“For someone to be called a father? You should participate in going to the clinic and looking after your child”: a qualitative study on men's involvement in infant feeding in Kenya

Julia Guerette

A thesis

Submitted in partial fulfillment of the

Requirements for the degree of

Master of Public Health

University of Washington

2019

Committee:

Alison Roxby

Kristin Beima-Sofie

Rose Bosire

Carey Farquhar

Program Authorized to Offer Degree:

Global Health

© Copyright 2019

Julia Guerette

Abstract

"For someone to be called a father? You should participate in going to the clinic and looking after your child": a qualitative study on men's involvement in infant feeding in Kenya

Julia Guerette

Chair of the Supervisory Committee:

Alison Roxby

Department of Global Health, Department of Medicine

Abstract

Background: Exclusive breastfeeding is a high impact strategy for infant development and survival. Guidelines recommend exclusive breastfeeding for six months for HIV-positive mothers on antiretroviral treatment to reduce mother-to-child transmission of HIV. Male partner attitudes and actions can influence a mother's decision to exclusively breastfeed and the duration of exclusive breastfeeding. This qualitative study evaluates male partner views on their role in infant feeding and identifies factors impeding their involvement.

Methods: This study was nested in a longitudinal study evaluating counseling for HIV-positive Kenyan women to increase exclusive breastfeeding rates. Male partners of female participants were recruited from clinics in Nairobi for focus group discussions. Male partner beliefs and experiences related to exclusive breastfeeding were identified using conventional content analysis.

Results: Five focus group discussions with 31 male partners were conducted between 2010-2012. Data from these focus groups brought to light that within the Kenyan context, gender heavily influences perceptions surrounding men's involvement in infant feeding. Many men expressed an interest in being involved with infant feeding practices, and more broadly care of the child, but they identified barriers to being involved many of which are tied to cultural constructs of masculinity and gendered divisions of labor and spaces. Male partners felt excluded at the clinic by health care workers and female clinic

attendees who treated as a space for only women and children. They were less likely to return after an initial visit, losing the opportunity for exclusive breastfeeding education and to support the mother and child.

Conclusion: Men viewed involvement in infant feeding as a wide range of activities ranging from providing financial support up to being involved in direct care tasks. It is important to capitalize on male partner interest to be involved, but in a way that keeps the context in mind and incorporates and impacts various socio-ecological factors. Supporting alternative ideas of masculinity that include involvement in infant feeding practices and care of the child, along with promoting inclusive clinic spaces for male partners may improve an HIV-positive woman's decision to exclusively breastfeed and the duration of her exclusive breastfeeding.

Introduction

Exclusive breastfeeding (EBF) is a cost-effective and high-impact strategy for infant development and survival that provides optimal nutrition and protects against diarrheal diseases and pneumonia.[1] The World Health Organization (WHO) recommends that children be exclusively breastfed (where the child is given only breast milk) for the first six months of life.[2, 3] Although EBF is recommended and promoted, the practice of mixed feeding (intermittently supplying one's child with breast milk, as well as other foods and liquids) prior to six months of age, is common throughout many countries in sub-Saharan Africa. Mixed feeding can result in an infant acquiring illnesses, such as HIV.[4, 5]

Sub-Saharan Africa is disproportionately impacted by HIV/AIDS, with the disease burden substantially higher than in other parts of the world. Of those living with HIV, 66% are estimated to be living in sub-Saharan Africa.[6] Within Kenya, adult HIV prevalence is 5.4% and nearly 7% among women.[7] Despite well-resourced prevention of mother to child transmission (PMTCT) programs providing testing and antiretroviral medication to pregnant women with HIV, in 2017, 8,000 children in Kenya were newly infected with HIV.[8] Most of these infections occur through mother-to-child transmission *in utero*, during childbirth, or through breastfeeding.[4] Promoting and supporting safer breastfeeding practices, such as EBF, is associated with a reduction in HIV transmission during breastfeeding.[4,5, 9-13]

