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Gender-based violence and kangaroo mother care in Amhara, Ethiopia

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Gender-based violence and kangaroo mother care in Amhara, Ethiopia

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An abstract of
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Abstract

Gender-based violence and kangaroo mother care in Amhara, Ethiopia
By Mary Carter

Background: Gender-based violence affects one out of every three women and can lead to adverse birth outcomes such as low birth weight. These infants are at increased risk for neonatal morbidity and mortality. Kangaroo mother care is an effective and free intervention that promotes health and reduces morbidity and mortality. Gender-based violence has been shown to alter a woman's health behaviors and affect health outcomes for both the mother and baby. However, no study had previously investigated the relationship between gender-based violence and kangaroo mother care.

Methods: This study included a literature review of the relationship between gender-based violence and breastfeeding practices, a secondary data analysis of the 2016 Ethiopian Demographic and Health Survey, and, as part of a larger parent study, a gender-based violence survey.

Results: An Ethiopian woman who has experienced polyvictimization has greater odds of delivering at home. The more forms of violence a woman has experienced the higher her odds of a home birth even after controlling for sociodemographic factors (at least 3 forms OR=1.92; at least 4 forms OR=2.21; at least 5 forms OR=3.31). Women who report physical intimate partner violence or polyvictimization are at higher risk of ineffective kangaroo mother care in Amhara Ethiopia (OR=5.06, OR=3.87 respectively).

Conclusion: 73% of Ethiopian woman deliver at home and only 2% have a skilled provider. Gender-based violence, specifically polyvictimization increases a woman's likelihood of delivering at home. Home birth may be a barrier to effective kangaroo mother care because these women are usually without a skilled provider who can assess the infant, initiate kangaroo mother care and educate and support the mother. Additionally, this study suggests that even if kangaroo mother care is initiated, specific forms of gender-based violence and polyvictimization may effect a woman's ability to exclusively breastfeed, provide prolonged skin-to-skin contact and provide effective kangaroo mother care to her low birth weight neonate in Amhara, Ethiopia.

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Chapter 1 Introduction

Gender-based violence is a global phenomenon, which has been shown to lead to adverse birth outcomes such as preterm birth (PTB) and low birth weight (LBW).[1, 2] It is estimated that 15 million babies are born prematurely every year and PTB is the leading cause of death among children under the age of five.[3] 75% of these deaths could be prevented with simple interventions such as kangaroo mother care.[3] Gender-based violence has been shown to decrease a woman's social support and increase her risk of suboptimal breastfeeding practices, postpartum depression and anxiety.[4] Therefore, gender-based violence may not only increase a woman's risk of delivering a PTB/LBW infant, but it may also influence her ability to provide kangaroo mother care. This study will explore the relationship between different forms of gender-based violence on a woman's ability to provide kangaroo mother care to her low birth weight infant in a low resource area, Amhara, Ethiopia.

Gender-Based Violence

Gender-based violence (GBV) is complex global humanitarian problem that affects one out of every three women.[5, 6] GBV is "an umbrella term for any harmful act that is perpetrated against a person's will, and that is based on socially ascribed gender differences between males and females."[7] This includes, but is not limited to practices such as intimate partner violence, sexual violence, sexual exploitation, forced or early marriage and harmful traditional practices, such as female genital cutting.[7] GBV is a relatively new concept,[5, 6, 8-10] but it describes a phenomenon that has always existed.[11, 12] GBV is an "umbrella term" that includes many different forms of violence. However, current research often focuses on one specific form of violence and while many forms of GBV are documented, little is known about co-occurrence and/or the relationship between different forms of violence.

GBV affects every country, ethnicity, race and socio-economic group, and Ethiopia is no exception.[6, 11, 13] Exposure to GBV can start at an early age and continue into adulthood. Female genital mutilation/cutting, usually performed at a young age, is prevalent in Ethiopia (75%) and among those, six percent have been infibulated.[14] In the Amhara region of Ethiopia, 68.5% of women have experienced female genital mutilation/cutting and less than one percent have been infibulated.[14] The median age of first marriage varies from 21.4 years in the capital, Addis Ababa, to 14.7 years in the Amhara region.[14] After marriage, girls/women may be abused by their partner. A systematic review and meta-analysis found that the prevalence of intimate partner violence during pregnancy in Africa is 15.23%, which is the highest reported prevalence globally.[15] Estimates of lifetime prevalence of intimate partner violence in Ethiopia have been reported as low as 20% and as high as 78%.[16] The World Health Organization's multi-country study on women's health and domestic violence found that Ethiopia had the highest rate of sexual violence (59%).[17]

Violence, in Ethiopia is experienced across the lifespan, yet individual forms of violence are often studied independently and our understanding of their interactions and co-occurrence is limited.[18] Research does suggest that different forms of violence co-occur and that previous exposure to violence can increase the risk of experiencing more violence. Research from Ethiopia has shown that if a girl is married before her 15th birthday, she is more likely to have a forced first sex encounter with her husband and is more likely to have experienced intimate partner violence within the last three months.[19] Marriage by abduction or witnessing family violence was also found to increase the odds of a woman experiencing intimate partner violence in her lifetime.[20] One study found that most women (56.9%) in western Ethiopia experienced a combination of physical, sexual and psychological violence.[20] The proposed study will not only

evaluate different forms of GBV across the lifespan, but it will also assess polyvictimiztion, (experiencing multiple forms of violence) to investigate the cumulative effect of exposure, which has not been done in Ethiopia.

Preterm Birth, Low Birth Weight, Neonatal Death

Preterm birth (PTB) is the delivery of a baby born before 37 weeks gestational age or 259 days since last menstrual period.[3, 21, 22] PTB can be further classified into three categories: moderate to late preterm (32 to <37 weeks), very preterm (28 to <32 weeks) and extremely preterm (<28 weeks).[3] The causes of PTB are not completely understood, but several risk factors have been identified for spontaneous PTB: age, pregnancy spacing, infection, multiple pregnancies, certain chronic maternal medical conditions, nutritional status and some lifestyle factors.[3]

15 million babies are born preterm every year.[3] Despite a global effort to reduce PTB, PTB continues to increase in almost every country where reliable data is available.[3] Among those born prematurely, there is a disparate survival rate based on what country they are born in with 90% of extremely preterm babies dying in low income countries and only 10% mortality in high income countries.[3] 60% of all preterm births occur Sub-Saharan Africa and south Asia.[3] Ethiopia is one of 15 countries that account for two-thirds of the world's preterm births, and ranks 11th with 320,000 babies born prematurely every year.[3]

Low birth weight (LBW) is a birth weight of less than 2500g.[23] Globally, 14% of babies are born weighing less than 2500g at birth.[24] LBW is caused by one of two things: PTB or intrauterine growth restriction.[24, 25] Most LBW babies are born in Africa or South Asia.[26] Notably, the cause for LBW is different between the two regions. LBW babies born in South Asia are predominantly term infants who are small for gestational age caused by intrauterine

growth restriction while LBW babies born in Africa are mostly premature.[24] 20% of all babies born in Ethiopia are LBW, which corresponds with their high numbers of PTB.[24, 27]

PTB and LBW are leading direct and indirect causes of *neonatal death*.[3, 28] Despite its relatively short duration, the neonatal period, the first 28 days of life, accounts for 38% of all deaths of children under five.[28] PTB is the leading cause of perinatal morbidity and mortality and the leading cause of death among children under the age of five[3, 29] and it is estimated that more than one million die every year because of preterm birth complications.[3] Two-thirds of all neonatal deaths occur in southeast Asia and Africa.[28] Ethiopia has the fifth highest number of neonatal deaths per year in the world, with 90,000 deaths reported in 2016.[30]

Kangaroo Mother Care

Kangaroo mother care (KMC) is an effective, easy-to-use intervention to promote health outcomes and reduce morbidity and mortality in LBW infants caused by PTB or intrauterine growth restriction.[22, 23] KMC is an evidence based interventions that originated in Bogota, Colombia as an alternative to incubator care.[22] KMC requires prolonged skin-to-skin contact between the mother and the baby and exclusive breast milk feeding.[22] Exclusive breast milk feeding is when breast milk is the only source of food for the infant, additional food and/or drinks are not allowed.[31] KMC should be initiated in the hospital and early discharge is ideal.[22]

Seventy-five percent of neonatal deaths could be prevented with simple cost-effective interventions such as KMC, steroid injections and antibiotics.[3] KMC is associated with a decreased risk of mortality at 40-41 weeks, a decreased risk of neonatal sepsis, and a decreased risk of hypothermia.[23] Additionally, KMC increases growth, breastfeeding and mother-infant attachment.[23] Therefore, KMC has been recommended as an ideal intervention because it is free, does not require any additional technology and most importantly because it has been found to

successfully reduce morbidity and mortality.[22, 23] However, the feasibility and usage of KMC in Ethiopia is currently unknown.

Gender-Based Violence and Preterm Birth/Low Birth Weight

GBV can result in acute and long-term negative health outcomes for women[32] including both physical and mental health consequences.[33] Women who have experienced GBV have a 50-70% increased risk of gynecological conditions, central nervous system disorders and stress-related problems.[34] Women report many negative mental health consequences which include depression, anxiety, post-traumatic stress disorder, substance use disorders and suicidal behaviors.[11, 32] The influence of GBV on reproductive health and gynecological health has major ramifications for maternal and newborn health.[35] Violence can lead to a variety of consequences including unwanted pregnancy, sexually transmitted infections, painful intercourse, vaginal bleeding, placental abruption, hypertensive disorders, urinary tract infections, vaginal or cervical infections, preterm birth, intrauterine growth restriction, low birth weight, and early neonatal mortality.[1, 11, 29, 35-39]

Multiple systematic reviews and meta-analyses have found a positive association between intimate partner violence and PTB and LBW.[1, 38-41] If a woman delivers a PTB or LBW infant in a low resource area, KMC may be an ideal intervention. Understanding that women who experience GBV are at higher risk of having a baby that requires KMC, it is imperative that we understand how GBV may influence a woman's ability to provide KMC.

Gender-Based Violence and Kangaroo Mother Care

GBV may be a barrier to effective KMC. Women who are exposed to GBV may be more likely to deliver at home, where skilled providers, proper neonatal care, and KMC education are lacking.[42] Additionally, GBV may influence a woman's decision to breastfeed, which is a major

component of KMC.[22, 43-48] Lastly, a review of 103 articles found that the top five major enablers of KMC for mothers in low and middle income countries were "support from family, friends, and other mothers", "mother-infant attachment", "ease of practice/preference over traditional care", "feelings of confidence/empowerment", and "understanding of efficacy".[49] However, at least three of these may be reduced in women who experience GBV. Family, friends and other mothers may help ensure KMC by providing skin-to-skin contact with the infant, covering other tasks such as childcare and housekeeping and providing emotional support.[49] However, women who experience GBV are often isolated and have lower levels of support from friends and family.[4, 50, 51] Their social networks are smaller and offer less support.[4, 50, 51] Secondly, mother-infant attachment was found to be an enabler of KMC in high and low income countries.[49] However, women who experience violence are less likely to have a securely attached infant.[52] This could be due to increased rates of postpartum depression[53, 54] or because women are forced to prioritize their partner and thus have less time and energy for their baby.[51] Lastly, feelings of confidence and/or empowerment was an enabler of KMC, however women who have experienced violence are significantly more anxious about aspects of childcare and report being more stressed.[55]

To gain a better understanding about how GBV influences KMC this study examined gender-based violence as a barrier to effective kangaroo mother care. First, a literature review was conducted to analyze the growing body of literature regarding gender-based violence and breastfeeding practices. Currently there is literature that suggests that GBV may lead to subpar breastfeeding practices[43, 45, 47, 48, 56, 57] or to optimal breastfeeding practices.[58] Other studies have concluded that there is no relationship between GBV and breastfeeding practices.[59-62] This

review analyzes primary quantitative research studies to understand these conflicting results which are relevant to GBV, breastfeeding and thus KMC.

Secondly, a secondary-data analysis of the 2016 Ethiopian Demographic Health Survey examined the relationship between gender-based violence and home birth. According to the 2016 Ethiopian Demographic and Health Survey, 73% of the women who delivered in the five years prior to the survey delivered at home.[63] Of those who delivered at home two percent had a skilled provider (doctor, nurse/midwife, health officer, health extension worker). The Ethiopian Government developed a strategic health plan that has been pushing for facility births with skilled providers. However, home births are still common. Delivery at home without a skilled provider can increase the risk to the mother and the infant and is a barrier to KMC education and initiation. A study from Bangladesh found that women who experienced intimate partner violence were more likely to deliver at home.[42] Therefore, this analysis is aimed at understanding how specific forms of GBV and polyvictimization influence a woman's decision to deliver at home in Ethiopia.

