UNIVERSITY OF KWAZULU-NATAL

INYUVESI YAKWAZULU-NATALI

EFFECTIVE COVERAGE OF EMERGENCY OBSTETRIC AND NEWBORN CARE SERVICES IN WOLAITA ZONE, SOUTHERN ETHIOPIA

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By:

Name: Mihiretu Alemayehu Arba

Student number: 219096244

Primary supervisor: Nelisiwe Khuzwayo (Ph.D.)

Co-supervisor: Bereket Yakob (Ph.D.)

May 22, 2023

Plagiarism:

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Signed: [redacted] Date: May 22, 2022

Nelisiwe Khuzwayo (Ph.D., supervisor)

Signed: [redacted] Date: May 22, 2022

Bereket Yakob (Ph.D., Co-supervisor)

Signed: [redacted] Date: May 22, 2022

AUTHOR'S CONTRIBUTION

Manuscript 1:

Alemayehu, M, Yakob, B, Khuzwayo, N. Effective Coverage of Emergency Obstetric and Newborn Care Services in Africa: A Scoping Review. *Open Access Emerg Med*. 2023;15:93-108 https://doi.org/10.2147/OAEM.S403145 **(Published)**

Manuscript 2:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Effective Coverage of Emergency Obstetric and Newborn Care Services in Wolaita Zone, Southern Ethiopia. Health Care for Women International Journal. **(Under review)**

Manuscript 3:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Quality of emergency obstetric and newborn care services in Wolaita Zone, Southern Ethiopia. BMC Pregnancy Childbirth **22**, 686 (2022). https://doi.org/10.1186/s12884-022-05019-w **(Published)**

Manuscript 4:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study. *BMC Public Health* **22**, 2087 (2022). https://doi.org/10.1186/s12889-022-14504-y **(Published)**

DEDICATION

This work is dedicated to my strong, wise, and caring wife, Engdazer Alemu, who has been a sacrifice, source of support, encouragement, and inspiration during the challenges we have faced in life and the Ph.D. work. Without your role, this work wouldn't have been made possible. I am truly thankful and praise God for having you in my life. My little angels, Anhanis Mihiretu (my son) and Johanna Mihiretu (my daughter), were my motivations for success in my life.

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DEFINITION OF TERMS

Emergency Obstetric and Neonatal Care (EmONC): It is the care given to women and newborns during pregnancy, childbirth, and the postpartum period when she faces severe and life-threatening complications (WHO et al., 2009).

Basic Emergency Obstetric and Newborn Care (BEmONC) facilities: are health facilities that are expected to provide the seven signal function tests, namely: parenteral antibiotics, parenteral uterotonics, parenteral anticonvulsants, manual removal of placenta, removal of retained products, assisted vaginal delivery, and neonatal resuscitation (WHO et al., 2009).

Comprehensive Emergency Obstetric and Newborn Care (CEmONC) facilities: provide caesarian section and blood transfusion services in addition to the seven services given by BEmONC facilities (WHO et al., 2009).

Obstetric complication: A woman is classified as having obstetric complication if she had at least one of these; a) hemorrhage (antepartum and postpartum), b) prolonged and/or obstructed labor, c) postpartum sepsis, d) complications of abortion, e) severe pre-eclampsia and eclampsia, f) ectopic pregnancy and g) ruptured uterus (WHO et al., 2009).

Crude Coverage of EmONC services: Proportion of women with major direct obstetric complications who obtained treatment from health facilities (WHO et al., 2009; Admasu et al., 2011).

Effective Coverage (EC) of EmONC services: The fraction of potential health gain delivered to the population in need (women with major obstetric complications) measured by combining the three widely used components of need, use, and quality of EmONC services (Shengelia B et al., 2005). It is estimated numerically from 0% (no EC) to 100% (perfect EC).

Quality of EmONC Services: The extent to which EmONC services are provided to individuals to attain the desired health outcome. It is assessed through the triad of structure, process, and outcome measurements (Ayanian and Markel, 2016).

Structure/input quality: was assessed through a series of items that measure the facilities' structure and readiness. The composite variable was computed from 75 items converted to 100% (EPHI et al., 2016; EPHI et al., 2014; WHO et al., 2009).

Process/observed quality: was a composite variable measured through 42 items of the observation checklist (standard clinical actions) and converted to 100%. It was measured by observing the care provided to women in the EmONC facilities starting from the initial patient assessment to discharge from the facility (EPHI et al., 2016; EPHI et al., 2014; WHO et al., 2009).

Output quality: was measured by the woman's satisfaction with the EmONC services using 12 Likert scale items having a 5-scale Likert scale (Tayelgn et al., 2011).

ABSTRACT

Background: Despite the significant improvement in the availability and access of facilities in low and middle-income countries, a considerable burden of maternal and child morbidity and mortality exists, further suggesting the need for effective coverage of EmONC services. Understanding the extent to which the health system delivers quality service and the factors that predict the gap in providing the services are vital to evidence-based decisions at the local, national, and global levels. However, evidence is lacking on the effective coverage of EmONC services and factors influencing quality service provision.

Objective: This study aimed to understand, explore, and describe the contexts, correlates, and levels of effective coverage of EmONC services in the Wolaita Zone, southern Ethiopia, and develop a model for effective coverage of EmONC services.

Methods: After mapping the evidence for effective coverage of EmONC services in Africa, the study employed an explanatory sequential mixed-method approach. The quantitative study applied a cross-sectional design, including 414 (facility-based survey) and 402 (house-to-house survey) study participants. The quantitative data were collected using an Open Data Kit (ODK) tablet phone software and exported to Stata version 17 for analysis. Simple and multiple linear regressions, along with p-values, coefficients, and 95% confidence intervals, were used to declare the statistical significance and strength of the association. The qualitative study employed a case-study research design including 37 participants (selected using maximum variation sampling) to explore the barriers and enablers of EmONC services utilization. The coding and thematic analysis of the qualitative study were assisted by NVIVO version 12 software. The qualitative study assured trustworthiness by establishing credibility, transferability, conformability, and dependability.

Result: The scoping review showed a paucity of evidence on the effective coverage of EmONC services in Africa. It also provided a summary of existing evidence on the crude coverage, quality of EmONC services assessed through diverse indicators, and factors linked with the quality of EmONC services. The household survey identified 72.1% crude coverage of EmONC services. The facility-based survey of EmONC services revealed that the indices of structural, process, and output quality were 74.2%, 69.4%, and 79.6%, respectively. Overall, 59.2% of women with EmONC service-need received poor-quality services. Women's education grade 1–8 (B=5.35, 95% C.I: 0.56, 10.14), and grade 9–12

(B=8.38, 95% C.I: 2.92, 13.85), age (B= 3.86, 95% C.I: 0.39, 7.33), length of stay at health facility (B= 3.58, 95% C.I: 2.66, 4.9), crowding in the delivery room (B= -4.14, 95% C.I: -6.14, -2.13), and health professional's experience (B= 1.26, 95% C.I: 0.83, 1.69) were statistically significant predictors of observed EmONC service quality. Overall, the effective coverage (the crude coverage adjusted by the observed quality of care) of EmONC services in the Wolaita Zone was 50%, indicating half of the potential health gain loss in EmONC services. The qualitative study of barriers and facilitators of EmONC services utilization identified five themes that interacted at different levels. Theme one was women's perceptions and experiences with EmONC services, including their knowledge and awareness of the availability of services, perception of the quality of care, reputation, respectful care, and care providers' gender. Theme two was community-related factors encompassing misconceptions, traditional management of obstetric complications, the role of traditional birth attendants, and family and peer influence on EmONC services utilization. Theme three was the accessibility and availability of EmONC services, including infrastructure and delays in transportation. Theme four was healthcare financing which focused on drugs and supplies, out-of-pocket expenses, and service fee exemption. Theme five was the health facility-related factors related to the care provider, referral system, waiting time, and leadership.

Conclusion: The study showed that the effective coverage of EmONC services in the Wolaita Zone (Southern Ethiopia) was low, where half of the potential health gain was lost due to barriers centered on the women, community, access and accessibility, healthcare financing, and health facility linked factors. The quality of EmONC services was sub-optimal, where women and newborns received inadequate services, and the care providers poorly adhered to the standard clinical actions. The study also underlined that the care providers' adherence to the standard clinical actions was poor and is significantly associated with the age and education of women, length of stay in the facility, crowding of the delivery room, and health professionals' experience. The inequitable effective coverage of EmONC services implied loose emphasis and suggested an urgent need for the health system's intervention. Therefore, interventions directed at the identified bottlenecks can improve the utilization and quality of care, ultimately enhancing effective coverage. Furthermore, the model developed by the study can be utilized to enhance maternal and newborn health.

Keywords: effective coverage; obstetric care; health system; healthcare quality; newborn care; maternal and child health; Africa; Ethiopia

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ACRONYMS AND ABBREVIATIONS

AMDD: Averting Maternal Death and Disability

BEmONC: Basic Emergency Obstetric and Newborn Care

BREC: Biomedical Research Ethics Committee

C.I: Confidence Interval

CBHI: Community-based Health Insurance

CEmONC: Comprehensive Emergency Obstetric and Newborn Care

CFR: Case Fatality Rate

DHS: Demographic and Health Survey

DOCFR: Direct Obstetric Case Fatality Rate

DRC: Democratic Republic of Congo

EC: Effective Coverage

EmOC: Emergency Obstetric Care

EmONC: Emergency Obstetric and Newborn Care

IDI: Individual In-depth Interviews

IESO: Integrated Emergency Surgical Officers

IQR: Inter-quartile Range

JBI: Joanna Briggs Institute

KIIs: Key-informant Interviews

LMICs: Low and Middle-Income Countries

MeSH: Medical Subject Heading

MMAT: Mixed Methods Appraisal Tool

MMR: Maternal Mortality Ratio

ODK: Open Data Kit

OSF: Open Science Framework

PCC: Population, Concept, and Context

PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews

S.D: Standard Deviation

SDG: Sustainable Development Goal

TBA: Traditional Birth Attendant

UHC: Universal Health Coverage

UN: United Nations; WHO: World Health Organization

UNFPA: United Nations Population Fund

UNICEF: United Nations Children's Fund

UNICEF: United Nations Children's Fund

WHO: World Health Organization

CHAPTER ONE: INTRODUCTION

1.1. Background

1.1.1. Emergency Obstetric and Newborn Care

Pregnancy is mothers' riskiest experience while bringing new life into this world. It is usually accompanied by life-threatening complications leading to death and disabilities (WHO, 2007). The World Health Organization (WHO) reported 295,000 maternal deaths in 2017, where 94% occurred in low and middle-income countries (LMICs) (WHO, 2019). This indicates that in Sub-Saharan Africa, one in every fourty-one mothers dies because of pregnancy-related complications. The main causes of maternal death are hemorrhage, infections, hypertensive disorders, unsafe abortion, and obstructed/prolonged labor (WHO et al, 2023). The first four weeks of life are the most vulnerable for child survival, with 2.4 million neonatal deaths in 2020, where birth asphyxia and other intrapartum-related problems (WHO, 2022) played a major role.

Reducing maternal and newborn mortality is one of the priority health and development agenda (UNDP, 2015). One way of reducing maternal and newborn mortality is by improving the availability and accessibility of health services and enabling women and newborns to use quality services for obstetric emergencies. These services are recognized as Emergency Obstetric and Newborn Care (EmOC). It is a structured approach established by the WHO and other international organizations to equip health facilities to handle and manage the key complications that lead to maternal and newborn mortality (WHO et al., 2009). These integrated services are provided at two levels: basic and comprehensive EmONC services. The basic EmONC services are provided at primary health facilities (particularly health centers), while the comprehensive services are provided at higher-level health facilities (general, referral, or specialized hospitals).

Providing emergency care is recognized as an essential and effective component of obstetric services to save the lives of mothers and newborns who could die due to preventable causes (WHO, 2003). These services shall provide rapid and sufficient treatment for complications of pregnancy and childbirth. Besides, EmONC facilities should: exist and give service actively, distribution of quality care should be geographically equitable, be used by pregnant mothers, be used by women and newborns with complications, deliver adequate services, and deliver good-quality care (WHO et al., 2009). As a result, studies underlined the necessity of generating evidence on the provision of EmONC services to curb the

high levels of maternal and newborn morbidity and mortality in developing countries (Campbell et al., 2013; Banke-Thomas et al., 2019a; Ameh et al., 2019; WHO et al., 2009). However, there is limited evidence on estimating the adequacy of EmONC services to needy people in the region (sub-Saharan Africa).

1.1.2. Effective coverage

One of the Sustainable Development Goals (SDG) (goal 3) suggests the realization of universal health coverage, with the quality of healthcare services as an integral component (UNDP, 2015). This evolution indicates the rising recognition that delivering various quality services is vital to the health system to provide the services to the population they serve (Sobel et al., 2016; Kruk et al., 2016a). Expanding the emphasis from "access to care" to "quality of care" has increased attention in measuring effective coverage (EC). Accordingly, it means the *fraction of potential health gain provided by the health system to the needy population* (Willey et al., 2018; Shengelia B et al., 2005). The WHO and World Bank have suggested measuring and improving EC as a vital approach to tracing and achieving universal health coverage (World Bank and WHO, 2015).

EC blends the three widely used components, including need, use, and quality of healthcare interventions, to estimate the fraction of potential health gain delivered by the health system to the people in need (Campbell et al., 2013; Shengelia B et al., 2005). It is estimated using the following formula

$$EC = Q*U/N,$$

where N is the population in need of an intervention, U is the utilization of the intervention, and Q is the quality of the intervention (Shengelia B et al., 2005)

Several approaches have been suggested for measuring the quality component of EC, such as the content of care, biomarkers, cohort registration, exposure matching, statistical methods, and risk-adjusted outcomes (Donabedian, A. 2005; Ng M et al., 2014). Selecting the best indicator is not easy, and there is not one standardized approach for every health program. The different components of quality of care, such as structures, processes, and outputs, have been assessed using distinct parameters, and a composite measure or indicator is yet unavailable (Donabedian, A. 2005). Measures and standards are available for assessing the contents of different health programs and care services and have been studied in several

contexts (Leslie H H et al., 2017; Nguhiu P et al., 2017; Wang W et al., 2019; Yakob B et al., 2019). Accordingly, the current study selected the content of care to measure the quality (EC) of EmONC services. This method was chosen because it helps investigate the demand- and supply-side factors related to the EC of EmONC services. It also guarantees that the measurement's structure (input), process, and output components can be used as vital sources of indicators (Ng M et al., 2014).

1.1.3. Effective coverage of EmONC services

EmONC services can avert three-quarters of maternal mortality if all mothers get quality healthcare (Adam W and Mariam C, 2004). Evidence shows that it is not mere contact (access) to the healthcare facility or healthcare provider that leads to better outcomes; the actual content of care delivered and how it is provided can reduce morbidity and mortality (Campbell et al., 2013). As improving EC of EmONC service is one of the major global priority health agendas (UNDP, 2015), understanding the extent to which the health system delivers EmONC service to those in need is a vital step in the decision-making process at local, national, and global levels (World Bank and WHO, 2015).

The three components of EC are defined for the EmONC services as follows: Need is the number of women and newborns who have major obstetric complications, while utilization is the number of women and newborns having major direct obstetric and neonatal complications which are treated in a health facility providing EmONC services (WHO et al., 2009; Admasu et al., 2011). The quality component is assessed using the Donabedian quality assessment framework using the triad of structure, process, and outcome of health care. The health facility setting, care providers' qualifications, and administrative systems were considered structural quality. On the contrary, process quality was defined as the components of care provided, while outcome quality is recovery, restoration of function, and survival. These concepts remain the foundation of quality assessment today (Ayanian and Markel, 2016; Berwick and Fox, 2016).

1.2. Statement of the problem

Globally, more than 800 mothers and 6500 newborns died daily in 2020 (WHO et al., 2023; UNICEF, 2021). The lifetime risk of maternal mortality is estimated to be 1 in 41 in sub-Saharan Africa, contrasting sharply with an approximate lifetime risk of 1 in 5100 maternal mortalities in Europe and North America (WHO et al., 2023). Recent evidence indicates that despite the significant improvements in the access to and availability of EmONC facilities (FMOH Ethiopia and WHO, 2013), Ethiopia faces

514 a considerable burden of maternal and newborn morbidity and mortality. The WHO reported 267
515 maternal deaths per 100,000 live births in Ethiopia, exceeding the global average of 223 maternal deaths
516 per 100,000 (WHO et al., 2023).

517 Research evidence shows that delays in the decision to access care, identify a facility, transport the
518 woman and newborn to a medical facility, and deliver adequate and appropriate treatment affect the
519 outcome of obstetric emergencies (Mgawadere et al., 2017; Illias K et al., 2019). An increase in the third
520 delay (the time from arrival at a healthcare facility to receiving the requisite treatment) is linked to
521 increased health facility-related causes of maternal death (Mgawadere et al., 2017; Illias K et al., 2019,
522 EPHI et al., 2019). As a result, poor obstetric and newborn care quality plays a pivotal role in maternal
523 and newborn adverse health outcomes.

524 If the health facilities were to give 'good' quality care, most deaths would be averted (Mgawadere et
525 al., 2017). For instance, in northern Ethiopia, 35.2% of maternal deaths that occurred in health facilities
526 were related to medical errors and inadequate hospital services, such as shortage and delay in blood
527 transfusion and inappropriate treatment, which could have been avoided if women had received safe
528 and quality care (Samuel H et al., 2009; Yifru and Ahmed, 2004). Though substantial evidence supports
529 that skilled birth attendance reduced maternal and newborn deaths (Tura et al., 2013; Lee et al., 2011;
530 WHO et al., 2004), facility deliveries were not always associated with improved maternal health
531 outcomes. For instance, a recent review found higher mortality for women delivering in health facilities
532 (Chinkhumba et al., 2014). Furthermore, women with negative perceptions of the quality of obstetric
533 care services tend to avoid using the service where essential interventions are delivered (Austin et al.,
534 2014). This implies that providing accessible, need-based, and quality EmONC services is vital to
535 effective obstetric care strategies for improving maternal and newborn health.

536 Despite the significant advancements over the traditional measurement of crude coverage (which only
537 captures access) for a health performance metric, however, a considerable amount of the literature has
538 emphasized only a part of the components of EC (Fisseha et al., 2017; Mpunga Mukendi et al., 2019;
539 Berhane et al., 2019; Wichaidit et al., 2016; Desalew Z.A et al., 2014). Hence, obtaining a
540 comprehensive depiction of the EC of EmONC services using its three components (need, use, and
541 quality) is vital. Although some strides have been made in the assessment of EC of EmONC services
542 abroad (Nguhiu et al., 2017), the quality of care assessment mechanism lacked completeness
543 (concerning the three domains) (Ayanian and Markel, 2016). Therefore, the work described in the

following chapters attempts to describe the EC of EmONC services, its context and correlates in the Ethiopian context that could serve as an input to the policy framework and evidence-based interventions for the country and other similar settings in LMICs.

1.3. Significance of the study

Universal Health Coverage (UHC) is one of the United Nations (UN) targets for Sustainable Development Goals (SDG) and is planned to be achieved by 2030 (UNDP, 2015). However, the demand for health care services is increasing while the disease burden is shifting to a more complex situation. This further sparked the quality of health services to appear as a critical determinant for enhancing health and reducing disease burden (Rubinstein et al., 2018). Hence, improving the access, use, and quality of maternal health services, including EmONC service, is vital to reduce maternal and neonatal adverse health outcomes in developing countries. Moreover, health systems deliver optimum health gain when those in need access services and receive high-quality care. The increasing prominence of quality of care as a central agenda suggests assessing EC, which is the product of utilization and service quality conditional on the need, which is recently recommended to assess and evaluate the health system (Shengelia B et al., 2005).

This study reported the existing knowledge gaps to understand the EmONC service provision context that contributes to enhancing maternal and newborn health and well-being. Hence, this study's knowledge, experience, findings, and model/framework can serve as input to policymakers and program developers for developing policy frameworks and improving maternal and newborn health in Ethiopia and other similar settings. The approaches and theories used in the current study provide a versatile approach to understanding and measuring the effective coverage of EmONC services. Specifically, the evidence gaps in Africa explored through scoping review (discussed in the subsequent chapters) provide a means of understanding the shortcomings (research gap). Furthermore, barriers and enablers of EmONC service use, quality of EmONC services and its determinants, and the effective coverage of EmONC services in the current study provide concrete evidence and understanding of the contexts of EmONC services.

1.4. Purpose and objectives

1.4.1. Purpose of the research

This study aimed to understand, explore, and describe the contexts and levels of EC and the correlates of quality of EmONC services in the Wolaita Zone, southern Ethiopia, and develop a model.

1.4.2. Research question

What are the contexts, correlates, and levels of EC of EmONC services in Wolaita Zone, southern Ethiopia?

1.4.3. Objectives of the research

- To conduct a scoping review of the EC of EmONC services and factors linked with the utilization of quality services in Africa.
- To measure the quality of EmONC services and identify the predictors of good quality
- To measure the EC of EmONC services
- To explore the barriers and enablers to the utilization of EmONC services
- To develop a model of effective coverage of EmONC services

1.5. List of Manuscripts

Paper 1:

Alemayehu, M, Yakob, B, Khuzwayo, N. Effective Coverage of Emergency Obstetric and Newborn Care Services in Africa: A Scoping Review. *Open Access Emerg Med*. 2023;15:93-108 https://doi.org/10.2147/OAEM.S403145

Status: This paper is published in the Open Access Emergency Medicine journal.

Paper 2:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Effective Coverage of Emergency Obstetric and Newborn Care Services in Wolaita Zone, Southern Ethiopia. Health Care for Women International Journal.

Status: This paper has been submitted to the HealthCare for Women International Journal and is under review.

Paper 3:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Quality of emergency obstetric and newborn care services in Wolaita Zone, Southern Ethiopia. BMC Pregnancy Childbirth **22**, 686 (2022). https://doi.org/10.1186/s12884-022-05019-w

Status: This paper is published in the BMC pregnancy and childbirth journal.

Paper 4:

Alemayehu, M., Yakob, B. & Khuzwayo, N. Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study. *BMC Public Health* **22**, 2087 (2022). https://doi.org/10.1186/s12889-022-14504-y

Status: This paper is published in BMC Public Health Journal.

1.6. Thesis structure

The thesis is presented in eight chapters. Below is the summary of the Chapters.

Chapter 1: Introduction

This chapter provides background information about the overview of EmONC services and EC. It provides a detailed explanation of the problem of the statement, significance, purpose, and objectives of the research, and the list of manuscripts.

Chapter 2: Literature review

This chapter provides current literature on the EC of EmONC services and the theoretical and conceptual frameworks.

Chapter 3: Methodology

This chapter provides detailed information on the study design, approach, phases, study area and setting, population, inclusion and exclusion criteria, sample size determination and sampling strategy, data collection instrument and procedure, study instruments and variables, data management and analysis, data storage, quality control, and assurance, and ethical considerations.

Chapters 4 to 7: Manuscripts and publications

These chapters contain publications and manuscripts under review.

Chapter 8: Synthesis

This chapter presents a brief discussion and synthesizes the major findings reported in the manuscripts. It indicates how the results are interrelated and formulate a model for the EC of EmONC services. A summary of findings and recommendations for further initiatives that will enhance the EC of EmONC services are also provided at the end of the chapter.

Appendices

The appendices contain ethical approval, a letter of permission, information sheets, consent forms, questionnaires, checklists, interview guides, and other relevant information.

CHAPTER TWO: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1. Introduction

Effective coverage is a proxy measurement of potential health gain obtained from the service and an essential indicator for measuring progress toward universal health coverage (Ng et al., 2014). The *need*, *use*, and *quality* comprise EC measurement. *Need* states the population needing a specific health service, whereas *use* denotes the usage of a health service. On the other hand, quality (the third component of EC) is the actual benefit that the population acquires from using that particular health service. Estimating EC has increasingly attracted attention as service quality impacts the service's actual benefit (Shengelia B et al., 2005). It has an advantage over crude coverage measurement since utilization alone does not necessarily imply the full benefit gained from an intervention (Ng et al., 2014).

In recent years, there has been literature on EC of health interventions (Walque et al., 2022; Ng et al., 2014; Shengelia B et al., 2005; Viviescas-Vargas et al., 2013; Scheibe et al., 2013; Lopez-Lopez et al., 2012; Willey et al., 2018). Evidence also reported that EC could be applied to maternal and child health services (Willey et al., 2018). Though evidence is lacking on the EC of EmONC services, its concept can be interpreted for particular population subgroups. Accordingly, EmONC need is defined as the number of pregnant women with obstetric complications that urge them to visit health facilities. EmONC use is the number of pregnant women with obstetric emergencies who visited health facilities and used/got the service. The quality of EmONC service captures whether the service conferred the health gain or protection it was supposed to. Hence, this chapter deals with the EC of EmONC services and factors predicting the utilization and quality of care.

2.2. Availability, need, and utilization (crude coverage) of EmONC services

WHO recommends a minimum of 5 health facilities for every 500,000 population to provide EmONC services (WHO et al., 2009). However, the coverage of EmONC facilities varies across and within the countries; generally, sub-Saharan countries have low access to EmONC services (Banke-Thomas et al., 2019b). For instance, EmONC services coverage was 28% in Mozambique (Augusto et al., 2018) and 9.1% in the Democratic Republic of Congo (Mpunga Mukendi et al., 2019), and the coverage varied grossly by provinces and urban-rural locations. Similarly, in Abidjan, Ivory Coast, the availability of

comprehensive emergency obstetric care was low, i.e., there was only one CEmONC facility for 918,819 population in Lubumbashi, the Democratic Republic of the Congo (Ntambue et al., 2017).

Globally, nearly 15% of all births face major obstetric complications (WHO et al., 2009). Nevertheless, among those births with complications, only 45% of them received the service making the global met need for EmONC service to be lower than half in 2015, with a significant disparity between low (21%), middle (32%), and high-income countries (99%) (P = 0.041). This disparity corresponds to 11.4 million untreated complications yearly and 951 million women without access to EmONC (Holmer et al., 2015). The gap is even noticeable across countries within Sub-Saharan Africa (Benie et al., 2008; Bayo et al., 2018; Solnes Miltenburg et al., 2017).

