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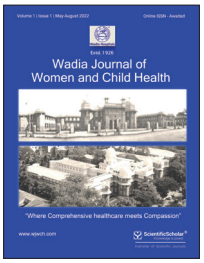

Original Article

An alternative communication model for breastfeeding intervention in antenatal clinics

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ABSTRACT

Objectives: This study evaluated the effectiveness of the dual-feedback loop communication model in countering misconceptions about exclusive breastfeeding among pregnant women attending routine antenatal clinic at Specialist Hospital, Yola Adamawa State, Nigeria. The specific objectives of the study are to: (a) Use a pre-test to identify misconceptions pregnant women have on exclusive breastfeeding; (b) implement a behavior change intervention that targets the knowledge, attitude, and practices (KAPs) of pregnant women; and (c) administer a post-test to determine a variance in the KAPs of pregnant women after the intervention.

Material and Methods: A mixed-method design that combines quantitative and qualitative methods was adopted for the study. Data for the study comprised health talks delivered in antenatal clinics and responses of cross-section of participants in pre- and post-tests. Thirty-three (33) pregnant women selected purposively served as participants for the study. Participants who met the inclusion criteria had previously breastfed and have been attending the routine antenatal clinical sessions at Specialist Hospital, Yola. The rhetorical structure of the health talks were examined based on insights from discourse and communication theories.

Results: Results of the qualitative analysis revealed misconceptions on exclusive breastfeeding arising from inadequate (K)nowledge, poor (A)ttitudes, and unhealthy (P)ractices. The quantitative analysis revealed significant variation between maternal (K)nowledge (KEBF r = 0.636, $P > 0.05$), (A)ttitude (AEBF r = 0.595, $P > 0.05$), and (P)ractices (PEBF r = 0.757, $P > 0.05$) on exclusive breastfeeding and the intervention's impact.

Conclusion: Misconceptions about exclusive breastfeeding and defects in the communication model used in delivering health talks perpetuate misconceptions among pregnant women attending antenatal clinic in the health facility studied. Empowering pregnant women attending antenatal clinics with requisite knowledge of the health benefits of exclusive breastfeeding using a dual-feedback loop communication model can promote compliance to exclusive breastfeeding, which, ipso facto, can reduce the incidence of child mortality resulting from non-compliance to exclusive breastfeeding. Further research is needed to test the effectiveness of the dual-feedback loop model in countering misconceptions in other health talks in Nigeria.

Keywords: Misconceptions, Exclusive breastfeeding, Dual-feedback loop communication model, Specialist hospital Yola

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INTRODUCTION

The exclusive breastfeeding approach to child nutrition has been identified as an effective means of reducing child mortality and achieving life-long benefits in terms of infants, maternal, and public health.[1,2] Studies have shown that children who are exclusively breastfed are less prone to early death resulting from gastrointestinal infections, tonsillitis, leukemia and lymphoma, neurological disorders, as well as lower and upper respiratory tract infections (RTIs).[2-5] Exclusive breastfeeding protects children against diarrhea and pneumonia, which are leading causes of deaths in children under 5 years of age.[6] McGowan and Bland reported a significant association between exclusive breastfeeding and increased cognition and psychomotor functions in infants.[7]

Exclusive breastfeeding reduces the risks of early menopause, regulates the association between prenatal and postnatal depression, reduces postpartum hemorrhage, facilitates the expulsion of placenta, and expedites the recovery from the trauma of childbirth and labor.[6-9] North *et al*., estimated that about 200,000 lives of infants that are less than 5 years of age could be saved in low medium income countries (LMICs) if early, exclusive, and continued breastfeeding rates were linearly increased from current rates.[6]

Despite the numerous benefits of exclusive breastfeeding to infants, it has been reported that more than 101.1 million children in LMICs were not breastfed according to international standards due to conceptual, cultural, and systemic factors.[6] There is also the issue of defects in the communication model used in antenatal clinic while delivering health talks.[10]

The aim of this study, therefore, is to evaluate the effectiveness of the dual-feedback loop communication model in countering misconceptions about exclusive breastfeeding among pregnant women attending antenatal clinic at Specialist Hospital, Yola Adamawa State, Nigeria. The specific objectives of the study are to: (a) Identify misconceptions pregnant women on exclusive breastfeeding as a baseline; (b) implement behavior change through an intervention that targets the knowledge, attitude, and practices (KAPs) of pregnant women; and (c) determine a variance in the KAPs of pregnant women after the project's intervention. To achieve these objectives, a null hypothesis was proposed, which questions the effectiveness of the dual-feedback loop communication model in countering misconceptions on exclusive breastfeeding among pregnant women attending the routine antenatal clinic at a health facility.