Despite the important health benefits of EBF, on average, only 61% of women in Kenya practice EBF for the first six months of a child's life.[14] However, when looking at the subgroups, 84% of infants are exclusively breastfed in the first month of life with this decreasing sharply to 63% of infants aged 2-3 months and decreasing even further to 42% of infants by the fourth and fifth months.[14] Male partner involvement can influence women's choices to practice EBF. Male partner attitudes and actions towards EBF can influence a mother's initial decision to breastfeed, how long she chooses to breastfeed, and whether to breastfeed exclusively.[15-18] The majority of studies evaluating male partner involvement in

infant feeding practices have focused on the male partner's roles and beliefs about breastfeeding using questionnaires, and have often been from the female partner's viewpoint.[19-22] Deeper exploration of male partner decision-making processes and key factors influencing their decisions can inform future interventions that improve EBF rates. We sought to understand male partners' views on EBF and the role men play in supporting EBF practices, with a goal of learning how male partner involvement could increase EBF prevalence.

Methods

Study Design and Population

We conducted a secondary analysis of data collected as part of a larger stepped-wedge cluster randomized trial on the use of intensified breastfeeding counseling to improve EBF practices among HIV-positive mothers in Kenya.[22-24] The trial compared intensive counseling with the current standard of care for EBF counseling. During the study, male partners of HIV-positive women participating in the larger study were recruited for focus groups discussions (FGDs) to evaluate their beliefs about their role in infant feeding practices. FGDs facilitated evaluation of social and community norms around male involvement in infant feeding.

Male partner FGDs were conducted after female partners had finished the trial's counseling intervention. They took place at three clinics in Nairobi: Baba Dogo, Dandora, and Kangemi. These clinics serve a densely populated, low- to middle-income population and were selected because they serve a large population of pregnant women, both HIV-positive and HIV-negative.

Participants and Recruitment

During the RCT, 840 HIV-positive women enrolled in the study.[23-25] During the antenatal period, enrolled women were told about the opportunity for their male partners to participate in a FGD. Women who were

comfortable with their male partner being involved received an introductory letter requesting the partner to accompany them to the clinic during the next study visit. Men who attended the clinic with their partners, were ≥18 years of age, and spoke Kiswahili were invited to participate in a future FGD.

A total of 31 men participated in the five FGDs. Of the five FGDs, only four had demographic data collected. Men were a median age of 30 (IQR: 11). Education levels were relatively high, with 65% of the men having attended at least some high school level of education. Most men (70%) earned at least $5.00 a day, and all men reported being the primary person responsible for their household's finances. Additionally, all men were married and practicing Christianity.

Data Collection

FGDs were conducted using a semi-structured guide centered around four topic areas: 1) Partner involvement and infant feeding choice; 2) Men's perceptions of HIV testing; 3) Mother to child transmission (MTCT) of HIV; and 4) Perception of infant feeding options. Guides were originally written in English, and later translated into Kiswahili for use with participants not comfortable communicating in English.

FGDs were conducted by the primary investigator of the randomized controlled trial (RCT) and a trained social scientist. FGDs had between 5-7 male HIV-positive or HIV-negative participants. Low overall participation of men did not allow FGDs to be conducted separately by HIV-status. However, each male participant was notified prior to the FGD for the potential for their HIV status to be disclosed to others in the group. Each participant filled out a brief demographic form prior to the FGD. FGDs were audio-recorded and transcribed verbatim into Kiswahili texts, and subsequently translated to English for analysis. Transcripts were also back translated to Kiswahili to ensure accuracy of translation.