According to a study from South Sudan, the met need for EmONC services was 65.1%, indicating that one-third of women with major obstetric complications were not utilizing the service, with inequitable distribution across the study area (Bayo et al., 2018). A study from Abidjan, Ivory Coast, reported that 60.1% of emergency obstetric cases were fully covered (Benie et al., 2008). Similarly, a study from rural districts of Tanzania stated that only one-fifth of women with complications visited EmONC facilities (Solnes Miltenburg et al., 2017). Findings from Malawi and Nigeria show a far lower coverage of EmONC service accounting for 20.7% and 9.9%, respectively (Kabo et al., 2019; Kongnyuy et al., 2009). Similarly, national survey data from Ethiopia reported 18% coverage of EmONC services use with a wide variation across regions, ranging from 3% in Gambella to 83% in Addis Ababa (EPHI et al., 2016).

2.3. Quality of EmONC services and measurement approaches

The quality of EmONC service is a cornerstone for improving maternal and child health and well-being (WHO et al., 2009), subsequently leading to better universal health coverage (Rubinstein et al., 2018). Evidence suggests that increased utilization of healthcare services did not reduce excess deaths; however, the actual quality of service matters (Kruk et al., 2016a). Nevertheless, the extent and level of EmONC services quality disproportionately varied across administrative subnational areas and countries, ranging from a complete absence (none of the facilities provided quality service) of quality to poor/low (few facilities provided quality service) quality of EmONC service. For instance, a combination of nationally representative surveys of five African countries reported low quality of maternal care functions. The report described an average quality score of 0.42 (with a standard deviation of 0.24) (Kruk et al., 2016b). This study measured the quality of care using a series of indicators through

items that assess infrastructure and the use of routine and emergency care interventions. It assessed service quality by measuring only the structure and process components, lacking the outcome quality.

A study conducted in the Democratic Republic of Congo reported that none of the facilities provided quality EmONC service, mainly because of the lack of proper standards and guidelines (Mpunga Mukendi et al., 2019b). This study measured the quality of EmONC services based on the availability of elements such as the presence of trained staff, existence of guidelines, availability of materials, and availability of drugs and products, indicating the study's focus on the structural component of Donabedian's framework (Ayanian and Markel, 2016), leaving out the process and outcome components.

According to the report from a study conducted in rural districts of Mwanza Region, Tanzania, none of the facilities performed at the anticipated level for EmONC. The authors measured quality in terms of the provision of the signal functions of EmONC services. The study also reported a shortage of essential drugs and a failure to perform vacuum extraction and blood transfusion. This study focused only on the availability of materials and supplies rather than incorporating all the domains of quality assessment (Solnes Miltenburg et al., 2017). Another study conducted in the same country (Pwani Region, Tanzania) reported a 50% average quality of EmOC services provision (Larson et al., 2017), indicating a disparity in service quality within a country. Contrary to the earlier study, this study assessed service quality in terms of all three dimensions (structure, process, and outcome).

A study from Northern Ethiopia (Tigray region) reported a low quality of EmONC service. The authors used patients' perspectives to measure the quality of EmONC service. Accordingly, the perceived quality of BEmONC services was poor, accounting for 66.7%. The result has shown lower quality rates of clients on the availability of equipment, cleanliness, and functionality of bathrooms. Administering anti-pain during labor and manual vacuum aspiration (MVA) were also recorded as poor-quality services (Berhane et al., 2019).

2.4. The level of Effective coverage of EmONC services

A growing body of literature has investigated the EC of health services. However, the generalizability of most published research on EmONC services is problematic since most of them focused on either crude coverage or quality of care (Otolorin et al., 2015; Kim et al., 2012) rather than a holistic approach to EC of EmONC services. Though some studies investigated EC (Willey et al., 2018; Nguhiu et al.,

2017; Leslie et al., 2017; Yakob et al., 2019; Wang et al., 2019), their scope is inconsistent with the EmONC services.

A report of nationally representative household surveys conducted in 8 high mortality countries reported a combined EC for ANC, FP, and care for sick-child to be 25.4% ranging from 19% in Senegal to 40.7% in Namibia (Leslie et al., 2017). A facility-based cross-sectional study conducted among 24 primary healthcare facilities in the Pwani Region of Tanzania reported a 25% EC of EmONC service (Larson et al., 2017). However, in a study conducted in Kenya, the EC of MCH services has shown a tremendous change in trend by nearly doubling the performance from 26.7% to 50.9% within a decade (Nguhiu et al., 2017).

A study from Mayuge District, Uganda, determined the EC of EmONC using the individual-linking method. Accordingly, the EC of births in a facility ready to provide BEmONC services was just 10% (95% C.I: 3-17). The report also underlined the immense discrepancy between the proportion of women accessing adequately equipped facilities and the crude coverage of health facility delivery (Willey et al., 2018).

A nationally representative survey (Service Provision Assessment plus 2014) from Ethiopia reported that the EC of family planning and ANC services was 22% after adjusting the crude coverage for quality of care (Yakob et al., 2019). However, despite evidence on the EC of PMTCT (Hussein et al., 2011a) and VCT (Hussein et al., 2011b), no documented study has been found on the EC of EmONC services in Ethiopia.

2.5. Factors linked with utilization and quality of EmONC services

2.5.1. Factors associated with the utilization of EmONC services

Studies reported that socio-economic status significantly impacted the utilization of EmONC services. For instance, a study from the three districts of Pakistan identified Women's social status, education, husband's employment, and household income as statistically significant predictors of EmONC service utilization (Mateen et al., 2013). Similarly, a study from the Philippines also showed a significant relationship between the utilization of BEmONC services and women's employment status, income level, and educational status (Alvaro and Oducado, 2015).

A qualitative study from Nigeria reported that women's perception of the quality of EmONC services tremendously affected service uptake (Ntoimo et al., 2019). Besides, another qualitative study from Ethiopia reported that fear of disrespectful service given in health facilities was also a barrier to women's EmONC service utilization (Gebremichael et al., 2018). Women's healthcare decision-making autonomy was another influencing factor in women's EmONC service utilization (Shah et al., 2020).

A Ghanaian study reported access, transportation availability, and the locality's topography as influencing factors for EmONC service utilization (Daniels and Abuosi, 2020). Furthermore, the service charge cost and waiting time were reported as factors that affect the utilization of EmONC services in Nigeria (Banke-Thomas et al., 2017).

2.5.2. Factors associated with quality of care

Several efforts have been made to identify the factors that affect the utilization of quality EmONC services (Okonofua et al., 2017; Kruk et al., 2016b; Larson et al., 2017). For instance, a combination of nationally representative surveys of five African countries (Kruk et al., 2016b) reported that the quality of service delivery varied concerning the type and scope of the services they delivered. I.e., all the quality measurement indices were lower for facilities that didn't provide a caesarian section than their counterparts. Besides, wider discrepancies existed for infrastructures (provision of electricity and basic emergency procedures across the health facilities). But, for health facilities that didn't provide caesarian section, the quality of care was associated with delivery volume/year of $\leq$500 (Adjusted β =–0.17, 95% C.I: –0.21, –0.12), 501-1500 (Adjusted β = –0.09, 95% C.I: –0.13, –0.05), 1501-2500 (Adjusted β = –0.07, 95% C.I: –0.11, –0.04), private facility (Adjusted β = 0.06, 95% C.I: 0.03 - 0.08), ART facility (Adjusted β = 0.06 (0.03 -0.10) (Kruk et al., 2016b).

In Tanzania, economic status was one of the predictors of receiving quality service, and the wealthiest 20% of women were 4.1 times as likely to deliver in facilities offering at least the minimum threshold of quality care through the cascade compared to the poorest 80% of women (95% C.I: 1.5–11.3) (Larson et al., 2017). In a qualitative study conducted in Nigeria (Okonofua et al., 2017) to explore the health professionals' view about the quality of EmONC services, hospital managers were aware of the gravity of maternal mortality and the steps of improving maternal health care. However, many respondents reported a lack of policies and specific action plans to prevent maternal mortality, and many did not intentionally distribute budgets or resources to address the problem. According to this study, although some health professionals reported that maternal/perinatal audits occur in their hospitals, there was no

substantive evidence on the records of maternal/ perinatal inspections' availability. Besides, respondents decried the lack of appropriate data collection systems in the health facilities for proper monitoring of maternal mortality and identification of appropriate remediating actions (Okonofua et al., 2017).

2.6. Summary of literature review

Much of the current literature on emergency obstetric care pays particular attention to crude coverage or quality of care. Though some studies analyzed and identified EC, the scope was broader and non-specific to EmONC services. Besides, most studies investigated the quality of EmONC services. However, they lacked comprehensiveness concerning the Donabedian quality assessment framework (structure, process, and outcome quality). Though few studies identified factors affecting EmONC services utilization and quality of care, most lacked statistical associations. The results are also poorly established in identifying predictors, particularly maternal factors, health professional-related factors, health facility-related factors, socio-economic factors, and others that might be potential facilitators or barriers to quality EmONC service utilization. Overall, evidence is lacking on the EC of EmONC services in Ethiopia and other similar settings.

2.7. Theoretical foundation

The theoretical framework helps predict and shape a study's direction. It also guides the research topic, research questions, and variable selection. Furthermore, it influences data analysis and is central to the quest for ongoing knowledge inquiry (Fox et al., 2015). This study followed the *attribution theory* (Kelley and Michela, 1980) and *social learning* (Bandura, 1985) *theory* as a guide and the *health system* (WHO, 2007) and Donabedian's framework (Ayanian and Markel, 2016) concept for the research process. The research is also assisted by the health belief model (Rosenstock I. M, 1974) and the '*three delays*' model (Shah et al., 2020), which provided a framework for the research's design through which vital queries are explored.

2.7.1. Attribution theory

Attribution theory provides the framework necessary to understand how individuals explain why events in their environment happen (Kelley and Michela, 1980). It is centered on the thought that the cause explains the outcome (success or failure) (Harvey and Weary, 1984). This theory concerns phenomenal causality rather than seeking the actual cause. The perceived causes differ as a function of situational

context. Causal beliefs vary between age groups, cultures, and targets (self or community benefit). As this theory believes that the causes for potential perceived success are numerous and diverse (Bardwell, 1986), it assisted the researcher in being careful during generalization. Hence, the theory assisted in the exploration of potential causes/associated factors of EmONC services utilization and quality of care.

2.7.2. Social learning theory

Social learning theory is constructed on the assumption that we learn from our relationships with the environment in a social setting. Regardless of the precision of the behavior, individuals (either healthcare providers or service users) develop similar practices after observing others. After observation, they adapt and imitate that behavior, mainly if the observed experience is positive or includes rewards related to the observed behavior (Bandura, 1985).

This research assessed the EC of EmONC services using the three components (need, utilization, and quality) through social learning theory. Furthermore, it triangulated the data collected from quantitative and qualitative studies to learn the traits of EC of EmONC services explained concerning the interaction between service users (women and newborns) and the environment in which they live, including prior experiences, family, neighborhood, culture, health facility, and the health system-related factors.

2.7.3. The health system framework

According to the *WHO's health system framework* (WHO, 2007), six building blocks construct a health system: service delivery, human resource, information, medical product, vaccine and technology, finance and leadership, and governance. According to the framework, the health system needs to achieve the overall goals of improvement in health, responsiveness, social and financial risk protection, and an increase in efficiency. The current research aligns with the framework as the framework's goals are achieved through intermediate goals of access, coverage, quality, and safety. The present research mainly focuses on EC (crude coverage and quality) so that the framework's goals pave the way for the ultimate aim of the study.

2.7.4. Donabedian's framework of quality of care assessment

This framework provided the foundation for assessing the quality of care in the health system (Ayanian and Markel, 2016). It defined healthcare quality as the degree to which health services raise the possibility of anticipated health outcomes and are aligned with recent professional knowledge. The

framework recommends measuring the quality of care per the triads (structure, process, and outcome) (Donabedian, 2005). As one of the current study's objectives is assessing the quality of EmONC services, the application of Donabedian's framework was found to be applicable and highly relevant. Accordingly, the current study assessed health facilities' structural quality of EmONC services. Besides, clinical care content was assessed through direct observation of care provision to evaluate the process component of quality of care. Furthermore, the services' outcome quality was measured from women's perspectives, whether they obtained the expected services and were satisfied with the service.

2.7.5. The three delays model

This model is a broadly applied method of exploring the challenges behind the utilization of obstetric services and factors contributing to maternal mortality. It assists in exploring the factors and formulating the way forward (Illias K et al., 2019). The model explains the barriers in three categories: The first delay is the delay in the decision to seek care, and the second is the delay in arrival at the health facility. The third delay, however, is the delay in receiving adequate care (usually after the patient arrives at the health facility). One of the current study's aims is to explore the barriers and enablers to EmONC service use, so the three-delays model has a crucial role in guiding the design and data collection procedures.

2.7.6. Health belief model

This model is aimed at assisting programs targeting health promotion and prevention of diseases. The model is used to explore, understand, and forecast health behavior. The key assumption behind this model is that personal beliefs about sickness, the severity of diseases, benefits of actions, perceived barriers, and self-efficacy predict health-related behaviors and health service utilization (Rosenstock I. M, 1974). The current study explores barriers and enablers to EmONC services utilization as one of its objectives. Therefore, the health belief model's basic assumptions and relevance for future interventions helped the current study focus on the priority issues to be addressed.

2.8. Conceptual framework

The conceptual framework that guided the study was developed after referring to different literature, theories, and models. It describes the relationship between variables. The solid lines indicate the link between independent and outcome variables, while the broken lines show the link between independent variables. The conceptual framework bases its concept on social learning and attribution theories. It was

858 constructed after reviewing the WHO's six building blocks of the health system and Donabedian's
859 framework of quality of care. The health belief model and the three-delays model also played a vital
860 role in identifying relevant variables of the study. The overall goal of improving the health and well-
861 being of society is achieved through intermediate goals of the health system framework, among which
862 quality of service is a cornerstone. By assessing the building blocks and intermediate goals, along with
863 the theories and models, this research investigated the EC of EmONC services. The framework has the
864 following groups/categories of variables: sociodemographic factors, individual perception and
865 experience, household and community-related factors, health system-related factors, and EC. (Figure 2-
866 1)

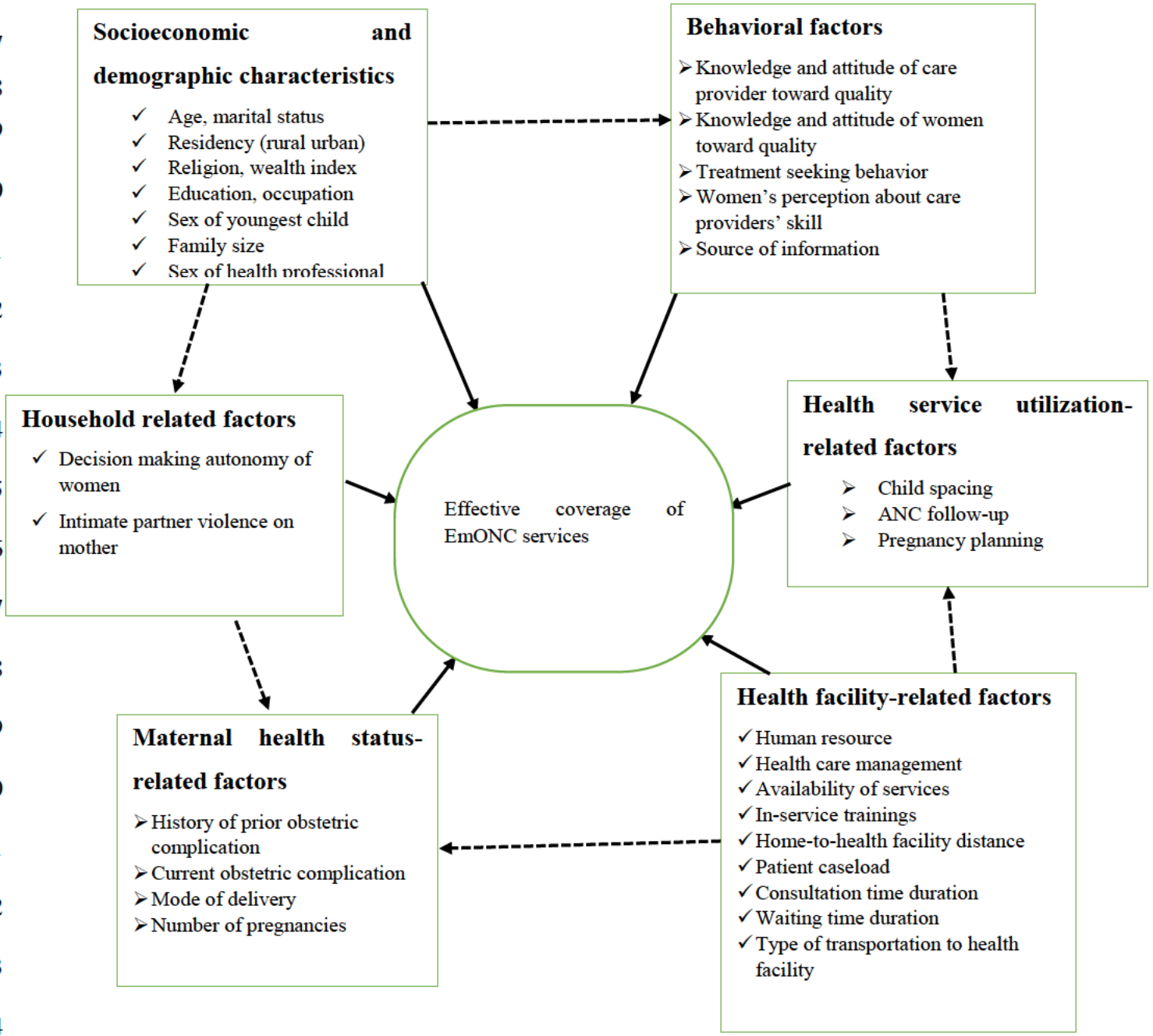

Figure 2- 1:Conceptual framework of the study

CHAPTER THREE: METHODS

This chapter provides information on the study design, approach, phases, study area, and setting, population, inclusion and exclusion criteria, sample size determination and sampling strategy, data collection instrument and procedure, study instruments and variables, data management and analysis, data storage, quality control, and ethical considerations. The details are provided in the respective sections of the chapter.

3.1. Philosophy of the research approach (worldview)

This research followed a *pragmatism* assumption of the research philosophy (Pranas Zukauskas et al., 2018; John W. Creswell, 2014). As it arises from action, situation, and consequence, pragmatism guides the researcher to emphasize the research problem and use all the available research approaches (John W. Creswell, 2014). Unlike the *post-positivism*, *constructivism*, and *transformatism* approaches (that subscribe to only one technique/design), this research's philosophy is based on the pragmatism approach since it suggests various strategies and data collection and analysis techniques. Therefore, the current study used the mixed methods approach to understand and provide evidence for EC of EmONC services drawn from quantitative and qualitative phases. This approach helps draw evidence using diverse techniques to derive knowledge from quantitative and qualitative assumptions (Cherryholmes, 1992). Hence, the study adopted pragmatism to conduct the mixed methods approach.

3.2. Study paradigm

A paradigm is an underlying belief system using ontological, epistemological, methodological, and axiological assumptions. It is the mechanism of understanding and studying the reality of the world. It represents a worldview that defines the nature of the world and the range of potential interactions (Guba and Lincoln, 1994). Ontological issues pertain to what exists, whereas epistemology focuses on figuring out the nature, limitations, and justification of knowledge (Hathcoat et al., 2017). Ontological questions lead a researcher to inquire about types of existing reality. It plays a crucial role in extracting and integrating data for research. Epistemology refers to the nature of knowledge and the means of knowing and learning about reality (Pranas Zukauskas et al., 2018).

This study used epistemological questioning to examine the possibility and desirability of objectivity, subjectivity, causality, validity, and generalizability of findings. Based on the ontological and

epistemological points of view, the current study aimed to question the existing problems regarding the EC of EmONC services and the interaction of various factors with the identified health problem.

3.3. Study approach and orientation

This study employed an explanatory sequential mixed methods approach. This approach is ideal when the researcher can access qualitative and quantitative data. It has the strength of drawing on both data types and minimizes the limitations. Besides, since interactions among individuals and their environment are complex, and the existing measures may lack sensitivity to cultural factors, gender issues, and individual differences, combining qualitative and quantitative inquiry methods is vital (John W. Creswell, 2014).

The study's first phase employed quantitative data collection, analysis, and interpretation. This phase was intended to find a numeric description of the EC of EmONC services by involving a scientifically sound sampled population. Furthermore, the predictors of quality EmONC services were identified (detail is presented in chapter 6). Then, a qualitative part was sequentially followed to explain the quantitative results further and to explore the uncovered perspectives of the research question. This phase also aimed at understanding the context of EmONC services utilization and the challenges and reasons behind the failure to utilize EmONC services in the community.

3.4. Study design

The quantitative part employed a cross-sectional study design to collect sampled data from the source population. The data were collected using checklists and interviews (developed to observe the care provision and interview sampled participants). The qualitative phase applied a case study research design to explore the barriers and facilitators of quality EmONC service utilization. Case study research helps to explore the circumstances, such as 'how' or 'why' some phenomenon works or does not work in a particular context. This method is relevant when the research requires an extensive and in-depth description of some social phenomena (Yin, 2014). Therefore, this study employed a case study research design to explore the barriers and enablers to EmONC service utilization through collecting data from multiple sources in the study's second phase.

3.5. Study area and setting

The study was conducted in Wolaita Zone, Southern Ethiopia. The Zone is located 330 km away to the south direction from Addis Ababa, the capital of Ethiopia. Its population contributes around 2.3% (FDRE PCC, 2008) to the national projected population of 114.9 million in 2020 (Worldometer, 2020). Based on the projection, the Zone had more than 2.6 million population (of which 631,800 are reproductive-aged women) in 2020. Based on the report from the zonal health department, there are one referral hospital, two non-governmental general hospitals, seven primary hospitals, and 70 health centers (Wolaita Zone Health Department, 2019), providing various health services for over 2 million people residing in the Zone and other neighboring zones. Accordingly, the Zone had 80 EmONC facilities (10 CEmONC and 70 BEmONC facilities). (Figure 3-1)

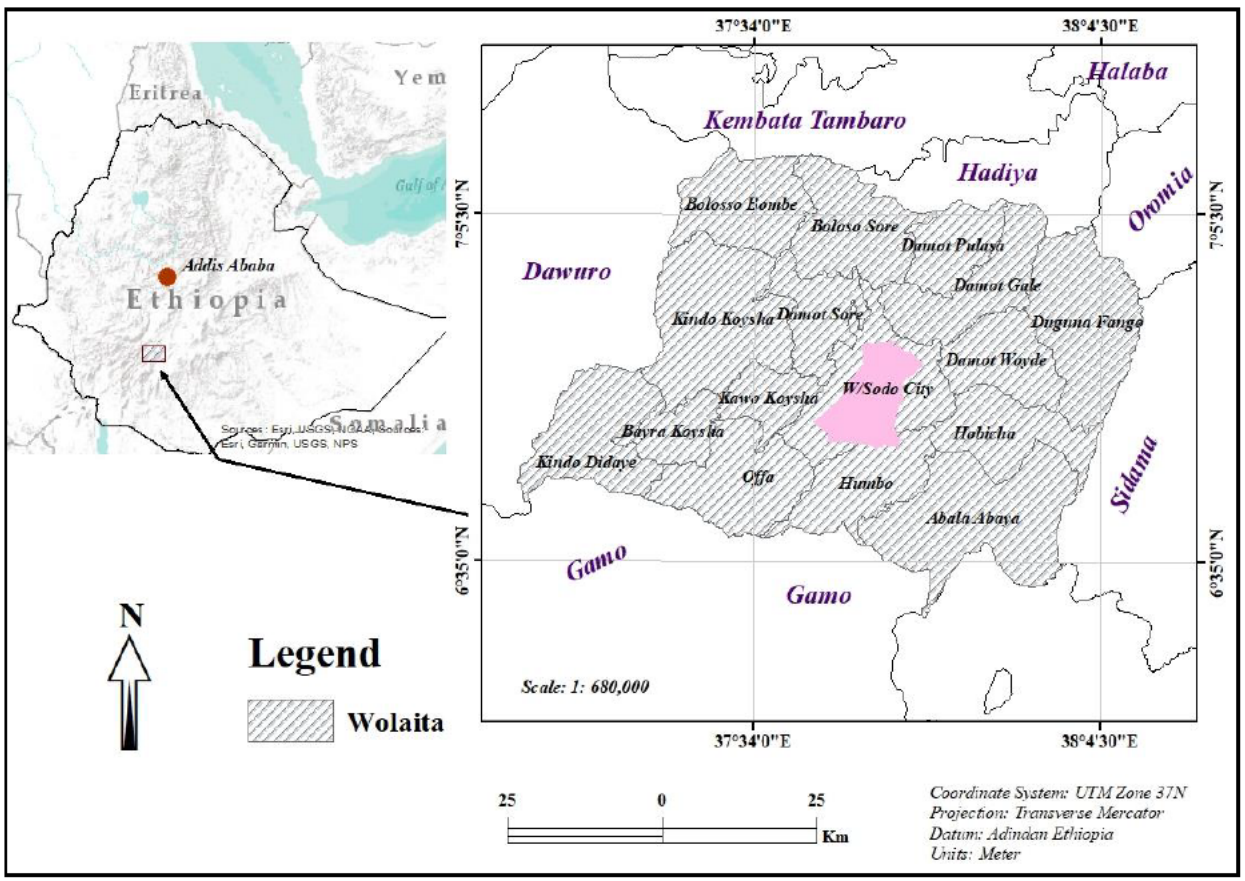

Figure 3- 1:Map of the study area (Wolaita Zone, southern Ethiopia)

3.6. Population

3.6.1. Quantitative study

3.6.1.1. Source and study population

Source Population

Based on the assessment method, the source population for this study was of two types. For the health facility assessment, the source population were all health facilities of Wolaita Zone, SNNPR of Ethiopia, that have been providing EmONC services, and all women who visited health facilities for the treatment/management of obstetric emergencies. Concerning the house-to-house survey, all women who have faced obstetric emergencies (in the last 12 months preceding the study) were the source population. Hence, the source populations for this study were both health facilities and mothers (with obstetric complications) of Wolaita Zone, Southern Ethiopia.