Misconceptions on health benefits and practice of exclusive breastfeeding: A systemic review

Misconceptions and myths about exclusive breastfeeding have been reported in several Asian and African countries.[11-14] Amzat *et al*. reported that women have the erroneous notions that colostrum is dirty and harmful to newborns and that prelactal feeding cleanses the infant's gastrointestinal tract, quenches thirst, flushes the bladder, and helps the mother to rest after childbirth.[11] Kausar *et al*.'s systematic review of cultural misconceptions and myths about breastfeeding in Pakistan, India, Egypt, and Indonesia reported misconceptions such as colostrum is dirty, poisonous, and indigestible. Other forms of misconceptions reported are that: Infants need water to supplement breast milk; exclusive breastfeeding practice is not sustainable; exclusive breastfeeding is painful, weakens a woman, and sags the breasts; mothers should not breastfeed if suffering from cold; mother's milk stops when exposed to an evil eye; and that infants are regretting being fed with breast milk. [12,13]

Tyndall *et al*. reported that breastfeeding mothers in Adamawa State, Nigeria, believe that colostrum is stale milk; breast milk lacks sufficient nutrients; expressed breast milk is contaminated milk; exclusive breastfeeding flattens the breasts and causes RTIs; and that the climate of the region makes exclusive breastfeeding inappropriate for infants because children can easily become dehydrated.[14] Nsiah-Asamoah *et al*. reported that Ghanaian mothers and grandmothers believe that breast milk is watery; does not satisfy infants and babies gain weight faster when infant formula is supplemented with breast milk.[15]

Ogundare *et al*. reported that female students of tertiary institutions in Ekiti, South-Western Nigeria, nurture a misconception that exclusive breastfeeding makes the breast sag.[16] Another common misconception is that exclusive breastfeeding is only beneficial in the first 6 months of a newborn baby as opposed to the 2 years maximum period recommended in antenatal clinics and Baby-Friendly Hospitals in Nigeria.[17] A cross-sectional household survey conducted among mothers in Kaduna State, North Central Nigeria revealed that social norms and customs legitimize early introduction of water after childbirth.[18]

From the above, it can be seen that misconception about exclusive breastfeeding is an issue in Nigeria that can impede optimal breastfeeding targets and, ipso facto, contribute to infant mortality in the country. Therefore, a need to counter these misconceptions using a robust communication framework with dual-feedback loop features. Figure 1 illustrates the architecture of the proposed dual-feedback loop communication model.

As illustrated in Figure 1, the dual-feedback loop communication model incorporates components of the classical communication models specified in the Shannon and Weaver, rhetoric and cybernetic models. The model is unique and consists of the following components: Sender, who also can be receiver, message, communication channel, and receiver, who can be a sender. The feedback component

