ADAPTING AND IMPLEMENTING GROUP POSTPARTUM AND WELL-CHILD CARE AT CLINICS IN BLANTYRE DISTRICT, MALAWI

by
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Abstract

Background: Persistently elevated rates of maternal and infant mortality and morbidities in Malawi indicate the need for increased quality of maternal and well-child care services. The first-year postpartum sets the stage for long-term health for the childbearing parent and infant. Innovative strategies are needed to advance care models that integrates and addresses both maternal and infant needs. Integrated group postpartum and well-child care offers a promising strategy to improve maternal and infant health outcomes in Malawi. The purpose of this study was to adapt an established program and co-design an integrated group postpartum and well-child care model and evaluate its implementation outcomes in Blantyre District, Malawi.

Methods: We used a mixed methods design and the Human-Centered, Evidence-Driven Adaptive Design (AHEAD) framework to guide this study. Following the five steps of the AHEAD framework we: 1) defined the problem and assembled a team through integrative and scoping reviews of the literature; 2) reviewed the evidence and sought inspiration through interviews with women and health care workers; 3) synthesized the data through rigorous data analyses; 4) developed guiding principles and ideated to co-create a group postpartum and well-child care prototype through incubator sessions with women and health care workers; and 5) evaluated the prototype through pilot sessions of the 6-visit model adapted for the Malawian context through structured observation, surveys, and focus groups evaluating implementation outcomes.

Results: For Step 1 we completed literature reviews which confirmed that group care offers a promising strategy to improve health outcomes for Malawian women and their children. For Steps 2-4 we completed 20 interviews and 6 incubator sessions with

women and health care workers. All participants reported a desire for group care in the postpartum period. Health promotion priorities identified by participants were hygiene, breastfeeding, family planning, nutrition, and mental health. Findings from the interviews and incubator sessions guided the development of a 6-visit model prototype to be delivered over the first 12 months postpartum corresponding to the Malawian child vaccination schedule. The prototype included an implementation structure, facilitator's guide (curriculum), and clinical assessment guidelines. For Step 5 we piloted the prototype and tested each session once at each clinic for a total of 18 pilot sessions with 41 women/infant dyads. Nineteen health care workers across the three clinics co-facilitated group sessions. Both women and health care workers reported group postpartum and well-child care was highly acceptable, appropriate, and feasible across clinics. Fidelity to the group care model was high. Challenges in implementing group sessions were identified.

Conclusions: This integrated group postpartum and well-child care model is a potentially transformative approach to a neglected area of the care continuum by integrating maternal health in to well-child care to meet the needs of Malawian women and infants during the postpartum period. This model has promise for improving multiple maternal and child health outcomes. Due to these promising results, we recommend future research examine the effectiveness of the model on maternal and child health outcomes in Malawi and other low resource settings.

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Dedication

For Kobe. Giving birth to you inspired me to focus my work on the postpartum period, this beautiful and challenging time of life. You have taught and continue to teach me more than I could have ever imagined and for that I am so grateful.

This dissertation is also dedicated to all the women that trusted me to share their voice and all the midwives and health care workers that work tirelessly in challenging conditions that shared their time and expertise with me, this body of work is in co-creation with you, and I will continue to advocate with and for you.

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Table of Contents

Abstract ii

Funding v

Dedication vi

Acknowledgements vii

Table of Contents viii

List of Tables x

List of Figures xi

Dissertation Organization 1

1. CHAPTER 1: INTRODUCTION 4

Background and Rationale 4

Purpose and Study Aims 8

Specific Aims 9

Conceptual/Theoretical Framework 10

Significance 11

Innovation 13

References 15

2. CHAPTER 2: MANUSCRIPT ONE 21

Abstract 22

Introduction 24

Methods 29

Results 34

Discussion 45

Conclusions 53

References 54

3. CHAPTER 3: ADDENDUM MANUSCRIPT 61

Abstract 62

Introduction 63

Methods 64

Results 67

Discussion 86

Conclusion 90

Acknowledgements 90

References 91

4. CHAPTER 4: MANUSCRIPT TWO 96

Abstract 97

Introduction 99

Methods 102

Results 114

Discussion 119

References 124

5. CHAPTER 5: MANUSCRIPT THREE 130

Abstract **131**
Introduction **133**
Methods **136**
Results **143**
Discussion **153**
References **161**

6. CHAPTER 6: SYNTHESIS/DISCUSSION **165**
Introduction **165**
Summary of Findings **166**
Aim 1 166
Aim 2 169
Aim 3 171
Discussion 175
Strengths and Limitations *175*
Implications for Nursing *176*
Theory Implications *177*
Policy Implications *179*
Recommendations for Future Research *180*
Summary 181
References 181

Appendices **184**
Appendix A Literature Review Search Terms **184**
Appendix B Recruitment Scripts and Consent Forms **187**
Appendix C Qualitative Data Collection Tools (Interview Guides, Incubator Session Guide, and Focus Group Guides) **209**
Appendix D Quantitative Data Collection Tools (Surveys and Fidelity Observation Checklist) **218**
Appendix E Facilitator's Guide: Integrated Group Postpartum and Well-Child Care **225**

CURRICULUM VITAE **315**

List of Tables

Table 2-1 Synthesis of results groups according to the framework for healthcare interventions to address maternal morbidity 36
Table 2-2 Summary of the total number of studies including conceptual framework constructs in content and delivery of postpartum care 38
Table 3-1 GWCC Conceptual Framework Domain: Inputs 70
Table 3-2 GWCC Conceptual Framework Domain: Core Components 77
Table 3-3 GWCC Conceptual Framework Domain: Outcomes 79
Table 4-1 Themes from interviews with participants and illustrative quotations 110
Table 4-2 Number of incubator sessions (n=6) that prioritized each health promotion topic 116
Table 5-1 Description of the fidelity observation checklist 140
Table 5-2 Women/Infant Dyad Characteristics 143
Table 5-3 Summary of Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM) Results 144
Table 5-4 Summary of Results from Fidelity Observation Checklists Across Clinics 150

List of Figures

Figure 0.1 Human-Centered, Evidence-Drive Adaptive Design (AHEAD) framework and corresponding dissertation chapters 1
Figure 1.1 Adapted Framework for Healthcare Interventions to Address Maternal Morbidity 11
Figure 2.1 Framework for healthcare interventions to address maternal morbidity (Firoz et al., 2018) 27
Figure 2.2 PRISMA flow diagram for the search process 31
Figure 3.1 PRISMA flow diagram 66
Figure 3.2 GWCC Conceptual Framework 68
Figure 4.1 AHEAD Framework for rigorous human centered design to produce the group postpartum/well child prototype 105
Figure 4.2 Health promotion topics described as current practice, recommendations, and/or priorities 115
Figure 6.1 Group postpartum and well-child care conceptual framework 178

Dissertation Organization

This dissertation is organized into five chapters that present the steps of the Human-Centered, Evidence-Driven Adaptive Design (AHEAD) framework used to guide this study (Figure 0.1).

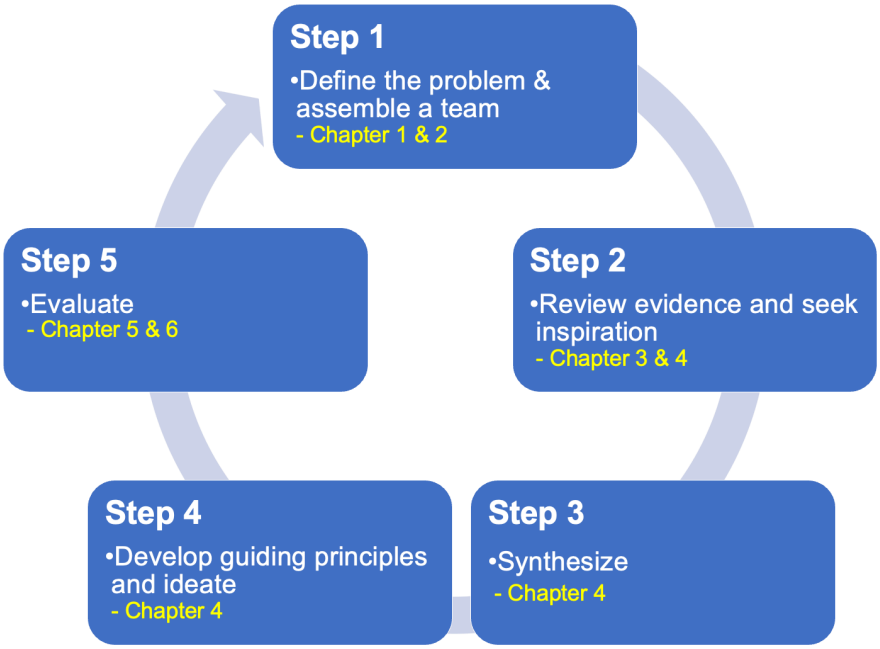

Figure 0.1 Human-Centered, Evidence-Drive Adaptive Design (AHEAD) framework and corresponding dissertation chapters

The first chapter provides background and rationale for the study. Chapter One identifies, and defines the study's key concepts, and describes the conceptual framework that guides the study.

Chapter Two (Manuscript One) present the findings from Step 1 of the AHEAD framework which is to define the problem. Chapter 2, published in 2021 (Gresh, A, Cohen, MA, Anderson, J, Glass, N (2021). Postpartum care content and delivery throughout the African continent: an integrative review, *Midwifery* 97: 102976**.** https://doi.org/10.1016/j.midw.2021.102976**),** is an integrative review that systematically

describes and evaluates the content and service-delivery models existing for postpartum care throughout the African continent and determine remaining gaps using the study's guiding conceptual framework. This synthesis of evidence provided a first step to inform the development of future postpartum care interventions to reduce maternal and infant morbidity and mortality throughout the African continent.

Based on the results of the integrative review, Chapter Three presents a scoping review that focuses on one model of group care that showed promising results for integrating postpartum and well-child care, group well-child care. This manuscript is submitted for publication and is currently under review (Gresh A, Wilson D, Fenick A, Patil CL, Coker T, Rising S, Glass N, Platt R. (current status, revise and submit) Group well-child care: a scoping review and conceptual framework. *Maternal and Child Health Journal*). The purpose of the scoping review was to develop a conceptual framework of group well-child care based on the current literature and input from key stakeholders to guide future practice and research. This conceptual framework created the foundation for the next step of the AHEAD framework, review evidence and seek inspiration for co-designing an adapted integrated group postpartum and well-child care model for the Malawian context.

Chapter Four (Manuscript Two) has been submitted for publication and is currently undergoing an editorial assessment (Gresh A, Batchelder A, Glass N, Mambulasa J, Ngutwa N, Kapito E, MacDonald A, Plesko C, Chirwa E, Patil CL. Adapting group-based postpartum and well-child care using a human-centered design approach in Malawi. *BMC Health Services Research)* presents in detail the first four steps of the AHEAD framework for adapting the model to the Malawi context with key

stakeholders. The chapter focuses on Steps 2-4 (gather information through evidence and inspiration, synthesize, and intervention design - guiding principles and ideation) which relied on qualitative methods, in-depth interviews, and incubator sessions with key stakeholders to produce a prototype of the integrated group postpartum and well-child care model.

Chapter Five (Manuscript Three), submitted for publication (Gresh, A, Mambulasa, J, Ngutwa, N, Perrin, N, Warren, N, Glass, N, Patil, CL. Evaluation of implementation outcomes of an integrated group postpartum and well-child care model at clinics in Malawi, *BMC Pregnancy and Childbirth*), presents the findings of Step 5 of the AHEAD framework which is to evaluate the prototype which was done by conducting pilot sessions with woman and infant dyads. During this step we used a mixed methods design to examine implementation outcomes (acceptability, appropriateness, feasibility, and fidelity) of integrated group postpartum and well-child care from the perspectives of women and health care workers.

Finally, Chapter Six provides a summary of findings from all five steps of the AHEAD framework. This chapter discusses the implications of these results for future nursing and midwifery practice, research, theory, and policy. Five appendices are also provided: Appendix A is a list of literature review search terms, Appendix B are the recruitment scripts and consent forms, Appendix C is the qualitative interview guides for Aims 1-3, Appendix D is the list of implementation outcome surveys and the fidelity observation checklist, and Appendix E is the facilitator's guide.

CHAPTER 1: INTRODUCTION

Background and Rationale

Maternal mortality rates remain alarmingly high globally, and for every woman that dies due to pregnancy-related causes many more experience life-threatening complications.[1] High rates of maternal morbidity and mortality lead to poor maternal and child health outcomes and long term health consequences.[1,2] Malawi has some of the worst perinatal health outcomes globally; more than 439 women per 100,000 live births and 42 infants per 1000 live births die each year.[3] While rates of maternal morbidities are unknown in Malawi, in Sub-Saharan Africa, rates are estimated as high as 198 per 1,000 live births.[1] Women who experience severe maternal morbidity have been shown to have lower quality of life postpartum, increased risk of mortality, and increased risk of complications including from uncontrolled hypertension, cardiomyopathy, or congestive heart failure.[4,5] Other morbidities such as postpartum depression, urinary incontinence, obstetric fistula, and sexual dysfunction although perceived as less severe, can be greatly distressing to women.[6–8] Women may additionally face intimate partner violence (IPV) and sexual and economic coercion in the extended postpartum period, which leads to significantly increased socioemotional problems for both women and infants.[9,10] In Malawi 17.8% of reproductive-aged women (15-49 years) are HIV positive.[3] After childbirth, women often disengage from care, and if HIV positive, drop off HIV treatment which leads to disease progression and sexual transmission.[11] The postpartum period, defined for this study as the period from the delivery of the infant up to 12 months after delivery allowing for the variation in women's physical and psychological changes,[12] and is an important window for prevention and response across the maternal and child

health continuum setting the stage for long-term health, but is often neglected by both health providers and women.[13]

These high rates of maternal and infant mortality and morbidities are largely preventable through quality healthcare and early identification and treatment of health issues. The World Health Organization (WHO) recommends that every mother and infant have at least four postpartum visits within the first six weeks regardless of birth setting.[14] The Malawian Ministry of Health adheres to these guidelines and recommendations. Despite these guidelines, there remain unmet needs in postpartum care implementation and low rates of postpartum visit attendance in low- and middle-income countries (LMICs) including Malawi.[3,15] The latest Malawi Demographic and Health Survey reported that only 42% of women and 60% of newborns received a postpartum check in the first 2 days after birth.[3] Further it is reported that approximately 50% of women that gave birth at a medical institution did not receive any postpartum care at the recommended 48 hour, 1- and 6-week postpartum visits.[16] The low rates of postpartum care attendance in Malawi are attributed to underlying factors at the organizational level such as: 1) a lack of clear, standardized guidelines at the facility level, 2) few skilled clinicians allocated to deliver postpartum care and those that do are reported to have insufficient knowledge of postpartum care guidelines which leads to inconsistent clinical assessments and poor quality care, and 3) a lack of funding for resources to implement postpartum care guidelines.[16–18] From the patient perspective, a literature review found that factors such as a lack of awareness of postpartum care, lack of autonomy, negative provider attitudes, low rates of health literacy, and low socioeconomic status negatively impacted women's attendance of postpartum care in

LMICs and Malawi specifically.[19] This highlights a large gap in the maternal and child health care continuum and missed opportunities for identifying and managing health and social challenges and promoting healthy behaviors for both the woman and infant.[13] Further, the first six weeks postpartum represent a period of physical recovery for the woman after childbirth, but other critical events occur during the rest of the year after childbirth including psychosocial adaptations and transitions to a parental role, all of which if not well managed can make women vulnerable to poor health outcomes.[13]

The first year of life for children is an equally crucial time for their long-term health and development.[20,21] Factors leading to high rates of infant mortality and morbidities in Malawi include health service utilization, short birth intervals, malnutrition, pneumonia, preterm birth complications, diarrhea, and malaria.[3,22] Infant mortality rates remain high and there is a call for integrating health services to improve both maternal and child health outcomes.[23] Current guidelines for well-child care in Malawi focus on vaccinations and growth monitoring and managing sick children. Childhood vaccinations are an important public health tool to prevent diseases and in Malawi approximtely 70% of children received all recommended childhood vaccinations by 12 months.[3] Understanding the importance of healthcare utilization and maternal factors impacting childhood survival it is important to consider the mother and infant as a dyad in the first year of life as studies show that maternal mental and physical health impact child development and survival.[24,25] Without responsive caregiving, attachment, cognitive stimulation, and social support in the postpartum period, children are at increased risk for negative behavioral, cognitive, social, and emotional outcomes.[20,21,26,27]

Despite the recognition of the importance of the first year following childbirth there are no standardized postpartum care packages beyond the first 6 weeks postpartum, thus no standard guidance exists for providers to address ongoing maternal and infant morbidities and support the transition of the dyad from postpartum to primary care.

Group care is an innovative alternative to individual care that can address postpartum and well-child care gaps as indicated by a growing evidence base yielding positive results.[28–41] Prenatally, group care is shown to be an innovative service delivery model with a large body of rigorous evidence supporting its effectiveness and feasibility of bringing it to scale.[42–46] CenteringParenting, a model of group postpartum and well-child care, developed by nurse-midwife Sharon Rising (study consultant) in 2001, has three core components: healthcare in a group space, interactive learning, and community building.[47,48] These core components provide a structure to build capacity and enable nurses and midwives to provide efficient and effective care in the postpartum period. This model of care brings the same group of 6-8 women and their infants, who are born within one month of one another, together for one to two years of healthcare.[28] Each session is 120 minutes with the first 30-45 minutes consisting of self-care (measuring own infant's weight and length and taking their own vital signs) and standard health assessments of the infant and mother by a clinician in a separate section of the room. Mother and/or infant referrals are made if needed. This is followed by 75-90 minutes of interactive health promotion, skills building, and support activities. Group care has longer sessions than individual care and provides time and resources to support and address maternal and infant health needs such as breastfeeding, family

planning, depression, nutrition, child development and infection prevention, and thus improves quality of care and has the potential to reduce maternal and infant morbidity and mortality.[28,33,49,50] Preliminary research shows that group care leads to increased: well-child visit attendance, initiation and duration of breastfeeding, patient satisfaction, immunization rates, parenting and clinician self-efficacy, as well as has a positive impact on maternal psychological well-being.[30–33,38]

Although the group postpartum and well-child model of care exist with promising outcomes,[51] it has not been widely implemented nor evaluated in low resource settings like Malawi. In addition when implemented the model has most often prioritizes the infant. Group ANC has been adapted with success in low resource countries including Malawi, Kenya, Nigeria, Tanzania and Rwanda.[45,52–54] Based on existing ANC and postpartum and well-child group care model success, adapting and designing an integrated group postpartum and well-child care model that expands the continuum of care holds promise to improve maternal and child health outcomes in Malawi and other low resource countries.

Purpose and Study Aims

Using a mixed methods design, the purpose of this study was to adapt and co-design an integrated group postpartum and well-child care model and evaluate its implementation outcomes (acceptability, appropriateness, feasibility, and fidelity) in Blantyre District, Malawi. In order to achieve these aims, we used a human-centered design (HCD) approach. HCD offers an approach to co-design and adapt evidence-based interventions such as group care safely, efficiently, and effectively to new contexts. HCD emphasizes the strengths, agency, and priorities of women and health

care workers to build a model of care that is resilient and responsive to individual, dyad, and system needs. This approach reframes a research question from “what matters” to “what matters most,” allowing for solutions that are human centered and context specific.[55,56] Previous healthcare research supports the use of this approach, as participating in the co-design process increases self-efficacy for both patients and health care workers and leads to sustainable solutions to problems within the health system.[57–64] While HCD is an increasingly used approach to finding healthcare solutions, recent systematic reviews of HCD in healthcare have found discrepancies in the quality and methodological rigor of the studies.[65,66] The Human-Centered, Evidence-Driven Adaptive Design (AHEAD)[56] framework provides a practical research based guide to co-design solutions to healthcare challenges and was used to guide this study.

The specific aims of this study follow the five steps of the AHEAD framework: 1) define the problem and assemble a team (see Chapter 2 and Chapter 3 for integrative and scoping reviews); 2) review evidence and seek inspiration (Aim 1); 3) synthesize (Aim 1); 4) develop guiding principles and ideate (Aim 2); 5) evaluate (Aim 3).[56]

Specific Aims

Aim 1 Explore Malawian women’s and health care workers expectations for culturally appropriate postpartum and well-child clinic care.

Aim 2 Integrate the findings from Aim 1 to work with Malawian women and health care workers to co-design the health promotion content, and implementation structure of the integrated group postpartum and well-child care model prototype.

Aim 3 Examine implementation outcomes of group postpartum and well-child care with women and health care workers at clinics in Blantyre District, Malawi.

Conceptual/Theoretical Framework

The Framework for Healthcare Interventions to Address Maternal Morbidity developed by the WHO Maternal Morbidity Working Group (MMWG) in 2012 (Figure 1) guides the study.[2] This framework re-conceptualizes and widens the scope of maternal morbidity by using a life course framework, thus including more focus on prevention and health promotion. For example, in the framework postpartum care includes prevention of non-communicable diseases (NCDs), highlights social determinants of health and other factors such as family planning, mental health, partner violence that affect maternal morbidity before and beyond the immediate postpartum period.[2] Further, the WHO framework identifies health systems innovation and health systems strengthening as critical to addressing the underlying causes of maternal morbidity and places importance on the health system's role in influencing maternal health outcomes.

In addition to the WHO framework, the study uses both the Health Belief Model (HBM) and Social Learning Theory which posits that a healthcare intervention such as an integrated group care model is more likely to influence individual behavior change if it includes all of the following components in its implementation: knowledge, health literacy, self-efficacy, and environmental support.[67,68] These elements are essential to a group care model, thus were instrumental in designing and developing of the prototype of integrated group postpartum and well-child care.

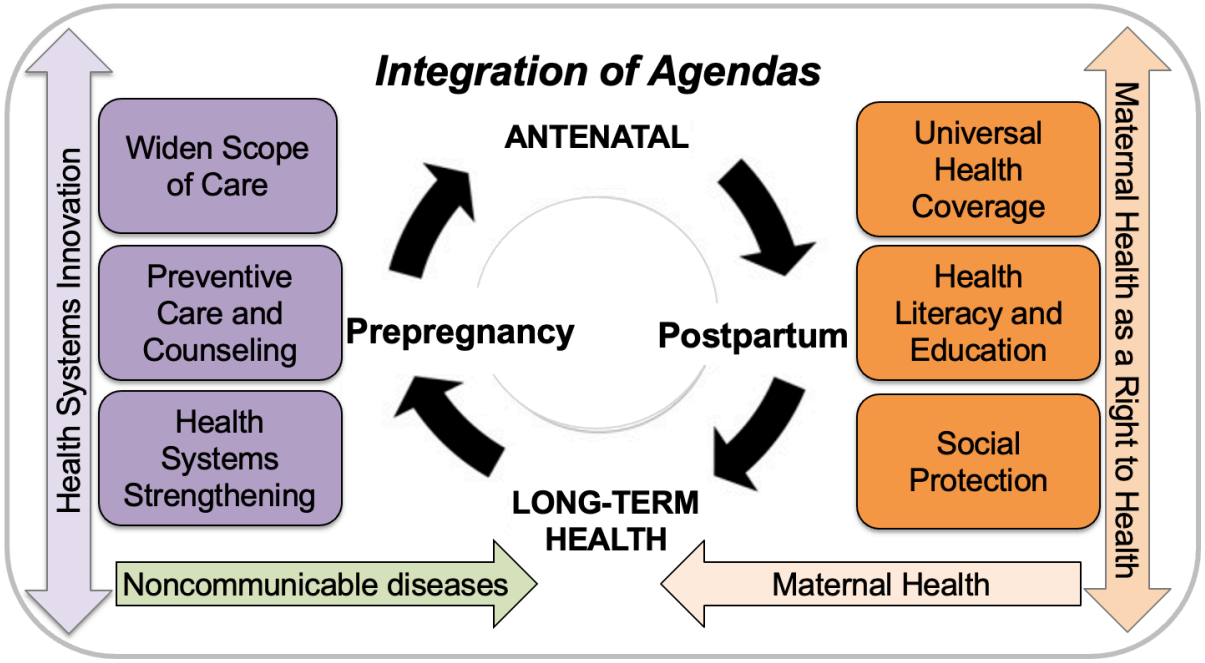

Figure 1.1 Adapted Framework for Healthcare Interventions to Address Maternal Morbidity

Significance

Advancing science of healthcare delivery to women and infants in the postpartum period. The extended 12 month postpartum period is a critical time period in the life course of women and infants, thus effective interventions that reduce maternal and infant morbidity and mortality during this time period are necessary. Transforming the way postpartum and well-child care is delivered and making it a priority in health systems has the potential to improve maternal and infant morbidity and mortality in Malawi. This care must be proactive, evidence-based, and integrated to comprehensively meet the dyad's needs including mental health, breastfeeding support, access to contraceptives for adequate birth spacing, immunizations, and positive parenting supporting child development, higher order cognition, and long-term health.[13,14,23,26,69]

Extending group care into the postpartum period offers a promising strategy to reduce gaps in the care continuum by integrating health care services and addressing factors contributing to the current low rates of health service utilization, inconsistent postpartum care provision, as well as providing an opportunity for early identification and treatment of maternal and infant morbidities in Malawi. Previous research has demonstrated that Centering-based group care is associated with better rates of breastfeeding initiation and duration, well-child care attendance, and immunizations, more satisfaction with care, and higher clinician self-efficacy.[29–33] These improved outcomes will accumulate to positively affect maternal and infant morbidity and mortality. For example, shifts in infant feeding alone can reduce infant mortality since an estimated 13% of all infant deaths are attributed to suboptimal infant feeding.[70] Empowering mothers through group healthcare may enhance parent-child attachment and parenting self-efficacy, which affects nutrition and responses to stress.[49,71] And it is projected that if WHO recommendations for breastfeeding are followed, millions of cases of pneumonia and diarrhea could be prevented and therefore over 500,000 childhood deaths could be averted.[72] In addition, over 500,000 cases of childhood obesity are attributed to not breastfeeding contributing to increased childhood morbidities.[72] Not only do patients experience positive outcomes, studies show that providers also prefer delivering antenatal and postpartum care in a group, due to feelings of increased freedom of expression, and a dissolution of hierarchies leading to increased quality of care, which ultimately can lead to improved outcomes.[30,36] Studies that focus on greater understanding of effective interventions to address maternal morbidity in the postpartum period in Malawi is a first step to developing a standardized

care package for women and infants that can be adapted for each context in which it is implemented.

Innovation

The study is innovative in several important ways. **1) The group care service delivery model is a potentially transformative approach to integrating postpartum and well-child care in a respectful manner.** Evidence suggests that this model has promise for improving multiple maternal and child health outcomes that accumulate and diffuse. The model increases time for assessment of both health and social needs and provides quality preventive healthcare while developing a support system.[30,31,34] This approach is a process and does not require a significant increase in resources or staff making it potentially sustainable for low resource settings in Malawi, the US and beyond. **2) Integration of the Health Belief Model and Social Learning Theory with a well-established maternal morbidity framework and using innovative methods such as human-centered design to adapt and co-design a context specific and sensitive prototype for group postpartum and well-child care that can be replicated in diverse settings.** This approach moves beyond maternal and child survival to focus on improving quality of life for both women and child throughout the life course. Human-centered design emphasizes the strengths, agency and priorities of women and health providers to build skills and knowledge to identify health issues, manage symptoms and seek support of resources early rather than waiting for symptoms or issues to worsen. Women and their infants are at the center of design. The design process prioritizes the voices of women but also engages with health care providers responsible for the provision of quality care to women and infants to develop a

context-specific prototype of integrated group postpartum and well-child care and evaluate its implementation outcomes in the Malawian context. The findings from the study can be further adapted and tested in Malawi but also disseminated and adapted to healthcare systems in diverse low-resource contexts, including the US.

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CHAPTER 2: MANUSCRIPT ONE

Postpartum care content and delivery throughout the African continent: An integrative review

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Abstract

Objective The objective of this review is to describe and evaluate the content of postpartum care and models of delivery throughout the African continent.

Design Integrative review was used to allow for the combination of studies using diverse research methodologies.

Data sources A comprehensive search strategy using the phrases ‘postpartum period’, ‘healthcare delivery’, and ‘Africa’ (all spelling variants and countries within the continent) was used in the following databases: PubMed, Cumulative Index of Nursing and Allied Health Literature Plus, and Embase for studies published through September 2019.

Review method The integrative review process includes five stages: problem identification, literature search, data evaluation, data analysis and presentation. Twelve studies from eight African countries were identified in the search and met the inclusion criteria for the review. The Mixed Methods Appraisal Tool was used to evaluate the quality of the studies included in the review. The theoretical framework developed by the World Health Organization Maternal Morbidity Working Group for healthcare interventions to address maternal morbidity was used for data analysis and to synthesize the results for presentation.

Results Definitions of the postpartum period varied among studies with service delivery ranging from six weeks to one year postpartum. There was no standard package of postpartum care across studies. Based on the World Health Organization theoretical framework, five primary topics are covered in postpartum care interventions: preventive care and counseling, health systems innovation, a life course approach, family planning, and health literacy and education. In contrast, five gaps in content of postpartum care

services and service delivery included: integration of screening and treatment of noncommunicable diseases with maternal healthcare, intimate partner violence screening, social protection, a rights-based approach, and social vulnerability. No study addressed all aspects of the World Health Organization framework to address maternal morbidity.

Conclusions The results from this review indicate the need to address gaps in postpartum care services throughout the African continent in order to reduce maternal morbidity. Re- conceptualizing the paradigm of maternal health to take a life course approach and focusing future research on developing and building interventions to target postpartum care and healthcare delivery of postpartum care are necessary and important in efforts to reduce maternal morbidity and improve health outcomes for mother and child.

Introduction

Postpartum care from the time of birth to the first year of life sets the stage for long-term health outcomes and well-being for both the mother and her child (ACOG, 2018; World Health Organization (WHO), 2013). Rates of maternal and infant morbidity and mortality are high throughout the African continent (Geller et al., 2018). The majority of maternal deaths occur in the first month postpartum, and the majority of infant deaths occur during their first month of life, making this a critical time in the lives of mothers and their newborn babies. The first month postpartum is critical, but maternal morbidity and mortality risks extend up to one year postpartum, with important events during the year including navigating breastfeeding challenges, issues with intimacy, and psychosocial adaptations and transitions to a parental role, all of which can make women and children vulnerable to poor health outcomes (Fahey and Shenassa, 2013; Finlayson et al., 2020). Further, women often disengage from care in the year following delivery. If Human Immunodeficiency Virus (HIV) positive or with other chronic health issues, they may drop out of treatment, leading to disease progression and increased risk of sexual and mother-to-child HIV transmission (Knettel et al., 2018). Thus increased attention to health risks and recovery beyond the immediate postpartum period is needed and the first year following childbirth is an important window for identifying and managing health and social challenges (Fahey and Shenassa, 2013). However, postpartum care is often a neglected part of the maternal and child healthcare continuum.

The World Health Organization (WHO) has care guidelines for the first six weeks postpartum in low resource settings. The guidelines discuss timing and content of

postpartum visits based on recommendations in the literature. The WHO recommends that every mother and baby should have at least four postpartum visits within the first six weeks regardless of birth setting: 1) within the first 24 hours; 2) day 3 (48-72 hours); 3) between days 7-14; and 4) at six weeks postpartum (World Health Organization (WHO), 2013). Despite these clear guidelines, there remain unmet needs in postpartum care implementation in low and middle-income countries (LMICs) (Langlois et al., 2015). One study conducted in 30 LMICs found that only 40% of all women who had a live birth in the past five years attended one postpartum care visit (Langlois et al., 2015). An integrative review of literature found that a lack of awareness of postpartum care, lack of autonomy, negative provider attitudes, low rates of health literacy, and low socioeconomic status negatively affect women's attendance of postpartum care in developing countries (Adams and Smith, 2018).

The WHO postpartum care guideline offers a helpful set of recommendations for postpartum care content for the first six weeks of the postpartum period. They include some of the content and services listed above: preventive care and counseling, mental health, intimate partner violence (IPV), and family planning. Further, recommendations include physical assessments of the baby and mother, as well as counseling on the following topics: exclusive breastfeeding; cord care; emotional wellbeing and postpartum depression screening; observation of any risks, signs, and symptoms of domestic abuse; resumption of sexual intercourse; maternal health warning signs (e.g. postpartum hemorrhage, pre-eclampsia, infection and thromboembolism); nutrition; hygiene; family planning; safe sex; insecticide-impregnated bed nets where indicated; exercise; iron and folic acid supplementation; and psychosocial support (World Health

Organization (WHO), 2013). However, they do not extend any guidance past the first six weeks postpartum.

In the last several years, increasing attention is being paid to the extended postpartum period. The Global Burden of Disease study in 2015 found that late maternal deaths (from 42 days until one year postpartum), is a non-trivial contributor to maternal mortality even in low resource settings and noted that HIV-related maternal deaths often occur in the late postpartum period (Kassebaum et al., 2016). Late maternal deaths are likely underestimated, as data are often lacking, therefore restricting measurement of maternal mortality to 42 days postpartum may underestimate total pregnancy-related deaths by up to 18% (Kassebaum et al., 2016; Lamadrid-Figueroa et al., 2016). Sub-Saharan Africa also has the highest burden of severe maternal morbidity with rates as high as 198 per 1,000 live births (Geller et al., 2018). Women who experience severe maternal morbidity or a near-miss event have been shown to have lower quality of life postpartum, increased risk of mortality, and increased risk of complications including from uncontrolled hypertension, cardiomyopathy, or congestive heart failure (Ferreira et al., 2020; Soma-Pillay et al., 2018). Other morbidities such as postpartum depression, urinary incontinence, obstetric fistula, and sexual dysfunction are less severe, but can be greatly distressing and last past the 6-week postpartum period (Andreucci et al., 2015; Gon et al., 2018; MacHiyama et al., 2017). Women may additionally face IPV and sexual and economic coercion in the extended postpartum period, which leads to significantly increased socioemotional problems in affected infants (Ahlfs-Dunn and Huth-Bocks, 2014; Mahenge et al., 2016).

Because the extended postpartum period is such a critical time period in the life course of women and infants, effective interventions that reduce maternal and infant morbidity and mortality during this time period are necessary. Recognizing the need to re-conceptualize maternal morbidity to include the diverse complications women face, including in the postpartum period, the WHO convened a Maternal Morbidity Working Group (MMWG) in 2012 (Say et al., 2018). Based on the findings of the WHO MMWG, Firoz et al. (2018) developed a conceptual framework for healthcare interventions to address maternal morbidity centered on a life-course approach to maternal health (see Figure 2.1).

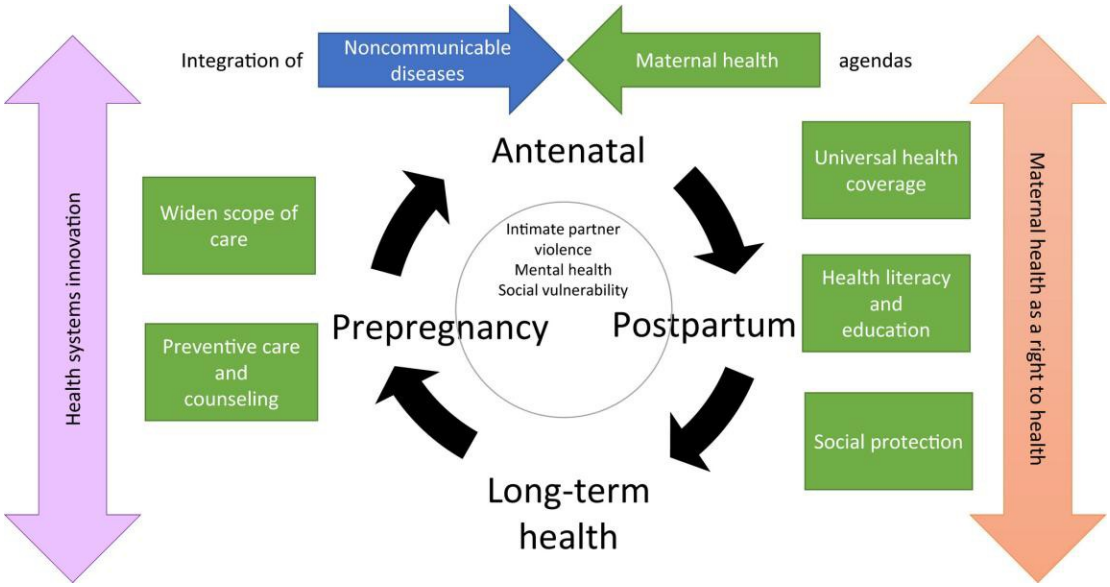

Figure 2.1 Framework for healthcare interventions to address maternal morbidity (Firoz et al., 2018)

This WHO MMWG framework re-conceptualized maternal morbidity in order to integrate noncommunicable diseases (NCDs) into the maternal health agenda and to be inclusive of social determinants of health and factors that affect maternal morbidity beyond the immediate postpartum period, including intimate partner violence, mental

health and social vulnerability across the lifespan (Firoz et al., 2018). The framework depicts the links between the concepts of pre-pregnancy, antenatal, postpartum, and long-term health of women. The framework highlights health systems innovation and systems strengthening (such as implementing novel group care models and strengthening linkages to primary care services) as an important facet of healthcare interventions, and depicts widening the scope of maternal health services and preventive care and counseling. By adding a focus on health systems innovation and health systems strengthening, the underlying causes of maternal morbidity and the importance of the health system's role in influencing maternal health outcomes are prioritized (Firoz et al., 2018). The framework also depicts maternal health as linked to governmental policies such as universal health coverage, health literacy and education, and social protection (to provide a minimum level of subsistence), demonstrating that maternal health is directly related to social determinants of health (Firoz et al., 2018). It thereby shifts the focus from surviving to thriving for women around the world (Firoz et al., 2018).

Currently there are no reviews examining the content and delivery of postpartum care, and there are no standardized postpartum care packages throughout the African continent beyond the first six weeks of the postpartum period. A previous systematic as well as an integrative review have examined factors that influence women's use of postpartum care in developing countries, but not care content (Adams and Smith, 2018; Langlois et al., 2015). Our purpose was to conduct an integrative review to describe and evaluate the content and service-delivery models existing for postpartum care throughout the African continent and determine remaining gaps using the WHO MMWG

conceptual framework for healthcare interventions to address maternal morbidity and the WHO guidelines for postpartum care. This synthesis of evidence seeks to provide a first step to inform the development of future postpartum care interventions to reduce maternal and infant morbidity and mortality throughout the African continent.

Methods

This review follows the five-stage integrative review framework of Whittemore and Knafl (2005): problem identification, literature search, data evaluation, data analysis and presentation. This integrative review approach allows for the inclusion of articles that employ diverse methodologies including both experimental and non-experimental research (Whittemore and Knafl, 2005).

Stage 1: Problem Identification

Increasing attention is being paid to the importance of the postpartum period. Simultaneously, attention is being drawn to the need to re-conceptualize the concept of maternal morbidity and recognize that it extends beyond the immediate postpartum period, typically defined as 6 weeks after delivery. Throughout the African continent there are high rates of maternal morbidity and mortality and no standardized package of postpartum care exists (Geller et al., 2018). Greater understanding of effective interventions to address maternal morbidity in the postpartum period is a first step to developing a standardized care package for women and their infants that can be adapted for each context in which it is implemented. Therefore, the purpose of this review was to describe and evaluate the content of postpartum care and models of delivery throughout the African continent.

Stage 2: Literature Search

Two of the authors developed the search strategy with assistance from a university health science informationist. The search focused on postpartum care and healthcare delivery throughout the African continent. The search terms were first developed for the PubMed database (see Appendix A). The search was then adapted for additional databases - the Cumulative Index of Nursing and Allied Health Literature Plus (CINAHL Plus) and Embase. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram depicts the search process used for this review (see Figure 2.2) (Moher et al., 2009).

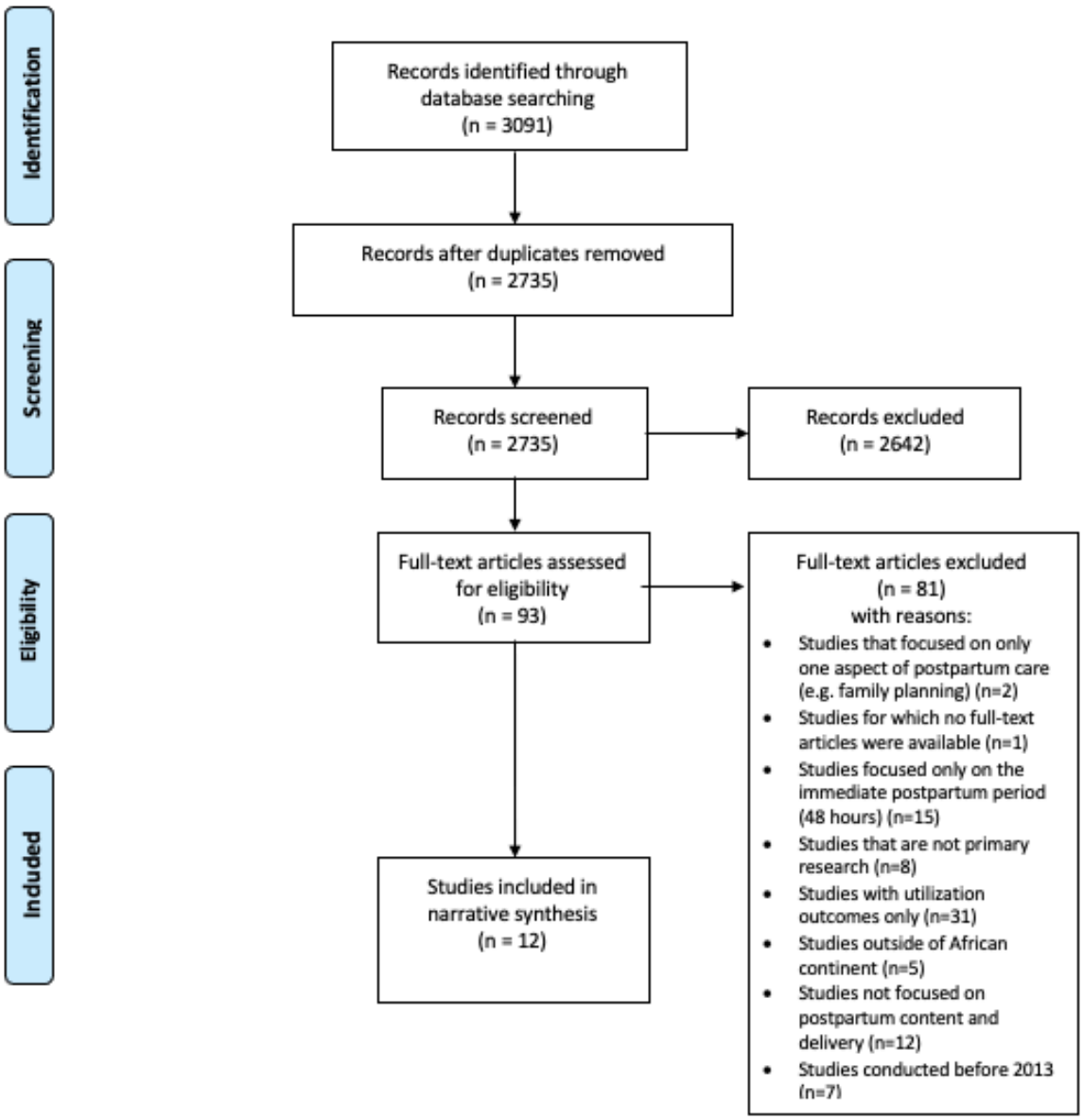

Figure 2.2 PRISMA flow diagram for the search process

3091 potentially relevant sources were identified, and after removal of duplicates 2735 remained for review by the primary author. Of the 2735, 2642 records were deemed not applicable to the focus of the review based on the abstract review. The 93 abstracts remaining were then assessed by the primary author using the following inclusion criteria: primary research, conducted in the African continent, and addressed

content of comprehensive postpartum care beyond the immediate 48 hours after birth. The exclusion criteria included: studies that took place before 2013; studies that focused on only one aspect of postpartum care for example, HIV or family planning as this does not give an understanding of all services provided to women based on guidelines; studies that did not include women in the postpartum period in the sample or outcomes; studies that only focus on utilization of services; and studies for which no full-text articles were available. Through the full text review, 81 articles were excluded based on the above inclusion and exclusion criteria. A total of 12 studies were included in the review.

Stage 3: Data evaluation

The final sample included experimental and non-experimental studies. Study methodologies included a wide variety of methods: randomized control trial (n=2), cross sectional (n=1), mixed methods (n=4), qualitative (n=4), and quality improvement (n=1). Studies were grouped according to study design in order to evaluate overall study quality during the data analysis (Whittemore and Knafl, 2005).

Stage 4: Data analysis

Data from the final sample were extracted and summarized, coded, and categorized into an integrated display of the content and services of postpartum care in order to identify areas covered and gaps in care delivery by two of the authors (Whittemore and Knafl, 2005). A constant comparison method was used as the overarching approach to take extracted data and create systematic categories and find themes and relationships in the data as described in Whittemore and Knafl's (2005) integrative review method (Whittemore and Knafl, 2005). This involved a four-phase

process including: data reduction (organizing studies based on methodology); data display (used Microsoft Excel to collate data into codes); data comparison (examined data display to find patterns); and conclusion drawing and verification (interpreting the data and presentation of results) (Whittemore and Knafl, 2005). This process was largely deductive using the WHO MMWG conceptual framework to create initial categories, and themes were added as they emerged all depicted in Table 1.

Stage 5: Presentation of results

A synthesis table (see Table 1) was developed to comprehensively display the content of postpartum care as found in the literature search. Results were categorized based on the constructs and concepts of the WHO MMWG framework for healthcare interventions to address maternal morbidity in addition to two themes that emerged from the data.

Quality Appraisal

The Mixed Methods Appraisal Tool (MMAT) was used to evaluate the quality of the studies (Hong et al., 2018). Because there is no standard critique instrument across study methodologies for an integrative review, Whittemore and Knafl (2005) suggest critiquing each study based on its study design. Therefore, the MMAT was used to evaluate the quality of each study according to study design as it provides guidance for appraising qualitative, quantitative and mixed methods studies. Similar to other appraisal tools, the MMAT discourages scoring studies, but rather using the tool as guidance for looking at criteria to gauge the quality of each study. The majority of qualitative studies met all quality criteria, one study did not include enough detail to appraise data collection methods. Of the quantitative studies, in general they met all the

quality criteria, although one randomized control was unable to blind all outcome assessors. Of the mixed methods studies, they met all the quality criteria except for some studies did not provide a detailed rationale for using a mixed methods approach. After quality appraisal, all studies from the final sample were retained for the review.

Conceptual Model/Synthesis

Data were grouped according to each construct and concept depicted in the WHO MMWG framework: integration of NCDs and maternal health, universal health coverage, health literacy and education, social protection, IPV, mental health, social vulnerability, rights-based approach, widen scope of care, preventive care and counseling, and health systems innovation. Health systems strengthening and family planning were added as emergent themes from the data. These categories aided in synthesizing the results and revealing gaps in postpartum care content and delivery.

Results

Study Characteristics

All 12 studies were original research articles published from 2015 to 2019. Diverse research methods were included in the sample, as stated above: four qualitative studies, five mixed-methods studies and 10 quantitative studies were included in the review. The studies included were conducted in Burkina Faso (n=3), Ghana (n=1), Kenya (n=3), Malawi (n=2), Mozambique (n=1), Rwanda (n=1), South Africa (n=1), and Tanzania (n=3) (one study was a multi-country study).

Sample Characteristics

Samples consisted of either women or providers and sample size varied from 41 to 1,511 women, and 10 to 57 healthcare providers and governmental officials per study. The ages of women participants ranged from 15 to 49 years old. Providers included skilled birth attendants (nurses, midwives and doctors), traditional birth assistants (TBAs), and community health workers (CHWs). Other participants included experts in midwifery and government officials.

The following categories for synthesizing the results from the final sample on postpartum care content and services are based on the WHO conceptual framework for healthcare interventions to address maternal morbidity (see Figure 1) (Firoz et al., 2018). Results are summarized below and in Table 2-1 and Table 2-2.