Study population

The study population for the health facility assessment was selected health facilities and women (who received EmONC services in the selected facilities). Besides, the study conducted a house-to-house survey to collect crude coverage data of the EmONC services utilization. Hence, the study population for the house-to-house survey was sampled women who had obstetric emergencies within the past 12 months (the 12 months reference period was applied to obtain adequate number of women with obstetric emergencies).

3.6.1.2. Inclusion and Exclusion criteria (quantitative study)

Inclusion Criteria

The participants' selection for the quantitative study depended on the assessment type. Hence, the requirements for participant selection in the health facility-based survey differed from the house-to-house survey and are described as follows:

Inclusion criteria for the house-to-house survey

The house-to-house survey included study participants who fulfilled the following criteria:

- Participants who had obstetric complications within the last 12 months before the data collection

- A woman was classified as eligible (had obstetric complications) if she had one or more of the following conditions a) hemorrhage (antepartum and postpartum), b) prolonged and obstructed labor, c) postpartum sepsis, d) complications of abortion, e) severe pre-eclampsia and eclampsia, f) ectopic pregnancy g) ruptured uterus, and h) fetal/neonatal distress (WHO et al., 2009).

- Women aged 18 years and above, and
- Women who lived in the study area for more than six months when they encountered the above complication(s).

Exclusion criteria for the house-to-house survey

The research has excluded the following women from the study:

- ✓ Women with severe health problems and difficulty speaking or listening during the study period

Inclusion criteria for the health facility survey

- ✓ Health facilities located in Wolaita Zone, SNNPR of Ethiopia, which have been providing EmONC services within the last three months before data collection
- ✓ Women and newborns who received care provisions for obstetric emergencies

Exclusion criteria for the health facility survey

- ✓ Women and newborns referred to another health facility
- ✓ Women who underwent elective/emergency cesarean section

3.6.2. Qualitative study

The study collected data from multiple sources to understand the context of EmONC service utilization-related barriers and enablers. Accordingly, the study recruited study participants based on the following criteria:

3.6.2.1. Inclusion criteria

The individual in-depth interview (IDI) included women from health facilities and communities aged 18 years and above who had obstetric emergencies (received and not received treatment). The key informant interview (KII) included care providers, kebele leaders, health development army leaders, traditional birth attendants, and health facility managers (i.e., health center, district, and zonal health level managers).

3.6.2.2. Exclusion criteria

The qualitative study excluded study participants who participated in the quantitative study.

3.7. Sample size determination and sampling strategy for quantitative study

3.7.1. Sample size determination for quantitative study

Sampling size for health facilities

The study area (Wolaita Zone) has 22 districts, of which seven (30% of the total) were selected. Among the 27 health facilities (located in the selected districts) that were actively functioning during the study period, the study included two randomly selected facilities per district. Accordingly, the total number of facilities included in the study was 14 (more than 50% of the eligible facilities in the districts). Furthermore, the biostatistician from UKZN assured the sample size's overall adequacy.

Sample size for the facility-based survey

The sample size required for observation of care provision and exit interview of women was calculated based on the formula to calculate sample size for *single population proportion formula* with the assumptions: a) 47% proportion (from Tanzania) of women treated with quality EmONC services (Larson et al., 2017), b) a 95% level of confidence, c) 5% precision, and d) 10% non-response rate. Accordingly, the total sample size required to assess the process and outcome quality of EmONC services was 422. This sample size was proportionally allocated to the selected 14 health facilities based on the respective facility's EmONC service utilization volume in the preceding year. This sample size was proportionally allocated to the selected 14 health facilities based on the respective facility's EmONC service utilization volume in the preceding year. The sample size calculation is elucidated below, and a biostatistician from the College of Health Sciences, University of KwaZulu-Natal, assured its adequacy.

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$\frac{1.96^2 * 0.47(1-0.47)}{0.05^2} = 383$$

Adding a 10% non-response rate on the calculated sample size, the final sample size needed for the research was 383 + 39 = 422.

Sample size for house-to-house survey

A 60.1% proportion of women treated for obstetric complications in Ivory Coast (Benie et al., 2008), 95% level of confidence, 5% precision, and 10% non-response rate were used to calculate the sample size for the house-to-house survey. Hence, the desired sample size is 406, which is elucidated below.

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$\frac{1.96^2 * 0.601(1-0.601)}{0.05^2} = 369$$

After adding a 10% non-response rate, the total sample size for the house-to-house survey of the quantitative study was 369+(369 *0.1) = 406

3.7.2. Sampling strategy for the quantitative study

The quantitative phase of this research employed two sampling approaches. The first approach was selecting health facilities and women/newborns (for observation and exit interview) for the health facility-based survey (Figure 3-2), whereas the second approach was selecting households for the house-to-house survey (Figure 3-3). These two sampling approaches allowed the researcher to get data for the crude coverage and EmONC service quality analysis, subsequently resulting in the estimation of the EC.

Study participants were selected systematically using the K^{th} number generated from the previous year's volume of women with obstetric complications, and recruitment continued till meeting the desired sample size of the respective facility. Women/newborns who received services from the selected facilities were observed while the care providers were treating/managing the obstetric emergencies and were interviewed at their exit (Figure 3-2). Accordingly, 414 participants were included in the observation and exit interview in the 14 health facilities (five hospitals and nine health centers) after allocating the sample size proportionally. Therefore, the facility-based survey (through observation and interview) provided data on the quality of EmONC services (i.e., structure, process, and output quality) and its predictors. (Figure 3-2)

Data on the crude coverage of EmONC services utilization was provided from the house-to-house survey. Since a given health facility is supposed to serve a number of kebeles/villages, two kebeles were

randomly selected for each facility. First, a census was done (in the selected villages/kebeles) to designate houses where eligible participants (mothers/newborns who faced obstetric emergencies) reside. Then, a systematic random sampling technique was applied to select sampled households. Accordingly, data were collected from 402 study participants (allocated proportionally) to obtain crude coverage data of EmONC services (Figure 3-3).

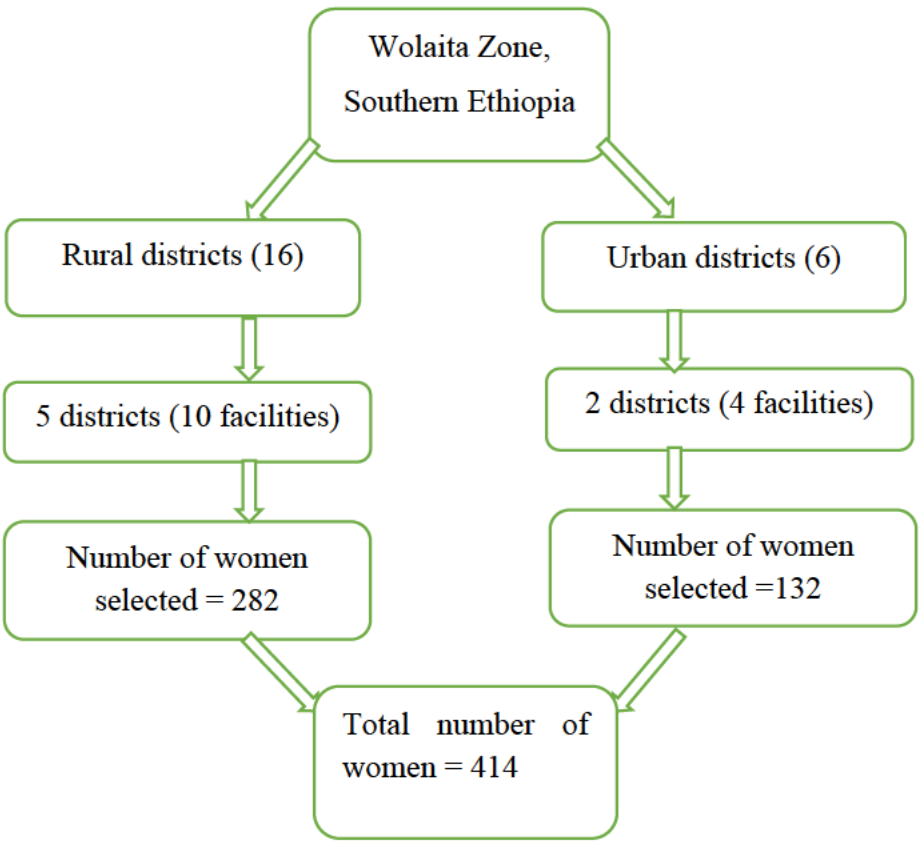

Figure 3- 2: Schematic presentation of facility-based survey (for quality of EmONC services assessment)

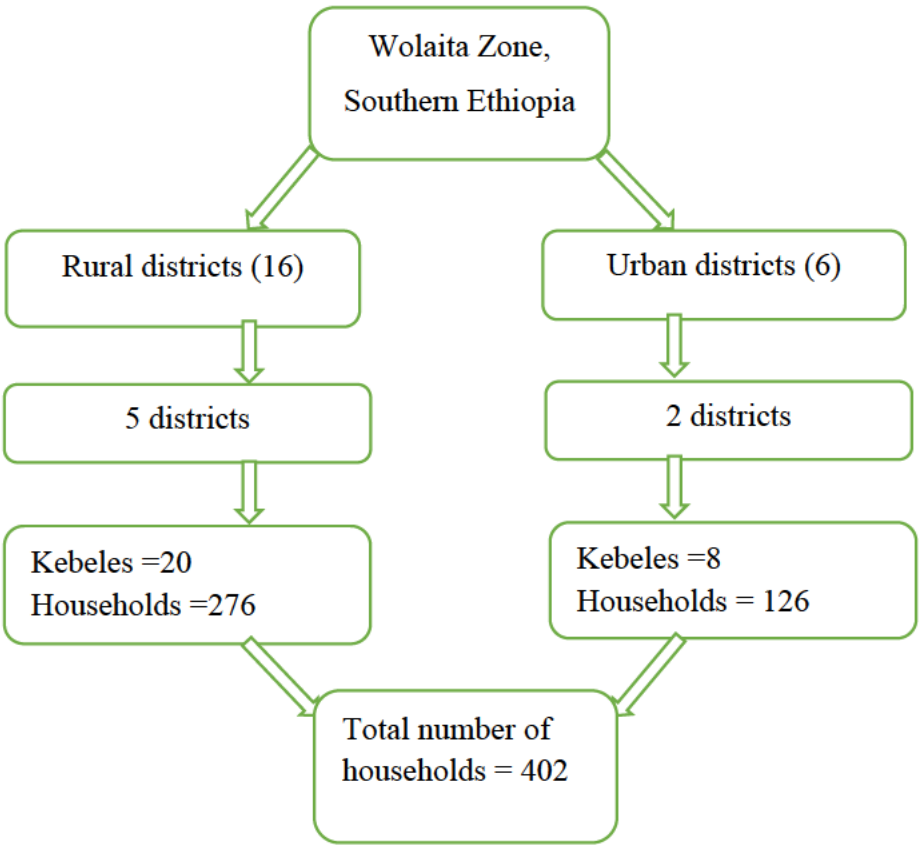

Figure 3- 3: Schematic presentation of the house-to-house survey (for crude coverage of EmONC services)

3.8. Sample size determination and sampling strategy for the qualitative study

A total of 37 study participants were included in the qualitative study. The required sample size depended on the theoretical saturation of information (Table 3-1). Study participants were selected using the maximum variation method using a purposive stratified sampling technique. They were selected based on different aspects and strata, including residence, type of complication, service utilization status (utilized and didn't utilize), occupation, role in the community, and others. Accordingly, seven frontline care providers, 15 women (who faced different complications and from urban and rural areas), four traditional birth attendants, two women development army leaders, two kebele leaders, and seven facility leaders were included in the study. Potential participants were recruited based on their traits to the study aims.

3.9. Data collection instrument and procedure

3.9.1. Data collection instrument and procedure for the qualitative study

This study used semi-structured interviews to collect data. Individual IDs were conducted among mothers with recent obstetric emergencies. In contrast, KIIs were done among EmONC service providers, traditional birth attendants, kebeles leaders, health development army leaders, woreda/district health office leaders, and zonal health department leaders. The principal investigator (PI) developed five interview guides in consultation with the supervisors. (Appendix 34)

The interview guides were followed by probing with a major focus on barriers and facilitators of EmONC service utilization. The details of IDIs and KIIs are elucidated in table 3-1 and Appendix 34. Supported by the research assistant, the PI collected the qualitative data using the local language (Wolaita Dona or Amharic, where applicable). The research assistant was selected with the criteria of fluency in the local language (Wolaita Dona), the academic status of a master's degree in Public Health (MPH), and prior research data collection experience with qualitative studies.

3.9.2. The recruitment strategy of participants for the qualitative study

The interviews were started after briefly informing the study's aim and receiving permission. The interviews commenced with general questions to provoke interest. Also, efforts were made to create rapport between the interviewer and the respondent. The interviews took 30 to 60 minutes.

In consultation with the zonal, district, and kebele leaders, the PI selected appropriate participants who could provide thick and rich data. Interviews were conducted at their convenient times in offices, staff rooms, and homes to keep the confidentiality of participants' information. The interviews were audio-taped, field notes were taken depending on the participants' consent, and lasted 30 to 60 minutes.

3.9.3. Data collection instruments and procedure for quantitative study

This study used the Open Data Kit (ODK) software to collect quantitative data using android tablet phones. The software (mobile application) submitted the data to an online server during data collection. The interviewers filled in the questions on the app while interviewing women and observing the care provision.

Data collectors (nurses/midwives) collected the data using the application after the PI developed the template using structured and pre-tested questions. The data collectors assessed the health facilities using a validated checklist adapted from literature (WHO et al., 2009; EPHI et al., 2016; Fisseha et al., 2017; Fisseha et al., 2019; EPHI et al., 2014). The data collectors also conducted exit interviews with mothers at health facilities to assess their satisfaction with the service they received and factors associated with quality of care. Besides, eligible women (from the community) were interviewed to determine the crude coverage of the EmONC services. A repeated visit was made to the eligible household to interview the woman (when she was absent at the first visit). However, the next eligible household was selected when the woman was unavailable for three visits. The questionnaire contained information on the socio-demography of study participants, the outcome component of the quality assessment tool, and predictors of the quality of EmONC services.

The research also used an observation checklist adopted from guidelines to assess the structure and process components of EmONC services quality. The questionnaires and observation checklists were prepared in English by incorporating all the relevant variables based on the objectives. Finally, they were translated into the local language (Wolaita Dona and Amharic) for the Interview and retranslated to English to check the consistency.

Crude coverage of EmONC service

According to the national and international guidelines for monitoring EmONC services, 'met need' estimates the percentage of all women having major direct obstetric complications which are treated in an EmONC (basic or comprehensive) facility. It is estimated by dividing the number of women who are treated for direct obstetric complications by the number of women who have major obstetric complications (during the same period in a specified area) (WHO et al., 2009; Admasu et al., 2011).

The met need for EmONC service in this study, therefore, is the proportion of women with major obstetric complications (residing in Wolaita Zone, Southern Ethiopia) treated in a health facility that provided EmONC services within the past 12 months (Admasu et al., 2011). Accordingly, the estimate was determined from the house-to-house surveyed sampled women in the study area. (Table 3-1)

Quality of EmONC services

The triad of structure, process, and outcome, as stated by Donabedian's framework for healthcare quality (Ayanian and Markel, 2016), was used to measure the quality of the EmONC services. A structured checklist, developed by reviewing national and international guidelines, was used to assess the structural quality of EmONC services (Berhane et al., 2019; WHO et al., 2009; EPHI et al., 2016; Fisseha et al., 2019; EPHI et al., 2014). The process quality was assessed using a structured observation checklist developed after reviewing the literature (Fisseha et al., 2019; Fisseha et al., 2017; EPHI et al., 2014). The exit interview questionnaire was used to assess the outcome quality (women's satisfaction with the service they received), which the investigator developed after reviewing the literature (Berhane et al., 2019; WHO et al., 2009; EPHI et al., 2016; Fisseha et al., 2019; EPHI et al., 2014). In addition to the items that assess women's satisfaction with the services, the exit interview questionnaire had items that assess the socio-demography of participants, predictors of quality, and other clinical/maternal health service utilization-related characteristics.

Structure/input quality was measured through a validated tool using 75 items (66 items of structure and nine signal function tests) and computed out of 100% developed by reviewing related articles and guidelines (EPHI et al., 2016; EPHI et al., 2014; WHO et al., 2009) (Appendix 28). Process/observed quality was a composite variable measured through 42 items of the observation checklist (standard clinical actions) and converted to 100%. It was assessed by observing the care provided to women in the EmONC facilities starting from the initial patient assessment to discharge from the facility (EPHI et al., 2016; EPHI et al., 2014; WHO et al., 2009) (Appendix 29). The output quality was measured by the woman's satisfaction with the EmONC services using 12 Likert scale items having a 5-scale Likert scale (Tayelgn et al., 2011) (Appendix 30).

Effective coverage

EC combines the need, use, and quality of healthcare services. It is the fraction of potential health gain delivered through a health intervention by the health system, which is delivered (Shengelia B et al., 2005). It is estimated using the following formula:

$$EC = Q*U/N,$$

where N is the population in need of an intervention, U is the utilization/use of the intervention among the people in need, and Q is the quality of the intervention, defined as "the ratio of health gain delivered through an intervention relative to the maximum possible health gain given the ideal quality.

Hence, the EC of EmONC services in this study was estimated using the above formula with the following assumptions:

- ✓ N stands for the number of women who had major obstetric complications during the study period in the study area (Wolaita Zone, southern Ethiopia),
- ✓ U stands for the number of women with major direct obstetric complications who were treated in a health facility providing EmONC services during the study period in the study area (Wolaita Zone, Southern Ethiopia), and
- ✓ Q stands for the quality of the intervention (observed quality of EmONC services).

Finally, the EC of EmONC services was estimated numerically (out of 100%) for the study area and specific districts and facilities.

3.10. Study Instruments

A validated tool adapted from international and national guidelines and survey tools was used to collect the data. The 2016 Ethiopian EmONC assessment (EPHI et al., 2016), the Maternal and Newborn Quality of Care Survey (USAID and MCHIP, 2013), the Ethiopian Demographic and Health Survey (EDHS) (CSA, 2016), the 2014 Ethiopian Service Provision Assessment plus Survey (EPHI et al., 2014), and others (WHO et al., 2009; Fisseha et al., 2017; Fisseha et al., 2019) were the sources for developing the tool. Table 3-1 below summarizes the data collection instruments and their intended implications for the study.

Table 3- 1: Study setting, population, and data collection instruments used for the assessment of EC of EmONC services in Wolaita zone, Southern Ethiopia

S. N	Instrument	Study setting	Sample size	Study unit	Data collection technique
1.	Tool for crude coverage	Community	402	Woman/newborn	Interview
2.	Tool for structural quality	Facility	14	Health facility	Interview and observation
3.	Tool for signal function test	Facility	14	Health facility	Interview
4.	Tool for process/observed quality	Facility	414	Woman/newborn	Direct observation
5.	Satisfaction with EmONC services	Facility	414	Woman	Exit interview
6.	Predictors of quality of EmONC services	Facility	414	Woman/newborn and care provider	Interview
7.	IDI guide for women who had obstetric emergencies	Facility and community	15	Woman	IDI
8.	KII guide for EmONC service providers	Facility	7	Care provider	IDI
9.	KII guide for Community leaders (kebele and health development army)	Community	4	Community leader	KII
10.	KII guide for traditional birth attendants	Community	4	Traditional birth attendant	KII
11.	KII guide for health facility managers	Facility	7	Facility manager	KII

3.11. Variables

3.11.1. Dependent Variable

- Quality of EmONC services

3.11.2. Independent Variables

- Socio-demographic characteristics
  - Age, marital status, residency (rural/urban), religion, wealth index, education, occupation, and family size
- Health facility-related factors
  - Number of care providers, number of trained care providers, care provider's experience (work experience in years), care provider's occupation, type of facility, distance to facility, availability of services, patient volume, duration of treatment, length of hospital stay, and waiting time duration,
- Behavioral factors
  - Knowledge and attitude and skill of care providers on the quality of EmONC services, knowledge and attitude of women towards the quality of EmONC services, women's perception of care providers' skill, and source of information about EmONC services
- **Household related factors**
  - Decision-making autonomy of women and partner violence
- Maternal health status and health service utilization-related factors
  - History of previous obstetric complication, type of current obstetric complication, mode of recent delivery, number of pregnancies, child spacing, ANC follow-up, and type of transportation used

3.12. Data management and analysis

3.12.1. Quantitative data

After data collection with Open Data Kit (ODK) application, the PI exported the data to Stata software version 17 (College Station, Texas) for analysis. After data cleaning, coding, and exploration, descriptive statistics were calculated for independent variables. Frequency, proportion, and summary statistics were used to report the study population's characteristics. Principal component analysis (PCA)

was used to determine the wealth index of study participants. Predictors of EmONC services quality were identified through simple and multiple linear regressions using coefficients, 95% confidence intervals, and a p-value cut-off-point of 0.05. The final model fitness was declared after the statistical assumptions of homogeneity of variance, normality, multi-collinearity, and adjusted R^2 values were checked.

3.12.2. Qualitative data

The qualitative study followed the *linear-analytic structure* approach of composing the structure (Yin, 2014). This approach starts with the research problem and ends with a conclusion and implication for the research problem studied. The study's quality was guided by the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist (Tong et al., 2007). The principal investigator transcribed and translated the qualitative data verbatim. Finally, the study used the NVIVO version 12 software for qualitative data coding and analysis. Accordingly, the themes were generated following the emerging concepts and analyzed thematically.

3.13. Reliability and validity of the quantitative study

Reliability: The PI and supervisors closely supervised data collection, which helped reduce the risk of error. The supervisors checked the data of random study participants and cross-checked the original data with the second data of the same participants to check the test-retest reliability. Furthermore, the degree of internal consistency for the tool was checked by Cronbach's alpha and was found to have a reliability coefficient score of 0.89 (considered very good).

Validity: This study followed the attribution and social learning theories and adhered to the Donabedian, health system, and health belief models, enhancing the construct validity of the study. The study assessed various aspects of the research problem, encompassing crude coverage, quality of care, and associated factors, which helped attain content validity. Furthermore, the study involved a representative sample of the target population by enrolling seven of the 22 districts (above 30%) with a scientifically sound sample size, enhancing the criterion validity.

3.14. Trustworthiness of the qualitative study

We used a translated tool for the data collection, and the PI is a fluent speaker of the local languages (Wolaita Dona and Amharic). Besides, the supervisors (Ph.D. in Public Health) and PI (Ph.D. fellow)

had prior experience with qualitative research and adequate academic background, which assisted the study in enhancing the *credibility* of its findings. There were regular discussions and briefings between investigators that assisted in minimizing mistakes during analysis, enhancing the *confirmability* of the study. Furthermore, recurrent interviews of comparable situations till the theoretical saturation of data helped the study to attain *transferability/dependability*. As a result, the study revealed a thick description of the EmONC utilization-related challenges. The final report was presented to discuss the main findings. Then, the overall finding was examined by maternal and child health service experts.

3.15. Data storage

The PI kept the data of this study confidential and private to maintain the privacy of the study participants. This study did not use information on participants' identification (such as the name and identification number of the household). Hard copies of the data (questionnaires, facility assessment checklist, audio records, and observation documents) were locked on a private shelf, and the soft-copy data were locked in a password-protected computer and will be appropriately discarded after five years.

3.16. Quality control and assurance

A two-day intensive training was given to the data collectors. Before the actual data collection, the researcher conducted a pre-test in a similar setting to check the tool's adequacy. Necessary modifications were made to the questionnaire based on the pre-test's feedback. Furthermore, all involved persons (the PI, supervisors, the research assistant, and the interviewers) were exposed to familiarize themselves with the research data collection. Data were checked for completeness, and confusion was cleared daily. The PI regularly supervised the quantitative data collection and interviewed the qualitative data collection (together with the research assistant).

3.17. Ethical considerations

The study was conducted after receiving approval from the University of KwaZulu-Natal Biomedical Research Ethics Committee (BREC) and the Postgraduate Research & Higher Degree Committee of the School of Nursing and Public Health (Appendix 1). Ethical clearance was also received from the Institutional Review Board (IRB) of Wolaita Sodo University, Ethiopia (Appendix 2). A permission letter from the local government administration body (Wolaita zone health department) was obtained (Appendix 3). The data collectors were just observers and did not intervene on or interrupt the care

providers during the observation of EmONC service provision. When the observer encountered the care provider’s misconduct or negligence that could result in a life-threatening outcome on the woman's or her newborn's health and wellbeing, the observer kindly informed the care provider to follow the guideline/protocol. However, the observers recorded the care provider’s missed procedure/steps on the observation checklist. Furthermore, informed written consent was obtained from all participants. The data collection commenced after briefing the study and its beneficence, non-maleficence, and participants' autonomy. Further details are provided in the information sheets and consent forms (appendices 5 to 27).

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CHAPTER FOUR: PAPER ONE

Effective coverage of emergency obstetric and newborn care services in Africa: a scoping review

Authors: Alemayehu, M., Yakob, B. & Khuzwayo, N.

Status: The manuscript was published in the Open Access Emergency Medicine journal.

Doctoral student contribution

1. Formulation of the project: I conceptualized the study in consultation with my supervisors.
2. Study design: I developed the study design with the guidance of my supervisors.
3. Review's scope and search strategy: I framed the research question, search strategy, and study selection.
4. Data analysis: I charted, analyzed, summarized, and interpreted the data.
5. Write-up: I was responsible for writing the manuscripts (protocol and the review result) with close supervision of my co-authors.