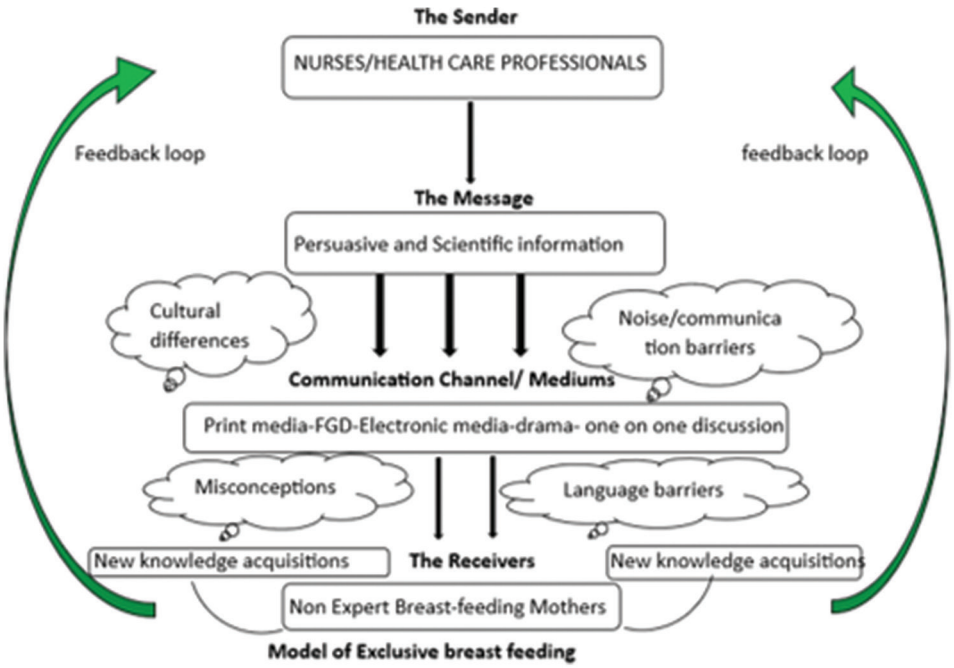

Figure 1: Architecture of the dual-feedback loop communication model. FGD: Focused group discussion.

of the model can be used for determining misconceptions, through a comparison of the attendees KAPs and the structure of knowledge in health talks delivered.

MATERIAL AND METHODS

This study used a mixed-method design that combines qualitative and quantitative methods. The study was conducted in Specialist Hospital Yola, Adamawa State, Nigeria. The primary data for the study comprised the perceptions of pregnant mothers in pre- and post-tests. Results of inferential statistics computed to determine variance in the KAPs of pregnant women. A dual-feedback loop communication model was designed based on insights from relevant discourse and communication theories. Fifteen nurses and a mass communication expert vetted and validated the proposed communication model. Purposive sampling technique was used to select 33 pregnant women to serve as participants. Only pregnant women who have breastfed in the past and have registered for the 2023 antenatal clinical session formed part of the research cohort. The data were analyzed based on integrated time series equation (Pre-Test [T_1] → [I] Intervention → Post-Test [T_2]). Descriptive statistics was further used to analyze the pre- and post-tests. The intervention has two phases: The first was the workshop conducted to train nurses and midwives on theories of communication and how to use the dual-feedback loop communication model in framing health talks on exclusive breastfeeding. The second phase was the implementation of the dual-feedback loop communication model. Pearson product-moment correlation test was used to determine from the analysis variance in the pre- and post-tests. The coefficient values derived were used to interpret results.

RESULTS

The results of the pre-test are indicated in Table 1 that revealed factors inhibiting exclusive breastfeeding practice including notions that: Colostrum is stale milk (85%); breast milk lacks sufficient nutrients (54%), and that expressed breast milk is contaminated milk (39%). The attitudinal factors include that: Exclusive breastfeeding flattens a woman's breasts (64%), exclusive breastfeeding is not ideal in tropical countries (90%), and it can cause RTIs in infants (79%). Furthermore, participants thought that baby formulas and water were ideal for infants (64%; 90%) and that exclusive breastfeeding was not suitable for career women (73%). These findings clearly demonstrate that there were considerable misconceptions on exclusive breastfeeding, hence the need for an intervention.

Results of the post-test, as shown in Table 2, revealed a significant increase in maternal KAPs on exclusive breastfeeding across individual participants. The post-test results recorded lower percentage of women who claim that colostrum is stale milk (56%); breast milk lacks sufficient nutrients (12%); expressed breast milk is contaminated milk (30%), exclusive breastfeeding flatten a woman's breasts (30%); exclusive breastfeeding causes RTIs (06%); that food supplements were ideal for infants (12%); giving water is ideal for infants (24%); and that exclusive breastfeeding was not suitable for working class women (52%).

Table 1: Pre-test results on KAPs of pregnant women on exclusive breastfeeding.

S. No.	KAP variables	True (%)	False (%)
1.	Colostrum is a contaminated milk	28(85)	05(15)
2.	Breast milk lacks sufficient nutrients	18(54)	15(45)
3.	Expressed breast milk is a contaminated milk	13(39)	20(61)
4.	Exclusive breastfeeding sags the breast	23(64)	12(36)
5.	Breastfeeding is not ideal in the tropics	30(90)	03(10)
6.	Exclusive breast-feeding causes RTI	27(79)	06(18)
7.	Food supplements are ideal for infants	21(64)	12(36)
8.	Giving water and breast milk is ideal	30(90)	03(10)
9.	BF is ideal for working mothers	26(79)	07(21)

Source: Fieldwork 2023. KAPs: Knowledge, attitude, and practices, RTI: Respiratory tract infection, BF: Breastfeeding

Table 2: Post-test results on KAPs of pregnant women on exclusive breastfeeding.

