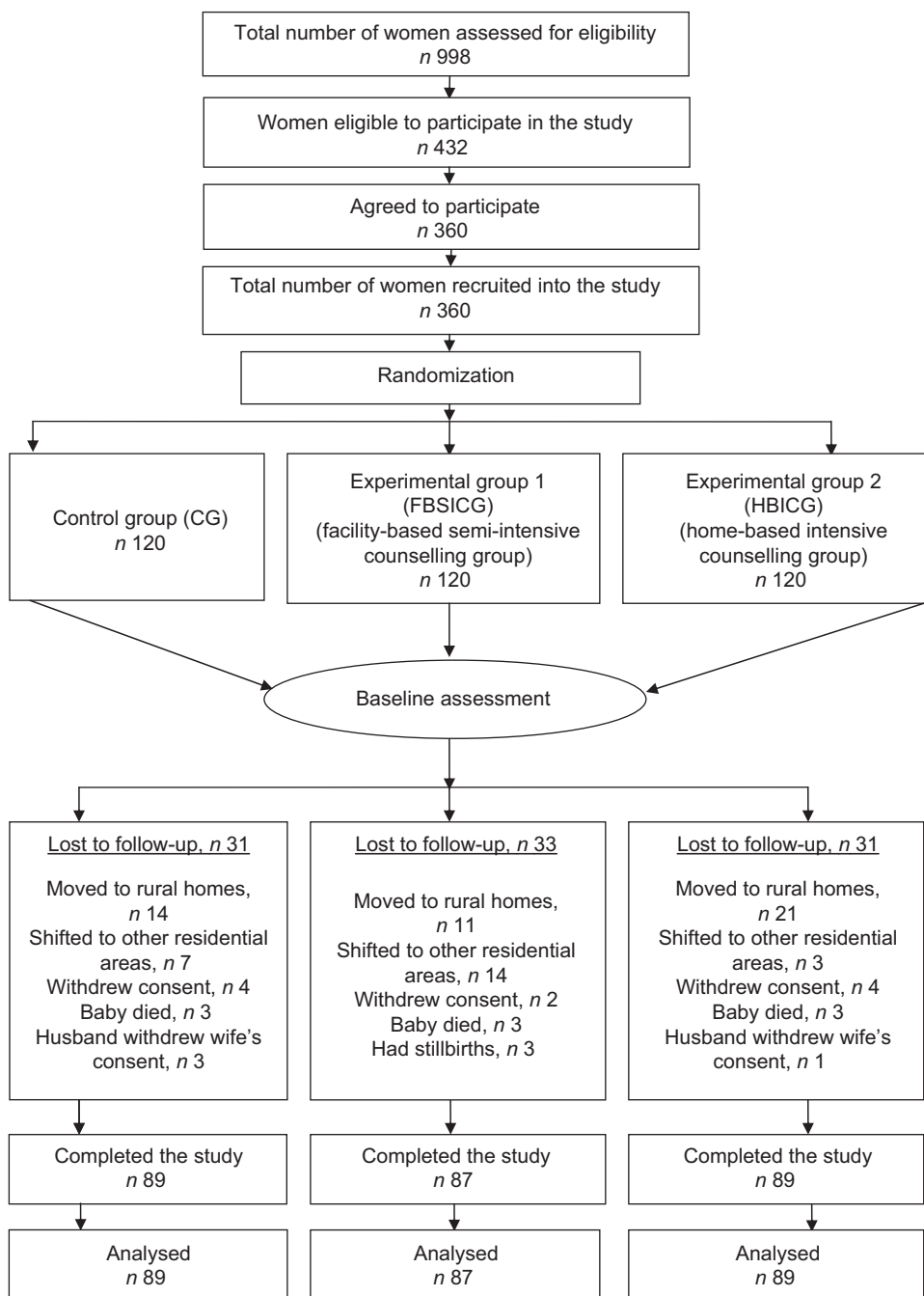


Fig. 1 Schematic representation of the recruitment process for participants included in the study