Introduction

The purpose of this manuscript was to map the evidence of the effective coverage of EmONC services in Africa. This phase was the initial step of the Ph.D. project, which guided the researcher to identify the research gap and conduct the subsequent studies (manuscripts). The review was published in Open access emergency medicine journal on 24 April 2023 (Link: https://www.dovepress.com/effective-coverage-of-emergency-obstetric-and-newborn-care-services-in-peer-reviewed-fulltext-article-OAEM).

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REVIEW

Effective Coverage of Emergency Obstetric and Newborn Care Services in Africa: A Scoping Review

Mihiretu Alemayehu[1,2], Bereket Yakob[1,3], Nelisiwe Khuzwayo[2]

[1]School of Public Health, College of Health Sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia; [2]School of Nursing and Public Health, Discipline of Public Health, University of Kwazulu-Natal, Durban, South Africa; [3]School of Population and Public Health, the University of British Columbia, Vancouver, BC, Canada

Correspondence: Mihiretu Alemayehu, PO Box: 138, Wolaita Sodo, Ethiopia, Tel +251913213443, Fax +251465515113, Email mihiretua@gmail.com

Objective: This scoping review aimed to map the evidence of effective coverage (EC) of EmONC (Emergency Obstetric and Neonatal Care) services and associated factors in Africa.

Methodology: The review used PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews) checklist to select, appraise, and report the findings. We searched four databases (PubMed, Web of Science, Google Scholar, and Scopus) and grey literature published between Jan 01, 2011 – Dec 31, 2020. The search terms included "emergency", "obstetric", "newborn", "effective coverage", and "quality" with Boolean terms, AND and OR. The review was conducted using title, abstract, and full-article screenings. The results were analyzed thematically using NVivo v12 qualitative research data analysis software.

Results: Of the 1811 searched studies, 32 met the eligibility criteria for review. The majority of the studies were from East (56.3%) and Western (28.1%) Africa. Most studies were cross-sectional, had targeted health facilities, and combined two or more data collection techniques. The thematic analysis yielded three themes: EmONC service utilization, quality of EmONC service, and factors associated with the quality of EmONC services. The review showed a scarcity of evidence and variations regarding the crude coverage, quality of care, and factors affecting the quality of EmONC services in Africa.

Conclusion: The review reported that the utilization of EmONC services was below the WHO-recommended 100% in all studies, though some reported improvements over time. Disparities in EmONC services quality were paramount across studies and contexts. However, the methodological and analytical incongruity across studies brought difficulties in tracing and comparing the progress made in EmONC services utilizations.

Registration: This scoping review protocol was first registered on the Open Science Framework (OSF) on Aug 27, 2021 (https://osf.io/kbcte/).

Keywords: maternal health, newborn health, obstetric care, perinatal care, emergency medicine

Introduction

Pregnancy is mothers' riskiest experience while bringing new life to this world. It usually accompanies life-threatening complications such as severe bleeding, infection, unsafe abortion, hypertensive disorders, and delivery complications leading to death and disabilities.[1] According to the 2019 WHO report, more than 810 mothers die daily during pregnancy or childbirth, causing 295,000 maternal deaths.[2] Evidence shows that 94% of the estimated maternal deaths occurred in low-income countries.[2] Compared to the developed world, the maternal mortality ratio was 40 times higher in the least developed countries.[1] For instance, in Sub-Saharan Africa, there were 542 maternal deaths/100,000 live births, while there were only 7–10 maternal deaths/100,000 live births in Australia and Europe.[1]

Emergency obstetric and neonatal care (EmONC) is a package of care for mothers and neonates when severe life-threatening complications occur during pregnancy, child delivery, and postpartum. EmONC is believed to avert three-fourths of maternal mortality.[3] Nevertheless, the effectiveness of EmONC depends on the health facilities' readiness to provide care, quality of care, and the functionality, timeliness, and organization of referral systems in a given setting.[4,5]

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In low-income countries, health systems have minimal resources and capacities, and women needing EmONC services often face challenges in accessing and utilizing them.[5] Lack of evidence on the EC of EmONC services and factors affecting the utilization of quality service hinders the delivery of contextual solutions to maternal and child health problems in Africa.[6]

Several indicators have been defined to monitor maternal and child health.[7] The third goal of the Sustainable Development Goals (SDGs) focuses on good health and well-being. The goal aims to improve maternal and child health by tracking the progress using indicators such as reducing global maternal mortality to less than 70/100,000 live births and neonatal mortality below 12/1000 live births. It also focuses on achieving universal health coverage and access to quality service by 2030.[7] Recent studies of health systems have led to a proliferation of research that gives attention beyond access to the actual quality of care, highlighting the need for EC (a fraction of potential health gain delivered to the population in need). This concept combines the three widely used EC components: need, coverage/utilization, and quality of healthcare interventions.[8–12] Though there are other ways to measure EC for health services, evidence suggests that quality-adjusted coverage is preferable to measuring maternal and child health services' EC. It is believed to provide an overall impression of EC in global, regional, national, and local settings.[12]

The evidence stated EC as a fraction of potential health gain delivered through a health intervention by the health system, which is measured through the three components: need, use, and quality of healthcare service. The need is the population that needs a given health intervention (EmONC services). At the same time, use is the utilization of the intervention (EmONC services) among the people in need.[13] The Donabedian framework of quality assessment remains the foundation of quality assessment today. The framework assesses service quality using the triads, namely, structure, process, and outcome of health care. "Structure" is defined as the setting, qualification of providers, and administrative system through which care (EmONC) is provided. "Process" is defined as the components of care (EmONC) delivered, while "outcome" is recovery, restoration of function, and survival (after EmONC services are provided).[11,14]

A scoping review was selected as the method of choice to study the EC of EmONC services and the factors affecting service quality. It is an appropriate method to map the evidence available in Africa, and no such study has been conducted to the authors' knowledge. It helps to understand the existing knowledge gap in a broader context.[15] Improving EC of EmONC services is among the major global priority health agenda.[7,16] Hence, this review aimed to map evidence on EC of EmONC services and factors associated with quality service utilization in Africa. Therefore, this review will help policymakers, researchers, and stakeholders undertake evidence-based decisions on EmONC services to improve Africa's maternal and neonatal health and well-being.

Methodology

This scoping review followed Arksey and O'Malley's proposed scoping review framework. The framework consists of six steps: (a) identifying the research question and eligibility criteria, (b) identifying relevant studies, (c) selecting the studies and appraising the quality, (d) charting the data, (e) collating, summarizing, and reporting the results, and (f) consultation.[17]

Identifying the Research Question

This scoping review had the following research questions:

- What is the level of EC of EmONC services in Africa?
- What is the level of quality of EmONC services in Africa?
- What are health facility-related factors associated with the utilization of quality EmONC services in Africa?
- What are maternal behavioral factors related to using quality EmONC services in Africa?
- What sociodemographic factors are associated with utilizing quality EmONC services in Africa?

Eligibility of the Research Question

This study involved the core elements of the Population, Concept, and Context (PCC) suggested by the 2015 Joanna Briggs Institute methodology for scoping review guideline to determine the eligibility of the research question.[18] (Table 1)

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Identifying Relevant Studies

This review comprehensively identified relevant studies by searching published and unpublished (grey) literature databases. The investigators used PubMed, Web of Science, Google Scholar, and Scopus to search for published evidence. The WHO, Demographic and Health Survey (DHS) report, and other international organizations' websites were searched for relevant grey literature. We used the following key terms in combination and appropriate Medical Subject Heading (MeSH) terms to search for relevant studies from the electronic databases: "Emergency Service", "Emergency Medical Services", "Emergenc*", "Obstetric*", "Labor Complication*", "Pregnancy Complication*", "Obstetric care service*", "obstetric service*", "Neonatal Nursing", "Neonatal service*", "Neonatal care", "Newborn", "Effective coverage", "Quality of Health Care", "quality service*", 'quality-adjusted delivery care", "Risk Factors", "Factors associated", and "Africa". (Table 2)

We used the Boolean terms' AND' and "OR" to separate keywords. We also used truncation and field codes/tags of title, MeSH terms, and text words/keywords for filtering. We limited the selection of studies based on their publication date. Accordingly, studies published in Africa from Jan 01, 2011, to Dec 31, 2020, were considered for review. The investigators also searched the reference list of all identified grey literature and published articles for additional studies. The authors have tried contacting the authors of the identified studies for further information and support.

Selecting the Studies and Appraising the Quality

Eligibility Criteria

This review included studies that fulfilled the following inclusion criteria:

- Studies presenting evidence of EC of Emergency Obstetric and Neonatal Care (EmONC) services
- Studies showing evidence of the quality of EmONC services
- Studies conducted in African countries
- Studies published in the English language
- Studies published on or after Jan 01, 2011 (Jan 01, 2011 – Dec 31, 2020)
- Studies published in peer-reviewed journals or grey literature with extractable primary research data with qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies.

This review was conducted using the three stages. In the first stage, the principal investigator did a title screening, removed the duplicates, and exported the studies to Endnote 20. Two independent reviewers used the eligibility criteria in the second and third stages to do abstract and full-article screenings. When the studies were not accessible, investigators attempted to contact the authors and the University of KwaZulu-Natal library service. The third reviewer's decision was accepted to resolve any disagreement at the abstract screening stage. The investigators described the screening using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline.[19] (Figure 1)

Table 1 The PCC Framework of JBI Methodology for Scoping Review for Defining the Eligibility of the Research Question

Item	Description
Population	• Women aged 18 years and above who need Emergency Obstetric and Neonatal Care (EmONC) services • Health facilities that provide EmONC services
Concept	• EC of EmONC services, measured as per its three components: • Need, • Coverage/utilization, and • Service quality
Context	Africa

Table 2 Data Charting (Studies Included in the Scoping Review)

Author	Publication Year	Country	Aim	Study Design/ Setting	Target Group	Sample Size	Data collection Method
Mpunga Makondi D et al[22]	2019	DRC	Assessing the availability, quality, and equity of EmOC	Cross-sectional	Health facilities	1555	Interview, observation, and record review
Berhane B et al[23]	2019	Ethiopia	Describing the quality of BEmONC and associated factors	Cross-sectional	Women	398	Interview
Pearl Thwala SB et al[24]	2018	South Africa	Assessing the facilities' preparedness to provide EmONC	Cross-sectional	Health facilities	15	Record review, interview, and observation
Augusto O et al[25]	2018	Mozambique	To investigate changes in the availability, use, and quality of EmONC	Secondary data analysis	Health facilities	1324	Record review and interview
Ntambue AM et al[26]	2017	DRC	Assessing the availability, utilization, and quality of EmONC	Cross-sectional	Health facilities	53	Interview, observation, and record review
Ouédraogo AH et al[27]	2016	Togo	Assessing the availability, use, and quality of EmONC	Cross-sectional	Health facilities	1019	Record review
Kamria A et al[28]	2016	Ethiopia	To assess satisfaction with EmONC services	Cross-sectional	Women	403	Interview
Kouanda S et al[29]	2016	Burkina Faso	Analyzing and comparing the availability, use, and quality of services for maternal and neonatal health	Cross-sectional	Health facilities	812	Record review
Kougei RJ et al[30]	2016	Kenya	To determine the level of quality of CEmONC	Cross-sectional	Women	1216	Observation and record review
Abegunde D et al[31]	2015	Nigeria	To report the availability, utilization, and quality of EmONC	Cross-sectional	Health facilities	59	Record review and interview
Admasu K et al[32]	2011	Ethiopia	Reporting the availability and quality of EmONC	Cross-sectional	Health facilities	806	Record review and interview
Mtuwanya E et al[33]	2018	Tanzania	To establish the provision of EmONC signal functions and reasons for the failure	Cross-sectional	Health facilities	261	Observation and interview
Selnes Mikenberg A et al[34]	2017	Tanzania	To perform a district-wide assessment of EmONC performance and identify ways for improvement	Cross-sectional	Health facilities	18	Observation, interview, and record review

(Continued)

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Table 2 (Continued).

Author	Publication Year	Country	Aim	Study Design/ Setting	Target Group	Sample Size	Data collection Method
Gov Sierra Leone et al[35]	2017	Sierra Leone	To generate evidence on the availability, utilization, and quality of EmONC and routine delivery services	Cross-sectional	Health facilities, women, and care providers	181	Interview, record review, and observation
EPHI et al[36]	2017	Ethiopia	To generate evidence on the availability, utilization, and quality of EmONC and routine delivery services	Cross-sectional	Health facilities, women, and care providers	3804	Interview, record review, and observation
Malawi MOH et al[37]	2015	Malawi	Measuring the EmONC services' adequacy	Cross-sectional	Health facilities, women, and care providers	365	Interview, record review, and observation
Gambia MOH et al[38]	2012	Gambia	To generate information that would be used to strengthen health systems to reduce maternal and child mortality	Cross-sectional	Health facilities, women, and care providers	98	Interview, record review, and observation
Ghana MOH et al[39]	2011	Ghana	To generate information that would be used to strengthen health systems to reduce maternal and child mortality	Cross-sectional	Health facilities, women, and care providers	1268	Interview, record review, and observation
Hirai M et al[40]	2020	Kenya	To explore pregnant mothers' experiences with ANC visits and delivery	Qualitative	Women and care providers	144	FGD
Geleto A et al[41]	2020	Ethiopia	To investigate the perceptions of midwives about the quality of EmOC	Qualitative (exploratory)	Midwives	12	IDI
Banke-Thomas A et al[42]	2019	Kenya	Exploring stakeholders' perceptions of EmONC training	Qualitative	Women and care providers	219	KII, FGD
Okoroafor F et al[43]	2017	Nigeria	To determine the nature of institutional policies and frameworks for managing obstetric complications and reducing maternal deaths	Qualitative	Managers and care providers	36	IDI, KII
Stal KB et al[44]	2015	Tanzania	Assessing women's perception of the quality of obstetric care	Qualitative (exploratory)	Women	22	IDI, observation
Chi PC et al[45]	2015	Burundi and Uganda	To explore the barriers to the effective delivery of EmONC	Qualitative (case study)	Care providers	69	IDI, FGD

(Continued)

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Table 2 (Continued).

Author	Publication Year	Country	Aim	Study Design/ Setting	Target Group	Sample Size	Data collection Method
Abri H et al[56]	2014	Ghana	To understand the healthcare workers' perspectives on causes of challenges in the referral of obstetric cases	Qualitative (Narrative)	Care providers	18	IDI
Kabo I et al[57]	2019	Nigeria	To evaluate the impact of quality improvement interventions	Prospective before and after study	Health facilities	59	Record review and interview
Spitzer RF et al[58]	2014	Kenya	To determine the impact of introducing the EmONC training program on maternal and perinatal morbidity and mortality	Prospective chart review	Women	3533	Record review
Kada R.S et al[59]	2020	Cameroon	Evaluating EmONC services' coverage, functionality, and quality	Retrospective	Health facilities	31	Interview and observation
Girma H et al[60]	2013	Ethiopia	To assess the availability, quality, and utilization of EmOC	Retrospective	Health facilities	66	Record review
Austin A et al[11]	2015	Ethiopia	To assess barriers to the provision of quality EmONC	Mixed method	Care providers	140	IDI, KII
Mirkuzie AH et al[61]	2014	Ethiopia	Examining the progress of BEmONC services' implementation	Interventional	Care providers and health facilities	98	Record review and observation
Nada KH et al[62]	2011	Egypt	To assess the quality of care for obstetric emergencies	Quantitative (observational)	Women	102	Interview, observation of care provision

Quality Appraisal

The selected studies' quality was assessed using the Mixed Methods Appraisal Tool (MMAT) 2018 version.[26] This tool helped the investigators evaluate the quality of different study designs in terms of appropriateness of the study's aim, methods, study design, study participant selection, data collection, analysis, discussion, and conclusion.

Charting the Data

A customized data charting table was developed and used for the review (Table 2) and piloted by two independent investigators using a random sample of 10 included studies for consistency. It was used to extract information from the included data sources/documents. The table was modified as required based on the investigators' feedback and was updated continuously throughout the review. After data extraction, the comparison was made, and any disagreement was resolved through discussion. The third investigator was consulted in cases of disputes to reach a consensus. The review used NVivo version 12 software (QSR International Pty Ltd, Burlington, MA, USA) to classify, sort, arrange, examine, and extract the relevant outcomes through thematic analysis.

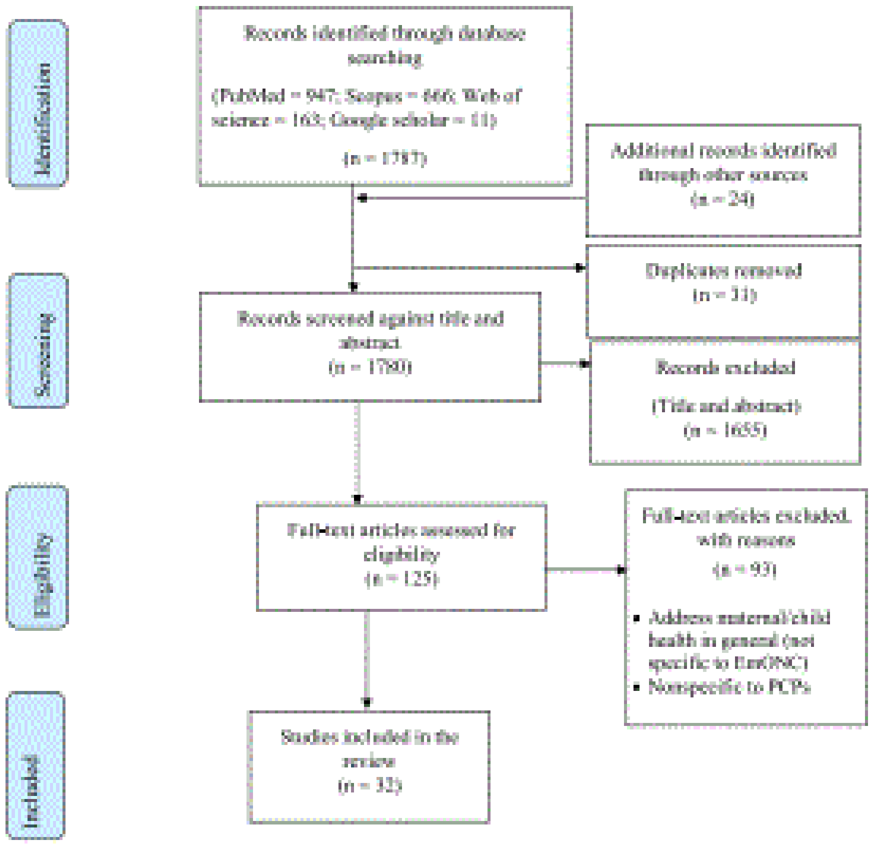

Figure 1 PRISMA 2009 Flow Diagram for selection of studies.
Note: Adapted from Moher D, Liberati A, Tetzlaff J, Altman DG; The, Prisma Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA Statement. PLoS Med. 2009;6(7):e1000097. doi:10.1371/journal.pmed.1000097.[19]

Collating, Summarizing, and Reporting the Results

This scoping review used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (PRISMA-ScR) checklist (Supplementary File).[21] The review presented a numerical summary description at each stage of the PRISMA flow diagram. The charting and appraisal tools' findings were summarized and presented in tabular form using the respective tools' categories.

The investigators presented a summarized diagrammatic presentation of eligible articles' major characteristics, such as the study's characteristics, including geographic location, design, data collection techniques, and target populations. The relevancy of data for the research question on factors affecting the quality of EmONC services was presented for each evidence source and sorted by the data's perspective. The investigators have also undergone thematic analysis to summarize the results based on themes from the extracted data.

Consultation

Investigators consulted the key stakeholder groups (health system leaders/decision-makers, healthcare providers, and service users). Investigators also consulted non-governmental organizations involved in the EmONC services delivery and obtained relevant inputs on the literature gap and understanding for the review.

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Result

The database search yielded 1787 studies, and the grey literature search yielded 24 studies, of which 31 duplicates were removed. Next, 1655 studies were removed during the title and abstract screening because they did not meet the inclusion criteria, and 93 were removed during the entire article screening stage (as they were either not specific to EmONC or PCPs). Finally, 32 studies were included in the study. The steps used to select studies for the review are provided in the PRISMA flow diagram (Figure 1).

Characteristics of Included Studies

The Studies' Location and Types

Most studies were from East and Western African countries (Figure 2). A variety of studies were included in the review, including 18 cross-sectional studies,[23–39] seven qualitative studies,[40–46] one prospective before-after study,[47] one forthcoming chart review study,[48] two retrospective studies,[49,50] one mixed method study,[51] one interventional study,[52] and one observational study.[53]

The Studies' Focus

Most included studies targeted health facilities and a combination of at least two target populations (representing a combination of health facilities, women, care providers, stakeholders, and others). However, only six and four studies targeted only service users (women and newborns) and care providers (Figure 3).

The Studies' Methods

Besides, 19 studies combined two or more data collection techniques. The most commonly used method was record review followed by interview and observation of the facility for infrastructure availability. However, only one study directly observed care provision (clinical skill). (Figure 4)

Key Findings

The thematic analysis of included literature yielded three themes: EmONC service utilization, quality of EmONC services, and factors linked with the quality of EmONC services.

Utilization/Crude Coverage of EmONC Services

Of the 32 reviewed studies, 13 reported the crude coverage (use) of the EmONC services.[25,27,29,31,32,34–39,47,49] It ranged from 3% in 2011 in Ethiopia[32] to 73% in 2016 in Togo.[27] Studies from Ethiopia and Nigeria reported a high unmet need for EmONC services in which 3%,[31] and 3.9%[39] of women with obstetric complications were treated at fully functional EmONC facilities in Ethiopia and Nigeria, respectively, varied significantly by the sub-national administrative structures. The national EmONC assessments from Ethiopia,[36] Sierra Leone,[35] Ghana,[49] Malawi,[37] and Gambia[34] reported that

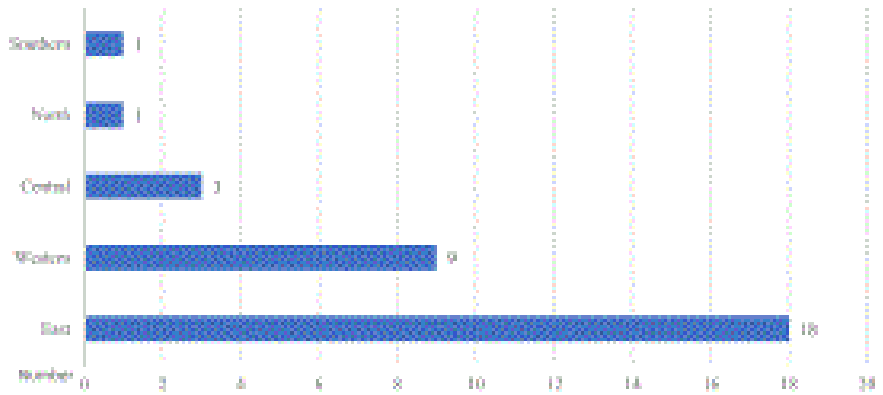

Figure 2 Geographic distribution of included studies, 2022.

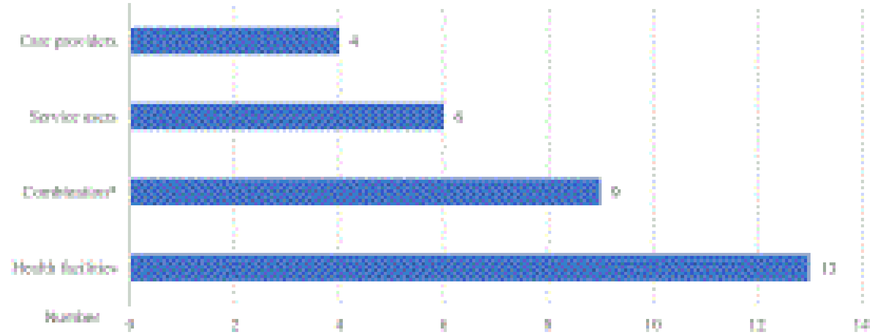

Figure 3 Population of included studies, 2022.

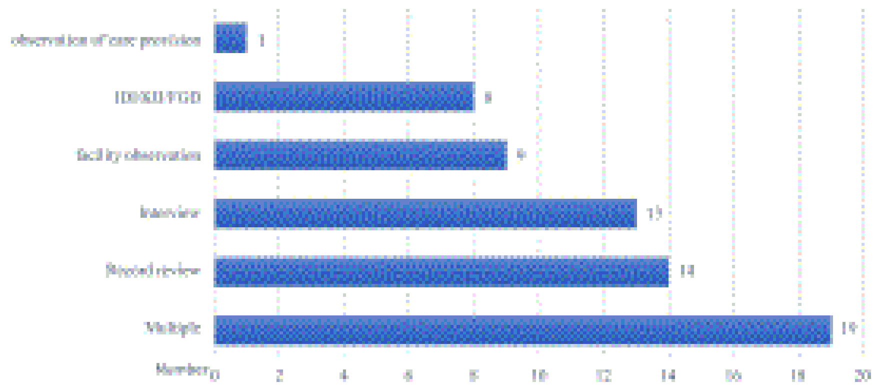

Figure 4 Data collection methods of included studies, 2022.

18%, 20%, 34%, 51%, and 56%% of women with obstetric complications were treated at health facilities, with a significant disparity by the sub-national administrative structures.

Four studies have also shown a progressive improvement in EmONC service utilization. A study from Mozambique reported that the EmONC service utilization increased from 20% in 2007 to 26% in 2012.[25] A Nigerian study also reported a threefold increase in EmONC service utilization (3.3% to 9.9%) within three years (2012 to 2015). In the same study, the percentage of women who sought care outside health facilities dropped significantly from 8.3% to 3.2%.[47] Furthermore, studies from Cameroon[49] and Burkina Faso[29] also reported an increasing trend in EmONC service utilization.