Lastly, as part of a larger parent study, Ethiopian women delivering an infant weighting less than 2000 grams in the catchment area were followed throughout the neonatal period, to assess the influence of GBV on the ability of mothers' to provide KMC. No study, to date, has examined the influence of GBV on the ability to provide effective KMC. KMC has the potential to be extremely beneficial in low resource settings like Amhara, Ethiopia, but also in countries around the world. This understanding could prove to be pivotal in helping to improve neonatal survival in low resource settings where KMC is the ideal intervention.

The specific aims and questions of the proposed study are:

AIM 1: To evaluate the current literature on gender-based violence and breastfeeding:

1. Does exposure to gender-based violence increases the likelihood for subpar breastfeeding practices?

AIM 2: To assess the relationship between gender-based violence and a woman's decision to deliver at home:

1. Are specific forms of gender-based violence associated with increased likelihood of delivering at home?
2. What forms/combinations of gender-based violence are associated with home birth?
3. Does polyvictimization increase the likelihood of delivering at home?

AIM 3: To examine the influence of specific forms of gender-based violence exposure on a mothers' ability to provide Kangaroo Mother Care to her neonate:

1. Does sexual violence in childhood and/or in adulthood influence the ability to provide exclusive breastfeeding?
2. Does physical violence influence a woman's ability to provide prolonged skin-to-skin contact?
3. What forms/combinations of gender-based violence are associated with ineffective Kangaroo Mother Care?
4. Does polyvictimization influence a woman's ability to provide kangaroo mother care?

Study Design

This study employed different methods in order to address its specific aims. First a literature review was conducted to analyze the relationship between GBV and breastfeeding

practices. Secondly, a secondary data analysis of the 2016 Ethiopia Demographic and Health survey was conducted to assess the relationship between GBV and home birth. Lastly, as part of a larger parent study, a gender-based violence survey was conducted to assess for a woman's life course history of gender-based violence. Data from this survey was used in conjunction with data from the parent study regarding effective KMC practice over time: at initiation, on discharge from the hospital and at the 28th day of the neonate's life. The parent study, *Implementing Research Imitative to Accelerate Scale-Up of Kangaroo Mother Care in Amhara Region of Ethiopia*, is aimed at developing a service delivery model that will result in high coverage (80%+) and quality of KMC for Amhara Ethiopia. The parent study was funded by the World Health Organization through a grant from the Bill & Melinda Gates Foundation. The GBV survey and outcome data from the parent study permitted the assessment of whether GBV is a barrier to effective KMC.

Organization of the Dissertation

The following dissertation is comprised of five chapters. Chapter 1 is an introductory chapter and overview of the dissertation. Chapters 2 through 4 are comprised of three manuscripts addressing the three study aims: *Gender-based violence and breastfeeding practices: Making sense of the literature, Gender-based violence and home birth in Ethiopia*, and *Gender-based violence: A barrier to kangaroo mother care in Amhara, Ethiopia.* Lastly, Chapter 5 is a synthesis of findings and conclusions.

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Chapter 2

Gender-based violence and breastfeeding practices:

Making sense of the literature

Abstract

Breastfeeding is an ideal method to ensure infant nutritional needs are met. However, gender-based violence may affect a woman's ability and willingness to breastfeed. The relationship between gender-based violence and breastfeeding practices is not well understood. The number of studies addressing this relationship are limited, and the findings of the studies are mixed. This review aims to evaluate the available literature, to propose possible reasons for the mixed findings, and to discuss the implications for future research. Of particular interest are inconsistent operational definitions of both abuse and breastfeeding coupled with methodological differences across studies.

Keywords: breastfeeding, gender-based violence, intimate partner violence, childhood sexual violence

Chapter 2: Gender-based violence and breastfeeding practices:

Making sense of the literature

Introduction

Breastfeeding is widely recognized for its benefits to the infant and the mother.[1-4] The World Health Organization (WHO) recommends the initiation of breastfeeding in the first hour of the child's life and exclusive breastfeeding, feeding the child only breastmilk, for the first six months.[2, 4] Exclusive breastfeeding decreases the risk of gastrointestinal infections, reduces infant mortality caused by diarrhea and pneumonia and leads to a quicker recovery time from illness.[2, 4] However, despite these benefits, no country in the world achieves 50% exclusive breastfeeding during the first sixth months.[5]

Various barriers to breastfeeding have been examined, including gender-based violence. Gender-based violence is a complex, global phenomenon that affects every country, ethnicity, race and socio-economic group.[6] It is "an umbrella term for any harmful act that is perpetrated against a person's will, and that is based on socially ascribed gender differences between males and females."[7]

Breastfeeding is an unparalleled method of providing food to an infant and "is the result of biological, innate and behavior impulses and moderated through certain attributes of the mother and the newborn, as well as through the context in which they live."[8] The impact of violence on a woman's self-esteem and confidence may reduce her ability to care for her infant.[8, 9] Additionally, violence has also been shown to directly affect the production of breastmilk by altering hormones acting on the hypothalamo-hypophyseal axis, which plays a major role in the milk let-down reflex.[10] Lastly, women who experience violence are less likely to have a securely attached infant, and are significantly more anxious about aspects of childcare.[11, 12]

Studies that have examined the influence of violence against women on breastfeeding practices are limited in number and report conflicting results. In this paper, I first review 12 studies (available in English, published between 1995 and 2017) to understand possible reasons for conflicting findings and then discuss implications for future research.

Methods

Conceptual definitions

Gender-based violence: Violence against women and girls

Violence against women and girls (VAWG) refers to any form of violence against women including physical intimate partner violence, sexual intimate partner violence, psychological intimate partner violence, sexual violence, stalking, childhood physical abuse and childhood sexual abuse. The term intimate partner violence is often used synonymously with domestic violence, wife abuse, battering, and violence against women. The Centers for Disease Control and Prevention and the WHO have called for the use of the term intimate partner violence,[13] which "includes physical violence, sexual violence, stalking and psychological aggression (including coercive tactics) by a current or former intimate partner (i.e., spouse, boyfriend/girlfriend, dating partner, or ongoing sexual partner)."[14] Additionally, the WHO defines child abuse as **"**all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power."[6]

Breastfeeding

Breastfeeding was conceptualized, in this review, as any aspect of breastfeeding including type of feeding, initiation of breastfeeding, duration of breastfeeding, and/or exclusivity of breastfeeding.

Search strategy and search terms

The strategy to identify the sample of articles for review involved, first, an electronic search of PubMed and Web of Science databases for eligible documents and, second, hand-search of references of the eligible documents identified through the two databases. Figure 2.1 displays the search terms used to identify studies investigating the influence of VAWG on breastfeeding practices.

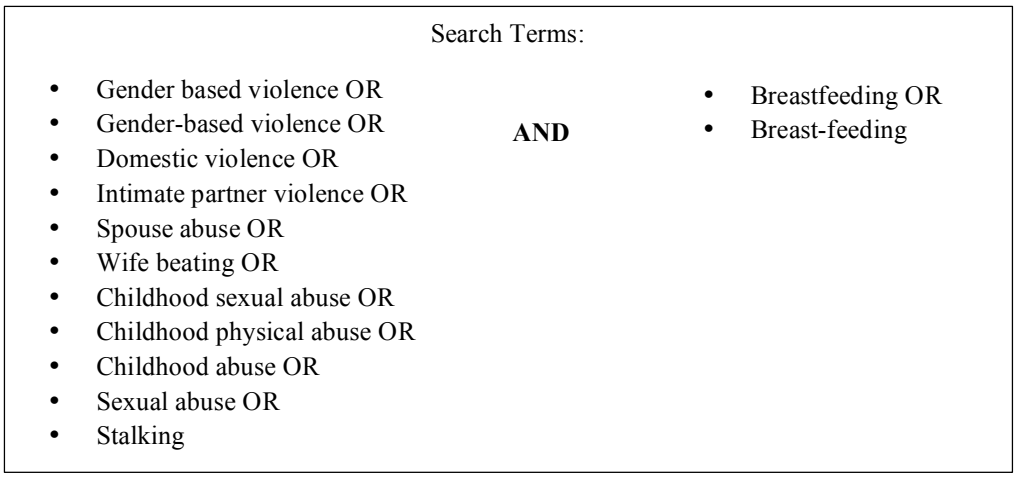

Figure 2.1: Search Terms

Inclusion Criteria

Quantitative primary research studies, available in English, which assessed the relationship between VAWG and breastfeeding practices, were eligible for inclusion. Qualitative studies, primary research in a language other than English and research reviews including meta-analyses were excluded.

Search Results and Selection

The primary author conducted an electronic search that yielded 189 potentially eligible documents. She screened titles and abstracts of these 189 documents against the inclusion criteria. Duplicate documents (50) and those not meeting the inclusion criteria (114) were removed, leaving 25 potentially eligible documents. The author hand-searched the references of these documents, yielding 1 new potentially eligible document. She read these 26 documents in

full. Following full reading, she removed 14 documents not meeting the inclusion criteria. A total of 12 eligible documents were used in the review. Figure 2.2 shows the screening process.

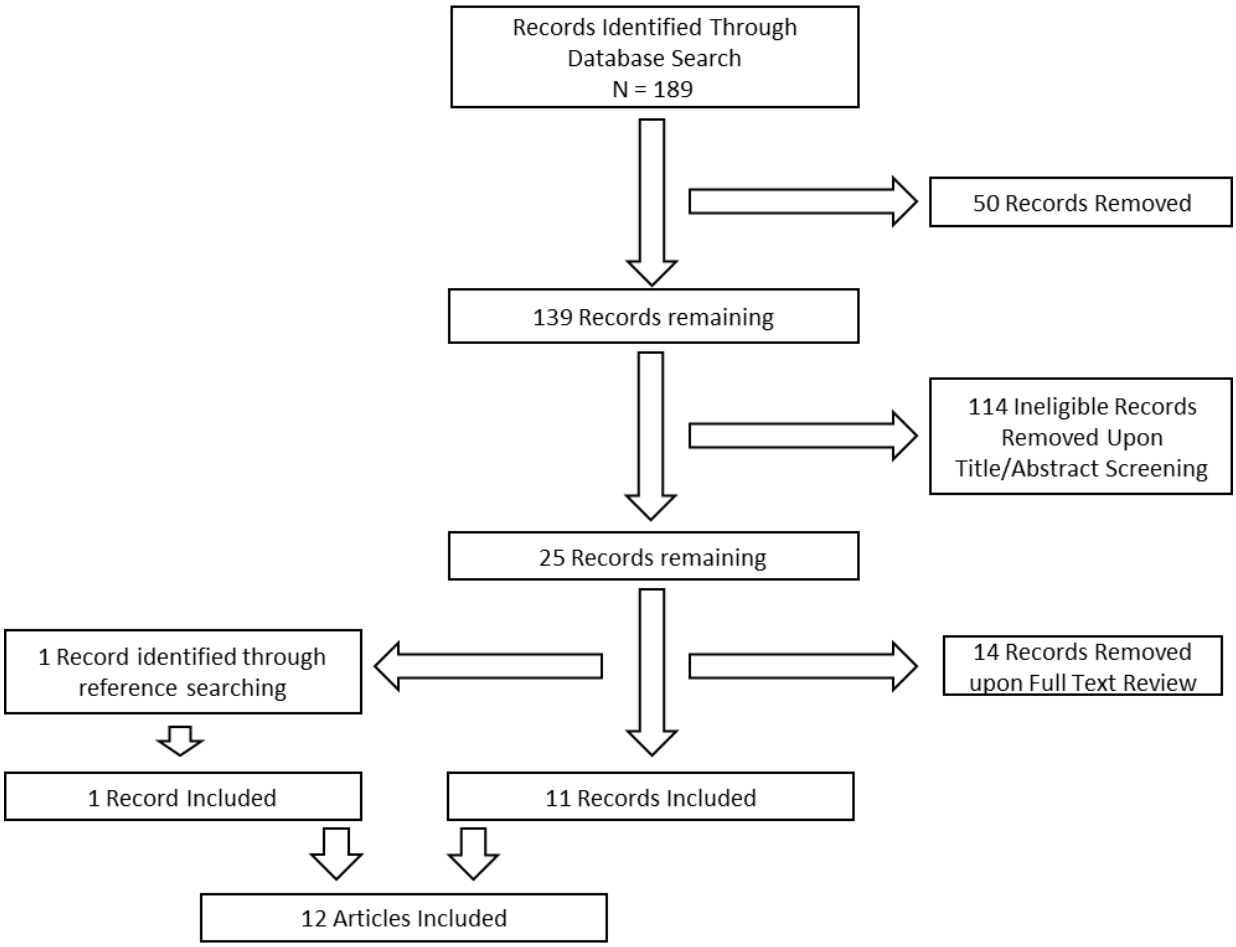

Figure 2.2: Article Selection Process

Data Extraction and Management

The following data were extracted from the 12 included studies to be used in the analysis: author, year, country, type of study, sample size, violence measures/definition, breastfeeding measures/definition, assessment tools used and results. Articles were read for content and then reread in order extracted data which was inputted into excel spreadsheets for analysis.