Data Analysis

The goal of analysis was to determine men's perceptions of their role in infant feeding along with factors that influenced their involvement. ATLAS.ti version 8 was used to support data management and analysis. Transcripts were analyzed using a codebook that was developed through an inductive process of reading transcripts and identifying key themes. Regular meetings were held with the research team to allow for a process of reflexive discussion to refine coding strategies. Following codebook development, a final codebook was used to independently code transcripts. After each transcript had been independently coded, a secondary coder reviewed coded transcripts for accuracy and interpretation, noting sections that were inconsistently interpreted. Coding disagreements were resolved through group discussion, which helped to increase the reliability and validity of the study's results. Queries of key thematic codes were run to group data together and identify themes that had emerged. The socio-ecological model of health, which describes the multidimensional and interactive effects of personal and environmental factors on health behaviors, was used to help organize emerging themes around individual, inter-personal, institutional, and community level influences on male partner roles in infant feeding practices.[26]

Ethical Consideration

This study was reviewed and approved by the Kenya Medical Research Institute Ethical Review Committee. Written informed consent was provided by all participants prior to data collection.

Results

Socio-Ecological Influences

Men had varying attitudes on how they could be involved in infant feeding practices and care of the child. Key factors influencing male involvement in infant feeding practices are presented under four socio-ecological elements that have been adapted to the context of male partner involvement: male partner, partner relationship, health system, and societal norms.

Male partner's perceived their role in infant feeding to be providing financial, emotional and physical support

The most frequently mentioned way that men said they were involved was through providing financial support for their family. By working and earning money, men were able to bring food home for the mother so she could produce enough breast milk for the child.

Men appeared to take this role seriously and saw it as a big responsibility to ensure the well being of the mother and successful infant feeding.

"I think men can be involved in this breastfeeding process by providing enough food before weaning starts. Then, when the child attains the age to introduce other foods, the child's father must get involved because it is him who goes out to fend food for the family." (Male partner, 29)

The expectation for men to go to work in order to provide money for the family was sometimes cited as a reason that men could not be more involved in the feeding and care of the child. Work made it so they were not able to be home with the child and as such, had limited involvement. Other men described how their role ended with providing financial support and beyond this, there was no interest in caring for the child.

"Majority of [men] believe that once they have provided food for the family, they have done their responsibility. The remaining responsibility is to socialize with their friends. We can say 60% believe so. They believe once they have provided food and other necessities in the house, that is it. His work is done. He doesn't care whether the child will get sick. Provided the child is fed and satisfied, his duty is done." (Male partner, 32)

Beyond financial support, some men described their involvement in infant feeding and care of the child as giving instructions and verbal support. Men often described providing reminders to their female partners on tasks related to a child's well-being, such as when it was time to return for a clinic appointment or that the child needed to take medicine.

"These days men are careful…most of the times it is me who reminds my wife on the date you have go back to the clinic. You may get she has a lot of work and she forgets." (Male partner, 27)

Related to exclusive breastfeeding, a few men helped women think through strategies for advocating for exclusive breastfeeding when the woman might encounter barriers.

"My mother said a child can't make noise for her and she wanted to give the child porridge. But for me I knew that six months aren't over. I told my wife when my mother prepares porridge for the child, take it and go to our house and drink it. She used to drink that porridge and breastfeed the child."(Male partner, 26)

Men also described involvement in care beyond providing financial and emotional support. Some men shared that they attend clinic with their female partner or helping out with household chores.

"[Attending clinic together] is important because the doctors will counsel you on the basis of the condition of the mother, how to live and if it is about the child, how to feed the child and the ways you will use to take care of the child so that the child can be in good health and both of you too." (Male partner, 44)

Men who were more actively involved were typically more knowledgeable on topics regarding infant feeding and childcare. They noted receipt of information from interactions with healthcare providers, teachings, and peer support groups.

"According to the teachings, the baby should be breastfed for six months without using any food or water. The milk contains all the nutrients and even water. My first born had problems because by then I had not been taught about this. I introduced the baby to other foods so early. The second born, though four months old, is doing so well on the merit of the teachings I got. The baby has not been introduced to other foods but he is very healthy. I am sure those teachings are benefiting us so much." (Male partner, FGD 2)

Involvement was related to an understanding of the importance of EBF in relation to their child's health, especially regarding PMTCT of HIV. When men were knowledgeable of the connection between their child being exclusively breastfed for six months and growing up healthy, they were more motivated to be involved in the infant feeding decision and practice.