Quality of EmONC Services

We also found evidence of the quality of EmONC services measured in various ways. Of the 32 included studies, 27 reported the quality of EmONC services and used a single index or a combination of indices to measure the Quality of EmONC services. The most commonly used methods in the included studies were structure, process quality, perceived quality, and case fatality rates (CFRs) as measurements of EmONC service quality. Most studies reported providing quality EmONC services as the primary challenge, though some reported a progressive improvement.

Structure/Input Quality

Of four articles that assessed the structure/input quality of EmONC services, three reported that none of their facilities performed at the expected level of EmONC service quality (measured using checklist-guided assessment).[23,34,34] One of the studies said that the quality of EmONC services was inadequate (based on documentation) though some indices indicated excellent and sound levels.[39]

A study from South Africa reported a 56.7% average drug availability with complete unavailability of some drugs, including parenteral antibiotics, ergometrine, and diazepam.[24] Similarly, the essential drugs were unavailable or poorly available in facilities with good infrastructure in a study from Kenya.[30] In a study from DRC, the structural quality of EmONC services was 41%, in which face mask, Manual Vacuum Aspiration (MVA), and magnesium sulfate were the least available elements, with a prevalence of 4%, 6%, and 10%, respectively.[22] Besides, in a study from Tanzania, facilities did not perform at the expected level for EmONC services, mainly due to the unavailability of essential drugs and the inability to perform vacuum extraction and blood transmission.[34]

Process/Observed Quality

Only two studies[30,53] reported the quality of EmONC services using process indicators through direct observation of activities occurring in the clinical setting and documentation of process indicators. An observational study from Egypt reported poor quality of EmONC services (with particular attention on third delay and blood transfusion), ie, only 62% of patient's vital signs were checked, and 93% of patients who needed resuscitation received it. The same study also reported that the average time between physical examination and medical or surgical intervention was three hours, the time spent was not justified on medical grounds by obstetricians in 60% of the cases, and anesthesia was initiated late in >50% of cases.[53]

However, a multi-site cross-sectional study from Kenya stated a wide interquartile range (IQR) of process indicators, suggesting variable process indicators. The record review revealed that the obstetric history was adequately documented (when documented in >75% of the cases). Still, parity and previous deliveries were graded as moderately adequate (recorded in 51–74%) and inadequate (recorded in <50%), respectively.[30]

Perceived Quality

Of the 32 included studies, five[23,28,42–44] reported the quality of EmONC services based on care providers' or receivers' (patients') perspectives on facility infrastructure, care providers' respectful care, or satisfaction with the overall EmONC services. Two studies reported that the average perceived quality ranged from 66.7% in Adigrat, Northern Ethiopia,[23] to 79.4% in Jimma, Western Ethiopia.[28]

Three studies reported the high quality of EmONC services from participants' perspectives (care receivers or providers).[28,42,44] For instance, women in a qualitative study in Kenya reported that they experienced improvements in the quality of EmONC services provided after the care providers received training on the EmONC services.[42] However, in a study from Ethiopia, only 41.2%, 45.2%, and 34.7% of women stated the input, process, and outcome (satisfaction) components as good quality.[23] Besides, a study from Tanzania reported a "good" perceived quality regarding the structure quality of EmONC services but discouraging responses regarding communication with care providers.[44]

Case Fatality

Fifteen of the 32 included studies[25–27,31,33–39,47–50] used the CFR as a means of the EmONC service quality assessment method. The CFR in the included studies ranged from 1.3% in Togo[27] to 11% in Cameroon.[49] It exceeded the UN-recommended maximum of less than 1% in all the studies except grey literature. Studies from Togo,[27] Ethiopia,[50] Tanzania,[31] and Nigeria[31] reported relatively lower direct obstetric CFR, ie, 1.3%, 1.9%, 3%, and 3.2%, respectively. However, studies from DRC,[26] Mozambique,[25] and Cameroon[49] reported higher direct obstetric CFR, amounting to 5.1%, 5.2%, and 11%, respectively. However, the Gray literature review of national surveys reported lower CFRs, ranging from 0.8% in Ethiopia[36] to 3% in Sierra Leone.[35]

Ten studies also reported intrapartum and very early neonatal deaths,[25,27,31,35–39,47,49] ranging from 19.3 per 1000 deliveries in Mozambique[25] to 83.7 in Togo.[27] The studies reported significant disparities across districts and regions. However, the national surveys of five countries reported relatively similar intrapartum and very early neonatal deaths ranging from 20 per 100 deliveries in Malawi[37] to 27 in Gambia.[38]

The included studies reported improved and worsened CFR trends with varying extent/levels over time. For instance, in Mozambique, the direct obstetric CFR decreased by half (5.2% to 2.8%,) and the stillbirth rate dropped by one-third (29.3 to 19.3/1000 births) in five years.[25] However, studies from Nigeria and Cameroon reported a deteriorating trend in quality service. Accordingly, the direct obstetric CFR in a study from Nigeria increased from 3.1% in 2012 to 4.1% in

2015.[47] Similarly, in a study from Cameroon, the direct CFR and intrapartum neonatal death rate increased by 3% in three years.[49]

Factors Associated with Utilization of Quality EmONC Service

Seventeen of the 32 studies reported the aspects of using Quality EmONC services. The studies reported the socio-demographic factors, maternal behavioral and health service utilization-related factors, and health facility and health system-related factors associated with the utilization of quality EmONC services.

Sociodemographic Factors

Four studies reported that patients' residence, educational status, and age were associated with using quality EmONC service.[22,43–45] Three studies particularly underlined that the sociodemographic factors were the vital predisposing factors to adverse maternal outcomes, far exceeding the health system's failure.[23,43,45] For instance, in a study from Tanzania, women's tendency to express their feeling and pain was highly affected by their educational status; only educated women said their emotions and pain during medical/surgical procedures and other obstetric service provisions.[44] Young age, unemployment, poverty, distance, and residence were reported as barriers to perceived quality EmONC service utilization.[22,43]

A qualitative exploratory study from Ethiopia also reported very high maternal mortality (>4%) from remotely located facilities.[41] Besides, qualitative research from Ghana indicated that the financial burden exerted on women resulted in maternal death due to inadequate transportation.[46] A companion's presence was also reported as a facilitating factor, where such mothers (accompanied by their relatives) had a seven times higher risk of obtaining quality EmONC service.[23,43]

Maternal Behavioral and Health Service Utilization-Related Factors

A qualitative study from Nigeria reported that mothers who visited traditional or religious delivery places come to health facilities lately and face a higher risk of complications and adverse health outcomes. Ignorance, preference for traditional birth attendants, and the cultural preference for vaginal delivery increased the risk.[23,43] On the contrary, ANC follow-up had higher odds of quality of basic EmONC services.[23] The quality of EmONC service was also associated with women's preference for care providers' sex.[43]

Health Facility and Health System-Related Factors

The need for more efficiency in resource allocation, particularly scarcity of beds, rooms, supplies, and ambulances, challenged the provision of quality obstetric services in Burundi and Uganda,[45] Ethiopia,[41] Kenya,[48] and Nigeria.[47] This was further explained by a study from Ethiopia, where a unit decrease in satisfaction with the availability of medical supplies decreased the overall clients' satisfaction by 0.23 units.[28] Besides, the absence of stationary was a major causal factor for the deficiency of partograph usage in Tanzania.[34] The shortage of qualified staff and the increased workload were also reported as barriers to quality EmONC service provision.[40,42,45–47]

Effective communication was reported as one of the determining factors for delivering quality EmONC services. A study from Ghana reported that a lack of communication hampered pre-referral communication between facilities.[46] A qualitative explanatory study from Ethiopia also reported that the language barrier affected midwives' ability to provide quality EmONC services.[41] Another study from Ethiopia and Tanzania reported that women's satisfaction was associated with healthcare providers' communication.[28,44]

Transportation and referral system-related challenges were also raised as determining factors for the delivery of quality EmONC services. Using vehicles other than ambulances was mentioned as a quality-compromising circumstance because of the inability to ensure appropriate care, such as vital sign follow-up and provision of intravenous drips.[46] Besides, late arrival (as a result of transportation-related challenges) resulted in CFRs in Northern Nigeria.[47]

Healthcare workers' clinical skill gap and training were also identified as factors determining the provision of quality EmONC services. In some contexts, patients presented with advanced complications because of the referring facility's clinical skill gap in recognizing the danger signs on time.[46] Women's obstetric complications were also poorly managed at the appropriate facility level.[43] The insufficient pre-service and in-service training also contributed to poor-quality

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EmONC services.[40,47] Besides, the role of training in providing quality EmONC services was also reported in studies from Kenya, Burundi, and Uganda.[42,45,48]

The absence of supervision and coordination was also a critical barrier to providing quality emergency obstetric care.[40,41,45] Nevertheless, the effectiveness of the supervisory role was identified as a controversial issue in cases of routine "traditional" supervision that did not result in the provision of the needed supplies.[46] Furthermore, poor curriculum,[45] treatment protocol,[41] policies, and specific action plans[43] were reported as factors influencing the delivery of quality EmONC services.

Studies also reported the lack of regulation and monitoring as contributing factors to poor quality service delivery.[22,41,45] On the contrary, in a study from Nigeria, the increase in CFR was associated with better record keeping.[47] Studies also revealed that poor staff motivation influenced the provision of quality EmONC services.[41] For instance, in a qualitative study conducted in Burundi and Uganda, demoralization and lack of recognition resulted in staff absenteeism.[45]

Effective Coverage of EmONC Service

The included studies reported evidence on coverage, use, and Quality of EmONC services. Out of the 32 included studies, 13 said both utilization and Quality of EmONC services, whereas 14 reported only the quality of EmONC services. However, none of the studies reported the combined result of EC of EmONC services.

Discussion

This review mapped evidence of EC of EmONC services and factors affecting the quality of services. It revealed a great diversity in the availability of evidence on crude coverage, quality of care, and associated factors. Furthermore, the findings indicated that the evidence of the EC of EmONC services lacked comprehensiveness in Africa.

The estimates of EC are highly relevant since they can show the bottlenecks in achieving better impact.[54] Despite the EC's growing and direct relevance in tracking the progress towards SDG 3,[55] the evidence on EC for the EmONC services lacks, though it exists for other health interventions.[56] Though studies focusing on the comprehensive estimate for EC of EmONC services were lacking in Africa, the review identified evidence of crude coverage and the quality of EmONC services.

The crude coverage (utilization) of EmONC services was a prioritized topic in the reviewed articles, with 40% reporting it. In addition, wide variations are observed by study time, methods, and country. Although progressing improvements were documented, universal coverage of EmONC services was not achieved in all studies,[25,29,47,49] only to remain below the WHO's target. For instance, most of the needed EmONC services are unmet in some countries, ie, 97% in Ethiopia[32] and 96.1% in Nigeria[31] were not addressed. National EmONC assessments, ie, in Ethiopia,[36] Sierra Leone,[35] Ghana,[39] Malawi,[37] and Gambia,[38] showed significant variations in the EmONC services utilization by the sub-national administrative structures. Unless tailored, contextualized, and accelerated interventions are implemented, it is imminent that most countries will face challenges in achieving the SDG goal of improving maternal and newborn health.

The scoping review showed that providing quality EmONC services remained one of the continent's most challenging interventions and unattained goals. Few studies.[11,14] have shown an improvement in the quality of EMONC services over time, and most (84%) studies relied on one or more of the Donabedian quality triads. The input and process components were less emphasized in the reviewed studies, while the majority (62.5%) focused on the outcome indicators. Despite the relevance of the facilities' settings, care providers' qualification, and administration,[11] the current review revealed that evidence on the structural quality of EmONC service is limited in Africa. Furthermore, the review showed poor structural quality. It has also demonstrated poor adherence to the standards of care, including inadequate documentation of the patient's past medical history[30] and inadequate clinical actions.[53] Despite its relevance to evaluating the content of care,[14] the review underlined that the process component of EmONC services quality is overlooked in Africa.

On the contrary, the outcome quality of EmONC services was more researched and had a variable level. However, the review identified the methodological and analytical inconsistencies across studies as a primary challenge to the comparability of the results, implying the need for uniform (harmonized) techniques. The direct obstetric case fatality rate (DOCFR), the proportion of women admitted to an EmONC facility with major direct obstetric complications or

who develop such complications after admission, and die before discharge, is one of the proxy measures to assess the quality of EmONC services.[8] Although CFR's methodological approach is relatively consistent among the included studies, the findings vary. Besides, though evidence underlined complementing it with other valid indicators (since the absence of case fatality in primary health care facilities does not necessarily indicate higher quality),[8] the review revealed that the included studies lacked triangulation of their findings to render a better understanding of EmONC service quality. Nonetheless, most reviewed articles exceeded the UN-recommended minimum level, implying the tension behind the progress toward achieving SDG goal 3.[7]

The review also identified the factors linked with providing quality EmONC services. The sociodemographic characteristics (patients' residence, educational status, age, unemployment, poverty, distance, and place) and maternal behavioral and health service utilization-related factors (ignorance, preference for traditional birth attendants, culture, ANC follow-up, and care providers' sex preference) impacted the provision of quality EmONC services. Besides, the health facility and health system-related factors such as resource allocation, staff motivation, transportation and referral system, training, curriculum and treatment protocol, policies, and specific action plans have positively or negatively influenced the provision of quality EmONC services. Hence, interventions pointing at the identified factors could help improve the EC of EmONC services. For instance, staff motivation was cited in the reviewed articles as an essential factor influencing the provision of quality EmONC services.[40,54] Interventions, including most Results-Based Financing (RBF), positively impacted the motivation of care providers to improve their performance.[54,57,58] Similar evidence from LMICs supported the application of such interventions to improve care providers' commitment and feelings of professionalism, which subsequently lead to receivers' satisfaction.[57,58]

Limitation

This study only includes studies published in English on Jan 01, 2011 – Dec 31, 2020, so studies published in other languages were excluded from the review despite their significance to the study's scope.

Conclusion

Evidence of EC of EmONC services lacks comprehensiveness (with regard to the three components: need, use, and quality) in Africa. However, the review explored evidence on crude coverage and quality of EmONC services with a wide variability across studies, study period, and sub-national administrative structures. The utilization of EmONC services was lower than the WHO-recommended 100% in all studies, though some reported a progressive improvement. The variation in the quality of EmONC services and assessment techniques was observed in the review, which has shown wide disparity across studies. In addition to the scarcity of evidence on the structural quality of EmONC services in Africa, the review explored the inadequacy of structural quality, particularly essential drugs and equipment. Furthermore, despite their drawbacks, the perceived quality and CFRs were widely researched in the review, while very few studies assessed the content of care for EmONC service quality.

The perceived quality of EmONC services has shown a variable level (very low to high) in the continent. However, the methodological and analytical inconsistencies across studies ultimately resulted in difficult comparability of the results, implying the need for uniform (harmonized) techniques. The high CFRs in the review indicated the low outcome quality of EmONC services. However, studies did not complement their results with other assessment techniques since lower CFRs do not necessarily mean better quality. The review further explored and identified sociodemographic, maternal behavioral, and health service utilization-related factors influencing the utilization of quality EmONC services in Africa.

Recommendation

The incongruity of EmONC service quality assessment methods needs to be harmonized to trace and compare the progress toward achieving the SDG goals in the continent. We also recommend robust data collection systems and incorporating indicators that better reveal the quality of EmONC services, mainly content of care components. Furthermore, a comprehensive (that encompasses all its components) study is suggested to understand the EC of EmONC services in Africa.

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Abbreviations

BEmONC, Basic Emergency Obstetric and Newborn Care; CEmONC, Comprehensive Emergency Obstetric and Newborn Care; CFR, Case Fatality Rate; DHS, Demographic and Health Survey; DOCFR, Direct Obstetric Case Fatality Rate; DRC, Democratic Republic of Congo; EC, Effective Coverage; EmONC, Emergency Obstetric and Newborn Care; EmOC, Emergency Obstetric Care; FGD, Focus Group Discussion; IDI, Individual In-depth Interview; IQR, Inter-quartile Range; JBI, Joanna Briggs Institute; KII, Key-Informant Interview; LMIC, Low and Middle-income Country; MMAT, Mixed Methods Appraisal Tool; MeSH, Medical Subject Heading; OSF, Open Science Framework; PCC, Population, Concept, and Context; PRISMA-ScR, Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews; SDG, Sustainable Development Goal; UNICEF, United Nations Children's Fund; WHO, World Health Organization.

Data Sharing Statement

All data used for this study are cited and presented as references.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Disclosure

The authors report no conflicts of interest in this work.

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Bridging statement

Chapter 4 showed that the evidence on EC of EmONC services is lacking in Africa, suggesting the need for primary research articles to fill the existing gap. Therefore, studying the EC (quality-adjusted coverage) of EmONC services was imperative. Hence, the subsequent chapters (chapters five to seven) describe the primary research articles that aimed to fill the literature gap. The subsequent chapter (chapter five) is based on manuscript two and investigates the EC of EmONC services. The manuscript was submitted to the Health Care for Women International journal on 06 July 2022 and is under review.

CHAPTER FIVE: PAPER TWO

Effective Coverage of Emergency Obstetric and Newborn Care Services in Wolaita Zone, Southern Ethiopia

Authors: Alemayehu, M., Yakob, B. & Khuzwayo, N.

Status of the manuscript: Submitted to the Health Care for Women International journal and is under review

Doctoral student contribution

1. Formulation of the project: I conceived the study.
2. Study design: I developed the study design with the guidance of my supervisors.
3. Project management and field logistics: I managed the fieldwork and supervised the data collection.
4. Data analysis: I developed the data collection template for the ODK mobile application and analyzed, summarized, and interpreted the data with the guidance of my supervisors.
5. Write-up: I wrote the initial draft of the manuscript. My supervisors guided the write-up of the draft and read and approved the final manuscript.

Introduction

Chapter four's findings guided the researcher to investigate the EC of EmONC services. This manuscript, therefore, described the level of EC of EmONC services in Wolaita Zone, southern Ethiopia. The manuscript was submitted to the Health Care for Women International journal and is currently under review.

Effective Coverage of Emergency Obstetric and Newborn Care Services in Wolaita Zone, Southern Ethiopia

Mihiretu Alemayehu[1, 2], Bereket Yakob[1,3], Nelisiwe Khuzwayo[2]

[1]School of Public Health, College of Health Sciences and Medicine, Wolaita Sodo University, Ethiopia

[2]School of Nursing and Public Health, Discipline of Public Health, University of KwaZulu-Natal, Durban, South Africa

[3]School of Population and Public Health, the University of British Columbia, Vancouver, BC, Canada

Correspondence: Mihiretu Alemayehu

Wolaita Sodo University, Ethiopia

PO. Box: 138

Tel: +251 913 213443

Fax: +251465515113

Email: mihiretua@gmail.com

Abstract

Nearly 15% of childbirths end up with severe complications resulting in maternal and newborn adverse outcomes, with the highest burden in Sub-Saharan Africa. Community and facility-based cross-sectional studies were conducted to determine the effective coverage (EC) of Emergency Obstetric and Newborn (EmONC) Services. The facility-based study included 14 health facilities and 423 women, while the community survey included 406 women in the 28 kebeles/villages. The study identified 72.1% crude coverage (community survey), and 69.4% mean observed quality (facility survey) of EmONC services. The overall EC of EmONC services (by adjusting the crude coverage by the observed quality of care) was 50%, where half of the potential health gain in EmONC services is lost. Hence, the health system should address the health infrastructure gaps and low adherence to standard clinical actions. Furthermore, the bottlenecks of EmONC services utilization should be investigated and addressed.

Keywords: Health System, Quality of Care; Crude Coverage; Quality-adjusted Coverage; Obstetric care; Effective coverage

Introduction

Nearly 15% of births end up with severe complications at pregnancy, delivery, or postpartum (WHO, 2003), resulting in maternal and newborn mortality and morbidity. Maternal mortality is one of the major public health problems globally, with the highest burden in Low and Middle-Income Countries (LMICs). Furthermore, sub-Saharan Africa bears the largest maternal mortality ratio (MMR) share, where one in every twenty-six mothers dies because of pregnancy-related complications (WHO, 2019). As one of the sub-Saharan countries, Ethiopia also suffers from high maternal mortality (412 maternal deaths per 100,000 live births) (WHO, 2019) and neonatal mortality (30 neonatal deaths per 1,000 live births).

If a high-quality health system could deliver interventions to needy mothers and their newborns, more than a quarter of maternal and newborn deaths could have been decreased, and 22% of stillbirths could have been prevented (Chou et al., 2019). Emergency Obstetric and Newborn Care (EmONC) services are recognized as an essential and effective component of maternal and child health services that can save the lives of mothers and their newborns, who could die due to preventable causes (WHO, 2003). For women to receive rapid and sufficient treatment for complications of pregnancy and childbirth,

EmONC facilities should be accessible, equitably distributed, and provide high-quality, comprehensive care (WHO et al., 2021).

Despite improvements in maternity care coverage in many countries, many women and newborns still die of preventable causes (Fink et al., 2015). Although the expansion of facilities, the building of health infrastructure, geographic access to services, and service utilization are important milestones, they showed little impact on improving the quality of care and health outcomes (Kruk et al., 2018). In turn, healthcare input quality has been reported to have minimal impact on the quality-of-service provision (observed quality) in sub-Saharan African countries (Leslie et al., 2017). In this regard, revolutionizing (Kruk et al., 2018) the health systems to improve quality and use better measurements, such as "effective coverage (EC)" for critical programs, including EmONC, has been highlighted (Shengelia et al., 2005). EC is defined as the fraction of potential health gain delivered to the population in need. Its concept combines the three widely used components: need, coverage/utilization, and quality of healthcare interventions (Shengelia et al., 2005). Need is the expected number of women who would have major obstetric complications. At the same time, use is the number of women having major direct obstetric complications treated in a health facility providing EmONC service. The quality component is assessed by emphasizing the content of the care provision (observed quality) (Shengelia et al., 2005).

Though various coverage indicators are available to monitor the health system's progress and journey to achieve the SDG (Admasu et al., 2011), quality-adjusted coverage is recommended in maternal and newborn health programs (Amouzou et al., 2019; Marsh et al., 2020). This indicator measures EC as the proportion of the target population receiving the service according to the recommended clinical actions. This concept emphasizes the potential loss of health benefits that depend on the delivery of respectful care by adhering to recommended clinical actions (Amouzou et al., 2019). Hence, the EC measurement for EmONC services is based on the content of care and the extent to which it was delivered as per the standards (Amouzou et al., 2019; Marsh et al., 2020).

Measuring and improving the EC of essential health services is critical to monitoring the progress towards the sustainable development goal (WHO, 2015) and is one of the major national and global priority health agendas (FDRE Ministry of Health, 2021). Therefore, understanding the extent to which the health system delivers EmONC service to those in need is vital to local, national, and global decision-making (WHO, 2015). This study, therefore, aimed at measuring the EC of EmONC service in the Wolaita Zone, Southern Ethiopia, using data from household and health facility surveys.

Methods

Study area and design

The study was conducted in the Wolaita Zone, southern Ethiopia, 330 km southwest of Addis Ababa, Ethiopia. The Zone was inhabited by over 2.6 million people, 2.3% of the national population in 2020 (FDRE Population Census, 2008). The Zone had 80 EmONC facilities in the 22 administrative districts providing Comprehensive (10 facilities) and Basic (70 facilities) EmONC services. A total of 103 medical doctors, 28 Integrated Emergency Surgery Officers (IESOs), 460 public health officers, 446 midwives, and 1290 nurses work in public EmONC facilities of the Zone (Wolaita Zone Health Department. Annual Progress Report. 2021. Unpublished document).

Community and facility-based cross-sectional studies were conducted from October 1 - December 31, 2020, to assess the EC of EmONC services.

Source and Study Population

The source population for the household survey was all women who had obstetric emergencies in the last 12 months preceding the study. The health facility survey's source population was all health facilities and women who received EmONC services in the health facilities in Wolaita Zone during the study period. The study population for the household survey was women with one or more obstetric emergencies selected from the community. In contrast, the study population for the health facility-based study was women who attended the desired facilities for EmONC services during the study time.

Inclusion and exclusion criteria

Study participants aged 18 years and above who lived in the study area for at least six months and had one or more obstetric emergencies/complications in the last 12 months were included in the household survey. Besides, the health facility-based survey included health facilities that provided EmONC services within the previous three months preceding the data collection and women (aged >18 years) with obstetric emergencies visiting the facility. A study participant was classified as eligible (had obstetric complications) if they had one or more of the following conditions a) hemorrhage (antepartum and postpartum), b) prolonged and obstructed labor, c) postpartum sepsis, d) complications of abortion, e) severe pre-eclampsia and eclampsia, f) ectopic pregnancy g) ruptured uterus, and h) fetal/neonatal distress (WHO et al., 2021; Ethiopian Public Health Institute, 2016).

Women with severe health problems with difficulty speaking or listening during the study period were excluded from the household and health facility-based surveys. The health facility-based survey excluded facilities under expansion/construction during the data collection period. Besides, referred participants to another health facility and those who had major obstetric/gynecological or newborn surgical procedures were excluded from the health facility-based survey.

Sampling and sample size

The sample sizes for the two surveys were calculated using the *single population proportion formula* based on the following assumptions. A 47% proportion (p) of women who received quality EmONC services in Tanzania (Larson et al., 2017) was used for the facility-based survey sample size calculation. In contrast, a 60.1% proportion (p) of women treated for direct obstetric complications in the Ivory Coast (Benie et al., 2008) was used for the household survey. Hence, using a 95% confidence interval (z), 5% margin of error (d), 10% non-response rate, and the proportions (p) mentioned above, the total sample sizes required for health facility-based and household surveys were 422 and 406, respectively. After excluding non-responses, the health facility-based and household survey data included 414 and 402 study participants, respectively. A detail of the sampling for the facility-based survey is found in the recently published article (Alemayehu M et al., 2022).

This study implemented two sampling techniques for the household and facility-based surveys to take a representative sample to assess EC in the Wolaita Zone, southern Ethiopia.