S. No.	KAP Variables	T (%)	F (%)
1.	Colostrum is a contaminated milk	17(56)	16(47)
2.	Breast milk lacks sufficient nutrients	04(12)	29(88)
3.	Expressed breast milk is a contaminated milk	10(30)	23(70)
4.	Exclusive breastfeeding flattens the breast	10(30)	23(70)
5.	Breastfeeding is not ideal in the tropics	06(18)	21(64)
6.	Exclusive breast-feeding causes RTI	02(06)	27(82)
7.	Food supplements are ideal for infants	04(12)	26(79)
8.	Giving water and breast milk is ideal	08(24)	24(73)
9.	BF is ideal for working mothers	17(52)	13(39)

Source: Fieldwork 2023. KAPs: Knowledge, attitude, and practices, RTI: Respiratory tract infection, T: True, F: False, BF: Breastfeeding

These findings clearly demonstrate that the intervention was impactful. Table 3 presents the results of the correlation analysis of the pre-test and post-test.

Results of the correlational analysis indicate coefficient values (KEBF r = 0.636, $P > 0.05$; AEBF r = 0.595, $P > 0.05$; PEBF r = 0.757, $P > 0.05$), suggesting significant differences in KAPs on exclusive breastfeeding after the intervention. Based on these findings, the null hypothesis questioning the effectiveness of the dual-feedback loop communication model in countering misconceptions on exclusive breastfeeding is rejected.

DISCUSSION

Results of the correlation analysis indicate significant differences in maternal (K)knowledge (KEBF r = 0.636, $P > 0.05$), (A)ttitude (AEBF r = 0.595, $P > 0.05$), and (P)ractices (PEBF r = 0.757, $P > 0.05$), suggesting that the dual-feedback loop communication model is an effective tool for framing health talks on exclusive breastfeeding. This finding is probably due to the robust design and unique features of the dual-feedback loop communication model, which allows pregnant women to assume the dual roles of receivers and senders of health information. The attributes of the model contrast with the activity-passivity model of health communication, where health professionals take complete control of the communication process and relegate patients to passive receptacles of health information.[19] The model also contradicts the stimulus-response and unilinear two-step flow communication models.[20,21]

Table 3: Correlation of pre-test and post-test results on KAPs of nursing mothers on exclusive breastfeeding.

Variables	Type of hypothesis	Pearson product coefficient
Pre-test and post-test	(2-Tail) Sig. 0.05	(r=0.636, $P>0.05$)
Pre-test and post-test	(2-Tail) Sig. 0.05	(r=0.595, $P>0.05$)
Pre-test and post-test	(2-Tail) Sig. 0.05	(r=0.757, $P>0.05$)

Correlation coefficient value (KEBF r=0.636, $P>0.05$). KAPs: Knowledge, attitude, and practices

Results of the correlation analysis are however consistent with the social cognitive theory and the social learning theory, where emphasis is on training and educating an audience to be informed on issues.[22] It is also consistent with the findings of a study that prenatal and postnatal education have a significant influence on the practice of exclusive breastfeeding.[23] The findings corroborated Tyndall *et al*., where misconception on exclusive breastfeeding is related to a lack of education and awareness.[14] The findings of the study legitimize the infant nutrition policy of the Nigerian government and underscore the importance of education in countering misconceptions on exclusive breastfeeding, such as the administration of prelactal feed called Tahneek before the initiation of breast milk to maintain the genetic traits of parents.[13]

CONCLUSION

The correlational analysis revealed that the misconceptions on exclusive breastfeeding held by respondents before the intervention was adequately addressed during the health talk that was framed based on a dual-feedback loop communication model. This was confirmed by the significant increase in maternal knowledge, enhancement of positive attitude, and acceptance of healthy practices on exclusive breastfeeding across individual mothers. Based on the above findings, the study concluded that the intensity of misconceptions about exclusive breastfeeding and defects in the communication model used in antenatal clinic can perpetuate misconceptions the public has on exclusive breastfeeding.

The study recommended that empowering pregnant women with requisite information on the health benefits of exclusive breastfeeding in antenatal clinics can counter misconceptions on exclusive breastfeeding. Findings of the study provide a basis for evaluating the communication component of the Baby-Friendly Hospital Initiative in Nigeria to determine its effectiveness and impediments to achieving the World Health Organization 2030 goal of 60–80% exclusive breastfeeding coverage from 230 to 2050. Further research is needed to test the effectiveness of the dual-feedback loop model in countering misconceptions on poliomyelitis and meningitis immunization in Nigeria.

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Ethical approval

The research was approved by the R&D Committee of Federal College of Education Yola. May 2022.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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