Table 2-1 Synthesis of results groups according to the framework for healthcare interventions to address maternal morbidity

Author (year)	Country	Design	Participants and sample size	Intervention	Results	Integration of NCD and maternal health	Universal health coverage	Health literacy and education	Social protection	Intimate partner violence	Mental health	Social vulnerability	Rights based approach	Widen scope of care	Preventive care and counselling	Health systems innovation	Health system strengthening	Lifecourse approach	Family planning
Duysburgh et al., 2015	Burkina Faso, Kenya, Malawi, Mozambique	Mixed methods	4 health districts	Used the four steps in systems thinking approach to design and select interventions	Specific policies for postpartum care are weak and there is very little evidence of effective postpartum care implementation. Based on findings the interventions selected by stakeholders mainly focused on increasing the availability and provision of postpartum services and improving the quality of postpartum care through strengthening postpartum services and care at facility and community level. This includes the introduction of postpartum home visits, strengthening postpartum outreach services, integration of postpartum services for the mother in child immunisation clinics, distribution of postpartum care guidelines among health workers and upgrading postpartum care knowledge and skills through training.			✓			✓			✓	✓	✓	✓		✓		
Guenther, et al., 2019	Malawi	Cross sectional surveys	Women with children 0 to 6 months (n=140), Health Surveillance Assistants (n=31)	Survey to evaluate the Community-Based Maternal and Newborn Care (CBMNC) package which includes three postnatal home visits within the first 8 days of delivery	Low coverage of home visits soon after delivery - questions the feasibility of the current visitation schedule. Only 42.9% of mothers reported that the health surveillance assistant (HSA) was informed of the delivery. Most HSAs doing home visits had the necessary equipment and supplies.			✓						✓	✓			✓	✓		
Kermode et al., 2017	Kenya	Mixed methods	19 focus groups (traditional birth attendants (TBAs), community health workers, women and men); 15 interviews with stakeholders	Qualitative investigation, TBA survey, facility audit and meetings with policymakers and film and booklet to document lives and work of TBAs and SBAs	Creating a collaborative skilled birth attendant (SBA) and traditional birth attendant (TBA) model of care has the potential to maximize safety of women and accelerate the transition from births attended by TBAs to being attended by SBAs		✓								✓	✓	✓			
Kohi et al., 2017	Tanzania	Qualitative	Providers (n=13)	N/A	Assessment was a major theme that emerged with three subthemes surrounding postnatal care. Guidelines impacted daily practice; providers were frustrated to deal with inadequate working conditions; providers voiced the importance of completing comprehensive assessments and believed mother were sent home too early.		✓				✓								✓	
Macdonald et al., 2018	Tanzania	Qualitative	Providers (n=13)	N/A	Four main themes emerged providing postpartum care: space, equipment, staffing and government responsibility		✓						✓							
McConnell et al., 2016	Kenya	Randomized trial	Women/infant dyads (n=109)	Community health worker home visits or phone calls with a checklist	Home visits with checklist increased likelihood women recognized postnatal problems and seek care. Both home visit and phone checklist led to earlier initiation of care. Evidence that CHW administered postnatal checklists can lead to more timely care-seeking and recognizion of problems.			✓					✓	✓	✓				✓	

Table 2-1 (Continued) Synthesis of results grouped according to the framework for healthcare interventions to address maternal morbidity

Author (year)	Country	Design	Participants and sample size	Intervention	Results	Integration of NCD and maternal health	Universal health coverage	Health literacy and education	Social protection	Intimate partner violence	Mental health	Social vulnerability	Rights based approach	Widen scope of care	Preventive care and counseling	Health systems innovation	Health system strengthening	Lifecourse approach	Family planning
Ngunyulu, Mulaudzi & Peu, 2015	South Africa	Qualitative	Traditional birth attendants (n=15)	N/A	Researchers highlighted similarities and differences between indigenous and Western postnatal care practices. Similarities included: maintenance of good nutrition, breastfeeding, prevention of postpartum bleeding and infection. Differences included: importance of colostrum, exclusive breastfeeding practices, timing of cutting of umlicial cord and methods of contraception.									✓					
Okawa et al., 2019	Ghana	Cluster randomized controlled effectiveness-implementation hybrid trial	Women (n=1490 at endline)	Continuum-of-care intervention package on adequate contacts of women and newborn with healthcare providers and their reception of high-quality antenatal, peripartum and postnatal care	The interventions improved contacts with healthcare providers and quality of care during postnatal care. However, having adequate contact did not guarantee high-quality care.									✓	✓		✓		
Pallangyo et al., 2017	Tanzania	Qualitative	Nurse-midwives (n=42); medical and clinical officers (n=13)	N/A	Perception that postpartum care was suboptimal, fragmented and lacks guidelines. Motivation to enhance postpartum care was high.				✓		✓			✓				✓		
Sayinzoga et al., 2018	Rwanda	Quality improvement	Rwandan stakeholders (n=10)	Use of a facilitated group process to design and implement a group antenatal and postnatal care program	A customized group ANC and PNC model and guidelines for its introdcution were developed as well as a description of the model and implementation plan.			✓					✓	✓	✓			✓	✓	
Yugbare Belemsaga et al., 2018a	Burkina Faso	Mixed methods	Quantitative: women within 1 year postpartum (n=1511); qualitative: CHWs (n=18); FHWs(n=24); key informants (n=15)	Intervention package that included the integration of maternal postpartum care in infant immunization services in 12 health facilities	Increase in the coverage of postpartum services from 50% before the intervention to 81% one year after start of intervention. Integration of maternal postpartum care in immunization clinic was low. Difficulties in restructuring and organizing services hindered the integration.		✓	✓					✓	✓	✓	✓	✓	✓	
Yugbare Belemsaga et al., 2018b	Burkina Faso	Mixed methods	Health facility (n=12)	Intervention package that included the integration of maternal postpartum care in infant immunization services in 12 health facilities	Increased trend of monitoring indicators. Large improvements in the detection and management of postpartum hemorrhage, sepsis and newborn fever or low temperature. Intervention was less successful to raise postpartum care at 6-8 weeks and later due to the existence of structural barriers (e.g. lack of collaboration among health workers and high staff turnover).		✓	✓					✓	✓	✓	✓	✓	✓	

Abbreviations: ANC, antenatal care; CHW, community health work; FHW, facility health worker; HSA, health surveillance assistant; NCD, non-communicable diseases; PNC. postnatal care; SBA, skilled birth attendant; TBA, traditional birth attendant

Table 2-2 Summary of the total number of studies including conceptual framework constructs in content and delivery of postpartum care

Construct	Number of studies that include construct (n = 12)
Integration of NCDs and maternal health	0
Universal health coverage	5
Health literacy and education	6
Social protection	1
Intimate partner violence	0
Mental health	3
Social vulnerability	0
Rights-based approach	1
Widen scope of care	6
Preventive care and counseling	10
Health systems innovation	7
Health system strengthening	4
Life course approach	5
Family planning	8

Non-communicable diseases (NCDs) and intimate partner violence (IPV)

No studies included in this review addressed the integration of screening and treatment of NCDs into postpartum care delivery, nor screening and/or interventions for IPV as a part of postpartum care.

Universal health coverage

Five studies discussed universal health care in Kenya, Tanzania, and Burkina Faso. Two studies examined integrating maternal and child health services in the postpartum period into existing free healthcare services in Burkina Faso to increase access to care and patient satisfaction while reducing costs (Yugbaré Belemsaga et al., 2018a, 2018b). One study described an intervention to bring healthcare services to the community to reach more women and children in Kenya (Kermode et al., 2017). Two qualitative studies of providers in Tanzania revealed that even though the government promotes free and universal postpartum care coverage, frequent stock outs and other

barriers prevent realization of universal health coverage (Kohi et al., 2017; Macdonald et al., 2019).

Health literacy and education

Six studies included health literacy and education. Here health literacy and education are broadly defined based on the Firoz et al. (2018) framework to mean ability of women to access resources, better understand counseling, and make informed decisions leading to improved maternal and child health outcomes (Firoz et al., 2018). Focusing on the health facility, three studies incorporated health literacy and education to postpartum care with provider training to provide increased health education during visits in areas such as breastfeeding and infant feeding, review of newborn and maternal danger signs, preventing health problems (use of insecticide-treated nets, immunizations), newborn and infant cognitive development, self-care, and other healthy practices (Sayinzoga et al., 2018; Yugbaré Belemsaga et al., 2018a, 2018b). One study in Malawi reported on utilizing health surveillance assistants for maternal postpartum health education through home visits, but they were only able to reach coverage of 30% of sampled households (Guenther et al., 2019).

Social protection

Social protection is defined as ensuring a minimum level of subsistence, for example income generating activities, temporary or permanent housing and access to healthcare services (Firoz et al., 2018). Achieving universal health coverage is a key component of ensuring social protection (Firoz et al., 2018). One qualitative study

exploring provider's perspectives in Tanzania on postpartum care noted that there is a disconnect between politicians rhetoric around free healthcare for mothers/newborns and the reality of costs of healthcare services which leads to delays in care and endangers maternal and child health outcomes (Pallangyo et al., 2017).

Mental health

Three studies mentioned postpartum mental health. As part of the Missed Opportunities in Maternal and Infant Health (MOMI) project in Mozambique, an intervention was planned to improve facility healthcare worker assessment of postpartum mothers including their "mental/emotional status" through use of standardized assessment checklists, but no specific details were provided on checklist content (Duysburgh et al., 2015). Two studies mentioned the importance of maternal mental health, but did not specifically describe how to address assessing for postpartum depression as a part of postpartum care interventions (Kohi et al., 2017; Pallangyo et al., 2017). Two studies in this sample that addressed mental health included assessing maternal mental/emotional status as part of a postpartum care package in healthcare facilities (Duysburgh et al., 2015; Kohi et al., 2017). One qualitative study in Tanzania examining provider's perspectives on postpartum care noted they felt that provider's knowledge of mental health needed to be strengthened to improve quality of services given in postpartum care (Pallangyo et al., 2017).

Social vulnerability

Social vulnerability is defined as a comprehensive view of health and nonclinical risk factors or social determinants of health (Firoz et al., 2018). This includes focusing on addressing social vulnerabilities such as intimate partner violence, mental health and malnutrition (Firoz et al., 2018). No studies addressed social vulnerability nor social determinants of health as they related to postpartum care.

Rights-based approach

One study addressed maternal care as a right to health in the approach to postpartum care, but did not address ways to achieve it (Macdonald et al., 2019).

Widen scope of care

Firoz et al. (2018) recommends widening the scope of maternal care from emphasis on emergency obstetric care to continuity in care, extending the length of postpartum care, and integration with other services. Five studies addressed this. Three studies in Burkina Faso showed that integrating maternal and neonatal care at the health facility increased coverage of maternal postpartum visits (Duysburgh et al., 2015; Yugbaré Belemsaga et al., 2018a, 2018b). This model was also utilized in Mozambique (Duysburgh et al., 2015). In Rwanda, group postpartum care was implemented additionally integrating well-child checks. Two studies provided more postpartum services through community outreach programs in Kenya and Malawi (Guenther et al., 2019; McConnell et al., 2016). The randomized trial in Kenya found that community health workers (CHWs) conducting postnatal home visits with a standardized checklist could lead to more timely care seeking behaviors and recognition of health problems

(McConnell et al., 2016). The cross-sectional surveys conducted in Malawi showed that despite expanding services to community-based home visits, there was still low coverage in the postpartum period (Guenther et al., 2019).

Preventive care and counseling

Preventive care and counseling was the most widely addressed topic, featured in 10 studies. All of the studies addressing preventive care and counseling discussed including maternal and newborn danger signs in their postpartum care interventions. Other topics included in preventive care and counseling included newborn care, nutrition, breastfeeding and infant feeding, bed net use, return to fertility and sexual activity, and HIV and sexually transmitted infection (STI) screenings. In Burkina Faso, Ghana, Mozambique, and Rwanda health workers at health facilities delivered counseling (Duysburgh et al., 2015; Okawa et al., 2019; Sayinzoga et al., 2018; Yugbaré Belemsaga et al., 2018a, 2018b). Community health workers performed counseling during postpartum home visits in Burkina Faso, Kenya, and Malawi (Duysburgh et al., 2015; Guenther et al., 2019; McConnell et al., 2016). Two studies examined counseling performed by traditional birth attendants (TBAs) in Kenya with women in pastoralist communities and in South Africa (Kermode et al., 2017; Ngunyulu et al., 2015). The study of TBAs in South Africa showed that TBAs do routinely counsel on need for good nutrition postpartum, how to prevent postpartum bleeding, and need for infection prevention, but some of their practices including counseling to delay return to sexual activity for two years postpartum are not evidence-based (Ngunyulu et al., 2015).

Health systems innovation

Seven studies addressed novel ways to approach postpartum care. Two studies described health systems innovation through community-based initiatives related to postpartum care (Kermode et al., 2017; McConnell et al., 2016). In Kenyan pastoralist communities, an innovative partnership between TBAs and skilled birth attendants (SBAs) was created to attempt to improve postpartum care and promote respectful maternity care (Kermode et al., 2017). One study examined the feasibility of using groups to deliver postpartum care integrated with well child care (Sayinzoga et al., 2018). Five of these studies examined some way to change the delivery of postpartum care in the health facility by either strengthening the quality of facilities, introducing programs to increase access to care or improve continuity of care, or integrating services to increase coverage and quality of postpartum care (Duysburgh et al., 2015; McConnell et al., 2016; Okawa et al., 2019; Yugbaré Belemsaga et al., 2018a, 2018b).

Health system strengthening

All four studies that addressed this included provider trainings on postpartum care in order to strengthen services. These studies found that there was a need to reinforce training on postpartum care knowledge among providers to manage immediate postpartum complications and for extended postpartum care and counseling. Three studies in Burkina Faso included training of facility healthcare workers to improve postpartum care and were able to achieve improved coverage through integration with well-child checkups after focused training of primary care health workers (Duysburgh et

al., 2015; Yugbaré Belemsaga et al., 2018a, 2018b). Increased training of TBAs was performed to help SBAs monitor women postpartum in pastoralist communities in Kenya (Kermode et al., 2017).

Life course approach

The five studies that addressed a life course approach discussed linkages to either antenatal care or long-term health in designing, implementing and evaluating the interventions studied. Three studies looked at providing a continuum of care from antenatal to postpartum (Guenther et al., 2019; Okawa et al., 2019; Sayinzoga et al., 2018). The interventions to integrate postpartum care with immunizations in Burkina Faso focused on extending maternal healthcare contact past 6 weeks postpartum, a key life-course approach concept (Firoz et al., 2018; Yugbaré Belemsaga et al., 2018a, 2018b). They found that rural areas were more likely to meet targets than urban areas, particularly for postnatal coverage at 6-8 weeks postpartum (Yugbaré Belemsaga et al., 2018b). However, Yugbaré et al. (2018b) in Burkina Faso found integration past 6 weeks postpartum was difficult and thus did not report on any outcomes related to the 9 month postpartum visit. Yugbaré et al. (2018a) did find that care between postpartum day 45-90 significantly increased, but remained quite low overall (3% pre- and 17% post-intervention). Qualitative data from this study showed women did not deem extended postnatal care necessary (Yugbaré Belemsaga et al., 2018a). Similarly, small but significant gains occurred in HIV diagnosis and treatment (0% vs. 10%) and counseling on HIV prevention (5% to 12%) at postpartum days 45-90 (Yugbaré Belemsaga et al., 2018a).

Family planning

Eight studies directly addressed family planning. Facility-based healthcare worker training improved counseling and family planning uptake in Burkina Faso (Duysburgh et al., 2015; Yugbaré Belemsaga et al., 2018a, 2018b). Tanzanian providers additionally provided rapid family planning counseling in the health facility postpartum prior to discharge, as overcrowding precluded women from staying for the recommended 24 hours postpartum (Kohi et al., 2017). Each of the studies that addressed family planning discussed health education around postpartum family planning and providing access to family planning for women during postpartum care visits. In Malawi, community health care workers discussed family planning during postpartum home visits, but no outcome data were available (Guenther et al., 2019). Family planning counseling was additionally incorporated into the novel group antepartum and postpartum care intervention in Rwanda, but no outcomes were provided (Sayinzoga et al., 2018). Studies in Kenya, Malawi, Rwanda, and Tanzania, Kenya referred to family planning as a part of postpartum care services (Guenther et al., 2019; Kohi et al., 2017; McConnell et al., 2016; Sayinzoga et al., 2018).

Discussion

No study incorporated all components of the WHO framework for healthcare interventions to address maternal morbidity and the WHO postnatal care guidelines. This further highlights the lack of a standardized postpartum care package beyond the first six weeks postpartum, and the need for one in order to provide quality services for women and families. Synthesizing the literature according to Firoz et al.'s (2018)

framework revealed both gaps and strengths of postpartum care content and services and models of service delivery throughout the African continent.

Content and Services

Based on this review, the five topics primarily covered in postpartum care interventions were: preventive care and counseling, health systems innovation, family planning, universal healthcare, and health literacy and education. Preventive care and counseling subjects varied among studies. Content covered included counseling about: infant feeding practices, HIV/STI testing, family planning, cervical screening, return to fertility/sexual activity, deworming, maternal danger signs, infant danger signs, and bed net usage in malaria endemic areas. No study reviewed included all of the recommended care and counseling that is outlined in the WHO guidelines. Notably missing from the studies was counseling on signs and symptoms of IPV, mental health and postpartum depression counseling, exercise, and psychosocial support counseling. This review highlights the need to incorporate more preventive care and counseling in addition to what is already being provided, consistent with the WHO guidelines listed above including: exclusive breastfeeding; cord care; emotional wellbeing and postpartum depression screening; observation of any risks, signs and symptoms of domestic abuse; resumption of sexual intercourse; maternal health warning signs (e.g. postpartum hemorrhage, pre-eclampsia, infection and thromboembolism); nutrition; hygiene; family planning; safe sex; insecticide-impregnated bed nets where indicated; exercise; iron and folic acid supplementation; and psychosocial support.

The studies that involved a health systems innovation such as the integration of postpartum care in well-child and child immunization services reported implementation challenges such as difficulties re-organizing and integrating already fragmented services (Yugbaré Belemsaga et al., 2018a, 2018b). Understanding implementation barriers highlights the importance of health systems strengthening and policy frameworks to support the integration of services in order to increase access to postpartum care services and enable providers to work as efficiently and cost effectively as possible. Similar implementation barriers were described in qualitative studies with midwives reporting challenges with the following resources: space, equipment, staffing and government responsibility (Kohi et al., 2017; Pallangyo et al., 2017). Studies relying on home visits to increase access to postpartum care suffered from plateaus in coverage, particularly in Malawi where the community health-workers are not residents of their covered communities and have many other essential duties to perform (Guenther et al., 2019; McConnell et al., 2016).

Postpartum family planning was included in the majority of studies and some reported the rates of family planning uptake, but these studies did not describe what types of family planning methods were offered. Other studies in the literature focus specifically on postpartum family planning and were not included in this review as only studies reporting full-scope postpartum care were included, and therefore we might have missed some family planning content that is incorporated into postpartum care content.

Five gaps in postpartum care content and services as well as models of service delivery include: integration of non-communicable diseases (NCDs); IPV screening;

social protection; a rights-based approach; and consideration of social vulnerability. Discussion of NCDs was not incorporated in any of the studies reviewed. There is an increasing burden of chronic diseases and NCDs among pregnant and postpartum women underscoring the importance of integrating the agendas of NCDs and maternal health (Firoz et al., 2018). For example, pregnancy complications such as gestational hypertension and gestational diabetes lead to increased risk of cardiovascular disease and type II diabetes respectively (Kim et al., 2002; Robbins et al., 2011). Re-thinking the paradigm for maternal health to view it in a life course approach necessitates integrating NCDs into all maternal health activities. Future research should examine how to integrate NCDs and maternal health to meet evolving needs of women in LMICs (Azenha et al., 2013). This may additionally help women see the value of extended postpartum care, increasing demand generation.

Intimate partner violence (IPV) was not addressed in any of the studies in this sample, highlighting another major gap in postpartum care content. Strengthening the health system response through compassionate, competent and confidential care across the lifespan including the postpartum period is critical (World Health Organization (WHO), 2013). Studies throughout the African continent show the negative impact of IPV on pregnant women and women in the postpartum period, suggesting a need for increased awareness and IPV screening by skilled providers that should be incorporated in to all care, including postpartum care (Groves et al., 2015; Mahenge et al., 2016; Munro-Kramer et al., 2018). IPV in the postpartum period can have not only detrimental effects on a woman, but also negatively impact infant development further highlighting the importance of identifying families at risk (Ahlfs-Dunn and Huth-Bocks,

2014). Further research should focus on determining best practices for assessing/screening for IPV in the postpartum context and respectfully responding to women to improve health and safety when they disclose violence.

Mental health was only addressed in three studies, and there was no mention of postpartum depression screening specifically. Postpartum depression is one of the most common complications in the postpartum period, affecting approximately 20% of women in low and middle-income countries (LMIC) (Gelaye et al., 2016). Therefore, it is important to incorporate it into preventive care and counseling, health education and literacy and screening during all postpartum health assessments. The Edinburgh Postnatal Depression Scale (EPDS) has been translated in to over 50 languages and validated in the following languages spoken throughout the African continent: Arabic, Amharic, French, Igbo, Portuguese, and South African-English. Mental health is a neglected area in LMICs and future research should examine best practices for assessing mental health disorders such as postpartum depression and how to incorporate mental health assessments into postpartum care as well as ensure that resources for treatment are available and accessible (Gelaye et al., 2016).

Modes/models of Service Delivery

It is also important to discuss the modes/models of delivery documented in this sample of studies. The mode of care delivery can impact the feasibility and affordability of programs, as well as the content that is delivered to women. Studies identified the need to increase training for providers and to work collaboratively with skilled or traditional birth attendants depending on the context of the provision of postpartum care

(Kermode et al., 2017; Ngunyulu et al., 2015; Pallangyo et al., 2017). However, it is important to note that prior to training the content of postpartum care services needs to be enhanced, as increased contacts with providers does not always result in increased quality of care (Okawa et al., 2019).

Two studies focused on home visits as another strategy to deliver postpartum care. These studies revealed that home visits have the potential to lead to improved care seeking behavior and recognition of health problems as they arise for both mothers and infants (Guenther et al., 2019; McConnell et al., 2016). However, these were limited by coverage of home visits and relied heavily on community health worker notification of birth, which was difficult where community health workers did not reside within their communities (Guenther et al., 2019).

Another strategy to deliver postpartum care in this sample of studies was the use of group care as an innovative method to deliver postpartum care services (Sayinzoga et al., 2018). There is evidence that the group process improves maternal and infant health outcomes in the antenatal setting in several African countries but this has yet to be studied extensively in the postpartum care setting (Eluwa et al., 2018; Lori et al., 2017; Patil et al., 2017, 2013). It is recommended that further research be done to test the group care model in the postpartum period. It would be helpful to explore further strategies at the health systems level to improve the quality and content of postpartum care services in order to ensure comprehensive health services.

Strengths and Limitations

To our knowledge, this is the first integrative review exploring the content and delivery of postpartum care throughout the African continent. This is an important

addition to the literature to provide a basis for future research to guide the implementation of interventions to address maternal morbidity. The review was conducted using a robust methodological framework and theoretical framework to guide synthesis of the data.

Limitations to this review included a lack of a standardized definition of the postpartum period making comparisons across studies difficult as content varied according to timing of postpartum assessments from 24 hours to one year postpartum. The inclusion criteria allowed for general content of postpartum care assessments but excluded those studies that focused on one particular aspect of postpartum care, therefore potentially excluding some relevant publications. Studies included in the final data sample were not representative of all of the countries in the African continent (with only eight countries represented that met inclusion criteria) and were conducted in different contexts with different study designs making the ability to generalize limited. Only peer-reviewed studies were included, which excludes results from grey literature which could have provided more country specific data. Recognizing this limitation, we recommend that future inquiries look specifically at the grey literature and country specific postpartum care guidelines. In addition, only reviewing studies written in English is a potential limitation.

Implications for Policies

The WHO MMWG framework for healthcare interventions to address maternal morbidity offers a foundation to base content and delivery of services past the first six weeks of postpartum care. It is recommended that further research examine providing postpartum care beyond the first six weeks and its impact on maternal and child health

outcomes. One multi country study included in this review conducted a needs assessment and stakeholder analysis to find context-specific solutions for postpartum care (Duysburgh et al., 2015). It is recommended to use this same strategy or some form of participatory action research in future research to determine context-specific content for postpartum care in addition to determining the best way to deliver care. The WHO MMWG framework for healthcare intervention to reduce maternal morbidity can be used as a helpful tool to guide this research. It is crucial to address all of these important areas of maternal health in order to address maternal morbidity and mortality.

One multi-country study found that while maternal and newborn health is a national priority in countries, policies are not in place to prioritize postpartum care services (Duysburgh et al., 2015). One of the reasons for this is the lack of a standardized package of evidence-based practice for postpartum care on which to base programs and policies (Duysburgh et al., 2015). This review supports the results of Duysburgh et al. (2015) that strategies to improve postpartum care should include community outreach programs, home visits, the integration of maternal and child health services, and increased training of providers using a standard postpartum care package that can be adapted to diverse contexts and settings. Using the results of this review in addition to findings from previous integrative reviews examining factors that influence women's utilization of postpartum care could assist to create effective interventions to reduce maternal morbidity and mortality (Adams and Smith, 2018).

Implications for Practice

This research is of particular importance for the field of nursing and midwifery as nurses and midwives are at the forefront of care throughout the African continent and

represent over 50% of national health workforces in most countries (World Health Organization (WHO), 2020). When women and infants receive postpartum care it is most often delivered by a nurse or midwife, meaning it is essential to increase nursing and midwifery knowledge of best practices to create a standard of care for postpartum assessments and ultimately improve maternal and child health outcomes. It will be important to establish collaborations between nurses, midwives, physicians, policy makers, and most importantly women to determine how to create a package of postpartum care to meet the needs of women and families.

Implications for Research

Future studies should explore barriers and facilitators to the integration of maternal and well-child services in order to further the implementation science of postpartum care delivery and the integration of these services as recommended by Firoz et al. (2018). Qualitative data reported in this review support further research on demand-generation for postpartum care. This is particularly important in regards to integration of NCDs and consideration of care using a life-course approach. Future research in nursing and midwifery should be dedicated to developing a standardized package of postpartum care beyond the first six weeks of the postpartum period that can be adapted for contexts throughout the African continent as well as exploring group healthcare service delivery models.

Conclusions

Postpartum care is an area that is often neglected in maternal health. The results from this review indicate there are major gaps in postpartum care content, most notably a lack of integration of NCDs, IPV screening, mental health, and a rights-

based approach to care. No study included all aspects of the framework for healthcare interventions to address maternal morbidity and the WHO guidelines for postnatal care. These results indicate there is a need for future research to develop a standardized package of postpartum care that can be adapted for specific contexts from birth to one year postpartum to reduce maternal morbidity. Once a standardized package of postpartum care is developed, implementation studies should be conducted to examine the most cost- efficient and effective modes/models of healthcare delivery of postpartum care for women and families. Modes of care delivery that are promising to improve maternal health outcomes based on preliminary results include home visiting, community outreach programs, group models of care, and integration of maternal and child health services. Re-conceptualizing the paradigm of maternal health to take a life course approach and focusing future research on developing and building interventions to target postpartum care are necessary and important in efforts to reduce maternal and neonatal morbidity.

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CHAPTER 3: ADDENDUM MANUSCRIPT

A Conceptual Framework for Group Well-Child Care: A tool to guide implementation, evaluation, and research

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Abstract

Objective To use scoping review methods to construct a conceptual framework based on current evidence of group well-child care to guide future practice and research.

Methods We conducted a scoping review using Arksey & O'Malley's (2005) six stages. We used constructs from the Consolidated Framework for Implementation Research and the quadruple aim of health care improvement to guide the construction of the conceptual framework.

Results The resulting conceptual framework is a synthesis of the key concepts of group well-child care, beginning with a call for a system redesign of well-child care to improve outcomes while acknowledging the theoretical antecedents structuring the rationale that supports the model. Inputs of group well-child care include health systems contexts; administration/logistics; clinical setting; group care clinic team; community/patient population; and curriculum development and training. The core components of group well-child care included structure (e.g., group size, facilitators), content (e.g., health assessments, service linkages). and process (e.g., interactive learning and community building). We found clinical outcomes in all four dimensions of the quadruple aim of healthcare.

Conclusions Our conceptual framework can guide model implementation and identifies several outcomes that can be used to harmonize model evaluation and research. Future research and practice can use the conceptual framework as a tool to standardize model implementation and evaluation and generate evidence to inform future healthcare policy and practice.

Introduction

Well-child care provides a critical window of opportunity to identify and manage health and social challenges and promote child and family health. Given how tightly linked a childbearing parent's postpartum health is to infant well-being, current postpartum and early childhood preventive care models are not optimal in that many families, particularly those from groups that have been minoritized, do not receive recommended preventive services, and/or are left with unfulfilled needs (e.g. unmet health-related social needs, unaddressed parental depression) (ACOG, 2018; Coker et al., 2013; Fahey & Shenassa, 2013; Freeman et al., 2018; MacMillan Uribe et al., 2019). As a result, there are significant racial gaps in child developmental outcomes (Liljenquist & Coker, 2021). To address the unmet needs and improve outcomes for families particularly in underserved areas, various redesigns of well-child care have been proposed, including group well-child care (GWCC) (Coker et al., 2013; Schor, 2004).

In place of standard individual visits, GWCC offers care to multiple infant-parent dyads or triads at once. Most GWCC models bring together the same group of 6-8 parents and their infants, who are born within one month of one another, for one to two years of preventive care visits (Bloomfield & Rising, 2013; Gaskin et al., 2021). In general, sessions are 120 minutes with the first 30-45 minutes consisting of standard health assessments of the infant and caregiver, by a clinician in a semi-private section of the room, followed by 75-90 minutes of group discussion using interactive health promotion activities (Bialostozky et al., 2016; Connor et al., 2017; DeLago et al., 2018; Friedman et al., 2021; Marchel et al., 2015).

GWCC is associated with improvements in healthcare utilization (e.g., attendance, immunization rates) and with parent and clinician satisfaction (Desai et al., 2019; Fenick et al., 2020; Graber et al., 2019; Gullett et al., 2019; Irigoyen et al., 2020; Johnston et al., 2017; Jones et al., 2018; Machuca et al., 2016; Page et al., 2010; Platt et al., 2022; Rice & Slater, 1997; M. S. Rosenthal et al., 2016; Rushton et al., 2015). Clinicians have also described the potential impact of GWCC to shift power dynamics and improve quality of care (Desai et al., 2019; Lazar et al., 2021). A recent systematic review describes GWCC as an efficient model that is patient-centered, influences outcomes, and has the potential to meet the needs of underserved populations (Gaskin et al., 2021). However, authors noted inconsistencies in model implementation and lack of standardization in assessing outcomes, making interpretation of the results challenging. Therefore, using scoping review methods, we sought to construct a GWCC conceptual framework based on current evidence to serve as a tool for practitioners and researchers to guide model implementation and harmonize GWCC practice, evaluation, and research.

Methods

We mapped key concepts related to GWCC through a systematic search and synthesis of existing knowledge to construct a conceptual framework (Colquhoun et al., 2014). We chose scoping review methodology to inform conceptual framework construction because the approach allows for the inclusion of all types of research (e.g., quantitative, qualitative, mixed methods), reviews, and commentaries and expert consultation. Following recommendations of Arksey & O'Malley's (Arksey & O'Malley, 2005) and Levac et al.'s (Levac et al., 2010) enhancements, our review stages included:

identifying the research question and relevant studies, study selection, charting, collating, and summarizing the data, reporting results, and completing a consultation exercise. Our research question was: "*what is known from the existing literature about the conception, implementation, and outcomes of GWCC?"* We worked with a research librarian to develop search terms (Appendix 1) and conducted a systematic search of Ovid MEDLINE, Embase, CINAHL, APA PsychInfo, Web of Science, and Scopus. Search terms included variations of *group well-child care* and *CenteringParenting* (a standardized GWCC model). There were no limitations related to publication date or language.

Inclusion and exclusion criteria were defined iteratively between three team members (Colquhoun et al., 2014). Studies were included if they specifically referred to GWCC and were available in full text. Two team members screened titles and abstracts; a third team member was consulted if consensus could not be reached; three team members subsequently conducted the full text review. We also hand-searched references listed in included articles. Team meetings were held to refine the inclusion/exclusion criteria. In these meetings we decided to exclude studies outside of the US and Canada as the literature outside of these countries includes some reference to continuing group care in the postpartum period, but often did not go past 6 weeks postpartum, and due to the many differences in the health care systems. Figure 1 describes the search stages.

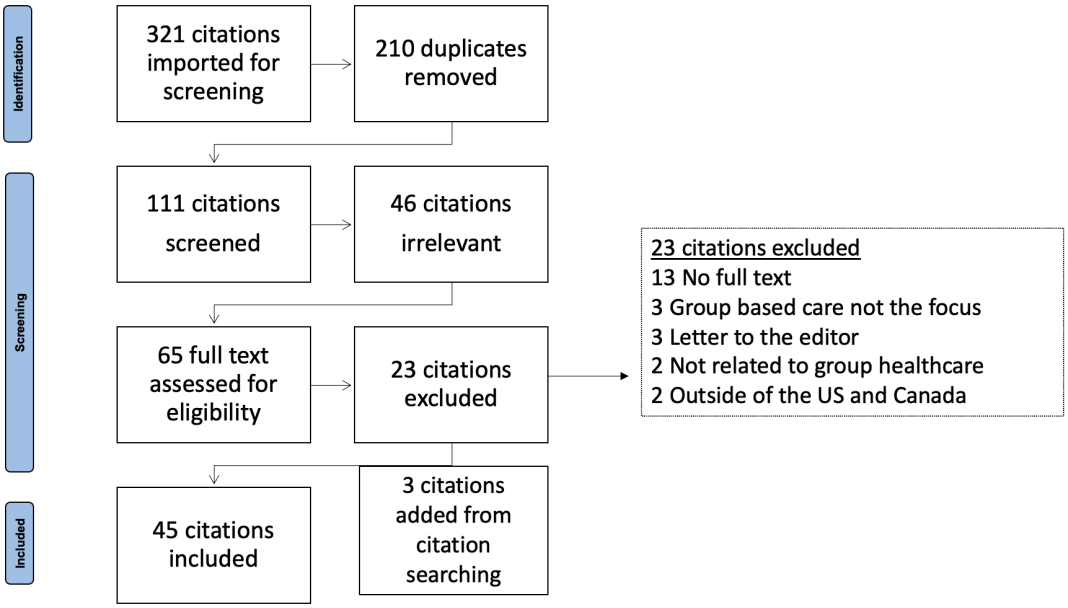

Figure 3.1 PRISMA flow diagram

Three team members independently extracted data using Covidence systematic review software's data extraction template and discussed interpretation of variables extracted (Veritas Health Innovation, 2021). The Johns Hopkins Nursing Evidence-Based Practice Model tools for research evidence appraisal were used (Dearholt & Dang, 2012). For the process-oriented data, a qualitative content analysis approach was used to extract data (Colquhoun et al., 2014). Data from the extraction tool were collated to summarize and report results. We used two existing frameworks to organize outcomes and guide the development of the conceptual framework, including: (1) the Consolidated Framework For Implementation Research (CFIR) (Damschroder et al., 2009), which consists of theory-based constructs (e.g., inner and outer setting, intervention characteristics, and process) associated with effective implementation of interventions, and (2) the quadruple aim of health care improvement (improved clinical outcomes; improved patient experience; improved clinician experience; and reduced per

capita cost of healthcare) (Berwick et al., 2008; Bodenheimer & Sinsky, 2014; Sikka et al., 2015).

The draft GWCC conceptual framework was circulated to the larger study team consisting of the founder of CenteringParenting, three practitioners in GWCC, and four researchers. The team refined the framework over a series of meetings. We then sent the framework to 14 additional experts (11 pediatricians, 2 social workers, and 1 child life specialist with experience in implementation of, or in research on, GWCC models). All experts reviewed the framework, verified findings, and provided feedback (Arksey & O'Malley, 2005). The framework was finalized by the study team as a whole.

Results

A total of 45 articles were included in the review. Study designs included quantitative (n=18), qualitative (n=13), and mixed methods (n=5). Nine non-research publications were included. The results present in narrative and table form the findings from the scoping review that led to the construction of the conceptual framework (Figure 2).

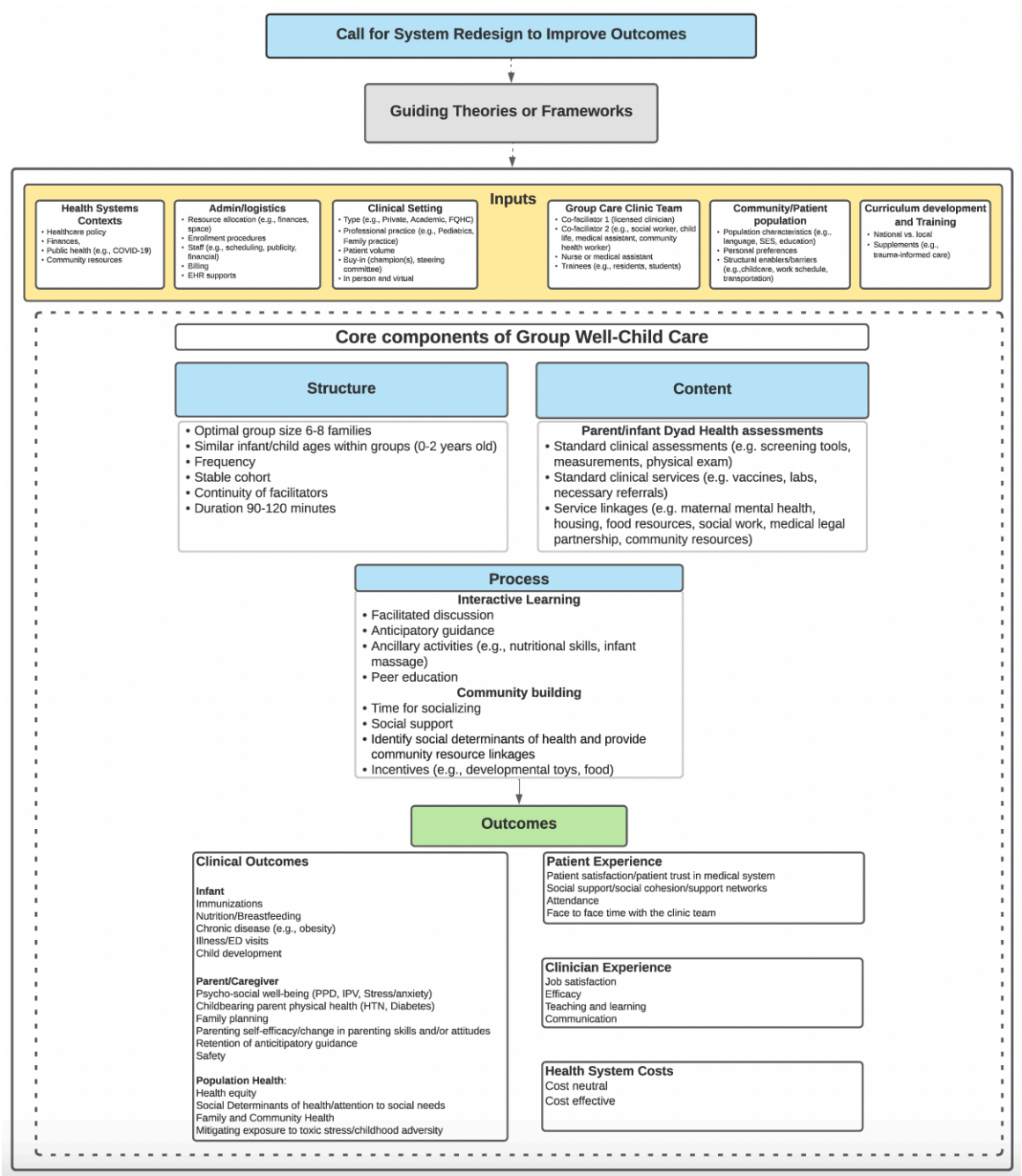

Figure 3.2 GWCC Conceptual Framework

We present the mapped domains and key concepts in the framework which align with the CFIR constructs and the quadruple aim.

Call for system redesign to improve outcomes

GWCC was often implemented in response to health system constraints in traditional care (e.g., lack of time, limited opportunities to address psychosocial topics) and to more efficiently address family needs (Anderson, 2006; Bloomfield & Rising, 2013; Friedman et al., 2021; McNeil et al., 2016; L. Osborn, 1982; Page et al., 2010; Stein, 1977). Most of the GWCC literature describes it being implemented in underserved patient populations (Gaskin et al., 2021). Several studies reported that implementation of GWCC was aimed at addressing specific stressors more effectively (e.g., low health literacy, unmet social needs) or to deliver care to a particular population (e.g., children in immigrant families) (Bloomfield & Rising, 2013; Friedman et al., 2021; Platt et al., 2022).

Guiding Theories or Frameworks

Theories or frameworks supporting rationale for GWCC model design and curriculum development were identified in six articles (Bialostozky et al., 2016; DeLago et al., 2018; Machuca et al., 2016; MacMillan Uribe et al., 2019; Oldfield et al., 2019; Rushton et al., 2015). These included adult learning theory (Rushton et al., 2015), experiential learning theory (DeLago et al., 2018), Weisner's ecoculturalist theory of human development (Bialostozky et al., 2016), transtheoretical model of change (Machuca et al., 2016), social learning theory (Machuca et al., 2016), Freirean framework (Machuca et al., 2016), Anderson's model of health services utilization (Oldfield et al., 2019), the Behavior Change Wheel framework(MacMillan Uribe et al., 2019), and the Capacity, Opportunity, Motivation, and Behavior system (MacMillan Uribe et al., 2019).

Inputs

Similar to the CFIR constructs of inner setting, outer setting, characteristics of individuals and process (Damschroder et al., 2009), the inputs referred to below describe the economic, political, financial, and structural contexts and processes and individuals that influence the implementation of GWCC. Table 1 provides more details for each key concept.

Table 3-1 GWCC Conceptual Framework Domain: Inputs

Domain and concepts	Description from the literature	Citation
Inputs		
Health systems context	National and state healthcare policies	(Connor et al., 2017; Marchel et al., 2015; McNeil et al., 2016)
	Financial: funding, payers, and government agencies	
	Public health: COVID-19 pandemic	Expert consultation
	Community resources	Expert consultation
Administration/logistics	Critical resources needed: • Space • Personnel (e.g., group care coordinator, group facilitators, support staff) for program coordination, scheduling, and billing	(Anderson, 2006; Bloomfield & Rising, 2013; Castellan et al., 2020; Delago et al., 2018; Gullett et al., 2019; Irigoyen et al., 2020; McNeil et al., 2016; Novick et al., 2020; L. M. Osborn, 1989; L. Osborn & Woolley, 1981; Page et al., 2010)
	Enrollment procedures: • Opt-out enrollment • At the end of pregnancy (some as a continues to CenteringParenting) • Advertisement with flyers • During postnatal hospitalization • Postpartum visits • At first or second well-child visit	(Bloomfield & Rising, 2013; Friedman et al., 2021; Johnston et al., 2017; Jones et al., 2018; Liebert, 2016; Machuca et al., 2016; Novick et al., 2020; L. M. Osborn, 1989; L. Osborn & Woolley, 1981; Page et al., 2010; Saysana & Downs, 2012; Stein et al., 2005)
	Financial considerations • Clinician productivity • Billing • Up-front costs with implementing a new model of care	(Anderson, 2006; Connor et al., 2017; Irigoyen et al., 2020; McNeil et al., 2016; Yoshida et al., 2014)
Clinical setting	Type of setting • Private pediatrician office • Outpatient pediatric primary care clinic	(Anderson, 2006; Bialostozky et al., 2016; Castellan et al., 2020;

	• Community or federally qualified health center • Academic pediatric practice • Hospital-based clinics • Community-based facility • Resident training practice (i.e., continuity clinic) • Public health clinic • Family medicine residency clinic • Multi-specialty group	Connor et al., 2017; Delago et al., 2018; Dodds et al., 1993; Fenick et al., 2020; Friedman et al., 2021; Graber et al., 2019; Gullett et al., 2019; Irigoyen et al., 2020; Johnston et al., 2017; Jones et al., 2018; Liebert, 2016; Machuca et al., 2016; MacMillan Uribe et al., 2019; Marchel et al., 2015; McNeil et al., 2016; Mittal, 2011; Novick et al., 2020; Oldfield et al., 2019; L. Osborn, 1982; L. M. Osborn, 1989; L. Osborn & Woolley, 1981; Page et al., 2010, 2013; Platt et al., 2022; Rice & Slater, 1997; M. S. Rosenthal et al., 2014, 2016; Rushton et al., 2015; Saysana & Downs, 2012; Shah et al., 2016; Taylor et al., 1997b; Taylor & Kemper, 1998; Yoshida et al., 2014)
	Type of professional practice • Pediatric medicine • Family medicine	(Anderson, 2006; Bialostozky et al., 2016; Delago et al., 2018; Dodds et al., 1993; Friedman et al., 2021; Graber et al., 2019; Gullett et al., 2019; Jones et al., 2018; Liebert, 2016; Machuca et al., 2016; MacMillan Uribe et al., 2019; Marchel et al., 2015; McNeil et al., 2016; Mittal, 2011; L. Osborn & Woolley, 1981; Page et al., 2010, 2013; Platt et al., 2022; M. S. Rosenthal et al., 2014, 2016; Rushton et al., 2015; Saysana & Downs, 2012; Stein, 1977; Stein et al., 2005; Taylor et al., 1997b, 1997a; Taylor & Kemper, 1998; Yoshida et al., 2014)
	Patient volume	(Jones et al., 2018)
	Institutional buy-in • Program champions • Steering committee	(Bloomfield & Rising, 2013; Friedman et al., 2021; Jones et al., 2018;

	• Institutional leadership	MacMillan Uribe et al., 2019; Marchel et al., 2015; McNeil et al., 2016; Novick et al., 2020; L. M. Osborn, 1989)
	In person and virtual	Expert consultation
Group care clinic team	Type of facilitator • Pediatricians • Family practice provider • Registered nurses/public health nurses • Advanced practice registered nurses (family nurse practitioners, pediatric nurse practitioners) • Physician's assistants • Social workers • Medical assistants • Trainees (e.g., residents) • Centering coordinator • Case manager • Patient advocate • Nutritionist • Child life specialist • Infant mental health specialist • Community health workers Type of guest speakers/ facilitators • Certified nurse midwives • OB/GYN • Dietician • Health educator • Psychologist • Lactation specialist • Physical therapist • Parenting coaches	(Anderson, 2006; Bialostozky et al., 2016; Bloomfield & Rising, 2013; Castellan et al., 2020; Delago et al., 2018; Desai et al., 2019; Dodds et al., 1993; Fenick et al., 2020; Friedman et al., 2021; Graber et al., 2019; Gullett et al., 2019; Irigoyen et al., 2020; Liebert, 2016; Machuca et al., 2016; Marchel et al., 2015; McNeil et al., 2016; Mittal, 2011; Novick et al., 2020; Oldfield et al., 2019; L. Osborn, 1982; L. M. Osborn, 1989; L. Osborn & Woolley, 1981; Page et al., 2010, 2013; Platt et al., 2022; M. S. Rosenthal et al., 2014, 2016; Rushton et al., 2015; Saysana & Downs, 2012; Shah et al., 2016; Stein, 1977; Taylor et al., 1997b, 1997a; Thomas et al., 1984; Yoshida et al., 2014)

Community/patient population	Population characteristics • Racially and ethnically diverse populations • Low income or low socio-economic status • New immigrant caregivers • Language: Spanish, English • Insurance: public and private	(Bialostozky et al., 2016; Castellan et al., 2020; Delago et al., 2018; Fenick et al., 2020; Friedman et al., 2021; Graber et al., 2019; Irigoyen et al., 2020; Jones et al., 2018; Liebert, 2016; Machuca et al., 2016; Mittal, 2011; Oldfield et al., 2019; L. M. Osborn, 1989; Platt et al., 2022; Rice & Slater, 1997; Saysana & Downs, 2012; Taylor & Kemper, 1998)
	Patient preferences • Desire for group visits or individual visits • Privacy concerns • Concerns of comparisons across families	(Connor et al., 2017; L. M. Osborn, 1989; Yoshida et al., 2014)
	Structural enablers/barriers • Scheduling • Work • Time • Childcare for siblings	(Friedman et al., 2021; L. Osborn & Woolley, 1981; Platt et al., 2022; Taylor et al., 1997b)
Curriculum development and training	National vs. local	Expert consultation
	Description of the model: • CenteringParenting	(Bloomfield & Rising, 2013; Castellan et al., 2020; Connor et al., 2017; Desai et al., 2019; Fenick et al., 2020; Gullett et al., 2019; Irigoyen et al., 2020; Johnston et al., 2017; Jones et al., 2018; Liebert, 2016; McNeil et al., 2016; Mittal, 2011; Novick et al., 2020; Platt et al., 2022)
	• Adapted CenteringParenting	(Delago et al., 2018; Friedman et al., 2021)
	• GWCC	(Anderson, 2006; Bialostozky et al., 2016; Dodds et al., 1993; Gaskin et al., 2021; Marchel et al., 2015; Oldfield et al., 2019; L. Osborn, 1982; Page et al., 2010; Rice & Slater, 1997; M. S. Rosenthal et

		al., 2014; Saysana & Downs, 2012; Shah et al., 2016; Stein, 1977; Stein et al., 2005; Taylor et al., 1997b; Yoshida et al., 2014)

	• GWCC with supplements or enhanced curriculum
	  ○ Psychosocial well-being/mental health
	  ○ Vaccine refusal
	  ○ Toxic stress
	  ○ Nutrition
	  ○ Obesity
	  ○ Burn prevention
	  ○ Trauma-informed care
		(Graber et al., 2019; Machuca et al., 2016; MacMillan Uribe et al., 2019; Marchel et al., 2015; Rushton et al., 2015; Thomas et al., 1984)

	Training • Centering Healthcare Institute training • 6-hour training prior to start, and just-in-time team discussion in advance of each group visit and feedback after each session • 1 hour refresher training sessions quarterly to review how to address challenging situations	(Bloomfield & Rising, 2013; Connor et al., 2017; Delago et al., 2018; Irigoyen et al., 2020; Jones et al., 2018; Mittal, 2011; Yoshida et al., 2014)

Health systems contexts

Most of the included studies described health systems contexts affecting implementation of GWCC. Several studies emphasized the importance of supportive health and financial policies and funding for implementation success (Connor et al., 2017; Marchel et al., 2015). GWCC was described as aligned with US national health care reform efforts focused on using life-course perspective, optimizing efficiency, and family-centered care (Connor et al., 2017). Our expert reviewers identified additional health system contexts, (e.g., the impact of the COVID-19 pandemic requiring a shift to a virtual format or a cancellation of group visits). One expert highlighted the importance of understanding the community context in order to link families with community resources when necessary (e.g., food/nutrition benefits).

Administration/logistics

Critical resources enabling GWCC delivery included space, personnel dedicated to program coordination, scheduling, and billing (Anderson, 2006; Bloomfield & Rising, 2013; Castellan et al., 2020; DeLago et al., 2018; Gullett et al., 2019; Irigoyen et al., 2020; McNeil et al., 2016; Novick et al., 2020; L. M. Osborn, 1989; Page et al., 2010). Most studies noted the importance of having a room large enough to accommodate ~6-8 families and clinic team and include a semi-private area for health assessments, several studies described space as problematic (Anderson, 2006; Irigoyen et al., 2020; L. M. Osborn, 1989; L. Osborn & Woolley, 1981). Cost was identified as a concern in several studies (Connor et al., 2017; Irigoyen et al., 2020; McNeil et al., 2016); specific concerns included (1) potential impact of GWCC on clinician productivity and (2) up-front and ongoing costs for human (e.g., visit coordinator) and material resources needed for implementation. One cost-analysis outlined conditions (e.g., group size, clinician type) for cost neutrality of GWCC compared to individual care (Yoshida et al., 2014).

Clinical setting

Across clinic settings, studies underscored the importance of program champions, staff and administrative buy-in, and institutional leadership for sustaining GWCC – through advocating for and committing resources to its continuation (Bloomfield & Rising, 2013; Friedman et al., 2021; MacMillan Uribe et al., 2019; McNeil et al., 2016; Novick et al., 2020).