Results

Recruitment process and trial profile for study participants

A total of 432 of the 998 women contacted were invited to participate in the study. Of the potential 432 participants, 360 (83.3%) consented to participate and were therefore enrolled into the study. Most (n 42) of the seventy-two eligible women refusing to participate in the study did not reveal the reasons for this decision; a minority (n 8)

cited failure to disseminate results of many previously conducted studies in Kibera and perceptions that community members did not benefit from research studies (n 22). The 360 study participants were randomized into the three study groups of 120 women per group; the CG, FBSICG and HBICG. Thirty-one, thirty-three and thirty-one participants from the CG, FBSICG and HBICG, respectively, were lost to follow-up; thus leaving eighty-nine, eighty-seven and eighty-nine participants per respective group completing the study (Fig. 1).

Table 1 Baseline comparison of key demographic, household socio-economic and peri-natal characteristics for the study groups: HIV-negative women (*n* 360), 34–36 weeks pregnant at baseline, Kibera slum, Nairobi, Kenya

Characteristic	Study group						<i>P</i> value (χ^2 and ANOVA)
	CG (<i>n</i> 120)		FBSICG (<i>n</i> 120)		HBICG (<i>n</i> 120)		
	<i>n</i> , mean or median	%, SD or range	<i>n</i> , mean or median	%, SD or range	<i>n</i> , mean or median	%, SD or range	
Demographic characteristics							
Maternal age (years)							0.369
Mean, SD	24.1	5.0	24.5	5.4	24.8	5.4	
Median, range	23	16–39	25	17–40	25	17–40	
Maternal education							0.831
Primary	90	75.0	91	75.8	90	75.0	
Secondary	30	25.0	29	24.2	30	25.0	
Married women	110	91.7	12	93.3	111	92.5	0.466
Maternal occupation							0.220
Housewife	88	71.7	73	60.8	92	76.7	
Formally employed	12	10.0	14	10.0	14	11.7	
Self-employed	12	10.0	22	18.3	15	12.5	
Household characteristics							
Household size							0.130
Mean, SD	3.8	1.7	3.5	1.3	3.9	1.8	
Median, range	4.0	2–10	3.0	1–7	3.0	1–10	
Monthly house rent†							0.294
Mean, SD	709	306	712	382	654	259	
Median, range	700	200–2000	600	100–3000	500	300–1800	
Living in rented house	117	97.5	115	95.8	116	96.7	0.770
Lighting source							0.594
Kerosene	101	84.1	95	79.2	99	82.5	
Electricity	19	15.8	25	20.8	21	17.5	
Cooking fuel							0.523
Kerosene	82	68.3	85	70.8	83	69.2	
Charcoal	34	28.3	31	25.8	36	30.1	
Ownership of items							
Television	28	23.3	34	29.2	29	24.2	0.538
Radio	110	91.7	102	85.0	105	87.5	0.262
Telephone	54	45.0	48	40.0	51	68.3	0.736
Land	82	68.3	79	65.8	82	68.3	0.892
Sofa-sets	75	62.5	72	60.0	73	60.8	0.931
Peri-natal characteristics							
1st ANC visit (weeks), mean	25.8	–	25.8	–	25.9	–	0.592
No. of ANC visits, mean	3.1	–	3.2	–	3.1	–	0.981
Parity, mean	1.6	–	1.5	–	1.6	–	0.715
Knowledge about feeding practices							
Breast milk first feed	98	81.7	107	89.2	104	86.7	0.481
Start breast-feeding in 1 h	42	35.0	62	51.7	54	45.0	0.027*
Breast-feed for 2 years	73	60.8	85	60.8	85	70.8	0.243
EBF for 6 months	26	21.7	23	19.2	31	25.8	0.369

CG, control group; FBSICG, facility-based semi-intensive counselling group; HBICG, home-based intensive counselling group; ANC, antenatal clinic; EBF, exclusive breast-feeding.

Data are presented as *n* and % unless indicated otherwise.