Data Analysis

Compiled excel spreadsheets were used to compare and contrast studies based on definitions, methodology, analysis and findings.

Assessment of Study Quality

A quality assessment form was developed based on the *Quality Assessment Tool for Systematic Reviews of Observational Studies*.[15] Five categories were evaluated: sampling method, response rates, measurement of independent variables, confounders, and sensitivity/privacy. (See Table 2.1)

To ensure that the results of a study are representative of the population of interested, how the sample was derived is important. The sampling method of each study was classified as probability sampling (ideal) or as non-probability sampling. Additionally, response rates were reviewed. Studies were classified as reporting a response rate (ideal) or not reporting a response rate. If the response rate was less than 60% the study was classified as not reporting a response rate.

It is generally agreed upon that the reporting of VAWG is often underreported. Several scales and assessments have been developed and tested. However, no single intimate partner violence screening tool has well-established psychometric properties.[16] Studies have shown that the phrasing of survey items can influence disclosure rates.[17] Additionally, behaviorally specific questions illicit a higher response rates than asking broad questions.[18] Measurement of the independent variable(s) was classified as: 1) utilization of validated tool or modification of validated tool (ideal) 2) investigator derived survey question 3) not reported.

The relationship between VAWG and breast-feeding practices is unclear and may be mediated or moderated through other variables. To understand this relationship, it is important to

control for possible confounders and other covariates. Studies were classified as either controlling for possible confounders and covariates (ideal) or not.

Lastly, due to the sensitive nature of VAWG, special precautions are ideal to ensure safety and disclosure. Some ethical considerations included: specialized training for interviewers, ensuring privacy during the interview and/or providing a list of available resources. Studies were classified as either specifically addressing the unique needs of this population (either providing specialized training OR ensuring privacy during the interview OR providing a list of available resources to women who disclosed experiencing violence) or not.

Two reviewers (the primary author and JM) independently scored each study. The two reviewers had a 93% consensus rate. Discrepancies were discussed and classified once a consensus had been reached. A final quality assessment grading was determined based on guidelines for the *Quality Assessment Tool for Systematic Reviews of Observational Studies.*[15] The quality of four studies was rated as good, seven as satisfactory and one as bad.

Table 2.1: Quality Assessment of Included Studies

	Sampling Method	Response Rate	Measurement of Violence	Confounders	Sensitivity/ Privacy	Quality Assessment*
Acheson (1995)	0	1	0	0	0	Bad
Boyce et al. (2017)	1	1	1	1	1	Good
Bullock et al. (2001)	0	0	1	0	1	Satisfactory
Finnbogadottir & Thies Lagergren (2017)	0	0	1	0	1	Satisfactory
James et al. (2014)	0	0	1	1	1	Satisfactory
Lau & Chan (2007)	0	1	1	1	1	Good
Misch & Yount (2014)	1	1	1	1	0	Good
Moraes et al. (2011)	1	1	1	1	1	Good
Prentice et al. (2002)	1	0	0	1	0	Satisfactory
Silverman et al. (2006)	1	1	0	1	0	Satisfactory
Sorbo et al. (2015)	1	0	1	1	0	Satisfactory
Zureick-Brown et al. (2015)	1	0	1	1	0	Satisfactory

*grading based on Wong, Cheung & Hart, 2008 (100-67% = Good; 66-34% = Satisfactory; 33-0% = Bad)

Results

Characteristics of Included Studies

Table 2.2: Characteristics of Included Studies

Study	Region	Study design	Sample size	Nature of the Sample	Main findings
Acheson (1995)	North America – US (subnational- Ohio)	Longitudinal cohort	724	Clinic based	Women with a history of physical IPV are associated with not breastfeeding
Boyce et al. (2017)	Asia - India	Cross-sectional	10,469	Population based	Women with a history of IPV likely to initiate early breastfeeding (aOR=.81) and less likely to exclusively breastfeed (aOR=.83)
Bullock et al. (2001)	North America – US (subnational-Midwestern US)	Cross-sectional	212	Clinic based	IPV negatively influences breastfeeding practices
Finnbogadottir & Thies Lagergren (2017)	Europe – Sweden (subnational-Southwest Sweden)	Cross-sectional	731	Clinic based	IPV does not influence breastfeeding practices
James et al. (2014)	Australia (subnational - Melbourne)	Cross-sectional	2,621	Clinic based	IPV does not influence breastfeeding practices
Lau & Chan (2007)	Asia – Hong Kong	Cross-sectional	1,200	Clinic based	Women with no history of IPV during pregnancy are more likely to initiate exclusively breastfeeding (aOR=1.84)
Misch & Yount (2014)	Africa – Ghana, Kenya, Liberia, Malawi, Nigeria, Tanzania, Zambia, Zimbabwe	Cross-sectional	4,822	Population based	Women with a history of physical IPV were both more and less likely to initiate breastfeeding early (aOR=0.40-9.00; varied by country) Women with a history of sexual IPV were less likely to initiate early breastfeeding and both more and less likely to exclusively breastfeed (in the last 24 hours) (aOR=.42) Women with a history of emotional IPV were less likely to initiate early breastfeeding (aOR=.54)
Moraes et al. (2011)	South America – Brazil (subnational – Rio de Janeiro)	Cross-sectional	811	Clinic based	Women with a history of severe physical IPV are more likely to stop breastfeeding in the first 5 months (HR=1.3)
Prentice et al. (2002)	North America – US	Cross-sectional	1,220	Population based	Women with a history of childhood sexual abuse are more likely to initiate breastfeeding (aOR=2.58)
Silverman et al. (2006)	North America – US (subnational – 26 states)	Cross-sectional	118,579	Population based	Physical IPV does not influence breastfeeding practices
Sorbo et al. (2015)	Europe - Norway	Longitudinal cohort	53,934	Population based	Women with a history of emotional IPV (aOR=1.28), physical and emotional IPV (aOR=1.39), sexual and emotional IPV (aOR=1.27, or all three forms (aOR=1.47) are at higher risk for early cessation of breastfeeding. Women with a history of childhood sexual violence are at higher risk for early cessation of breastfeeding. (aOR=1.12)
Zureick-Brown et al. (2015)	Asia - India	Cross-sectional	3,552	Population based	Women with a history of physical IPV (aOR=.78) or sexual IPV (aOR.74) are less likely to have exclusively breastfed in the last 24 hours

The 12 included studies were published between 1995 and 2017 and represented six world regions including North America, South America, Europe, Asia, Africa, and Australia. The large majority of the studies were cross-sectional (n=10) and of the two longitudinal studies, one was prospective.[19] Sample size ranged from 212[20] to 118,579.[21]

The authors of eight studies reported a significant association between violence and breastfeeding practices.[8, 19, 22-27] Six studies showed that exposure to violence increased the chances of subpar breastfeeding practices,[8, 19, 22-24, 27] one showed that exposure to violence led to optimal breastfeeding practices,[26] and another study found that violence both negatively and positively affects breastfeeding practices.[25] Lastly, the authors of four studies, however, found no association.[20, 21, 28, 29] (See Table 2.2)

Variation in variables, measurement tools and their operationalization

Table 2.3: Independent variable constructs, measurement and operationalization

Study	Independent Variables	Measurement Tool	Operational Definition[1]
Acheson (1995)	Physical IPV	Chart Review	n/a
Boyce et al. (2017)	Physical IPV Sexual IPV	Based on Revised Conflict Tactics Scale-2	Disaggregated Combination (*physical & sexual*)
Bullock et al. (2001)	Physical IPV Sexual IPV Psychological IPV	Abuse Assessment Screen	Aggregated (*IPV vs no IPV*)
Finnbogadottir & Thies Lagergren (2017)	Physical IPV Sexual IPV Psychological IPV	NorVold Abuse Questionnaire	Aggregated (*IPV vs no IPV*)
James et al. (2014)	Physical IPV Sexual IPV Psychological IPV	Composite Abuse Scale	Aggregated (*IPV vs no IPV*)
Lau & Chan (2007)	Physical IPV Sexual IPV Psychological IPV	Abuse Assessment Screen Revised Conflict Tactics Scale-2	Disaggregated Aggregated (*IPV vs no IPV*)
Misch & Yount (2014)	Physical IPV Sexual IPV Psychological IPV	Based on Revised Conflict Tactics Scale-2	Disaggregated
Moraes et al. (2011)	Severe physical IPV	Revised Conflict Tactics Scale-2	n/a
Prentice et al. (2002)	CSA	Researcher developed question[2]	n/a
Silverman et al. (2006)	Physical IPV	Researcher developed question[3]	n/a
Sorbo et al. (2015)	Physical IPV Sexual IPV Psychological IPV	Researcher developed question[4]	Disaggregated Combinations (*physical and emotional; physical and sexual, sexual and emotional*)
	Childhood psychological abuse Childhood sexual abuse Childhood physical abuse	Researcher developed question[3]	Aggregated (*IPV vs no IPV*) Combinations (*sexual and physical; sexual and emotional*)
Zureick-Brown et al. (2015)	Physical IPV Sexual IPV Psychological IPV	Shortened Revised Conflict Tactics Scale-2	Aggregated (*IPV vs no IPV*) Combination (*physical and sexual*)

[1]how studies analyzed independent variables: separately – individual forms of violence were independent variables, lumped – all forms of violence were combined into one variable, combination – specific combinations of violence were evaluated

[2]"When you were growing up did you feel you were every sexually abuse, or not?"

[3]"During the 12 months before you got pregnant, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way?" " During your most recent pregnancy, did your husband or partner push, hit, slap, kick, choke, or physically hurt you in any other way"

[4]"Someone has over a long period of time systemically tried to subdue, degrade or humiliate you" "someone has threatened to hurt you or someone close to you" "You have been subjected to physical abuse" "You have been forced to have sexual intercourse"

Independent variables:

There was considerable variation in how the independent variable was conceptualized. Eleven studies focused on IPV,[15-21,23,26,27] two on childhood physical and sexual violence,[5,22] and one study focused on *both* IPV and childhood violence.[19] (Table 2.3) Moreover, among the studies using IPV as the independent variable, the component of IPV used varied: seven studies assessed exposure to physical, sexual *and* psychological IPV,[19, 20, 24, 25, 27-29] three assessed exposure to physical IPV only,[8, 21, 22] and one study assessed both physical and sexual IPV, but not psychological IPV exposure.[23]

Measurement of Independent Variables:

Most, but not all, studies relied on existing tools or scales to capture exposure to IPV, such as the Conflict Tactics Scale,[30] the Composite Abuse Scale,[31] the NorVold Abuse Questionnaire[32] or the Abuse Assessment Screen.[33] However, several used patient chart review or relied on a researcher developed tool. These tools are briefly described, below.

Conflict Tactics Scale**.** Five studies used the Revised Conflict Tactics Scale-2 (CTS-2), a shortened version, or an adaptation of this scale.[8, 23-25, 27] It has 78 items which can be used to assess victimization and perpetration among partners in dating, cohabitating or marital relationships.[34] It is the most commonly used instrument to assess intimate partner violence and is often used as the standard against which other measurements scales are assessed.[35, 36] The scale has been shown to have high reliability and high sensitivity in both male-dominant nations and relatively gender-equal nations.[35] However, it has been criticized for not fully encompassing emotional or sexual abuse.[13] The tool designed to be self-administered.

Composite Abuse Scale. One study used the Composite Abuse Scale (CAS).[29] This 30-item scale has high internal consistency and demonstrates content and construct validity,

however it has not been widely used in non-clinical settings.[13] It contains four subscales that measure severe combined abuse, emotional abuse, physical abuse and harrassment.[34] One limitation of this tool is that it lacks items concerning sexual violence. This scale was designed to be self-administered.

NorVold Abuse Questionnaire. One study utilized the NorVold Abuse Questionnaire[28] The Norvold Abuse Questionnaire (NorAQ) was developed by the Nordic research network NorVold and designed to measure physical, sexual and psychological abuse in the health care system among women in five Nordic countries.[32] The NorAQ has good test-retest reliability (84-95%). Specificity ranged from 85-98% and sensitivity ranged from 75-96%.[32] The questionnaire was designed to be self-administered.

Abuse Assessment Screen. Two studies used the Abuse Assessment Screen (AAS),[20, 24] a screening tool with five questions originally developed to screen for violence during pregnancy.[16] Predominantly tested on young, poor women, it has also been evaluated in Brazil and Sri Lanka.[16] Limited psychometric testing found that sensitivity ranged from 93% to 94% and specificity ranged from 55%-99% with a Cronbach's alpha of .56 (poor internal consistency) and test-retest reliability ranges from 0.83 to 0.91.[16, 37] This screening tool was designed to be administered as a face-to-face interview with the women.