Group care clinic team

All models included at least one licensed clinician serving as a GWCC facilitator and care clinician. Some models had continuity of one or two facilitators while others

relied on a single clinician, with rotating guest speakers facilitating specific topics. Interdisciplinary co-facilitation and the addition of non-medical providers (e.g., a child development specialist, or social worker) was reported to enhance well-child visits (Marchel et al., 2015). Groups were facilitated in multiple languages, primarily English and Spanish, and in some cases, experts described using interpreters.

Community/patient population

Factors that might lead families to prefer individual visits over group care included privacy concerns, a tendency for groups to invite comparisons between families, and a desire for more focused one-on-one time with clinicians (Connor et al., 2017; L. M. Osborn, 1989; Yoshida et al., 2014). Structural barriers and enablers to attending group visits are detailed in Table 1. Studies reported parity in patients' time spent at the clinic (arrival to departure) for GWCC and individual care (Friedman et al., 2021; L. Osborn & Woolley, 1981; Taylor et al., 1997b).

Curriculum development and training

Table 1 includes curricula developed or utilized for GWCC. In addition to normal well-child care topics, curriculum development often focused on placing an emphasis on a specific content area based on context specific needs such as psychosocial well-being, vaccine refusal, toxic stress, nutrition, obesity, and burn prevention (Graber et al., 2019; Liebert, 2016; Machuca et al., 2016; MacMillan Uribe et al., 2019; Marchel et al., 2015; Platt et al., 2022; Thomas et al., 1984).

Training in the GWCC model varied. The Centering® Healthcare Institute training focuses on facilitation skills and the specifics of dyad care (Bloomfield & Rising, 2013). One expert described institution-specific training for GWCC. Some raised concerns

about the skills needed to facilitate GWCC and believed most physicians' medical training did not emphasize group facilitation skills, necessitating additional clinician training (Connor et al., 2017; McNeil et al., 2016).

Core components of GWCC

The core components identified for GWCC were conceptualized as "characteristics of the intervention" as described in CFIR (Damschroder et al., 2009). This section and Table 2 outline the key attributes of the intervention that influence its successful implementation (Damschroder et al., 2009).

Table 3-2 GWCC Conceptual Framework Domain: Core Components

Domain and concepts	Description from the literature	Citation
Core components of GWCC		
Structure	Group size between 4-8 families	(Anderson, 2006; Bloomfield & Rising, 2013; Delago et al., 2018; L. M. Osborn, 1989; Page et al., 2010, 2013; M. Rosenthal, 2016; M. S. Rosenthal et al., 2014; Rushton et al., 2015)
	Similar infant/child ages within groups (0-2 years old)	(Gaskin et al., 2021)
	Frequency	(Gaskin et al., 2021)
	Stable cohort	(Delago et al., 2018; Irigoyen et al., 2020; Johnston et al., 2017; Jones et al., 2018; McNeil et al., 2016)
	Continuity of facilitators	(Gaskin et al., 2021)
	Duration 60-120 minutes	(Gaskin et al., 2021)
Content (Parent/infant health assessments)	Standard clinical services • Individual health assessments (infant and parent)	(Anderson, 2006; Bloomfield & Rising, 2013; Friedman et al., 2021; Jones et al., 2018; Liebert, 2016; Marchel et al., 2015; McNeil et al., 2016; L. Osborn, 1982)
	Standard practice screening tools • Ages and Stages Parent Questionnaire (ASQ) • Parents evaluation of developmental status (PEDS) • Modified checklist for autism in toddlers (MCHAT) • Edinburgh Postnatal Depression Scale (EPDS)	(Bialostozky et al., 2016; Delago et al., 2018; Johnston et al., 2017; Jones et al., 2018; Liebert, 2016; Mittal, 2011; Page et al., 2010; Platt et al., 2022; Rice & Slater, 1997; Rushton et al., 2015; Stein et al., 2005; Taylor et al., 1997b, 1997a; Taylor & Kemper, 1998)

	• Parent Health Questionnaire -2, and -9 (PHQ-2, PHQ-9) • Social Needs Screeners Additional research measures used • Parenting stress index • Social provision scale • Sense of competence • Safe environment for every kid parent screening questionnaire • Karitane Parenting confidence scale (KPCS) • Difficult life circumstances scale • Orr stress test • Parenting morale index • Perceived stress scale • Spielberger state-trait anxiety scale • Center for Epidemiologic Studies Depression Scale (CES-D) • Social isolation subscales • Social support questionnaire • MOS social support survey • Parent questionnaire knowledge based • Upstart parent survey • Family empowerment scale • Stein's functional status (FSIIR) • Bayley's Scale of infant development	
Process	Interactive learning • Facilitated discussion • Anticipatory guidance • Ancillary activities (e.g., cooking skills and infant massage) • General topics covered ○ Nutrition, sleep, child development, language development, behavior, safety, infant care, reproductive planning, healthy relationships, maternal self-care, mental health, and parenting skills	(Anderson, 2006; Bialostozky et al., 2016; Bloomfield & Rising, 2013; Dodds et al., 1993; Friedman et al., 2021; Irigoyen et al., 2020; McNeil et al., 2016; L. Osborn, 1982; L. Osborn & Woolley, 1981; Taylor et al., 1997b)
	Community building • Time for socializing • Social support • Service linkages for identified needs (e.g., mental health referrals; referrals for community resources, nutrition benefits,other social determinants of health) • Incentives (e.g., developmental toys, food)	(Anderson, 2006; Bloomfield & Rising, 2013; Friedman et al., 2021; McNeil et al., 2016; Mittal, 2011; L. M. Osborn, 1989)

Structure

The optimal range in cohort size to meet family needs, allow for effective facilitated group discussions, and meet productivity requirements remains unclear (Oldfield et al., 2020). Group structure concepts described in reviewed studies included group size, composition, stability, continuity of patients and facilitators, and frequency and length of visits (Table 2). One study described difficulties maintaining stable cohorts due to insufficient patient volumes (Jones et al., 2018). Most authors described following the Bright Futures/American Academy of Pediatrics periodicity schedule for visit frequency (Dodds et al., 1993; Gaskin et al., 2021; Jones et al., 2018; Rice & Slater, 1997; M. S. Rosenthal et al., 2014, 2016). Two experts noted that CenteringParenting and other models follow the periodicity schedule with an additional two visits. The optimal number of GWCC sessions needed to impact outcomes is unclear, and the ability to sustain groups over time.

Content

Health assessments

Screening tools

Screening tools used to assess infant and family health are in Table 2. Several studies noted that GWCC facilitated more consistent screening for postpartum depression (PPD) and social needs (Friedman et al., 2021; Liebert, 2016; Platt et al., 2022). For research studies, additional measures were used to address specific research questions.

Standard clinical services/service linkages

Studies describing individual GWCC health assessments noted that weight, height, head circumference of infants, a physical exam, and standard screening tools were used (Friedman et al., 2021; Marchel et al., 2015). Some GWCC models included self-assessments for parents and parental assistance as part of infant assessments (e.g., height, weight) (Bloomfield & Rising, 2013; McNeil et al., 2016). Several studies noted that individual assessment time was also used to provide referrals and follow-up with families if needed. One study reported that PPD evaluation and referrals were more successful in group compared to individual care (Liebert, 2016). Conversely, other studies in pediatric settings described the integration of maternal physical health assessments into GWCC as challenging (e.g., maternal weight, and blood pressure) (Bloomfield & Rising, 2013; Jones et al., 2018).

Process

Interactive learning within group discussion

Facilitative learning was described in all GWCC models, in contrast to the didactic approach typically used at individual visits (Bloomfield & Rising, 2013). The increased time in the group visit for discussion about health and social concerns was described as beneficial (Anderson, 2006; Connor et al., 2017; Friedman et al., 2021; Marchel et al., 2015; L. Osborn, 1982; L. Osborn & Woolley, 1981; Taylor et al., 1997b). One study reported that participants had increased odds of receiving more recommended anticipatory guidance than in individual care (Connor et al., 2017; Friedman et al., 2021; Marchel et al., 2015; Rushton et al., 2015) Group discussions about sensitive topics (e.g., PPD, partner relationships, and social needs) were described as generally well-received (Platt et al., 2022). One study described peer

education and knowledge-sharing during GWCC as influencing health service utilization (Oldfield et al., 2019).

Community-building

GWCC was described as fostering partnerships between families, clinicians, and communities (Bloomfield & Rising, 2013; Mittal, 2011). Studies described the support and reassurance patients received from fellow group members and clinicians (Anderson, 2006; Bloomfield & Rising, 2013; L. M. Osborn, 1989) Studies focusing on specific patient populations described the benefit of receipt of group support and education to address cultural and community needs (Bialostozky et al., 2016; Friedman et al., 2021; Oldfield et al., 2019).

Outcomes

We organized clinical outcomes reported in the articles according to the quadruple aim of health care (see Table 3) (Bodenheimer & Sinsky, 2014; Sikka et al., 2015).

Table 3-3 GWCC Conceptual Framework Domain: Outcomes

Domain and concepts	Description from the literature	Citation
Outcomes		
Clinical outcomes	Infant • Immunizations • Nutrition/breastfeeding • Chronic disease (e.g., obesity) • Illness/ED visits • Child development	(Bialostozky et al., 2016; Delago et al., 2018; Fenick et al., 2020; Friedman et al., 2021; Gullett et al., 2019; Irigoyen et al., 2020; Johnston et al., 2017; Machuca et al., 2016; MacMillan Uribe et al., 2019; Page et al., 2010; Rice & Slater, 1997; Rushton et al., 2015; Shah et al., 2016; Taylor et al., 1997b)

	Parent/caregiver • Psychosocial well-being • Childbearing parent physical health • Family planning • Parenting self-efficacy/change in parenting skills and/or attitudes • Retention of anticipatory guidance • Safety	(Bloomfield & Rising, 2013; Connor et al., 2017; Delago et al., 2018; Desai et al., 2019; Fenick et al., 2020; Friedman et al., 2021; Graber et al., 2019; Johnston et al., 2017; Jones et al., 2018; MacMillan Uribe et al., 2019; Marchel et al., 2015; L. Osborn & Woolley, 1981; Platt et al., 2022; Rice & Slater, 1997; M. Rosenthal, 2016; Rushton et al., 2015; Thomas et al., 1984)
	Population health • Social determinants of health/attention to social needs • Mitigating exposure to toxic stress/childhood adversity • Family and community health • Health equity	(Bloomfield & Rising, 2013; Delago et al., 2018; Desai et al., 2019; Fenick et al., 2020; Graber et al., 2019; Gullett et al., 2019; Machuca et al., 2016; Oldfield et al., 2019; Platt et al., 2022; M. S. Rosenthal et al., 2016; Taylor et al., 1997b)
Patient experience	Patient satisfaction/patient trust in medical systems	(Anderson, 2006; Bloomfield & Rising, 2013; Connor et al., 2017; Delago et al., 2018; Gullett et al., 2019; Jones et al., 2018; Marchel et al., 2015; Saysana & Downs, 2012)
	Social support/social cohesion/support networks	(Bloomfield & Rising, 2013; Castellan et al., 2020; Connor et al., 2017; Friedman et al., 2021; Johnston et al., 2017; Jones et al., 2018; MacMillan Uribe et al., 2019; Marchel et al., 2015; Oldfield et al., 2019; Page et al., 2010; Stein, 1977)
	Attendance	(Fenick et al., 2020; Gullett et al., 2019; Irigoyen et al., 2020; Rushton et al., 2015)
	Face to face time with the clinic team	(Friedman et al., 2021)

Clinician experience	Job satisfaction	(Desai et al., 2019; Friedman et al., 2021)
	Efficacy	(Desai et al., 2019; Friedman et al., 2021; MacMillan Uribe et al., 2019; Mittal, 2011; Page et al., 2010, 2013; M. S. Rosenthal et al., 2014, 2016; Saysana & Downs, 2012)
	Communication	(M. S. Rosenthal et al., 2014, 2016)
Health system costs	Cost neutral	(Yoshida et al., 2014)
	Cost effective	(Anderson, 2006; Yoshida et al., 2014)

Clinical outcomes

Infant

Outcomes measured related to the infant included: vaccination rates, nutrition-related behaviors (e.g., rates of breastfeeding amongst participants), infant/child weight, emergency department visits, and child development. As described in a recent systematic review, studies suggest improvements in several healthcare utilization domains, including vaccination rates and ED utilization (Gaskin et al., 2021).

Parent/caregiver

Parent/caregiver outcomes included: psychosocial well-being (e.g., PPD, intimate partner violence (IPV), stress/anxiety), physical health, family planning, parenting self-efficacy/change in parenting skills and/or attitudes, receipt and retention of anticipatory guidance, and safety measures in the home. Most studies examining psychosocial well-being were qualitative, parents described GWCC as an opportunity for stress relief (Platt et al., 2022), a safe space to create peer connections that empower them to recognize toxic stress and address it (Graber et al., 2019), and provide grief support (M. Rosenthal, 2016). Clinicians and caregivers reported several physical health needs of

the parent that were potentially addressed in GWCC, including breastfeeding support, diabetes and hypertension screening, weight management, screening for family violence, support for the management of substance use, and family planning (Bloomfield & Rising, 2013; MacMillan Uribe et al., 2019; Platt et al., 2022). Although one study found that pediatricians expressed concerns that they are not adequately trained to address maternal health needs (Connor et al., 2017), parents considered the inclusion of maternal wellness as beneficial (Bloomfield & Rising, 2013; Connor et al., 2017; McNeil et al., 2016).

Population health

Several studies described the potential population health benefits of GWCC, including increased preventive health care (Fenick et al., 2020), improved identification of social needs (DeLago et al., 2018; Desai et al., 2019; Gullett et al., 2019; Platt et al., 2022) and the ability to incorporate strategies to address child poverty (DeLago et al., 2018; Fierman et al., 2016), and trauma-informed care to enhance participant resilience (Graber et al., 2019). Population-specific discussion topics included immigration stressors and fears (Oldfield et al., 2019; Platt et al., 2022). GWCC was also described by facilitators as advancing health equity through increasing and improving clinicians' skills in family engagement (M. S. Rosenthal et al., 2016). Additionally, patient involvement in GWCC was described as more effectively highlighting participants' health education needs (Bloomfield & Rising, 2013).

Patient experience

Studies described high patient satisfaction with GWCC (Anderson, 2006; Bloomfield & Rising, 2013; Connor et al., 2017; DeLago et al., 2018; Gullett et al., 2019;

Jones et al., 2018; Marchel et al., 2015; Saysana & Downs, 2012). The most frequently expressed themes among participants in GWCC included the value of support, reassurance and learning from other parents (Bloomfield & Rising, 2013; Castellan et al., 2020; Connor et al., 2017; Jones et al., 2018; MacMillan Uribe et al., 2019; Marchel et al., 2015; McNeil et al., 2016; Oldfield et al., 2019; Page et al., 2010; Stein, 1977). Some studies described increases in social support in group care as compared to individual care (Friedman et al., 2021; Johnston et al., 2017). Others reported increased well-child visit attendance at GWCC as compared to individual care (Fenick et al., 2020; Gullett et al., 2019; Irigoyen et al., 2020; Rushton et al., 2015).

Clinician experience

Clinician-reported benefits of GWCC included high clinic team satisfaction and increased perceived effectiveness and quality of care in group versus individual visits (Desai et al., 2019; Friedman et al., 2021; MacMillan Uribe et al., 2019; McNeil et al., 2016; Mittal, 2011), reduced burnout (Gullett et al., 2019; Stein et al., 2005), and increased empathy (M. S. Rosenthal et al., 2016). Training benefits of GWCC included being able to simultaneously master skills in family engagement and provide well-child care (Page et al., 2010, 2013; M. S. Rosenthal et al., 2014, 2016), improved trainee education (Saysana & Downs, 2012), and improvement in trainees' abilities to provide culturally competent care, conduct developmental assessments, address common parent concerns, and bond with families (Mittal, 2011).

Health system costs and savings

Few studies included costs as an outcome or focused on costs. An economic evaluation found cost neutrality was achieved "at 4 families in the APRN [advanced

practice registered nurse] group WCV [well-child care] model; at 3, 4, 5, and 6 families in the resident model with 30, 45, 60, and 90 minutes of attending supervision, respectively; and at 4 and 5 families in the low and high attending salary model" (Yoshida et al., 2014). One study projected that targeted interventions such as GWCC yielding a 1% reduction in obesity prevalence among children could achieve USD1.7 billion in lifetime savings, based on calculated lifetime direct medical costs of childhood obesity (Machuca et al., 2016).

Discussion

The current system of well-child care is inadequate to meet families' needs, resulting in the need for system redesign to address barriers to high quality, family-centered care and to improve outcomes (Coker et al., 2013; Freeman et al., 2018; MacMillan Uribe et al., 2019; Schor, 2004). In synthesizing the data available for GWCC for the conceptual framework, we found that GWCC provides a viable alternative model of well-child care that aligns with the quadruple aim in impacting not only patient outcomes, but also patient/family and clinic team's experiences, population health, and potentially health system costs. An engaged and productive healthcare workforce is key to an effective healthcare system (Sikka et al., 2015), and available research suggests high satisfaction among clinic care teams implementing GWCC. This framework can be used as a tool for practitioners to implement GWCC as it describes the necessary inputs and core components of GWCC, which may be particularly beneficial to underserved populations (Gaskin et al., 2021).

Our conceptual framework allows us to graphically depict key GWCC domains and concepts crucial to model implementation and sustainability across a range of settings (Miles et al., 2019). Incorporation of implementation science methodologies have been recommended to advance future research on GWCC in order to bridge the gap between evidence and practice of GWCC (Oldfield et al., 2020). Conceptual frameworks provide guidance for policy, practice, and evaluation and are particularly important for identifying relevant factors influencing implementation processes (Wittmeier et al., 2015). Incorporating constructs in alignment with the CFIR and the quadruple aim in the conceptual framework provides the necessary foundation to examine GWCC model fidelity and future evaluations of the efficacy of GWCC across settings (Damschroder et al., 2009; Wittmeier et al., 2015). Given the identified impacts on outcomes, it is important that researchers not only fully describe the elements of the GWCC model implemented, but also harmonize assessments. Harmonization would allow for better comparisons of effectiveness across settings, models, and among various patient populations. For example, although some studies use screening tools typically found in the electronic health records (e.g., the Edinburgh Postnatal Depression Scale for PPD), there is little uniformity across other study measures.

While the conceptual framework depicts the key domains and concepts for successful implementation of GWCC based on the existing literature and expert consultation, it has the flexibility for adaptation to specific contexts in which GWCC is implemented. Several studies adapted or enhanced GWCC session curricula for a particular population or setting to provide content and/or resources to fit the context in which GWCC was being delivered. This showcases an opportunity to use GWCC as a

strategy to redesign well-child care to meet the needs of families, their physical, mental, and social determinants of health and reach marginalized populations. Studies show that low-income parents endorse group visits as an empowering opportunity to learn from other parents and build support networks (Coker et al., 2009; Jones et al., 2018). The results from the enhanced trauma-informed GWCC also highlight GWCC's potential to serve as a clinical strategy to address health disparities and improve health equity (Graber et al., 2019). Studies implementing GWCC among immigrant populations described the ability to identify concerns related to socio-political and economic concerns and link families to community resources to address them, and culturally adapt the model both in content and linguistically to make it accessible to diverse populations. Several studies reported increased vaccine uptake among GWCC participants; this is particularly relevant to highlight in the context of the current COVID-19 pandemic with high rates of vaccine hesitancy (Callaghan et al., 2021; Troiano & Nardi, 2021).

The conceptual framework depicts key elements to successfully implement GWCC. However, it is important to note that implementation barriers, including inadequate space and the need for dedicated and skilled facilitators, were also described across studies. Despite findings that the model can be cost neutral, some studies described financial concerns with startup costs and billing for visits (Connor et al., 2017; McNeil et al., 2016). Others described low patient volumes which made it difficult to sustain GWCC. Expert consultation highlighted the COVID-19 pandemic's impact on group visits and challenges to maintaining in-person visits. In some practices group visits have pivoted to telehealth platforms. Across health care disciplines

telehealth has undergone a rapid transformation and research may elucidate how to effectively incorporate this modality (Curfman et al., 2021). Additional barriers to accessing telehealth add further complexities to providing equitable well-child care. These issues highlight areas for consideration and improvement in the implementation of GWCC for it to be maximally successful and widely implemented.

Our review has several limitations. While multiple articles described the same site and model, many articles did not fully describe the specific elements of the model of GWCC in use at their practices. There are more sites implementing the model than those conducting studies which highlights the evidence-to-practice gap around GWCC (Centering Healthcare Institute, 2021) and suggests that there is additional information to be learned from practicing sites. While the framework was constructed based on literature from the US and Canada, it can be adapted for use in international settings. Finally, searching primarily academic databases may not have captured all relevant gray literature. However, taken as a body of literature, the included studies provided the necessary data to construct the conceptual framework. Moreover, our inclusion of expert consultation including GWCC clinicians served to mitigate these limitations through incorporation of their valuable, practice-based knowledge and insights in the process.

Implications for Policy, Practice, and Research

We suggest convening a working group to identify standard tools for outcome measurement to be able to compare effectiveness across sites. Research designs such as adaptive and pragmatic trials and implementation/effectiveness trials are

recommended to understand the benefits of GWCC in specific contexts and populations (Oldfield et al., 2020; Simon et al., 2020).

A major gap in the available research is the lack of cost and savings data. Given rising healthcare costs, policymakers and health systems need evidence showing that in the short-term there is no major increase in costs or resources when GWCC is offered and in the long-term, there is an accumulative cost savings as infants, children, and their families are healthier (Machuca et al., 2016). Growing an evidence-base can lead to policy changes and increased model uptake; as seen with group prenatal care, with its larger evidence-base, 10 states now support its implementation financially through enhanced reimbursements for group care providers (Prenatal-to-3 Policy Impact Center, 2020).

Conclusion

GWCC is a model of care that offers an opportunity to meet the quadruple aim of healthcare and provide the necessary system redesign to meet families' needs. Future research and practice can use the conceptual framework as a tool to standardize model implementation and evaluation and generate more evidence to inform future healthcare policy and practice.

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CHAPTER 4: MANUSCRIPT TWO

Adapting group postpartum and well-child care using a human-centered design approach in Malawi

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Abstract

Background. Responsive and resilient strategies to reduce the high rates of maternal and infant mortality and clinician shortages are needed in low- and middle-income countries (LMICs). Malawi has some of highest maternal and infant mortality rates globally. Group-based healthcare is one such strategy to improve maternal and child health outcomes. Group care has been applied to the antenatal period, but less attention has been paid its potential benefits in postpartum care. The postpartum period is a period of opportunity for innovative approaches to engage mothers and children in care and contribute to the reduction of maternal and infant mortality and morbidity. We present the adaption of an evidence-based group-based perinatal care model to the postpartum period using human centered design with key stakeholders in Malawi.

Methods. To adapt the perinatal group-based care model for the Malawian context, the team completed four steps of a five-step framework guiding the use of human centered design: 1) define the problem and assemble a team; 2) gather information through evidence and inspiration; 3) synthesize; and 4) intervention design: guiding principles and ideation. Steps 2-4 relied on qualitative methods, in-depth interviews, and incubator sessions with key stakeholders to produce a prototype of the group postpartum and well-child care model.

Results Once the stakeholders had defined the problem of limited postpartum care in the context and assembled local and global team members, we completed 20 interviews and 6 incubator sessions with stakeholders. All stakeholders reported a desire to participate in and offer group care in the postpartum period in their community. Health promotion priorities identified were hygiene (e.g., perineal care), breastfeeding, family

planning, nutrition, and mental health. The recommended group postpartum and well-child care implementation schedule includes 6 sessions that correspond with the child vaccination schedule over the 12-month postpartum period. A prototype for the curriculum and implementation structure for group postpartum and well-child care was created based on the findings.

Conclusions A human-centered design approach to adapt an evidence-based group care approach to an LMIC, Malawi is feasible and acceptable to key stakeholders and resulted in a prototype curriculum with practical strategies for implementation in the health care setting.

Introduction

High rates of maternal and infant morbidity and mortality persist in the postpartum period in low- and middle-income countries (LMICs). Globally, sub-Saharan Africa has some of the highest maternal mortality (MMR), severe maternal morbidity, and infant mortality rates (1,2). Malawi, a country in the Southern Region has an MMR of 439 maternal deaths per 100,000 live births and for every 1,000 births 42 infant die (1). The postpartum period is one of heightened vulnerability that impacts the mental and physical health of a mother as well as how her child develops, learns, and thrives. The first six weeks is a period of physical recovery for the woman after childbirth, but other critical events occur beyond six weeks. The first year after childbirth is a crucial window for identifying and managing health and social challenges including psychosocial adaptations and transitions to a parental role (3). Postpartum stressors increase risk for fatigue and anxiety and decreased self-care, all of which can make women and children vulnerable to poor physical and mental health outcomes (3). Growing data on non-communicable diseases (NCDs) shows that NCDs and maternal health outcomes are inextricably linked, thus contributing to a high proportion of maternal morbidities and mortality (2). Pre-existing conditions and complications in pregnancy can increase the risk of developing long-term chronic health conditions (2). The first year of life for children is equally crucial for their long-term health and development and maternal morbidities have long-term health consequences for children (4–6). When responsive caregiving, attachment, cognitive stimulation, and social support are missing, children are more likely to experience negative behavioral, cognitive, social, and emotional outcomes (5–8). A reimagined form of integrated

postpartum and well-child care that sets the stage for long-term health outcomes and well-being for both the mother and her child is needed.

Currently, the World Health Organization (WHO) recommends that every mother and infant have at least four postpartum visits within the first six weeks regardless of birth setting (9). In Malawi, despite current efforts to address high rates of maternal and infant morbidity and mortality, rates remain high. Only 42% of women and 60% of newborns receive a postpartum check in the first 2 days after birth and many are not checked at all (1). And only 48% of women are seen by a skilled health worker in the six weeks after delivery (5). A study examining quality of life in the postpartum period in Malawi found women had lower scores in the domain of physical health than other LMICs (11). Lack of and poor-quality postpartum care amplifies the vulnerabilities that women and infants in low resource settings face (12). Responsive and resilient health system strategies are needed to fill a gap in this non-acute period and address preventable maternal and infant morbidities and deaths.

Group healthcare is a health system innovation that can fill this void. Group antenatal (ANC) care has large body of rigorous evidence supporting its effectiveness and the feasibility of bringing it to scale. CenteringParenting is a model of group postpartum/well-child care that shows promise in advancing guidelines for quality postpartum and well-child services, addressing gaps in care as indicated by a growing evidence base (13–26). The core components of this model are healthcare in a group space, interactive learning, and community building (27). In this model, the same group of 6-8 women and their similarly aged infants attend care together for up to two years (13). Each group visit is 120 minutes with the first 30-45 minutes consisting of self-care

(measuring their own infant's weight and length) and standard health assessments of the infant and mother by a clinician in a separate section of the room. Parent and/or infant referrals are made if needed. This is followed by 75-90 minutes of interactive health promotion, skills building, and support activities. Group care with longer visits provides time and resources to support and address maternal and infant health such as breastfeeding, family planning, depression, nutrition, child development and infection prevention, and by doing this improves quality of care and has the potential to reduce maternal and infant morbidity and mortality (13,18,28,29). Not only do patients experience positive outcomes, studies show that clinicians also prefer delivering prenatal and postpartum care in a group, due to feelings of increased freedom of expression, and a dissolution of hierarchies (15,21). This shift in power dynamics leads to increased quality of care, which can ultimately improve outcomes (15,21).

Even though Centering-based group models of care have not been widely implemented in the postpartum period in LMICs, the model has been successfully adapted for antenatal care in Malawi and other countries in Africa such as Ghana, Nigeria, Kenya, and Tanzania (30). Group care models are acceptable, feasible, and have improved outcomes including health literacy, prenatal and postpartum attendance, the number of health facility births, and breastfeeding practices (31–35). Expanding group healthcare into the postpartum period offers a promising strategy to reduce gaps in the care continuum. An integrated Centering-based group postpartum/well-child care model that is attentive to the multiple and interrelated individual, family, and economic barriers is pragmatic and innovative.

Human-centered design (HCD) offers an approach to co-design and safely, efficiently, and effectively adapt evidence-based interventions such as Centering-based group healthcare to new contexts. HCD emphasizes the strengths, agency, and priorities of women and health care workers to build a model of care that is resilient and responsive to individual, and system needs. This approach reframes a research question or behavior change from “what matters” to “what matters most,” allowing for solutions that are human centered and context specific (36,37). Previous healthcare research supports the use of this approach, as participating in the co-design process increases self-efficacy for both patients and health care workers and leads to sustainable solutions to problems within the health system (38–45). While HCD is an increasingly used approach to finding healthcare solutions, recent systematic reviews of HCD in healthcare have found discrepancies in the quality and methodological rigor of the studies (46,47). Human-Centered, Evidence-Driven Adaptive Design (AHEAD) (37) framework provides a practical guide to co-design solutions to healthcare challenges (37). The five steps of the AHEAD framework (Figure 4.1) include: 1) define the problem and assemble a team; 2) review evidence and seek inspiration; 3) synthesize; 4) develop guiding principles and ideate; and 5) evaluate (37). The purpose of this study was to use existing evidence and the AHEAD framework to develop an integrated group-based postpartum and well-child care model in Malawi.

Methods

Study design and setting

This formative study was implemented in three primary care government clinics in Blantyre District, Malawi. These three clinics participated in a trial, “Group Antenatal

Care: Effectiveness for Maternal/Infant and HIV Prevention Outcomes and Contextual Factors Linked to Implementation Success in Malawi," (ANC Trial, UIC IRB #00403255), and have been implementing and sustaining group ANC since 2019 (48). Key stakeholders from these clinics included health workers and patients familiar with group healthcare who are poised to provide in-depth perspectives on the benefits and challenges of group-based care. Experienced group ANC facilitators, midwives and community volunteers, and multiparous patients who completed group ANC and are receiving maternal and child health care were asked to participate. Each stakeholder is an in ideal position to inform the design of the integrated postpartum and well-child care group care prototype.

Sample and recruitment

Patients: Purposive sampling was used to recruit women for this study. Eligibility included participation in the group ANC trial and having two or more biological children. The rationale for multiparous women was to allow for comparisons across multiple pregnancies and experiences with postpartum and well-child care services.

Health care workers: Health care workers included midwives, community volunteers, and health surveillance assistants (HSAs). HSAs are a type of community health care worker paid by the government to serve as a link between communities and the health care sector, they have secondary school education, and receive 12 weeks of training and provide many of the under-five health care services, such as vaccinations and growth monitoring were approached to participate (49). Convenience sampling was used to recruit health care workers since there are a limited number of health care

workers with group healthcare experience and that are working in postpartum and well-child care at each of the three clinics. Eligibility criteria for health care workers included the ability to read/speak Chichewa and/or English at a grade 8 level and that they had been working in postpartum or well-child care for at least one year. Exclusion criteria for the study included marked cognitive impairment that would prevent providing informed consent and if they did not speak and understand Chichewa (the national language).

Ethics

This study was approved by the Institutional Review Boards at Johns Hopkins University School of Nursing (IRB #00245018), Kamuzu University of Health Sciences (IRB #P.06/21/3341), and the University of Illinois Chicago (IRB #2022-0327).

Procedures

The five steps of the AHEAD framework are summarized in Figure 4.1. Given the iterative nature of HCD, we detail the procedures for each AHEAD step along with the analysis and results since each step informs the next.

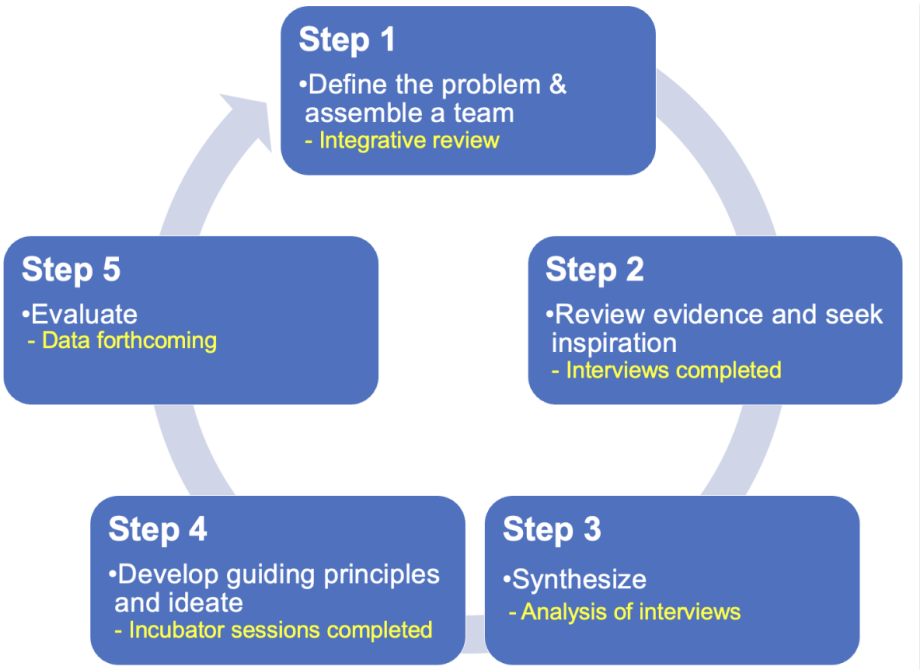

Figure 4.1 AHEAD Framework for rigorous human centered design to produce the group postpartum/well child prototype

Step 1: Define the problem and assemble a team

To define the problem, we completed an integrative review (50) to describe and evaluate current postpartum care content and service-delivery models used throughout the African continent. Guided by the WHO's Maternal Morbidity Working Group's conceptual framework for healthcare interventions to address maternal morbidity, we also identified multiple gaps in care. We showed that NCDs, intimate partner violence (IPV) screening, mental health, and a rights-based approach to care are rarely included (50). Group care and integrated maternal and child health services models were identified as ways to improve maternal and child health outcomes (50). We concluded that a standardized package of postpartum care that can be adapted for specific contexts from birth to one year postpartum is needed to further reduce maternal and infant morbidities and mortality (50).

The results of this review supported moving to Step 2. We leveraged existing partnerships, research infrastructure, expertise, and momentum from the ANC trial to assemble a team to guide the adaption and development of an integrated group postpartum and well-child care model.

Step 2: Gather Information through Evidence and Inspiration

In-depth interviews (51) were conducted with key stakeholders to inform the design of group postpartum and well-child care, identify priority health promotion topics to include in the prototype, and explore perspectives on extending group care into the postpartum period. Interview guides were first translated from English to Chichewa by a committee consisting of researchers, a bilingual midwife, and two lay people (52). The interview guides were piloted and refined to ensure appropriate framing and sequencing. Following an informed consent process, written consent was obtained, and interviews were conducted in Chichewa by a trained research assistant who is also a midwife in a private room reserved at the clinic and lasted approximately 45 minutes. The intent of the format and interview questions was to encourage participants to talk openly and solicit rich accounts about current postpartum and well-child care practices, patient flow, equipment/supplies, culturally appropriate services, postpartum health concerns, desired health promotion topics, and perspectives on group healthcare. For example, women were asked, *what were your health needs during the postpartum period?* Health care workers were asked, *what topics do you think are important to cover in creating content for postpartum visits?* We achieved thematic saturation after completing twenty-four audio-recorded interviews with 12 women, 4 midwives, 4

community volunteers, and 4 HSAs across the three clinics. Audio-recordings were transcribed and translated by the research assistant who conducted the interviews. To ensure translation accuracy, translations were reviewed by a team consisting of researchers, a bilingual midwife and two lay people so that English transcripts would be ready for the Step 3 analysis. To promote rigor and trustworthiness, the procedures adhered to recommended qualitative research guidelines and the consolidated criteria for reporting qualitative research (COREQ) (53,54).

Step 3: Synthesis of Qualitative Data from Step 2

Transcribed interviews were stored, managed, and analyzed using Dedoose software. A content analysis approach was used to analyze interviews, and a category system was created based on the health promotion topics covered in the original Centering-based group care model for coding themes using the interviews as the unit of analysis (55). New codes were added as needed. Two team members coded each transcript separately and then met to compare and finalize the codebook. Although the analysis was largely deductive, we allowed for the inclusion of emergent codes, as we know that all health promotion topics and content areas of the original model may not be comprehensive of experiences in Malawi.

Women ranged in age from 19 to 41 years and had between 2 and 4 children. Health care workers were 35 to 58 years old and their years of experience in their current role ranged from 1 to 21 years. The information and insights gained through this analysis provided an empathetic view of what is currently offered as part of postpartum and well-child care in the Malawian context and allowed the women and health care

workers to express what mattered most to them as they identified postpartum and well-child care service and health promotion priorities.

We identified five themes: 1) maternal health assessments are not consistently completed; 2) challenges exist to postpartum and well-child care attendance and delivery of care; 3) postpartum and well-child health promotion topics are not standardized; 4) maternal and child health concerns included physical and psychological issues; and 5) there is buy-in for the group healthcare model from both women and health care workers. See Table 1 for illustrative quotes by theme.

When women and health care workers explained that current one- and six-week postnatal visits they often focused on the infant health assessment. Most women did not get a physical assessment although midwives did describe discussing danger signs of serious health problems to monitor at the postnatal visits. Women were instructed by health care workers to bypass the 6-week postnatal check and go straight to the under-five clinic. A woman noted that she was too afraid to ask questions or ask for services because of the negative attitudes of health care workers. While the health care workers recognized the need for thorough physical examinations of the woman and infant and wanted to complete them, they often cited staff shortages and lack of equipment as reasons for incomplete exams. In addition to describing the clinic-level challenges, some midwives took personal responsibility for the lack of postnatal care. Health workers also explained that the rainy season, difficult terrain, and long travel distances made getting to the clinic a challenge for their clients. Others cited poverty and relationship conflicts as additional access barriers for women. Participants identified

individual, structural, economic, and environmental factors related to attendance and delivery of services (see Table 4-1 for illustrative quotes describing these challenges).

When asked to identify which health promotion topics were currently discussed at clinic, responses varied and were inconsistent (see Figure 4.2, topics in the blue circle). Some mothers expressed that they did not receive any health education. When asked what common maternal health concerns they experienced responses included: difficulty breastfeeding, poor nutrition, IPV, sexually transmitted infections, mental health, high blood pressure, malaria, complications post c-section, late in seeking care for health issues, and sepsis. When asked about common child health concerns they described: cord infections, malnutrition, poor growth, eye infections, jaundice, skin problems, diarrhea, pneumonia, and coughs and fevers.

All participants reported a desire to participate in or offer group care during the postpartum period. Mothers felt that the group care model was supportive and helped them translate knowledge into practice and better address health concerns. Health care workers expressed that group care could improve overall quality of care.

Table 4-1 Themes from interviews with participants and illustrative quotations

Theme	Illustrative Quotations
Maternal health assessments are not consistently completed	
1-week visit	• At the first week, we are assessing if the baby is breastfeeding well; we ask them if they have experienced any problems. So, if they say there is no problem then we do an assessment of the baby. Midwife 2, Clinic B
	• They weighed the baby, then she was 2.5 kgs but his birth weight was 2.9 kgs. And then they said that I should go and get vaccine for the baby; they gave the baby an injection on the arm and then also some on the tongue…they did not ask me how I am doing…They checked the baby on the cord, and they also gave me iron tablets. Mother, Clinic C
6-week visit	• At 6 weeks they [women] don't meet us; they go for vaccines. Midwife, Clinic A
	• [At 6 weeks] I reported here…they checked the baby on the cord and then they told me to go for immunization. Mother, Clinic C
	• [At 6 weeks] they report at the under-five clinic but if they have problems, they come back to the maternity. But those who are ok don't come back unless if the woman wants family planning methods. Midwife 2, Clinic A
Challenges exist to postpartum and well-child care attendance and delivery of care	
Responsibility of health care workers and their attitude	• I think the gaps are many, but I think for most of the gaps, we are the ones that create them; may be because sometimes we have work overload, and we tend to skip most of the things that are supposed to be done with the woman. But we have everything that we need to tell the women…So it all starts with us; we need to teach them. At one week they come but at 6 weeks to be honest they don't come to be reviewed by the nurse, they just come for a vaccine, if they come here, it's because they have a problem. Midwife 2, Clinic A
	• …If the health workers' attitude is good, women come to the under-five clinic, but if the attitude of the health worker is not right, women stop coming to the clinic. They seek care from another place. HSA 2, Clinic B
	• We know the baby is supposed to get vitamins every 6 months. But you find that 6 months have elapsed, and the baby is not given the vitamins. So sometimes we just look, we can't ask because we are afraid. Mother, Clinic B
Lack of resources (e.g., staff shortage, lack of equipment)	• But sometimes we are busy, when the woman just says that she is fine, you just continue without paying attention to the woman, not knowing that she has other issues. But because she didn't say, you don't know and because you didn't inquire, then the woman is not properly assisted. Midwife 2, Clinic B
	• We need to also be checking vital signs but at this facility we don't have equipment. Midwife 1, Clinic A
Perceived lack of knowledge	• We can also say it is a lack of understanding on the importance of postnatal care. So, to them, it's enough if the baby got the initial vaccine. The rest is not important to them; I also think it's because of lack of knowledge. So, we just need to sit down with them and explain in detail, so they understand. Midwife 1, Clinic C

Environmental	• …there are some who are very far, but we fail to reach out to them because of floods. You find that a place which is close by, become inaccessible during rainy season… HSA 1, Clinic C • The issue of distance in this area, being a hilly area, and also rivers during rainy season, make women not come to the clinic if it's raining…The distances are very long and it's difficult for a woman to travel with a small baby. Midwife 2 Clinic B
Maternal and child health concerns included physical and psychological issues	
Physical	• Then another problem is nutrition; when they tell you that they baby is not having enough breastmilk, you can see that the nutrition of the mother is very poor. And you can see that the way the woman is looking she is poor. Midwife 1, Clinic C
	• Malnutrition is about 10-12% of all the children that we see at the under-five clinic. HSA 2, Clinic C
	• But most of the women when they come, we find that their BPs are very high, so we give them medication. Midwife 1, Clinic A
	• Most of the times the women don't say, but sometimes they would tell you that the baby had diarrhea. For the first 6 months we have common problems like diarrhea and also malaria…But we emphasize a lot on the growth monitoring and if we see that the weight has dropped a lot, we refer women to the nutrition unit. HSA 1, Clinic C
Mental health	• They also told me that when a woman has just delivered, sometimes you may have psychological problems so when I feel like that, I should rush to the hospital because it shows that something is happening in the body. Mother 3, Clinic B
	• On the psychological, we check so many things; like here, most of the women have children with men that left them, and they don't have any support for the child; some women are staying with someone who abuses them, and this affects how they are breastfeeding the baby. Midwife 2, Clinic A
Health promotion topics discussed in both postpartum and well-child visits are not standardized	
	• See Table 3 for list of health topics currently being discussed at health visits
There is buy-in for the group healthcare model from both women and health care workers	
	• I think that [extending group care into the postpartum period] would be a very good thing because if like the way we were doing when we were pregnant, we were sharing ideas so that we should not be in the dark, so I think that if we do the same thing now that we have delivered, it can still help us; we can still share ideas. For example, if someone has a problem and she shares it on the group, we can help each other. For example, the way I was struggling with my baby when she was having fevers, there could be some women who had also experienced that, and they know exactly what to do They could have assisted me. Maybe it's at night, I can't come to the hospital right away, those advice help. So, to me, I think the group care approach is the best; it is very helpful. Mother 1, Clinic B

	• I would have loved if these groups continued. Sometimes things happen in the village; emergencies and the doctor is not readily available you can assist someone and save a life because at least you know some things. Mother 2, Clinic B
	• I believe that the group postnatal care could assist a lot because there are so many things that the women don't know; and when they are in groups and they receive counseling, I feel this can help to improve their well-being, both the mother and the baby. Because I strongly feel that these women can take very good care of their babies, they only need enough time to get enough counseling. But I feel that if you can adopt that model, it will be very helpful. HSA 1, Clinic C
	• That can work very well, and it can be very good. Because as for us we just see the babies once, but that can assist us to be following up on the babies to some point and be monitoring them, so it can be very good because it will bring change. It can also improve the way we do our work because then the babies can also be seen at 6 weeks. So, it is very good so many things can change. Midwife 1, Clinic A

Step 4: Intervention Design: Developing the Guiding Principles and Ideation for Content and Structure of the Integrated Group Postpartum and Well-Child Care Prototype

Building on the Step 3 synthesis, we carried out incubator sessions with key stakeholders. A total of six incubator sessions, two at each clinic, were completed with one to three women and two health care workers, a midwife, community volunteer, or HSA. Incubator sessions are like focus groups, but the emphasis was on developing the health promotion content, interactive learning activities, and structure of the group postpartum/well-child through brainstorming, co-creation, and finding solutions. Multiple qualitative methods supported this process including free listing, pile sorting and ranking (56,57). Free listing, successfully used in public health research (56), is a method for rapidly gathering information on a topic by listing as many ideas as possible related postpartum and well-child care. This approach allows for examining intracultural variations of postpartum and well-child care and provides opportunities to build consensus about healthcare services priorities (50).

Following an informed consent process, written consent was obtained, and incubator sessions were conducted in Chichewa by a trained research assistant. In-person incubator sessions lasted 1-2 hours and took place in a private room reserved at each clinic. Participants were asked to free list what they wanted to be addressed in postpartum and well-child care and their responses were recorded on a flip chart. The research assistant then presented and described each health promotion topic generated from Steps 2 and 3 (see Figure 4.2, blue and purple circles) and health promotion topics and activities included in Centering-based group care model to participants. Participants were instructed to confirm or reject each of these. We retained all topics that had a majority vote among participants. Then each item was written on a card which the research assistant read aloud to participants during a group pile sorting and ranking activity (57). Participants worked collaboratively to rank the topics and generate a prioritized list for the final prototype. Participants were then asked to identify which type of group ANC interactive activities (e.g., games and role plays), should be retained in the final prototype.

Participants were asked to explore the ideal visit length and structure and provide feedback on how to implement group postpartum/well-child care feasibly and sustainably at their clinic. Other implementation factors were asked about including resource availability, scheduling, follow-up care, and ways to integrate this service delivery model within the existing infrastructure.

Incubator session data analysis was iterative and included continuous data integration and consultation with key stakeholders. The set of codes were analyzed using a framework method for qualitative analysis (58) because the defining feature of

this method is a matrix output of summarized data. The framework method includes seven analytical stages: 1) transcription and translation of transcripts; 2) familiarization with the interviews/focus groups; 3) coding (an initial set of codes was developed based on the health promotion topics and activities included in the Centering-based group care model; 4) developing a working analytical framework using a few transcripts after initial coding (codes are grouped together based on sessions and content areas); 5) applying the analytical framework to remaining transcripts using existing categories and codes (new codes were added as they emerged); 6) charting data into the framework matrix (in an Excel spreadsheet to manage and summarize data); and 7) interpreting the data (58).

Results

The iterative process of data collection and analysis from Steps 2-4 were used to produce the group postpartum and well-child care prototype which included the health promotion topics and structure of implementation.

Health promotion topics

At incubator sessions when the Step 2 current and recommended health promotion topics were presented to participants, they confirmed that all the presented health promotion topics should be included in the group postpartum/well-child care prototype. See Figure 4.2 for a comparison of what was described in current practice during the interviews (Step 2), what was recommended during interviews (Step 2), and what health promotion topics were prioritized in Step 4.

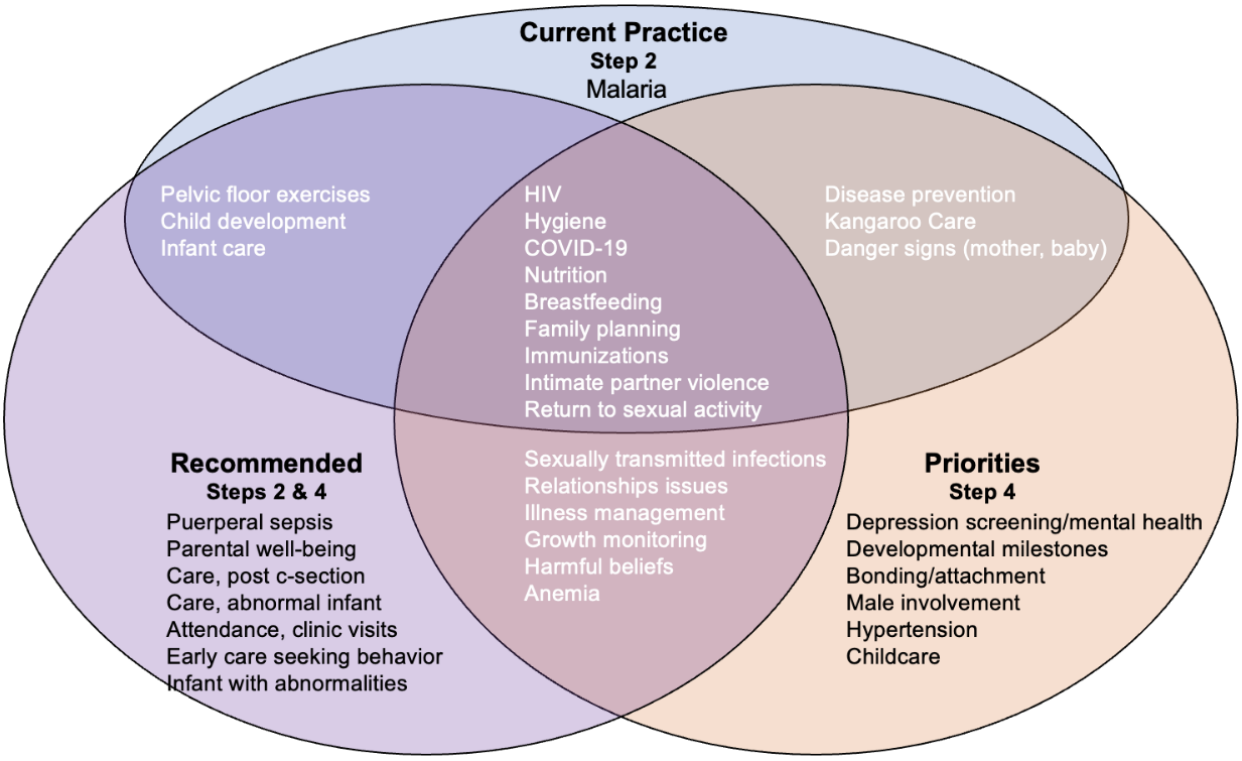

Figure 4.2 Health promotion topics described as current practice, recommendations, and/or priorities

During the free listing activity, seven additional health promotion topics were added such as how to care for babies with abnormalities and male involvement. Women and health care workers often provided explanations for why they thought each one was important that reflected their prior experiences. As part of the prioritization process, participants also linked topics that should be introduced together (e.g., family planning and return to sexual activity; Table 4-2).