*Significant difference (χ^2 test): $P < 0.05$.

†Amount in Ksh (Kenya shillings); 70 Ksh = \$US 1 (June 2006).

Baseline comparisons

All three study groups were similar in all respects at baseline, with the exception of one variable: maternal knowledge on the timing of initiation of breast-feeding. A significantly higher percentage of mothers from the FBSICG, compared with those from the CG, stated breast-feeding should be initiated within 1 h of birth (χ^2 test, $P = 0.027$; Table 1). Of the mothers included in the study, those lost to follow-up were more likely to be younger (median age 22 years, range 15–40 years) than those who completed the study (median age 24 years, range 16–42 years; *t* test, $P = 0.023$; Table 2).

Impact of the intervention

Prevalence of exclusive breast-feeding at 1, 3 and 6 months

At 1 month, significantly higher percentages of mothers in the FBSICG (84.3%) and the HBICG (87.0%) were exclusively breast-feeding compared with those in the CG (72.0%; Table 3). At 3 months there was a significant reduction in the percentages of mothers practising EBF in all three study groups. In the HBICG, 61.4% of the mothers were practising EBF compared with 36.8% in the CG and 47.2% in the FBSICG. Mothers in the

Table 2 Comparison of mothers lost to follow-up and those who completed the study on key demographic, household socio-economic and peri-natal characteristics: HIV-negative women (*n* 360), 34–36 weeks pregnant at baseline, Kibera slum, Nairobi, Kenya

Characteristic	Study group				<i>P</i> value (χ^2 and Mann–Whitney tests)
	Completed study (<i>n</i> 265)		Dropped out of study (<i>n</i> 95)		
	<i>n</i> , median or mean	%, range or SD	<i>n</i> , median or mean	%, range or SD	
Demographic characteristics					
Maternal age (years)					0.023*
Median, range	24	16–42	22	15–40	
Education					0.541
Primary	199	75.1	72	75.8	
Secondary	66	24.9	23	24.2	
Married women	248	93.6	85	89.5	0.101
Maternal occupation					0.887
Housewife	182	68.7	69	72.6	
Formally employed	25	9.4	9	9.5	
Self-employed	88	14.3	11	11.6	
Household characteristics					
Household size					0.798
Mean, SD	3.9	1.8	3.9	1.9	
Monthly house rent†					0.813
Mean, SD	694.0	345.5	684.8	351.6	
Living in rented house	256	96.6	92	96.8	0.911
Ownership of items					
Television	68	25.7	24	25.3	0.939
Radio	233	87.9	84	88.4	0.898
Telephone	119	44.9	34	35.8	0.155
Land	179	67.5	64	67.4	0.975
Plot	16	6.0	10	10.5	0.162
Sofa-sets	165	62.3	55	57.9	0.455
Peri-natal characteristics					
1st ANC visit (weeks), mean	25.9	–	25.6	–	0.547
No. of ANC visits, mean	3.2	–	3.0	–	0.352
Parity, mean	1.5	–	1.7	–	0.442
Knowledge about feeding practices at baseline					
Breast milk first feed	223	84.2	86	90.5	0.136
Start breast-feeding in 1 h	16	43.8	42	44.2	0.071
Breast-feed for 2 years	168	63.4	67	70.5	0.887
EBF for 6 months	53	20.0	27	28.4	0.201

ANC, antenatal clinic; EBF, exclusive breast-feeding.

Data are presented as *n* and % unless indicated otherwise.

*Significant differences (Mann–Whitney test for means): *P* < 0.05.

†Amount in Kenya shillings (Ksh); 70 Ksh = \$US 1 US (June 2006).

HBICG were about two times more likely to practise EBF compared with those in the CG. There was no significant difference in the proportion of mothers practising EBF in the FBSICG and the CG. At 6 months the same trend was observed; mothers from the HBICG had a four-fold increased likelihood of practising EBF than those in the CG. Again, there was no significant difference in the practice of EBF among mothers in the FBSICG and the CG.