The authors of three studies did not use an existing tool to capture exposure to IPV. Acheson (1995) reviewed 800 medical records of women who delivered between 1980 and 1984 for mention of physical intimate partner violence.[22] Silverman et al., (2006) used two questions to assess for physical IPV.[21] The questions were identical except that one assessed for violence during pregnancy and one assessed exposure to violence prior to pregnancy (See Table 2.2). Lastly, Sorbo et al., (2015) used modified questions from two existing scales, the NorVold

Abuse Questionnaire and the Abuse Assessment Scale, to assess exposure to psychological and sexual IPV.[19] (See Table 2.2) The question regarding physical IPV has been used in other studies, but it's psychometric properties are unknown.[19]

Operationalization of Independent Variable:

Lastly, authors of the included studies had to make strategic decision on how to operationalize IPV for analysis. Three studies focused on physical violence and dichotomized this variable (present or absent).[8, 21, 22] Eight studies assessed for more than one form of violence.[19, 20, 23-25, 27-29] For example, investigators operationalized the independent variable(s) in one of three ways for analysis: 1) they combined all subtypes of IPV (physical IPV, sexual IPV and/or emotional IPV) and examined a binary independent variable (history of IPV vs no history of IPV),[20, 24, 27-29] 2) they separated all subtypes of IPV and evaluated the influence of each separately,[19, 23-25] or 3) they combined two forms of IPV together (experienced physical AND sexual IPV vs did not experience physical AND sexual IPV).[19, 23, 27]

Only two studies examined the influence of childhood violence on breastfeeding practice.[19, 26] (See Table 2.2) Once again, investigators made strategic decisions about which aspect of childhood violence to include, how to measure these aspects and how to operationalize them for analysis. While both studies included childhood sexual violence, Sorbo et al. (2005) also included childhood physical abuse and childhood psychological abuse. Both studies used researcher-developed questions to assess for violence. Prentice et al. (2002) only had one form of violence to analyze, but Sorbo et al. (2005) lumped all forms of childhood violence together (any childhood violence vs none) and also analyzed combinations of childhood violence.

Dependent variables:

There was also variation in how the dependent variable was conceptualized. Four studies focuses on a single component of breastfeeding[8, 22, 26, 28] while the others examined multiple

components.[19-21, 23-25, 27, 29] For example, nine studies examined violence in relation to breastfeeding initiation,[19-21, 23-27, 29] five studies examined duration of breastfeeding and / or early cessation of breastfeeding,[19-21, 28, 29] while eight studies evaluated type of feeding.[8, 19, 22-25, 27] (See Table 2.4)

Table 2.4: Dependent variables, measurement and operationalization\

Study	Dependent Variable	Recall Time	Measurement tool	Operationalization
Acheson (1995)	Type of Feeding	prospective	Medical Chart	Any BF vs not
Boyce et al. (2017)	Breastfeeding Initiation	< 12 months	Survey Question	n/a
	Type of Feeding	< 12 months	Survey Question	EBF vs not
Bullock et al. (2001)	Breastfeeding Initiation	prospective	WIC Vouchers	BF vs not
	Duration	prospective	WIC Vouchers	BF vs formula feeding
Finnbogadottir & Thies Lagergren (2017)	Duration	1-1.5 years	Survey Question	EBF vs not
James et al. (2014)	Breastfeeding Initiation	< 8 months	Survey Question	Ever BF vs not
	Duration	< 8 months	Survey Question	Any BF vs not
Lau & Chan (2007)	Type of Feeding	2-5 days	Survey Question	EBF vs Mixed feeding vs formula feeding
	Breastfeeding Initiation	2-5 days	Survey Question	EBF vs not
Misch & Yount (2014)	Breastfeeding Initiation	< 6 months	Survey Question	n/a
	Type of Feeding	< 6 months	Survey Question	EBF vs not
Moraes et al. (2011)	Type of Feeding	< 5 months	Survey Question	EBF vs not
Prentice et al. (2002)	Breastfeeding Initiation	< 3 years	Survey Question	Ever BF vs not
Silverman et al. (2006)	Breastfeeding Initiation	< 6 months	Survey Question	Ever BF vs not
	Early Cessation	< 6 months	Survey Question	BF vs not
Sorbo et al. (2015)	Type of Feeding	6 months	Survey Question	EBF vs not
	Type of Feeding	6 months	Survey Question	Any BF vs not
	Breastfeeding Initiation	6 months	Survey Question	Ever BF vs not
	Early Cessation	6 months	Survey Question	Any BF vs not
Zureick-Brown et al. (2015)	Breastfeeding Initiation	<= 180 days	Survey Question	n/a
	Type of Feeding	<= 180 days	Survey Question	EBF vs not

Measurement of dependent variables:

The majority of study studies used survey questions to capture initiation breastfeeding, duration of breast feeding and the type of breastfeeding.[8, 19, 21, 23-29] However, one study relied on WIC vouchers as an indication of whether or not women had initiated breastfeeding,[20] while another relied on review of the women's six-week postpartum visit medical record notes.[22] Recall time also varied from prospective data collection to up to 1-year recall.

Operationalization of dependent variables:

Initiation of breastfeeding

Of the nine studies focusing on breastfeeding initiation, the time period of interest varied: three studies examined whether breastfeeding was initiated within the first hour of life,[23, 25, 27] one whether breastfeeding was initiated within two to five days after birth,[24] another whether breastfeeding was initiated in the first month of life[20] and the other four studies investigated whether breastfeeding had ever been imitated.[19, 21, 26, 29] Of the studies that examined whether breastfeeding was ever initiated at a time point greater than one hour after birth, the majority examined whether or not any breastfeeding occurred. However, one study specifically looked at whether exclusive breastfeeding was initiated, as opposed to mixed feeding or formula feeding.[24]

Duration of Breastfeeding/ Early Cessation of Breastfeeding

Two studies examined whether women breastfed through six months[19, 29] and one study followed women for one year.[28] Silverman et al. (2006) defined early cessation of breastfeeding to be if the woman stopped breastfeeding in the first four weeks. Lastly, Bullock et al. (2001) performed a survival analysis to determine how duration of breastfeeding varied between exposed and unexposed women. Finnbogadottir & Thies Lagergren (2017) were the only investigators to distinguish exclusive breastfeeding from any breastfeeding, in regards to the duration or early cessation of breastfeeding.

Type of Feeding

Two studies evaluated whether women provided any breastfeeding versus no breastfeeding,[19, 22] five examined exclusive breastfeeding versus not exclusively breastfeeding (mixed breastfeeding or formula feeding),[8, 19, 23, 25, 27] and one study examined exclusive breastfeeding, mixed feeding and formula feeding.[24] All five studies measured duration or early cessation by asking questions on a survey.

Discussion

Summary

Amongst the 12 articles that were reviewed, there were mixed results: VAWG negatively influences breastfeeding practices,[8, 19, 22-25, 27] VAWG positively influences breastfeeding practices[25, 26] and VAWG does not influence breastfeeding practices.[20, 21, 28, 29] Upon further review it is not surprising that results were mixed due to the considerable variation in quality, definition, measurement and operationalization of both the independent and dependent variables.

Understanding the Mixed Results

No Association

Several methodological differences could help account for why four studies found no statistically significant relationship between exposure to violence and breastfeeding practices.[20, 21, 28, 29] In terms of the independent variable (VAWG), three studies measured physical, sexual and psychological intimate partner violence, but choose to lump all three forms into a binary variable (ever experienced violence vs never) for analysis. Every study that where this was the sole analysis found no association. The fourth study only evaluated physical intimate partner violence but did not use a validated scale to measure it. Another study that only evaluated physical intimate partner violence but used the CTS-2, the current gold standard, did find significant results. Three of the four studies measured violence with either their own question or with scales having known limitations, which could have led to underreporting and/or misclassification of women.

In summary, every study that aggregated forms of VAWG into a dichotomous variable found no association with breastfeeding. This may suggest that there is a unique combination or form of violence that is influencing breastfeeding practices which becomes obscured when all forms of violence are combined. Additionally, no association may also be found when

behaviorally specific or validated scales are not used. Due to the sensitive nature of VAWG, it is important that it is measured in an appropriate manner that helps to prevent non-disclosure. Lastly, the quality of all studies that were rated as satisfactory found no association, while all studies rated as good did find an association.

Negative Influence vs Positive Influence

The majority of the studies found that exposure to violence led to subpar breastfeeding practices, but two studies found a positive relationship.[25, 26] The first study is a cross-sectional study from the US that found that women who had experienced childhood sexual violence where 2.58 times more likely to initiate breastfeeding that women who had not experienced childhood sexual abuse. However, due to this study's cross-sectional design, it did not follow up to see if women exclusively breastfed or for how long they continued to breastfeed. Qualitative studies with women who experienced childhood sexual violence revealed that some women had a desire and intention to breastfeed, but that they were unable to begin or continue breastfeeding.[38, 39] Therefore, this result might not be contradictory with other studies. Women may initiate or want to initiate breastfeeding, but then choose not to continue, as seen in a Norwegian study that found that women who had experienced childhood physical or sexual violence were more likely to stop breastfeeding within the first four months.[19]

The second study was a secondary data analysis of national Demographic and Health Surveys from eight African countries: Ghana, Kenya, Liberia, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe.[25] Most data from the studies supported that exposure to violence negatively influenced breastfeeding practices, but there were three exceptions. In Tanzania and Malawi, physical intimate partner violence was associated with increased rates of breastfeeding initiation within one hour of birth and in Zambia sexual intimate partner violence was associated

with an increased chance of exclusive breastfeeding in the last 24 hours.[25] Further research would be needed to investigate whether there were cultural differences that influenced the decision to breastfeed and whether or not the women continued to breastfeed after initiation.

To understand the relationship between violence and breastfeeding practices, two hypotheses have been brought forth.[25, 38, 40, 41] The deficit hypothesis suggests that exposure to violence may inhibit a mother's ability or willingness to breastfeed either through negative associations with her breasts or through negative coping mechanisms.[25, 27, 38, 41] The compensatory hypothesis suggests that women who have experienced violence may be more sensitive to the needs of their babies and be more likely to breastfeed.[25, 27] In light of these two theories, it is possible that the conflicting results are not actually conflicting, but may be representative of two different pathways between violence and breastfeeding behaviors. While the current literature is more supportive of the deficit hypothesis, further investigation is needed to determine whether certain populations are more prone to follow the compensatory hypothesis.

Conclusion

The influence of VAWG violence on breastfeeding practices remains inconclusive. However, this review has described how inconsistent definitions, measurement and analysis choices can lead to inconsistent findings and the inability to compare results. Based on the findings of this review, more consistent measures are needed to further elucidate this phenomenon. However, based on the current evidence, VAWG does appear to have an influence on breastfeeding practice.

This review has revealed several implications for future work. First, utilizing a standardized definition of intimate partner violence and childhood abuse will mean populations under investigation will be comparable. Secondly, understanding the cumulative effect of

polyvictimization throughout a woman's life course is understudied.[42] Evaluating not only childhood forms and adult forms of violence but also the cumulative effect of polyvicitmization will help us understand this relationship. Thirdly, it is important to evaluate each form of violence separately, before combining the different forms. Doing so may allow us to identify specific forms or combinations that increase risk as opposed to those that do not, and also permit selection of more appropriate variables in future studies. Fourth, tool selection and/or survey item development is critically important. VAWG is underreported and a sensitive topic. Therefore, ensuring appropriate, behaviorally specific questions that measure the constructs under investigation is essential. Fifth, there is a severe lack of information from low and middle-income countries. Only four were from low- or middle-income countries.[8, 23, 25, 27] Experiencing VAWG is a global phenomenon and it is therefore important to consider this when thinking about generalizability of the studies. It is also important to consider how definitions may vary across cultures and whether specific tools are appropriate for the context in which they are going to be used. Lastly, further investigation into the deficit and compensatory hypotheses will help elucidate this phenomenon.

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Chapter 3

Gender-Based Violence and Home Birth in Ethiopia

Abstract

Background: Despite recommendations and guidance from the 2015-2016 Health Sector Transformation Plan, developed by the Ethiopian government, 73% of Ethiopian women deliver at home. Previous studies have identified schooling, rural location, and cost as barriers to facility births. Gender-based violence is a multifaceted phenomenon that affects maternal and neonatal health. However, its relationship with decisions surrounding place of birth is uncertain.

Method: Secondary correlational analysis of the 2016 Demographic and Health Survey for Ethiopia, a nationally representative household survey. All married women, 15-49, who had delivered in the previous 12 months and had completed the domestic violence and female genital cutting module were included (n=917).