Table 4-2 Number of incubator sessions (n=6) that prioritized each health promotion topic

Number of Session						Health Promotion Topic
1	2	3	4	5	6	
▪	▪	▪	▪	▪	▪	Hygiene
▪	▪	▪	▪	▪	▪	Exclusive breastfeeding
▪	▪	▪	▪	▪	▪	Family planning (combined with return to sexual activity)
▪	▪		▪	▪	▪	Nutrition
▪	▪		▪	▪		Depression screening/mental health
	▪		▪	▪	▪	Growth monitoring
		▪	▪	▪	▪	HIV Prevention of Mother-to-Child transmission
▪	▪		▪			Immunizations
	▪	▪	▪			Danger signs for mother and baby
		▪		▪	▪	Intimate partner violence
			▪	▪	▪	Sexually transmitted infections
▪		▪				Anemia/Iron supplements
	▪			▪		Developmental milestones
▪					▪	Illness management
		▪			▪	Disease prevention
		▪		▪		COVID-19
	▪	▪				Kangaroo care
		▪			▪	Harmful cultural practices
▪						Male involvement
▪						Relationship issues
	▪					Childcare
		▪				Hypertension
					▪	Bonding/attachment

The final list of health promotion topics included in the prototype were: hygiene, exclusive breastfeeding, family planning (combined with return to sexual activity), nutrition (for both mother and infant), depression screening/mental health, growth monitoring and developmental milestones, sexual health (including STIs and HIV), immunizations, danger signs for mother and baby, IPV and relationship issues, mother's physical health (including anemia, hypertension, and cervical cancer screening), disease prevention and management (including COVID-19 and common maternal and child health concerns), and male involvement. The preferred interactive learning activities were role plays and discussions.

Structure of Implementation

There was consensus across all three clinics to create a 6-visit model with recruitment occurring at the 1-week postpartum visit and the first group visit beginning with the 6-week postpartum visit. They suggested that the schedule correspond with the child vaccination schedule (6, 10, and 14-weeks and 6, 9, and 12-months) with each group 1–2-hour visit being co-facilitated by a midwife and an HSA. Some hypothesized that this schedule would increase vaccine uptake since vaccines would be administered at the end of each visit. Responses varied for the ideal group size ranging from 8-15 mother/infant dyads.

Participants outlined a set of resources and materials needed to successfully provide high quality care in a group format that included: training, an adult and baby weight scale, blood pressure equipment, thermometer, tape measure, an examination bed, mattress protectors, a mat to sit on, privacy screen for in the room, physical assessment guidelines, hand sanitizer, laminated pictures of danger signs to show women, flip charts, toys for babies, and a storage basket. Many health care workers stated they did not have access to guidelines to perform standardized physical assessments. So, they recommended inclusion of written clinical maternal and infant assessment guidelines for each visit to standardize and improve the quality of these health assessments.

The Prototype

As part of Step 4, a curriculum and implementation structure prototype for group postpartum/well-child care was produced. The prototype consisted of a facilitator's

guide outlining each of the six visits with a detailed plan for each visit that included the associated clinical guidelines for physical assessments and objectives and directions for each interactive learning activity reflecting the prioritized health promotion topics (Table 2), as well as an implementation plan. For example, for the six-week visit, interactive learning activities focus on danger signs for mom and baby, physical and emotional adjustments after having a baby, breastfeeding, and family planning/resuming sexual activity. Each visit outlines all activities necessary to maintain model fidelity to Centering-based group healthcare's core components of healthcare in a group space, interactive learning, and community building.

Seven midwives experienced in group care (5 from Malawi including the principal investigator of the Group ANC Study, and 2 in charge of clinics participating in this study) and 2 registered nurses (1 specializing in pediatric care) validated the content and structure of the facilitator's guide and implementation plan. Based on their input content was added or refined and irrelevant content was removed. The clinical guidelines for assessments for women and infants and developmental milestones infants are expected to achieve at each visit in the facilitator's guide were reviewed to ensure that these adhered to the guidelines and recommendations of the American Academy of Pediatrics Bright Futures (59), WHO (9), and Malawian Ministry of Health. The finalized facilitator's guide has been translated into Chichewa and is ready for the final step in the AHEAD framework which includes a pilot test and evaluation.

Discussion

Our prototype of group postpartum and well-child care produced using an HCD approach guided by the AHEAD framework is ready for rigorous evaluation (37). The results of the first four steps of the AHEAD framework showed that group care is a promising strategy for improving health outcomes in the postpartum period (50). The evidence and inspiration from engaging with women and health care workers reinforced findings from other studies that there are gaps in the availability and provision of postpartum care to mothers in Sub-Saharan Africa (60). The HCD approach lays the foundation for a responsive and resilient adaptation of group care that is co-designed by women, health care workers, and researchers. As with other studies using HCD approaches this leads to sustainable solutions to health care issues (45,46,61,62). The reciprocity and power sharing that is inherent to the co-design process of the AHEAD framework offers a strategy to reduce medical hierarchies and center the voices of patients receiving care and health care workers providing it (63). This iterative process laid the foundation for a flexible model that can respond to the changing and dynamic needs of patients and health care systems.

Prioritized health promotion topics included a range of physical, psychological, social, and behavioral issues. Consistent with current literature, there were noticeable differences in topics desired and prioritized compared to current practice, particularly related to mental and sexual health (64,65). The acknowledgement of the high prevalence of perinatal mental health disorders is growing globally and there is a call for models of care that integrate mental health into primary care to improve outcomes for women, which is particularly critical in the postpartum period (66). Interestingly, malaria

was not prioritized or recommended through this work which might signal that people feel they have adequate knowledge and understanding of prevention and treatment strategies. Participants noted several social factors and prioritized male involvement in care and relationship issues. These are important to integrate into the model because it is well-established that the social context of patients' lives has implication for maternal and child health outcomes that need to be addressed clinical practice (67). The priority placed on both maternal and child nutrition, malnutrition, and anemia in women highlights the many forms of undernutrition persisting among women and children in many LMICs (68). Group care during the first 1,000 days offers a promising strategy to identify and manage health issues such as undernutrition and improve the nutritional status of women and children during this critical period in the life course (68).

The group postpartum and well-child care prototype and model offers a strategy to reduce maternal and child morbidity and mortality by integrating maternal and child health care and placing a focus on health promotion and prevention activities addressing NCDs, health-related social needs, and factors that affect morbidity beyond the immediate postpartum period within each visit which aligns the WHO's Maternal Morbidity Working Group's conceptual framework for healthcare interventions to address maternal morbidity (69). A shift to a group healthcare model is an innovative strategy for strengthening health systems because a model, informed by the steps of the AHEAD framework, has flexibility to be responsive and resilient to changing contexts and provides a strategy to adapt the group postpartum and well-child care model to meet changing needs in the future and to diverse contexts (69). The interactive learning component of this model increases the total amount of time that each mother

receives health promotion in the first year of life. This adult learning approach is responsive to group needs and provides opportunities to exchange ideas as group members work to better understand and ultimately apply lessons learned to their lives. By transforming the delivery modality of postpartum and well-child care to an integrated group healthcare model, the needs of the parent and the infant are met efficiently at the same time. This model seeks to identify and address the underlying causes of maternal and child morbidities and places importance on the health system's role in influencing health outcomes.

The implementation plan created reflects one that is responsive to the desires of women and the realities of the health care system based on shared decision making during the incubator sessions in dialogue with both patients and health care workers. The next step in the AHEAD framework will be to pilot all 6 sessions included in the prototype with women and their infants in the postpartum period and assess its feasibility, acceptability and appropriateness among women and health care workers.

Conclusions

Using a human-centered design approach to adapt this model of care for the Malawian context centers co-creation, collaboration, and coordination at the patient, clinician, and health system level setting the stage for a responsive strategy to fill a critical gap in the care continuum and improve maternal and child health outcomes. This integrated maternal health and well-child group-based model of care may serve as a transformative approach to filling a neglected area of the care continuum that meets the needs of the dyad in the first year postpartum.

List of Abbreviations

LMIC Low- and middle-income country

MMR Maternal mortality rate

NCD Non-communicable disease

ANC Antenatal care

HCD Human-centered design

AHEAD Human-Centered, Evidence-Driven Adaptive Design

WHO World Health Organization

HSA Health surveillance assistant

IPV Intimate partner violence

COREQ Consolidated Criteria for Reporting Qualitative Research

HIV Human Immunodeficiency Virus

STI Sexually Transmitted Infection

COVID-19 Coronavirus disease

Declarations

Ethics approval and consent to participate*.* This study was approved by the Institutional Review Boards at Johns Hopkins University School of Nursing (IRB #00245018), Kamuzu University of Health Sciences (IRB #P.06/21/3341), and an exemption from the University of Illinois Chicago (IRB #2022-0327). Following an informed consent process, we obtained written informed consent from all participants.

Consent for publication*.* Not applicable.

Availability of data and materials*.* The datasets generated and/or analyzed during the current study are not publicly available to maintain confidentiality of participants but are available from the corresponding author on reasonable request.

Competing interests*.* The authors declare that they have no competing interests.

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Authors' contributions*.* AG conceived and designed the study, analyzed, and interpreted the data, and drafted and revised the manuscript. AB contributed to the analysis, interpretation of data and revised the manuscript. JM contributed to the design of the work, NN contributed to the design of the work, EK contributed to the design of the work, interpretation of data, and revisions, CP contributed to the interpretation of data and revisions, AM contributed to the design of the work and revisions, EC contributed to the design of the work, NG contributed to the design of the work, and substantial revisions, CLP contributed to the design of the work, analysis and interpretation of data, and substantial revisions. All authors have approved the submitted version.

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CHAPTER 5: MANUSCRIPT THREE

Evaluation of implementation outcomes of an integrated group postpartum and well-child care model at clinics in Malawi

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Abstract

Background Persistently elevated rates of maternal and infant mortality and morbidities in Malawi indicate the need for increased quality of maternal and well-child care services. The first-year postpartum sets the stage for long-term health for the childbearing parent and infant. Integrated group postpartum and well-child care may improve maternal and infant health outcomes. The purpose of this study was to examine implementation outcomes for this model of care.

Methods We used mixed methods to examine implementation outcomes of integrated group postpartum and well-child care. We piloted sessions at three clinics in Blantyre District, Malawi. During each session we evaluated fidelity using a structured observation checklist. At the end of each session, we administered three surveys to health care workers and women participants, the Acceptability of Intervention Measure, the Intervention Appropriateness Measure, and the Feasibility of Intervention Measure. Focus groups were conducted to gain greater understanding of people's experience with and evaluation of the model.

Results Forty-one women with their infants participated in group sessions. Nineteen health care workers across the three clinics co-facilitated group sessions, 9 midwives and 10 health surveillance assistants. Each of the 6 sessions was tested once at each clinic for a total of 18 pilot sessions. Both women and health care workers reported group postpartum and well-child care was highly acceptable, appropriate, and feasible across clinics. Fidelity to the group care model was high. During each session as part of structured observation the research team noted common health issues, the most common one among women was high blood pressure and among infants was flu-like

symptoms. The most common services received within the group space was family planning and infant vaccinations. Women reported gaining knowledge from health promotion group discussions and activities. There were some challenges implementing group sessions.

Conclusion We found that clinics in Blantyre District, Malawi were able to implement group postpartum and well-child care with fidelity and that it was highly acceptable, appropriate, and feasible to women and health care workers. Due to these promising results, we recommend future research examine the effectiveness of the model on maternal and child health outcomes.

Keywords postpartum, maternal and child health services, shared medical appointments

Introduction

Background

Maternal mortality rates in low- and middle-income countries (LMICs) remain alarmingly high (1). For every woman who dies from pregnancy-related causes many more experience life-threatening complications (2). Maternal morbidity and mortality lead to poor short- and long-term maternal and infant health outcomes (2). Globally, Malawi has some of the highest rates of maternal and infant mortality at 439 maternal deaths per 100,000 live births and 42 infant deaths per 1,000 live births (3). While rates are unknown in Malawi, it is estimated that one in three women experience a maternal morbidity (4). These are mostly preventable outcomes that may be improved through improvements in quality of care (5–7).

The postpartum period, defined here from the time of birth through the first year, is a critical time to reduce maternal and infant morbidity and mortality and is often neglected in the care continuum (8). The World Health Organization (WHO) recommends that every mother and baby should have at least four postpartum visits within the first six weeks of giving birth (9). Currently there are low rates of postpartum care attendance within the first six weeks postpartum (3), showing that women's needs are unmet during this critical period in their life course. Moreover, it is well established that the first year after childbirth is a period of not only physical recovery but is an important time to identify and manage health and social challenges including psychosocial adaptations and transitions to a parental role, that make women and children vulnerable for poor health outcomes (10). However, there is no standardized package of care for the first year postpartum.

Group care that integrates both postpartum and well-child care offers a promising strategy to reduce both maternal and infant morbidities and mortalities (11). A large body of rigorous evidence shows effectiveness and feasibility of bringing group antenatal care (ANC) to scale (12,13). Group ANC is acceptable, feasible, and improved outcomes in several countries in the African continent including health literacy, antenatal and postpartum attendance, the number of health facility births, and breastfeeding practices (14–16). Extending group care into the postpartum period holds promise for standardizing a package of care for quality postpartum and well-child care services.

CenteringParenting is one such group care model with three core components including healthcare in a group space, interactive learning, and community building that provides a structure to build capacity and enable clinicians to provide efficient and effective care (17). In CenteringParenting, 6-8 women with similarly aged infants receive care together for up to 2 years. Each visit is 2 hours with the first 30-45 minutes devoted to standard clinical health assessments for the infant and childbearing parent and self-care (measuring their own infant's weight and length and taking the parent's blood pressure and weight). After health assessments, co-facilitators (often a physician or midwife and nurse or community health worker) facilitate 75-90 minutes of interactive health promotion activities. Despite the growing evidence-base and associated positive results for CenteringParenting and other similar group care models (18), it has not been widely implemented in LMICs. In addition, most of these group care models prioritize the infant. However, given the high rates of maternal and infant mortality and morbidity

and sub-optimal postpartum care attendance rates in LMICs, there is an urgent need to provide care for both the childbearing parent and infant.

To fill this gap, we adapted the CenteringParenting model to be an integrated postpartum and well-child group care model that balances the focus on the childbearing parent and the infant. As detailed in a forthcoming paper (19), our Centering-based and integrated group postpartum and well-child care model prototype was co-created with women and health care workers using a five-step human-centered design (HCD) approach to produce a model that is adapted to the Malawian context (20). Briefly, we created a 6-visit model to be implemented over the first 12 months postpartum that included Malawi-specific health promotion content for the dyad. For example, this included HIV-prevention messages for the women and alignment with the Malawian child vaccination schedule. The adapted Centering-based model includes 6 sessions, an implementation schedule, a facilitator's guide providing a curriculum for each group session with prioritized health promotion content and learning activities, and clinical assessment guidelines.

The last step in the human-centered design process is to evaluate the implementation of this Centering-based integrated group postpartum and well-child care prototype. Evaluating implementation success is important step to introducing a new model of care within a health system and a necessary precondition for realizing the desired impact of group postpartum and well-child care on maternal and child health outcomes (21). Therefore, the purpose of this study was to examine implementation outcomes (acceptability, appropriateness, feasibility, and fidelity) of the adapted

Centering-based integrated group postpartum and well-child care model at clinics in Blantyre District, Malawi.

Methods

Study design and setting

We used a mixed methods design to examine implementation outcomes of the integrated 6-visit group postpartum and well-child care model at clinics in Blantyre District, Malawi. Using quantitative surveys, structured observation checklists and qualitative methods (focus groups and field notes) we evaluated if women and health care worker facilitators felt that this model of care was acceptable, appropriate, and feasible and whether health care workers could implement it with fidelity to the model.

We selected three government-run clinics representing a range of variation in size and staffing to pilot and evaluate the groups. All three clinics are taking part in the ongoing study, “Group Antenatal Care: Effectiveness for Maternal/Infant and HIV Prevention Outcomes and Contextual Factors Linked to Implementation Success in Malawi,” (ANC Trial, UIC IRB #00403255), and have been implementing and sustaining group ANC since 2019 (22).

Sample and recruitment

We recruited postpartum women and infant dyads using convenience sampling at each clinic. We recruited women at clinics attending either postpartum or well-child visits with an infant less than 12 months old. Women were ineligible if 1) they had a marked cognitive impairment that would prevent providing informed consent, 2) they did

not speak and understand Chichewa, or 3) were unable or unwilling to attend two group postpartum and well-child care sessions over the course of one to two weeks.

We used purposive sampling to recruit health care worker facilitators. These included midwives and health surveillance assistants (HSAs) who were hired and trained to facilitate the integrated group care model. If interested, midwives and HSAs were screened eligible if they worked at one of the three clinics and had at least one year of experience working in postpartum and/or well-child care. Midwives and HSAs were ineligible if they 1) they did not read/speak Chichewa and/or English at a grade 8 level, or 2) they were unable or unwilling to facilitate multiple sessions over a four-week period. Since data were also collected from the group facilitators, research assistants obtained written consent.

Procedures

Training for facilitators. Prior to implementation of the integrated group care model, all facilitators participated in experiential training on the 6-visit integrated group care sessions (23). They were given a copy of the facilitator's guide detailing the structure of each session, clinical assessment guidelines, and suggested interactive learning activities to deliver health promotion content.

Integrated group care model pilot session implementation. Each of the 6 sessions was tested three times, once at each clinic, for a total of 18 pilot sessions. All integrated group care sessions occurred on site at the clinic in space designated by the midwife in charge at each facility. Each session was designed to be 2 hours in length with women/infant dyads and 2 co-facilitators, a midwife and HSA. Each session began

with health assessments of both the woman and infant, followed by interactive health promotion activities, and ending with provisioning services e.g., infant vaccinations. Research assistants observed each session to assess model fidelity. Women/infant dyads were asked to attend a total of 2 sessions on days scheduled by the co-facilitators. Both women and health care workers facilitators received compensation for their participation. De-briefings with the research team occurred after each session, allowing for suggested refinements of the session's content and delivery.

Data collection. Before each session began, demographic data were collected for the women/infant dyads and facilitators. We then used mixed methods including participant and facilitator surveys, a fidelity observation checklist, detailed field notes, and focus groups with participants to assess four implementation outcomes: acceptability, appropriateness, feasibility, and fidelity. Research assistants administered surveys at the end of each session within the group space in the local language, Chichewa. Each survey took approximately 10 minutes to complete. Separate focus groups were also conducted at the end of each session in Chichewa by research assistants for women and then for facilitators.

Implementation Outcomes Survey: Acceptability, Appropriateness, and Feasibility. The Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM) developed by Weiner et al.(24) were administered at the end of each session to both women and facilitators. Each of these measures were designed to be as general as possible to allow for adapting each measure, in this case for the group postpartum and well-child care model (24). For example, an item of the AIM was "*Group*

postpartum/well-child care meets my approval." The AIM evaluates whether group postpartum and well-child care is perceived as agreeable or satisfactory based on their direct experience of each session (21). The IAM evaluates the perceived relevance or fit of group postpartum and well-child care to address health care needs (21). And the FIM evaluates the extent to which group postpartum and well-child care can be successfully carried out in the Malawian context (21). Each measure contains 4 items with a five-point Likert scale, where 1=Strongly disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, and 5=Strongly Agree. Therefore, the higher the mean value, the more acceptable, appropriate, or feasible the group care model was felt to be. All three of these measures are psychometrically validated in multiple languages to assess the implementation outcome measures: acceptability, appropriateness, and feasibility (24,25). The reported Cronbach alphas for the scales were 0.85 for acceptability, 0.91 for appropriateness, and 0.89 for feasibility (24). The measures were translated from English to Chichewa by a committee consisting of researchers, a bilingual midwife, and two lay people (26).

Fidelity to the Group Care Model. A fidelity observation checklist was adapted from the existing group ANC model and administered by trained research assistants to assess fidelity to the core components and implementation of the postpartum and well-child care model (22). This checklist was adapted for use in this study and was scored across eight domains (Table 1). While to date, no standardized benchmarks exist for measuring fidelity, in a systematic review of fidelity measures with a focus on self-management and health promotion interventions, the review examined the influence of implementation on program outcomes and found positive effects at 60% model fidelity,

and few studies achieved greater than 80% model fidelity (27). So, we set the threshold for achieving fidelity to 80-100% for each domain and 80% for the total fidelity score.

Table 5-1 Description of the fidelity observation checklist

Domain	Description	Example Item, Type of Response	Number of items (score range)	Threshold for Achieving Fidelity
Clinic Preparation	To assess if the clinic is ready to start group on the scheduled time.	Was the room set up before the schedule meeting time? Binary yes/no	3 (0-3)	3
Community Building	To assess if women are socializing with one another.	Are women socializing with one another? Binary yes/no	2 (0-2)	2
Health Assessments	To assess if health assessments are done within the group space and if all women participate in self-assessments.	Did health assessments take place within the group space? Binary yes/no	4 (0-4)	4
Interactive Learning	To assess if the interactive learning occurs with opening and closing activities, in a circle, and after health assessments are completed.	Was discussion conducted in a circle? Binary, yes/no	8 (0-8)	≥6
Environment and Logistics	To assess availability and adequacy of space and supplies.	Was the session disrupted for any reason? Binary yes/no	6 (0-6)	≥5
Group Dynamics	To assessment engagement of women during group.	About how many group members engaged in the following: Shared ideas, feelings, experiences, Likert scale	6 (0-18)	≥15
Co-Facilitator Skills	To assess co-facilitators' use of facilitation strategies taught in group healthcare training.	Facilitators asked open-ended questions, Likert scale	6 (0-12)	≥10
Group Care Delivery	To assess the overall delivery of group care and the level of connectedness among group members.	Overall, to what extent was the group session more like a class/lecture or more like a discussion? Likert scale	3 (0-12)	≥10
		Total Fidelity Score	**0-65**	**≥52**

In addition to the scored items, research assistants used the checklist to create detailed field notes and observations on the flow of the sessions, from health assessments to group activities, participant responses and engagement with activities. Observations also assessed co-facilitators' engagement and facilitation skills in delivering health promotion content in each session. Additionally, research assistants recorded attendance and availability of space and equipment in the detailed field notes. If a session was observed by more than one team member, after each session they reviewed their responses with the team and reconciled any differences through group discussion to build consensus.

Focus groups. Each focus group lasted approximately 30 minutes and included open-ended questions to further assess acceptability, appropriateness, feasibility, explore implementation facilitators and barriers, and capture any recommendations and suggested revisions to the content and structure of the model. Open ended questions also sought to explore if there was any knowledge gained by women by attending group sessions.

Data analysis

Quantitative methods

The AIM, IAM, FIM, and fidelity observation checklist were analyzed using descriptive statistics using Stata 17. The AIM, IAM, FIM were analyzed by calculating the aggregated mean scores at each of the three clinics. A t-test was used to assess if there were differences between those facilitating versus those receiving group. The fidelity observation checklist was also analyzed in total and at the clinic level. For each

of the 6 sessions, the percent of items meeting the threshold was determined and the mean percent fidelity across the 6 sessions computed for using the first 5 items of the fidelity measure to get a score for each clinic. The mean of the last 3 item scores was taken for each session and then averaged across session for each clinic.

Qualitative methods

After all 18 group sessions were completed, and before data analysis began, the research team met to resolve any conflicts in the data. Then the detailed field notes from the fidelity observation checklist and focus groups were collated and analyzed separately using content analysis methods (28). Field notes were written in English and coded both deductively and inductively by two research team members. Focus group notes were taken in English with research assistants conducting simultaneous translation while documenting in real time and coded both deductively and inductively by two research team members. A codebook for each set of notes was developed with deductive codes based on the defined implementation outcomes: acceptability, appropriateness, feasibility, and fidelity. New codes were created as new themes emerged. We followed the consolidated criteria for reporting qualitative research (COREQ) (29).

Ethics

This study was approved by the Institutional Review Boards at Johns Hopkins University School of Nursing (IRB #00245018), Kamuzu University of Health Sciences (IRB #P.06/21/3341), and the University of Illinois Chicago (IRB #2022-0327).

Results

Participant and group characteristics

Forty-one women with their infants consented to participate in this study and women ranged in age from 16 to 40 years old with infants ranging from 1 day to 10 months old. Characteristics of women and infant participants are summarized in Table 2. A total of nineteen facilitators across the three clinics co-facilitated group sessions, 9 midwives and 10 HSAs. Facilitators were health care workers with experience working in postpartum and/or well-child care from 1 to 23 years.

Group sizes ranged from 2 to 6 women/infant dyads per session and each session was conducted by two co-facilitators either a midwife and an HSA or two midwives. Of the 18 sessions, 1 included 6 dyads, 12 included 5 dyads, 3 included 4 dyads, 1 included 3 dyads, and 1 included 2 dyads. Each group lasted between 90 to 120 minutes in length.

Table 5-2 Women/Infant Dyad Characteristics

Characteristic	N = 41 N (%)
Women Age	
<20	11 (26.83)
>20	30 (73.17)
Marital status	
Single	10 (24.39)
Married	31 (68.29)
Divorced/Separated	11 (26.83)
Number of live children	
1	21 (51.22)
>1	20 (48.78)
Infant Age	
Mean	2 months
Range	1 day – 10 months

Acceptability, Appropriateness, and Feasibility

Both women and facilitators reported that integrated group postpartum and well-child care was highly acceptable, appropriate, and feasible across clinics (Table 3). Combined mean scores for all measures of both women and facilitators ranged from 4.56 (SD .90) to 4.76 (SD .56) indicating they both agreed or strongly agreed that group postpartum and well-child care was acceptable, appropriate, and feasible. Facilitators consistently had higher scores across all three measures. There was a significant difference when comparing the mean scores between women and facilitators for the IAM (p = .028) and FIM (p = .002), but not for the AIM (p = .361)

Table 5-3 Summary of Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM) Results

	Clinic A N=37	**Clinic B N=39**	**Clinic C N=38**	**Total N=114**
Measure	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
AIM				
Facilitator	4.90 (.20)	4.79 (.35)	4.94 (.22)	4.88 (.26)
Mother	4.41 (.50)	4.69 (.39)	4.87 (.23)	4.66 (.43)
IAM				
Facilitator	4.79 (.38)	4.77 (.31)	4.81 (.39)	4.79 (.35)
Mother	4.21 (.65)	4.66 (.41)	4.85 (.25)	4.58 (.53)
FIM				
Facilitator	4.92 (.22)	4.75 (.34)	4.88 (.25)	4.85 (.28)
Mother	4.24 (.60)	4.59 (.42)	4.83 (.26)	4.56 (.50)

1=Strongly disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, and 5=Strongly Agree

In focus groups, when asked about the acceptability of group sessions, many women stated that they enjoyed their experience in the group and hoped that groups would continue being offered in the postpartum period. Some women asked when they could return to attend groups at the clinic and expressed a

desire to be advocates in their community to promote group care. A woman from Clinic C said, "*What we have learned we can use it at home to be community advocates."* Similarly, a woman from Clinic A expressed her appreciation for the model when she said, "*I am so thankful to be a part of the group and to be chosen to be a part of it. I have learned a lot.*"

When asked about the appropriateness and feasibility of the model in focus groups midwives who facilitated the groups described how group postpartum and well-child care was perceived to be more efficient and effective than individual care. A midwife from Clinic B expressed their perceptions about the participants experience, saying:

> *Women are happy because postnatal groups are a one stop shop, they can get their vaccines, family planning, medications, be assessed, get health education all in one place instead of us telling them to go here, go there on this day and then there on that day, so they are very happy.*

A midwife from Clinic B compared usual care to the group model. They explained:

> *What we are doing now is not working, we need to adopt this model of care because women are learning, when I asked what they had learned last session they were able to repeat back to me and I knew they had learned. When lecturing not sure who is listening or who is picking up on the information given.*

Both midwives and HSA facilitators expressed appreciation for the model and that they felt that women would benefit from this model of care. They noted its potential to lead to better outcomes and that it should be adopted by the

Malawian health care system. A midwife from Clinic B said, "*This is a good model because when women come for postnatal checks they only focus on the baby, so we miss a lot of things. This model will lead to better outcomes."* Several facilitators also explained that experiencing group healthcare also affected how they feel about their current work. An HSA from Clinic C said, "*I enjoyed the sessions because at the under 5 clinic I have no time to engage with women and I think that women will benefit from groups."* Similarly, an HSA from Clinic B noted that*, "There was very active participation, so it made facilitation easy. Lecturing does not help people learn, this does, and it should be adopted."*

Women were asked to attend two sessions and 90% of women (n=36) returned to participate in the second session. Those who were unable to return (n=5) offered several explanations for not returning including death in the family (n=1), conflicting schedules (n=2), and miscommunications about the date and time of the second group meeting (n=2).

Fidelity

Fidelity to the group care model was high (Table 4) across all 18 sessions completed at the three participating clinics. Average clinic preparation scores ranged from 83 to 100 percent as did the community building scores. Community building was not observed at only one of the 18 group sessions completed.

Fidelity was good for facilitators and women conducting clinical and self-assessments within the group space, 83 percent of sessions attained the fidelity threshold (a score of 4 out of 4). Women responded positively to self-assessment

including learning about blood pressure screening, weight for themselves and their infant, and height and head circumference for their infants. At one post-session focus group a mother stated, *"I was happy when doing the self-assessments*." In most groups, the HSA or midwife facilitators would teach one woman how to do the self-assessments and then ask that woman to teach the next woman (e.g., women learned to do a blood pressure reading and did them for each other). When the women returned for the second session, the time taken for assessments was reduced and the midwife and HSA could focus on the clinical assessments. The fidelity checklist demonstrated variation in implementation of the health assessments by facilitators, for example some did full head to toe assessments while others did focused assessments (e.g. focusing on specific areas of the body or identified problem areas) of the woman and infant. Two of the three clinics used a privacy screen in the group space while conducting health assessments. Only two sessions took longer than the allotted 30-45 minutes for health assessments, with the longest time spent on assessments being 49 minutes. On average health assessments including both self-assessments and clinical assessments of the woman and infant took 31 minutes, consistent with the facilitator's implementation guidelines. In focus groups after sessions, facilitators described some challenges to health assessments and requested the following materials to run groups: stethoscopes (they are required to get their own stethoscopes and are not provided by the clinic), a separate assessment table for infants, a training video for focused health assessments for women and infants, a standardized way to document postpartum assessments, and new infant weight scales.

For interactive learning, average fidelity across sessions (scoring ≥ 6 out of 8) ranged from 83 to 100 percent for the three clinics. Each group session is intended to start with an opening activity that includes a mindful breathing exercise. Research assistants noted a sense of relaxation after the group completed these opening activities, especially within the first sessions when women were not familiar with the integrated model. Some group sessions scored lower in this domain due to some women arriving late to group, so facilitators were unable to conduct all health assessments with women/infant dyads before starting the health promotion discussions and activities but were able to complete them at the end of the session. In focus groups after the sessions, women described facing transportation challenges and so thus arrived late to group sessions. In three of the group sessions, co-facilitators after reviewing the facilitator's guide during their preparation for the session decided to let the women choose two of the three to four health promotion topic activities that interested them of those that were included in the session as they stated they felt they would not have enough time to cover all the topics. In five group sessions, co-facilitators did not have time to cover all the outlined session topics within the two-hour allotment.

Fidelity for environment and logistics average across sessions ranged from 50 to 100 percent (scores ≥5 out of 6) for the clinics. For example, in Clinic A, one room was attached to a room that was used for other services, so people came in and out which was disruptive at times. In two group sessions due to competing clinical demands facilitators had to leave the session to attend other clinic duties. Two group sessions were disrupted because more women wanted to participate than were able to and were knocking on the door to try and enter.

The group dynamics average scores ranged from 13-18 (on a scale of 0-18) with a mean of 16.33, indicating that most women were highly engaged in the health assessments and interactive learning.

Co-facilitation skills average ranged from 4-12 (on a scale of 0-12) with a mean of 9.28. In one-third of group sessions, co-facilitators had either not prepared or had partly prepared for the group which led to disorganized discussion and lower scores in this fidelity domain. When asked why they hadn't prepared during the facilitator's focus groups after the sessions, most co-facilitators reported they did not receive sufficient time to prepare due to competing priorities or miscommunications as to the day they were going to be facilitating the groups. Other facilitators reported the need for additional practice with facilitation and the content. Co-facilitators' use of strategies taught in the training such as asking open-ended questions and using the Centering-based facilitation strategy "acknowledge, refer, and return"(23,30) varied among group session which also led to lower scores in this domain. However, in two-thirds of the groups, co-facilitators were well prepared, and facilitators used the strategy "acknowledge, refer, and return" during the discussion period of the group session. In just over half of the group sessions' facilitators used open-ended questions in group discussion. These skills were all measured in the co-facilitation skills domain of the observation checklist.

The group care delivery domain captured the delivery of the content during the sessions. For example, whether the session was implemented as a didactic class/lecture or facilitated discussion, what was the level of group member engagement during the session, and what proportion of time did facilitators speak compared to

women. These scores ranged from 7-12 (on a scale of 0-12) with a mean of 10.44. Only one of the 18 sessions was reported as more like a class/lecture than a discussion, the remaining sessions were described as half class/lecture and half discussion or mostly like a discussion. Sixteen sessions were rated by research assistants as having medium to high or very high levels of engagement. In 7 of the 18 groups, facilitators spoke more than women during the sessions, and in 11 group sessions facilitators and women either spoke equal amounts of time or women spoke more than facilitators. These were all measured in the group care delivery domain of the observation checklist.

The total fidelity observation checklist scores across the 18 sessions and three clinics were high (≥ 52 out of 65) with a mean of 55.89 and all meeting the threshold for acceptable fidelity. Clinic C had the highest implementation fidelity score.

Table 5-4 Summary of Results from Fidelity Observation Checklists Across Clinics

Fidelity Domain	Clinic A n=6	Clinic B n=6	Clinic C n=6	Total N=18
	Percent reaching fidelity threshold			
Preparation	83.33	83.33	100	88.89
Community building	83.33	100	100	94.44
Health Assessments	83.33	83.33	83.33	83.33
Interactive Learning	83.33	83.33	100	88.89
Environment and Logistics	66.67	50	100	72.22
	Mean (SD)			
Group Dynamics	17 (2)	16 (2.10)	16 (2.28)	16.33 (2.06)
Co-facilitation Skills	8.83 (3.54)	8.33 (3.50)	10.67 (1.51)	9.28 (3.00)
Group Care Delivery	10.33 (1.36)	9.67 (2.80)	11.33 (2.50)	10.44 (2.50)
Total	55.83 (6.77)	53.17 (8.45)	58.67 (6.59)	55.89 (7.25)

When asked about their learning experience in the focus groups, women expressed how much they learned. A woman from Clinic A said, "*I felt that it's different from what I normally know, just one nurse in a hurry, I felt in a circle I learned a lot. Some things I might not have learned otherwise."* Another woman

from the same group said, *"Normally I learn about one topic, but here we talked about many topics, mental health, danger signs, breastfeeding, I learned a lot in a small period of time."*

Women discussed the topics covered at the two sessions and learning included how to do self-assessments (i.e., weighing themselves and their baby, how to take a blood pressure reading, and measuring their infant's height and head circumference), how to breastfeed and exclusive breastfeeding. Other topics included the importance of blood pressure, vaccinations, and the diseases they protect against. A woman from Clinic B said, "*I am happy to learn the vaccine schedule."* Several women reported learning about hypertension. A woman from Clinic C explained, "*I am happy to have learned about high blood pressure, now I know about hypertension and would like to continue with groups so that I can keep learning."*

Other topics they described as being covered included nutrition for both mother and baby, when to introduce solid foods; danger signs of serious health conditions and when to go to the clinic; HIV and prevention of mother-to-child transmission; child health and development; and how to deal with stress. A woman from Clinic A linked extreme stress to when to seek care when she said, "*I learned about emotional health, marital problems cause stress, and that you should talk to other people, but if you see that your stress is extreme you should go to the hospital."* They also reported learning what to do when a child is sick; hygiene and sanitation (e.g., latrines at home); and strategies to include men in their daily activities. A woman from Clinic C noted how the activity about asking

for help affected her. She said, "*The male involvement activity was good because I take it as normal that I have to do everything, now I know I can ask for help."* Additional health promotion topics included family planning; growth monitoring; mental and emotional health; relationship conflict management; and cervical and breast cancer. During two separate group sessions women described their cervical cancer screening experiences and encouraged the women who had not been screened to go for their screening.

Health issues identified and services received within the integrated model

During each session the research team noted as a part of the fidelity observation checklist if midwives identified and/or treated health concerns during health assessments and if any services were received at the end of sessions e.g., infant vaccinations. In total 51 people (including both women and infants) over the course of the 18 group sessions had a health issue that was identified and treated during health assessments or received a health care service or were referred to other providers for care at the end of the group session. Health issues identified among women included: high blood pressure, perineal pain, difficulty breastfeeding, and finger pain. The most common health issue among women was high blood pressure. Health issues identified among infants included: skin rash, cough or flu-like symptoms, abscess, inadequate weight gain, inguinal and abdominal hernias, and a skin mass. The most common health issue among infants was cough and flu like symptoms.

Services that were received within the group space for women included: family planning, mosquito nets (for the prevention of malaria), medications (e.g., anti-

hypertensives), and one was admitted for observation due to difficulties breastfeeding. The most common service received by women within the group space was family planning with the majority receiving Depo Provera. Services that were received within the group space for infants included: vaccinations, medications (e.g., antibiotics), and enrollment in a nutrition program for a malnourished child. Vaccines were most common service provided to the infants.

Discussion

Eighteen integrated group postpartum and well-child care sessions were completed as part of this pilot. Both women and facilitators perceived the model to be highly acceptable, appropriate, and feasible to implement at clinics. Co-facilitators were also able to maintain fidelity to the three core components of the group care model, healthcare in a group space, interactive learning, and community building. Acceptability, appropriateness, and feasibility are considered “leading indicators” of implementation success (21). All facilitators found group care to be highly acceptable, appropriate, and feasible within their clinical setting, women had more variability in their evaluation of group sessions, this variability could be due to facilitator’s level of experience with content and skills with facilitating groups, transportation difficulties, or personal preferences for type of care they prefer for themselves and their infant. The implementation outcomes evaluated in this study serve as indicators of implementation success and set the stage for future research to test the effectiveness of integrated group postpartum and well-child care (21).

When adapting and implementing a Centering-based group care model in a new context, maintaining fidelity to its core components is essential to ensure that the

features associated with the model's effectiveness are retained (31). Model fidelity is important to monitor as it allows for better evaluation of the impacts of group care in the postpartum period (31). Fidelity scores varied across domains and clinics, the environment and logistics conducive for group care was the most challenging, and fidelity to community building and group dynamics was consistently high across clinics. Studies of group well-child care highlight the importance of community building and group dynamics in the postpartum period as it has been shown to foster partnerships between families, clinicians, and communities and is a key component in addressing health related social needs (11,32–34). Clinic C demonstrated the highest model fidelity score as well as has the highest ratings of acceptability, appropriateness, and feasibility. Some factors that might have contributed to this are institutional leadership and a group care champion (11,35), as one of the midwives facilitating was the in-charge of the clinic and was an experienced group ANC facilitator and trainer of facilitators.

Health issues identified for women that participated in group sessions highlight the unmet health needs occurring in the 12 months postpartum which emphasizes and justifies the need for high quality postpartum care. Non-communicable diseases (NCDs) are a significant contributor to maternal morbidity and mortality and the current state of maternal health care does not adequately identify or treat them as a part of routine care (36). Hypertension disorders in pregnancy are one of the leading causes of maternal morbidity and mortality (2,5) and this health issue carries forward in the woman's life course impacting long-term health. Hypertension was the most common health issue identified during the women's health assessments. Studies show a high prevalence of hypertension among women in the postpartum period in some African countries and

missed opportunities to identify and treat it in the current state of postpartum care (37–39). Studies in Malawi specifically reveal high prevalence of and risk for hypertension and the need for innovative interventions to prevent, treat, and control hypertension (40). During the self-assessments within the group sessions, co-facilitators were able to identify and treat hypertension and schedule follow-up as needed, demonstrating that group care is able to increase the quality of care women receive.

In addition to hypertension, opportunities exist within group care to increase screening for other NCDs such as diabetes, anemia, and mental health. Prevalence of postpartum depression among women in Malawi is estimated to be 19.8% (41), highlighting the need for targeted screening and preventive measures to support women experiencing it. Group care provides an opportunity to fill a gap in the care continuum, identify and treat NCDs and other health issues, and assist in the transition from maternity care to primary health care services (36).

The WHO advocates for integrating health services as they have the potential to directly enhance well-being, improve access to services, improve health outcomes, and enhance health equity (42). Both women and facilitators described group care as an efficient way to deliver and receive health promotion education as well as health care services in one visit for both the woman and infant. The current state of postpartum and well-child care in Malawi requires women in the postpartum period to travel to the clinic multiple days to receive care and services for themselves and for their infants. This places a burden on women who often face long travel times, transportation difficulties, and missed work opportunities. The most common services received within the integrated group care session was family planning for women and vaccinations for

infants. Thus, extending group care from into the postpartum period has the potential to further increase rates of family planning use.

During each group session all infants received their scheduled vaccines if they were due to receive them. Based on these results, we hypothesize that group care could maintain vaccine uptake, as infants were able to receive them at the end of the visit without extra waiting time. This is especially important since vaccines are important drivers in reducing infant morbidity and mortality. This is particularly important in Malawi, a country that recently experienced an outbreak of polio, a preventable childhood disease (43). Within the group session women also received assistance with difficulties with breastfeeding, nutritional education, and referrals to malnutrition programs where necessary employing both direct and indirect evidence-based and effective interventions to combat maternal and child malnutrition (44).

Integrating health services increases coordination across the care continuum to improve maternal and child health outcomes and there is some evidence that it is also cost effective (42). While some models of care throughout the African continent integrate aspects of maternal health care into pediatric care with success such as lactation support (45), and maternal mental health screenings (46), very few provide a full integration of postpartum and well-child care as presented in this study (47,48).

Implications for future research and practice

Future studies can assess the effectiveness of the model on clinical outcomes for both women and infants. Recommendations from facilitators for improving the model included: to add screening tools to each session such as a desire for family planning and postpartum depression; add a “cheat sheet” at the beginning of each session for

co-facilitators to provide a quick guide for each session's content; refine some activities to improve understanding; and reduce the number of activities outlined in each session so that the length of the session remains within the designed time of 2 hours. Adding screening tools and a standardized way to document assessments to the model will allow for assessment of the model's impact on NCDs such as mental health and hypertension. Further studies are starting to show persistent hypertension up to one year postpartum across settings so this will be an important outcome to monitor (39,49,50). In addition, future iterations of model implementation can focus on strategies to enhance fidelity such as a focus on training co-facilitators to deliver the model (51). Malawi has established a rigorous training program that can be used to bolster co-facilitator's skills for both group ANC, postpartum, and well-child care (23). We recommend future research refine the fidelity observation checklist to test its association with outcomes and create a standardized tool to use across diverse settings. Finally, this study showed that institutional leadership and program champions are key to implementing the group care model (11,35). Staff buy-in has also been noted as important factor for implementation success and sustainability of the model (35). These will be important factors to consider when considering the model's level of sustainability in future research.

Limitations

This study has several limitations. This study was carried out in clinics that were already familiar with the group care model. So, the results may look different if the system-level care delivery changes were not understood by clinic staff. Also, some of the timing and implementation data may be influenced by the small number of

participants (given the number of small groups i.e., 2-3 dyads in a session). It is possible that the timing of the groups and the implementation outcomes here may be different had the groups been at full capacity. We relied on self-report measures which may introduce response biases. Our findings inform the implementation of group postpartum and well-child care at peri-urban and rural clinics in Malawi but may not be generalizable to other clinic populations. Our focus was on the evaluation of implementation outcomes, and we cannot comment on the effectiveness of this integrated group postpartum and well-child care model compared to usual care. Last, because we did not measure effectiveness, we were unable to link fidelity to health outcomes.

Conclusion

We found that clinics in Blantyre District, Malawi were able to implement an integrated model of group postpartum and well-child care. Both women and facilitators of the model found it to be highly acceptable, appropriate, and feasible and described positive experiences conducting and participating in group sessions. Further, the facilitators demonstrated fidelity to the model. These promising results set the stage for rigorous research to examine the effectiveness of this model on maternal and child health outcomes in Malawi and elsewhere.

List of Abbreviations

AIM Acceptability of Intervention Measure

ANC Antenatal care

COREQ Consolidated Criteria for Reporting Qualitative Research

FIM Feasibility of Intervention Measure

HCD Human-centered design

HIV Human immunodeficiency virus

HSA Health surveillance assistant

IAM Intervention Appropriateness Measure

IRB Institutional Review Board

LMIC Low- and middle-income country

NCD Non-communicable disease

WHO World Health Organization

Declarations

Ethics approval and consent to participate. This study was approved by the Institutional Review Boards at Johns Hopkins University School of Nursing (IRB #00245018), Kamuzu University of Health Sciences (IRB #P.06/21/3341), and an exemption from the University of Illinois Chicago (IRB #2022-0327). Following an informed consent process, we obtained written informed consent from all participants.

Consent for publication. Not applicable.

Availability of data and materials. The datasets generated and/or analyzed during the current study are not publicly available to maintain confidentiality of participants but are available from the corresponding author on reasonable request.

Competing interests. The authors declare that they have no competing interests.

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CHAPTER 6: SYNTHESIS/DISCUSSION

Introduction

The postpartum period is a neglected area of the maternal and child health care continuum contributing to persisting high rates of maternal and child mortality and morbidities globally.[1] Low rates of postpartum care attendance coupled with poor quality postpartum care creates missed opportunities for identifying and treating health and social issues such as non-communicable diseases (NCDs) that women and infants are vulnerable to in this critical time in their life course particularly in low resource settings such as Malawi.[2–7] Re-conceptualizing maternal health to take a life course approach and provide more holistic care necessitates extending postpartum care to 12 months after childbirth and transforming the way we deliver care.[4] Integrated group postpartum and well-child care with its core components of healthcare in a group space, interactive learning, and community building offers a strategy to fill this gap in the care continuum.

Using a human-centered design (HCD) approach we co-designed an adapted Centering-based group postpartum and well-child care model prototype for the Malawian context. We found that the group postpartum and well-child care model was implemented with fidelity and was highly acceptable, appropriate, and feasible among women and health care workers. We found that major health issues were identified within the group space during health assessments such as hypertension for women and malnutrition for infants. Further in our pilot sessions several health services were received within the group space such as family planning and vaccinations which increased the efficiency of the visit for both women and health care workers and made these services more accessible to women. The group care model has the potential to

improve the quality of care dyads receive in the postpartum period in Malawi and subsequent maternal and child health outcomes such as increased identification and treatment of NCDs, well-child and postpartum visit attendance, initiation and duration of breastfeeding, immunization rates, parenting and clinician self-efficacy, patient satisfaction, as well as have a positive impact on maternal psychological well-being.[8,9]

Summary of Findings

Aim 1

Explore Malawian women's expectations for culturally appropriate postpartum and well-child clinic care.

We identified five themes through interviews with women and health care workers: 1) maternal health assessments are not consistently completed; 2) challenges exist to postpartum and well-child care attendance and delivery of care; 3) postpartum and well-child health promotion topics are not standardized; 4) maternal and child health concerns included physical and psychological issues; and 5) there is buy-in for the group healthcare model from both women and health care workers.

Throughout the discussions, women and health care providers identified individual, structural, economic, and environmental factors related to attendance and delivery of postpartum care services. The current visit schedule per Malawian Ministry of Health guidelines recommends a one- and six-week postpartum visit, when women were describing these visits they reported that health workers were focused primarily on the infant health assessment, with limited attention to the health and social needs of the woman. Although midwives did report discussing danger signs of serious health

conditions after birth (for mother and infant) with women at postpartum visits. Women reported being instructed by health care workers to bypass their 6-week postnatal check and go straight to the under-five clinic for the infants to receive vaccinations, neglecting the clinical assessment of the woman. When asked why this was occurring, the health care workers recognized the need for thorough clinical assessments of the woman and infant and wanted to complete them, but they often cited staff shortages and lack of equipment as reasons for incomplete exams. The clinic-level challenges of limited staff time and resources was noted by one woman when she stated that she was too afraid to ask questions or ask for services because of the negative attitudes of health care workers. In addition to describing the clinic-level challenges, some midwives took personal responsibility for the lack of postpartum care. In contrast, when health care workers described their experiences with group ANC they felt that they were able to spend more time with women to do thorough assessments which improved the quality of care women received. Health workers also explained that the rainy season, difficult terrain, and long travel distances made getting to the clinic a challenge for their clients. Others in the interviews cited poverty and relationship conflicts as additional access barriers for women to receive postpartum care. The evidence and inspiration from engaging with women and health care workers reinforced findings from other studies that there are gaps in the availability and provision of postpartum care to women in Malawi.[10] These gaps in care provision are attributed to staff shortages, health care workers' lack of knowledge of postpartum care guidelines, negative provider attitudes, and a lack of awareness of the importance of postpartum care.[10–12]

When women were asked to identify which health promotion topics were currently discussed at clinic, responses varied and were inconsistent. Some mothers expressed that they did not receive any health education. When asked what common maternal health concerns they have experienced responses included: difficulty breastfeeding, poor nutrition, intimate partner violence (IPV), sexually transmitted infections (STIs), mental health issues, high blood pressure, malaria, complications post c-section, late in seeking care for health issues, and sepsis. When asked about common child health concerns they described: cord infections, malnutrition, poor growth, eye infections, jaundice, skin problems, diarrhea, pneumonia, and coughs and fevers.

For this aim all women and health care workers had experience either participating in or facilitating group antenatal care (ANC) so were familiar with the group care model. When asked their thoughts on extending the group care model through the first 12 months postpartum all participants reported a desire to participate in or offer group care during the postpartum period. Mothers felt that the group care model was supportive and helped them translate knowledge into practice and better address their health concerns. One woman described how emergencies happen in her village and the knowledge she learned in group care can help save lives. Other women described how they were eager to learn more how to take care of their infants when illnesses arise and learn how to take care of themselves and their own well-being. Health care workers expressed that group care could improve overall quality of care through spending more time with women to engage in health promotion activities, integrating maternal and child health services for more efficient care, and ensuring that all clinical assessments for

both the mother and infant are completed. They also perceived that group care would increase health service utilization for both women and infants and thereby improve maternal and child health outcomes.