Sampling for the Health Facility-based Survey

Seven districts (out of the 22) were randomly selected for the study, i.e., 30% of the districts in the Zone were considered. From each selected district, two EmONC facilities were randomly selected. Accordingly, 14 EmONC facilities were chosen, and every 5^{th} study participant was selected using a systematic random sampling method until meeting the target sample. Then, the care provision of all the selected participants was observed to collect data for a quality-of-care assessment. A detail of the sampling for the facility-based survey is found in the recently published article (Alemayehu M et al., 2022).

Sampling for the Household Survey

Two kebeles (the lowest administrative units in Ethiopia) were randomly selected per each selected facility. An aggregate of kebeles makes a woreda (district). Then, a census was conducted in the selected kebeles to identify households with eligible mothers (mothers who had obstetric emergencies). Accordingly, 28 kebeles were included in the study, and a systematic random sampling method was applied to select the study participants from eligible households.

Data collection instrument and procedure

The household survey used a structured questionnaire-guided interview developed after reviewing literature and validated tools (Ethiopian Public Health Institute, 2016; WHO et al., 2021; Wilunda et al., 2015). The questionnaire had sections that assessed sociodemographic and EmONC service utilization characteristics. In contrast, observation of the EmONC service provision in the health facilities was done to assess the quality of care using a structured checklist developed from a validated checklist and similar studies (Ethiopian Public Health Institute et al., 2014; Fisseha et al., 2017; Larson et al., 2017). The observation started at the initial patient assessment, continued throughout the stages of labor, and ended in discharge from the facility. The health facility observation tool was prepared in English, while the household survey questionnaire was developed in English and translated into the local language (Wolaita Dona) for data collection. A detail of the data collection instrument and procedure for the facility-based survey is found in the recently published article (Alemayehu M et al., 2022).

Data management and quality control

Data collectors were trained before conducting a pretest in a similar setting. The purpose of the pretest was to check for the appropriateness of the study tools and familiarize the data collectors. The investigators and supervisors regularly supervised the data collection and checked the completeness of the data daily.

Open Data Kit (ODK) mobile application was used to collect data using android tablets. The interviewers filled out the questions on the app while interviewing women (for the household survey) and observing the care provision (for the health facility-based survey). The software (mobile application) submitted the data to an online server during data collection.

Data analysis and measurement

The collected data was exported to STATA version 17 (College Station, Texas) for analysis. After data cleaning, descriptive analysis was done, and the findings were reported using frequencies, proportions, and summary statistics. Summary statistics with a 95% confidence interval were used to declare the significance.

Utilization (crude coverage) of EmONC services: is the total number of participants with obstetric emergencies who utilized health facilities divided by the total number of surveyed participants with obstetric emergencies during the past 12 months preceding the survey. It was estimated from the household survey (WHO et al., 2009).

Quality of EmONC services: was measured using an index created by calculating the mean of performance of 42 items related to EmONC services (standard clinical actions). The index includes items that assess the observed quality of EmONC service, including general patient assessment and danger signs, standard precautions, standard procedures in the stages of labor, and communication (Ethiopian Public Health Institute et al., 2014; Larson et al., 2017). It was estimated from the facility-based survey and calculated out of 100%.

Effective coverage: was measured using the framework that combines the *need*, *use*, and *quality* of healthcare services (Shengelia et al., 2005). The researcher adapted and estimated the EC of EmONC service using the following formula:

$$EC = Q*U/N,$$

Where N is the number of women who need the service (women with obstetric emergencies), and U is the number of women who utilized the intervention (EmONC service). Q is the quality of the intervention (observed quality of EmONC services).

Overall, the EC of EmONC services was calculated by multiplying the crude coverage by the average observed service quality (Munos et al., 2018; Shengelia et al., 2005), which could range from 0% (no EC) to 100% (perfect EC) (Yakob et al., 2019). EmONC service EC was estimated for the Zone, districts, and health facilities.

Ethical considerations

The University of KwaZulu-Natal Biomedical Research Ethics Committee (BREC), South Africa, and the Institutional Review Board (IRB) of the College of Health Sciences and Medicine, Wolaita Sodo University, Ethiopia, cleared and approved the study. Permission was received from the Wolaita Zone Health Department and respective health facilities. Finally, written consent was obtained from the participants.

Result

Sociodemographic characteristics

The household survey provided data from 402 participants (99% response rate), whereas the facility-based survey provided data from 414 participants (98.3% response rate). The mean age of study participants was 28.2 years (S.D 5.4) for the household survey and 25.4 (S.D 6.1) for the facility survey. In both surveys, most women were married, and only 29 (7.2%) and 66 (15.9%) women completed college/university education in household and facility surveys, respectively. (Table 5-1)

Table 5- 1: Sociodemographic characteristics of study participants, Wolaita Zone, southern Ethiopia

Variable	Category	Household survey (Women interviewed)		Facility-based survey (care provision observed)	
		Frequency	Column %	Frequency	Column %
Age	<25 years	205	51.0	102	24.6
	25-30 years	133	33.1	182	44.0
	Above 30 years	64	15.9	130	31.4
Religion	Protestant	145	36.1	289	69.8
	Orthodox	147	36.6	109	26.3
	Others [a]	110	27.4	16	3.9
Marital status	In marital union	369	91.8	409	98.8
	Not in a marital union	33	8.2	5	1.2
Occupation	Farmer	238	59.2	250	60.4
	Government employee	63	15.7	59	14.3
	Student	31	7.7	65	15.7
	Other [b]	70	17.5	40	9.7
Educational status	Not attended	196	48.8	65	15.7
	Primary (1-8)	88	21.9	142	34.3
	Secondary (9-12)	89	22.1	141	34.1
	College/university	29	7.2	66	15.9
Distance from facility	<30 minute	125	31.1	303	73.2
	≥30 minute	277	68.9	111	26.8
Residence	Urban	126	31.3	132	31.9
	Rural	276	68.7	282	68.1

[a]Muslim, traditional, apostolic; [b] daily laborer, housewife, merchant

Crude coverage of EmONC services

The household survey revealed that the crude coverage (utilization) of EmONC services in the Wolaita Zone was 72.1% (95% C.I: 67.7%, 76.4%) with variation across districts. The utilization was highest in the towns of Sodo (80.0%) and Boditi (76.9%). In contrast, the lowest was observed in the Kindo

Didaye district, where only 59.4% of the women needing the EmONC services visited health facilities. (Figure 5-1)

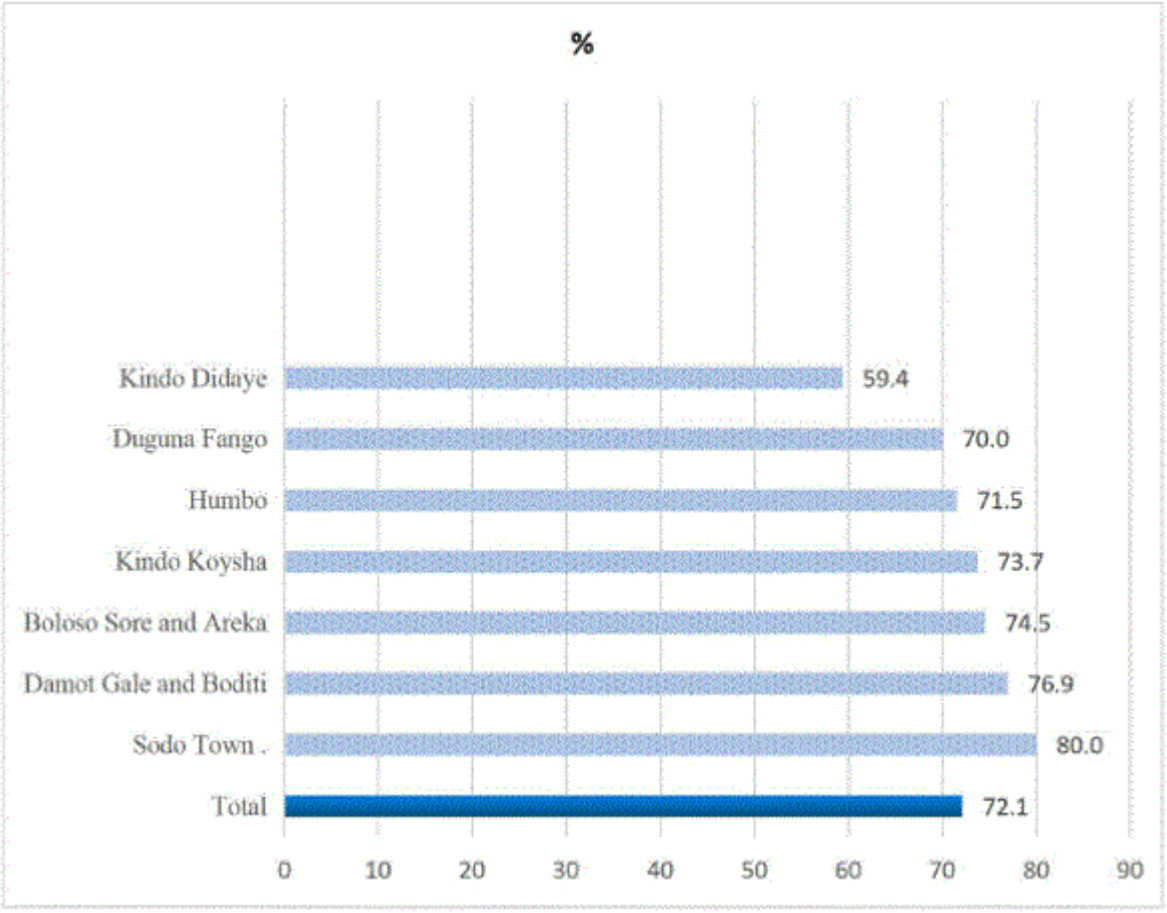

Figure 5- 1: Crude coverage (utilization) of EmONC services in Wolaita Zone, southern Ethiopia

Quality of EmONC services

The overall mean observed quality of EmONC service in the Wolaita Zone was 69.4%. Only two districts had a mean observed quality of care index above 75% from the studied districts, whereas Kindo Didaye (54.0%) and Sodo Town (66.9%) scored the lowest. (Table 5-2)

Table 5- 2: Quality of EmONC services in Wolaita Zone, southern Ethiopia

District	Number of observations	Mean observed quality
Boloso Sore and Areka	65	75.5
Damot Gale and Boditi	71	73.4
Dugunafango	32	56.6
Humbo	34	78.4
KindoDidaye	35	54.0
KindoKoysha	44	76.0
Sodo Town	133	66.9
Total	414	69.4

Effective coverage of EmONC services

Adjusting the crude coverage by the observed quality of care, the EC of EmONC services in the Wolaita Zone was 50.0% and varied across districts. This was far lower than the 72.1% crude coverage of EmONC services. Accordingly, Kindo Didaye and Duguna Fango districts had the most inferior EmONC services EC of 32.1% and 39.6%, respectively. Five of the seven districts had an EC score above 50.0%. The gap between crude and EC was highest in the Duguna Fango district, where the EC was 30.4% lower than the crude coverage (Figure 5-2).

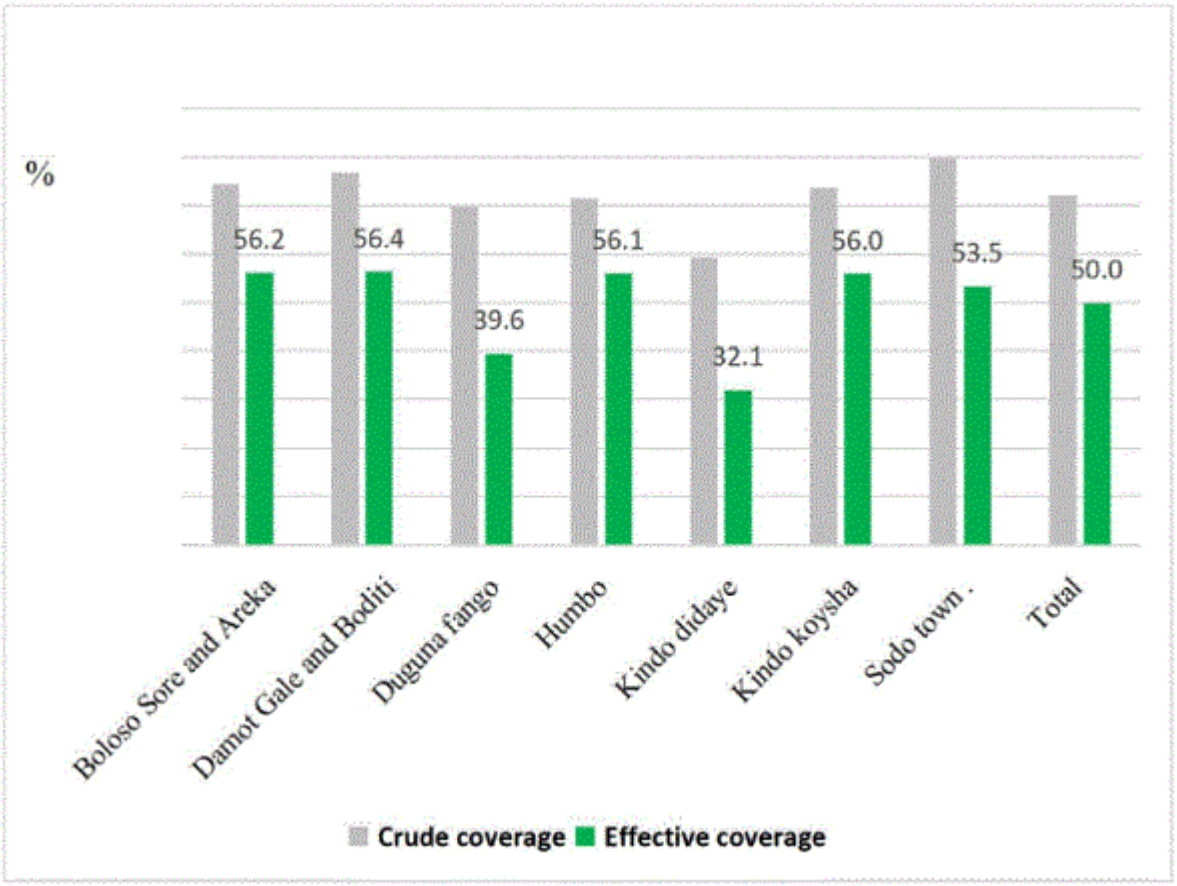

Figure 5- 2: Effective coverage of EmONC services by districts in Wolaita Zone, southern Ethiopia

All the indices were higher in urban districts than in rural districts. Accordingly, the crude coverage was 77.1% and 68.7% in urban and rural communities. Similarly, the quality of care (71.9% in urban versus 66.3% in rural) and EC (55.4% in urban versus 45.6% in rural) indices have also shown discrepancies with regard to residence. The EC dropped more in rural (23.1%) than in urban (21.7%) districts (Figure 5-3). The quality of care exceeded the crude coverage in BEmONC facilities. Besides, the quality of care is higher in BEmONC facilities than in CEmONC facilities. Nevertheless, the EC was more elevated in CEmONC facilities, which is attributable to the high crude coverage. (Figure 5-3)

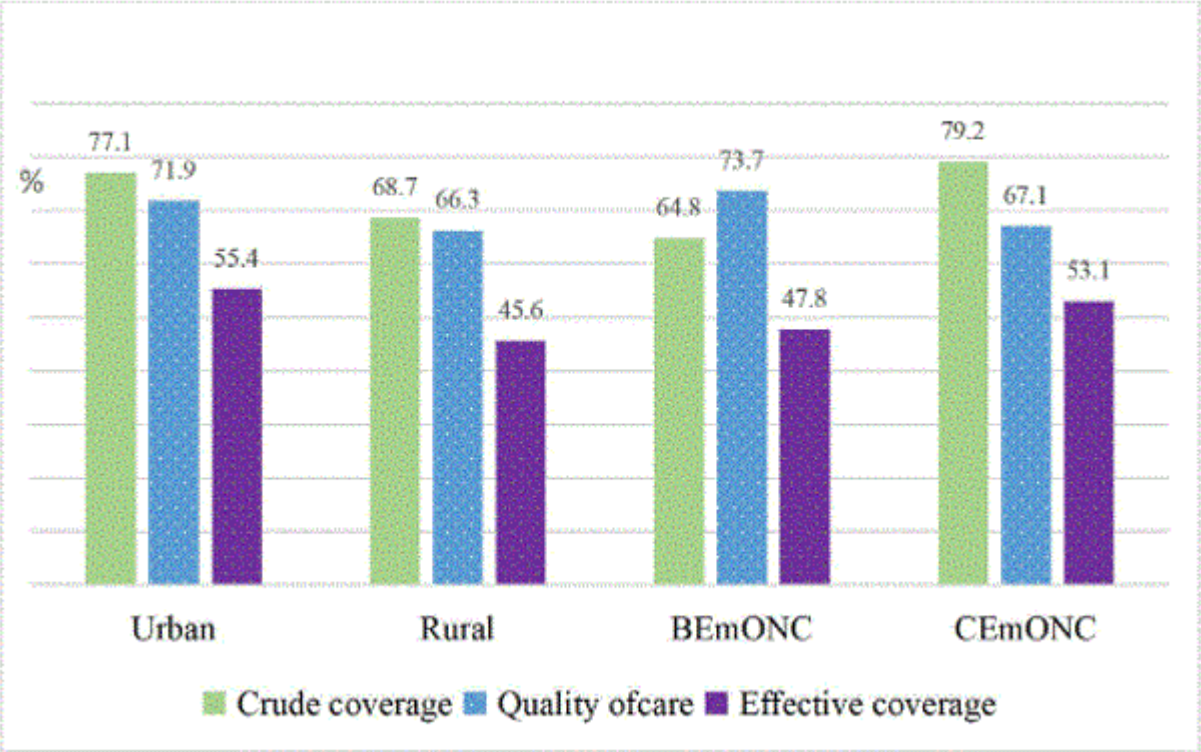

Figure 5- 3: Effective coverage of EmONC services by area of residence and facility type in Wolaita Zone, southern Ethiopia

Discussion

The EC of EmONC services in the Wolaita Zone is low, indicating a 50% loss in the potential health gain in providing EmONC services to the population in need. All the districts had a low EC of EmONC services though few variations were observed across the districts and other circumstances such as facility type and residence. Despite the country's heavy investment in the health system (FDRE Ministry of Health, 2014, 2021), only half of the health gain was achieved in the study area in terms of EmONC service provision. This finding highlighted the gap between crude coverage and EC (Amouzou et al., 2019). It further underlined the need for EC measurement of EmONC services to monitor the progress toward achieving universal health coverage (SDG -3.8) (WHO, 2015).

A similar finding (51.3%) was reported in Kenya (Nguhiu et al., 2017), and a comparable result (44.6%) was reported in Burkina Faso (Marsh et al., 2020). On the contrary, our finding was higher than in rural Tanzania (Wang et al., 2019). Nevertheless, the scope, study settings, and study periods varied in these studies. Another study underlined the regional variation of EC ranging from 24% to 66% (Benie et al., 2008). This entails that the EC of maternal and newborn services varies by several conditions, such as

geographical/administrative boundaries, socio-economic conditions, and the type of the particular health service.

The gap between the crude and the EC implies that the population in need of the services visited health facilities but did not necessarily receive a standard quality of care. Therefore, the drop-off in EC is attributable to the health facilities' service quality. Nevertheless, the variation of EC across districts of the current study resulted from variations in both the utilization and quality of care. For instance, the EC of the Kindo Didaye district was the lowest (32.1%) in the study area due to the low crude coverage (59.4%) and low quality of care (54.0%). Besides, because of the lower crude coverage value, BEmONC facilities had lower EC than CEmONC facilities.

On the contrary, the quality of care was lower in CEmONC facilities than in BEmONC facilities. This could be attributable to the high caseload and referrals of severe complications (WHO et al., 2021) from BEmONC facilities to CEmONC facilities. This indicates that the EC in this study depended on the high or low values of the coverage and quality of care. Hence, to improve the EC of EmONC services, emphasis should be given to enhancing both crude coverage and quality of care, depicting a double burden. Besides, the study revealed that the higher the facility level, the lower the quality of care, implying the need to emphasize the quality of care at tertiary facilities.

This study also identified low crude coverage (utilization) of EmONC services in the Zone. Though obstetric emergencies, if left untreated, result in maternal and neonatal mortality and morbidity (WHO, 2003). i.e., every one-in-four women (or newborns) with obstetric complications did not seek care from health facilities. Despite improving access to the health facility in Ethiopia (FDRE Ministry of Health, 2014), a substantial number of people with obstetric complications did not utilize the service in the study area. Similar findings were reported in Burkina Faso (69.5%) (Marsh et al., 2020) and Kenya (61.8%) (Nguhiu et al., 2017).

Another finding of the current study is that the average values of all three indices (utilization, quality of care, and EC) were higher in urban areas, indicating the inequitable distribution of health interventions in the study area. This indicates that despite the health system's effort to narrow the inequity gap in health service delivery (FDRE Ministry of Health, 2021), the inequity in maternal and child health services continued to be a major challenge (Gebre et al., 2018). Accordingly, women and newborns in rural areas (Wilunda et al., 2015), young women, and women from low socioeconomic status (Nguhiu et al., 2017) are the most deprived ones. Similarly, in our study, only 24.6% of the facility-based survey

participants are young women (below 25 years), which is far higher than the 51.0% proportion of young women in the household survey. This further depicts the role of age in the inequitable utilization of quality service. This implies that the low crude coverage of EmONC services could be attributable to the poor accessibility and availability of EmONC facilities and the inadequate health-seeking behavior of the population.

Despite the findings on the three indices, the current study did not focus on the barriers and facilitators of EmONC service utilization. Nevertheless, it should be remarked that improving the quality of care at health facilities is positively correlated with an increase in service utilization (crude coverage). Evidence from other contexts shows that women's perception of health facility quality was associated with service utilization (Leslie et al., 2017). Hence, poor performance in one dimension (such as quality of care) can compromise the potential gain in healthcare interventions in another dimension (such as utilization/crude coverage) (Wilunda et al., 2015) and affects each other in a vicious cycle.

Strength and Limitation

The current study triangulated data from two surveys (health facility and household survey), which enhanced validity and reduced bias. However, recall and case identification bias might exist since the household survey collected data through face-to-face interviews by asking women whether they faced obstetric complications. Hence, some complications (such as ectopic pregnancy, ruptured uterus, and hypertensive disorders) might need physical examination and diagnosis at health facilities, so women who did not visit health facilities might face difficulty identifying complications.

Conclusion and Recommendation

The EC in the Wolaita Zone, southern Ethiopia, is low, in which half of the potential health gain in delivering EmONC services is lost. The study indicated that the EC varied by district, residence, and facility type. Our findings emphasize that the crude coverage and the quality of care given at health facilities should be given due emphasis on reducing the morbidity and mortality of women and newborns.

Hence, the health system should narrow the gap in EC across districts, residences, and facility types by enhancing the utilization of EmONC services and improving the adherence of EmONC service provision to standard clinical actions. Besides, reasons for the non-utilization of EmONC services should be further investigated to tackle the 'bottleneck' and increase the EmONC services uptake.

Abbreviations

AMDD: Averting Maternal Death and Disability; BEmONC: Basic Emergency Obstetric and Newborn Care; BREC: Biomedical Research Ethics Committee; C.I: Confidence Interval; CEmONC: Comprehensive Emergency Obstetric and Newborn Care; E.C: Effective Coverage; EmONC: Emergency Obstetric and Newborn Care; IESO: Integrated Emergency Surgical Officers; LMICs: Low and Middle-Income Countries; MMR: Maternal Mortality Ratio; ODK: Open Data Kit; S.D: Standard Deviation; S.D.G: Sustainable Development Goal; UNICEF: United Nations Children's Fund; UNFPA: United Nations Population Fund; WHO: World Health Organization

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Bridging statement

Chapter 5 measured the EC of EmONC services. The chapter's findings suggested the need to emphasize the bottlenecks of EC in the quality of care and crude coverage of EmONC services. Hence, the subsequent chapter (chapter six) deals with the quality of EmONC service and its predictors. This chapter is based on manuscript three, which was published in BMC Pregnancy and Childbirth Journal (https://doi.org/10.1186/s12884-022-05019-w).

CHAPTER SIX: PAPER THREE

Quality of emergency obstetric and newborn care services in Wolaita Zone, Southern Ethiopia

Authors: Alemayehu, M., Yakob, B. & Khuzwayo, N.

Status of the manuscript: Published in BMC Pregnancy and Childbirth journal

Doctoral student contribution

1. Formulation of the project: I conceived the study.
2. Study design: I developed the study design with the guidance of my supervisors.
3. Project management and field logistics: I managed the fieldwork and supervised the data collection.
4. Data analysis: I developed the data collection template for the ODK mobile app, and analyzed, summarized, and interpreted the data.
5. Write-up: I wrote the initial draft of the manuscript. My supervisors guided the write-up of the draft and read and approved the final manuscript.

Introduction

Chapter five's findings guided the researcher to investigate the quality of EmONC services and predictors. This manuscript, therefore, extensively measured one of the components of EC, i.e., the quality of EmONC services. It also reported the predictors of the quality of EmONC services. The manuscript was published in BMC Pregnancy and Childbirth journal on 06 September 2022.

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Quality of emergency obstetric and newborn care services in Wolaita Zone, Southern Ethiopia

Mihiretu Alemayehu[1,2*], Bereket Yakob[1,3] and Nelisiwe Khuzwayo[2]

Abstract

Background: Globally, nearly 295,000 women die every year during and following pregnancy and childbirth. Emergency obstetric and newborn care (EmONC) can avert 75% of maternal mortality if all mothers get quality healthcare. Improving maternal health needs identification and addressing of barriers that limit access to quality maternal health services. Hence, this study aimed to assess the quality of EmONC service and its predictors in Wolaita Zone, southern Ethiopia.