Results: Women who experienced more than three forms of violence were at higher risk of delivering at home even after controlling for previously known barriers. A woman's risk of a home birth increased as the number of forms of violence they experienced increased. Women who were exposed to three or more forms of violence were 1.92 times more likely to deliver at home compared to women who were not exposed to three or more forms (p=.0166). Women who had experienced four or more forms of violence were 2.21 times more likely to deliver at home compared to women who were had not experienced four or more forms of violence (p=.0212) and women who had survived five or more forms of violence were 3.31 times more likely to deliver at home as compared to women who reported four or fewer forms of violence (p=.0308).

Conclusions: Home birth continues to endanger the lives of mothers and babies. In addition to current efforts to address socioeconomic barriers, programming needs to address gender-based violence, especially polyvictimization.

Chapter 3: Gender-Based Violence and Home Birth in Ethiopia

Introduction

Despite progress, maternal and infant mortality rates remain high in certain areas of the world. With approximately 2,614,000 neonates dying in 2017[1] and 303,000 mothers dying in 2015,[2] immediate interventions are needed to ensure the survival of mothers and babies around the world. Ethiopia is one of five countries that accounts for half of all neonatal deaths, with 1 in every 36 baby dying in the first month of life.[1] Ethiopia has the second highest number of maternal deaths, with a woman's lifetime risk of maternal death being 1 in 64.[2]

To reduce maternal and infant mortality rates, the Ethiopian Government developed the 2015-2016 Health Sector Transformation Plan, which outlined specific recommendations. These recommendations include delivery at a health facility.[3] Facility birth helps to ensure that a skilled provider is present, complications will be caught and managed in a timely manner and proper educations will be provided to the mother. However, between 2011 and 2016, 73% of Ethiopian women delivered at home.[4] Due to the high rates of home birth and the implications for maternal and newborn health, a few studies have examined the barriers to facility births in Ethiopia. Factors such as schooling, location, cost, parity and awareness have been identified as influencing a woman's decision to deliver at home.[5-9]

Gender-based violence is a multifaceted phenomenon that affects women in all countries, ethnicities, and socio-economic classes.[10] Gender-Based Violence is "an umbrella term for any harmful act that is perpetrated against a person's will, and that is based on socially ascribed gender differences between males and females."[11] It includes, but is not limited to, acts such as intimate partner violence, sexual violence, sexual exploitation, forced or early marriage and harmful practices, such as female genital mutilation/cutting.[11] Gender-based violence has been

shown to influence maternal and infant health throughout pregnancy.[12-18] A woman with a history of gender-based violence is more likely to seek antenatal care later, to attend fewer antenatal care visits, to deliver a low birth weight and/or premature infant and to have suboptimal breastfeeding practices.[12-18]

The Ethiopian Ministry of health recommends that all women deliver in a health facility with a skilled attendant.[3] Thus, it is important to understand the influence of gender-based violence on woman's decision to deliver at home. Only one study has evaluated the influence of gender-based violence on home birth.[19] A study from Bangladesh concluded that women who had experienced intimate partner violence were 49% more likely to deliver at home, even after controlling for sociodemographic, autonomy, and behavioral factors.[19]

Intimate partner violence (IPV), "any behavior within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship"[20] is only one form of gender-based violence. Women in Ethiopia are exposed to other forms of gender-based violence including: female genital mutilation/cutting (65%) and child marriage (58%).[4] The World Health Organization defines female genital mutilation, often used interchangeably with female genital cutting, as "all procedures involving partial or total removal of the external female genitalia, or other injury to the female genital organs whether for cultural or other non-therapeutic reasons."[21] This study aimed to evaluate the relationship between a woman's exposure to gender-based violence and home birth. By evaluating individual forms of gender-based violence and polyvictimization, experiencing more than one form of violence, this study seeks to elucidate the relationship between gender-based violence and home birth in Ethiopia.

Methods

The study was a secondary analysis of data obtained from the 2016 Demographic and Health Survey for Ethiopia, a nationally representative cross-sectional household survey implemented by the Central Statistical Agency.[22] The survey, implemented from January 2016 until June 2016, included 15,683 women aged 15-49 years. Of these, 5,860 women were selected to participate in a survey module specific to domestic violence.[22] The sub-sample of women who were selected and completed the domestic violence module was weighted to ensure the sub-sample was nationally representative. For this analysis, married women who had completed the gender-based violence and female genital cutting module and had delivered in the previous 12 months were included (n=917).

Outcome Variable: Home Birth

The 2016 Ethiopian Demographic Health Survey recorded location of birth. Place of delivery was recorded as "respondent's home", "other home", "government hospital", "government health center", "government health post", "private hospital", "private clinic", "NGO: health facility", "NGO: other health facility", or "other". Women who selected "respondent's home" or "other home" were considered positive for a home birth. The binary outcome was whether (=1) or not (=0) a woman delivered at home as opposed to a public or private facility in the 12 months before interview.

Exposure Variables: Gender-based Violence

The 2016 Ethiopian Demographic and Health Survey includes the Domestic Violence Module (version 7) and the Female Genital Cutting module (version 7). The following variables were used in the analysis:

Female genital mutilation/cutting. Female genital mutilation/cutting was measured as whether (=1) or not (=0) a woman reported having undergone the practice.

Witnessing in childhood parental IPV. Exposure to inter-parental violence was measured as whether (=1) or not (=0) a woman had witnessed when she was a child, physical IPV against her mother by her father.

Child marriage. This variable was measured as whether (=1) or not (=0) a woman had been married (cohabitated) before the age of 18, indicating child marriage. Additionally, a second variable was created to measure whether (=1) or not (=0) a woman had been married (cohabitated) before the age of 15 indicated very early child marriage.

IPV. Three IPV variables measured whether (=1) or not (=0) a woman reported experiencing physical, sexual, or emotional IPV. Additionally, a fourth variable was created to indicate whether (=1) or not (=0) a woman had experienced any form of IPV.

Polyvictimization. Five polyvictimization variables were created to measure whether (=1) or not (=0) a woman had experienced at least two forms of violence, whether (=1) or not (=0) a woman had experienced at least three forms of violence, whether (=1) or not (=0) a woman had experienced at least four forms of violence, whether (=1) or not (=0) a woman had experienced at least five forms of violence and whether (=1) or not (=0) a woman had experienced all six forms of violence. Additionally, three polyvictimization variables were created to measure whether (=1) or not (=0) a woman had experienced polyvictimization (> two forms) in childhood (female genital mutilation/cutting, child marriage and/or witnessing parental IPV), polyvictimization (> two forms) in adulthood (physical, sexual and/or emotional IPV) and polyvictimization (at least one for in childhood AND at least one form in adulthood) across the

lifespan (female genital mutilation/cutting OR child marriage OR witnessing parental IPV AND physical OR sexual OR emotional IPV).

Covariates

Other variables have been identified as influencing a woman's decision to have a home birth in Ethiopia: age, parity, schooling and wealth.[8] In the multivariable analysis, the following variables were included: mother's age in years, the number of pregnancies a woman had had, her highest level of schooling (none, primary, secondary, more than secondary), wealth quintile (lowest, second, middle, fourth, highest) and location of residence (urban vs rural).

Analyses

Univariate analyses were used to describe the sample. Next, Rao-Scott chi-square tests, which adjusted for the complex survey design, were performed to estimate associations between gender-based violence variables and home birth. Next, multiple logistic regression was used to assess the relationship between each gender-based violence variable and home birth controlling for all covariates. Survey methods were used to adjust for post-sampling weights when computing the population parameters and the corresponding standard error estimates. Analyses were conducted using SAS software, Version [9.4]. A $p < .05$ was considered statistically significant.

Results

Women's Characteristics and Place of Birth by Co-variates

Table 3.1 displays the women's characteristics and mean/percentage of the covariates in relationship to home birth. The majority of women (60%) delivered at home. The mean age was 28.15 (sd: 6.18) years, and the group of women who delivered at home (28.46 sd: 6.14) did not significantly differ in terms of age from the women who did not deliver at home (27.69 sd: 6.22).

The sample was predominantly rural (88.36%) and uneducated (58.32). Women who lived in rural areas had less schooling and were poorer were more likely to give birth at home (all p<.0001). On average, women had 3.92 (sd: 2.44) pregnancies. Parity was significantly higher for women who delivered at home (mean: 4.5 sd: 2.5) compared to women who did not (mean: 3.06 sd: 2.09).

Table 3.1: Place of birth by covariates (weighted column percentages and frequencies)

	Place of Birth				Total		
	Home		Health Facility				p-value
		n		n		n	
Place of Birth (%)	59.93	550	40.07	368	100	917	
Age (Mean)	28.5	550	27.7	368	28.2	917	.0642
Residence							**<.0001**
Rural (%)	98.2	540	73.7	271	88.4	811	
Urban (%)	1.8	10	26.3	97	11.6	107	
Schooling							**<.0001**
None (%)	70.4	387	40.3	148	58.3	535	
Primary (%)	28.1	155	37.7	139	32.0	293	
Secondary (%)	1.5	8	14.2	52	6.6	60	
More than Secondary (%)	.03	0.2	7.8	29	3.2	29	
Wealth Quintile							**<.0001**
Lowest (%)	32.4	178	10.2	37	23.5	216	
Second (%)	25.9	142	14.3	53	21.2	195	
Middle (%)	21.7	119	25.5	94	23.2	213	
Fourth (%)	15.0	82	19.0	70	16.6	152	
Highest (%)	5.1	28	31.0	114	15.5	142	
Parity (Mean)	4.5	550	3.1	368	3.9	917	**<.0001**

Bivariate Analysis

Table 3.2 shows the unadjusted odds ratios for home birth by exposure to gender-based violence. The Rao-Scott chi-square tests, unadjusted for other covariates, show that women who have reported experiencing emotional IPV (OR=1.83, p=.0184), any IPV (OR= 1.67, p=.0364), female genital cutting/mutilation (OR=2.28, p=.0006), child marriage (OR= .76, p=.0057), or very early child marriage (OR=2.44, p=.0002) have greater odds of delivering at home. Women

who reported experiencing at least two forms of gender-based violence (OR=1.58, p=.0390), at least three forms (OR=2.33, p=<.0001), at least four forms (OR= 3.07, p=<.0001) and at least five forms (OR=5.48, p=.0002) all had greater odds of a home birth. Women who experienced polyvictimization in childhood (OR=1.96, p=.0007) and women who experienced polyvictimization across the lifespan (OR=1.74, p=.0297) also had greater odds of delivering at home. Only five women experienced all six forms of gender-based violence, four delivered at home and one did not. Although this was a significant finding, this variable was omitted from analysis due to the low frequency of women experiencing all six forms of gender-based violence.

Table 3.2: Unadjusted and adjusted odds of home birth by exposure to gender-based violence

Gender-Based Violence Variables	Unadjusted			Adjusted*		
	OR	95% CI	p-value	OR	95% CI	p-value
Physical IPV	1.67	.90, 3.12	.1042	1.83	.94, 3.57	.0775
Emotional IPV	**1.83**	1.08, 3.09	**.0184**	1.81	.98, 3.33	.0562
Sexual IPV	1.70	.84, 3.43	.1289	1.14	.54, 2.39	.7386
Any IPV	**1.67**	1.02, 2.72	**.0364**	1.79	.99, 3.23	.0525
FGM/C	**2.28**	1.42, 3.66	**.0006**	1.56	.82, 2.97	.1786
Child Marriage	**1.76**	1.15, 2.70	**.0057**	.782	.47, 1.30	.3411
Very Early Child Marriage	**2.44**	1.50, 3.98	**.0002**	1.38	.81, 2.35	.2388
Witness	1.40	.93, 2.11	.0947	1.45	.87, 2.40	.1518
At least 2 forms	**1.58**	1.1, 2.46	**.0390**	1.03	.60, 1.77	.9138
At least 3 forms	**2.33**	1.49, 3.66	**<.0001**	**1.92**	1.13, 3.27	**.0166**
At least 4 forms	**3.07**	1.71, 5.49	**<.0001**	**2.21**	1.13, 4.34	**.0212**
At least 5 forms	**5.48**	1.85, 16.23	**.0002**	**3.31**	1.12, 9.81	**.0308**
Poly in childhood	**1.96**	1.30, 2.95	**.0007**	1.15	.70, 1.87	.5858
Poly in Adulthood	1.68	.87, 3.25	.1158	1.55	.75, 3.17	.2336
Poly across the lifespan	**1.74**	1.05, 2.90	**.0297**	1.72	.95, 3.13	.0733

*Adjusted models control for age, location of residence, schooling, wealth and parity and are adjusted for the Ethiopia 2016 Demographic Health Survey complex sample design.