Aim 2

Integrate the findings from Aim 1 to work with Malawian women and health care workers to co-design the health promotion content, and implementation structure of the integrated group postpartum and well-child care model prototype.

Prioritized health promotion topics included a range of physical, psychological, social, and behavioral issues. These topics were identified through incubator sessions with women and health care workers using qualitative methods of free listing, pile sorting, and ranking of a final list of prioritized health promotion topics. These topics are hygiene, exclusive breastfeeding, family planning (combined with return to sexual activity), nutrition (for both mother and infant), depression screening/mental health, growth monitoring and developmental milestones, sexual health (including STIs and HIV), immunizations, danger signs of serious health conditions for mother and baby, IPV and relationship issues, mother's physical health (including anemia, hypertension, and cervical cancer screening), disease prevention and management (including COVID-19 and common maternal and child health concerns), and male involvement. Consistent with current literature, there were noticeable differences in topics desired and prioritized compared to current practice, particularly related to mental and sexual health.[13,14]

There was consensus across all three clinics to create a 6-visit model with recruitment into group care occurring at the 1-week postpartum visit and the first group session beginning with the 6-week postpartum visit. Participants suggested that the

schedule correspond with the child vaccination schedule (6, 10, and 14-weeks and 6, 9, and 12-months) with each group 1–2-hour visit being co-facilitated by a midwife and a health surveillance assistant (HSA). Some participants suggested that this schedule would increase vaccine uptake since vaccines would be administered at the end of each visit. Responses varied for the ideal group size ranging from 8-15 mother/infant dyads.

Participants outlined a set of resources and materials needed to successfully provide high quality care in a group format that included: training of providers and equipment and supplies, such as an adult and baby weight scale, blood pressure equipment, thermometer, tape measure, an examination bed, mattress protectors, a mat to sit on, privacy screen for in the room, physical assessment guidelines, hand sanitizer, laminated pictures of danger signs to show women, flip charts, toys for babies, and a storage basket. Further, many health care workers stated they did not have access to guidelines to perform standardized physical assessments. So, they recommended inclusion of written clinical maternal and infant assessment guidelines for each visit to standardize and improve the quality of these health assessments.

A curriculum and implementation structure prototype for group postpartum and well-child care was produced. In discussion about how women would like to receive the curriculum content and how providers would like to share the content, both preferred interactive learning activities with role plays and group discussions. Therefore, the created prototype consists of a facilitator's guide (Appendix E) outlining each of the six visits with a detailed plan for each visit that included the associated clinical guidelines for physical assessments and objectives and directions for each interactive learning activity reflecting the prioritized health promotion topics, as well as an implementation

plan. For example, for the six-week visit, interactive learning activities focus on danger signs of serious health conditions for mom and infant, physical and emotional adjustments after having a child, breastfeeding, and family planning/resuming sexual activity. Each visit outlines all activities necessary to maintain fidelity to Centering-based group care's core components, such as healthcare in a group space, interactive learning, and community building.

Using a human-centered design (HCD) approach allowed for a collaborative process to create a group care prototype that is woman-centered and context specific. What we found during the co-design process was there were noticeable differences in health promotion topics desired and prioritized compared to current practice, particularly related to mental and sexual health, which highlights the need to transform the content and delivery of postpartum and well-child care to meet the needs of women and families. We were then able to create a prototype that included health promotion content that women and health care workers in Malawi perceived to be the most important to improve the health of women and infants in the postpartum period as well as suggested clinical guidelines to offer a tool for health care workers to standardize practice.

Aim 3

Examine implementation outcomes of group postpartum and well-child care with women and health care workers at clinics in Blantyre District, Malawi.

Forty-one women with their infants participated in the implementation of the prototype group sessions. Nineteen health care workers across the three clinics co-facilitated group sessions, 9 midwives and 10 health surveillance assistants. Each of the

6 sessions was tested once at each clinic for a total of 18 pilot sessions. Overall, both women and health care workers reported group postpartum and well-child care was highly acceptable, appropriate, and feasible across clinics. Fidelity to the group care model was high.

Group sessions were designed to begin with health assessments which included self-assessments (women measured their own infant's weight, length, and head circumference and were taught how to take each other's blood pressure and weigh themselves) and clinical health assessments completed by a midwife for both the woman and infant. After health assessments were complete, facilitated discussion by the midwife and HSA with interactive learning activities occurred following the facilitator's guide with prioritized health promotion content for each session. Sessions were then to end with any services that were needed such as vaccinations or family planning and any follow-up that was needed for women and/or infants.

During the self-assessments, midwives were able to identify and treat health concerns, with the most common issue arising being hypertension. Other health issues identified during clinical assessments by the midwife included: perineal pain, difficulty breastfeeding, and finger pain. Health issues identified among infants during clinical assessments included: skin rash, cough or flu-like symptoms, abscess, inadequate weight gain, inguinal and abdominal hernias, and a skin mass. The most common health issue among infants was cough and flu like symptoms. Follow-up and/or referrals were scheduled as needed.

Women reported gaining knowledge from facilitated group health promotion discussions and activities. They reported learning about mental health and how to deal

with stress, danger signs of serious health conditions and when to go to the clinic to seek care, breastfeeding, hypertension, vaccinations, and the diseases they protect against, nutrition for both mother and infant, HIV and prevention of mother-to-child transmission (PMTCT), child health and development, family planning, hygiene and sanitation, growth monitoring, relationship conflict management, and cervical and breast cancer.

At the end of the group session, services that were received within the group space for women included: family planning, mosquito nets (for the prevention of malaria), or medications (e.g., anti-hypertensives). The most common service received by women within the group space was family planning (the majority receiving Depo Provera). Services that were received within the group space for infants included: vaccinations, medications (e.g., antibiotics), and enrollment in a nutrition program for a malnourished child. The most common service received among infants was vaccinations. In total 51 people (including both women and infants) over the course of the 18 group sessions had a health issue that was identified and treated during health assessments or received a health care service or were referred to other providers for care at the end of the group session.

Health issues identified for women that participated in group sessions highlight unmet health needs in the 12 months postpartum. Non-communicable diseases (NCDs) are a significant contributor to maternal morbidity and mortality and the current state of maternal health care does not adequately identify or treat them as a part of routine care.[3] Hypertension was the most common health issue identified among women. Hypertension disorders in pregnancy are one of the leading causes of maternal

morbidity and mortality, and this health issue can carry forward in the women's life course increasing their risk of chronic disease.[2,15] Studies show a high prevalence of hypertension among women in the postpartum period in some African countries and missed opportunities to identify and treat it in the current state of postpartum care.[16–18] Studies in Malawi specifically reveal high prevalence of and risk for hypertension and the need for innovative interventions to prevent, treat, and control hypertension.[19] In addition to hypertension, opportunities exist within group care to increase screening for other NCDs such as diabetes, anemia, and mental health. Prevalence of postpartum depression among women in Malawi is estimated to be 19.8%,[20] highlighting the need for targeted screening and preventive measures to support women experiencing it.

Health issues identified for infants also highlighted unmet health needs for infants. Factors leading to high rates of infant mortality and morbidities in Malawi include health service utilization, short birth intervals, malnutrition, pneumonia, preterm birth complications, diarrhea, and malaria.[21,22] Current guidelines for well-child care in Malawi focus on vaccinations and growth monitoring and managing sick children. Group care creates an opportunity to do thorough assessments of infants, provide consistent follow-up to monitor their growth and development, maintain vaccination schedules, triage health concerns as they arise, and provide health education to parents through interactive learning activities.

With persisting high rates of maternal and infant mortality in Malawi there is a call for integrating health services to improve both maternal and child health outcomes.[23] Group care provides an opportunity to fill a gap in the care continuum, identify and treat

NCDs and other health issues, and assist in the transition from maternity care to primary health care services.[3]

Discussion

Strengths and Limitations

The study has several strengths, findings indicated success based on the implementation outcomes of acceptability, appropriateness, feasibility, and fidelity. Thus, the findings provide the necessary preconditions for future research to test the model's effectiveness. The strengths of this study are that the model was adapted and implemented centering women and health care workers in a co-design approach following the AHEAD framework.[25] The health issues identified, and health promotion topics were directly informed from women and highlighted what women want to learn combined with what health care workers felt was important based on their experiences working in postpartum and well-child care. Importantly, within the group space, health care workers were able to meet the health needs of both the woman and infant through the focus on provider and self-assessments of health issues that might have gone undetected, such as hypertension. Women reported gaining knowledge about their health and their child's health through exchanges with providers and other women in the group that they might not have otherwise learned in individual sessions with providers. In addition, the integration of health services was perceived as something women and the health system would benefit from. Both women and facilitators described group care as an efficient way to deliver and receive health promotion education as well as health care services in one visit for both the woman and infant. The current state of postpartum

and well-child care in Malawi requires women in the postpartum period to travel to the clinic multiple days to receive care and services for themselves and for their infants. Group care allows health care workers to work efficiently and women to reduce the burden on women with time spent traveling to and from the clinic.

This study does have limitations. The COVID-19 pandemic caused us to reduce the group sizes that we piloted (we limited it to 5 dyads per session), however the ideal size for groups are 6-8 dyads and health care workers and women informed us that increasing the size would be acceptable and feasible to them. We relied mainly on measures of self-report which may introduce response biases. Our findings inform the implementation of group postpartum and well-child care at peri-urban and rural clinics in Malawi but may not be generalizable to other clinic populations. We evaluated implementation outcomes only and cannot comment on the effectiveness of the group postpartum and well-child care model compared to usual care. And finally, because we did not measure the model's effectiveness, we were unable to associate fidelity with outcomes. The HSAs conducting groups were doing so for the first time and so we anticipate with increased practice and experience will lead to improved facilitation skills which could improve outcomes.[24]

Implications for Nursing

This study works to advance nursing science by focusing on the health and well-being of women and infants in a vulnerable and critical phase of their life course. This research is of particular importance for the field of nursing and midwifery as nurses and midwives are at the forefront of care throughout the African continent and represent

over 50% of national health workforces in most countries.[26] When women and infants receive postpartum care it is most often delivered by a nurse or midwife, meaning it is essential to increase nursing and midwifery knowledge of best practices to create a standard of care for postpartum assessments and ultimately improve maternal and child health outcomes. It will be important to establish collaborations between nurses, midwives, physicians, policy makers, and most importantly women to determine how to create a package of postpartum care to meet the needs of women and families.

Findings from this study can be translated across diverse settings including developing prototypes of this model of group postpartum and well-child care to meet the needs of underserved women and children in the US and globally. Nurses and midwives are well positioned to champion this model of care through interdisciplinary collaborations within health systems to transform how we delivery postpartum and well-child care. This transformative approach will allow practitioners to provide both continuity of care and relational care to families as well as provide a space for families to build community within their shared health visits that often translates to increased social support in their daily lives. Group care has the potential to improve maternal, child, and community health outcomes.

Theory Implications

Our conceptual framework can guide group postpartum and well-child care model implementation and evaluation and identifies several outcomes that can be used to harmonize model evaluation and research. The conceptual framework can be used as a tool to standardize model implementation and evaluation and generate evidence to inform future healthcare policy and practice. While the framework for the study was

created based on literature from the US, it can be adapted for use in international settings such as Malawi while maintaining its core components in terms of structure, content, and process identified in the framework (Figure 6.1).

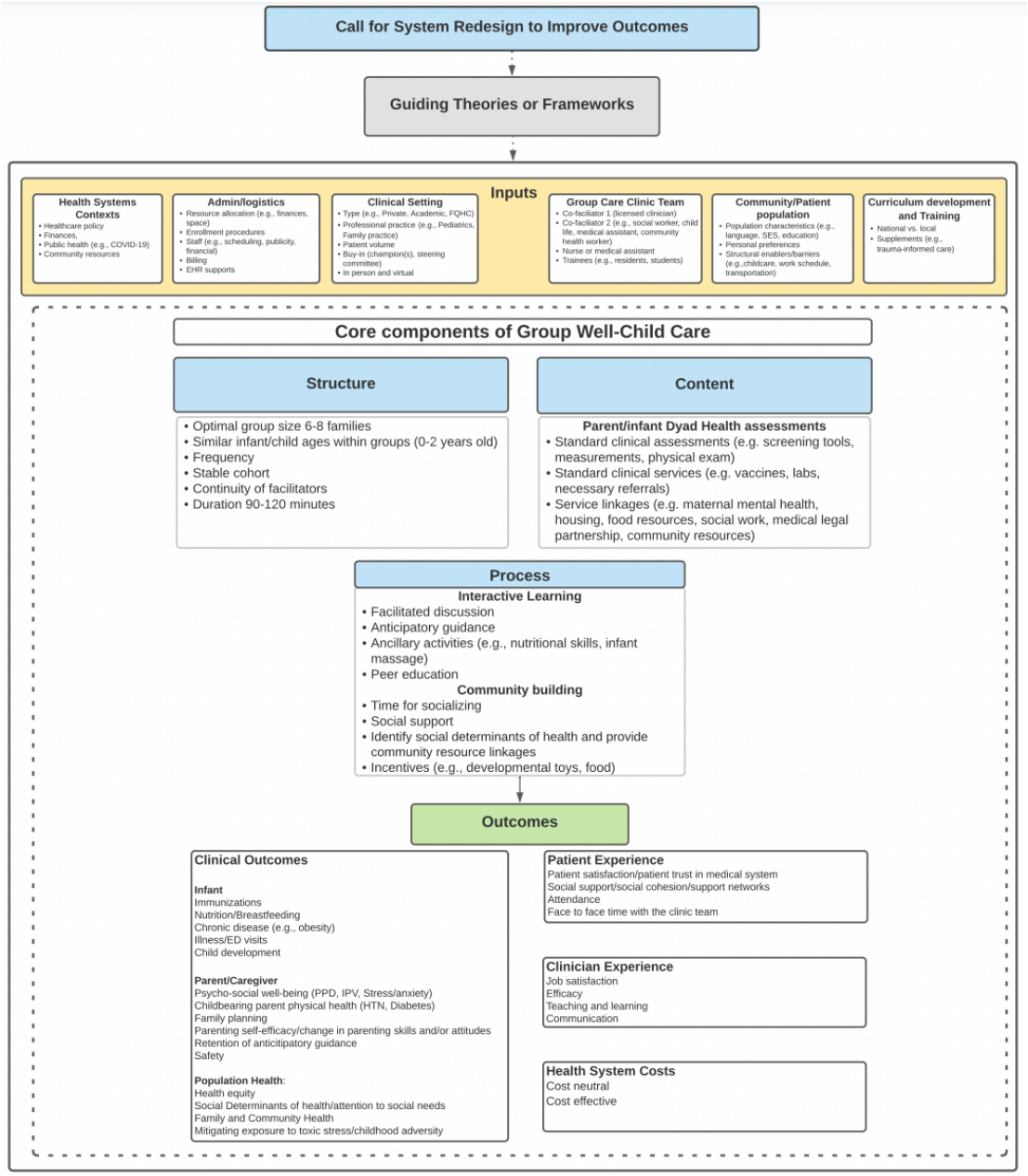

Figure 6.1 Group postpartum and well-child care conceptual framework

Policy Implications

The latest Malawian National Sexual and Reproductive Health and Rights (SRHR) Policy report calls for "*universal access to appropriate, affordable and quality health care services throughout the life cycles of every human being, on the basis of equality between women and men*."[27] The National SRHR policy theme areas with set goals and outcomes include increased family planning uptake, reducing maternal and neonatal mortality rates, reduce the incidence and prevalence of STIs and HIV/AIDS, reduce the incidence and complications of cancers of reproductive organs in all men and women, reduce the incidence of HIV and AIDS, STIs, unplanned pregnancies and complications and drug use among youth, reduce the incidence of obstetric fistula among women, reduce the incidence of harmful practices and domestic violence among women, men and youth, and increase male involvement in reproductive health.[27] The World Health Organization (WHO) advocates for integrating health services as they have the potential to directly enhance well-being, improve access to services, improve health outcomes, and enhance health equity.[28] The WHO Maternal Morbidity Working Group advocates for changing the paradigm of maternal health to take a life course approach and shift the focus from preventing death to promoting women's health and wellness.[4] To truly re-conceptualize maternal health, integrate maternal and child health services, and meet the needs of women and infants with a life course approach, extending the definition of the postpartum period through to 12 months is necessary.[4] Changing the definition of the postpartum period has the potential to have a profound impact on the above-mentioned policy goals and WHO recommendations.

Findings from this study demonstrate that integrated group postpartum and well-child care provides an opportunity to support national Malawian policy initiatives such as providing family planning, addressing maternal and infant health issues such as obstetric fistula and NCDs, providing health promotion education about STIs, HIV/AIDS and reproductive cancers, addressing harmful practices and IPV, and promoting male involvement in reproductive health. Potential outcomes of group care (see Figure 6.1) align with national and international policy directives and integrated group postpartum and well-child care is a promising approach to improve maternal and child outcomes. This study provides a foundation for women and health care workers to advocate for the Malawian Ministry of Health to support this innovative alternative to healthcare service delivery model.

Recommendations for Future Research

This work lays the foundation for a future adequately powered, rigorous, and pragmatic hybrid effectiveness-implementation trial that will test the group postpartum and well-child care model's effects on maternal and infant health outcomes while simultaneously documenting implementation barriers and facilitators in Malawi. Future research in other low resource settings can use the Approach to Human-Centered, Evidence-Driven Adaptive Design (AHEAD) framework[25] to adapt Centering-based group care to diverse contexts. Finally, given the identified impacts on outcomes from the scoping review of group care in the postpartum period, it is important that future research not only fully describe the elements of the model implemented, but also harmonize assessments and outcomes. Harmonization would allow for better comparisons of effectiveness across settings and among various patient populations.

Summary

We found that clinics in Blantyre District, Malawi were able to implement an integrated model of group postpartum and well-child care. Both women and facilitators of the model found it to be highly acceptable, appropriate, and feasible and described positive experiences conducting and participating in group sessions. Further, the facilitators demonstrated fidelity to the model. Integrated group postpartum and well-child care offers a promising strategy to improve the quality of care for women and infants and in turn improve health outcomes in Malawi. The study findings support the need for extended postpartum care and an integration of maternal and child health services to transform the way care is delivered and offer an alternative model of care that delivers care efficiently to dyads in the postpartum period and is responsive to their needs.[4] These promising results set the stage for rigorous research to examine the effectiveness of this model on maternal and child health outcomes in Malawi and other low resources settings including the US.

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Appendices

Appendix A Literature Review Search Terms

List of Search Terms for Integrative Review

Ovid MEDLINE

No.	Query
1	((group adj "well-child") or (group adj "well child")).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
2	("centering parenting" or "centeringparenting").mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	1 or 2

Embase

No.	Query
1	((group NEAR/2 ('well child' OR 'well-child')):ti,ab,kw) OR 'centeringparenting':ti,ab,kw OR 'centering parenting':ti,ab,kw

CINAHL

No	Query	Limiters/Expanders	Last Run Via
S1	(group N2 ("well child" OR "well-child")) OR ("centering parenting" OR "centeringparenting")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text

Web of Science
TOPIC: ((group NEAR/2 ("well child" OR "well-child")) OR "centeringparenting" OR "centering parenting")

Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.

Scopus
(TITLE-ABS-KEY ((group W/2 "well child") OR (group W/2 "well-child")) OR TITLE-ABS-KEY ("centering parenting" OR "centeringparenting"))

APAPsycInfo

#	Query	Limiters/Expanders	Last Run Via
1	(group N2 ("well child" OR "well-child")) OR ("centering parenting" OR "centeringparenting")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo

List of Search Terms Scoping Review

List of Search Terms

Ovid MEDLINE

No.	Query
1	((group adj "well-child") or (group adj "well child")).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
2	("centering parenting" or "centeringparenting").mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	1 or 2

Embase

No.	Query
1	((group NEAR/2 ('well child' OR 'well-child')):ti,ab,kw) OR 'centeringparenting':ti,ab,kw OR 'centering parenting':ti,ab,kw

CINAHL

No	Query	Limiters/Expanders	Last Run Via
S1	(group N2 ("well child" OR "well-child")) OR ("centering parenting" OR "centeringparenting")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text

Web of Science
TOPIC: ((group NEAR/2 ("well child" OR "well-child")) OR "centeringparenting" OR "centering parenting")
Timespan: All years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC.

Scopus
(TITLE-ABS-KEY ((group W/2 "well child") OR (group W/2 "well-child")) OR TITLE-ABS-KEY ("centering parenting" OR "centeringparenting"))

APAPsycInfo

#	Query	Limiters/Expanders	Last Run Via
1	(group N2 ("well child" OR "well-child")) OR ("centering parenting" OR "centeringparenting")	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo

Appendix B Recruitment Scripts and Consent Forms

Recruitment Script by Research Staff: Woman

INSTRUCTIONS TO OUR RESEARCH STAFF: Check the activity for which the project is recruiting and cross out the others before getting to the clinic. Also fill in the appropriate dates below.

Good [morning/afternoon] how are you? My name is _____ and I am a member of a study team from _____. I am not an employee at this clinic and am only here as part of this study. Let me tell you a little more about our study.

In the United States there is a kind of group postnatal and well-child care, called CenteringParenting an extension of group antenatal care that you have participated in, where women meet in a small group of 6-8 women/infant dyads for two hours where they learn how to stay healthy and protect the health of their babies. Women in the United States have really enjoyed this kind of care. But, group postnatal/well-child care has not been tried in Malawi. For this study, we would like to know if group postnatal/well-child care would be as helpful for mothers and babies as the usual care that is offered at your clinic. We would like to ask you and other women that have participated in group antenatal care to participate in one part of our research that we are doing today.

Would you like to learn more so that you can decide if you would like to participate?
□ **NO** – [Ok, thank you for listening]

□ **YES** – [Great, let me tell you a little bit more about the study]

[RESEARCH PERSONNEL CHECKS APPROPRIATE TASK, describes and verifies eligibility again]

_____ Before we can implement our study, we would like to explore your experiences with postnatal and well-child care. To do this, we would like to interview you.

- To be in this study you must have at least two children, may I ask if you have two children?

OR

- Before we can create the content and structure of sessions, we would like to invite you to participate in audio-recorded incubator sessions with other women and providers to discuss priorities in postnatal and well-child care to co-design a prototype for sessions

OR

- Before we can implement the study, we would like to know if the group care sessions we have developed are helpful for women in the postnatal period. To do this, we would like you to participate in two group session discussions and tell us in an audio-recorded group interview how you felt about the session.

- Women will complete a brief surveys answering questions about postnatal and well-child care.

□ **NO to any question** – [Ok, thank you for listening. Sorry you're not able to be in the study.]

□ **YES to all questions–**

It looks like you could be in this study. If you think you might like to participate, I can discuss the specifics with you.

□ **NO** – [Ok, no problem. I understand. Thank you for listening]

□ **YES** – [Let me go through what participation would mean in detail. This is a consent form. First, I'll explain each part and you can ask questions throughout [Transition to the appropriate informed consent form]

Recruitment Script by Research Staff: Health Workers

INSTRUCTIONS TO OUR RESEARCH STAFF: Check the activity for which the project is recruiting and cross out the others before getting to the clinic. Also fill in the appropriate dates below.

Good [morning/afternoon] how are you? My name is _____ and I am a member of a study team from _____. I am not an employee at this clinic and am only here as part of this study. Let me tell you a little more about our study.

In the United States there is a kind of group postnatal and well-child care, called CenteringParenting an extension of group antenatal care that you have participated in, where women meet in a small group of 6-8 women/infant dyads for two hours where they learn how to stay healthy and protect the health of their babies. Women in the United States have really enjoyed this kind of care. But, group postnatal/well-child care has not been tried in Malawi. For this study, we would like to know if group postnatal/well-child care would be as helpful for mothers and babies as the usual care that is offered at your clinic. We would like to ask you and other health workers (midwives, community volunteers and HSAs) to participate in one part of our research that we are doing today.

Would you like to learn more so that you can decide if you would like to participate?

□ **NO** – [Ok, thank you for listening]

□ **YES** – [Great, let me tell you a little bit more about the study]

[RESEARCH PERSONNEL CHECKS APPROPRIATE TASK, describes and verifies eligibility again]

_____ Before we can implement our study, we would like to explore your experiences with postnatal and well-child care. To do this, we would like to interview you.

OR

- Before we can create the content and structure of sessions, we would like to invite you to participate in audio-recorded incubator sessions with other women and providers to discuss priorities in postnatal and well-child care to co-design a prototype for sessions

OR

- Before we can implement the study, we would like to know if the group care sessions we have developed are helpful for women in the postnatal period and feasible to implement for providers. To do this, we would like you to participate in two group session discussions and tell us in an audio-recorded group interview how you felt about the session.

□ **NO to any question** – [Ok, thank you for listening. Sorry you're not able to be in the study.]

□ **YES to all questions–**

It looks like you could be in this study. If you think you might like to participate, I can discuss the specifics with you.

□ **NO** – [Ok, no problem. I understand. Thank you for listening]

□ **YES** – [Let me go through what participation would mean in detail. This is a consent form. First, I'll explain each part and you can ask questions throughout [Transition to the appropriate informed consent form]

Chikalata cholembera anthu kuti alowe mu kafukufuku: Mayi

MALANGIZO KWA OCHITITSA KAFUKUFUKU: Onani kuti ndi gawo lanji llimene likuchitika ndi kukhwatcha zinazo musanafike pa chipatala. Muonetsetsenso kuti mwalemba tsiku loyenera mmusimu.

Mulibwanji? Dzina langa ndine _____ ndipo ndine mmodzi mwa anthu omwe akuchititsa kafukufuku kuchokera ku _____. Sindimagwira ntchito pa chipatala chino koma ndangobwera kudzapangitsa kafukufukuyu. Ndikufotokozereni mwachidule zokhudzana ndi kafukufukuyu.

Ku dziko la America kuli gulu la chisamaliro cha amayi omwe abereka kumene komanso ana amene abadwa kumene lotchedwa *Centering Parenting*, lomwe likuchokera ku chisamaliro cha mmagulu cha azimayi oyembekezera chomwe inu munatengapo mbali, kumene azimayi amakumana mmagulu a azimayi anthu okwana 6 kapena 8, mzimayi ndi mwana wake, kwa maora awiri komwe amaphunzira mmene angakhalire ndi moyo wathanzi komanso kuteteteza thanzi la ana awo. Azimayi a ku America anasangalatsidwa kwambiri ndi chisamaliro cha mtundu umenewu. Koma chisamaliro cha mmagulu cha azimayi omwe abereka kumenechi, komanso ana obadwa kumene sichinachitikepo kuno Malawi. Mu kafukufuku ameneyu, tikufuna kudziwa ngati chisamaliro cha mmagulu chingakhale

chothandiza kwa azimayi amene abereka kumene komanso ana obadwa kumene ngati mmene chimakhalira chisamaliro cha payekha payekha chomwe chimaperekedwa pa chipatala pano. Tikufuna tikufunseni inu komanso ogwira ntchito ya zaumoyo (Azamba, ma voluntiya a kumudzi komanso alangizi a zaumoyo) kuti mutenge nawo mbali mu gawo limodzi la kafukufuku amene tikuchita lero.

Mungakonde kudziwabe zambiri kuti mwina mungapange chisankho chotenga nawo mbali?
□ AYI – (Chabwino, zikomo pomvetsera)

□ INDE – (Chabwino, ndikufotokozerani zambiri zokhudza kafukufukuyu)

_____ Tisanayambe kafukufukuyu, tikufuna tidziwe zambiri za zomwe munadutsamo omutabereka komanso pamene mumasamalira mwana wanu atabadwa kumene. Kuti izi zitheke, tikufuna tikufunseni mafunso.

- Kuti mulowe nawo mukafukufukuty, mukuyenera kukhala ndi ana osacheoera awiri. Ndifunse kuti muli ndi ana angati?

KAPENA

- Tisanabwere ndi zinthu zoti zikhale mumaphunziro athu, komanso ndikuti maphunzirowo adzayende bwanji, tikufuna kuti mutenge nawo mbali kuzokambirana za kuchikuta pamodzi ndi azimai ena komanso ogwira ntchito ya zaumoyo kuti tione zinthu zofunikira kwambiri mu chisamaliro cha azimayi omwe abereka kumene komanso ana obadwa kumene, kuti palimodzi tibwere ndi dongosolo la maphuziro.

KAPENA

- Tisanayambe kugwira ntchito imeneyi, tikufuna tidziwe ngati maphunziro omwe takonza a chisamaliro cha mmagulu ali othandiza kwa azimayi; komanso ngati opereka chisamaliro angakwanitse kugwiritsa ntchito maphunzirowa. Kuti tichite izi, tikupemphani kuti mutenge nawo mbali mu zokambirana za mmagulu awiri zomwe zidzajambulidwe kuti mutiuze maganizo anu mokhudzana ndi maphunzirowa.

□ AYI ku mafunso onse – (Chabwino. Zikomo pomvetsera. Pepani kuti simutha kukhala nawo mu kafukufukuyu

□ INDE Ku mafunso onse
Zikuoneka ngati mukgoza kukhala nawo mukafukufukuyu. Ndikuganiza kuti mungakonde kutenga nawo mbali

□ AYI – (Chabwino palibe vuto ndamvetsetsa. Zikomo chifukwa cha kumvetsera)

□ INDE – (Ndiloleni ndifotokoze mwatsatanetsatane kuti kutenga nawo mbali kwanu mu kafukufukuyu kutanthauza chani. Iyi ndi kalata yopempha chilolezo chanu kuti mutenge nawo mbali. Choyambilira ndifotokoza gawo lina lili lonse ndipo mukhoza kufunsa mafunso ndikamafotokoza. (Pitani ku kalata yopempha chilolezo yoyenera)

Chikalata cholembera anthu kuti alowe mu kafukufuku: Ogwira ntchito ya zaumoyo

MALANGIZO KWA OCHITITSA KAFUKUFUKU: Onani kuti ndi gawo lanji llimene likuchitika ndi kukhwatcha zinazo musanafike pa chipatala. Muonetsetsenso kuti mwalemba tsiku loyenera mmusimu.

Mulibwanji? Dzina langa ndine _____ ndipo ndine mmodzi mwa anthu omwe akuchititsa kafukufuku kuchokera ku _____. Sindimagwira ntchito pa chipatala chino koma ndangobwera kudzapangitsa kafukufukuyu. Ndikufotokozereni mwachidule zokhudzana ndi kafukufukuyu.

Ku dziko la America kuli gulu la chisamaliro cha amayi omwe abereka kumene komanso ana amene abadwa kumene lotchedwa *Centering Parenting*, lomwe likuchokera ku chisamaliro cha mmagulu cha azimayi oyembekezera chomwe inu munatengapo mbali, kumene azimayi amakumana mmagulu a azimayi anthu okwana 6 kapena 8, mzimayi ndi mwana wake, kwa maora awiri komwe amaphunzira mmene angakhalire ndi moyo wathanzi komanso kuteteteza thanzi la ana awo. Azimayi a ku America anasangalatsidwa kwambiri ndi chisamaliro cha mtundu umenewu. Koma chisamaliro cha mmagulu cha azimayi omwe abereka kumenechi, komanso ana obadwa kumene sichinachitikepo kuno Malawi. Mu kafukufuku ameneyu, tikufuna kudziwa ngati chisamaliro cha mmagulu chingakhale chothandiza kwa azimayi amene abereka kumene komanso ana obadwa kumene ngati mmene chimakhalira chisamaliro cha payekha payekha chomwe chimaperekedwa pa chipatala pano. Tikufuna tikufunseni inu komanso ogwira ntchito ya zaumoyo (Azamba, ma voluntiya a kumudzi komanso alangizi a zaumoyo) kuti mutenge nawo mbali mu gawo limodzi la kafukufuku amene tikuchita lero.

Mungakonde kudziwabe zambiri kuti mwina mungapange chisankho chotenga nawo mbali?
□ AYI – (Chabwino, zikomo pomvetsera)

□ INDE – (Chabwino, ndikufotokozerani zambiri zokhudza kafukufukuyu)

OPANGITSA KAFUKUFUKU AONENSO GAWO LA KAFUKUFUKU LOMWE LIKUCHITIKA, afotokoze ndi kutsimikiza kuti akufunsa munthu oyenerera

Tisanapange kafukufukuyu, tikufuna kufufuza zomwe munadutsamo mutabereka mwana wanu komanso pamene mumasamalira mwana wanu

KAPENA

- Tisanabwere ndi zinthu zoti zikhale mumaphunziro athu, komanso ndikuti maphunzirowo adzayende bwanji, tikufuna kuti mutenge nawo mbali kuzokambirana za kuchikuta pamodzi ndi azimai ena komanso ogwira ntchito ya zaumoyo kuti tione zinthu zofunikira kwambiri mu chisamaliro cha azimayi omwe abereka kumene komanso ana obadwa kumene, kuti palimodzi tibwere ndi dongosolo la maphuziro.

KAPENA

- Tisanayambe kugwira ntchito imeneyi, tikufuna tidziwe ngati maphunziro omwe takonza a chisamaliro cha mmagulu ali othandiza kwa azimayi; komanso ngati opereka chisamaliro angakwanitse kugwiritsa ntchito maphunzirowa. Kuti tichite izi, tikupemphani kuti mutenge nawo mbali mu zokambirana za mmagulu awiri zomwe zidzajambulidwe kuti mutiuze maganizo anu mokhudzana ndi maphunzirowa.

□ AYI ku mafunso onse – (Chabwino. Zikomo pomvetsera. Pepani kuti simutha kukhala nawo mu kafukufukuyu

□ INDE Ku mafunso onse
Zikuoneka ngati mukgoza kukhala nawo mukafukufukuyu. Ndikuganiza kuti mungakonde kutenga nawo mbali

□ AYI – (Chabwino palibe vuto ndamvetsetsa. Zikomo chifukwa cha kumvetsera)

□ INDE – (Ndiloleni ndifotokoze mwatsatanetsatane kuti kutenga nawo mbali kwanu mu kafukufukuyu kutanthauza chani. Iyi ndi kalata yopempha chilolezo chanu kuti mutenge nawo mbali. Choyambilira ndifotokoza gawo lina lili lonse ndipo mukhoza kufunsa mafunso ndikamafotokoza. (Pitani ku kalata yopempha chilolezo yoyenera)

RESEARCH PARTICIPANT INFORMED CONSENT AND PRIVACY AUTHORIZATION FORM

Protocol Title: **Adapting and Implementing Group-Based Postpartum/Well-Child Care at Clinics in Blantyre District, Malawi**

Application No.: **IRB00245018**

Principal Investigator: Nancy Glass
School of Nursing
525 North Wolfe Street
Baltimore, MD 21205
Phone: 410-614-2849
Email: nglass1@jhu.edu

You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Why am I being asked?

You are being asked to participate in a research study to help us develop content and structure of the continuation of group care for postnatal and well-child care.

You have been asked to participate in the research because you have participated in the group antenatal care study and now have an infant.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with this clinic. **If you decide to participate, you are free to withdraw at any time without affecting relationships.**

About 60 women may participate in this part of the research.

What is the purpose of this research?

We are exploring women's experiences of postnatal and well-child care in order to build the health promotion content and implementation structure to extend group care in to the postnatal period up to 12 months.

What procedures are involved?

We will ask you to participate in one or multiple study activities. Study activities include: individual interviews (one visit approximately 45 minutes); interactive sessions exploring your experiences with postnatal and well-child care alongside healthcare workers (similar to a focus group format, one visit, approximately one hour); and practice sessions of group postpartum/well-child visits including surveys and group discussions debriefing the experience (two visits, approximately 60-90 minutes in length). We will ask you questions about your experiences with postnatal and well-child care, have interactive sessions to create the health promotion content and implementation structure of group care for postnatal and well-child care. This research will take place in a private space in this clinic.

With your consent, we will audio-record your individual and/or group interviews so that we do not miss anything. Even if you decline to have your interviews recorded, you can still participate. however you cannot participate in group interviews without being recorded.

- If names or specific locations are mentioned, these will be removed when the interview is written out (transcribed).
- Then the recording will be destroyed as soon as we have checked that our summary of what was said in the interview is accurate.

☐ I agree to answer questions about postnatal and well-child care and participate in interactive sessions with the research team to develop content and implementation structure of group care for postnatal and well-child care.

Initials or Thumbprint: _____

What are the potential risks and discomforts?

To the best of our knowledge, the things you will be doing as part of this study have no more risk of harm than you would experience in everyday life. There is a risk that others will know that you are participating in this research, but we will talk to you in a private area to minimize this risk. You are free to skip questions you don't want to answer. Also, if at any point you no longer want to participate, you may withdraw from the study at any time.

Are there benefits to taking part in the research?

Taking part in this research study may not benefit you personally, but we may learn new things that will help other women by improving postnatal and well-child care.

What other options are there?

You do not have to be in this study to attend postnatal and well-child care at this clinic.

What about privacy and confidentiality?

Your privacy is important to the research team. We will not obtain your name or any other information about you, and only members of the research team will know that you are in the study. A copy of your signed consent form will be stored in a locked office in a locked cabinet at the Kamuzu College of Nursing.

No information about you will be disclosed to others without your written permission, except if necessary to protect your rights or welfare (for example, if you are injured and need emergency care or when the Johns Hopkins University School of Medicine IRB monitors the research or consent process) or if required by law.

A possible risk of the research is that your participation in the research or information about you might become known to individuals outside the research. We will make every effort to prevent this from happening by doing the following:

- Also, to ensure that others will not be able to connect you to study notes involving you, we will assign you a code number, and all of your information will be identified by this number. We will keep the list of the participants' names code numbers separate from other study materials.

- A copy of your signed consent form will be stored in a locked office in a locked cabinet at the Kamuzu College of Nursing.

Although we ask everyone in the group to respect each other's privacy and confidentiality, and not to identify anyone in the group or repeat what is said during the group discussion, please remember that other participants in the group may accidentally disclose what was said.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

What are the costs for participating in this research?

There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

You will receive MK10,000 for being in this study.

Can I withdraw or be removed from the study?

If you decide to participate, you are free to stop participating at any time.

Who should I contact if I have questions?

Contact the researchers:

- if you have any questions about this study or your part in it,
- if you have questions, concerns or complaints about the research

Ellen Chirwa, PhD
Professor, Kamuzu College of Nursing

Tel: 265 0 1 873623; Cell: 265 888940513
embweza@kcn.unima.mw

Ashley Gresh, MA, MSN, CNM
PhD candidate, Johns Hopkins School of Nursing
Tel: 1 603-831-3942
Ashley.gresh@jhu.edu

What are my rights as a research subject?

If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the IRB office 410-502-2092 or e-mail jhmeirb@jhmi.edu.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Future Contact

We would like your permission for our research team to contact you in the future regarding future research.

Yes _____ _____
Signature of Participant Date

No _____ _____
Signature of Participant Date

Signature of Subject

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

_____ _____
Signature or Thumbprint Date

_____
Printed Name

_____ _____
Signature of Person Obtaining Consent Date (must be same as subject's)

_____
Printed Name of Person Obtaining Consent

RESEARCH PARTICIPANT INFORMED CONSENT AND PRIVACY AUTHORIZATION FORM

Protocol Title: **Adapting and Implementing Group-Based Postpartum/Well-Child Care at Clinics in Blantyre District, Malawi**

Application No.: **IRB00245018**

Principal Investigator: Nancy Glass
School of Nursing
525 North Wolfe Street
Baltimore, MD 21205
Phone: 410-614-2849
Email: nglass1@jhu.edu

You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Why am I being asked?

You are being asked to participate in a research study that is exploring the continuation of group care in to the postnatal period up to 12 months.

You have been asked to participate in the research because you are a health worker at one of the clinics in Blantyre District that is a part of this study and you work with the care of postnatal woman.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with this clinic. **If you decide to participate, you are free to withdraw at any time without affecting relationships.**

Approximately 32 healthcare workers (midwives, community volunteers, and HSAs) in two clinics in Blantyre District will participate in this research.

What is the purpose of this research?
We are doing this research to explore extending group care in to the postnatal period to provide postnatal and well-child care up to 12 months using the group healthcare model. We want to explore your perspectives delivering postnatal and well-child care to create the content and implementation structure of group care for postnatal and well-child care. We also want to know if it is feasible to offer group postnatal and well-child care in your clinic and what factors will lead to successful implementation of this care.

What procedures are involved?
If you agree to participate in this study, you will participate in one or multiple study activities. Study activities include: individual interviews (one visit, approximately 45 minutes in length); interactive sessions exploring your experiences with postnatal and well-child care alongside women (similar to a focus group format, one visit, approximately one hour in length), and co-facilitating practice sessions with women/infant dyads with interviews that follow to de-brief your experiences (six visits, approximately 60-90 minutes in length). Everything you say is important to us. With your consent, we will audio-record your group interviews so that we do not miss

anything. Even if you decline to have your individual interviews recorded, you can still participate, however you cannot participate in group interviews without being recorded.

- If names or specific locations are mentioned, these will be removed when the interview is written out (transcribed).
- Then the recording will be destroyed as soon as we have checked that our summary of what was said in the interview is accurate.

What are the potential risks and discomforts?

The things you will be doing as part of this study have no more risk of harm than you would experience in everyday life or offering regular postnatal care. Because this research involves a group of people, there is a risk that a breach of privacy (others will know that you are participating in this research) and confidentiality (accidental disclosure of information that has your name) may occur. If at any point you no longer want to participate, you may withdraw from the study at any time.

Are there benefits to taking part in the research?

Taking part in this research study may not benefit you personally, but we may learn new things that will help to improve the quality and efficiency of postnatal and well-child care.

What about privacy and confidentiality?

Your privacy is important to the research team. No information about you will be disclosed to others without your written permission, except if necessary to protect your rights or welfare (for example, if you are injured and need emergency care or when the Johns Hopkins School of Medicine IRB monitors the research or consent process) or if required by law.

Study information which identifies you and the consent form signed by you will be looked at and/or copied for checking up on the research at Kamuzu College of Nursing.

A possible risk of the research is that your participation in the research or information about you might become known to individuals outside the research. We will make every effort to prevent this from happening by doing the following:

- Also, to ensure that others will not be able to connect you to study notes involving you, we will assign you a code number, and all of your information will be identified by this number. We will keep the list of the participants' names code numbers separate from other study materials.
- A copy of your signed consent form will be stored in a locked office in a locked cabinet at the Kamuzu College of Nursing.

Although we ask everyone in the group to respect each other's privacy and confidentiality, and not to identify anyone in the group or repeat what is said during the group discussion, please remember that other participants in the group may accidentally disclose what was said.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

What are the costs for participating in this research?

There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

You will receive MK10,000 for being in this study.

Can I withdraw or be removed from the study?
If you decide to participate, you are free to stop participating at any time.

Who should I contact if I have questions?
Contact the researchers:

Ellen Chirwa, PhD
Professor, Kamuzu College of Nursing

Tel: 265 0 1 873623; Cell: 265 888940513
embweza@kcn.unima.mw

Ashley Gresh, MA, MSN, CNM
PhD candidateJohns Hopkins School of Nursing
Tel: 1 603-831-3942
Ashley.gresh@jhu.edu

- if you have any questions about this study or your part in it,
- if you have questions, concerns or complaints about the research.

What are my rights as a research subject?
If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the IRB office 410-502-2092 or e-mail jhmeirb@jhmi.edu.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Future Contact
We would like your permission for our research team to contact you in the future regarding future research.

Yes _____ _____
Signature of Participant Date

No _____ _____
Signature of Participant Date

Signature of Subject

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

_____ _____
Signature Date

_____
Printed Name

_____ _____

Signature of Person Obtaining Consent Date (must be same as subject's)

_____

Printed Name of Person Obtaining Consent

KALATA WOPEREKA CHILOLEZO CHOTENGA NAWO MBALI PA KAFUKUFUKU

Protocol Title: **Adapting and Implementing Group-Based Postpartum/Well-Child Care at Clinics in Blantyre District, Malawi**

Application No.:

Principal Investigator: Nancy Glass
School of Nursing
525 North Wolfe Street
Baltimore, MD 21205
Phone: 410-614-2849
Email: nglass1@jhu.edu

Mukupemphedwa kutenga nawo mbali mukafukufuku. Ochita kafukufuku akuyenera kupereka kalata yopempha chilolezo wokufotokozerani zonse zokhudzana ndi kafukufukuyu, kukuuzani kuti kutenga nawo mbali ndi kwa kufuna kwanu, kukufotokozerani zovuta komanso phindu lomwe mungakumane nalo potenga nawo mbali, ndi kukuthandizani kuti mupange chisankho chotenga nawo mbali mukudziwa bwino lomwe zonse za kafukufukuyu. Muli omasuka kuwafunsa ochititsa kafukufuku funso lililonse lomwe mungakhale nalo.

Ndikufunsidwa chifukwa chani?
Mukufunsidwa kutenga nawo mbali mukafukufuku kuti muthandize kukonza zofunikira komanso ndondomeko ya mmene tingapitirizire chisamaliro cha mmmagulu kwa azimayi omwe abereka kumene komanso ana obadwa kumene.

Mukufunsidwa kutenga nawo mbali mu kafukufukuyu chifukwa munali nawo mgulu la chisamaliro cha mmagulu cha amayi oyembekezera ndipo tsopano muli ndi mwana

Simukukakamizidwa kutenga nawo mbali mukafukufukuyu. Chisankho chanu chotenga kapena kusatenga nawo mbali sichidzakhudza zomwe mumachita pa chipatala pano. **Ngati musankha kutenga nawo mbali, ndinu wololedwa kutulukamo nthawi ina ili yonse ndipo izi sizidzakhudza ubale wina uli wonse.**

Pafupifupi azimayi okwana mazana asanu ndi limodzi kuonjezerapo makumi anayi atenga nawo mbali mu gawo limeneli la kafukufukuyu.

Kodi cholinga cha kafukufukuyu ndi chani?

Tikupanga kafukufukuyu kuti tiunikire zopitiriza kupereka chisamaliro cha mmagulu kwa azimai omwe abereka kumene kuchokera nthawi imene mzimayi wabereka kufikira miyezi khumi ndi iwiri pogwiritsa ntchito ndondomeko ya chisamaliro cha zaumoyo cha mmagulu.

Ndi zinthu ziti zomwe zimachitika?
Tikufunsani kuti mutenge nawo mbali mu chimodzi kapena zingapo mwa zochitika za kafukufukuyu. Zochitika za kafukufukuyu ndi monga kufunsidwa mafunso (ulendo umodzi udzatenga pafupifupi mhindi makumi anayi ndi mphambu zisanu); zokambirana zofuna kufufuza zomwe munadutsamo mutabereka komanso pamene mumasamalira mwana wanu mothandizidwa ndi achipatala (zidzafananiranako ndi zokambirana za mmagulu, ulendo umodzi

umatenga pafupifupi ola limodzi); ndi kuyesezera mmene chisamaliro cha mmagulu cha amayi omwe abereka kumene komanso mwana obadwa kumene, kuonjezerapo mafunso ndi zokambirana za mmagulu kuona mmene zochitika zayendera (Maulendo awiri pafupifupi ola limodzi ndi ndi mphindi makumi atatu). Tidzakufunsani mafunso mokhudzana ndi zomwe munadutsamo mutangobereka komanso mmene mumasamalira mwana wanu atangobadwa; kukhala ndi nthawi yokambirana kuti tikoze ndondomeko ya mmene tingapititsire patsogolo umoyo wabwino komanso mmene tingagwirire ntchito ya chisamaliro cha mmagulu cha azimayi amene abereka kumene komanso ana obadwa kumene. Kafukufukuyu adzachitika mu chipinda choduka mphepo pa chipatala pano

Ndi chilolezo chanu, tidzajambula pa makina ojambulira mau zokambirana zapanokha komanso zokambirana za mmagulu kuti tisaphonye kena kalikonse ka zokambiranazo. Komabe ngati simukufuna kuti zokambirana zapanokha zijambulidwe pa makina ojambulira mau, mukhoza kutengabe nawo mbali. Koma simungatenge nawo mbali pa zokambirana za mmagulu ngati sumufuna kuti mujambulidwe.

- Ngati maina kapena malo adzatchulidwa, izi zidzachotsedwa pamene zokambirana zizidzalembedwa
- Kenako, zonse zomwe tinajambula pamene timakambirana zidzaonongedwa titatha kuonetsetsa kuti zonse zomwe tinakambirana zalembedwa bwino lomwe.

☐ Ndikuvomera kuyankha mafunso okhudzana ndi zomwe ndinadutsamo nditabereka komanso mmene ndimasamalira mwana kuti tikonze ndondomeko ya mmene tingapititsire patsogolo umoyo wabwino komanso mmene tingagwirire ntchitoya chisamaliro cha mmagulu cha azimayi amene abereka kumene komanso ana obadwa kumene.

Ma initial /Chidindo cha chala _____

Pali chiopsezo chotani?
Mmene ndikudziwira, zinthu zomwe zidzachitike mukafukufuyi sizidzapereka chiopsezo chinachilichonse pambali pa zimene mumakumana nazo tsiku ndi ndi tsiku pa moyo wanu. Pali chiopsezo chakuti anthu ena azadziwa kuti mukutenga nawo mbali mu kafukufukuyu, koma zokambirana zathu zidzachitika malo obisika kuti tichepetse chiopsezochi. Muli omasuka kusayankha funso lina lili lonse ngati simukufuna kuyankha. Komanso, ngali mukufuna kusiya kutenga nawo mbali mutalowa kale mukafukufukuyu, mukhoza kutululukamo.

Pali phindu lina lililonse potenga nawo mbali mukafukufukuyu?
Palibe phindu lina lililonse lomwe mungapeze ngati munthu panokha mukatenga nawo mbali mukafukufukuyu, koma tikhoza kuphunzirako zinthu zatsopano zomwe zingatithandize kupitititsa patsogolo chisamaliro chomwe timapereka kwa azimai omwe abereka kumene komanso ana obadwa kumene.