"Based on the knowledge I have gained from the support group, a child must breastfeed up to six months without being given water and there is medicine the mothers are given. After six months, you need to come to enquire if the baby will continue to breastfeed. My child is negative. When our child was born and tested negative, the child was not given water for six months." (Male partner, 39)

Men were divided on whether their roles in infant feeding were shared or distinct from that of their female partners

Across the focus groups, men frequently commented that both the husband and wife were needed to raise the child well. However, understandings of how this partnership worked were varied. Some men felt

strongly that raising a child was as much their responsibility as it was their wife's, and in order for the child to grow up healthy, a partnership was needed between them. These men reflected on how they were stepping away from the traditional societal roles that men and women have or have had in the past.

"Nowadays you work as family. It is not like before when only the mother of the child was involved. Now it is the responsibility of the father and the mother of the child to know how the child will feed and grow." (Male partner, 27)

A beneficial factor frequently identified by men was spousal communication, which men described as allowing them to establish a partnership and get involved in activities regarding infant feeding and general care of the child. Partner discussions were viewed as a way to bring men into the conversation around infant feeding decisions and keep the male partner informed and involved with the child's well being.

Other male participants felt less strongly that raising a child was a partnership and viewed men and women as having very distinct, separate roles. Generally, the roles mentioned aligned with typical gender roles where, as mentioned earlier, women were responsible for feeding and directly caring for the child, while the men were responsible for providing financial support.

"In my case I am responsible to fend for money to buy food for the mother and the child…Mostly the work of feeding the child is pegged on the mother's side. I cannot spend a lot of time with the child wondering how he or she feeds." (Male partner, FGD 2)

Women can sometimes reinforce these distinct gender roles. Some men described that women were the ones preventing their involvement by limiting spousal communication or not allowing them to participate in activities.

"On the baby's side, even when he visits the clinic and you ask her why she is not feeding the child well. She will tell you 'Don't ask why'. When you as a man begin to talk you invite more trouble and this is not good." (Male partner, FGD 2)

Unwelcoming clinic environments were common barriers to partner involvement

Many respondents reported that health facilities often felt like a space for mothers and children, but were not appropriate for men. Sometimes the clinics are called *kiliniki ya mama na watoto* (clinic for women and children), which conveys that the space is not meant for male partners or even closed to their involvement entirely. This feeling can be furthered by men's interactions with healthcare providers when they do attend the clinic alongside their female partners. Providers were felt to prioritize the woman and child, often failing to engage the male partner in care.

"…when you accompany your wife and the doctor is in haste to service his people, it becomes the mother and her child enter and close the door. The doctor does not concentrate about the man. Even if the mother says I am with my husband, the man is told to wait outside. It becomes that you are not actually accompanying your wife to the clinic but you are escorting her." (Male partner, 44)

sthe care of their child discussed how interactions with other women in the clinic were a deterrent to returning to clinic. Men felt that other female patients at the clinic treated the space as belonging to only women.

"When I came, I sat where the women sit. They stared laughing at me, why I had come there. Does it mean when they come alone you don't teach them that they are supposed to be accompanied by the husbands? They were shocked why I was the only man among the twenty ladies. They were asking my

wife what I was doing there. Do you think I will come next time?...they believe it is theirs. So next time I won't come. You have to start with them to let them know that men need to be there." (Male partner, 38)

Gender norms discourage male involvement in infant feeding

At the societal level, it was evident that traditional gender norms are prevalent within Kenya. These norms arise at the societal level creating gendered divisions of labor and spaces, along with cultural constructs of masculinity. Overall, men's roles were perceived to be at work while women's roles centered around caring for the child and household chores. Men sometimes described these norms being reinforced by their cultural and tribal relations.