Multivariate Analysis

In multiple logistic regression models adjusting for age, location of residence, schooling, wealth and parity (Table 3.2), a woman who experienced at least three forms of violence (aOR=1.92, p=.0166), at least four forms of violence (aOR=2.21, p=.0212), and at least five forms of violence (aOR=3.31, p=.0308) had greater odds of delivering at home. All three models

had a percent concordant of > 80 (80.6, 80.1, 80.4 respectively), suggesting good predictive performances.

Association of Covariates in Adjusted Model

In a logistic regression model with all covariates (age, location of residence, schooling, wealth, parity), all were significantly ($p<.05$) associated with home birth. Younger women had a lower risk of a home birth (aOR=.93, p=.0206). Women who lived in rural areas (aOR=6.21 p=.0029) or those with more children were at higher risk of home birth (aOR=1.35, p=.0014). Women with no formal schooling or those who attended primary school were more likely to have a home birth as compared to women who completed more than a secondary education (aOR=54.24, p=.0001; aOR=40.81, p=.0003). Women in the lowest wealth quintile and those in the second lowest wealth quintile were 5.13 times and 3.11 times more likely to deliver at home then women in the highest wealth quintile. (See Table 3.3)

Table 3.3: Adjusted odds of home birth by covariate

Variable	aOR	95% CI	p-value
Age (Mean)	**0.93**	0.87, 0.99	**0.0206**
Residence			
Rural (%)	**6.21**	1.88, 20.57	**0.0029**
Urban (%)	1		
Schooling			
None (%)	**54.24**	7.25, 405.65	**0.0001**
Primary (%)	**40.81**	5.66, 294.51	**0.0003**
Secondary (%)	10.25	1.11, 94.34	0.0399
More than Secondary (%)	1		
Wealth Quintile			
Lowest (%)	**5.13**	2.18, 12.09	**0.0002**
Second (%)	**3.11**	1.29, 7.52	**0.0120**
Middle (%)	1.47	0.60, 3.58	0.3976
Fourth (%)	1.72	0.74, 4.02	0.2099
Highest (%)	1		
Parity (Mean)	**1.35**	1.12, 1.63	**0.0014**

Adjusted odds ratio controls for all other covariates

Discussion

Summary

As outlined by the 2015-2016 Health Sector Transformation Plan, developed by the Ethiopian government, delivery at a health facility is pivotal in helping to reduce maternal and infant mortality in Ethiopia.[3] The results of this study were consistent with previous studies, which suggest that women who live in a rural area, are younger, less educated, poorer, or have more children have a higher likelihood of delivering at home.[5-9] Additionally, this study found that women who reported experiencing gender-based violence also have a greater likelihood of delivering at home, even when controlling for the previously mentioned barriers.

This novel study was the first to investigate the association between gender-based violence and home birth in Ethiopia. Previously, only one other study had investigated the relationship between IPV and home birth in Bangladesh.[19] This study has added insight into our current understanding of how gender-based violence can influence maternal and child health through women's choice in place of birth by exploring not only just IPV, but also other forms of gender-based violence and polyvictimization. The bivariate analyses showed that emotional IPV, any exposure to IPV, female genital cutting/mutilation, child marriage, and experiencing multiple forms of violence are all associated with greater odds of delivering at home. After controlling for factors known to influence home birth, individual forms of violence were not significant. However, experiencing multiple forms of violence (at least 3 forms, at least 4 forms and at least 5 forms) was significant. This suggests that it may not be an individual form of violence that increases the odds that a woman will have a home birth, but it is the cumulative effect of multiple forms of violence that increases the likelihood of her doing so. This study found that polyvictimization led to significantly greater odds of delivering at home. The odds of

home birth for a woman who reported experiencing three or more forms of violence is 1.92 times higher while the odds for a woman who has experienced four or more forms of violence is 2.21 higher. Even more startling is the result that suggest that the odds for a women who experience five or more forms of violence are 3.31 times higher than a woman who did not.

Gender-based violence not only is associated with home birth, but it also is associated with a higher risk of adverse birth outcomes such as preterm birth, stillbirth and lower birth weight. Therefore, women who experience gender-based violence are not only at higher risk of delivering an infant that requires skilled care, but they are also at higher risk of being in a situation where a skilled provider is not present.

Implications for research and practice

Current gender-based research often focuses on a particular time period or form of violence. While this can still be beneficial to helping us understand this phenomenon, the results from this study suggested that it is important to examine not only individual forms of violence, but also polyvictimization on outcomes of interest. Therefore, it is imperative that we develop screening tools and methods that evaluate all women for exposure to a variety of gender-based violence forms.

The WHO has recommended that a skilled attendant (accredited health profession: midwife, doctor or nurse) is present at every birth in order to make pregnancy safer.[23] In the context of Ethiopia, where 73% of all births occur at home, it is important to evaluate the influence of gender-based violence as a barrier to access to health facility and skilled care for birth. Interventions should address not only socio-economic, geographic and cultural factors that are barriers to care, but also the role of gender-based violence and women's empowerment.[4]

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Chapter 4

Gender-Based Violence: A barrier to Kangaroo Mother Care in Amhara, Ethiopia

Abstract

Background: Kangaroo mother care is an ideal intervention for low birth weight infants, in low resource areas, to decrease the risk of mortality. Gender-based violence is a complex phenomenon that has been shown to increase a woman's risk of delivering a low birth weight baby and may also be a barrier to effective kangaroo mother care.

Objective: The aim of this study is to conduct a preliminary evaluation of the influence of gender-based violence on kangaroo mother care in Amhara, Ethiopia.

Method: A gender-based violence survey was combined with secondary data from a larger prospective cohort parent study to investigate the relationship between gender-based violence and kangaroo mother care during the neonatal period. Women who deliver a low birth weight infant were taught about kangaroo mother care and followed through the neonatal period (n=74). All data were entered into RedCap and analyzed with SAS software Version [9.4].

Results: Women who reported physical intimate partner violence (aOR =5.06, p=.0372) or polyvictimization across their life (exposure to childhood violence and adult violence) (aOR = 3.87, p=.0332) were at higher risk of early cessation of kangaroo mother care.

Conclusion: Gender-based violence has negative maternal and child health consequences. A woman who has experienced violence is at higher risk of delivering a low birth weight infant and of ineffective kangaroo mother care. Additional investigation is needed to elucidate further this phenomenon and to provide guidance for kangaroo mother care interventions.

Chapter 4 Gender-Based Violence: A barrier to Kangaroo Mother Care in Amhara, Ethiopia

Introduction

Despite efforts, and a significant decrease in the under-five mortality rate, Ethiopia has the sixth highest number of neonatal deaths (death occurring in the first 28 days of life) per year in the world.[1] *Low birth weight (LBW),* birth weight of less than 2500g,[2] is a leading direct and indirect cause of neonatal death.[3, 4] Twenty percent of all babies born in Ethiopia are LBW.[5, 6]

Kangaroo mother care (KMC) is an effective, easy-to-use intervention to promote health outcomes and reduce morbidity and mortality in LBW infants.[2, 7] KMC requires prolonged skin-to-skin contact between the mother and the baby and exclusive breast milk feeding.[7] KMC is associated with a decreased risk of mortality at 40-41 weeks, a decreased risk of neonatal sepsis, and a decreased risk of hypothermia.[2] KMC is an ideal intervention in low resource settings, like Ethiopia.

Gender-based violence (GBV), "an umbrella term for any harmful act that is perpetrated against a person's will, and that is based on socially ascribed gender differences between males and females."[8] Women who report experiencing GBV have been found to have an increased risk of delivering a LBW infant.[9-13] To date, the relationship between GBV and KMC has never been investigated. However, researchers have found that GBV affects breastfeeding practices and childcare practices.[14-19] Since breastfeeding is a major component of KMC, further investigation is warranted into how GBV influences a woman's ability to provide the two key elements of KMC in the event she has a LBW baby.

This preliminary exploratory study investigated how various forms of GBV influence a woman's ability to provide KMC during the neonatal period in Amhara, Ethiopia. Both

childhood exposure to violence and adult exposure were investigated. Additionally, women who have experienced multiple forms of violence, polyvictimization, were assessed.

Methods

Kangaroo Mother Care (KMC)

Nested into a larger parent study, this preliminary study conducted a cross-sectional gender-based violence survey. The parent study, *Implementing Research Imitative to Accelerate Scale-Up of Kangaroo Mother Care in Amhara Region of Ethiopia,* is aimed at developing a model that will result in high coverage (80%+) and quality of KMC for Amhara Ethiopia. The parent study, funded by the World Health Organization, is being implemented by the Amhara Regional Health Bureau and five hospitals in partnership with the Emory University Ethiopia Office. The study area is comprised of four woreda (districts) and 102 kebeles (villages) having a total population of 828,763. It is estimated that there will be 837 LBW babies born in this population each year.

All women in the study villages who have newborns weighing less than 2000 grams who are able to breath and feed are eligible for inclusion in the KMC study if they are willing and able to provide KMC. The desired sample size of (the parent study) 340 is needed to estimate 80% coverage, accounting for 20% attrition (a conservative estimate).

A team of five researchers conducted face-to-face semi-structured interviews with women who agreed to participate, following informed consent using standard disclosure procedures. Women were interviewed about their social and demographic characteristics and about KMC exposure, about practices, challenges and solutions with respect to providing KMC, and about the health condition of their newborn, as appropriate. They were interviewed 1) at baseline when they were admitted to the hospital 2) when KMC was initiated 3) when they were

discharged, 4) 7 days after discharge and 5) when the newborn reached 28 days of life. To-date, 74 women have completed all five interviews.

This preliminary study draws on data obtained from the interviews with the 74 women which were conducted at baseline, when KMC was initiated and when their baby reached 28 days of life.

The dependent variable of interest is effective KMC, comprised of exclusive breast milk feeding and prolonged skin-to-skin contact.

Exclusive breast milk feeding is defined and measured as whether (=1) or not (=0) the mother provided only breast milk, with the exception of any medications that may be needed, since birth.

Prolonged skin-to-skin contact is defined and measured as whether (=1) or not (=0) the mother, or someone else, provided skin-to-skin contact every day since birth AND skin-to-skin contact was provided for at least eight hours in the 24-hours preceding the interview.

Effective KMC was measured as whether (=1) or not (=0) exclusive breast milk feeding and prolonged skin-to-skin contact was provided, as defined, for the first month of life.

Gender-Based Violence

Gender-based violence exposure was assessed using a shortened version of the WHO Multi-country Study on Women's Health and Life Experiences Questionnaire version 10, respondent and her partner section (Section 7), and the Demographic and Health Surveys Module on Female Genital Cutting version 7. Both questionnaires were designed to be used across countries and cultures, are comprised of 16 and 17 behaviorally specific questions, respectively. Some sections were shortened and/or modified to fit the needs of this study. The WHO Multi-country Study on Women's Health and Life Experiences Questionnaire section 7 was shortened to only assess for forms of violence of interest. Additionally, questions were modified to assess

for violence prior to pregnancy and during the last pregnancy instead of in the "past 12 months" and "before the past 12 months". Questions from the Female Genital Cutting module regarding the type of FGM/C the woman underwent and questions regarding the FGM/C status of the woman's daughter were removed.

The parent study researchers conducted the gender-based violence interview in conjunction with either the baseline interview or during one of the subsequent follow-up interviews, depending on when privacy could be ensured. The gender-based violence component was conducted after the KMC interviews.

The independent variables of interest were as follows:

Female genital mutilation/cutting was measured as whether (=1) or not (=0) a woman reported having undergone the practice.

Exposure to inter-parental violence was measured as whether (=1) or not (=0) a woman had witnessed when she was a child, physical IPV against her mother by her father.

Child marriage was measured as whether (=1) or not (=0) a woman had been married before the age of 18, indicating child marriage. Additionally, a second variable was created to measure whether (=1) or not (=0) a woman had been married before the age of 15 indicating very early child marriage.

Three intimate partner violence or IPV variables were measured as whether (=1) or not (=0) a woman reported experiencing physical, sexual, or emotional violence from her partner. Additionally, a fourth variable was created to indicate whether (=1) or not (=0) a woman had experienced any form of IPV.

Five polyvictimization variables appropriate for lower-income settings were created to capture the extent of victimization[20]-- specifically to measure whether (=1) or not (=0) a woman

had experienced at least two forms of violence, whether (=1) or not (=0) a woman had experienced at least three forms of violence, whether (=1) or not (=0) a woman had experienced at least four forms of violence, whether (=1) or not (=0) a woman had experienced at least five forms of violence and whether (=1) or not (=0) a woman had experienced six forms of violence.[21]

Additionally, three polyvictimization variables were created to measure the timing of violence-- specifically whether (=1) or not (=0) a woman had experienced polyvictimization (> two forms) in childhood (female genital mutilation/cutting, child marriage and/or witnessing parental IPV), polyvictimization (> two forms) in adulthood (physical, sexual and/or emotional IPV) and polyvictimization (at least one for in childhood AND at least one form in adulthood) across the lifespan (female genital mutilation/cutting OR child marriage OR witnessing parental IPV AND physical OR sexual OR emotional IPV).[21]

Covariates

Income, schooling (none, primary, secondary, more than secondary), religion, ethnicity, age, parity, type of delivery and multiple births were identified as covariates. Type of delivery, (caesarian section versus vaginal delivery) and multiple births (singleton versus twins or triplets), were included as covariates based on insight from clinical staff working with the women in the health facilities.