Kodi china chomwe chingachitike ndi chani?
Simukuyenera kulowa nawo mukafukufukuyu kuti mulandire chisamaliro cha amai amene abereka kumene kapena sikelo ya mwana

Nanga nkhani ya kusunga chinsinsi?
Chinsinsi chanu ndichofunikira kwa anthu amene akuchita kafukufukuyu. Palibe nkhani iliyonse yokhudzana ndi inu imene idzakambidwa kwa anthu ena popanda chilolezo chanu cholembedwa, pokhapokha ngati nkofunikira kutero kuti titeteze ufulu wanu komanso ubwino

wanu (mwachitsanzo, ngati mwavulala ndipo mukufunika chisamaliro mwansangasanga, kapenanso pamene a Johns Hopkins School of Medicine IRB akuyang'ana zomwe zikuchitika mukafukufukuyu, kufuna kuona ngati ochita kafukufuku akutsatira zonse zofunikira popanga kafukufuku, komanso ngati malamulo a boma atatifunsa kutero.

Nkhani zakafukufuku zomwe zili ndi dzina lanu, komanso kalata wopereka chilolezo amene mwasaina zidzayang'anidwa komanso kuperekedwa ku Kamuzu College of Nursing kuti akaziunike.

Chovuta chomwe chingapezeke mu kafukufukuyu ndi chakuti kutenga kwanu mbali mukafukufukuyu komanso nkhani yokhudzana ndi inu zikhoza kudziwika kwa anthu amene sakupanga nawo kafukufuku. Tionetsetsa kuti izi zisadzachitike pakutsatira zinthu izi:

- Kuti anthu ena asalumikize dzina lanu ndi nkhani zomwe zikunenedwa mukafukufukuyu, tidzakupatsani nambala yomwe idzagwiritsidwe ntchito mmalo mwa dzina lanu ndipo nambalayi ndi imene idzaoneke pa nkhani iliyonse yomwe mwanena.
- Tidzasunga ndandanda wa maina a omwe akutenga nawo mbali mukafukufukuyu malo osiyana ndi nkhani zonse zomwe zanenedwa mukafukufuku.
- Imodzi ya Kalata ya chilolezo chomwe mwapereka idzasungidwa mu ofesi yomwe izidzatsekedwa ndi loko, komanso mu kabati yomwe idzakiyidwe ndi loko ku Kamuzu College of Nursing.

Ngakhale timapempha kuti aliyense wa mugulu alemekeze ndi kusunga chinsinsi cha wina, komanso osatchula dzina la wina aliyense kapena kubwereza zomwe zinanenedwa nthawi ya zokambirana, kumbukirani kuti nthawi zina anthu ena amatha kuyankhula mwangozi zomwe zinanenedwa pazokambirana.

Zotsatira za kafufukufuku zikadzasindikizidwa kapena kukambidwa mmisonkhano, palibe nkhani iliyonse yomwe idzakambidwe imene idzatchula dzina lanu.

Kodi pali dipo lanji kuti munthu atenge nawo mbali mukafukufukuyu?
Palibe dipo lili lonse lomwe mudzapereke potenga nawo mbali mukafukufukuyu

Kodi ndidzabwezeredwa zinthu zomwe ndagwiritsa ntchito potenga mbali mukafukufukuyu?
Mudzalandira MK10,000 potenga nawo mbali mukafukufukuyu

Kodi ndikhoza kusiya kutenga nawo mbali kapena kuchotsedwa mukafukufukuyu?
Mukasankha kutenga nawo mbali, muli ndi ufulu kusiya nthawi ina iliyonse

Ndifunse ndani ngati ndili ndi mafunso?
Mufunse anthu amene akupanga kafukufukuyu

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- Ngati muli ndi mafunso okhudzana ndi kafukufukuyu,
- Ngati muli ndi mafunso, kapena zodandaula zokhudzana ndi kafukufukuyu

Kodi ufulu wanga ndi otani ngati munthu otenga nawo mbali mukafukufuku?
Ngati mukuona zomwe zalembedwa mu fomuyi ndi zosiyana ndi zomwe zikuchitika, kapena ngati muli ndi mafunso okhudzana ndi maufulu anu ngati otenga nawo mbali mu kafukufuku, ngati muli ndi mafunso komanso zodandaula, kapenanso mukufuna kuyankhulapo maganizo anu , mukhoza kuimba ku office ya IRB 410-502-2092 kapenanso kutumiza email ku jhmeirb@jhmi.edu.

Kumbukirani

Simukukakamizidwa kutenga nawo mbali mukafukufukuyu. Chisankho chanu chotenga kapena kusatenga nawo mbali mukafukufukuyu sikudzakhudza ubale wanu ndi School ya ukachenjede yomwe ikupangitsa kafukufukuyu. Mukasankha kutenga nawo mbali, muli omasuka kusiya nthawi ina iliyonse ndipo izi sizizaononga ubale wina uli wonse.

Kulumikizana kwa mtsogolo
Tingakonde ndi chilolezo chanu kuti gulu lathu lopangitsa kafukufuku lidzalimikzane nanu mtsogolo munongati pakakhalanso kafukufuku wina

Inde

Saini ya otennga nawo mbali Tsiku

Ayi

Saini ya otenga nawo mbali Tsiku

Saini ya otenga nawo mbali

Ndawerenga (kapena wina wake wandiwerengera) zonse zomwe zalembedwa pamwambapa. Ndapatsidwa mwai ofunsa mafunso ndipo mafunso onse ayankhidwa moti ndakhutitsidwa. Ndikumereza kutenga nawo mbali mukafukufukuyu. Ndipatsidwa kalata wosonyeza kuti ndavomereza kutenda nawo mbali amene wasainidwa komanso ali ndi tsiku.

_____ _____
Saini (Kapena chidindo cha chala) ya otenga nawo mbali Tsiku

_____
Dzina la otenga nawo mbali

_____ _____
Saini ya munthu amene akupempha chilolezo Tsiku (Likhale lofanana ndi wotenga nawo mbali

_____
Dzina la munthu amene akupempha chilolezo

KALATA WOPEREKA CHILOLEZO CHOTENGA NAWO NBALI PA KAFUKUFUKU

Protocol Title: **Adapting and Implementing Group-Based Postpartum/Well-Child Care at Clinics in Blantyre District, Malawi**

Application No.:

Principal Investigator: Nancy Glass
School of Nursing
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Email: nglass1@jhu.edu

Mukupemphedwa kutenga nawo mbali mukafukufuku. Ochita kafukufuku akuyenera kupereka kalata wopempha chilolezo chanu, kukufotokozerani zonse zokhudzana ndi kafukufukuyu, kukuuzani kuti kutenga nawo mbali ndi kwa kufuna kwanu, kukufotokozerani zovuta komanso phindu lomwe mungakumane nalo potenga nawo mbali, ndi kukuthandizani kuti mupange chisankho chotenga nawo mbali mukudziwa bwino lomwe zonse za kafukufukuyu.Muli omasuka kuwafunsa ochititsa kafukufuku funso lililonse lomwe mungakhale nalo.

Ndikufunsidwa chifukwa chani?

Mukufunsidwa kutenga nawo mbali mukafukufuku amene akuunikira zopitiriza kupereka chisamaliro cha mmagulu kuchokera pa nthawi imene mzimayi wabereka kufikira miyezi khumi ndi iwiri.

Inu mwapemphedwa kuti mutenge nawo mbali mu kafukufukuyu chifukwa mumagwira ntchito ya zaumoyo ku chimodzi cha zipatala zomwe zili mdela lomwe kafukufukuyu akuchitika m'boma la Blanyre, komanso chifukwa mumagwira ntchito yosamalira azimayi amene abereka kumene.

Simukukakamizidwa kutenga nawo mbali mukafukufukuyu. Chisankho chanu chotenga kapena kusatenga nawo mbali sichidzakhudza zomwe mumachita pa chipatala pano. **Ngati musankha kutenga nawo mbali, ndinu wololedwa kutulukamo nthawi ina ili yonse ndipo izi sizidzakhudza ubale wina uli wonse.**

Tikuyerekeza kuti ogwira ntchito ya zamoyo okwana makumi atatu ndi mphambu ziwiri (Azamba, ma voluntiya a kumudzi ndi azaumoyo) mu zipatala ziwiri za m'boma la Blantyre ndi omwe atatenge nawo mbali mu kafukufukuyu

Kodi cholinga cha kafukufukuyu ndi chani?

Tikupanga kafukufukuyu kuti tiunikire zopitiriza kupereka chisamaliro cha mmagulu kwa azimai omwe abereka kumene kuchokera nthawi imene mzimayi wabereka kufikira miyezi khumi ndi iwiri pogwiritsa ntchito ndondomeko ya chisamaliro cha zaumoyo cha mmagulu.Tikufuna kumva maganizo anu pa za kupereka chisamaliro kwa azimayi amene abereka kumene komanso ana amene abadwa kumene kuti tithe kukonza ndondomeko ya zinthu zomwe zingafunikire komanso chikonzero cha mmene tingagwirire ntchito yopereka chisamalirochi Tikufunanso kudziwa ngati ndi zotheka kupereka chisamaliro cha mmagulu kwa azimai amene abereka kumene komanso ana amene abadwa kumene pa chipatala panu, ndikuunikira zomwe zingathandizire kuti zimenezi zitheke.

Ndi zinthu ziti zomwe zimachitika?

Ngati mwavomera kutenga nawo mbali mu kafukufukuyu, mudzakhala nawo pachimodzi kapena zingapo za zochitika za mkafukufukuyu. Zina mwa zochitika za mukafukufukuyu ndi mafunso omwe mudzafunsidwe panokha (ulendo umodzi udzatenga mphindi makumi anayi ndi mphambu zisanu); zokambirana za mmagulu zofufuza zomwe mukudziwa pa za chisamaliro chomwe chimaperekedwa kwa mzimayi amene wabereka kumene komanso ana obadwa kumene (monga mmene zimakhalira zokambirana mmagulu, ulendo umodzi kwa ola limodzi); komanso kutsogolera zoyesezera ndi azimayi/ana , kuonjezerapo mafunso ndi zokambirana za mmagulu kuona mmene zochitika zayendera (Maulendo asanu ndi limodzi pafupifupi ola limodzi ndi ndi mphindi makumi atatu). Chili chonse chomwe mudzanene ndi chofunikira kwa ife. Ndi chilolezo chanu, tidzajambula pa makina ojambulira mawu zomwe tidzakambirane nthawi ya mafunso anokha,kuti tisadzaphonye kena kali konse. Komabe, ngakhale mutakana kuti tijambule zokambiranazi, mukhoza kutengabe mbali. Koma, simungatenge nawo mbali pa zokambirana za mmagulu ngati simukufuna kujambulidwa.

- Ngati maina kapena malo ena adzatchulidwa, zimenezi zidzachotsedwa pamene zinthu zomwe timakambirana zizidzalembedwa
- Kenako zomwe zinajambulidwa zija zidzaonongedwa tikamaliza kulemba komanso titatsimikizka kuti zonse zomwe tinakambirana zalembedwa bwino bwino.,

Pali zoopsa kapena zovuta zanjj?

Zinthu zomwe mudzachite potenga mbali mukafukufukuyu zilibe vuto kapena chiopsezo chilichonse kuposera zomwe mumakumana nazo nthawi zonse mukamapereka chisamaliro kwa amayi omwe abereka kumene. Chifukwa choti kafukufuku amakhudza gulu la anthu, pali chiopsezo cha kulephera kusunga chinsisi (Anthu ena atha kudzadziwa kuti mukutenga nawo mbali mu kafukufukuyu) komanso zikhoza kuchitika kuti nkhani yomwe pali dzina lanu kunenedwa poyera mwangozi. Ngati mu njira ina iliyose simukufunanso kutenga nawo mbali, mukhoza kutuluka mukafukufukuyu nthawi iliyonse.

Pali phindu lina lililonse potenga nawo mbali mukafukufukuyu?

Palibe phindu lina lililonse lomwe mungapeze ngati munthu panokha mukatenga nawo mbali mukafukufukuyu, koma tikhoza kuphunzirako zinthu zatsopano zomwe zingatithandize kupitititsa patsogolo chisamaliro chomwe timapereka kwa azimai omwe abereka kumene komanso ana obadwa kumene.

Nanga nkhani ya kusunga chinsinsi?

Chinsinsi chanu ndichofunikira kwa anthu amene akuchita kafukufukuyu. Palibe nkhani iliyonse yokhudzana ndi inu imene idzakambidwa kwa anthu ena popanda chilolezo chanu cholembedwa, pokhapokha ngati nkofunikira kutero kuti titeteze ufulu wanu komanso ubwino wanu (mwachitsanzo, ngati mwavulala ndipo mukufunika chisamaliro mwansangasanga, kapenanso pamene a Johns Hopkins School of Medicine IRB akuyang'ana zomwe zikuchitika mukafukufukuyu, kufuna kuona ngati ochita kafukufuku akutsatira zonse zofunikira popanga kafukufuku, komanso ngati malamulo a boma atatifunsa kutero.

Nkhani zakafukufuku zomwe zili ndi dzina lanu, komanso kalata wopereka chilolezo amene mwasaina zidzayang'anidwa komanso kuperekedwa ku Kamuzu College of Nursing kuti akaziunike.

Chovuta chomwe chingapezeke mu kafukufukuyu ndi chakuti kutenga kwanu mbali mukafukufukuyu komanso nkhani yokhudzana ndi inu zikhoza kudziwika kwa anthu amene sakupanga nawo kafukufuku. Tionetsetsa kuti izi zisadzachitike pakutsatira zinthu izi:

- Kuti anthu ena asalumikize dzina lanu ndi nkhani zomwe zikunenedwa mukafukufukuyu, tidzakupatsani nambala yomwe idzagwiritsidwe ntchito mmalo mwa dzina lanu ndipo nambalayi ndi imene idzaoneke pa nkhani iliyonse yomwe mwanena.
- Tidzasunga ndandanda wa maina a anthu omwe akutenga nawo mbali mukafukufukuyu malo osiyana ndi nkhani zonse zomwe zanenedwa mukafukufuku.
- Imodzi ya Kalata ya chilolezo chomwe mwapereka idzasungidwa mu ofesi yomwe izidzatsekedwa ndi loko, komanso mu kabati yomwe idzakiyidwe ndi loko ku Kamuzu College of Nursing.

Ngakhale timapempha kuti aliyense wa mugulu alemekeze ndi kusunga chinsinsi cha wina, komanso osatchula dzina la wina aliyense kapena kubwereza zomwe zinanenedwa nthawi ya zokambirana, kumbukirani kuti nthawi zina anthu ena amatha kuyankhula mwangozi zomwe zinanenedwa pazokambirana.

Zotsatira za kafufukufuku zikadzasindikizidwa kapena kukambidwa mmisonkhano, palibe nkhani iliyonse yomwe idzakambidwe imene idzatchula dzina lanu.

Kodi pali dipo lanji kuti munthu atenge nawo mbali mukafukufukuyu?
Palibe dipo lili lonse lomwe mudzapereke potenga nawo mbali mukafukufukuyu

Kodi ndidzabwezeredwa zinthu zomwe ndagwiritsa ntchito potenga mbali mukafukufukuyu?
Mudzalandira MK10,000 potenga nawo mbali mukafukufukuyu

Kodi ndikhoza kusiya kutenga nawo mbali kapena kuchotsedwa mukafukufukuyu?
Mukasankha kutenga nawo mbali, muli ndi ufulu kusiya nthawi ina iliyonse

Ndifunse ndani ngati ndili ndi ndi mafunso?
Mufunse anthu amene akupanga kafukufukuyu

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- Ngati muli ndi mafunso okhudzana ndi kafukufukuyu,
- Ngati muli ndi mafunso, kapena zodandaula zokhudzana ndi kafukufukuyu

Kodi ufulu wanga ndi otani ngati munthu otenga nawo mbali mukafukufuku?
Ngati mukuona zomwe zalembedwa mu fomuyi ndi zosiyana ndi zomwe zikuchitika, kapena ngati muli ndi mafunso okhudzana ndi maufulu anu ngati otenga nawo mbali mu kafukufuku, ngati muli ndi mafunso komanso zodandaula, kapenanso mukufuna kuyankhulapo maganizo anu , mukhoza kuimba ku office ya IRB 410-502-2092 kapenanso kutumiza email ku jhmeirb@jhmi.edu.

Kumbukirani
Simukukakamizidwa kutenga nawo mbali mukafukufukuyu. Chisankho chanu chotenga kapena kusatenga nawo mbali mukafukufukuyu sikudzakhudza ubale wanu ndi School ya ukachenjede

yomwe ikupangitsa kafukufukuyu. Mukasankha kutenga nawo mbali, muli omasuka kysiya nthawi ina iliyonse ndipo izi sizizaononga ubale wina uli wonse.

Kulumikizana kwa mtsogolo
Tingakonde ndi chilolezo chanu kuti gulu lathu lopangitsa kafukufuku lidzalimikzane nanu mtsogolo munongati pakakhalanso kafukufuku wina

Inde

Saini ya otennga nawo mbali Tsiku

Ayi

Saini ya otenga nawo mbali Tsiku

Saini ya otenga nawo mbali

Ndawerenga (kapena wina wake wandiwerengera) zonse zomwe zalembedwa pamwambapa. Ndapatsidwa mwai ofunsa mafunso ndipo mafunso onse ayankhidwa moti ndakhutitsidwa. Ndikuvomereza kutenga nawo mbali mukafukufukuyu. Ndipatsidwa kalata wosonyeza kuti ndavomereza kutenga nawo mbali amene wasainidwa komanso ali ndi tsiku.

_____ _____
Saini ya otenga nawo mbali Tsiku

_____
Dzina la otenga nawo mbali

_____ _____
Saini ya munthu amene akupempha chilolezo Tsiku (Likhale lofana ndi wotenga nawo mbali

_____
Dzina la munthu amene akupempha chilolezo

Appendix C Qualitative Data Collection Tools (Interview Guides, Incubator Session Guide, and Focus Group Guides)

Aim 1: Interview Guide for In-Depth Interviews with Women

Demographics

First, we would like to ask some general questions about you and your family.

1. What is your age?
2. How many children do you have? And how old are they?

Postpartum experience

Next, we would like to discuss your birth experiences and the first year after having each child.

1. Please describe your (most recent) birth experience
    a. Probe: were there any complications for you or your baby? If yes, please describe.
    b. Probe to discuss all of their experiences for each child
2. Please describe your experiences after the delivery of your baby.
    a. Probe: Did you feel like you needed help in caring for yourself? In caring for the baby?
    b. Probe: If yes to the above questions, whom did you turn to for help? What kind of help did you need?
    c. Probe to discuss all of their postpartum experiences for each child
3. What were your health needs during the postpartum period?
    a. Probe to discuss breastfeeding; cord care; mental health; resumption of sexual intercourse; safe sex; nutrition; hygiene; family planning; insecticide-impregnated bed nets where necessary; exercise; iron and folic acid supplementation; and psychosocial support
    b. Probe to discuss all of their postpartum experiences for each child
4. What were your expectations for health care in the first 12 months postpartum for yourself? And for your baby?
5. Did you attend any postpartum care visits at a health facility?
    a. If yes, please describe your experiences during each visit. What did your health care provider do during those visits?
    b. If no, can you describe what makes going to postpartum care visits difficult?
        i.Probe: Did you seek care elsewhere?
    c. Probe to discuss all of their postpartum experiences for each child
6. Can you describe what care you would have liked to receive during the first year postpartum that you did not receive?
7. What topics do you think are important to cover in creating content for postpartum visits?
8. What do you think new moms should know about the postpartum period?
9. Do you have any chronic health conditions?

Well-child care experience

Next, we would like to discuss your experiences with well-child care during the first year of your children's lives

1. Did you attend well-child care visits at a health facility?
    a. If yes, please describe your experiences during each visit. What did your health care provider do during those visits? Please describe these visits for each child.
    b. If no, can you describe what makes going to well-child care visits difficult?
        i. Probe: Did you seek care elsewhere?
    d. Were there other reasons that you brought your children to the health facility? If yes, please describe.
2. Can you describe what care you would have liked to receive for your child during the first year that you did not receive?
3. What topics do you think are important to cover in creating content for well-child care visits?

Introducing group postpartum/well-child care

Interviewer will describe extending the model of group healthcare in to the postpartum period to the participant with script…

1. Would you attend postpartum and well-child visits in a group model as we have just described?
    a. If yes, could you please tell us why?
    b. If no, could you please tell us why?
2. If you were designing the group postpartum/well-child care sessions, what topics would you include related to your health?
3. What do you think would be the advantages of a group model for postpartum and well-child care? Disadvantages of a group model for this time period?

Closing

1. Is there anything else you would like to talk about that we have not addressed?

Thank you for your time!

Aim 1: Interview Guide for In-Depth Interviews Midwives and Community Volunteers

Demographics

First, we would like to ask some general questions about you and your role at this health center.

1. Please describe your role at the health center.
    a. Probe: How long have you been working here? How long have you worked as a midwife or community volunteer?

Postpartum care

Next, we would like to discuss your perspectives as a health worker about the care women receive in the first 12 months postpartum.

1. Please describe the visit schedule for women after they give birth in the first 12 months postpartum.
    a. Probe: what physical assessments do you do? Mental health assessments?
    b. Probe: what health promotion topics do you discuss with them?
2. Are postpartum care visits well attended by women?
    a. If no, what challenges do you think women face to come? What would make it easier to come to visits?
3. What do you think are important health needs for a woman in the postpartum period?
4. What topics do you think are important to cover in creating content for postpartum visits?
5. What do you think new moms should know about the postpartum period?
    a. Probe to discuss breastfeeding; cord care; mental health; resumption of sexual intercourse; safe sex; nutrition; hygiene; family planning; insecticide-impregnated bed nets where necessary; exercise; iron and folic acid supplementation; and psychosocial support

Well-child care

Next, we would like to discuss your perspectives as a health worker about the care of infants in their first 12 months of life.

1. Please describe the visit schedule for infants during their first 12 months.
    a. Probe: what physical assessments do you do? developmental assessments?
    b. Probe: what health promotion topics do you discuss with families?
2. Are well-child care visits well attended by families?
    a. If no, what challenges do you think families face to come? What would make it easier to come to visits?
3. What other reasons do infants up to 12 months old come to the health facility?
4. What do you think are important health needs for children in their first year of life?
5. What topics do you think are important to cover in creating content for well-child care visits?

Introducing group postpartum/well-child care
Interviewer will describe extending the model of group healthcare in to the postpartum period to the participant with script…

1. Do you think extending group healthcare in to the first 12 months postpartum could work at this facility?
    b. If yes, could you please tell us why?
    c. If no, could you please tell us why?
2. If you were designing the group postpartum/well-child care sessions, what topics would you include related to your health?
3. What do you think would be the advantages of a group model for postpartum and well-child care? Disadvantages of a group model for this time period?

Closing

1. Is there anything else you would like to talk about that we have not addressed?

Thank you for your time!

Aim 2: Incubator Session Guide

1. **Introductions (5 min)**
    a. Go over informed consent

2. **Present results from interviews with mothers, midwives, community volunteers, and HSAs (10-15 min)** *They will be written on a flip chart and read aloud*

Together we will co-create the curriculum for group postpartum/well-child care based on your identified priorities for health education topics related to postpartum and well-child care…

As we are reviewing content topic areas ask participants if they think each one should be included in curriculum.

*What's currently happening: (*also recommended)*

- Hygiene *
    - Bathing practices for mother and baby
    - Cord care
    - Perineal care*
    - Home environment/sanitary facilities
- Exclusive breastfeeding*
- Nutrition (6 food groups)
    - Child nutrition*
    - Parent nutrition*
- Resuming sexual activity*
- Family planning*
- Intimate partner violence*
- HIV*
- Psychological issues
- Pelvic floor exercises*
- Kangaroo care for premature babies
- COVID*
- Immunizations (mother and baby)*
- Danger signs for mother and baby
- Disease prevention*
    - Malaria
    - Pneumonia
- Weight/growth monitoring*
- Child development (developmental milestones)*

Recommended topics to cover from interviews

- Parental well-being (self-care)
- STIs/sexual health

- Care after a c-section
- Give iron tablets when indicated
- Importance of attendance of well-child care
- Management of childhood illnesses
- Early care seeking behavior
- Addressing harmful cultural beliefs
- Sepsis
- Relationship issues
- High blood pressure (hypertension)

National guidelines at 1 and 6 weeks:

- Postnatal 1 week: full assessment
- Well-child: Weight; Feeding pattern; Umbilical healing and or signs of infection; General infections, e.g. oral thrush; Immunization status for both the mother and baby; Family planning

Recommended topics to cover from CenteringParenting:

- Soothing and comfort
- Safe to sleep
- Depression screening
- Managing stress
- Physical and emotional adjustments for mothers/families
- Infant attachment/massage
- Shaken baby syndrome
- Oral health
- Home safety
- Childcare
- Parenting
- Choking prevention
- Common health concerns
    - *Reported child health concerns*: eye problems; cord problems; jaundice; skin problems; diarrhea; malaria; pneumonia; difficulty with baby eating; “coughs and fevers”; poor hygiene; poor growth; malnutrition; issues breastfeeding; don’t come for vaccines; child abuse
    - *Reported maternal health concerns*: high blood pressure; excessive bleeding; complications after c-section (retained products of conception, gaping wounds, infections, postpartum hemorrhage, and puerperal sepsis); gaping perineal tears; late to care; intimate partner violence; psychological health issues; poor nutrition; at risk for STIs; difficulties breastfeeding (e.g., breast engorgement); sepsis; leg pain

Are there any topics missing? Ask to free list them.

3. Give cards to participants and ask to group prioritize – rank priority areas (10-15 min)

a. Can label each session with a proverb associated
b. *Six sessions schedule according to vaccines*: 1 week, 6 weeks, 10 weeks, 14 weeks, 6 months, 9-12 months
c. Ask to pile sort and prioritize content areas and organize in to which content area to be covered in which session

4. Open discussion on implementation (20-30 min)

a. Based on your knowledge of participating in group antenatal care, how can we make this work at your clinic?
b. Probe implementation questions:
    i. Frequency? Will it work to time it with vaccines? Could that replace monthly well-child visits? 1 week, 6 weeks, 10 weeks, 14 weeks, 6 months, 9-12 months?
    ii. Ideal session length? (Group antenatal care is 2 hrs, would that work for this too?)
    iii. Space – is there a space you could identify to run these groups?
    iv. Recruitment – continue from pregnancy? Or start at one week postpartum visit to recruit a new group with similar aged babies?
    v. Ideal size group – 6-8 dyads?
    vi. Who should facilitate? HSAs, midwives, volunteers, other?
    vii. What material resources would you need?
    viii. Do you need guidelines for physical assessments?
c. What are foreseeable problems? How do we overcome them? Elicit barriers and facilitators
d. What are motivators for women to come?

These are the recommendations from interviews can use as probes too:

- Receiving food e.g., porridge or cooking oil
- Increase staffing
- Locate space to conduct groups -
- Care coordination – include nurses and midwives at the under-five clinic
- Material resources – flip charts, posters, leaflets, t-shirts
- Guidelines for physical assessments
- Increase HIV testing
- Help identify support people in the community for mothers
- Male involvement
- Location of groups?

Reported Location and Timing from interviews to confirm in the session

- Day 3 – community
- Day 8 – community
- 1 week – maternity
- 6 week – under-five clinic (family planning at maternity)
- Subsequent visits monthly

Aim 3: Focus Group Guide Women

Topic evaluated/questions
First we will ask you to describe your general opinion/attitudes about group care: • What is your general opinion about group postpartum/well-child care? • How did you feel engaging in an integrated care session for both you and your infant? • Do you feel you learned information relevant to you and your infant's health care needs? If yes, please describe. • Was the information conveyed in a way that was easy to understand? • Did you enjoy participating in the sessions? If yes, please describe why. • How did you feel leading up to these sessions? Would you recommend other women attend these sessions with their infants? • What is your opinion of the materials that were used in each of the sessions? • What other materials or resources do you think would help you to understand the content of the sessions? • How did you feel after the sessions were over? Please describe any positive or negative feelings.
Now we want to understand what planning is needed to attend clinic visits: • What planning and resources are needed to attend a clinic visit for you and your infant? • In your opinion are these sessions something that women and infants would be willing to attend throughout the first 12 months postpartum? • If willing, do you think women and infants would be able to attend?
Now we want to explore the structure of sessions including the self and clinical assessments and interactive learning. • What do you think about the sequence (order) in which the assessments were done? • What do you think about the timing of health topics in the sessions? • What do you think about the activities that you participated in?
Now we want to assess how the group was facilitated. • What is your opinion of the role of the midwife and community volunteer? Probe: were they engaging? How did you like this style of learning?
Ideas for improvement • How do you think these sessions could be improved? • Are there any challenges to participating in this model of care? • In your opinion what are the benefits of group healthcare? Probe: what are the benefits for the postpartum/well-child care period specifically? • Do you have any recommendations?

Aim 3: Focus Group Guide Health Care Workers

Topic evaluated/questions
First we will ask you to describe your general opinion/attitudes about group care: • What is your general opinion about group postpartum/well-child care? • How did you feel engaging in an integrated care? • Was the information conveyed in a way that was easy to understand? • How did you feel leading these sessions? Would you recommend women attend these sessions with their infants? • What is your opinion of the materials that were used in each of the sessions? • What other materials or resources do you think would help with the content of the sessions? • How did you feel after the sessions were over? Please describe any positive or negative feelings.
Now we want to understand what planning is needed run group: • What planning and resources are needed to run groups with women and infants? • In your opinion are these sessions something that women and infants would be willing to attend throughout the first 12 months postpartum? • If willing, do you think women and infants would be able to attend? • In your opinion are these sessions something that can be run at clinics?
Now we want to explore the structure of sessions including the self and clinical assessments and interactive learning. • What do you think about the sequence (order) in which the assessments were done? • What do you think about the timing of health topics in the sessions? • What do you think about the activities that you facilitated?
Now we want to assess how the group was facilitated. • How did it feel to provide group care for women and infants? Probe: were people engaged? How did you like this style of learning?
Ideas for improvement • How do you think these sessions could be improved? • Are there any challenges to participating in this model of care? • In your opinion what are the benefits of group healthcare? Probe: what are the benefits for the postpartum/well-child care period specifically? • Do you have any recommendations?

Appendix D Quantitative Data Collection Tools (Surveys and Fidelity Observation Checklist)

Implementation Outcomes Surveys: AIM, IAM, FIM

This short survey is to learn your opinions about group postpartum/well-child care.

To complete the survey, read each sentence and indicate your level of agreement.

1 = Completely disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Completely agree

These 4 questions are about the ACCEPTABILITY of group postpartum/well-child care:

1) Group postpartum/well-child care meets my approval.
2) Group postpartum/well-child care is appealing to me.
3) I like group postpartum/well-child care.
4) I welcome group postpartum/well-child care.

These 4 questions are about the APPROPRIATENESS of group postpartum/well-child care:

1) Group postpartum/well-child care seems fitting.
2) Group postpartum/well-child care seems suitable.
3) Group postpartum/well-child care seems applicable.
4) Group postpartum/well-child care seems like a good match.

These 4 questions are about the FEASIBILITY of group postpartum/well-child care:

1) Group postpartum/well-child care seems implementable.
2) Group postpartum/well-child care seems possible.
3) Group postpartum/well-child care seems doable.
4) Group postpartum/well-child care seems easy to use.

Implementation Outcomes Surveys Translated to Chichewa

Mafunso awa ndi ofuna kudziwa maganizo anu okhudzana ndi **chisamaliro cha gulu cha amai omwe abereka komanso ana obadwa kumene**

To complete the survey, read each sentence and indicate your level of agreement.

1 = Sindikugwirizana nazo kwathunthu, 2= Sindikugwirizana nazo, 3= Sindikugwirizana nazo kapena kugwirizana nazo (Ndilibe mbali), 4 = Ndikugwirizana nazo, 5=Ndikugwirizana nazo kwathunthu

Mafunso anai awa akukamba za KUVOMEREZEKA kwa chisamaliro cha gulu cha a amai omwe abereka komanso ana obadwa kumene

1) Chisamaliro cha mmagulu cha amai omwe abereka ndi ana obadwa kumene ndikuchivomereza
2) Chisamaliro cha mmagulu cha amai omwe abereka ndi ana obadwa kumene chikuoneka chokoma/chabwino kwa ine
3) Chisamaliro cha mmagulu cha amai omwe abereka ndi ana obadwa kumene ndikuchikonda
4) Chisamaliro cha mmagulu cha amai omwe abereka ndi ana obadwa kumene ndikuchilandira

Mafunso anai awa akukamba za KUYENERA kwa chisamaliro cha gulu cha a amai omwe abereka komanso ana obadwa kumene

1) Chisamaliro cha gulu cha amayi omwe abereka ndi ana obadwa kumene chikuoneka kuti chigwirizana ndi zomwe amai omwe abereka komanso ana obadwa kumene amasowa
2) Chisamaliro cha gulu cha amai omwe abereka komanso ana obadwa kumene chikuoneka kuti ndi choyenera
3) Chisamaliro cha gulu cha amai omwe abereka komanso ana obadwa kumene akhanda chikuoneka kuti ndi chotheka
4) Chisamaliro cha gulu cha amai omwe abereka komanso ana obadwa kumene chitha kufanana ndi zomwe amai komanso ana akhanda akuzisowa

Mafunso anai awa akukamba za KUTHEKA kwa chisamaliro cha gulu cha a amai omwe abereka komanso ana obadwa kumene

Fidelity Observation Checklist

1. SESSION INFORMATION								
1.1	Clinic							
1.2	Date (dd/mm/yy)							
1.3	Observer							
1.4	How many total women were **originally** assigned to this group?							
1.5	What time was group scheduled to start?							
1.6	What time did the **last** woman arrive?							
1.7	What is this Group's name?							
1.8	Contact number	□ 2	□ 3	□ 4	□ 5	□ 6	□ 7	
1.9	Midwife							
1.10	HSA							
1.11	Were these the same co-facilitators originally assigned to this group?						□ **YES**	□ **NO**
	1.11a. If NO, explain (e.g., illness, maternity leave, etc.):							

2. PREPARATION			
2.1	Was the room set up before the scheduled meeting time?	□ **YES**	□ **NO**
2.2	Were both assigned facilitators present?	□ **YES**	□ **NO**

3. COMMUNITY BUILDING			
3.1	Were women were greeted by the facilitators?	□ **YES**	□ **NO**
3.2	Are women socializing with one another?	□ **YES**	□ **NO**

4. HEALTH ASSESSMENTS			
4.1	What time did health assessments begin?		
4.2	Did midwife health assessments take place within group space?	□ **YES**	□ **NO**
4.3	Was self-assessment equipment available and functioning?	□ **YES**	□ **NO**
	4.3a. If NO, explain:		

4.4	Did **all** women participate in self-measures?	□ **YES**	□ **NO**
4.5	What time did health assessments end?		
4.6	Did anyone require additional care or a referral?	□ **YES**	□ **NO**

4.6a. If YES, number of women referred or requiring additional care:

4.6b. Specific referral/problem (e.g., malaria, high BP, etc.) and if addressed during or after group:

_____

□ During □ After

_____

□ During □ After

_____

□ During □ After

_____

□ During □ After

4.6c. How much total time (minutes) did the midwife need to address the problems?	_____ Minutes

4.7. Observations noting major challenges and/or successes related to health assessments:

5.0 HEALTH PROMOTION DISCUSSION			
5.1	What time did discussion begin?		
5.2	Number of women present:		
5.3	Number of partners present:		
5.4	Number of babies present:		
5.5	Number of others (observers, trainees, etc.) present:		
5.6	Did discussion begin **after all** health assessments were completed?	□ **YES**	□ **NO**

5.6a. If NO, explain:

5.7	Was an opening activity used?	☐ **YES**	☐ **NO**
5.9	Did any of the participants arrive **after** group discussion already began?	☐ **YES**	☐ **NO**
5.10	Did anything challenging happen during this discussion?	☐ **YES**	☐ **NO**
	5.10a. If YES, describe:		
5.11	Was discussion conducted in a circle?	☐ **YES**	☐ **NO**
5.12	Were materials needed for activities present and in good repair?	☐ **YES**	☐ **NO**
5.13	Did co-facilitators sit across from (not next to) one another in the circle?	☐ **YES**	☐ **NO**
5.14	Was a closing activity used?	☐ **YES**	☐ **NO**
5.15	What time did the care circle end?		

6.0 ENVIRONMENT AND LOGISTICS			
6.1	Was the assigned care circles room available?	☐ **YES**	☐ **NO**
6.2	Was the size of the room adequate?	☐ **YES**	☐ **NO**
6.3	Was there enough privacy?	☐ **YES**	☐ **NO**
6.4	Was everyone in the group able to hear?	☐ **YES**	☐ **NO**
6.5	Was the care circle disrupted for any reason?	☐ **YES**	☐ **NO**
6.6	Did facilitators have a guide available to them for reference?	☐ **YES**	☐ **NO**

7. GROUP DYNAMICS				
About how many members engaged in the following?	**None**	**One to a few**	**About half**	**Most to All**

7.1 Asked and/or responded to questions freely	☐	☐	☐	☐
7.2 Shared ideas, feelings, and experiences	☐	☐	☐	☐
7.3 Were engaged, focused and participating	☐	☐	☐	☐
7.4 Avoided or resisted participating	☐	☐	☐	☐
7.5 Talked excessively and interrupted flow of discussion	☐	☐	☐	☐
7.6 Disrespectful or judgmental of other group members	☐	☐	☐	☐

		Not at all	Partly	Mostly
8.1	Facilitators were well-prepared	☐	☐	☐
8.2	Facilitators used the guide well (did not just read)	☐	☐	☐
8.3	Facilitators worked collaboratively	☐	☐	☐
8.4	Facilitators used acknowledge, refer and return (ARR)	☐	☐	☐
8.5	Facilitators followed the lead of the women and could flexibly adjust the session plan to better meet women's needs and interests	☐	☐	☐
8.6	Facilitators asked open-ended questions	☐	☐	☐

9. CARE CIRCLES DELIVERY	
9.1 Overall, to what extent was this group meeting more like a class/lecture or more like a discussion?	☐ Mostly like a class/lecture ☐ More a class/lecture than a discussion ☐ Half class/lecture and half discussion ☐ More a discussion than a class/lecture ☐ Mostly like a discussion

9.2	Overall, what was the level of engagement and connectedness among group members throughout this session?	☐ Very low level of engagement ☐ Low to medium level of engagement ☐ Medium level of engagement ☐ Medium to high level of engagement ☐ Very high level of engagement
9.3	Overall, how much time did facilitators speak compared to women?	☐ Facilitators spoke a lot more than the women ☐ Facilitators spoke more than the women ☐ Equal amounts of time ☐ Women spoke more than the facilitators ☐ Women spoke a lot more than facilitators
9.4 Note anything else important that positively or negatively affected this session:		

10. CONSTRUCTIVE FEEDBACK

- Before sharing your feedback, ask if they would like to hear your comments from your observations.
- Tactfully describe strengths and areas for improvements that you noted.
  - ALWAYS begin with at least one strength
  - End with a positive suggestion that would help them to improve facilitation skills

10.1 Strengths (positives)

10.2 What can be improved?

10.3 Describe interactions and responses to feedback (accepting; neutral (no response); or negative (defensive))

Appendix E Facilitator's Guide: Integrated Group Postpartum and Well-Child Care

Table of Contents

Contact 1: 1 week (individual visit and recruitment) ***2***

Contact 2: 6 weeks ***2***

Baby's health assessment: **3**

Mother's health assessment **4**

Interactive learning **5**

Opening: Joys & Challenges of a New Baby 12

Discomforts and danger signs 13

Physical and emotional adjustments after the birth of the baby 18

Breastfeeding 20

Resuming sexual activity/family planning 21

Administer 6-week vaccinations to all babies **23**

Contact 3: 10 weeks ***24***

Baby's health assessment: **24**

Mother's health assessment **25**

Interactive learning **25**

Immunizations 27

Nutrition for mom and baby 29

Sexual health – STIs/HIV PMTCT 33

IPV/relationship issues 36

Administer 10-week vaccinations to all babies **39**

Contact 4: 14 weeks ***40***

Baby's health assessment: **40**

Mother's health assessment **41**

Interactive learning **41**

Growth monitoring and developmental milestones 43

Preparing for solids 46

Mental health/postpartum depression 47

Administer 14-week vaccinations to all babies **52**

Contact 5: 6 months ***53***

Baby's health assessment: **53**

Mother's health assessment **54**

Interactive learning **54**

Infant feeding – solids and textures 56

Growth and development 58

Disease prevention and management of common childhood illnesses 61

Administer 6 month vaccinations to all babies 69
Contact 6: 9 months ***70***
Baby's health assessment: 70
Mother's health assessment 71
Interactive learning 71
Male/family involvement 73
Mother's physical health – HTN focus 75
Administer 9-month vaccinations to all babies 77
Contact 7: 12 months ***78***
Baby's health assessment: 78
Mother's health assessment 79
Interactive learning: 79
Growth and development- review of milestones, happy birthday! 82
Health maintenance for mother – breast exam, cervical and ovarian cancer awareness 84
Nutrition review 87
Administer 12-month vaccinations to all babies 89

Contact 1: 1 week (individual visit and recruitment)

Contact 2: 6 weeks

<table>
<tr><th colspan="2">Contact 2: Introduction to Group Postnatal/Well-Child
6 weeks</th></tr>
<tr><td colspan="2">Plan</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Topics
Group Orientation
Discomforts & Danger Signs
Breastfeeding
Family planning</td><td>Check-in & Socializing
Healthcare
• Self-Care
• Clinical Assessment
Circle Time
• Opening
• Activities & Discussion
• Closing
Co-facilitator Evaluation</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Materials</td><td>• Sharing basket, paper, and pens
• Opening: Bag, ball
• Activity 1: Flip chart, Calendar, baby’s health passport book
• Activity 2: Laminated papers with danger signs and common discomforts for mother and infant. Doll to act out activity
• Activity 3: Pictures of 2 moms
• Activity 4: None
• Activity 5: None</td></tr>
</table>

Baby’s health assessment:

- Growth measurements – measure and plot (adjust for gestational age, as indicated)
  - Weight
  - Length
  - Head circumference
- Plot
  - Weight-for-length
- Physical examination
  - Vital signs i.e. temperature, heart rate, respiratory rate, and general appearance
  - Head – assess for skull deformities, assess fontanelles

    - Eyes – examine for red reflexes; ensure eyes are of equivalent color, intensity, and clarity; observe for opacities or clouding of cornea (include checking of eye discharge)
    - Heart – auscultate for heart murmurs; palpate femoral pulses
    - Abdomen – search for abdominal masses; note healing of umbilicus, testicular position in males
    - Musculoskeletal – perform Ortolani and Barlow maneuvers
    - Neurologic – assess tone and neurodevelopmental status, including attentiveness to visual and auditory stimuli and symmetry of movements
    - Gastrointestinal/urinary – assess if baby able to pass urine and stool
- Surveillance of development
    - Gross motor – moves both arms and both legs together; holds chin up when on stomach
    - Fine motor – opens fingers slightly when at rest
    - Social language and self-help – looks at parent; follows parent with eyes; has self comforting behaviors such as bringing hands to mouth; starts to become fussy when bored; calms when picked up or spoken to, looks briefly at objects
    - Verbal language – makes brief short vowel sounds, alerts to unexpected sound, quiets or turns to parent's voice; shows signs of sensitivity to environment; has different types of cries for hunger, tiredness
- Observation of parent-infant interaction
    - Do parents respond to baby and engage while feeding? How does parent respond to infant cues? Do any parent behaviors or expressions indicate stress?
- Newborn Reflexes (from birth to 4-6 months)
    - Moro: Extend head>extension of arms, flexion of arms and legs
    - Grasp: Finger in palm>hand, elbow, shoulder flexion
    - Rooting: Cheek stimulus>turns mouth to that side
    - Stepping: Hold baby upright in both arms, allow feet to touch surface>baby's feet lift up after touching down
    - Tonic Neck: Fencing posture when supine (one arm bent, one arm straight)

Mother's health assessment

- Blood pressure
- Weight
- Pain assessment
- Physical assessment: (obtain consent and perform the exam)
    - Breast exam – lactation, nipple integrity, masses, axilla, progression from colostrum to milk
    - Auscultate – heart, lungs
    - Abdominal – uterine height (presence or absence); diastasis recti; muscle tone; c/s or tubal ligation incision, bowel function, constipation, incontinence, urinary pain or incontinence, urgency
    - Pelvis – lochia amount, color, and odor; perineal pain, swelling or redness, hemorrhoids, vulvar varicosities
    - Bimanual exam: uterine involution, vaginal muscle tone, presence of cystocele or rectocele (ONLY if clinically indicated)
    - Extremities: edema, varicosities, phlebitis, reflexes
    - Lochia amount, color, odor
- Vaccination assessment of the mother
- Postpartum depression screening

- Screening to consider:
  - STI/HIV
  - Pap smear as needed
  - Anemia – H&H, CBC (HB)
  - If gestational diabetes – fasting blood sugar
- Assess family planning – do they plan to initiate birth control this visit?
- Vitamin and mineral supplementation as needed: Iron, calcium, multivitamin

Interactive learning

Circle Time	
Directions 	1. Call the group to the circle by singing the group song, ringing a bell or blowing a whistle. 2. Make sure you and your co-facilitator are not sitting next to one another 3. Everyone in the room should be in the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle

Facilitator 1	Welcome to our group. We are happy that you are here today. Having a new baby is an adventure. We want the best outcomes for you and your baby. My name is [NAME] and I am here with my colleague.
Facilitator 2	Congratulations and welcome! My name is [NAME]. It is nice to see all your new babies! Let us take a minute to just relax. We call this, Kukhazikitsa Mtima Pansi.

Making Yourself at Ease in Your Heart [Center Yourself]	
Facilitator 1	Before we start, let's relax. Deep breathing and breathing slowly helps us relax. We will slow down and think less. Let's relax ourselves physically and emotionally by practicing how to breathe deeply and slowly.

Facilitator 2	Close your eyes and relax. Try not to think: **1.** Take a deep breath in and hold it for a bit **2.** As you let your breath out, let go of your thoughts and worries **3.** Let your body feel comfortable **4.** Take another deep breath in and hold it for a bit **5.** As you breathe out, don't think about the future. Just feel calm. **6.** Let's take our last deep breath together. Breathe in deeply. Hold it inside for a few seconds. **7.** Now slowly breathe out and slowly open your eyes **8.** Notice how you feel.
Facilitator 1 	**For those of you that are new to group we hope this breathing technique will help you feel less anxious and more relaxed. Parenting is stressful and this is something you can do at home and even teach your older children and family members.**
Facilitator 2	Before we continue, and this question is for you or your baby, I would like to know if there is anyone in the group who is experiencing any symptoms that they are worried about or has received medical care since our last time together.
Facilitator 1	We hope that coming to this group for your postnatal and well-child care will increase the support that you get. We want you to feel confident about your health and that of your baby. Let's get to know one another.

Opening: Dyad Introduction	
Directions 	The goal is to learn names: 1. Have women partner up with someone across the circle 2. Give them 2-3 minutes to get to know one another 3. Then get everyone's attention 4. One co-facilitator will model the introduction by going first 5. Try to make it enjoyable and not formal

Facilitator 2	Now, let's get to know one another. Take 2-3 minutes to get to know the person sitting across the circle from you. Then, your job will be to introduce your new friend and their baby to the group. Be ready to tell us her name, her baby's name and something from the other person (e.g. what she likes doing)
Facilitator 1	For example: This is my new friend [Co-facilitator NAME] and she has 3 children and when she is not working or caring for her family she likes to dance. [ask co-facilitator to introduce you.] **Who would like to go next?**
Facilitator 2	Thank you for the introductions. It will be nice for us to get to know one another over the course of the next year and your child's first year of life. We will meet as a group a total of 6 times with the last visit being around the time of your child's first birthday.
Facilitator 2	Let's start by talking about what group postnatal/well-child care is like. This will be different from what you are used to.
Activity 1: Orientation to Group Postpartum/Well-Child Care	
Objective	• To explain appointments and scheduling • To explain how group care is different than traditional postnatal and well-child care • To outline group postpartum/well-child care guidelines

Facilitator 1	Group care is different because: **1.** All of your visits are scheduled. We know the dates and times of all of your postnatal/well-child visits. **2.** You will receive both postnatal and well-child care here and all of the vaccinations for the baby. **3.** Our group will start and end at specific times; these are appointments. You all came to a first contact before. Today is your second postnatal/well-child contact. I'll walk you through our remaining contacts:
	Visit — **Date & Time** Contact 1: Completed Contact 2: Today Contact 3: Contact 4: Contact 5: Contact 6: Contact 7:
Facilitator 2	In group care, we follow some guidelines about how to behave. You are encouraged to: **1.** ask questions and get answers **2.** share your worries, fears, or concerns **3.** share your joys, advice, and experiences **4.** learn more about yourself **5.** make new friends
Facilitator 1	Let's start by making our own ground rules for our group.
Facilitator 2	**Can you all think of some ground rules? I will write them down as you call them out.**
Facilitator 1	We encourage you to share experiences. When we share, we learn. But privacy is important. We want everyone to be comfortable sharing.

Facilitator 2	If the group has not mentioned these already you can go through the following ground rules -- What you learn about a person should not be shared with people outside of our group. So, our first guideline is 1. Respect one another's privacy
Facilitator 1 	You are welcome to share useful information with people outside of group. **Does everyone understand?** [Resolve all concerns]
Facilitator 2	Here are a few more: **2.** Respect our time. We have scheduled appointments that will start and end on time. So, we need you to arrive on time. If you arrive late, you will miss something important. Being late will also disrupt our group.
Facilitator 1	3. Please silence your phones. When a phone rings, we are interrupted.
Facilitator 2	4. We want to have respectful discussions. Please let your friends finish speaking. We should not interrupt one another.
Facilitator 1	5. We encourage you to leave your other children at home. We want this time to be devoted to you.
Facilitator 2 	**Is there anything we have forgotten? Are there guidelines you would like to add? What else?** • For example, open our groups with a prayer
Facilitator 1	We hope that you can come to every visit. **What can we do to encourage one another to attend postnatal/well-child care?** • Setup a phone tree • Meet and travel together

Facilitator 2	Next, our group needs a name. **What should our group name be?** [ask for a leader to write down suggestions and lead coming to a consensus]
Facilitator 1 	I want to introduce you to our sharing basket. **[hold up basket].** This basket will always be here. If you think of a question and do not want to ask this question during group, you can write your questions down and add them to our sharing basket. We will review these questions at the end of each meeting. [Take the basket over to where it will be and show the paper/pens]
Facilitator 2	We will keep our basket there. Your questions will benefit the entire group. **Does everyone understand? Will this work for us?**
Facilitator 1 	**For those of you that are new to taking your blood pressure are there any questions?**
Facilitator 2	**How did you feel about doing this?**
Facilitator 1	**Why do we track your weight and the baby's weight? Why is this important to know?**
Facilitator 2 	**Why do we measure your BP? Why is this important to continue to monitor postpartum?** [Blood pressure is a measure of the force that your heart uses to pump blood around your body. Blood pressure screening can be an indicator of your heart health. This is particularly important to monitor in the postpartum period.]