Proportion of mothers practising exclusive breast-feeding since birth (cumulative rate at 6 months)

At 6 months, the cumulative proportion of mothers practising EBF was 3.2% from the CG, 6.9% from the FBSICG and 15.6% from the HBICG. Mothers from the HBICG were three and a half times more likely (ARR = 3.40; 95% CI 1.34, 8.80; *P* = 0.010) to practise EBF than those from the CG. Mothers from the FBSICG were one and a half times more likely to practise EBF (ARR = 1.46;

95% CI 0.49, 4.33; *P* = 0.494) than those from the CG, but this difference was not significant. The mean duration of EBF in the CG was 1.4 (SD 1.4) months, 1.8 (SD 1.6) months in the FBSICG and 2.4 (SD 1.9) months in the HBICG.

Discussion

The present study is the first and only one so far in Kenya to test and document the impact of facility-based and community-based peer counselling on EBF. The home-based intensive breast-feeding counselling strategy significantly improved EBF rates from birth to 6 months, whereas the facility-based semi-intensive counselling strategy significantly improved EBF at 1 month postpartum only. The findings of the study add to the body of knowledge that EBF can be achieved more successfully with regular contact with mothers. Additionally, the study findings offer scientific evidence for the implementation

Table 3 The impact of counselling strategies on maternal infant feeding practice of exclusive breast-feeding by time and study group: HIV-negative women (*n* 360), 34–36 weeks pregnant at baseline, Kibera slum, Nairobi, Kenya

Age of infant	Infant feeding practice	Study group		
		CG	FBSIC	HBIC
1 month	EBF	<i>n</i> 97	<i>n</i> 102	<i>n</i> 100
		<i>n</i> 70, 72.0%	<i>n</i> 86, 84.3%	<i>n</i> 87, 87.0%
		1.00 (Ref.)	RR = 1.17; 95% CI 1.00, 1.36; <i>P</i> = 0.041*	RR = 1.21; 95% CI 1.04, 1.39; <i>P</i> = 0.011*
3 months	EBF	<i>n</i> 87	<i>n</i> 91	<i>n</i> 91
		<i>n</i> 32, 36.8%	<i>n</i> 43, 47.2%	<i>N</i> 56, 61.4%
		1.00 (Ref.)	RR = 1.28; 95% CI: 0.90, 1.83; <i>P</i> = 0.161	RR = 1.67; 95% CI 1.21, 2.30; <i>P</i> = 0.002**
6 months	EBF	<i>n</i> 89	<i>n</i> 87	<i>n</i> 89
		<i>n</i> 5, 5.6%	<i>n</i> 8, 9.2%	<i>n</i> 21, 23.9%
		1.00 (Ref.)	RR = 1.64; 95% CI 0.56, 4.81; <i>P</i> = 0.371	RR = 4.20; 95% CI 1.66, 10.64; <i>P</i> = 0.002**
		1.00 (Ref.)	ARR = 1.53; 95% CI 0.87, 2.68; <i>P</i> = 0.138	ARR = 4.01; 95% CI 2.30, 7.01; <i>P</i> < 0.001**

CG, control group; FBSICG, facility-based semi-intensive counselling group; HBICG, home-based intensive counselling group; EBF, exclusive breast-feeding; Ref., reference category; RR, relative risk; ARR, cluster-adjusted relative risk.

*Significant difference (RR and ARR test): *P* < 0.05.

**Significant difference (RR and ARR test): *P* ≤ 0.001.

and strengthening of community-based breast-feeding promotion strategies, or both, to complement the hospital-based efforts in achieving the WHO goal of EBF for 6 months⁽²⁾. What is needed, however, is a referral system between the health facilities and the community-based peer counsellors. In the present study, only mothers with breast-feeding challenges that could not be handled by the research team such as engorged and cracked nipples were referred to the nearby health facilities. No observations were conducted by the research team at the health facilities to determine the services provided to such women.