All interview data including the dependent and independent variables of interest were captured in REDCap-enabled electronic tablets or on paper and subsequently entered into the REDCap database for cleaning and analysis. REDcap is a secure, web-based application that allows for the managing of online surveys and databases. Data was then downloaded into an excel format and checked for completeness and outliers. Missing data and/or erroneous data was discussed with the research team and corrected where possible.

Analyses

Descriptive and inferential statistics were run using SAS software, Version [9.4]. Bivariate (Chi-square) tests were run to estimate associations between forms of violence and KMC. Lastly, each independent variable was evaluated in multiple logistic regression, controlling for covariates. For this study, a $p < .05$ was considered statistically significant and a 5% significance level was used.

Results

Sample Characteristics and Effective KMC

Of the 74 women included in this analysis, 45% had infants that had received effective KMC and 55% of the women did not. The majority of the women were from the Amhara ethnic group (97%) and Christian Orthodox (94%). Their mean age was 27.4 (sd: 5.9). The mean household income was 33,624 birr. Women were significantly more likely to provide effective KMC if they were younger, had fewer children, had completed more than a secondary education or had a singleton birth ($p< .05$). (See Table 4.1)

Table 4.1: Social and demographic characteristic and effective KMC

Characteristics	Effective KMC* Yes n = 33		Effective KMC* No n = 41		Total n = 74		p-value
	n	%	n	%	n	%	
Age (Mean)	**33**	**25.2**	**41**	**29.2**	**74**	**27.4**	**.0042**
Income (Mean)	33	33624	41	59680	74	48061	.1966
Residence							.4026
Rural (%)	22	68.8	31	77.5	53	73.6	
Urban (%)	10	13.9	9	31.3	19	26.4	
Schooling							**.0217**
None (%)	10	30.3	24	58.5	34	46.0	
Primary (%)	9	27.3	7	17.1	16	21.6	
Secondary (%)	5	15.2	6	14.6	11	14.9	
Vocational/Technical (%)	8	24.2	3	7.3	11	14.9	
More than Secondary (%)	1	3.0	1	2.4	2	2.7	
Religion							.1100
Christian Orthodox	31	93.9	41	100	72	97.3	
Muslim	2	6.1	0	0.0	2	2.7	
Ethnicity							.3592
Amhara	32	97.0	40	97.6	72	97.3	
Agew	0	0.0	1	2.4	1	1.4	
Oromo	1	3.0	0	0.0	1	1.4	
Parity (Mean)	**33**	**2.0**	**41**	**3.2**	**74**	**2.6**	**.0223**
Type of Delivery							.1357
Vaginal	30	90.9	32	78.1	62	83.8	
Cesarean Section	3	9.1	9	22.0	12	16.2	
Multiple Births							**.0096**
Singleton	29	87.9	25	61.0	54	73.0	
Twin	4	12.1	16	39.0	20	27.0	

Bold text indicates $p < .05$
*Effective KMC provided for the first 28 days of life.

Exposure to Gender-Based Violence

Table 4.2 displays the frequencies of different forms of GBV in this sample. The majority of women reported experiencing at least two forms of violence (73%) with the most common forms being FGM/C (76%), witnessing inter-parental violence (51%), and child marriage (47%).

Table 4.2: Exposure to forms of gender-based violence

	n	%
Physical intimate partner violence	16	21.6
Sexual intimate partner violence	16	21.6
Emotional intimate partner violence	18	24.3
Any intimate partner violence	31	41.9
FGM/C	56	75.7
Very early child marriage	10	13.5
Child marriage	35	47.3
Witnessing inter-parental violence	30	50.9
Childhood physical abuse	14	18.9
Childhood sexual abuse	9	12.2
At least 1 form of violence	72	97.3
At least 2 forms of violence	54	73.0
At least 3 forms of violence	39	52.7
At least 4 forms of violence	17	23.0
At least 5 forms of violence	7	9.5
At least 6 forms	5	6.8
Polyvictimization in childhood	15	20.3
Polyvictimization in adulthood	49	66.2
Polyvictimization across the lifespan	29	39.2
Total	**74**	

Polyvictimization in childhood refers to experiencing > 2 forms of violence during childhood
Polyvictimization in adulthood refers to experiencing > 2 forms of violence in adulthood
Polyvictimization across the lifespan refers to experiencing at least one form of violence in childhood and at least one form of violence in adulthood

KMC Practice by Component

The majority of women fed their newborns breast milk exclusively (82%), while less than half of the woman's infants received prolonged skin-to-skin contact (47%). Only very early child marriage was significantly associated with failure to feed breast milk exclusively in both unadjusted and adjusted models (See Table 4.3).

Any intimate partner violence-- physical, sexual or emotional (OR=2.917 CI: 1.110, 7.667) and polyvictimization across the lifespan were associated with failure to provide prolonged skin-to-skin contact (OR=3.041 CI: 1.136, 8.137) in the unadjusted, but not in the adjusted models. Only polyvictimization in adulthood was associated with failure to provide prolonged skin-to-skin contact in the adjusted model (OR=4.374 CI: 1.059, 18.068). (See Table 4.3 for selected results, full results available upon request).

Table 4.3: Association between types of gender-based violence and effective KMC by KMC component

Unadjusted and adjusted odds of the woman feeding breast milk exclusively

	Unadjusted				Adjusted*			
	OR	95% CI		p-value	OR	95% CI		p-value
Any intimate partner violence	2.64	0.77	9.06	0.1138	1.94	0.44	8.48	0.3795
Very early child marriage	**4.07**	**0.96**	**17.34**	**0.0450**	**9.49**	**1.37**	**65.65**	**0.0226**
Poly in childhood	0.78	0.23	2.69	0.6945	0.71	0.15	3.46	0.1127
Poly in adulthood	1.23	0.29	5.15	0.7816	1.14	0.21	6.16	0.8772
Poly across the lifespan	2.07	0.62	6.93	0.2331	1.62	0.36	7.26	0.5273

Unadjusted and adjusted odds of a woman providing prolonged skin-to-skin contact

	Unadjusted				Adjusted*			
	OR	95% CI		p-value	OR	95% CI		p-value
Any intimate partner violence	**2.92**	**1.11**	**7.67**	**0.0278**	2.45	0.76	7.90	0.1345
Very early child marriage	2.33	0.55	9.83	0.2388	1.19	0.21	6.79	0.6453
Poly in childhood	0.82	0.31	2.16	0.6849	0.79	0.23	2.69	0.7065
Poly in adulthood	3.05	0.87	10.66	0.0731	**4.37**	**1.06**	**18.07**	**0.0415**
Poly across the lifespan	**3.04**	**1.14**	**8.14**	**0.0245**	2.86	0.87	9.34	0.0825

*Adjusted models control for income, schooling, age, parity, type of delivery and multiple births.

Intimate Partner Violence and Effective KMC

Of the 74 women in this sample, 42% reported experiencing some form of intimate partner violence. Of these women, nearly one quarter reported experiencing each type of violence: physical (22%), emotional (24%), and 22% sexual (22%). Emotional violence and any intimate partner violence were associated with failure to provide effective KMC (OR= 3.76, p =.0282 and OR= 3.99, p=.0058, respectively) in the unadjusted model (Table 4.4).

Only physical intimate partner violence was associated with failure to provide effective KMC (OR= 5.056 p=.0372) in the adjusted model.

Table 4.4: Association between types of intimate partner violence and KMC completion

Intimate Partner Violence	Unadjusted				Adjusted*			
	OR	95% CI		p-value	OR	95% CI		p-value
Physical intimate partner violence	3.00	0.87	10.40	0.0749	**5.06**	**1.10**	**23.22**	**0.0372**
Sexual intimate partner violence	2.05	0.63	6.66	0.2251	1.41	0.31	6.33	0.6574
Emotional intimate partner violence	**3.76**	**1.10**	**12.84**	**0.0282**	3.37	0.80	14.25	0.0980
Any intimate partner violence	**3.99**	**1.46**	**10.93**	**0.0058**	3.27	0.96	11.13	0.0585

*Adjusted models control for income, schooling, age, parity, type of delivery and multiple births.

Childhood Violence and KMC Completion

Female genital mutilation/cutting, child marriage, very early child marriage, witnessing parental intimate partner violence, childhood physical abuse, and childhood sexual abuse were not significantly associated with failure to provide effective KMC in neither the unadjusted nor adjusted models (Table 4.5).

Table 4.5: Association between types of childhood violence and effective KMC

Childhood Violence	Unadjusted				Adjusted*			
	OR	95% CI		p-value	OR	95% CI		p-value
FGM/C	0.992	0.34	2.89	0.9882	1.529	0.35	6.73	0.5741
Very early child marriage	0.266	0.05	1.35	0.0925	1.721	0.26	11.60	0.5769
Child marriage	1.090	0.44	2.73	0.8544	0.429	0.11	1.67	0.2219
Witness inter-parental violence	1.636	0.58	4.62	0.3506	0.739	0.19	2.94	0.6684
Childhood physical abuse	1.091	0.34	3.53	0.8845	1.848	0.38	8.96	0.4459
Childhood sexual abuse	1.714	0.40	7.45	0.4683	1.209	0.16	8.94	0.8526

*Adjusted models control for income, schooling, age, parity, type of delivery and multiple births

Polyvictimization and Effective KMC

The majority of women (73%) reported experiencing at least two different forms of violence (Table 4.2). Additionally, the majority (66%) reported experiencing polyvictimization during childhood. In adulthood, 20% of the women reported experiencing polyvictimization, 39% of the sample reported experiencing polyvictimization across the lifespan, experiencing at least one form of childhood violence and at least one form of violence in adulthood.

Women who reported experiencing polyvictimization across the lifespan were at a higher risk of not providing effective KMC in both the unadjusted and adjusted models (OR=4.30, p=.0045 and OR=3.87, p=.0332). (Table 4.6)

Table 4.6: Association between polyvictimization and Effective KMC

Polyvictimization	Unadjusted				Adjusted*			
	OR	95% CI		p-value	OR	95% CI		p-value
At least 2 forms	1.78	0.63	5.00	0.2731	1.78	0.45	7.08	0.4113
At least 3 forms	2.12	0.83	5.39	0.1121	1.62	0.47	5.56	0.4466
At least 4 forms	1.65	0.54	5.07	0.3794	2.43	0.64	9.31	0.3466
At least 5 forms	1.08	0.22	5.21	0.9226	0.93	0.16	5.27	0.9330
At least 6 forms	3.46	0.37	32.56	0.2519	4.32	0.36	51.69	0.2480
Poly in childhood	0.96	0.37	2.54	0.9414	1.01	0.28	3.57	0.9925
Poly in Adulthood	2.66	0.76	9.31	0.1177	3.19	0.76	13.49	0.1146
Poly across the lifespan	**4.30**	**1.53**	**12.12**	**0.0045**	**3.87**	**1.11**	**13.45**	**0.0332**

*Adjusted models control for income, schooling, age, parity, type of delivery and multiple births.

Discussion

Summary

This prospective study involving a purposive sample of 74 women who gave birth to a LBW newborn is the first address the relationship between GBV and effective KMC practice during the neonatal period. Almost every woman, 97%, reported experiencing some form of violence in their lifetime. The 2016 Ethiopian Demographic and Health Survey also found high rates of FGM/C (62%) and that the median age of marriage in Amhara was 16.2 years old, which is consistent with our finding of high rates of child marriage.[22] However, rates of sexual intimate partner violence were much higher in this sample than in the 2016 Ethiopian Demographic and Health Survey (21.6 % vs 9.5%). Further investigation is needed to determine if these higher rates are due to higher rates of disclosure facilitated by the interviewers GBV training or due to some other unique characteristic of this sample.

The majority, 82% of women exclusively provided breast milk while less than half, 47%, of the mother's infants received prolonged skin-to-skin contact, during this time period. The high rate of exclusive breastfeeding is consistent with the 2016 Ethiopian Demographic and Health Survey which suggest that 74% of infants are exclusively breastfed during the first month of life.[22] The median duration of breastfeeding was the highest in the Amhara region which may account for the slightly higher rates seen in this sample.[22] This study found that very early child marriage might increase a woman's risk of early cessation of exclusive breastfeeding. Previous studies have found that physical intimate partner violence and sexual intimate partner violence increase a woman's risk of early cessation of exclusive breastfeeding at five or six months of life.[17, 23] While this study did not find that physical or sexual intimate partner violence increased a woman's risk of early cessation, this study only followed women for the first 28 days. Further investigation would be needed to determine if this population showed similar difference in early cessation rates at later time points.