Methodology: A facility-based cross-sectional study was conducted in 14 health facilities. A facility audit was conducted on 14 health facilities, and 423 women were randomly selected to participate in observation of care and exit interview. The Open Data Kit (ODK) platform and Stata version 17 were used for data entry and analysis, respectively. Frequencies and summary statistics were used to describe the study population. Simple and multiple linear regressions were done to identify candidate and predictor variables of service quality. Coefficients with 95% confidence intervals were used to declare the significance and strength of association. Input, process, and output quality indices were created by calculating the means of standard items available or actions performed by each category and were used to describe the quality of EmONC.

Result: The mean input, process, and output EmONC services qualities were 74.2, 69.4, and 79.6%, respectively. Of the study participants, 59.2% received below 75% of the standard clinical actions (observed quality) of EmONC services. Women's educational status (B = 5.35, 95% C.I: 0.56, 10.14), and (B = 8.38, 95% C.I: 2.92, 13.85), age (B = 3.86, 95% C.I: 0.39, 7.33), duration of stay at the facility (B = 3.58, 95% C.I: 2.66, 4.9), number of patients in the delivery room (B = − 4.14, 95% C.I: − 6.14, − 2.13), and care provider's experience (B = 1.26, 95% C.I: 0.83, 1.69) were independent predictors of observed service quality.

Conclusion: The EmONC services quality was suboptimal in Wolaita Zone. Every three-in-five women received less than three-fourths of the standard clinical actions. The health system, care providers, and other stakeholders should emphasize improving the quality of care by availing medical infrastructure, adhering to standard procedures, enhancing human resources for health, and providing standard care regardless of women's characteristics.

Keywords: Healthcare quality, Emergency obstetric care, Newborn care, Emergency obstetric and newborn care, Observed quality, Health system, Maternal health

Introduction

Globally, approximately 810 women and 6500 newborns die every day from preventable causes related to pregnancy and childbirth. Sub-Saharan Africa and South Asia account for 86% of global maternal mortality [1, 2]. In 2020, an estimated 2.4 million neonates died, with about a third of all neonatal deaths occurring

*Correspondence: mihiretua@gmail.com
[1] School of Public Health, College of Health Sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia
Full list of author information is available at the end of the article

within the first day after birth and close to three quarters occurring within the first week of life [2]. The high maternal and neonatal deaths in low-income countries and different socioeconomic statuses reflect inequalities in access to quality health services. There is a stark inequity in maternal mortality ratio (MMR), i.e., 462 per 100,000 live births in low-income countries versus 11 per 100,000 live births in high-income countries [3].

The major causes of maternal deaths are known and preventable. Women die due to complications during and following pregnancy and childbirth [3]. The main complications that account for nearly three-fourths of all maternal deaths are hemorrhage, infections, hypertensive disorders of pregnancy, obstructed labor, and unsafe abortion. The World Health Organization (WHO) reported that the three leading causes (prematurity, intrapartum-related complications, and sepsis) account for the majority of neonatal death in 2022 [4]. Access to high-quality care during pregnancy and intrapartum time can significantly reduce maternal and neonatal mortality rates [5].

The World Health Organization identified Emergency Obstetric and Newborn Care (EmONC), the care given to mothers and neonates during pregnancy, child delivery, and postpartum when facing severe and life-threatening complications, as an essential intervention in preventing maternal deaths. It can avert nearly 75% of maternal deaths if all mothers get quality health care [6]. Evidence shows that it is not mere contact (access) with the health facility or care provider that results in better health outcomes, but the actual content of care and process of delivery that can reduce morbidity and mortality [7].

Evidence shows that the health service delivered is inadequate and of poor quality, especially in low and middle-income countries (LMICs). Recently, poor service quality has been a more significant challenge for reducing mortality than insufficient access. A quality service provision can save over eight million lives each year in LMICs [8]. Several studies underlined the necessity of quality obstetric care to curb the high maternal morbidity and mortality levels in developing countries [7, 9, 10].

Enhancing the quality of health care service is one of the priority health strategic directions in Ethiopia. Though the Ethiopian government aimed to reduce the maternal mortality ratio and neonatal mortality rate [11], none of the targets were achieved, although encouraging progress has been made [12]. For instance, the Ethiopian Health Sector Plan II (HSTP 2020/21–2024/25) and Ethiopian National Health Care Quality Strategy emphasized the provision of quality obstetric services and the reduction of maternal and neonatal mortality [11, 13].

However, Ethiopia remains one of the countries with the largest MMR globally, i.e., 401 maternal deaths/100,000 live births, nearly twice as high as the world average of 211 maternal deaths/100,000 live births in 2017 [14]. Besides, according to the Ethiopian EmONC assessment report in 2016, 66% of mothers gave birth at health institutions. Regardless of complications, every childbirth should occur in a health facility that can readily manage/treat obstetric emergencies. However, only 14% of them gave birth in EmONC facilities, indicating that most facilities were not ready to treat obstetric emergencies adequately. This has shown a shortage of EmONC facilities to treat obstetric emergencies [15]. Besides, to achieve the global SDG goals, the Ethiopian HSTP II targeted to reduce maternal mortality from 401 per 100,000 live births to 279 and neonatal mortality from 33 per 1000 live births to 21 in 5 years [11], necessitating the need for interventions that target on the major causes of death.

Therefore, providing evidence for timely intervention in maternal health is one of the WHO's priority plans. Hence, improving maternal health needs identification and addressing barriers limiting access to quality maternal health services [3]. One of the most commonly used frameworks for health service quality assessment is Donabedian's framework. This framework uses the triad of *structure*, *process*, and *outcome* of health care. It defined *structure* as the settings, qualifications of providers, and administrative systems through which care takes place; *process* as the components of care delivered; and *outcome* as recovery, restoration of function, and survival. These concepts, therefore, remain the foundation of quality assessment today [16, 17].

Despite the significant advancement of Donabedian's framework for a health performance metric, much of the research up to now has been focusing on only a part of the triads, had a different objective, or used a different measurement approach [18–23]. Although some studies investigated the quality of EmONC services in Sub-Saharan African countries [23, 24], using valid indicators of quality of care in resource-poor countries and providing a comprehensive report on the structure, process, and outcome components of care lacked [25]. Some studies identified the predictors of delivering poor quality of care such as lack of medical communication, proper standards and guidelines, policies, and specific action plans [21, 23, 26]. Nevertheless, the findings' objectives, study settings, and generalizability implied the need for evidence on the predictors of quality EmONC service provision. So far, no previous study has investigated the quality of EmONC services and predictors in Ethiopia.

Saving the lives of women and neonates (as maternal and newborn health are closely linked) needs high-quality

care in pregnancy and during and after childbirth [3]. However, evidence shows that ensuring service quality at facilities remains a challenge for Ethiopia [27]. Hence, this study aimed to assess the quality of EmONC services and predictors in Wolaita zone, southern Ethiopia, using Donabedian's quality assessment framework [16], emphasizing the observed quality of EmONC services.

Methods

Study area and design

The study was conducted in Wolaita Zone, southern Ethiopia, 330 km southwest of Addis Ababa, the capital of Ethiopia. The Zone's population was projected to be more than 2.6 million in 2020 [28, 29]. The 2020 Wolaita Zone Health Department report indicated ten hospitals (one referral hospital, two general hospitals, seven primary hospitals), 70 health centres, and 326 health posts (Wolaita Zone Health Department: Annual Progress Report, Unpublished). The facilities provide preventive, curative, and rehabilitative health services for over 2 million people in the Zone and neighboring zones [28]. Accordingly, the Zone had 80 EmONC facilities. Of them, two non-governmental and eight government hospitals provided Comprehensive Emergency Obstetric and Newborn Care (CEmONC) services, and 70 health centres provided Basic Emergency Obstetric and Newborn Care (BEmONC) services in 2019 (Wolaita Zone Health Department: Annual Progress Report, Unpublished).

A facility-based cross-sectional study was conducted to assess the quality of EmONC service and its predictors in Wolaita Zone, southern Ethiopia. The study was conducted from October 01 – December 31, 2020.

Population

The source population are all EmONC facilities and women and newborns who came for EmONC services in Wolaita Zone during the study period. Randomly selected health facilities and women and their newborns were the study populations of the study.

Eligibility criteria

Women aged 18 years and above who visited EmONC facilities during the study period were included in the study. In contrast, women referred to another health facility and those who had major obstetric/gynecological surgical procedures (cesarean section, hysterectomy, colporrhaphy, cervical cerclage, etc.) were excluded from the study.

Sampling and sample size

Sampling of health facilities

Of the 22 districts of Wolaita Zone, seven (30% of the total) districts were randomly selected. There were 27 eligible health facilities in the randomly selected districts. To take a representative sample from the selected districts, we included 14 facilities (more than 50%) from the total eligible health facilities in the districts. Accordingly, two EmONC facilities from each district were randomly selected, making the total number of health facilities selected for the study 14.

Sampling of women

The sample size for observation of EmONC services and exit interview was calculated using the *single population proportion formula* based on the following assumptions: a-47% proportion (p) of women who received quality EmONC services in Tanzania [30], the normal distribution of z at 95% confidence interval, and 5% margin of error (d). To adjust for non-responses, the sample size was increased by 10%, making the required sample size for the study 422. This sample size was intended to assess the process and outcome components of EmONC service quality. The calculated sample was allocated to the facilities considering the previous year's volume of EmONC services' utilization. Accordingly, the proportional allocation ranged from 82 in Wolaita Sodo University comprehensive specialized hospital to 9 in Wadu health centre as per their volume of EmONC service utilization. The sample size calculation using the single population formula is shown below

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$\frac{1.96^2 * 0.47(1-0.47)}{0.05^2} = 383$$

After adding 10% non-response rate, the final sample size required for the study was 383 + 39 = 422.

On the other hand, all selected women who came for EmONC services were recorded. Using the K^{th} number generated, women were selected systematically as they came for EmONC services. In the previous year, 9211 women (2303 patients in 3 months) visited the selected facilities for obstetric emergencies, presenting grounds to calculate the k^{th} number to choose eligible women systematically from the facilities. Accordingly, every fifth woman was selected for the study until the required sample size was met in each facility.

Data collection instrument

The triad of *structure, process, and outcome* of the Donabedian Framework for Health Care Quality [16], was used to assess the utilization of quality of EmONC services. The structural (input) quality of care was measured using a facility audit checklist that was also developed after reviewing the literature [15, 18–20, 31]. A structured EmONC services observation checklist

was developed after reviewing different guidelines and instruments [16, 18, 19, 31] and was used to observe the EmONC processes, i.e., to measure the observed quality. The EmONC service delivery (process) observation and facility audit checklists were prepared and used in the English language. The exit interview tool (questionnaire) was developed by the investigators after reviewing the literature [15, 18–20, 31]. The exit interview tool contained items regarding the socio-demographic characteristics of women, factors associated with the quality of EmONC services, and output quality assessment items. The exit interview tool was developed in English, translated into the local language (Wolaita Dona), and re-translated into English to check the consistency.

Data collection

A two-day training was given to the data collectors. The data were collected by 14 data collectors who had a BSc in nursing (midwifery) and had experience with collecting data with the Open Data Kit (ODK) application and had no history of working in the assigned health facility. Similarly, seven supervisors, who had MPH and experience with data collection and supervision were hired to collect the data. The data were collected using the ODK mobile application with android tablet phones. The data collectors filled the facility audit, EmONC care observation checklist, and exit interview questions loaded in the ODK. ODK submitted the data to an online server in real-time. One supervisor was assigned to two health facilities, checked the data collection processes, provided support for data collectors on-site, and provided feedback to them in real-time.

Facility audit data collection

The facility audit was conducted 1 week before the observation of EmONC services and exit interviews. Seven data collectors conducted the facility audit. They completed the different sections of the audit checklist by contacting the heads of the units of the health facilities such as the health facility manager/director, maternal and child health unit heads, pharmacy and laboratory unit heads, and document reviews. Additional staff was consulted for information that was not available by the above persons or on their referral.

Observation of EmONC services data collection

The data collectors enrolled the woman if she met the inclusion criteria and documented the care provided to the woman with the EmONC services observation checklist. The observation of EmONC care started at the initial patient assessment, followed by all the stages of labor, and ended up at discharge from the facility. This approach was supported by other studies [15, 18, 19, 31].

Exit interview data collection

The data collectors interviewed the woman after 6 hours of postpartum, or a discharge summary was issued to her; whichever came first was sufficient to initiate the interview. The exit interview was done privately in a room in the facility.

Data management and quality control

Before the data collection, a pre-test was conducted in a similar setting (out of the study area) to check for the appropriateness of the study tools. Regular supervision was provided by the principal investigator, co-researchers, and supervisors to the data collectors to check for completeness, and confusion was cleared at the end of each data collection day.

Since the study involved observation of the care process by health workers, ruling out the Hawthorne effect was impossible. However, several considerations were made to minimize the effect of the presence of observers on the providers' behavior. Initially, the data collectors assured the care providers that the purpose of the study was not for evaluating their performance or reporting it to their supervisors. Besides, observers had informed care providers that individual data will not be shared publicly (published reports only refer to aggregate data). The investigators discarded the first five observations of each health care provider because studies reported that care providers reverted to their normal behaviors after being observed a few times (observations) by the same observers [32–34]. In addition, care providers were not aware of the items on the checklist, so they could not prepare in any way. For further caution, the data collectors were not assigned to facilities where they currently or previously worked.

Data analysis

The data were exported to Stata v17 (College Station, Texas) to clean, re-code, explore and do advanced analysis. The descriptive statistics were done using frequency tables, charts, and summary statistics. The principal component analysis (PCA) was conducted to determine the household wealth index of study participants using the DHS approach [12]. The simple and multiple linear regression analyses were done to identify candidate and predictor variables of the index (discussed below) of the observed quality of EmONC services. Coefficients with a 95% confidence interval were used to declare the significance and strength of association. Variables with a p-value less than 0.25 in the simple linear regression were taken as a candidate for multiple linear regression, and those with a p-value below 0.05 in the final model (multiple linear regression) were declared independent predictors of the observed quality of EmONC services.

Linear assumptions, such as homogeneity of variances and normality were checked and fulfilled. In the multicollinearity test, all predictor variables had a variance inflation factor (VIF) value below 5. The final model was found significant with the adjusted R^2 value of 0.344, explaining 34.4% of the variation.

Ethical considerations

The study was conducted after receiving ethical approval from the University of KwaZulu-Natal Biomedical Research Ethics Committee (BREC) (Ref: BREC/00001744/2020), South Africa, and the Institutional Review Board (IRB) of the College of Health Sciences and Medicine Wolaita Sodo University (Ref: CARD 4/979/20), Ethiopia. Furthermore, permission to conduct the study was obtained from Wolaita Zone Health Department and all participating health facilities. Written informed consent was obtained from all participants. The participants were informed that they had full right to participate or not in the study. Furthermore, the objectives, benefits, and harms of research were communicated. Respondents were also informed that their responses would be kept confidential. During observation of care provision, the data collectors were passively observing (did not intervene) the EmONC care provided to women.

Operational definitions

- **Emergency Obstetric and Newborn Care:** is the care given to mothers and neonates during pregnancy, child delivery, and the postpartum period when she faces serious and life-threatening obstetric complications [15, 35].
- **Obstetric complication:** a woman is classified as having obstetric complication if she had at least one of these; a) hemorrhage (antepartum and postpartum), b) prolonged and/ or obstructed labor, c) postpartum sepsis, d) complications of abortion, e) severe pre-eclampsia and eclampsia, f) ectopic pregnancy and g) ruptured uterus [15, 35].
- Input quality: was measured using an index created by calculating the mean of performance of 75 items (66 items of structure and nine items of signal function tests) and computed out of 100%. The index included items that assess power and water supply, waste management, drugs, supplies, equipment, storage, examination room, delivery room, waiting area, and standard precautions. It also includes the nine items (seven for BEmONC and nine for CEmONC facilities) of signal functions tests to assess the readiness of EmONC facilities in the past 3 months preceding the study [31, 35, 36].
- Observed quality: was measured using an index created by calculating the mean of performance of 42 items related to EmONC services (standard clinical actions) and computed out of 100%. The index includes items that assess the observed quality of care EmONC service, including general patient assessment and danger signs, standard precautions, standard procedures in the stages of labor, and communication [31].
- Output quality: was assessed by using the woman's satisfaction with the EmONC services she utilized. A total of 12 items using a 5-scale Likert scale tool (ranging from "strongly disagree" to "strongly agree") were used to assess the woman's satisfaction with the EmONC services given at the health facility and computed out of 100% [37].
- Basic Emergency Obstetric and Newborn Care (BEmONC) services: are expected to provide the seven signal function tests, namely: parenteral antibiotics, parenteral uterotonics, parenteral anticonvulsants, manual removal of placenta, removal of retained products, assisted vaginal delivery, and neonatal resuscitation [31].
- Comprehensive Emergency Obstetric and Newborn Care (CEmONC) services: are expected to provide the seven services given by BEmONC facilities and the additional two services, namely, caesarian section and blood transfusion services [31].

Result

Socio-demographic characteristics

A total of 414 women participated in the study in 14 health facilities making a 98% response rate. The mean age of the women was 28.2 years with a standard deviation (SD) of 5.4 years, and it ranged from 18 to 40 years. Nearly two-thirds of them were housewives and protestants, while almost all (98.8%) of them were married. Roughly half (229) of them used an ambulance, while 78 (18.8%) walked to the health facility. The mean family size of study participants was 4.4 (SD = 1.7) (Table 1).

Obstetric conditions and outcomes

EmONC services observation showed that 249 (60.1%) and 70 (16.9%) of the women visited the health facility for vaginal bleeding and issues related to fetal movement, respectively (Fig. 1). Most (91.3%) of the observed women gave birth to live-born babies, whereas 27 (6.5%) of the mothers had abortions, and 9 (2.2%) had stillbirths. Midwives attended Two-third (287) of mothers, and 103 (24.9%) were treated by care providers with more than 10 years of work experience. Of 414 women, 107 (25.8%) received EmONC services in a private room, while 307 (74.2%) women received the care in shared rooms that did not maintain their privacy (Table 2).

Table 1 Socio-demographic characteristics of study participants, Wolaita Zone, southern Ethiopia ($n = 414$)

Variable	Category	Frequency	Percent
Age	< 25 years	102	24.6
	25–30 years	182	44.0
	Above 30 years	130	31.4
Education	Not attended at all	65	15.7
	Grade 1–8	142	34.3
	Grade 9–12	141	34.1
	College/university	66	15.9
Marital status	Married currently	409	98.8
	Unmarried currently	5	1.2
Religion	Protestant	289	69.8
	Orthodox	109	26.3
	Others [a]	16	3.9
Occupation	Employed (Farmer)	250	60.4
	Employed (Other sectors)	59	14.3
	Student	65	15.7
	Others [b]	40	9.7
Means of transportation used to arrive at the facility	Ambulance	229	55.3
	Walked on foot	78	18.8
	Other motor vehicle [c]	107	25.8
Distance from the facility (in minutes)	< 30	303	73.2
	30 and above	111	26.8
Family size	< 5	249	60.1
	Five and above	165	39.9

[a] Muslim, traditional, apostolic; [b] daily laborer, housewife, merchant; [c] car, motorbike, bajaj

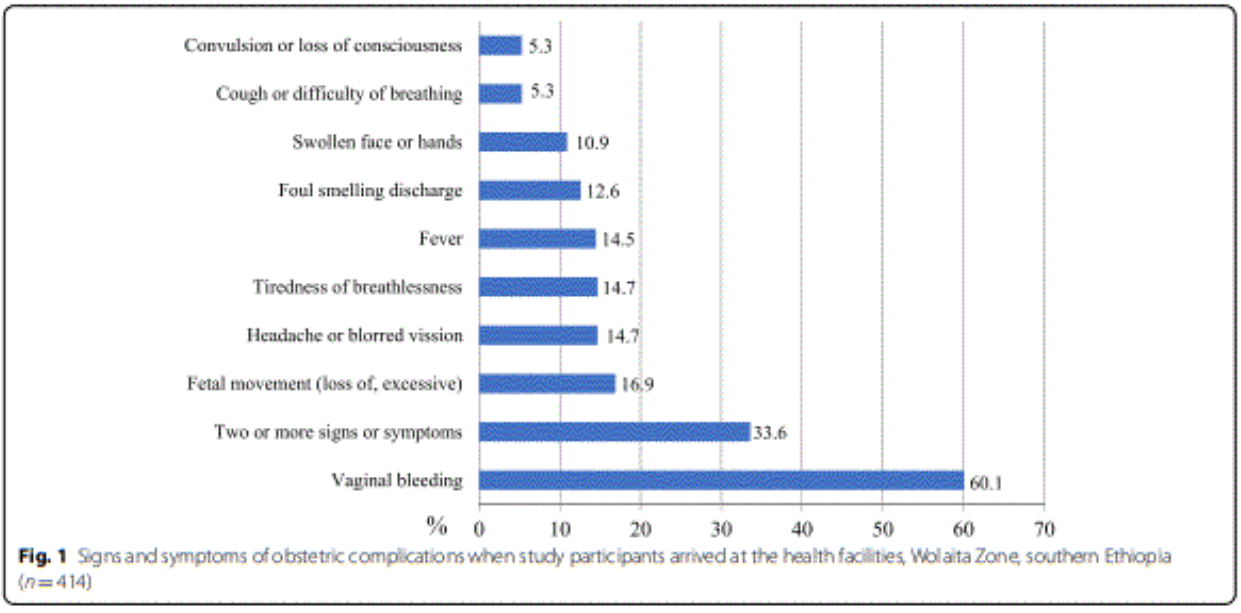

Fig. 1 Signs and symptoms of obstetric complications when study participants arrived at the health facilities, Wolaita Zone, southern Ethiopia ($n = 414$)

Table 2 Obstetric conditions and outcomes of the study participants, Wolaita Zone, southern Ethiopia ($n=414$)

Variable	Category	Frequency	Percent
Duration of stay at the health facility	One day	337	81.4%
	More than one day	77	18.6%
Number of women in one delivery room	One patient	107	25.8%
	Two patients	171	41.3%
	Three and above patients	136	32.9%
Pregnancy outcome (current)	Live born baby	378	91.3
	Stillbirth	9	2.2
	Abortion	27	6.5
Mode of current delivery	SVD	362	87.4
	Assisted (instrumental) or abortion	52	12.6
Episiotomy was done (current delivery)	No	268	64.7
	Yes	146	35.3
Delivered previous child at any health facility	No	23	5.6
	Yes	391	94.4
ANC follow-up for this pregnancy	No	45	10.9
	Yes	369	89.1
Place of ANC follow-up ($n=369$)	This health facility	233	63.1
	Another health facility	136	32.9
Patient's sex preference of care provider	Male	180	43.5
	Female	234	56.5
Sex of care provider ($n=136$)	Male	101	74.3
	Female	35	25.7
Women served by the care provider (qualification)	General practitioner	49	11.8%
	Specialist obstetrician/gynecologist	28	6.8%
	Nurse	20	4.8%
	Midwife	287	69.3%
	IESO	30	7.2%
Women served by the care provider (sex)	Male	169	40.8%
	Female	245	59.2%
Women served by the care provider (experience)	<=5 years	150	36.2%
	6–10 years	161	38.9%
	> 10 years	103	24.9%

Input quality

The mean of the structural quality of EmONC services was 74.2% (95% C.I: 71.1, 77.1%, SD = 5.9%). The mean varied by facility, ranging from 63.3 to 85%. Eight of the 14 facilities fulfilled at least 75% of the input quality index. Of the 14 health facilities, three had a shortage of beds (for admission after delivery or abortion service is given), such that patients were obligated to share beds or sleep on the floor. All the assessed health facilities had an electric power supply, separate room for delivery, oral rehydration salt, cord ties/clips, and a baby weighing scale. Low-reading thermometers and solar refrigerators were available at two facilities. However, except one referral hospital, all audited facilities did not provide food for patients (Table 3).

The facility audit showed that 14 (100%) and 13 (92.9%) facilities had given parenteral anti-biotics and manual removal of placenta for the EmONC patients, respectively in the past 3 months. In contrast, only four facilities provided parenteral anticonvulsants to women with EmONC emergencies in the previous 3 months of the study (Fig. 2).