"Like me, according to my culture, we don't follow women around. It is like the woman has pinned you down or rather has authority over you. I should not carry the child. It is like being sat upon…she should just go to the clinic alone." (Male partner, FGD 2)

The dynamics formed by these norms transcend to the lower levels of the socio-ecological model and act as a barrier to male involvement at all stages, as reflected in the above results.

Discussion

Our study explored the perspectives of male partners on their involvement in infant feeding practices, and found that many men want to be more actively involved in the upbringing of their children, by participating in activities beyond financial support. We found that facilitators to male involvement included knowledge on infant feeding practices and the impact they have on a child's health, partnership, and spousal communication. However, there are a variety of barriers_that discourage their involvement, including women's disinterest in men being involved, unwelcoming clinic environments, and, most

importantly, gender norms. While previous studies have asked women about their views on male involvement, this is one of a few studies that incorporates men's own views.

Studies have been conducted that look at the impact of breastfeeding knowledge on male involvement and the corresponding impact on successful breastfeeding. When men are informed about breastfeeding practices they are more likely to be involved in infant feeding, which is seen to positively influence a woman's decision to breastfeed.[27] This idea was reinforced through our qualitative results as male partners that had been educated on exclusive breastfeeding were more interested in making sure their child was exclusively breastfed and as such, advocated for the practice. We observed male partners describing that when they were knowledgeable about exclusive breastfeeding and its positive health impacts, they felt comfortable being involved and advocating for the practice as they wanted their child to grow up healthy.

Other studies have demonstrated that men express an interest in being involved with the care of their children and that some men are already actively involved.[26-31] This desire for increased involvement is a key step towards increasing male involvement broadly and something that should be capitalized on. Yet, to do that, it is essential to keep in mind the context and gender norms that persist in Kenya's society, as well as many other societies globally. Findings of this research are consistent with literature that suggests that traditional gender norms are an impediment to men's involvement in childcare.[28, 32-41] In this analysis, the gendered divisions of labor and spaces, along with cultural constructs of masculinity, were the central barriers to male partners being involved. Therefore, while interest from men to be involved was present, true progress in the realm of male involvement cannot be achieved without addressing the larger gender norms at play that inform institutions like health clinics and the inter-personal dynamics of relationships.

While men's involvement in infant feeding practices and early childcare is a complex issue linked to socio-ecological factors, it is important to promote involvement given the positive impact it can have on a

mother's decision to exclusively breastfeed. Gender norms strongly inform spaces and relationships in society, and as such, addressing them is crucial. Various UN agencies and international organizations promote the need to engage both men and boys in questioning traditional gender norms that are inequitable.[42,43] Barker et al. carried out a systematic review of 58 evaluation studies on programs that work with men to question gender norms as a way to improve health outcomes. Their findings indicate that interventions and programs that take a gender-transformative approach and engage men in multiple ways (i.e. group educational activities and community outreach, mobilization, and mass-media campaigns) are the most effective way to produce positive behavior change.[43,44]

Gender-transformative, multi-activity interventions could be developed for the Kenyan context. Currently, being the head of the household limits a man's role to fending for the family by working and providing monetary support. However, fending for the family could be expanded to include more direct care tasks such as attending clinic, feeding the infant, and caring for the child. The process of re-defining masculinity could start at the individual level by engaging men in peer networks and group educational activities with facilitators acting as positive deviance role models. Beyond this, it could be spread at the community level through traditional and/or religious leaders, along with media campaigns.

At a more short-term level, work can be done to create welcoming and inclusive clinic spaces for male partners. This includes improving quality of care on the healthcare providers' end, as well as addressing gender stereotypes regarding men's place in clinics. Once clinics are a space accessible to men, male partners may be more likely to attend for the first time or return after their initial visit providing them with opportunities for exclusive breastfeeding education and to support the mother and child. Additionally, clinics can act as a platform to encourage partnership and spousal communication.