Rates of prolonged skin-to-skin contact were much lower than rates of exclusive breastfeeding. In the adjusted model, a woman who reported polyvictimization in adulthood (experiencing at least two forms of intimate partner violence) had a higher risk of early cessation of prolonged skin-to-skin contact. This novel finding is consistent with the idea that woman who are exposed to GBV report feeling forced to prioritize their partner and therefore have less time and energy for their baby.[24]

Women who were younger, had fewer children and gave birth to a singleton were significantly more likely to practice effective KMC. Controlling for covariates, multiple logistic regression analyses show that women who reported experiencing, physical intimate partner violence, as well as polyvictimization across the lifespan were significantly less likely to provide

effective KMC. Although childhood forms of violence were not statistically associated with higher odds of subpar KMC, a woman who reported experiencing polyvictimization across her life was at higher risk of KMC failure. Further investigation is needed to understand the interaction between childhood forms of violence and adult forms of violence. This finding, again, highlights the need to investigate multiple forms of violence across multiple time periods. Further research is needed to understand how exposures to violence across the lifespan influence a woman's health and child care practices.

Limitations

It is important to interpret the results of this study in light of its limitations. The parent study recruited women from five health facilities. Women who delivered at home and did not go to a health facility were not represented in this study. When estimating population parameters, our limited sample size resulted in larger variations as evident by the wider (less precise) confidence intervals. A larger sample size is needed to achieve more reliable results (with greater precision) and adequate power to detect meaningful differences. However, the findings do provide preliminary evidence for further investigation.

Conclusion

Despite the limitations of this study, this novel investigation suggests that women who experience GBV may be at higher risk of subpar KMC. KMC has the ability to help reduce the rate of neonatal mortality in low resource countries. Women who experience various forms of GBV are at higher risk for delivering a low birth weight baby, thus requiring KMC. However, this study has suggested that these women are also potentially at higher risk of early cessation of exclusive breastfeeding, early cessation of prolonged skin-to-skin contact and ineffective KMC. Further investigation is warranted and providers implementing KMC interventions should consider GBV as a potential barrier to effective KMC.

This study has also emphasized the need for investigations of multiple forms of violence across a woman's life. Violence experienced in childhood and adulthood need to be examined. Additionally, continued evaluation and investigation into the influence of polyvictimization is critical. Individual forms of violence may contribute to adverse health outcomes and/or practices, but the cumulative effect of a woman's exposure to GBV may be more significant.

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Chapter 5 Summary and Conclusions

This study utilized several methods to investigate the influence of gender-based violence on kangaroo mother care. A literature review, secondary data analysis, and cross-sectional survey combined with secondary outcome data were performed to fully address the three study aims.

Gender-based violence and breastfeeding: Making sense of the literature

Summary

Chapter 2, *Gender-based violence and breastfeeding: Making sense of the literature,* presents the findings from a literature review that addressed study aim 1 (to evaluate the current literature on gender-based violence and breastfeeding practices). Amongst the 12 articles that were reviewed, there were mixed results: six studies concluded that gender-based violence negatively influences breastfeeding practices,[1-6] one concluded gender-based violence positively influences breastfeeding practices,[7] one study reported that gender-based violence can positively or negatively affect breastfeeding practices[8] and three found that gender-based violence does not influence breastfeeding practices.[9-12] The review highlighted that there were considerable variations in quality, definition, measurement and operationalization of both the independent and dependent variables. Despite these variations, the review concluded that based on the current evidence, gender-based violence does influence breastfeeding practices. (Aim 1, RQ1)

Additionally, the review highlighted the need for consistent definitions of forms of violence against women and the use of standardized, validated tools to assess for violence. The review also emphasized the need for additional research in low- and middle-income countries. Lastly, consistent with other findings, the review highlighted two competing hypotheses, the compensatory hypothesis and the deficit hypothesis.[6, 8, 13, 14] The compensatory hypothesis

suggest that women who have experienced violence may be more likely to breastfeed because their past experiences make them more sensitive to the needs of their baby.[7, 15] In contrast, the deficit hypothesis suggests that women who have experienced violence may be more likely to be unable or unwilling to breastfeed.[13, 14] While both hypotheses were supported by the current literature, there was more evidence that supported the deficit hypothesis. Further investigation is needed to better understand the relationship between various forms of gender-based violence and breastfeeding practices.

Implications for Kangaroo Mother Care in Ethiopia

Kangaroo mother care (KMC) is comprised of two main components: prolonged skin-to-skin contact and exclusive breast milk feeding. The findings of this literature review support the hypothesis that exposure to gender-based violence may influence a woman's ability or willingness to breastfeed and thus be a barrier to effective KMC. Further investigation is warranted based on the findings of this review and necessary due to the lack of studies from low and middle-income countries.

The findings and implications of this review also helped to guide the investigation of study aims 2 and 3. The results highlighted the need to use a standardized definition of various forms of gender-based violence and to use a validated tool to assess for exposure to violence. For aims 2 and 3 the same operational definition was used, based on definitions from the World Health Organization and validated tools were used to asses for a woman's exposure to violence. Additionally, the review emphasized the need to consider violence in childhood, adulthood and polyvcitimization.

Gender-based violence and home birth in Ethiopia

Summary

Chapter 3, *Gender-based violence and home birth in Ethiopia*, was a secondary data analysis of the 2016 Demographic and Health Survey for Ethiopia, which is a nationally representative household survey.[16] It addressed study aim 2 (to assess the relationship between gender-based violence and a woman's decision to deliver at home). Neonatal mortality, death of an infant in the first 28 days of life, continues to be a problem in Ethiopia.[17] Globally, half of all neonatal deaths occur in five countries, of which Ethiopia is one.[18] One of the strategies to reduce neonatal death in Ethiopia, is to increase the rate of deliveries in health facilities instead of home births.[19] Between 2011 and 2016, 73% of Ethiopian women delivered at home and only 2% of those women had a skilled attendant in the home.[16] Therefore, Ethiopian Ministry of Health officially recommended that all women deliver in a health center.[19]

Previous studies have identified several factors that influence a woman's decision to deliver at home in Ethiopia. Age, schooling, wealth, parity and location of residence (rural vs urban) have all been identified as factors that affect the likelihood of home birth.[20-24] However, no study had previously evaluated the influence of gender-based violence on home birth in Ethiopia. Worldwide, only one study had examined the influence of intimate partner violence on home birth (Bangladesh).[25]

This study found that emotional intimate partner violence, experiencing any form intimate partner violence (physical, sexual or emotional), female genital mutilation/cutting, child marriage (<18 years old) and very early child marriage (< 15 years old) were significantly associated with having a home birth. (Aim 2, RQ1) However, these individual forms were not significantly associated with home birth after controlling for known covariates (age, location of

residence, schooling, wealth and parity). However, women who reported experiencing three or more forms of violence, women who reported experiencing four or more forms of violence and women who reported experiencing five or more forms of violence were all more likely to deliver at home. (Aim 2, RQ3) This novel finding suggests that the cumulative effect of experiencing multiple forms of violence, polyvicitmization, is more predictive than experiencing a singular form of violence.

Implications for Kangaroo Mother Care in Ethiopia

The findings of this study have major implications for the KMC in Ethiopia. Ethiopian women who have experienced polyvicimtization are more likely to deliver at home, even after controlling for known factors. The initiation of KMC may be impeded if a skilled provider is not present at birth. Skilled providers will not only assess and address the immediate needs of the infant,[26-30] but will also weigh the baby to determine whether he or she is a candidate for kangaroo mother care. Women who experience violence are not only at higher risk of delivering a low birth weight infant[26] that would benefit from kangaroo mother care, but they are also more likely to deliver at home where skilled providers are absent.

Gender-based violence: A barrier to kangaroo mother care in Amhara, Ethiopia

Summary

Chapter 4, *Gender-based violence: A barrier to kangaroo mother care in Amhara, Ethiopia*, addressed study aim 3. As part of a larger parent study, a cross-sectional gender-based violence survey was evaluated in conjunction with secondary outcome data from the parent study, *Implementing Research Initiative to Accelerate Scale-Up of Kangaroo Mother Care in Amhara Region of Ethiopia*. The parent study was aimed at developing a service delivery model that would result in high coverage (80%+) and quality of KMC in Amhara, Ethiopia. The gender-based violence survey was administered by the parent study's research team. Women

delivering babies weighing less than 2000 grams who were willing and able to provide kangaroo mother care were included in the study and followed for the entire neonatal period.

This was the first study to evaluate the relationship between various forms of gender-based violence and KMC. Chapter 4 reports not only the relationship between various forms of gender-based violence and polyvcitimzation and KMC, but also the relationship between gender-based violence/polyvictimization and the two components of KMC. This study found that only very early child marriage (< 15) was a barrier to exclusive breast milk feeding during the neonatal period. (Aim 3, RQ 1) Additionally, while individual forms of intimate partner violence were not significantly associated with failed prolonged skin-to-skin contact, experiencing polyvicitmization in adulthood increased a woman's likelihood of not providing adequate prolonged skin-to-skin contact during the neonatal period. (Aim 3, RQ2) Lastly, this study found that physical intimate partner violence and experiencing polyvictimization across the lifespan (experiencing violence as a child and as an adult) increased the likelihood of ineffective kangaroo mother care during the neonatal period. (Aim 3, RQ 3 & 4)

Contribution to the literature

This study resulted in three papers (Chapters 2-4) which contributed to the current literature. Paper 1 (Chapter 2) provided insight into the relationship between gender-based violence and breastfeeding practices. This body of literature is limited and conflicting results made this relationship unclear. The review helped to identify methodological differences that resulted in conflicting findings and provided suggestions for future research. Paper 2 (Chapter 3) was the second study to investigate the relationship between gender-based violence and home birth. This study added to the previous work by investigating not just adult forms of violence, but also childhood exposure and polyvictimization. The findings suggested a positive association

between polyvicitmization and home birth and warrants further investigation. Lastly, Paper 3 (Chapter 4) was the first study to assess the association between gender-based violence and KMC. This study also evaluated the relationship between gender-based violence and the components of KMC: exclusive breastfeeding and prolonged skin-to-skin contact. The results add to the body of knowledge about gender-based violence and breastfeeding practices and provide novel insight into the relationship between gender-based violence and prolonged skin-to-skin contact.

Implications for future research

This study provides insight into the relationship between gender-based violence and KMC. However, more research is needed to better elucidate this relationship. Based on the findings of this dissertation study, the following recommendations/implications for future research are presented:

- Use of standardized definitions of different forms of gender-based violence will allow for comparison across studies.
- Utilization of a validated tool/survey that uses behaviorally specific questions to assess for violence is imperative to encourage disclosure and to help ensure proper classification of women.
- In addition to investigating individual forms of gender-based violence, evaluating the influence of polyvictimization is needed to fully understand the relationship between gender-based violence and various outcomes. The findings from this dissertation study suggest that the cumulative effect of polyvicitmization may be more predictive for certain outcomes.

- Gender-based violence may be a barrier to delivering in a facility, exclusive breast milk feeding, prolonged skin-to-skin contact and effective KMC. Health program planners should consider adding components to interventions to specifically address this issue. In addition, further research is needed to determine the most effective and efficient way to identify at risk women and how and when to intervene.

Conclusion

This study found that women who are exposed to certain forms gender-based violence are less likely to provide effective KMC during the neonatal period. Gender-based violence is a multifaceted phenomenon that may be a barrier to KMC through several different pathways. Women are more likely to seek antenatal care later and attend fewer visits, thus depriving themselves of the opportunity to learn about KMC before delivery.[14, 31] Additionally, Ethiopian women who experience polyvicitmization are more likely to deliver at home where a skilled provider is absent, which may prevent them from determining if their infant is eligible for kangaroo mother care and initiating it if they are. Very early child marriage may influence a woman's decision or willingness to exclusively breastfeed their infant during the neonatal period, which is a component of KMC. Likewise, exposure to polyvictimization during adulthood may decrease the likelihood of a mother providing prolonged skin-to-skin contact to the low birth weight infant. Lastly, physical intimate partner violence and experiencing polyvictimization across the lifespan (violence in childhood and adulthood) increases a woman's likelihood of ineffective KMC during the neonatal period.

This study emphasizes the need to continue investigating the influence of gender-based violence and polyvictimization on KMC, especially is low resource settings where KMC is an ideal intervention. Health planners and researchers should consider addressing not only socio-

economic and cultural factors, but also the influence of gender-based violence and polyvictimization.

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