In spite of the knowledge of the importance of EBF and the intensive home-based follow-up and support offered in the present study, only 15.6% of the mothers consistently exclusively breast-fed for up to 6 months. Results of qualitative data from the study⁽²⁰⁾ (data not shown) illustrate that the major challenges to the practice of EBF, even after the intensive counselling received, were: cultural perceptions about EBF resulting from family and societal pressure to introduce complementary feeding; the misconception about inadequacy of breast milk production; practical perceptions about the excessive demands on maternal time against other competing responsibilities; and maternal absence from home for long periods of time. Similar findings have been reported in other studies^(21–23).

The present study shows that changing the mind-set of mothers to practise EBF requires intensive home-based breast-feeding support. The benefits of EBF particularly in low-income countries have been documented^(24,25) and there is no doubt that programmes promoting breast-feeding should be implemented. There is, however, scanty

information on the feasibility and cost-effectiveness of the sustainability of community-based strategies in promoting EBF particularly in sub-Saharan Africa. A recent study conducted in Uganda⁽²⁶⁾ demonstrated that EBF promotion in sub-Saharan Africa is feasible and can be implemented at a sustainable cost using peer educators. The national policy in Kenya is to promote exclusive breast-feeding through the BFHI and more recently the health sector has embraced the Community Health Strategy in the promotion of health-related activities and the strategy is in the process of being rolled out⁽²⁷⁾. This strategy involves the recruitment and training of volunteer community health workers who are assigned a specific number of households to support in health-related activities. The community health workers are well placed to promote appropriate infant feeding practices. This approach, if successful, can be implemented at minimum cost as part of the existing public health programmes with high chances of sustainability.

The findings of the present trial in Kenya are in agreement with those of other studies which have consistently demonstrated the efficacy of home-based counselling in increasing the prevalence of EBF, even though the rates fall short of meeting the WHO EBF goal^(6–8,10–13,15). It would appear that mothers need continuous support for sustained EBF. Available evidence from Mexico⁽⁶⁾ suggests that a dose–response relationship exists between the number of visits to the mother and the likelihood of EBF. In the present study, the home-based intensive breast-feeding counselling strategy significantly improved EBF rates at 1, 3 and 6 months. On the other hand, the facility-based semi-intensive counselling significantly improved EBF rate at 1 month only.

This demonstrates the critical role of frequent counselling and continuous support in the sustenance of EBF; a finding in agreement with those of other studies^(6–8,10–13,15,16). In the present study, at 6 months, there was a fourfold increased likelihood for mothers in the HBICG to practise EBF compared with mothers in the CG. Currently, the national rate of EBF in Kenya for infants aged 4–5 months, based on cross-sectional data, is only 13.2%⁽⁵⁾. The present study has therefore significantly improved EBF in a low-resource setting.

The rate and the increase in the mean duration of EBF achieved by the home-based intensive counselling strategy in our study were lower than what we had anticipated. The EBF rate was lower than those reported in previous studies. Unlike in the present study, the studies in Mexico⁽⁶⁾, Ghana⁽¹⁵⁾ and KwaZulu Natal, South Africa⁽¹⁰⁾ were conducted in areas with an active BFHI focus. In the studies conducted in Bangladesh⁽⁷⁾, Ghana⁽¹⁵⁾ and KwaZulu Natal, South Africa⁽¹⁰⁾, there were more home visits than in the present study to promote EBF. Another striking difference between the previous studies and the present one was the scheduling of counselling visits. In these other studies, weekly visits were made in the first few weeks of life whereas in our study one visit was made in the first week followed by monthly visits up to 5 months postpartum. The intensity of the counselling in our study was therefore less and may explain the differences in the EBF rates. Furthermore, in Ghana, the national EBF rate for infants <6 months is much higher (60.0%)⁽³⁾ than in Kenya⁽⁵⁾, indicating that the background prevalence of EBF affects the final outcome. The cited study in Ghana⁽¹⁵⁾ was conducted during an ongoing EBF promotion period in Ghanaian hospitals. A previous exploratory Ghanaian study⁽²⁸⁾ showed that 98.1% of females attending child welfare clinics had heard about EBF. In the present study, less than a quarter (22.2%) of the mothers knew of EBF for 6 months at baseline. In the Ghanaian study⁽¹⁵⁾, one of the study hospitals intensified breast-feeding promotion during the period of recruitment of women into the study in preparation for assessment to be a Baby-Friendly Hospital. The majority of the women in the Ghanaian study delivered in health facilities, unlike in the present study in which over half of the women delivered at home. In the Ghanaian study, nurses and nutritionists trained in lactation management conducted breast-feeding counselling whereas in our study the breast-feeding promotion was conducted by peer counsellors.