Facilitator 1	We will have you take these measures every time. You will show them to the midwife or HSA when you meet with them. We hope you enjoy doing this part of your healthcare. We call it self-care. [**Review postpartum health passport**]
Facilitator 2	When you record your weight and blood pressure, and your baby's weight and growth measurements each visit, you are collecting important information so you can know that your body is recovering postpartum and you can monitor your baby's growth and development. If from visit to visit, your baby's weight doesn't change or changes too much, or if your blood pressure is high, you will have discovered important warning signs that can help you prevent a more serious problem.
Facilitator 1	For example, recording your baby's weight each visit helps you to know when your baby is growing well.
Facilitator 1	Recording your blood pressure each visit can help to identify chronic hypertension. High blood pressure (>140/90) is a serious problem that can lead to heart disease. That is why we take your blood pressure each visit. **Questions?**

Opening: Joys & Challenges of a New Baby

Opening: Joys & Challenges of a New Baby	
Directions 	1. Open by saying that having a new baby is both joyful and challenging; we'll focus on the joys first. Then discuss some of the challenges. 2. Tell women what the statement will be; then provide an example of a joyful feeling and ask your co-facilitator the question 3. Repeat until everyone has had a turn to identify a joy of a new baby

Facilitator 1	You are adjusting physically and emotionally. For example, your body is still healing. Your abdomen may feel different. You are getting less sleep. And you may have a lot of work to do.
Facilitator 2	Let's focus how we are feeling about being a mother with a new baby. Here is our statement for today: ***As a new mother, I feel [_____]. [Name], how about you?***
Facilitator 2	Let me begin: ***As a new mother, I feel [tired]. [Co-facilitator's name], how about you?***
Facilitator 1	**Are we ready to start? *[Woman's name], how are feeling about being a new mother?***
Facilitator 2	Thank you for sharing how you feel. Some of our emotions are joyful and others are about the challenges. **Are there any other emotions or experiences that we should talk about?**
Facilitator 1	What about if you are not doing well? If you ever feel like you are not doing well, **what can you do? What advice do we have for one another?**
Facilitator 2	Thank you. That advice is excellent. Recovering from childbirth and adjusting to having a new baby in the family is exciting and challenging.
Facilitator 1	Let's talk about more about your health. Remember your physical and mental health affect your baby, relationships and other children if you have them.

Discomforts and danger signs

Activity 1: Normal Discomfort or Danger Sign?		
Objective	To facilitate a discussion about postpartum and well-child experiences so that women can identify when a discomfort or symptom is dangerous and requires them to go the health facility.	
Directions 	1. Assign women a discomfort to act out 2. Ask each woman to "act out" their discomfort while others guess what the discomfort or symptom is, use doll as baby to act out baby discomforts 3. Discuss differentiating discomforts from major concerns and dangers signs 4. Identify what women should do if they experience these	
Facilitator 1	Even though this first year after the baby is born is usually a normal and healthy time, women and babies often have discomforts. It's important to know if it's just a normal part of postpartum recovery as well as growth and development of the baby or if you need to act.	
Facilitator 2	Because all of you recently gave birth, there are some symptoms you might have felt such as extreme tiredness, perineal pain, abdominal pains, and engorged breasts.	
Facilitator 1	But we need to know which symptoms are serious or unexpected, meaning that they are not occurring when you expect them to (for example, fevers, trouble breathing for you or the baby).	
Facilitator 2	To learn to tell the difference, we will play a game. Some of you will be assigned a discomfort to act out. The other women will guess what you are experiencing. Then we will talk about what you should do if you experience any of these serious or worrying signs.	
	MINOR DISORDER OR DISCOMFORT	**DANGER SIGNS& SEEK HELP RIGHT AWAY**
Mother		

Breast pain	Breasts feeling full and heavy, engorged	Localized tender/painful breasts which worsens when nursing; hot, reddened, tender area of breast, swelling or induration of breast, nipple pain sometimes with fever, headache and fatigue (signs of mastitis – need treatment)
Mood Changes	Hormonal changes [symptoms such as mood changes, sadness, feeling like “I’m not myself”, goes away within a few weeks]	Depression, anxiety or not able to function that lasts longer than 2 weeks or starts to feel more intense. Thoughts of suicide.
Perineal pain	If you’ve experienced a perineal injury (due to an episiotomy or tear), you may still be experiencing perineal discomfort or pain which should resolve in the first 4-6 weeks. [Opportunity to discuss **pelvic floor exercises** here, important to strengthen the pelvic floor for continence and other pelvic floor disorders, also **perineal care**, how to bath, etc.]	You have new or more pain or swelling in your vaginal or anal area. Redness or discharge from an episiotomy or tear, vaginal discharge that smells bad
Afterpains (abdominal cramping)	In the first few days after birth as your uterus shrinks back to pre-pregnancy size you might feel pain and cramping.	Cramping that does not go away and lasts for prolonged periods of time.
Baby [can use doll to act out or actual baby]		
Diaper rash	Red, tender looking skin around diaper region	Has blisters or pus-filled sores or that does not go away within 2-3 days, accompanied by fever
Umbilical healing	Cord should fall off between 5-15 days old [opportunity to discuss bathing practices for baby]	Signs of infection cloudy discharge or even some dried pus on the surface; Bleeding occurs from cord's point of separation; separation of cord is delayed past three weeks; fever

My baby cries all the time	Important to respond to cries and learn to differentiate what cries mean (they are a form of communication!) – important to respond to baby's needs, establish trust, and build secure attachment. Opportunity to talk about soothing techniques. Possible reasons for crying: hungry, tired, fed too much, caffeine through breastmilk (should limit intake); too hot or too cold; dirty diaper; pain; colic (onset usually before 2 weeks can be up to 12 weeks, crying >3 hrs per day)	Not moving or very weak; excessive sleepiness; difficulty to arouse; prolonged crying that cannot be comforted
Skin rash	Many bumps and blotches on a newborn baby are harmless and clear up by themselves. For example, cradle cap is a common condition that causes greasy, scaling, crusty patches on the scalp that appear in a baby's first 3 months. It most often goes away by itself, but some cases may require treatment with medicine. Or heat rash can be common too, these are usually small red bumps and will resolve on its own.	If the rash is persistent and does not resolve on its own. Honey crusted lesions all over the body, The rash is accompanied by a fever, shortness of breath or other danger signs.
Facilitator 1	We just acted out 6 symptoms. But there are others that we should discuss too. The danger signs that require you to seek medical help are: fever; vaginal bleeding; difficulty breathing. There are others that are very serious. **Do you know what these other danger signs are that will require you to go the health facility right away?**	
DANGER SIGN: GO TO THE HEALTH FACILITY		

Fever	Fever in baby less than 12 weeks old, seek help right away, needs to be evaluated. Fever in yourself could signal an infection. Demonstrate traditional methods for detecting a fever, how to touch the forehead of the child to note if s/he has a fever if people do not have access to thermometers. Can demonstrate with a woman and her baby or a doll. Discuss fevers and normal temperatures.	
Trouble breathing/baby's extremities turning bluish color	Sign of respiratory distress e.g. fast breathing, in drawing chest muscles, nasal flaring and grunting	
Dehydration	Baby refusing to breastfeed, diarrhea	
Cord infection	The cord not drying, redness around the umbilical area and bloody or pus discharge	
Severe chest pain	Can discuss how we might know how baby is in pain	
Facilitator 1	Let's summarize the dangers signs. These are never normal and require that you get immediate medical attention.	
Facilitator 1	Postpartum women and babies also experience discomforts that we would call minor. For example, we mentioned diaper rash earlier. **Can you name some other minor discomforts and what we do about these?**	
	NORMAL	**SEEK HELP URGENTLY**
Mother		

Vaginal discharge	Can be normal in the first 4-6 weeks lochia changes from red to pink to cream white, should resolve by six weeks. If you are not breastfeeding your period might return after 6-8 weeks, if breastfeeding it might not return for months.	If you are soaking a pad each hour for more than two hours this could indicate a delayed postpartum hemorrhage
Constipation	Normally bowel movements resume normally the first few days after birth, but can occur in the first few months (opportunity to discuss nutrition, increase fluids, fiber in diet)	Severe abdominal cramping, no bowel movement
Hemorrhoids	Pressure on blood vessels often from birth and/or constipation	If pain does not go away after a few days
Tiredness	You have a new baby and may have difficulty sleeping and establishing sleep patterns	Abnormal if related to anemia or depression (wanting to sleep all the time and unable to care for the baby)
Mood changes	Normal due to hormonal changes	Depression, anxiety, stress and failure to function.
	Baby	
Voiding/Stool	Expect 6-8 wet cloth diapers per day; at around 6 weeks many babies begin to have fewer bowel movements, as long as baby is eating normally, stools are soft and passed without difficulty, they are not spitting up too much and behaves normally no need to worry.	Stools that are especially loose or watery or with blood in them. Baby is not wetting diapers regularly.
Frequent sleeping	Infants at this age can sleep up to 15-16 hours in a 24 hour period	Does not wake to feed, difficult to arouse

If you look at your postpartum health passport you will see a list of guidance when to go to the clinic or see immediate care. These are not the only reasons, but some important ones to know.

Physical and emotional adjustments after the birth of the baby

Activity 2: Happy Mom, Happy Baby	
Objective	• To discuss emotional and physical adjustments in general • To gauge women's emotional well-being and discuss seeking help for postpartum depression. • To discuss the baby's health • To discuss communicating with your partner planning your family size and spacing your birth
Directions 	1. Post the picture of the two moms (or pass it around) 2. Ask the woman to focus on the mothers and use the differences in the pictures to guide a discussion 3. Facilitate a discussion about the mothers' health in the postpartum 4. Then focus on the babies and facilitate a discussion comparing their health and wellbeing 5. Be sure that you don't repeat everything that happened during the opening activity.
Facilitator 1	Having a new baby is both joyful and challenging. You are adjusting physically and emotionally. For example, your body is still healing. Your abdomen may feel different. You are getting less sleep. And you may have a lot of work to do. Let's think about your body and your feelings. Mothers often ask, "When will my life feel normal again?" Others ask, "What can I do when I feel overwhelmed?" Let's use this picture to talk about a mother's physical and emotional health.
Mothers: Physical & Emotional Health	
Facilitator 2	Let's start with physical health. **How are these mothers physically different? And what do you think can cause this?** [opportunity to discuss: physical pain associated with giving birth, after pains, perineal pain, general body weakness and pain, numbness in legs, breastfeeding problems, anemia, and/or healthy eating and food insecurity]

Facilitator 1	**Are these mothers emotionally different? What do you think can cause this?** [opportunity to discuss: differences between normal emotional adjustments and depression. If feeling depressed, emphasize that women need to seek help or encourage their friends to seek help if they notice this in others]
Baby's Health	
Facilitator 2	Let's focus on their babies now. Mothers will sometimes say to me, "I am worried about my baby's health and well-being." **When you look at the babies, what do you think might be going on?** [opportunity to discuss weight gain, the baby's disposition, illnesses]
Facilitator 1	**How are these babies physically different? What do you think is the cause of this?** [opportunity to discuss breastfeeding, healthy eating, food insecurity and birth spacing]
Facilitator 2	**How do you think these mothers feel about their babies?** [opportunity to discuss emotional adjustments, partner violence, and depression. If feeling depressed or in a bad situation, emphasize what is available for them so that they can seek help] Now let's think about breastfeeding. **How might breastfeeding relate to the pictures?**
Facilitator 1	Now let's think about breastfeeding. **How might breastfeeding relate to the pictures?** [opportunity to discuss breastfeeding, healthy eating, challenges with breast health?]

Activity 2: Breastfeeding	
Objective	• To discuss breastfeeding • To determine if anyone is experiencing any difficulties with breastfeeding • To share strategies for successful breastfeeding
Directions 	**1.** Lead discussion about breastfeeding **2.** While women are discussing assess if anyone needs extra assistance or support with breastfeeding **3.** Assist women to brainstorm strategies to assist in any breastfeeding issues
Facilitator 1	You are all here today with your babies. Most of you are breastfeeding your baby. **How is breastfeeding going for everyone?** [opportunity to discuss general breastfeeding practices
Facilitator 2	**Have you experienced any difficulties with breastfeeding?** [opportunity to discuss: proper latch, different holds, nipple pain, cracked nipples, and mastitis]
Facilitator 1	**What are some solutions to these common problems?** [opportunity to model proper latch and various holds using their babies]
Facilitator 2	Next, let's talk about why we encourage you to exclusively breastfeed your baby. **First, what does exclusive breastfeeding mean?**
Facilitator 1	**What does exclusive breastfeeding do for your baby's health?** **Note**: Even if you have given your baby other foods, you can return to exclusive breastfeeding. More breastmilk is better. It may take a while for your body to produce more milk, but it will if you are patient (supply and demand)
Facilitator 2	**Can HIV be passed from the mother to the baby? Are there ways to protect the baby?** [breastfeeding]

Facilitator 1	**If the mother is HIV+, how is the baby protected and when will the baby need to get an HIV test?** [nevirapine syrup given daily for 6 weeks; testing: 6 weeks and 6 months after birth]
Facilitator 2	**Do you have any other questions or concerns?**

Resuming sexual activity/family planning

Activity 3 : Role Play: Partner Communication	
Objective	• To review birth spacing and family planning • To review the different family planning options and identify which ones will prevent HIV and other STIs • To practice communicating with partners
Directions 	1. Use picture to setup differences in these families 2. Review the family planning options available to women 3. Role play to practice a discussion about birth spacing/family planning
Facilitator 1	Now that you have given birth **when do you think is the right time to resume sexual intercourse?**
Facilitator 2	Now that your baby is here, it is important for your health and the baby's health that you do not get pregnant again before you are ready. **How are you feeling about family planning?**
Facilitator 1	**Can you remind me what your family planning options are?**
Facilitator 2	**When is a good time to start family planning?**
Facilitator 1	**Has anyone talked to their partner? How did it go?**
Facilitator 2	**If you have not talked to your partner, what is holding you back?**
Facilitator 1	**Is there anything else we should discuss about our partners today?**

Sharing Basket

Directions 	Give an opportunity for people to ask questions or put in the sharing basket. Read each question in the basket aloud to the group • Group similar questions into a pile • Ask women to help answer these important questions • Correct misinformation
Facilitator 2 	**Can I get a volunteer to get our sharing basket?** Remember, this basket will always be here. Let's see what questions we have in there today.

Closing

Directions 	Give a summary • Knowing when a symptom is dangerous for both mother and baby • Physical and emotional adjustments after birth • Breastfeeding • Resuming sexual activity/family planning
Facilitator 1	**Will someone volunteer lead us in a song that summaries our discussions today?**
Facilitator 2 	Are we ready? Let's circle up. Before we sing our song, let me remind you that our next meeting is on **DATE**. Please remind one another to come. Please exchange information so you can help each other remember to attend. After we sing together, we will administer vaccines to each baby. Let's sing.
Facilitator 1	Thank you for being a part of our group. We'll see you on **[DATE]**. **Visit** — **Date & Time** Visit 1: Completed Visit 2: Completed Visit 3:

Co-Facilitator Evaluation

Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Review Contact #3 and share responsibilities 4. Return materials to safe storage
Thank you. Contact 2 is complete	

Administer 6-week vaccinations to all infants

Contact 3: 10 weeks

Contact 3: Group Postnatal/Well-Child 10 weeks	
Plan	
Topics Immunizations Healthy Eating Sexual Health and Relationships/IPV	**Check-in & Socializing** **Healthcare** • Self-Care • Clinical Assessment **Circle Time** • Opening • Activities & Discussion • Closing **Co-facilitator Evaluation**
Materials	• Sharing basket, paper, and pens • Opening: Bag, ball • Activity 1: Calendar, baby's health passport book • Activity 2: Poster of food groups • Activity 3: HIV test kit, calendar, ART 13A bottle • Activity 4: None

Baby's health assessment:

- Measure and plot:
  - Weight
  - Length
  - Head circumference
  - Weight for length
- Physical examination
  - Vital signs
  - Skin – inspect for rashes or bruising
  - Head – palpate fontanelles
  - Eyes – inspect eyes and eyelids; assess ocular mobility; examine pupils for opacification and red reflexes, assess for any eye discharge
  - Heart – auscultate for murmurs; palpate femoral pulses
  - Musculoskeletal – perform Ortolani and Barlow maneuvers, inspect for torticollis
  - Neurologic – evaluate tone, strength, and symmetry of movements
- Surveillance of development:
  - Social language – smiles responsively, makes sounds that show happiness/upset

- Verbal language – makes short cooing sounds
- Gross motor – lifts head and chest when on stomach; keeps head steady when held in a sitting position
- Fine motor – opens and shuts hands; briefly brings hands together

Mother's health assessment

- Blood pressure
- Weight
- Review of physical and mental health
- Postpartum depression screening

Interactive learning

Circle Time	
Directions 	1. Call the group to the circle by singing the group song, ringing a bell or blowing a whistle. 2. Make sure you and your co-facilitator are not sitting next to one another sit 3. Everyone in the room should be in the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle
Welcome	
Facilitator 1	Welcome to [**GROUP NAME**]. This is our second time together. We are very happy that you are here today.
Facilitator 2	We always start our group discussion by singing our song. Then we will relax. Before we proceed with our introductions is there anyone who is experiencing any of the danger signs or who has to go to the clinic for care since our last meeting?
Making Yourself at Ease in Your Heart [Center Yourself]	

Facilitator 1	Let's take a minute to relax. Breathing slowly helps us to slow down and think less. Let's relax ourselves by breathing slowly.
Facilitator 2	Close your eyes and relax. Try not to think: **1.** Take a deep breath in and hold it for a bit **2.** As you let your breath out, let go of your thoughts and worries **3.** Let your body feel comfortable **4.** Take another deep breath in and hold it for a bit **5.** As you breathe out, don't think about the future. Just feel calm. **6.** Let's take our last deep breath together. Breathe in deeply. Hold it inside for a few seconds. **7.** Now slowly breathe out and slowly open your eyes **8.** Notice how you feel.
Facilitator 1	**How do you feel?** [***wait for women to describe their feelings - relaxed, less anxious, less stressed***] Thank you for sharing. You can use this breathing exercise any time you are feeling stressed. This exercise will help you feel more at ease.

Opening	
Directions 	1. The first person will say their own name and their baby's and then say the name of another woman and their baby. 2. She will then point or call out the next person. 3. The next woman will say her own name and her baby's and then say the name of the next woman and her baby. 4. Do this until everyone has been named 5. Repeat 1 to 2 more times trying to be faster
Facilitator 2	Our group, [**GROUP NAME]**, has only met once before. It is not easy to remember our names. Let's do something fun to learn everyone's name.
Facilitator 1	Here is what we will do. I will call on a person to say their own name and their baby's. Then they will pick someone else and say their name and their baby's and then it will be their turn.

Facilitator 2	We'll do this a couple of times so that we name everyone and begin to remember names. Like this: "My name is [**NAME**], I am tossing this to [**Co-facilitator's NAME**]
Facilitator 1	Are we ready to start? My name is [**NAME**], I am tossing this to [**NAME**]. [continue doing this until you have named everyone 2-3 times]
Facilitator 2	Thank you. That was fun. Soon, we will know each other's names. We have 3 more group sessions after this one. We'll get to know one another well.
Facilitator 1	Before we begin today's discussion, let's review our group guidelines. **Do you remember our guidelines? Is your cell phone on silent?**
Facilitator 2	Thank you for that review of our guidelines. **Are you ready to learn from one another today?** Let's begin.

Immunizations

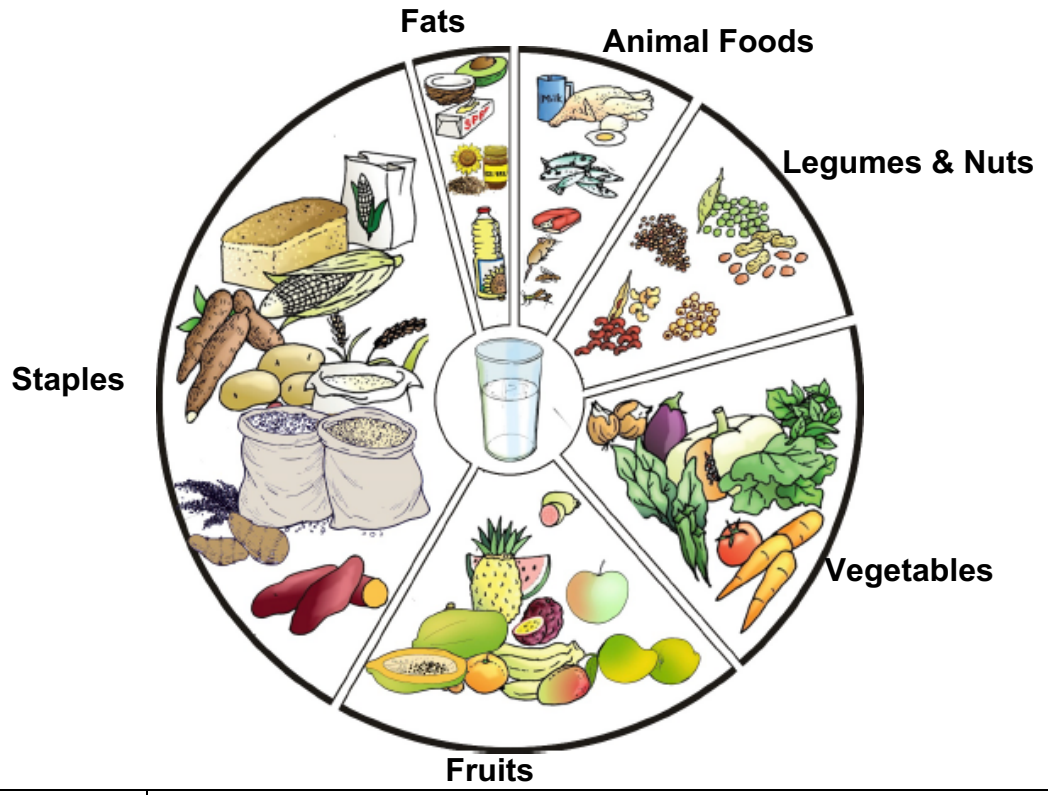
Activity 1: Immunizations	
Objective	• Use a demonstration role play to teach about immunizations • To practice communicating health messages to others
Directions 	1. Co-facilitators will teach about immunizations through a role play (see scenario below) 2. Discuss child immunizations 3. After discussing the demonstration, you will give women a chance to ask questions using the broad statements
Co-facilitator Demonstration	

Two neighbors are talking; Dalitso just gave birth and was told to return to the clinic at 6 weeks to get her child vaccinated. She has heard from others that the vaccines will make her baby sick and that they give so many all at once and now with COVID-19 they are trying to give everyone more vaccines. Her neighbor, Nzeru acts as a teacher. Nzeru answers her questions and helps her understand why the vaccines are important and now with COVID they are even more important for all of us to be vaccinated. She also explains how vaccines work to activate the baby's immune system. Nzeru discusses possible side effects and that they normally go away within a few days. They discuss how to soothe the baby after they receive the vaccines. Nzeru will try to convince Dalitso that getting her child vaccinated is the right thing to do for her baby's health and her community's health. The discussion ends with Nzeru asking Dalitso if she knows the vaccine schedule and has ways to get to the clinic.	
Facilitator 2 	**What did we learn from this role play?** • Why vaccines are so important, that the childhood vaccine schedule is designed to provide protection at the earliest possible time against serious diseases that may affect infants early in life. • There is no evidence that suggests that receiving several vaccines at one time will damage or overwhelm a healthy child's immune system and children must complete the multi dose regimen for best protection. • Vaccines use very small amounts of antigens to help your child's immune system recognize and learn to fight serious diseases. Antigens are parts of germs that cause the body's immune system to go to work without infecting the baby. • Vaccines, like any medication, may cause some side effects**.** Most of these side effects are very minor, like soreness where the shot was given, fussiness, or a low-grade fever. These side effects typically only last a couple of days and are treatable. For example, you can apply a cool, wet washcloth on the sore area to ease discomfort. Serious reactions are very rare. However, if your child experiences any reactions that concern you go to the clinic. • How to soothe the baby after vaccines are given.

Facilitator 2	Now let's go around the circle and complete the sentence **"When I think about giving my baby vaccines I wonder about…"** [opportunity to discuss any lingering questions about vaccines] or if no questions can fill in the sentence **"Vaccines can help my child in the following ways…"**
Facilitator 1	We talked about the importance of getting all of the recommended childhood vaccinations. Vaccinations are an important way to protect your baby from diseases and protect our community from diseases. Without vaccines we are at risk of serious illness and disability from diseases like measles, meningitis, pneumonia, tetanus, and polio. **You can refer to your health passport to see which vaccinations your baby will receive when you come to each visit.**

Nutrition for mom and baby

Activity 3: Healthy Eating	
Objective	• Discuss the importance of a diverse diet. • To identify ways to increase dietary diversity given the constraints of women's everyday lives. • To identify why staying hydrated is important
Directions 	1. Use the poster to identify the various food groups. 2. Ask women to explain why we encourage them to diversify the foods that they eat. 3. Discuss ways to increase dietary diversity and identify the local foods in each food. 4. Repeat this so that you cover all the food groups. 5. Option for one facilitator to prepare food for the day to demonstrate a meal that contains the 6 food groups
Facilitator1 	**What do you think when you hear the word nutrients or nutrition?** • Nutrients are very important parts of foods. It is likely that you will get all of them if you eat a variety of foods. So, you need to eat foods from all the foods. • Some foods you need more of (animal foods, fruits, and vegetables) • Other foods you need less of (staples and fats)



Facilitator 2	This poster shows the six food groups. Let's review the food groups. I want you to think about everything you have eaten today (or yesterday if not much has been consumed today). **How many food groups are there?**
Facilitator 1	Let's talk some time think about our current diets. Can everyone take a moment to think about what they've eaten in the last 24 hours. **Now can someone volunteer to tell us what they've eaten in the last 24 hours?**
Facilitator 2	Thank you for sharing. Let's think about ways to improve our diets based on what we know about the food groups. And we can brainstorm ways to do this with the food we have.

Facilitator 1	Eating from each food group is important for your health and your baby's health. Eating more variety ensures that your body gets what it needs. Eating well will help to enhance breast milk production. Lactation requires additional energy and nutrients from the diet. A chronically deficient diet can impact milk production. [Point to poster] **Which foods contain protein?**
Facilitator 2	**Why do we need to eat foods with protein and fat?** [opportunity to discuss: protein helps you support your body, is important for the immune system so that you can fight illness, and protein gives you energy, **increase calorie intake while breastfeeding even more than when you are pregnant**– specifically recommend increased DHA (fatty acid) for infant brain development – 2-3 servings of fish per week if possible]
Facilitator 1	**Why do you think we recommend that you take iron, vitamin D, and calcium?** [vitamins and minerals. If you had iron deficiency before then should continue taking iron. Vitamins are secreted into milk. Therefore, the dietary requirement for most vitamins is increased during lactation]
Directions 	Review the names of other food groups and ask for examples of those foods: • Vegetables • Fruits • Legumes & Nuts • Fats • Staples • Where do sugars and sweetened drinks fit in?
Facilitator 1	Our goal is to eat foods from all the food groups. This is what we mean by diversity. However, eating a variety of foods can be challenging. **What are some food challenges that we face?**
Facilitator 2	If eating a variety of foods is important for our health and for our babies, **What can we do to overcome some of these challenges? Let's try to come up with some solutions. How can we eat healthier?**

Facilitator 1	Drinking water is also very important. **Do you know why?** [being hydrated is important for your general health. If you have a dry mouth or dark-colored urine, you probably need to drink more. It might be helpful to keep water or another healthy drink nearby when you breastfeed]
Facilitator 2	Like foods, we sometimes have challenges with water. **What challenges do you face and how can you overcome them?**
Facilitator 1	Related to healthy eating is another important topic: the use of substances such as alcohol, tobacco and second-hand smoke, and drugs like marijuana. **Why would we suggest that you avoid these substances?** **These things are dangerous because they affect the growth and development of the baby by being transferred through breastmilk or having the baby breath in second hand smoke.**
Facilitator 2	Sometimes we struggle with these; other times it is our partners. Let's talk about why these substances are dangerous for your health and your baby's health. **What can people do if they struggle with any of these?** [If it is partner ask him to smoke outside/away from house; talk to your midwife; see a psychosocial counselor]
Facilitator 1	**What about medications? Why would we be concerned about taking medications during breastfeeding?**
Facilitator 2	Medications from pharmacies and traditional healers may not be safe to take during breastfeeding

Facilitator 2	**What about self-prescriptions?** We also have to be careful about self-prescriptions too. If you just go the pharmacy, you will not know if the medication is safe to take while breastfeeding. Talking to the midwife will help you figure out if it is safe to take while breastfeeding.
Facilitator 1	Thank you for that wonderful discussion. We need to eat a variety of foods and stay hydrated. Eating healthy is especially important during breastfeeding as we need to increase our food intake. We should all try to increase the variety of foods we are eating so that we get all the vitamins and nutrients we need.
Facilitator 2	Over the next few weeks, try to think of new ways to increase variety in your diet. We will share our ideas at our next meeting.

Sexual health – STIs/HIV PMTCT

Activity 3: Sexual health – STIs/HIV	
Objectives	• To discuss the importance of knowing one's status • To discuss resuming sexual activity and sexual health • To expose participants to the items used for testing and treatment
Directions 	1. Conduct demonstration with co-facilitator using the scenario below 2. Break out in to small groups to discuss the demonstration 3. Bring the large group back together to discuss the scenario and discuss strategies to promote sexual health
Facilitator 1	We're going to do another activity to help us talk about sex, sexually transmitted infections and HIV. All mothers should think about HIV testing after resuming sexual activity.

Facilitator 2	Feelings about sex can be hard to talk about, but it's an important area in our lives to think about. We're going to role play a situation and we can give advice to answer their questions.
Co-facilitator demonstration	
Facilitator 2 is a woman at the clinic seeing the midwife and says to her "My baby is 10 weeks old, and my partner says that we cannot have sex until the baby turns 6 months old. I think my partner is now having sex with other women. I feel tired all of the time and have some perineal pain so I am not interested in having sex right now. But someone told me that when we do start having sex again, he might pass some STIs to me. What should I do?"	
Facilitator 1	**Now we will break out into small groups and come up a response for this woman.**
Facilitator 2	After a few minutes ask each group to **share what they came up with.** *Use their comments as an opening to discuss: resuming sexual activity, cultural myths, partner communication, STIs prevention and treatment, postpartum physical adjustment*
HIV Testing, Status and Treatment	
Directions 	1. Provide correct health promotion messages and answer questions 2. Hold up the item and then pass it around 3. Ask the person to explain what they think the item is
Facilitator 2	[**What are you holding? What happens when you have an HIV test? [**HIV test kit]
Facilitator 1	**What are you holding?** [point out on HIV test kit positive/negative symbols] **Why is it important to know our status?** [treatment is available and early treatment is best, protect partners, protect baby]

Facilitator 2	**How is HIV treated these days? Why is this important? What do we know? What have we heard?** [pills, taken regularly, show women an ART 13A bottle]
How often should you be tested?	
Facilitator 1	**How long does it take for HIV to develop in the body?** [up to 3 months after having unprotected sex or sex without a condom, can refer to a calendar here]
Facilitator 2	**What is the recommendation for how often a sexually active person should get an HIV test?** [every 3 months]
Facilitator 1	Now that some of you might be sexually active again, it is important to continue to think about HIV and STI prevention and testing. We want to make sure that we can talk openly with our partners about our sexual health and seek testing and care when needed.
Faciitator 2	As a reminder, **if the mother is HIV+, how is the baby protected and when will the baby need to get an HIV test?** [nevirapine syrup given daily for 6 weeks; testing: 6 weeks and 6 months after birth]
Facilitator 1	Thank you for that great discussion. **Any questions about why it is important to know your status and protect your loved ones?**

Activity 4: Relationship Conflict/Intimate Partner Violence	
Objective	• Discuss healthy relationships • Discuss strategies for managing conflict in relationships • Understanding of intimate partner violence and resources for anyone that might be experiencing it
Directions 	1. After discussing the what a healthy relationship is, you will give women a change to practice having a discussion with their partner: 2. Practice: Have everyone stand up and count off by twos. 3. Ones will to step inside the circle and turn and face those in the outer circle 4. Ask them to role play a discussion about a topic. 5. Tell them that they will each have a chance to be play a man and a woman. Give the group 2-3 minutes to engage their "partner" in a discussion (see scenarios below)
SCENARIO	
Facilitator 1	Let's start off by discussing, **what does a healthy relationship look like?** [opportunity to discuss partner communication, helping each other, comforting each other when upset, dealing with problems respectfully]
Facilitator 2	Thank you so much for sharing. Now let's practice communicating when there might be conflict. In this scenario, you plan to obtain an IUD for family planning because you are nervous to become pregnant again now that you and your husband have resumed sexual activity, but your partner thinks it's still too soon even though the midwife told you both you could get it placed right after birth. Let's practice!
Facilitator 1	Let's stand up and count off by 2s. Please return to your seats.
Facilitator 2	The 1s will stay on the outside of the circle and the 2s will step inside of the circle.

Facilitator 1	Here is your scenario. You want to go to the clinic to get an IUD placed, but your husband insists it is too soon because you are still breastfeeding and there is no need to go for family planning yet. He says it will cause damage to you. How will you navigate this discussion?
Facilitator 2	The 1s are the husband. The 2s will explain why it's safe to get an IUD and has been since you gave birth.
Facilitator 1	Ok, let's sit down. **How did it go? What worked, what did not?**
Facilitator 2	**How can we overcome these challenges?**
Facilitator 1	Let's try this one more time. Find your partner. Now everyone should take one step to the right. Everyone should have a new partner. This time they will each change roles. This time those on the outside of the circle will initiate the discussion. Ready? Let's talk!
Facilitator 2	Thank you all so much. **How did it go this time?**
Facilitator 1	It's important that we know what a harmful relationship looks like too. What does **intimate partner violence include?** [opportunity to discuss what IPV consists of, emphasize that it can include physical violence, sexual violence, stalking, psychological aggression]
Facilitator 1	**What can we do if we feel that we or someone we know is experiencing intimate partner violence? [**opportunity to discuss local resources and support services for people]
Facilitator 1	**Are there any remaining questions or concerns we should discuss?**

Sharing Basket	
Objective	• Give women the opportunity to ask questions without saying them aloud during group
Directions 	Read each question in the basket aloud to the group • Group similar questions into a pile • Ask women to help answer these important questions • Correct misinformation
Facilitator 2 	**Can I get a volunteer to get our sharing basket?** Remember, this basket will always be here. Let's see what questions we have in there today.
Closing	
Directions 	Give women a chance to lead in a song that will remind them about what they learned today. • Immunizations • Eating diverse foods with every meal • Sexual health • Intimate partner violence and relationship issues
Facilitator 1	**Will someone volunteer to lead us in a song?**
Facilitator 2 	Let's circle up. Before we sing, let me remind you that our next meeting is on **DATE**. Also, remember to help one another remember to come. You can exchange phone numbers. If you live near one another, you can travel together. Get to know one another so that you can help each other and become friends outside of group. After we sing our song we will administer your baby's vaccines. **Are we ready to sing our song?** Ok, let's sing!

Facilitator 1	Thank you for being a part of our group. We'll see you and your partner on **DATE**. **Visit** — **Date & Time** Contact 1: Completed Contact 2: Completed Contact 3: Completed Contact 4: Contact 5: Contact 6: Contact 7:
Co-Facilitator Evaluation	
Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Review Contact #4 and share responsibilities 4. Return materials to safe storage
Thank you. You have completed Contact 3	

Administer 10-week vaccinations to all infants

Contact 4: 14 weeks

Contact 4: Group Postnatal/Well-Child 14 weeks	
Plan	
Topics Growth monitoring Introducing solid foods Emotional health	**Check-in & Socializing** **Healthcare** • Self-Care • Clinical Assessment **Circle Time** • Opening • Activities & Discussion • Closing **Co-facilitator Evaluation**
Materials	• Sharing basket, paper, and pens • Opening: Bag, ball • Activity 1: Growth charts • Activity 2: Cards with potential first foods • Activity 3: Quick mood scales

Baby's health assessment:

- Measure and plot
  - Weight
  - Length
  - Head circumference
  - Weight for length
- Physical examination
  - Skin – inspect for rashes and bruising
  - Head – palpate for positional skull deformities
  - Eyes – assess ocular mobility for lateral gaze, examine pupils for opacification and red reflexes
  - Heart – auscultate for heart murmurs, palpate femoral pulses
  - Musculoskeletal – assess for developmental hip dysplasia by examining for abduction
  - Neurologic – evaluate tone, strength, and symmetry of movements, diminishing primitive reflexes
- Surveillance of development
  - Social language – laughs aloud, looks for parent or another caregiver when upset

- Verbal language – turns to voices, makes extended cooing sounds
- Gross motor – supports self on elbows and wrists when on stomach, rolls over from stomach to back
- Fine motor – keeps hands unfisted; plays with fingers in midline, grasps objects

Mother's health assessment

- Blood pressure
- Weight
- Postpartum depression screening
- Review of physical and mental health

Interactive learning

Circle Time	
Directions 	1. Call group to the circle by singing the group song, ringing a bell or blowing a whistle. 2. You and your co-facilitator should not sit next to one another 3. Everyone in the room should be in the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle
Welcome	
Facilitator 1	Welcome to [**GROUP NAME**]. We are happy that you are here today. Before we proceed with the introduction is there anyone who has experienced any of the danger signs or who has to go to the clinic for care since our last meeting?
Making Yourself at Ease in Your Heart [Centering Yourself]	
Facilitator 2	Before we introduce ourselves, let's take a minute to relax. We call this centering through breathing.

Facilitator 1	Close your eyes and relax. Try not to think: **1.** Take a deep breath in and hold it for a bit **2.** As you let your breath out, let go of your thoughts and worries **3.** Let your body feel comfortable **4.** Take another deep breath in and hold it for a bit **5.** As you breathe out, don't think about the future. Just feel calm. **6.** Let's take our last deep breath together. Breathe in deeply. Hold it inside for a few seconds. **7.** Now slowly breathe out and slowly open your eyes **8.** Notice how you feel.
Facilitator 2 	**How did breathing like this make you feel?** [*wait for women to describe their feelings, such as calm*] Thank you for sharing your feelings. You can use this breathing exercise any time that you feel stress.
Facilitator 1	We want you feel more confident about what you can do to keep yourself and your baby healthy. Let's start this group meeting by getting to know one another.

Opening and Activity 1: On being a parent	
Objective	• To open the group by sharing feelings about parenting • Create an opportunity for women to share experiences and learn from one another
Directions 	1. The first person will complete the sentence, say the name of another and ask her to complete the sentence. 2. Pay attention to what the women say, be sure to acknowledge that feelings change over time. 3. If any woman seems particularly distraught, be sure to talk to her after group (for example, she seems depressed) 4. Give women time to share stories
Facilitator 2	As we've talked about before having a new baby is a joyous and challenging experience.

Facilitator 1	We'll focus on being a parent today and how to care for ourselves and the baby. Let's use our bag toss to talk about what is helpful as a mother.
Facilitator 2	The person holding the bag will say, ***A good piece of advice I've gotten from someone about taking care of myself and the baby is _____***. Then you will say someone else's name and ask them what is helpful for them and why.
Facilitator 1	Our game will go like this: "***A good piece of advice I've gotten from someone about taking care of myself and the baby is to sleep when the baby sleeps. [****Co-facilitator's Name****], what good advice have you received?***
Facilitator 2	I'll start, ***A good piece of advice I've received is to ask for help when I am overwhelmed. [Name], what good advice have you received?***
Facilitator 1	Wow, we identified a wide range of helpful tips to take care of ourselves and our babies. Sometimes we can learn from others' experiences. **For those of you who have other children, is there anything you wish you knew or had been told?**

Growth monitoring and developmental milestones

Activity 1: Growth monitoring and developmental milestones	
Objectives	• Discuss growth monitoring and anticipated developmental milestones
Directions 	1. Start with having the women fill in the sentence and do the popcorn exercise 2. Take out the growth chart to demonstrate what normal growth looks like

Facilitator 1	Routines are an important part of a baby's overall development, and every parent has an important influence on baby's overall growth and development that will shape the child's lifelong social, emotional, and intellectual development.
Facilitator 2	Let's start this activity but having you complete the sentence **When I think about my baby's growth I wonder about…**[opportunity to address developmental milestones and anticipated growth patterns]
Facilitator 1	**Can everyone pull out their baby's growth chart in their health passport so we can look at them together?** We use these as a standard to measure our baby's growth so it's important we all understand how to look at it. **The black lines ranging from 2 to 98 are called percentiles, can someone tell me what that means?** If no one answers can say: Percentile ranks are **a way of comparing an individual child to other children of the same age**. For example, if a 12 month old boy's weight is in the 5th percentile, this means that 5% of boys that age weigh less than he does and 95% of boys weigh more.
Facilitator 2	**What should we do if we are worried our babies are not developing as we expect them to?** [opportunity to discuss resources and referrals for baby's that need additional assessments and/or treatment]

Facilitator 1	One of the first skills babies must learn is holding their head up. One of the ways babies learn to do this is through "tummy time". **Will someone volunteer (an awake and alert baby if there is one) to demonstrate "tummy time" positions?** [When doing "tummy time" can tell parents that they can have props to engage their babies with such as index cards with black and bright color markers to draw simple shapes, babies respond well to bold lines, high contrast colors and faces, mirrors] Can invite everyone with alert babies to try getting on the floor with their babies.
Facilitator 2	Now let's talk about how babies' language develops. **Can someone volunteer to show babies respond to us?** [demonstrate how baby responds, can smile, sing, stick out your tongue, make different noises, and talk through the importance of serve and return, this is the basic foundation of conversation and brain development] Let's sing a song here while we are interacting with our babies on the mat together.
Facilitator 2	**As we listen to our babies, how do we know what our baby wants? Let's give examples of ways we read cues from our babies [**opportunity to discuss differentiating babies cries and strategies to soothe babies and that responding to babies cries and other movements (hands in the mouth when hungry, for example when my baby is hungry he does…] Listening and observing your baby's cues will teach the infant to trust that they will be cared for.
Facilitator 2	**Does anyone have any questions about your baby's development? We will revisit this topic next session.**
Facilitator 1	This is a great time to transition to talk about introducing solid food to our babies since the next time we meet they will be 6 months old.

Activity 2: Preparing for solid foods	
Objectives	• Discuss child nutrition and preparation for introducing solid foods when they reach six months of age • Have a selection of feeding tools available to trigger discussion about introducing bottles, sippy cups, and signs to look for when baby is ready to begin solid foods • Have a basket with picture cards of potential good first foods to discuss the benefit of each one.
Directions 	1. Facilitate discussion with directed questions 2. Instruct each person to take a card with a picture of a potential first food and ask them why it might be a good first food for their baby
Facilitator 1	**When should we introduce solid foods?** [discuss that if breastfeeding breast milk is still the baby's main source of nutrition]
Facilitator 2	Let's start by taking about potential first foods for babies. Instruct people to volunteer to take a card with the image of a first food (such as phala (porridge), avocado, sweet potato, and banana) in a basket and have parents select one and discuss why it might be a good first food for baby. **Can you share why this might be a good first food for baby? [**discuss benefits of each one and nutrients we need to give babies at 6 months for complimentary feeding to breastfeeding] First foods need to be soft so they're very easy to swallow, such as porridge or well mashed fruits and vegetables. Did you know that when porridge is too watery, it doesn't have as many nutrients? To make it more nutritious, cook it until it's thick enough not to run off the spoon.

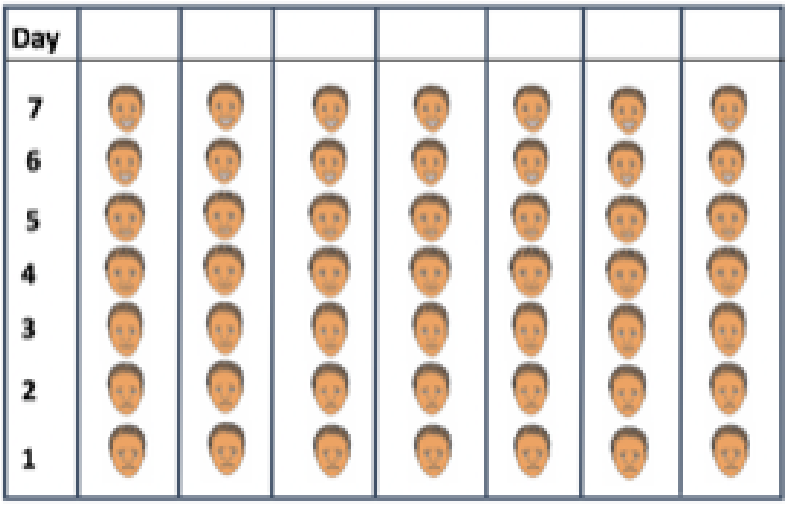
Facilitator 1	**How do we incorporate this with breastfeeding? And how much should we give our babies?** [discuss timing of introducing solid foods, start by offering after giving breast milk to not impact your milk production and give small amounts at first when they give you signs they are hungry like putting their hands in their mouth]
Facilitator 2	**What about drinks? What is ok to give our children when we start introducing solids at 6 months?** [discuss how water is the only recommended drink besides milk for children until 3 years old]
Facilitator 1	**What about our children's oral health?** [opportunity to discuss oral hygiene]
Facilitator 2	We will discuss this more during next session and share if anyone attempted introducing solid foods when their baby turns 6 months of age!

Mental health/postpartum depression

Activity 3: Emotional health/postpartum depression	
Objective	• Participants will understand why mental health is important • Understand and identify features of their inner/outer reality • Identify what a stressor is and how they impact women/families
Directions 	1. This activity introduces emotional health. 2. Facilitators will introduce some new terms. 3. Facilitators ask questions and let the women discuss. 4. Facilitators will introduce the Quick Mood Scale.

Facilitator 1	We've talked a lot about the baby's growth and feeding, but now let's talk about our emotional health which is so important for ourselves and our babies. I want to start with something that all of us have experienced: stress. The stressors can make it difficult to focus on being a mother. **Who can tell us what they understand by the word "stress"?** [Let the participants define stress and share examples freely]
Facilitator 2	Here are some common stressors women experience. Let's talk about how each could impact your health and the health of your children. [Review sources one at a time] • Too much work • Relationship issues • Money problems • Others? **How do you think feeling stressed could impact your physical health? What about your emotional health?**
Facilitator 1	**When you are stressed, what changes do you notice about how you feel? How do you communicate? How do you behave?**
Facilitator 2	**How could it impact on your relationship with the baby? How about older children?** Our children and babies learn how to manage stress by watching us. So it is important to recognize stress and learn to manage it. We'll talk about different ways to do that. Now, coming to Care Circles helps you and your baby to be healthy. If the mother is in good physical health, the baby will often be as well. Your health also includes how you are feeling. This is emotional health. Emotional health involves the health of your thoughts and feelings. If the mother is in good emotional health, the baby will often be as well. That is why we ask about not only your physical but also your emotional health at each visit.

Facilitator 1	**Has anyone experienced mood or emotional health problems at any time in their life?** **Has anyone experienced mood problems during pregnancies or after birth?** **What would you do if you or your neighbor experienced these signs as shown in the picture here?** [show the picture] **Common mood problems before and after birth**  Intense anger, worry, or unhappiness  Extreme mood swings  Difficulty caring for yourself or your bab  Less interest in things you used to enjoy  Changes in your eating habits  Changes in your sleeping habits It's normal to have ups and downs in your mood. If there are many more downs than ups, we can test you for depression. Some signs of depression are sleeping too much or too little, changes in eating habits, or difficulty caring for yourself or baby. It is important to seek for help in the group members, our facilitator or the nearest health facility. And if you are having severe problems or thoughts of suicide you should seek care immediately.

Facilitator 1	We would like you to assess your mood each night. One way to do this is through a **Quick Mood Scale**. [Hand everyone a copy of the scale.] This scale is a way to document how you are feeling each day. This might seem odd at first but soon it will be very easy. You can say to yourself "Overall, how was I feeling today?". Circle the face that is the closest to how you are feeling. The '1' is the worst you could possibly feel, ever. This might be a day when a child or family member died or you are feeling very sad or depressed. The '7' is the best possible mood. This might be a day when you got married or something truly wonderful happened to you and you are feeling very happy and fully of joy. WEEK  **We'll do the first mood check together. [Distribute the mood charts] Can everyone circle where they are on the mood chart?**
Facilitator 2	Now that we've circled where we are in the mood chart let's talk about some ways we reduce our stress. Here are some suggestions: 1) Talking to a friend 2) Breathing exercises like we do at the beginning of each contact 3) Thinking positively 4) Brainstorming ways to solve problems 5) Asking for help when you feel overwhelmed **Can you think of other suggestions?**

Facilitator 1	**Can we tell each what we've learnt today?** [encourage each woman to say one thing] Key messages [state these if no one says them] • Stress is common. Stress can impact our health. • We can learn to manage our reality to feel better. • Check your mood every night. In your notebook. You will see the key messages from today's emotional health activity. Now you can look at these at home or anytime you wish. This is a wonderful start. Now, when we meet again, we'll ask what it was like to notice your mood.

Sharing Basket

Objective	• Give women an opportunity to ask questions without asking them during group
Directions 	Read each question in the basket aloud to the group • Group similar questions into a pile • Ask women to help answer these important questions • Correct misinformation
Facilitator 2 	**Can some get our sharing basket?** Let's see if we have additional questions for today.

Closing

Directions 	Take about 5 mins to prepare a new verse or two for the song that will remind them about what they learned today. • Growth monitoring and child development • Postpartum depression/mental health • Preparing for the introduction of solid foods

Facilitator 1	At every session, we will be singing a song. This song will be helping us to remember what we have learnt.
Facilitator 2 	Are we ready? Let's circle up. Before we sing our song, let me remind you that our next meeting is on [**DATE**]. Please remind one another to come. Please exchange information so you can help each other remember to attend. After we sing we will administer the baby's vaccinations. Let's sing.
Facilitator 1	Thank you for being a part of our group. We'll see you on [**DATE**] for contact #5.