This study has two main limitations. First, male partners were selected from the partners of women in the parent study, and women had already chosen to disclose their HIV status to these partners. These men

may not be representative of all male partners of women with HIV. Women who choose not to disclose HIV status to their partner may have different family dynamics and relationships than the men in this study. Second, social-desirability bias could be present. Because female partners were receiving counseling around breastfeeding practices, the men may have had knowledge of what desired responses would be. Additionally, the FGDs took place in clinics, which could contribute to men feeling the need to respond in a certain way. Finally, the FGDs were facilitated by female interviewers, which could influence how the men responded as they may feel pressured to show an interest in being involved.

Conclusion

In conclusion, our study of male partner's opinions on infant feeding practices found that many men display an interest in being involved in the care and feeding of their child. Men who had knowledge on exclusive breastfeeding described putting that information to use by supporting their female partner and her breastfeeding practices. Traditional gender norms at all levels of the socio-ecological model acted as the main barrier to their involvement. Supporting alternative ideas of masculinity that include involvement in infant feeding practices and care of the child, along with promoting inclusive clinic spaces for male partners may improve an HIV-positive woman's decision to exclusively breastfeed and the duration of her exclusive breastfeeding.

References

1. World Health Organization. Infant and young child feeding. 2018. Available at: http://www.who.int/en/news-room/fact-sheets/detail/infant-and-young-child-feeding
2. World Health Organization. Nutrition: Breastfeeding. Available at: http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/
3. World Health Organization, UNICEF. Guideline: Updates on HIV and Infant Feeding. 2016. Available from: https://apps.who.int/iris/bitstream/handle/10665/246260/9789241549707-eng.pdf?sequence=1
4. Rollins NC et al. Infant feeding, HIV transmission and mortality at 18 months: the need for appropriate choices by mothers and prioritization within programmes. *AIDS*. 2008; 22(17): 2349-2357.
5. Iliff PJ et al. Early exclusive breastfeeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival. *AIDS*. 2005; 19(7): 699-708.
6. Avert. Global HIV and AIDS Statistics. (2018). Available at: https://www.avert.org/global-hiv-and-aids-statistics
7. UNAIDS. Country Factsheets: Kenya. (2016). Available at: http://www.unaids.org/en/regionscountries/countries/kenya
8. World Health Organization. Taking stock: HIV in children. 2006. Available from: https://www.who.int/hiv/toronto2006/Children2_eng.pdf
9. Magoni M, Bassani L, Okong P, Kituuka P, Germinario EP, Giuliano M, Vella S. Mode of infant feeding and HIV infection in children in a program for prevention of mother-to-child transmission in Uganda. AIDS. 2005;19(4):433–437. doi: 10.1097/01.aids.0000161773.29029.c0.
10. Coovadia HM, Rollins NC, Bland RM, Little K, Coutsoudis A, Bennish ML, Newell ML. Mother-to-child transmission of HIV-1 infection during exclusive breastfeeding in the first 6 months of life: an

intervention cohort study. *Lancet*. 2007; 369(9567): 1107-1116. doi: 10.1016/S0140-6736(07)60283-9.