In Ghana⁽¹⁵⁾, the study design did not allow for testing whether the effect was due to general counselling or repeated contact with the research personnel because a group having no contact with the research personnel was not included, unlike in the present study in which the CG had no contact with the research team. In the present study, the interviewers were blinded to the study purpose and hypotheses and contact with the breast-feeding counsellors was minimized.

Recent evidence from a study conducted in Uganda, Burkina Faso and South Africa suggests that low-intensity individual breast-feeding counselling is achievable and can be used to effectively increase EBF in many sub-Saharan African settings⁽¹⁶⁾. That study differed from the present one in that the prevalence of EBF was determined on a 7 d and 24 h recalls and did not establish cumulative EBF rates. Unlike in the present study, breast-feeding counselling was offered to and information on feeding practices collected from breast-feeding women in the selected clusters irrespective of whether they had been sampled or not. The aim of that study was unlike the present study, to assess the potential for scale up of individualized community-based peer counselling⁽¹⁶⁾.

One limitation of the present study was the higher number of interviews conducted in the HBICG compared with the FBSICG and the CG. The interview process can act as a prompt for compliance with the required practice and may be associated with increased reporting of the socially desirable behaviour⁽²⁹⁾. The purpose of the higher number of interviews was to monitor breast-feeding challenges experienced by the mothers for timely intervention by the research team. This enabled the research team to offer continuous support to the mothers.

In view of the intensive training approach implemented in this community trial, which resulted only in modest improvements in EBF rates, the present study identifies the urgent need to devise complementary and new multi-faceted approaches to improve counselling methods currently employed in promoting EBF. Therefore, innovative approaches in the promotion of breast-feeding are required. In addition to the home-based counselling approach, other community-based strategies such as seminars at community and church meetings and mother-to-mother support groups would allow for wider dissemination, targeting other stakeholders such as fathers and grandmothers of children. Multiple channels have been shown to achieve better impact and consistency in advice⁽³⁰⁾.

Conclusions

It is feasible to promote and sustain EBF for 6 months in low socio-economic environments using the home-based intensive counselling strategy, even though the rate achieved was modest. On the contrary, the facility-based semi-intensive counselling strategy was effective in initiating EBF, but did not sustain the practice beyond 1 month as it did not provide the continuous support necessary to motivate mothers to continue with the practice of EBF. We therefore recommend the use of community-based breast-feeding initiatives to complement hospital-based programmes to accelerate the achievement of the WHO goal of EBF for 6 months. However, research is needed to identify the most feasible and cost-effective community-based approaches in promoting EBF in different contexts.

Acknowledgements

Source of funding: This study was supported by the Nestlé Foundation in its entirety, but the funder had no input in or influence on the conception, design or implementation of the trial or in the writing of this manuscript. This trial was in fulfilment for a PhD in Nutritional Sciences for the corresponding author at the University of Stellenbosch, Cape Town. *Conflicts of interest:* The authors declare no conflicts of interest. *Authors' contributions:* S.A.O. participated in the conceptualization of the study, collected the data and had primary responsibility for the final content of the manuscript. D.L. participated in the conceptualization of the study and the writing of the manuscript. R.W.N. participated in the conceptualization study and the writing of the manuscript. All authors read and approved the final manuscript. *Acknowledgements:* The authors thank Professor D.G. Nel (Statistician, Stellenbosch University) for statistical input and data analyses.

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