Visit	Date & Time
Visit 1:	Completed
Visit 2:	Completed
Visit 3:	Completed
Visit 4:	Completed
Visit 5:	
Visit 6:	
Visit 7:	

Co-Facilitator Evaluation	
Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Review Contact #5 and delegate responsibilities 4. Return materials to safe storage
Thank you. Contact 4 is complete	

Administer 14-week vaccinations to all infants

Contact 5: 6 months

Contact 5: Group Postnatal/Well-Child 6 months	
Plan	
Topics Infant feeding, solids & textures Baby temperament Disease prevention and management of common childhood illnesses	**Check-in & Socializing** **Healthcare** • Self-Care • Clinical Assessment **Circle Time** • Opening • Activities & Discussion • Closing **Co-facilitator Evaluation**
Materials	• Sharing basket, paper, and pens • Opening: Quick mood scales, ball • Activity 1: None • Activity 2: None • Activity 3: Picture cards

Baby's health assessment:

- Measure and plot
  - Weight
  - Length
  - Head circumference
  - Weight for length
- Physical examination
  - Skin – rashes, bruising
  - Eyes – assess ocular mobility for lateral and horizontal gaze, assess eye alignment, examine pupils for opacification and red reflexes
  - Heart – auscultate for murmurs, palpate for femoral pulses
  - Musculoskeletal – assess for developmental hip dysplasia by examining for abduction
  - Neurologic – evaluate tone, strength, and symmetry of movements
- Surveillance of development

- Social language – pats or smiles at own reflection, looks when name is called
- Verbal language – babbles, makes sounds like “ga” “ma” or “ba”
- Gross motor – rolls over from back to stomach; sits briefly without support
- Fine motor – passes a toy from one hand to another; rakes small objects with 4 fingers; bangs small objects on surface

Mother’s health assessment

- Blood pressure
- Weight
- Postpartum depression screening
- Review of physical and mental health

Interactive learning

Circle Time	
Directions 	1. Call the group to the circle by singing the group song, ringing a bell or blowing a whistle. 2. You and your co-facilitator should not sit next to one another 3. Everyone in the room should be part the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle
Welcome	
Welcome to [**GROUP NAME**]. We are happy that you are here today. We have met as a group 3 times before today. This is our fourth group meeting. Before I proceed, may I know if there is anyone in the group who is experiencing the danger signs or if your baby is experiencing danger signs and if anyone has gone to the clinic to seek care since our last visit?	
Making Yourself at Ease in Your Heart [Center Yourself]	
Before we start, let’s relax. Let’s find our center using our breathing exercise	

Close your eyes and relax. Try not to think about other things going on in your life right now:

1. Take a deep breath in and hold it for a bit
2. As you let your breath out, let go of your thoughts and worries
3. Let your body feel comfortable
4. Take another deep breath in and hold it for a bit
5. As you breathe out, don't think about the future. Just feel calm.
6. Let's take our last deep breath together. Breathe in deeply. Hold it inside for a few seconds.
7. Now slowly breathe out and slowly open your eyes
8. Notice how you feel.

Thank you. You can use this breathing exercise any time you are feeling stressed. This exercise will help you feel more at ease.

Our goal is to make you feel more confident about what you can do to keep yourself, your baby, and your family healthy. Let's start with our opening activity.

Opening: Mood Check In

Directions 	1. The first person will complete the sentence, say the name of another and ask her to complete the sentence. 2. Continue until each person has contributed

Facilitator 2	Today we will talk about feeding our babies, growth and development and disease prevention. But let's start by revisiting our discussion about our emotional health. Last time, we talked about our moods and learned: · Stress is common. Stress can impact our health. · Brief daily breathing exercises can be helpful **Let's go around the room and share one thing that we did since our last meeting to promote relaxation and improve our mood?** [While one person shares, other facilitator reviews everyone else's books. If women were confused about the mood scale, or forgot their scale, do not scold them. Explain the scale again. You can also ask a woman who complete the scale to explain it to the other women]
Facilitator 1	Thank you for sharing. To keep our bodies healthy, we eat good food and rest and bathe. To keep our minds healthy, we care for our emotional health, share with our friends and family members, and do things we enjoy and make us feel good. **Does anyone have questions about the emotional health or the mood scale before we move to the next activity?**

Infant feeding – solids and textures

Activity 1: Infant feeding – solids and textures	
• Discuss child nutrition and follow-up on introducing solid foods now that babies are six months of age	
Facilitator 1	Now that your babies have reached six months **has anyone introduced solids yet? If not, what do you plan to be your babies first food?**

Facilitator 2	Let's each go around the circle. I can start with an example. My baby turned six months old last week and I fed her avocado and she loved it, she loved playing with it and some of it ended up in her mouth. It was fun to watch.
Facilitator 1	**Let's go around the room and share.** [opportunity to discuss and emphasize nutritious food choices for babies and complementary feeding] You can use the cards from last session to stimulate discussion if no one is readily sharing. *If space and budget allow can have parents bring in a food for baby to try together and see how babies react to introducing solids.*
Facilitator 2	Thank you all for sharing. Let's go over a few things. **How do you know your baby is hungry? How much food should they be given?** • Remember to feed your baby when you see them give signs that they are hungry – such as putting their hands to their mouth. After washing hands, start by giving your baby just two to three spoonfuls of soft food, twice a day. At this age, their stomach is small so they can only eat small amounts at each meal. • As your baby grows, their stomach also grows and they can eat more food with each meal. • From 6–8 months old, feed your baby half a cup of soft food two to three times a day. Your baby can eat anything except honey, which she shouldn't eat until she is a year old. You can start to add a healthy snack, like mashed fruit, between meals. As your baby gets increasing amounts of solid foods, she should continue to get the same amount of breastmilk.

Facilitator 1	**How do babies respond to new foods?** • The taste of a new food may surprise your baby. Give them time to get used to these new foods and flavors. Be patient and don't force your baby to eat. Watch for signs that they are full and stop feeding them then. • Your job is to offer a variety of foods, but the baby decides how much to eat
Facilitator 2	**What foods do we need to make sure are included in their diet?** • Emphasize the need to include a good dietary source of iron to prevent iron deficiency
Facilitator 1	**Does anyone have any questions about introducing solid foods? Or how to introduce them while continuing to breastfeed?**

Growth and development

Activity 2: Who is my baby? Temperament Continuum Activity	
• To understand growth and development and how temperament is a measure of our adaptability and emotional response. • To understand that temperament is an innate quality, one with which a child is born, and is influenced by experiences and interactions with people, environment and health. • To understand the baby's temperament and parent's own temperament.	
Directions 	1. Each facilitator stands at the ends of the room and each makes statements 2. Instruct participants to stand on the place that best describes themselves and mark a card with an X 3. Repeat exercise with each facilitator sharing statement about baby and ask parents to move to a spot that best describes their child. 4. Note where they stood on the continuum for themselves versus how they see the baby 5. Repeat with a few statements

Facilitator 1	Let's now discuss how our baby's temperament and how this relates to parenting. We all are born with a type of temperament which helps measure our adaptability and emotional response. We will read some statements and can see how your own temperament compares to your baby's. If you or your baby has a temperament close to what I say, come stand with me. If you or your baby has a temperament close to the other facilitator, go stand with them. If you or your baby is in between, stand in between.

Statements about temperament	
Activity Level	
Parent	
Facilitator 1	Facilitator 2
One of my favorite activities before baby was relaxing and watching a movie or reading a book.	I like to be out of the house early and on the go everyday.
Baby	
Facilitator 1	Facilitator 2
My baby takes the whole world in by sitting, looking, listening and exploring with their hands.	My baby is active all day long and bath time is wild, they are splashing, playing and laughing
Regularity	
Parent	
Facilitator 1	Facilitator 2
I like my routines. I wake up at the same time and eat the same thing for breakfast every day.	My sleep seems different every night, and even those first months of sleepless nights with a newborn were not that hard for me.
Baby	
Facilitator 1	Facilitator 2
You could set the clock by the time my baby eats and poops every day	I cannot seem to get them on a feeding schedule. Seems like every day is different.
Attention	

Parent	
Facilitator 1	Facilitator 2
I don't give up	I am easily distracted
Baby	
Facilitator 1	Facilitator 2
My baby is constantly rocking on their knees like they are training to get crawling	My baby seems to get frustrated easily with anything new
Sensory threshold	
Parent	
Facilitator 1	Facilitator 2
Even an itchy tag on a new shirt can really bother me.	I love the lights at night and loud music at the market.
Baby	
Facilitator 1	Facilitator 2
My baby startles at sudden noises and bright lights seem to bother them.	We play fun music at mealtimes and they love to put their hands in their food. It's messy.

Facilitator 1	What did you notice from this activity? Is your temperament different than your baby's? Understanding our own temperament and our baby's will help to respond to their needs and fussy behaviors appropriately. For example, if a child is highly active, you may pack extra activities in your bag for waiting times at visits to the clinic, etc. For a child who needs some extra time in approaching new activities, you might stay close by, giving the child time to adjust and feel safe. As much as possible maintaining a consistent routine will help them learn how to manage their behavior appropriately as they get older.

Facilitator 2	**What are you seeing in your baby's recent growth and development?** [opportunity to discuss physical development as well – now baby should be: rolling over and sitting, will gradually move to a crawling position. Rocks back and forth often crawling backward before moving forward. Is socially interactive with parent, recognizes familiar faces and is beginning to recognize whether a person is a stranger]
Facilitator 1	**Does anyone have any concerns with your baby's development? Or any further questions?**

Disease prevention and management of common childhood illnesses

Activity 3: Disease Prevention and Management of Common Childhood Illnesses	
• To learn strategies to prevent childhood illness and disease including: diarrhea, cholera, malaria, pneumonia, COVID-19, eye infections, and malnutrition.	
Directions 	1. Allow women to talk about childhood illnesses and bring up whatever comes to mind and address those concerns as they arise. 2. If no one is suggesting any, you can go through the common health concerns listed below and add any that you think should be added to the list. 3. Make sure to discuss prevention measures for each one and reinforce hygiene practices and importance of vaccination to prevent many infectious diseases. 4. how to care and comfort our babies when they are sick and when to go to the clinic and what to do in an emergency situation
Facilitator 1	Now we want to discuss ways to prevent illness and disease for yourselves and your children. **Are there any illnesses that you are worried about?** [Opportunity to let parents lead discussion, when they mention an illness or disease follow up with ways to prevent it]

Facilitator 2	Now let's discuss some of the major childhood illnesses that we see in the clinic and ways to prevent them. And we will talk about how to care and comfort our babies when they are sick and when to go to the clinic and what to do in an emergency situation. Each person will take a card and we can role play how to identify the health issue and what to do about it. [Hand out picture cards.] **Let's start with diarrhea and cholera. What are some ways we can prevent it? What are the symptoms? And what are danger signs?**
Facilitator 2	**Now we will go around and discuss common childhood illnesses and any others you would like to discuss.**

	How to prevent it	Symptoms	Possible treatment	DANGER SIGNS& SEEK HELP RIGHT AWAY
Diarrhea	[opportunity to discuss handwashing, safe drinking water, sanitation practices, hygiene especially when introducing complementary feeding]	Defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual). Frequent passing of formed stools is not diarrhoea, nor is the passing of loose, "pasty" stools by breastfed babies.	Oral rehydration salts (ORS) solution. ORS is a mixture of clean water, salt and sugar. Zinc supplements Rehydration: with intravenous fluids in case of severe dehydration or shock. Nutrient-rich foods: the vicious circle of malnutrition and diarrhoea can be broken by continuing to give nutrient-rich foods – including breast milk – during an episode, and by giving a nutritious diet – including exclusive breastfeeding for the first six months of life – to children when they are well.	Blood in stool; persistent diarrhea does not go away; severe signs of dehydration including: lethargy/unconsciousness; sunken eyes; unable to drink or drink poorly

Malaria	[opportunity to discuss insecticide treated nets, closing of pits, removing damps, rapid diagnosis and treatment]	Fever Chills General feeling of discomfort Headache Nausea and vomiting Diarrhea Abdominal pain Muscle or joint pain Fatigue Rapid breathing Rapid heart rate Cough	Go to clinic is you suspect malaria for early diagnosis and treatment Anti-malarials	Go to clinic is you suspect malaria for early diagnosis and treatment

Pneumonia	[opportunity to reinforce safe practices with complementary feeding, adequate nutrition, hygiene, immunizations, reduced household air pollution]	In children under 5 who have cough and/or difficult breathing and nasal flaring with or without fever, pneumonia is diagnosed by the presence of either fast breathing or lower chest wall indrawing where their chest moves in or retracts during inhalation (in a healthy person, the chest expands during inhalation). Wheezing is more common in viral infections.	Go to the clinic to be assessed with potential for treatment with antibiotics	Very severely ill infants may be unable to feed or drink and may also experience unconsciousness, hypothermia and convulsions.

Eye infections	[opportunity to discuss hand washing, general infection prevention]	The whites of your child's eye are red. The eye will also be watery, sore or itchy. Sometimes there'll be a yellow or green sticky discharge in your child's eye, which makes the lids stick together after your child has been asleep. The skin around the eyes might look puffy.	Start by **keeping your child's eye clean**. Wash the eye gently several times a day in warm water. You might be prescribed **antibiotic eye drops or ointment** for several days	The infection doesn't clear up after 3-4 days, despite treatment. The skin around your child's eye or eyelid becomes swollen and painful. Your child has problems with vision. Your child also has a **fever**, isn't feeding well or doesn't have much energy.

COVID-19	[opportunity to discuss hand washing, washing toys regularly, hygiene, sanitation, masking, vaccinations]	Cough Fever or chills Shortness of breath or difficulty breathing Muscle or body aches Sore throat New loss of taste or smell Diarrhea Headache New fatigue Nausea or vomiting Congestion or runny nose	Often there is no treatment. Make sure to isolate, stay away from others and when that is not possible wear a mask.	Difficulty breathing or catching his or her breath Inability to keep down any liquids New confusion or inability to awaken Bluish lips Fever with at least one of these symptoms: unusual weakness or fatigue; A red rash; Abdominal (belly) pain; Vomiting and diarrhea; Red, cracked lips; Red eyes; Swollen hands or feet
Malnutrition	[Can revisit nutrition discussion from earlier to reinforce here and growth monitoring]			
Rash/skin issues				
Burns				
Falls				

Facilitator 1	**Are there any questions about the illnesses we discussed or any other ones that we haven't mentioned?**

Sharing Basket	
Objective	• Give women an opportunity to ask questions without asking them during group
Directions 	Read each question in the basket aloud to the group • Group similar questions into a pile • Ask women to help answer these important questions • Correct misinformation
Facilitator 2 	**Can I get a volunteer to get our sharing basket?** • Remember, our basket will always be here. Let's see what questions we have in there today.
Closing	
Directions 	Give women 5 minutes to prepare a new verse or two for the song that will remind them about what they learned today. • Introducing solid foods • Baby's temperament, growth and development • Disease prevention
Facilitator 1	At each meeting we will be singing a song which will help us remember what we have learnt. **Will someone volunteer to write it down?**

Facilitator 2 	Are we ready? Let's circle up. Our next meeting is on **DATE**. Please remind one another to come. Please exchange information so you can help each other remember to attend. After we sing we will administer the baby's vaccinations. Let's sing.
Facilitator 1	Thank you for being a part of our group. We'll see you on **[DATE]**. **Visit** — **Date & Time** Visit 1: Completed Visit 2: Completed Visit 3: Completed Visit 4: Completed Visit 5: Completed Visit 6: Visit 7:
Co-Facilitator Evaluation	
Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Review Contact #6 and delegate responsibilities 4. Return materials to safe storage
Thank you. Contact 5 is complete	

Administer 6 month vaccinations to all infants

Contact 6: 9 months

Contact 6: Group Postnatal/Well-Child 9 months	
Plan	
Topics Male/family involvement Hyptertension	**Check-in & Socializing** **Healthcare** • Self-Care • Clinical Assessment **Circle Time** • Opening • Activities & Discussion • Closing **Co-facilitator Evaluation**
Materials	• Sharing basket, paper, and pens • Opening: Bag, ball • Activity 1: Flip chart, markers • Activity 2: Blood pressure machine

Baby's health assessment:

- Measure and plot
  - Weight
  - Length
  - Head circumference
  - Weight for length
- Physical examination
  - Head – palpate for positional skull deformities
  - Eyes – assess ocular mobility for lateral and horizontal gaze, assess eye alignment, examine pupils for opacification and red reflexes
  - Heart – auscultate for murmurs, palpate femoral pulses
  - Musculoskeletal – assess for developmental hip dysplasia by examining for abduction
  - Neurologic – evaluate tone, strength, and symmetry of movements, elicit parachute reflex
- Surveillance of development

- Social language – uses basic gestures (holding arms out to be picked up, waving bye bye); looks for dropped objects, plays peek a boo, turns consistently when called
- Verbal language – Looks around when hearing things; copies sounds that parents make
- Gross motor – sits well without support, pulls to stand, transitions between sitting and lying; crawls on hands and knees
- Fine motor – picks up food to eat, picks up small objects with 3 fingers and thumb, let's go of objects intentionally, bangs objects together

- Screening
  - Structured developmental screen

Mother's health assessment

- Blood pressure
- Weight
- Review of physical and mental health

Interactive learning

Circle Time	
Directions 	1. Call the group to the circle by singing the group song, ringing a bell or blowing a whistle 2. Make sure you and your co-facilitator are not sitting next to one another sit 3. Everyone in the room should be in the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle
Welcome	
Facilitator 1	Welcome to [**GROUP NAME**]. We are happy that you are here today. This is your 6th postnatal/well-child visit. There is one more planned when your babies turn one year old. Before we proceed is there anyone who is experiencing danger signs themselves or is their baby experiencing danger signs or has anyone sought care at a clinic since our last visit?
Making Yourself at Ease in Your Heart [Center Yourself]	
Facilitator 2	Before we start, let's relax. Let's find our center using our breathing exercise

Facilitator 1	Close your eyes and relax. Try not to think about other things: 1. Take a deep breath in. 2. As you let your breath out, let go of your thoughts and worries. 3. Let your body feel comfortable. 4. Take another deep breath in. 5. As you breathe out, don't think about later. Just feel calm now. 6. Last breath together. Breathe in deeply. Hold it inside for a few seconds. 7. Now slowly breathe out and open your eyes 8. Notice how your thoughts and body feel after doing this.
Facilitator 2	Thank you. You can use this breathing exercise any time you are feeling stressed.
Facilitator 1	Our goal is to make you feel more confident about yourself and caring for your family. These visits are about helping you and your family know what to do, keep yourself, your baby, and your family healthy. Let's start with our bag game.
Opening	
Directions 	1. The first person will complete the sentence, say the name of another and ask her to complete the sentence. 2. Continue until each person has contributed
Facilitator 2	Today we will talk about relationship issues, male involvement and your own physical health. To start, we will build on the activity we did last time about getting to know our baby's temperament and the person holding the bag share will share **3 words that describe their baby**.

Facilitator 1	We will demonstrate once. The game will go like this: "***My baby is impatient, messy, and bossy." [Name] what words would you use to describe your baby?*** [opportunity to help reframe and reflect on parents' choice of words for example how could be impatient and bossy be reframed to be strong, curious, and a leader in the future]
Facilitator 2	[Name] why don't you start, go around the circle.

Activity 1: Male/family involvement	
Objective	• To explore the roles of family members for common tasks related to infant care and other household responsibilities • Opportunity to discuss and negotiate some of the tasks
Directions 	1. Place five labeled sheets on the wall labeled "Me", "My partner" "both" and "Unsure or other" 2. Ask people to stand by what fits best as you read each task aloud
Faciliator 1	We are going to discuss the role of the fathers of your babies now. We will do that by exploring what roles family members do for common tasks related to infant care and other household responsibilities.
Facilitator 2	I'll start by reading the statement "**Feeds the baby**" Now stand next to the sign or point to the sign that fits best who does this task. The signs are "Me", "My partner", "Both", and "Unsure or other". [opportunity to discuss integrating fathers in to family decision-making and taking care of the baby when discussing each task – make sure to pause to ask reflective questions, needs good balance of movement and reflections]
Facilitator 1	**Gives the baby baths**

Facilitator 2	**Changes the baby's diapers**
Facilitator 1	**Plays with the baby**
Facilitator 1	**Gets the baby ready for bedtime**
Facilitator 2	**Comforts the baby in the middle of the night**
Facilitator 1	**Takes care of the baby when they are sick**
Faciltiator 2	**Works outside of the home**
Facilitator 1	**Decides how to discipline the children**
Faciltiator 2	**Decides how to spend money**
Facilitator 1	**Decides what food we should eat**
Facilitator 2	**Decides how many children to have**
Facilitator 1	**Decides on birth control methods**
Facilitator 2	**Decides how to spend time as a family**
Facilitator 1	**Decides on safe environment**
Facilitator 2	Thank you all for sharing. **Are there things you wish your partner would help with?**
Facilitator 1	**What could you ask for help with? And how could you do that?**
Facilitator 1	It's important to ask for help in caring for your child. **Does anyone have any questions?**

Activity 2: Mother's physical health maintenance - hypertension	
Objective	• Understand blood pressure readings • Discuss symptoms, prevention, and treatment of hypertension
Directions 	1. Facilitated discussion about blood pressure screening and hypertension 2. Use graphic cards to show ways to prevent high blood pressure
Facilitator 1	We have been taking our blood pressure at each visit. **Can someone tell me why we are monitoring our blood pressure regularly?** [blood pressure is measuring the force exerted by circulating blood against the walls of the body's arteries, the major blood vessels in the body. Can do a comparison water flowing through pipes, when pipes are constricted the pressure gets higher. Hypertension is when blood pressure is too high. Understanding your reading is key to managing high blood pressure.]
Facilitator 2	**Let's all take out our health passports and look at your blood pressure readings both in pregnancy and in your last postnatal visits.**
Facilitator 1	**What do the two numbers mean?** [systolic is the measurement of how much pressure your blood is exerting against your artery walls when the heart beats. Diastolic is indicates how much pressure your blood is exerting against your artery walls while the heart is resting between beats. If it is higher than 140/90 you probably have high blood pressure]

Facilitator 2	**How can we prevent high blood pressure?** **[Reduce salt to less than 5g daily, eat fruits and vegetables regularly, avoid saturated fats and trans fats, avoid tobacco, reduce alcohol, be physically active every day]** Can add to reduce stress and relate back to discuss of emotional health.
Facilitator 1	**What can happen if we have uncontrolled high blood pressure?** **[Increased the risk of heart attack, stroke, kidney failure, blindness, other complications]**
Facilitator 2	Sometimes people have no symptoms which is why it is important to regularly check our blood pressure particularly after we have had a baby in the postpartum period. **Does anyone have any questions related to this?**

Sharing Basket	
Directions 	Give women 5 mins to prepare a new verse or two for the song that will remind them about what they learned today. • Management of childhood illnesses • Male involvement • Relationships and intimate partner violence • Our physical health
Facilitator 2 	**Can I get a volunteer to get our sharing basket?** Remember, this basket will always be here. Let's see what questions we have in there today.
Closing	

Directions 	Give women 5 mins to prepare a new verse or two for the song that will remind them about what they learned today. • Management of childhood illnesses • Male involvement • Our physical health
Facilitator 1	It is time to add new verse to our song to remind us about what we have learned. Take a few minutes to add to our song? **Will someone volunteer to write the words down?**
Facilitator 2 	Let's circle up. Our next visit on **DATE**. Some of you might give birth before we meet. You are still welcome to come if you can. After we sing we will administer vaccinations to the babies. Let's sing our song.
Facilitator 1	Thank you for being a part of our group. We'll see you at visit #7 on **[DATE]**. **Visit** — **Date & Time** Visit 1: Completed Visit 2: Completed Visit 3: Completed Visit 4: Completed Visit 5: Completed Visit 6: Completed Visit 7:
Co-Facilitator Evaluation	
Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Review Contact #7 and delegate responsibilities 4. Return materials to safe storage
Thank you. Contact 6 is complete	

Administer 9-month vaccinations to all infants

Contact 7: 12 months

Contact 7: Group Postnatal/Well-Child 12 months	
Plan	
Topics Developmental milestones Nutrition Breast and cervical cancer	**Check-in & Socializing** **Healthcare** • Self-Care • Clinical Assessment **Circle Time** • Opening • Activities & Discussion • Closing **Co-facilitator Evaluation**
Materials	• Sharing basket, paper, and pens • Opening: Bag, ball • Activity 1: None • Activity 2: None • Activity 3: None

Baby's health assessment:

- Measure and plot
  - Length
  - Weight
  - Head circumference
  - Weight for length
- Physical assessment
  - Eyes – examine pupils for red reflexes, perform cover/uncover test for conjugate ocular mobility
  - Mouth – observe for caries, plaque, demineralization (white spots), and staining
  - Neurologic – observe gait
  - Genitals – determine whether testes are full descended/labia open

    - Abdomen – look for abdominal masses
    - Skin – café au lait spots, bruising, birthmarks
- Screening
    - Hematocrit or hemoglobin
- Surveillance of development
    - Social language – looks for hidden objects, imitates new gestures
    - Verbal language – uses 1 word other than mama, dada, or personal names, follows directions with gestures, such as “give me (object)”
    - Gross motor – takes first independent steps, stands without support
    - Fine motor – drops an object in a cup, picks up small object with 2 finger pincer grasp, picks up food to eat

Mother’s health assessment

- Blood pressure
- Weight
- Postpartum depression screening
- Review of physical and mental health

Interactive learning:

Circle Time	
Directions 	1. Call the group to the circle by singing the group song, ringing a bell or blowing a whistle. 2. Make sure you and your co-facilitator are not sitting next to one another sit 3. Everyone in the room should be in the circle – even students, observers, or visitors 4. Remove unused chairs/benches to close the circle
Welcome	
Facilitator 1	Welcome to [**Group Name**]. We are happy to see you’re here today. Before we proceed with greetings, is there anyone who is themselves or their baby experiencing any danger signs or has anyone visited the clinic to seek care since our last visit?
Facilitator 2	This is our last meeting together. As you remember, we start our group meeting by singing our song. Then we will practice relaxing.

Making Yourself at Ease in Your Heart [Center Yourself]	
Facilitator 1	Before we start, let's relax. Let's find our center using our breathing exercise.
Facilitator 2	Close your eyes and relax. Try not to think: **1.** Take a deep breath in and hold it for a bit **2.** As you let your breath out, let go of your thoughts and worries **3.** Let your body feel comfortable **4.** Take another deep breath in and hold it for a bit **5.** As you breathe out, don't think about the future. Just feel calm. **6.** Let's take our last deep breath together. Breathe in deeply. Hold it inside for a few seconds. **7.** Now slowly breathe out and slowly open your eyes **8.** Notice how you feel.
Facilitator 1 	**Have you tried this at home? How do you feel?** [*Wait for women to describe their feelings and acknowledge them; relaxed, less anxious, less stress*]
Facilitator 2	Thank you for sharing. This exercise can help you feel more at ease; try it whenever you are stressed or worried.

Opening:	
Directions 	1. The first person will complete the sentence, say the name of another and ask her to complete the sentence. 2. Continue until each person has contributed

Facilitator 1	Happy “birth” day for mom! This is not only the time that your child turns 1 year old, but also marks your first year as a mother to this baby. Let’s reflect on this last year to start us off today. Let’s fill in the sentence **My experience of being a mother has been…** and **One piece of advice I would pass on to another pregnant or new mother would be…**
Facilitator 2	Let me begin: ***My experience of being a mother has been [sleep-deprived and full of joy] Advice I would pass on to another pregnant or new mother is [to ask for help when you need it]. [Co-facilitator’s name], how about you?***
Facilitator 1	**Are we ready to start? *[Woman’s name]***
Facilitator 2	Thank you for sharing how you feel. Some of our advice relates to the joyful parts of motherhood and others are about the challenges. **Are there any other emotions or experiences that we should talk about from this first year?**
Facilitator 1	What about if you are not doing well? If you ever feel like you are not doing well after leaving these group sessions, **what can you do? What advice do we have for one another?**
Facilitator 2	Thank you. That advice is excellent. You all are doing a wonderful job!
Facilitator 1	Let’s talk about more about your health as we close out these sessions. Remember your physical and mental health affect your baby, relationships and other children if you have them.

Growth and development- review of milestones, happy birthday!

Activity 1: Growth and development: review of milestones	
Objective	• Highlight the many ways the baby has made progress and has experienced the world in the first 12 months • Review developmental milestones
Directions 	1. Ask parents to stand while holding their child, if possible 2. Guide them to take a step to their right for things baby has mastered or experienced, and to take a smaller step to the right for skills they may still be working on 3. Make sure to note that most of the babies are not at exactly the same place 4. Highlight there is a range of normal developmental milestones that each baby is unique
Facilitator 1	We have seen so much growth in your babies throughout this first year. Let's highlight all of the ways our babies have made progress these past 12 months. **Can we all stand up holding our children if possible?** **I will call out suggestions that describe the baby's temperament, experiences, and milestones.**
Facilitator 2	Take a step to the right for things the baby has mastered or experienced, and take a smaller step to the right for things they may still be working on. **Are we ready to try this?**

Facilitator 1	Remember to take a step to the right if they've mastered it, and a smaller step if they are still working on it. Here we go: **Head control** **Smiles** **Shows likes and dislikes** **Has breastfed/is still breastfeeding** **Laughs** **Sits unsupported** **Has first tooth** **Rolls** **Babbles** **Claps** **Is curious** **Crawls** **Stands without support** **Takes steps** **Picks up food to eat** [can add any other ones that you see capture development over the first year]

Facilitator 2	This activity highlights that not all babies are in the same place, but remember there is a range of normal developmental milestones and that each baby is unique. **Does anyone have any questions about their baby's growth and development?**

Health maintenance for mother – breast exam, cervical and ovarian cancer awareness

Activity 2: Breast, Cervical and Ovarian Cancer Awareness	
Objectives	• To learn about and understand the risks, prevention, and screening for breast, cervical, and ovarian cancer • **Opportunity to screen women for cervical cancer if they have never been screened and have those women who have already been screened as their role models**
Directions 	1. Have women break into groups of 2-3 women 2. Read statements on the risks, prevention, and screening for breast, cervical, and ovarian cancer 3. Have women discuss in their small groups what they think each statement is a fact or a myth 4. Come back as a large group and discuss the answers they have decided upon in their small groups and why they answered the way they did 5. Reveal the answer and correct any misconceptions
Facilitator 1	Our last activity will focus on health maintenance for ourselves. We want to discuss different facts and myths about cancer so that you can be aware of them to stay healthy.
Facilitator 1	Let's break out into small groups now. We will read aloud a statement and have you discuss whether it is a myth or a fact and then present to the group what your group decided on.
Facilitator 2	**Breastfeeding, healthy eating, and being active can all reduce the risk of breast cancer.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth]

	This statement is a FACT. So, poor diet, drinking alcohol, and being physically inactive can increase your risk of breast cancer.
Facilitator 1	**Only women can get breast cancer.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a MYTH. Men can also get breast cancer, but it is more common in women.
Facilitator 2	**If a close relative, like your mother or sister, has had breast cancer, then you will definitely get breast cancer.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a MYTH. While a family history of breast cancer is a risk factor, it does not guarantee that you will ever develop the disease.
Facilitator 1	**Breast cancer cannot be treated.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a MYTH. If caught early, breast cancer can be treated any many women go on to live health lives. You should talk to your provided about when and how often you should be checked for breast cancer through a clinical breast exam (CBE).
Facilitator 2	**Smoking increases your risk of cervical cancer.**

	[Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a FACT.
Facilitator 2	**Women who are HIV-positive should be screened for cervical cancer more frequently than those who are HIV-negative.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a FACT. Visual inspection using acetic acid (VIA) is the main screening method. If you are HIV-positive, you should have a VIA done every year. If you are HIV-negative, you should have a VIA every 5 years.
Facilitator 1	**There are no ways to prevent cervical cancer.** [Discuss amongst themselves in small groups and then reveal to the larger group whether they think it is a fact or myth] This statement is a MYTH. You can help prevent cervical cancer by using condoms during sex with new partners to prevent HPV disease. You can also talk to your provider about getting the HPV vaccine. The HPV vaccine is available to girls between 9-13 years of age.
Facilitator 2	Thank you all for sharing. **Does anyone have any questions related to this activity?**

Activity 3: Nutrition review	
Objective	• Facilitate discussion about nutrition for the family • Emphasize that now baby's main form of nutrition is solid foods, breastmilk still provides an important source of nutrition
Directions 	1. Encourage all participants to discuss their current nutrition 2. Provide nutrition education in response to parents discussion
Facilitator 1	This is a great time for us to review the information on nutrition we have learned and talk about nutrition for the entire family since now the baby can eat everything we eat.
Facilitator 2	**How are mealtimes going for each of you?** Can probe further if not discussion. **What are some challenges? What is working well?**
Facilitator 1	**How much can our babies be eating now? [**opportunity to talk about portions for the whole family. Babies from 1-2 years old can take between three quarters to one cup of food three to four times a day, plus one to two snacks between meals (encourage locally found food as snacks). Can discuss breastfeeding continuation here, continue breastfeeding as much as your child wants, until they are at least 2 years old.]
Facilitator 2	**What are some examples of healthy meals that your baby and family enjoy eating?** [opportunity to provide examples of healthy meals that the whole family can enjoy and check-in about the whole family's diet]

Facilitator 1	**Does anyone have any nutrition related questions they'd like to bring up?**
Facilitator 2	**Before we get to our closing, let's all take a moment to reflect. Let's go around and fill in the sentence – A wish I have for baby is…A goal I have for myself is…and my experience of this group has been…** [go around the room and have each woman share]

Sharing Basket	
Directions 	Read each question in the basket aloud to the group • Group similar questions into a pile • Ask women to help answer these important questions • Correct misinformation
Facilitator 2 	**Can I get a volunteer to get our sharing basket?** Let's if we have questions today.
Closing	
Directions 	It's time to sing a song that will remind us what we have learnt Can somebody volunteer to start a song? • Mother's health • Baby's health
Facilitator 1	Our time together is almost over. **Will someone volunteer to lead us in a song?**
Facilitator 2 	After we sing our song we will administer the babies vaccinations. **Are we ready to sing our last song?** Let's circle up. Before we sing, let me remind you that this is our last group meeting.

Facilitator 1	This is our last group meeting. Being a part of [GROUP NAME] has been a wonderful experience for us. We hope that you have made new friends and will continue to talk to one another. [**say goodbye in your own way**]
Facilitator 2	Remember to take care of yourself. Be sure to continue to take your baby to clinic for vaccinations and well-visits as well as yourself. It has been a pleasure to get to know you. [**say goodbye in your own way**]
Evaluation	
Directions 	1. Complete process evaluation forms 2. Collect all records (health records, attendance sheets) 3. Return the materials to safe storage
Thank you. Contact 7 is done. There are no more meetings with this group.	

Administer 12-month vaccinations to all infants

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CURRICULUM VITAE

Ashley Gresh, MSN, MA, RN, CNM, PhD candidate

EDUCATION

Year	Degree	Institution	Location
2023 (Expected)	PhD	Johns Hopkins School of Nursing	Baltimore, MD
2017	Post-master's Certificate	Shenandoah University	Winchester, VA
2016	MSN	Johns Hopkins School of Nursing	Baltimore, MD
2014	BSN	Johns Hopkins School of Nursing	Baltimore, MD
2011	MA	University of KwaZulu-Natal	Durban, KZN South Africa
2007	BA	McGill University	Montreal, QC, Quebec

CURRENT LICENSES AND CERTIFICATIONS

Year	Source	Type	Number
2017	American Midwifery Certification Board/ Maryland Board of Nursing	Certified Nurse-Midwife	CNM04448
2014	Maryland Board of Nursing	Registered Professional Nurse	R214752
2013	American Heart Association	Basic Cardiac Life Support	

PROFESSIONAL EXPERIENCE

Year	Position	Institution	Location
2022-present	Consultant	Group Care Global	Philadelphia, PA
2020-present	Research Assistant	Johns Hopkins School of Nursing Johns Hopkins School of Medicine Jhpiego University of Illinois Chicago	Baltimore, MD
2018-2022	Clinical Instructor	Johns Hopkins School of Nursing	Baltimore, MD

2018-2020	Global Women's Health Fellow	Johns Hopkins School of Nursing Jhpiego, Johns Hopkins School of Medicine	Baltimore, MD Rajasthan,India
2018-2020	Teaching Assistant	Johns Hopkins School of Nursing	Baltimore, MD
2015-2021	Lead Intern	PAHO/WHO Collaborating Center Johns Hopkins School of Nursing	Baltimore, MD
2015-2016	Community Health Nurse	Dayspring Programs	Baltimore, MD
2010-2012	Research Fellow	University of KwaZulu-Natal	Durban, KZN South Africa
2008	Analyst	Clinton Foundation HIV/AIDS Initiative	Kigali, Rwanda

HONORS AND AWARDS

2020-2023	NIH NINR F31 Ruth L. Kirschstein NRSA Individual Predoctoral Fellowship Award
2022	First Place Poster Presentation, International Centering-Based Group Care Conference
2021	Provost's Office Covid Relief Travel/Research Fellowship Grant, Johns Hopkins University
2020	Nurse Educational Funds, Inc Scholar, Isabel Hampton Robb Scholarship
2020	Global Health Field Research Award, Johns Hopkins School of Public Health
2016	First Place Poster Presentation, Optimizing Healthcare Quality: Teamwork in Education, Research and Practice Conference
2016	Global Health Leadership Program, Johns Hopkins School of Nursing and Johns Hopkins School of Medicine
2014	Sigma Theta Tau International Honor Society for Nurses
2013-2014	Fuld Fellow, Johns Hopkins School of Nursing
2013-2014	E. Rhodes & Leona H. Carpenter Foundation Scholarship
2013-2014	Barbara and Byron Brown Scholarship
2009-2010	Rotary International Ambassadorial Scholar, Durban, KZN, South Africa

SCHOLARSHIP

Publications

Peer-Reviewed Journal Articles (*data-based)

1. *Wilson, D., Nelson, K., **Gresh, A**., Ricker A., Littlepage, S., Brockie, T. (2023) The process of adapting a culturally informed stress reduction intervention for Native American Head Start Teachers using participatory research. *Global Implementation Science and Research Applications (GIRA).* **https://doi.org/10.1007/s43477-022-00070-3**
2. ***Gresh A**, Abrams ET, Chirwa E, et al. (2022). Experiential Training Workshops for Group Antenatal Care in Malawi. *J Midwifery Womens Health*. 67(6): 759–769. **https://doi.org/10.1111/jmwh.13436**
3. ***Gresh A**, Hofley C, Acosta J, Kennedy C, Mendelson T, Platt R. (2022). Examining processes of care redesign: Direct observation of group well-child care. *Clinical Pediatrics*, 0(0). doi:**10.1177/00099228221133138**
4. **Gresh, A**, Cohen, MA, Anderson, J, Glass, N (2021). Postpartum care content and delivery throughout the African continent: an integrative review, *Midwifery* 97: 102976. **https://doi.org/10.1016/j.midw.2021.102976**
5. *Chu, H, **Gresh, A**, Bolanos, V, Reynolds, N. (2021). Content analysis of the Global Alliance for Nursing and Midwifery discussion forum: an online community of practice, *Revista Latino-Americana de Enfermagem*, 29.
6. *Usmanova G, **Gresh A**, Cohen MA, Kim Y-M, Srivastava A, Joshi CS, Bhatt DC, Haws R, Wadhwa R, Sridhar P, Bahl N, Gaikwad P, Anderson J. (2020). Acceptability and Barriers to Use of the ASMAN Provider-Facing Electronic Platform for Peripartum Care in Public Facilities in Madhya Pradesh and Rajasthan, India: A Qualitative Study Using the Technology Acceptance Model-3. *International Journal of Environmental Research and Public Health*. 17(22): 8333.
7. **Gresh, A**, LaFave, S, Thamilselvan, V et al. (2020). Service learning in public health nursing education: How COVID-19 accelerated community-academic partnership. *Public Health Nurs.* 00: 1-10. **https://doi.org/10.1111/phn.12796**
8. Chirwa, E., Kapito, E., Jere, D. L., Kafulafula, U., Chodzaza, E., Chorwe-Sungani, G., **Gresh, A**., et al. (2020). An effectiveness-implementation hybrid type 1 trial assessing the impact of group versus individual antenatal care on maternal and infant outcomes in malawi. *BMC Public Health, 20*(1), 205-020-8276-x.
9. **Gresh, A**., Robinson, K., Thornton, C.P. and Plesko, C. (2019). Caring for Women Experiencing Breast Engorgement: A Case Report. *Journal of Midwifery & Women's Health*, 64: 763-768. doi:**10.1111/jmwh.13011**
10. **Gresh, A**, Mena-Carrasco, F, Rauh, A, Pfaff, T. (2017). Utilization of communities of practice for ongoing learning and knowledge dissemination: Making the case for the Global Alliance for Nursing and Midwifery (GANM). *Nurse Education in Practice*, 26C: 64-67.
11. *Lasater, M, Beebe, M, **Gresh, A,** Blomberg, K, Warren, N. (2017). Addressing the unmet need for maternal mental health services in low-and-middle-income-countries: Integrating mental health into maternal health care*, Journal of Midwifery & Women's Health* 62(6): 657-660.

12. **Gresh, A**, Mena-Carrasco, F, Nnanyelugoh, D, Pfaff, T. (2017). Improving Nursing and Midwifery Practice Through the Use of Information, Communication Technology (ICT). *Australian Nursing & Midwifery Journal,* 24(11):42.
13. ***Gresh, A**, Dallman, E, Johnson, E, Mena-Carrasco, F, Rosales, L, Pantaleon, V, Davidson, P, Sharps, P. (2015). The Role of the World Health Organization Collaborating Centers: Perspectives of Future Global Nurse Leaders, *Nurse Leader* 13(5): 44-48.
14. ***Gresh, A**, Maharaj, P. (2014). Termination of pregnancy: Perspectives of female students in Durban, South Africa. *African Population Studies*, 28(1): 681-690.
15. ***Gresh, A**, Maharaj, P. (2011). A qualitative assessment of the acceptability and potential demand for medical abortion among university students in Durban, South Africa. *European Journal of Contraception and Reproductive Health,* 16:67-75.
16. *Kalamar, M, Maharaj, P, **Gresh, A**. (2011). HIV prevention interventions targeting men having sex with men in Africa: field experiences from Cameroon. *Culture, Health & Sexuality*, 13(10): 1135-1149.
17. *Macia, M, Maharaj, P, **Gresh,** A. (2011). Masculinity and male sexual behaviour in Mozambique. Culture, Health & Sexuality, 13(10): 1181-1192.

Non-peer reviewed articles

1. **Gresh, A**. (2009). Making Dreams Real. *Vital Speeches of the Day* LXXV(1): 39-40.

Books/Book Chapters, Monographs, Edited Symposia

1. **Gresh, A**, Maharaj, P. (2013). Policy and Programme Responses. In: Maharaj, P *Aging and Health in Africa*. New York: Springer. pp. 211-236.

Under review

1. **Gresh A,** Wilson D, Fenick A, Patil C, Coker T, Rising S, Glass N, Platt R. Group well-child care: a scoping review and conceptual framework. (Under Review at *Maternal Child Health Journal*)
2. **Gresh A,** Batchelder A, Glass N, Mambulasa J, Ngutwa N, Kapito E, MacDonald A, Plesko C, Chirwa E, Patil C. Adapting group-based postpartum and well-child care using a human-centered design approach in Malawi. (Under Review at *BMC Health Services Research*)
3. **Gresh A,** Ahmed N, Boynton-Jarrett R, Sharifi M, Rosenthal M, Fenick A. Clinicians' perspectives on equitable healthcare delivery in group well-child care. (Under Review at *Academic Pediatrics*)
4. Robinson K, **Gresh A**, Russell N, Jeffers NK, Alexander K. Housing Instability: Exploring socioecological influences on the health of birthing people. (Revise and resubmit at *Journal of Advanced Nursing*)

Conference Meetings / Presentations

International

2022 **Gresh, A**, Wilson, D, Fenick, A, Patil, CL, Coker, T, Rising, SS, Glass, N, Platt, R. Group well-child care: a scoping review and conceptual framework: International Centering-based Group Care Conference, Apeldoorn, Netherlands (poster presentation)

2022 Batchelder, A, **Gresh, A**, Abrams, B, Patil, C. What does the core component of community building mean to you? International Centering-based Group Care Conference, Apeldoorn, Netherlands (interactive workshop)

2022 Abrams, B, Chirwa, E, Kapito, E, **Gresh, A**, et al. Group antenatal care increases satisfaction with care and attendance in Malawi, International Centering-based Group Care Conference, Apeldoorn, Netherlands (poster presentation)

2022 Patil, C, **Gresh, A**, Kapito, E, Liu, L, et al. The role of experiential-based training and local trainers in implementing and sustaining group antenatal care with high fidelity in Malawi, International Centering-based Group Care Conference, Apeldoorn, Netherlands (poster presentation)

2016 **Gresh, A**, Mena-Carrasco, F, Horn, A, Rudemiller, E, Schulz, A, Pfaff, T, Davidson, P. From local to global: Advancing Nursing and Midwifery Leadership through Innovative Education: 11th Biennial Conference of the Global Network of WHO Collaborating Centers for Nursing and Midwifery, Edinburgh, Scotland (poster presentation)

2016 **Gresh, A**, Dallman, E, Brooks, K, Sharps, P. Building the capacity of nurses and midwives to achieve the Sustainable Development Goals through knowledge gateways: Sigma Theta Tau International (STTI) 27th International Nursing Research Congress, Cape Town, South Africa (poster presentation)

2016 **Gresh, A,** Blomberg, K, Edwardson, J, Chen, C. Cultivating Global Health Nurse Leaders Through Interprofessional Education Programs: An Initiative at Johns Hopkins University: Optimizing Healthcare Quality: Teamwork in Education, Research and Practice Conference, Chiang Mai, Thailand (poster presentation)

2016 **Gresh, A**, Dallman, E, Johnson, E, Mena-Carrasco, F, et al. Fostering future global nurse leaders to work toward meeting Millennium Development Goals and Sustainable Development Goals: a global health intern program at Johns Hopkins University School of Nursing: 7th Annual Consortium of Universities for Global Health (CUGH) Global Health Conference, San Francisco, CA (poster presentation)

2016 **Gresh, A**, Mena-Carrasco, F, Pfaff, T, Utilizing online virtual communities to expand the reach of knowledge and best practices for enhancing women's health globally, International Council on Women's Health Issues Congress, Baltimore, MD (poster presentation)

2010 **Gresh, A**. A qualitative assessment of the acceptability and potential demand for medical abortion among university students in Durban, South Africa: 5th Population Association of Southern Africa Conference (PASA), Midrand, South Africa (podium presentation, invited)

National

2022 **Gresh, A**., Patil, C. Adapting and Implementing Group Healthcare in Malawi. Annual Meeting of the American College of Nurse Midwives. Chicago, IL (podium presentation)

2022 Warren, N., **Gresh, A**., Kgwabi, K., Marole, P., Forson, E.F., Adandogou, H.A., Ganges, F., Reynolds, N. Prioritizing investments in pre-service education: Results from a human-centered collaboration of West, Central, and Eastern Africa midwifery leaders. Annual Meeting of the American College of Nurse Midwives. Chicago, IL (virtual presentation)

2021 Robinson, K, **Gresh, A**, Jeffers, N, Sharps, P. Implications of Race among Pregnant People Experiencing Housing Instability: Annual Meeting of the American College of Nurse Midwives (virtual presentation)

2019 **Gresh, A**, Cohen, M, Johnson, P, Glass, N, Anderson, J. The Johns Hopkins' Global Women's Health Fellowship: An interdisciplinary model for improving global maternal and child health: Annual Meeting of the American College of Nurse Midwives, Washington, DC (poster presentation)

2016 Blomberg, K, **Gresh, A**. Advancing public health nursing education through global interprofessional educational initiatives at Johns Hopkins University School of Nursing: ACHNE/APHN Joint Meeting Public Health Nursing, Indianapolis, IN (poster presentation)

Regional

2022 Multi-level interventions to address social determinants of health across the lifespan, Cocktails and Conversations: Achieving Health Equity through Shared Decision Making, Johns Hopkins School of Nursing, Baltimore, MD (facilitator, invited)

2021 **Gresh, A.** Enhancing health equity in breastfeeding: exploring cultural influences and opportunities to increase breastfeeding support, Hot Topics in Breastfeeding, UNC Health Sciences at MAHEC (virtual webinar, invited)

Other

Magazine articles

1. **Gresh, A**, Mena-Carrasco, F, Horn, A, Pfaff, T, Davidson, P. (2017). *Global Alliance for Nursing and Midwifery (GANM) Expands to 4000 Members*. In Nursing and Midwifery Links Magazine (Online May 2017).
2. **Gresh, A**, Pfaff, T, Davidson, P. (2016). *Employing Online Communities to Disseminate Information and Build Capacity to Achieve the Sustainable Development Goals (SDGs)*, In Nursing and Midwifery Links Magazine Online May 2016).

3. **Gresh, A,** Pfaff, T, Sharps, S. (2015). *Utilizing Online Discussion through the Global Alliance for Nursing and Midwifery to Ignite Change*. In Nursing and Midwifery Links Magazine (Online October 2015).

EDITORIAL ACTIVITIES

Journal Reviewer

2018-present	Midwifery
2022-present	Health Education Research

PROFESSIONAL ACTIVITIES

Society/Association Membership and Leadership

American College of Nurse-Midwives	Member	2016-present
Sigma Theta Tau International Honor Society of Nursing	Member	2014-present

Part II

EDUCATIONAL ACTIVITIES

Classroom / Clinical Instruction

2018-2022	Clinical Instructor, NR.120.529. Population and Public Health Nursing, size of clinical group 6-9 students, Johns Hopkins University School of Nursing, Baltimore, MD
2018-2020	Teaching Assistant, NR.120.520. Nursing the Childbearing Family, Johns Hopkins University School of Nursing, Baltimore, MD
2011-2012	Teaching Assistant, graduate course Comparative Development Problems and Policies, University of KwaZulu-Natal, Durban, South Africa
2011	Guest Lecturer, graduate course HIV/AIDS in Southern Africa, University of KwaZulu Natal, Durban, South Africa

MENTORING AND ADVISEMENT

2022-2023	Master's Research Honors student	1
2015-2016	BSN Community Outreach Program students	4