11. Becquet R, Ekouevi DK, Menan H, Amani-Bosse C, Bequet L, Viho I, Dabis F, Timite-Konan M, Leroy V, ANRS 1201/1202 Ditrame Plus Study Group Early mixed feeding and breastfeeding beyond 6 months increase the risk of postnatal HIV transmission: ANRS 1201/1202 Ditrame Plus, Abidjan, Côte d'Ivoire. *Prev Med*. 2008;47(1):27–33. doi: 10.1016/j.ypmed.2007.11.014.
12. Lunney KM, Iliff P, Mutasa K, Ntozini R, Magder LS, Moulton LH, Humphrey JH. Associations between breast milk viral load, mastitis, exclusive breast-feeding, and postnatal transmission of HIV. *Clin Infect Dis*. 2010;50(5):762–769.
13. John-Stewart G, Mbori-Ngacha D, Ekpini R, Janoff EN, Nkengasong J, Read JS, Van de Perre P, Newell ML, for the Ghent IAS Working Group on HIV in Women and Children Breast-feeding and Transmission of HIV-1. J Acquir Immune Defic Syndr. 2004;35(2):196–202. doi: 10.1097/00126334-200402010-00015.
14. Demographic and Health Survey. Kenya. (2014). Available at: https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf
15. Roll CL, Cheater F. Expectant parents' views of factors influencing infant feeding decisions in the antenatal period: a systematic review. *Int J Nurs Stud*. 2016;60:145–55. Available at: https://www.sciencedirect.com/science/article/pii/S0020748916300311?via%3Dihub
16. Emmott EH, Mace R. Practical support from fathers and grandmothers is associated with lower levels of breastfeeding in the UK millennium cohort study. *PLoS One*. 2015;10:e0133547. Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0133547
17. Susin LR, Giugliani ER. Inclusion of fathers in an intervention to promote breastfeeding: impact on breastfeeding rates. *J Hum Lact*. 2008;24:386–92. Available at: http://journals.sagepub.com/doi/10.1177/0890334408323545

18. Scott J, Binns C, Aroni R. The influence of reported paternal attitudes on the decision to breast-feed. *J Paediatr Child Health*. 1997;33:305–7. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1440-1754.1997.tb01605.x
19. Chen PG, Johnson LW, Rosenthal MS. Sources of education about breastfeeding and breast pump use: what effect do they have on breastfeeding duration? An analysis of the infant feeding practices survey II. *Matern Child Health J*. 2012;16:1421–30. Available at: https://link.springer.com/article/10.1007%2Fs10995-011-0908-4
20. Chezem JC. Breastfeeding attitudes among couples planning exclusive breastfeeding or mixed feeding. *Breastfeed Med*. 2012;7:155–62. Available at: https://www.liebertpub.com/doi/10.1089/bfm.2011.0024
21. Avery AB, Magnus JH. Expectant fathers' and mothers' perceptions of breastfeeding and formula feeding: a focus group study in three US cities. *J Hum Lact*. 2011;27:147–54. Available at: http://journals.sagepub.com/doi/10.1177/0890334410395753
22. Van Wagenen SA, Magnusson BM, Neiger BL. Attitudes toward breastfeeding among an internet panel of US males aged 21–44. *Matern Child Health J*. 2015;19:2020–8. Available at: https://link.springer.com/article/10.1007%2Fs10995-015-1714-1
23. Bosire R, Betz B, Aluisio A, et al. High Rates of Exclusive Breastfeeding in Both Arms of a Peer Counseling Study Promoting EBF Among HIV-Infected Kenyan Women. *Breastfeeding medicine: the official journal of the Academy of Breastfeeding Medicine*. 2016; 11:56–63.
24. Aluisio A, Richardson B, Bosire R, John-Stewart G, Mbori-Ngacha D, Farquhar C. Male antenatal attendance and HIV testing are associated with increased infant HIV infection and increased HIV free survival. *J Acquir Immune Defic Syndr*. 2011; 56(1): 76-82. doi: 10.1097/QAI.0b013e3181fdb4c4.
25. Odeny B, Pfeiffer J, Farquhar C et al. The Stigma of Exclusive Breastfeeding Among Both HIV-Positive and HIV-Negative Women in Nairobi, Kenya. *Breastfeeding Medicine*. 2016; 11(5): 252-258.

26. McLeroy K.R., Stockler A, Bibeau, D. The social ecology of health promotion interventions. *Health Education Quarterly*. 1988; 15(4): 351-377.

27. Maycock B, Binns CW, Dhaliwal S, Tohotoa J, Hauck Y, Burns S, Howat P. Education and support for fathers improves breastfeeding rates: a randomized controlled trial. *J Hum Lact*. 2013; 29(4): 484-90. doi: 10.1177/0890334413484387.

28. Dumbaugh M, Tawiah-Agyemang C, Manu A et al. Perceptions of, attitudes towards and barriers to male involvement in newborn care in rural Ghana, West Africa: a qualitative analysis. *BMC Pregnancy and Childbirth*. 2014; 14: 269.

29. Turan Mozzan J, Nalbant H, Bulut A, Sahip Y. Including expectant fathers in antenatal education programmes in Istanbul. *Reprod Health Matters*. 2001, 9: 114-125.

30. Carter M. Husbands and maternal health matters in rural Guatemala: wives' reports on their spouses' involvement in pregnancy and birth. *Soc Sci Med*. 2002, 55: 437-450.

31. Montgomery CM, Hosegood V, Busza J, Timaeus IM. Men's involvement in the South African family: engendering change in the AIDS era. *Soc Sci Med*. 2006, 62: 2411-2419.

32. Theuring S, Mbezi P, Luvanda H, Jordan-Harder B, Kunz A, Harms G. Male involvement in PMTCT services in Mbeya Region, Tanzania. *AIDS Behav*. 2009, 13: 92-102.

33. Reece M, Hollub A, Nangami M, Lane K. Assessing male spousal engagement with prevention of mother-to-child (pMTCT) programs in western Kenya. *AIDS Care*. 2010, 22: 743-750.

34. Medley A, Mugerwa G, Kennedy C, Sweat M. Ugandan men's attitudes toward their partner's participation in antenatal HIV testing. *Health Care Women Int*. 2012, 33: 359-374.

35. Harrington E, Dworkin S, Kwena Z, Onono M, Grossman D, Cohen CR, Bukusi EA, Newmann SJ. Male involvement in family planning: perspectives among HIV-affected couples in Nyanza Province. *Kenya Contraception*. 2011, 84: 302-336.

36. Onyango MA, Owoko S, Oguttu M. Factors that influence male involvement in sexual and reproductive health in Western Kenya: A Qualitative study. *African J Reprod Health*. 2011, 14 (4): 33-44.

37. Iliyasu Z, Abubakar I, Galadanci HS, Aliyu MH. Birth preparedness, complication readiness, and fathers' participation in maternity care in a Northern Nigerian community. *African J Reprod Health*. 2010, 14 (1): 21-32.
38. Adeleye O, Chiwuzie J. "He does his own and walks away": perceptions about male attitudes and practices regarding safe motherhood in Ekiadolor, Southern Nigeria. *African J Reprod Health*. 2007, 11 (1): 76-89.
39. Odimegwu C, Adewuyi A, Odebiyi T, Aina B, Adesina Y, Olatubara O, Eniola F. Men's role in emergency obstetric care in Osun State of Nigeria. *African J Reprod Health*. 2005, 9: 59-71.
40. Kakaire O, Kaye D, Osinde M. Male involvement in birth preparedness and complication readiness for emergency obstetric referrals in rural Uganda. *Reprod Health*. 2011, 8 (12): 1-7.
41. Manda-Taylor, Mwale D, Phiri T et al. Changing times? Gender roles and relationships in maternal, newborn and child health in Malawi. *BMC Pregnancy and Childbirth*. 2017; 17:321.
42. UNFPA, MenEngage Alliance. Engaging Men, Changing Gender Norms: Directions for Gender-Transformative Action. Available from: https://www.unfpa.org/sites/default/files/resource-pdf/Advocacy%20Brief-%20Gender%20Norms-1.pdf
43. World Health Organization. Engaging men and boys in changing gender-based inequity in health: evidence fro programme interventions. 2007. Available from: https://www.who.int/gender/documents/Engaging_men_boys.pdf
44. Barker G, Ricardo C, Nascimento M, Olukoya A, Santos C. Questioning gender norms with men to improve health outcomes: Evidence of impact. *Global Public Health*. 2008; 5(5): 539-553. doi: 10.1080/17441690902942464.

Appendix A

Socio-ecological influences on male involvement in infant feeding practices