Observed/process and output quality

The mean observed quality index of EmONC services was 69.4% (95% C.I: 67.9, 70.8%) with an SD of 15.4%. The care providers checked clients' cards or asked the age, gestational age, or parity of 406 (98.1%) of the women receiving the service. Of 414 observations, in 181 (43.7%) and 401 (96.9%) observations, the care providers washed

Table 3 Input quality of EmONC service in Wolaita Zone, Southern Ethiopia ($n = 14$)

S. N	Item	Number of facilities
	Power, water supply, and waste management	
1.	Facility connected to the electric supply	14
2.	The facility has running water supplied to the labor and delivery care rooms	6
3.	The toilet is in functioning condition for general staff use	10
4.	The toilet is in functioning condition for patient use	12
5.	The toilet is in functioning condition in the labor ward for patient use	4
6.	Filled oxygen cylinder with cylinder carrier and key to open valve	10
7.	Liquid spills/trash on the floor is invisible by observation	11
	Drugs, supplies, and equipment	
8.	Blood pressure cuff	13
9.	Fetal stethoscope	12
10.	Kidney basins	13
11.	Sponge bowls	13
12.	Clinical thermometer	13
13.	Low reading thermometer (32 ℃ or 35 ℃)	2
14.	Suture needles/suture materials	12
15.	Catheter for IV line/adult cannula (16–18)	14
16.	IV Infusion stand(s)	14
17.	Urinary catheters	14
18.	IV cannula 24 gauge	14
19.	Dipstick for urinalysis	12
20.	Adult ventilator bag and mask	10
21.	Wheelchair	10
22.	Stretcher	12
23.	Examination table	14
24.	Labor/delivery table	14
25.	Dressing forceps	13
26.	Partograph form	13
27.	Watch or clock that can be easily seen	5
28.	Measuring tape	14
29.	Obstetric wheel (for measuring gestational age)	8
30.	Water filter	4
31.	HIV rapid testing kit	13
32.	Have steroids	11
33.	Have antimalarials	12
34.	Have any antiretrovirals	12
35.	Have any contraceptives	14
36.	Have Vitamin K (for a newborn)	12
37.	Have Chlorhexidine (4% gel for cord cleansing)	10
38.	Have Nystatin (for a newborn)	5
39.	Have Oral rehydration solution	14
40.	The facility provides food for patients	1
	Storage	
41.	Drug inventory register/system	14
42.	At least one functioning electric/gas refrigerator other than an EPI refrigerator	13
43.	At least one functioning solar refrigerator other than an EPI refrigerator	2
	Examination room, delivery room, and waiting area	
44.	There are empty beds for the next patients	6

Table 3 (continued)

S. N	Item	Number of facilities
45.	Separate room/space for labor (first stage)	13
46.	Separate room/space for delivery	14
47.	Separate room/space for maternity room for complications	4
48.	Separate room/space for Pediatric ward/MNCI clinic	10
49.	Complete episiotomy set	13
50.	Instrumental vaginal delivery sets (vacuum extractor and forceps delivery)	12
51.	Uterine evacuation equipment	12
52.	Complete manual vacuum aspiration set	12
53.	Have a Baby weighing scale	14
54.	Have Cord ties/clips	14
55.	Have Caps or hats to prevent heat loss	6
56.	Have Incubator	8
57.	Have Cup and spoon for infant feeding	9
58.	Have Laryngoscope newborn size	4
59.	Have a Respirator for neonates	7
60.	Equipment for resuscitation within the delivery unit is always accessible	13
61.	Waiting area for maternity patients	12
62.	Functional T.V. in the waiting area	3
	Standard precautions	
63.	No patient shared beds before, during, or after obtaining the service in the last 3 months	11
64.	No obstetric or gynecologic patient slept on the floor in the last 3 months	9
65.	No patient delivered on the floor, corridor, or bathroom in the last 3 months	11
66.	Cloths or towels for drying the baby	6

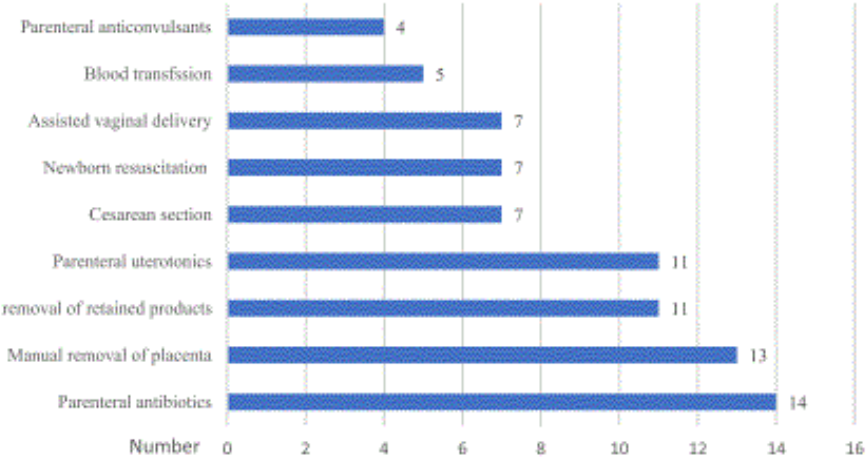

Fig. 2 Availability of signal function tests of EmONC services in Wolaita Zone, southern Ethiopia ($n = 14$)

their hands and wore gloves before conducting pelvic examinations respectively. However, only in 10.9 and 15.6% of observations did care providers ask the women whether they had the danger signs of pregnancy such as cough or difficulty breathing and convulsion or loss of consciousness, respectively (Fig. 3). The mean output quality of EmONC service (women's satisfaction with the service they received) was 79.6% (95% C.I: 78.5, 80.7%)

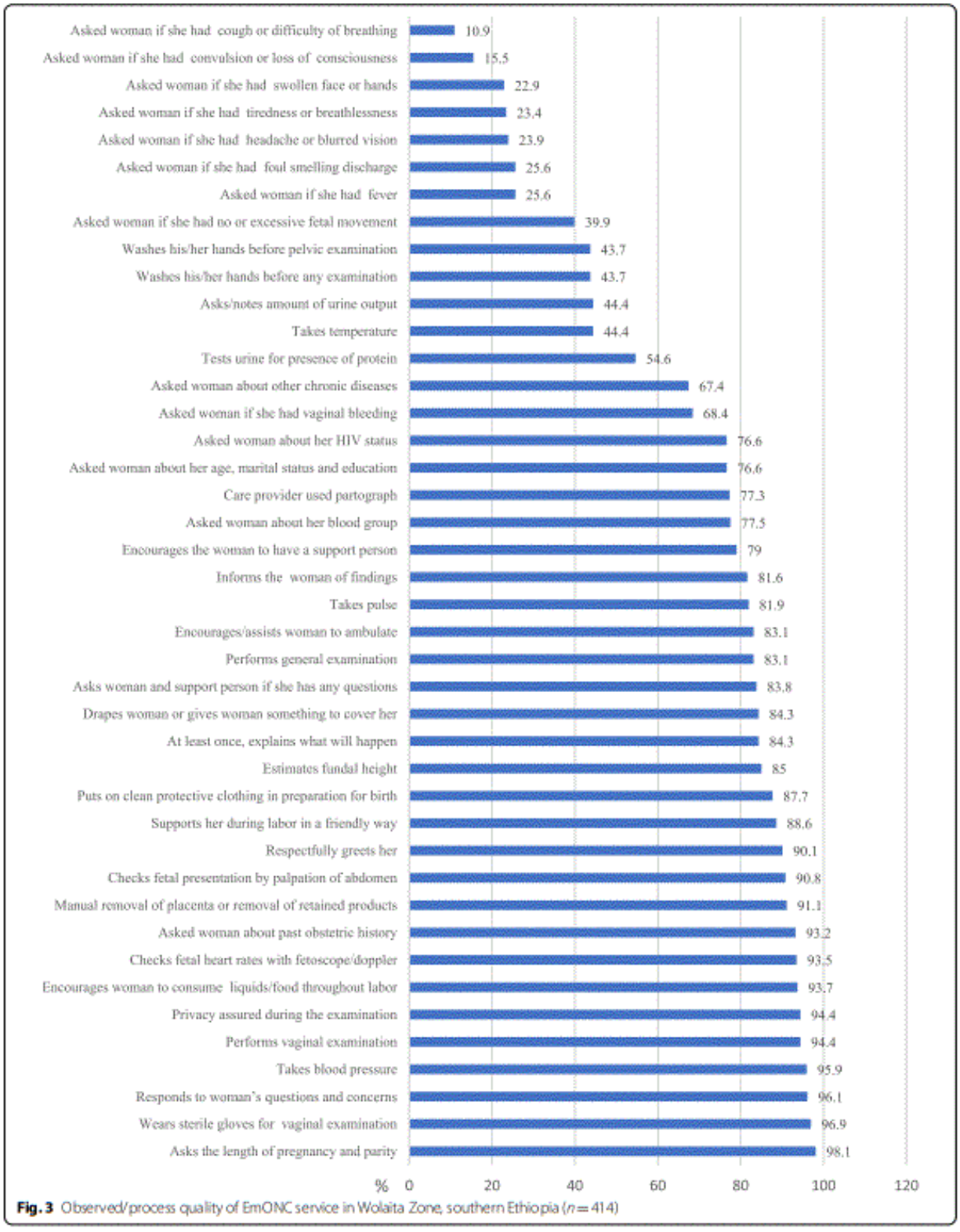

Fig. 3 Observed/process quality of EmONC service in Wolaita Zone, southern Ethiopia ($n = 414$)

with a standard deviation of 12.1%. Of the 414 women, 245 (59.2%) received below 75% of the standard clinical actions of EmONC service. Only a quarter of women received 81% or more of the standard clinical actions of EmONC service.

Predictors of observed EmONC services quality

The multiple linear regression analysis (Table 4) showed that women's education, age, duration of stay at the facility, number of patients in the delivery room, and care provider experience were statistically significant predictors of the observed EmONC service quality. Accordingly, compared to the non-educated women, the average value of the quality index is higher among women with educational status of grades 1–8 by nearly 5% (B = 5.35, 95% C.I: 0.56, 10.14), and grades 9–12 by almost 8% (B = 8.38, 95% C.I: 2.92, 13.85). Similarly, the average quality index was higher among older women (30 years and above) than their younger counterparts by nearly 4% (B = 3.86, 95% C.I: 0.39, 7.33).

For every one-day increase in facility stay, the quality index increased by nearly 4% (B = 3.58, 95% C.I: 2.66, 4.9). However, the number of patients (women receiving EmONC service) in the delivery room was inversely associated with the quality of care provided. Accordingly, for one more woman receiving EmONC service in the delivery room, the average quality of care index decreased by 4% (B = − 4.14, 95% C.I: − 6.14, − 2.13). The care provider's experience was positively associated with the quality of care, i.e., for every year increase in the care provider's experience, the quality of care increased by 1.3% (B = 1.26, 95% C.I: 0.83, 1.69).

Discussion

Enhancing health service quality is the centre for improving maternal and child health and wellbeing [38], which further leads to universal health coverage [39]. Findings from the current study identified that the mean input, process/observed, and output quality for EmONC services in Wolaita Zone, southern Ethiopia, were 74.2, 69.4, and 79.6%, respectively, with a significant variation from facility to facility.

Among the Donabedian's quality measurements indices, the observed/process quality was the lowest quality of care identified. This finding is in line with a study conducted in eight low- and middle-income countries (LMICs) [40] and northern Ethiopia [18], in which the observed clinical quality was lower than infrastructure. This indicates that the availability of equipment, materials, drugs, and reagents is relatively better than the observed care women received.

Table 4 Multiple linear regression on predictors of observed quality of EmONC services in Wolaita Zone, southern Ethiopia ($n = 414$)

Variable	Unadjusted coefficient		Adjusted coefficient			
	B	*P*-value	B	*P*-value	95% C.I for B	
					Lower	Upper
Wealth index (comparator: lower)						
Middle	−4.69	0.03	−3.15	0.10	−6.95	0.65
Higher	−2.16	0.32	−0.25	0.92	−4.90	4.40
Care provider's sex (comparator: Male)						
Female	1.06	0.49	−2.24	0.17	−5.46	0.98
Occupation of the patient (comparator: Farmer)						
Employed	−0.65	0.77	2.84	0.32	−2.72	8.39
Student	−3.45	0.11	−0.19	0.94	−4.93	4.55
Other[a]	−4.85	0.07	−1.71	0.53	−7.03	3.61
Educational status of patient (comparator: Uneducated)						
Grade 1–8	6.95	0.00	5.35	0.029*	0.56	10.14
Grade 9–12	11.71	0.00	8.38	0.003*	2.92	13.85
College or university	7.56	0.00	1.46	0.69	−5.80	8.72
Age of patient (comparator: < 30)						
≥ 30	4.79	0.00	3.86	0.029*	0.39	7.33
Duration of stay at the health facility	3.61	0.00	3.58	0.001**	2.26	4.90
Number of patients in the delivery room	−5.59	0.00	−4.14	0.001**	−6.14	−2.13
Experience of Care provider	1.38	0.00	1.26	0.001**	0.83	1.69

* *P*-value < 0.05; ** *P*-value < 0.001; [a] daily laborer, housewife, and merchant

Some studies have measured the quality of EmONC services. However, their measurement frameworks and study settings varied considerably [20, 23, 24, 41]. In Tigray (northern Ethiopia), the health facilities provided poor basic EmONC services quality (66.7%) [20], making it similar to this study, although the study had followed a different approach to measuring quality.

A study from the Democratic Republic of the Congo reported that none of the studied health facilities provided high-quality EmOC services [23]. This study focused on measuring the quality of care through five elements: training for staff; availability of guidelines; materials and equipment; and products; and diagnostic capability, such as blood transfusion, [23] mainly focusing on the input component of quality care. Another study from Northern Nigeria [24] reported a worsening trend. In contrast, a study from Mozambique [41] reported improved emergency obstetric care service quality measured through a direct case fatality rate indicator. Although maternal death rate and other similar indices are often used to measure the quality of care in developed countries, they are rarely used in developing countries [25]. This is because they introduce selection bias (since cases with severe and life-threatening outcomes are referred to higher-level health facilities). Hence, the absence of maternal mortality might not necessarily indicate better quality [25, 42]. Nevertheless, evidence emphasized that the observed progress should not be considered a magnificent achievement. Hence, efforts are needed to support the health system to improve the quality of care in obstetric emergencies [41].

Every three in five women in the current study received below 75% of the standard clinical actions of EmONC services. This finding aligns with a study from northern Ethiopia (Tigray region) in which 69.8% of women in that region received poor quality intrapartum care [19]. The resemblance might be due to the similarity in the governing health system, low health professionals' skills and attitudes in both studies, and comparably poor health infrastructure. Another study conducted in five African countries (Kenya, Namibia, Rwanda, Tanzania, and Uganda) reported that 40% of women received essential maternal care functions from health facilities with poor quality (measured using structure and process of care) [25]. A national survey from Ethiopia also reported that most (86%) women received less than half of the recommended clinical actions [43]. Though the reported difference is attributed to the scope of the studies, study settings, and the components of quality measurement indices, the findings emphasize that women are receiving poor-quality services.

Despite the importance of signal function tests in preventing and treating severe and life-threatening obstetric emergencies, some facilities in the study performed poorly or did not provide any services at all. Accordingly, parenteral antibiotics were the most commonly offered signal function test, whereas parenteral anticonvulsants and blood transfusion were the least provided signal function tests. This finding was in line with a study from the Democratic Republic of Congo in which parenteral antibiotics were among the most delivered signal function tests. In contrast, parenteral anticonvulsant was the least common signal function test [44]. A similar finding was also reported from a study conducted in Nigeria [24] and Mozambique [41]. The similarity of poor performance in signal function tests might be attributable to a shortage of resources in sub-Saharan African countries. Evidence reported that the majority (75%) of maternal death is caused by hemorrhage, infections, hypertensive disorders of pregnancy, obstructed labor, and unsafe abortion [3, 5], which could be prevented and treated through access to functional EmONC facilities. However, the lack of signal function tests in the current study and other similar settings indicate that the health system needs to emphasize the readiness of EmONC facilities' signal function tests.

The multiple linear regression analysis showed the independent predictors of the observed quality of EmONC services. Accordingly, the patient's age and educational status were the statistically significant sociodemographic predictors of the quality of EmONC services. Though evidence reported that younger women have a higher risk of obstetric complications and death [3], the current study reported that the average quality of care index increases as the age of women increases. This indicates that the service provision, care providers' attitude, and the patients' needs should be well addressed in accordance with the age of mothers, especially the youths. Though the country (Ethiopia) has a youth health strategy for addressing youth's reproductive and sexual health needs [45], adherence to the guidelines (regarding the quality of EmONC services) appears to be poor.

The patient flow and crowding of health facilities also determine the quality of care in our study. I.e., the higher the number of patients (in the same room), the lower the average quality of EmONC services, keeping other variables constant. This could be because higher patient flow (within the limited health system's capacity) can further overburden care providers' work overload and limit the provision of quality emergency services [46]. Besides, evidence supports that crowding in emergency departments hampers quality service through care providers' inability to adhere to guidelines and adverse treatment outcomes [46]. Our study also identified that though all the studied facilities had a separate room for child delivery, some facilities had a shortage

of quality-of-care-related infrastructures, such as separate rooms for labor, maternity, and sufficient beds for patients. Hence, quality without infrastructure is inconceivable, so an input/infrastructure enables the health system to provide quality health service [47].

Furthermore, our study identified that a longer duration of health facility stay was positively associated with better quality service. This might be because of giving attention to severe complications (which need prolonged care) and underestimating management of some complications as less relevant. This could further result in noncompliance with the standards of care and procedures. Evidence also indicated that early and unindicated discharge had a higher risk of dying among emergency patients [48]. Though reducing the obstetric women's duration of hospital stay helps retain healthcare costs, sufficient beds, and staff contingency, it should be assured that access to quality of care is not compromised [49]. Besides, evidence also reported that earlier discharge results in a significant number of maternal and newborn healthcare needs at their home [50]. Nevertheless, evidence on the extent of hospital stay and its effect on the quality of EmONC service and the health status of those discharged early is still inconclusive, and little is known [51–54].

Finally, this study reported that care providers' experience was also an independent predictor of the quality of care provided. Accordingly, as the work experience of the care provider increases, the average observed quality of care increases and vice versa. This implies that the incompetence of skilled staff is one of the major causes of poor-quality service provision, which ultimately results in adverse health outcomes, including the *'third delay'* (maternal death in health facilities) [46]. Though studies focusing on the association between care providers' experience and quality of care are limited, evidence indicated that a more diverse staff and skill mix had a positive effect on service quality [55]. However, the current study didn't address the care providers' knowledge and skill in managing EmONC complications so that further investigations could support the identified (existing) evidence.

Strength and limitations of the study

This study is the first to examine the quality of EmONC services using all the three domains of Donabedian's model (structure, process, and output quality) in Ethiopia. Multiple data collection techniques (facility audit, observation, and exit interviews) enriched the study to yield concrete findings on the quality of EmONC services. Nevertheless, the observational data collection can be suspected of its Hawthorne effect (the reactivity of care providers in response to their awareness of being observed). These phenomena usually last for a few observations (short-lived impact) so we rejected the first five observations to control the effect. Though the cesarean section is one of the components of CEmONC services, women with major obstetric/gynecological surgical procedures (cesarean section, hysterectomy, colporrhaphy, cervical cerclage, etc.) were excluded from the study because such patients need a prolonged hospital stay and need senior (specialist) doctor's treatment/management. Hence, observation of the content of care for such patients would not be practical.

Conclusion

The EmONC services quality (measured using input, process (observed), and output quality measures) in Wolaita Zone was sub-optimal. Every three in five women in the current study received less than three-fourths of the standard clinical actions of EmONC services. Though every EmONC facility is expected to provide the signal function tests to prevent and treat severe and life-threatening obstetric emergencies, some facilities were performing poorly or not providing some services at all. Accordingly, parenteral antibiotics were the most commonly given signal function test, whereas parenteral anticonvulsants and blood transfusion were the least provided signal function tests. Finally, the study identified the patient's age, educational status, duration of stay at the facility, number of patients in the delivery room, and care provider experience as independent predictors of observed quality EmONC service.

Recommendation

The local/national health system might benefit from emphasizing the availability of equipment, drugs, and other medical infrastructure to improve the quality of EmONC services. The health professionals' adherence to the standard procedures and guidelines should be improved through training, supervision, and frequent monitoring and evaluation. Enhancing the human resource for health facilities with more experienced care providers could improve the quality of EmONC service. Regardless of the women's characteristics and medical emergencies, standard care should be provided to every woman who needs the service. Further study should be conducted to identify the care providers' skills and knowledge, community, and health system factors that affect the utilization of quality EmONC services. The predictors of women's satisfaction should also be investigated.

Abbreviations

AMDD: Averting Maternal Death and Disability; BEmONC: Basic Emergency Obstetric and Newborn Care; BREC: Biomedical Research Ethics Committee; C.I: Confidence Interval; CEmONC: Comprehensive Emergency Obstetric and Newborn Care; EmONC: Emergency Obstetric and Newborn Care; IESO:

Integrated Emergency Surgical Officers; IRB: Institutional Review Board; IV: Intravenous Fluid; LMICs: Low and Middle-Income Countries; MMR: Maternal Mortality Ratio; ODK: Open Data Kit; SD: Standard Deviation; SVD: Spontaneous Vaginal Delivery; UNICEF: United Nations Children's Fund; UNFPA: United Nations Population Fund; USAID: United States Agency for International Development; VIF: Variance Inflation Factor; WHO: World Health Organization.

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Authors' contributions
M.A. conceived and designed the study, analyzed the data, interpreted the findings, and wrote the original draft; BY and N.K. designed the study, supervised the data collection, reviewed the analysis, interpreted the findings, and reviewed the manuscript. All authors read and approved the final manuscript.

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Availability of data and materials
Due to the presence of identifying sensitive information, data can be made available upon reasonable request to the corresponding author.

Declarations

Ethics approval and informed consent to participate
This study was ethically cleared and approved by the Biomedical Research Ethics Committee (BREC) of the University of KwaZulu-Natal (Ref: BREC/00001744/2020), South Africa, and the Institutional Ethics Review Committee of Wolaita Sodo University (Ref: CARD 4/979/20), Ethiopia. All methods were performed following the relevant guidelines and regulations. Written informed consent was obtained from all literate participants and also from legal guardians of the illiterate participants. The participants were informed that they had full right to participate or not in the study. Furthermore, the objectives, benefits, and harms of research were clearly communicated.

Consent for publication
Not applicable.

Competing interests
The authors have declared that no competing interests exist.

Author details
[1]School of Public Health, College of Health Sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia. [2]School of Nursing and Public Health, Discipline of Public Health, University of KwaZulu-Natal, Durban, South Africa. [3]School of Population and Public Health, the University of British Columbia, Vancouver, BC, Canada.

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Publisher's Note

Bridging statement

The findings of chapters five and six emphasized researching the unaddressed perspectives of EmONC services utilization. These chapters underlined the necessity of exploring the barriers and enablers to EmONC services utilization. Therefore, the following chapter (chapter 7) qualitatively explored the research question and suggested possible recommendations based on manuscript four. The manuscript was published in BMC Public Health journal on 16 November 2022 (https://doi.org/10.1186/s12889-022-14504-y).

CHAPTER SEVEN: PAPER FOUR

Barriers and Enablers to Emergency Obstetric and Newborn Care Services Use in Wolaita Zone, Southern Ethiopia: A Qualitative Case Study

Authors: Alemayehu, M., Yakob, B. & Khuzwayo, N.

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Doctoral student contribution

1. Formulation of the project: I conceived the study.
2. Study design: I developed the study design with the guidance of my supervisors.
3. Project management and field logistics: I managed the fieldwork and collected data.
4. Data analysis: I transcribed, translated, analyzed, and interpreted the data with the guidance of my supervisors.
5. Write-up: I wrote the initial draft of the manuscript. My supervisors guided the write-up of the draft and read and approved the final manuscript.

Introduction

The preceding chapters (4-6) guided the researcher to explore the barriers and enablers of EmONC services utilization. Therefore, this paper explored the context and influencing factors for service utilization. The manuscript was published in BMC Public Health Journal on 16 November 2022.

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RESEARCH Open Access

Barriers and enablers to emergency obstetric and newborn care services use in Wolaita Zone, Southern Ethiopia: a qualitative case study

Mihiretu Alemayehu[1,2*], Bereket Yakob[1,3] and Nelisiwe Khuzwayo[2]

Abstract

Background: Globally, 11.4 million untreated obstetric complications did not receive Emergency Obstetric and Newborn Care (EmONC) services yearly, with the highest burden in low and middle-income countries. Half of the Ethiopian women with obstetric complications did not receive EmONC services. However, essential aspects of the problem have not been assessed in depth. This study, therefore, explored the various aspects of barriers and enablers to women's EmONC services utilization in southern Ethiopia.

Methodology: A qualitative case study research design was used in nine districts of the Wolaita Zone. A total of 37 study participants were selected using a purposive stratified sampling technique and interviewed till data saturation. Twenty-two key informant interviews were conducted among front-line EmONC service providers, managers, community leaders, and traditional birth attendants (TBAs). Individual in-depth interviews were conducted among 15 women with obstetric complications. The trustworthiness of the research was assured by establishing credibility, transferability, conformability, and dependability. NVivo 12 was used to assist with the thematic data analysis.

Result: Five themes emerged from the analysis: service users' perception and experience (knowledge, perceived quality, reputation, respectful care, and gender); community-related factors (misconceptions, traditional practices, family and peer influence, and traditional birth attendants' role); access and availability of services (infrastructure and transportation); healthcare financing (drugs and supplies, out-of-pocket expenses, and fee exemption); and health facility-related factors (competency, referral system, waiting time, and leadership).

Conclusion: Many women and their newborns in the study area suffered severe and life-threatening complications because of the non-utilization or delayed utilization of EmONC services. A key policy priority should be given to enhancing women's awareness, eliminating misconceptions, improving women's autonomy, and ensuring traditional practices' role in EmONC service utilization. Community awareness interventions are required to enhance service uptake. Furthermore, the health systems must emphasize improving the quality of care, inequitable distribution of EmONC facilities, and essential drugs. The financial constraints need to be addressed to motivate women from low socioeconomic status. Furthermore, intersectoral collaboration is required to maintain a legal framework to control and prohibit home deliveries and empower women.

Keywords: Obstetric service, Neonatal service, Emergency obstetric service, Maternal mortality, Maternal health, Maternal and child health

*Correspondence: mihiretua@gmail.com

[2] School of Nursing and Public Health, Discipline of Public Health, University of KwaZulu-Natal, Durban, South Africa
Full list of author information is available at the end of the article

Introduction

Globally, an estimated 295,000 women die due to pregnancy and childbirth-related complications, with the highest burden in low and middle-income countries (LMICs) [1]. Recent evidence shows that Ethiopia still faces a considerable burden of maternal and newborn morbidity and mortality [2] despite the substantial improvements in access to and availability of EmONC facilities [3].

Emergency obstetric and neonatal care (EmONC) (the care given during pregnancy, childbirth, and the postpartum period when severe and life-threatening complications occur) is believed to avert the majority of deaths if all mothers get quality health care [4]. Evidence shows that 'three delays' contribute to maternal and neonatal deaths in developing countries [5]. The lengths of the delays in (a) the decision to access care, (b) the identification of and transport to a medical facility, and (c) the receipt of adequate and appropriate treatment have a direct relation to the outcome of obstetric emergency [6, 7]. This suggests that for effective maternal and newborn health strategies, accessible, need-based, and quality EmONC service is essential [4].

Globally, more than half of women with obstetric complications do not receive EmONC services, with a significant disparity between low- (21%), middle- (32%), and high-income countries (99%) [8]. This disparity corresponds to an annual 11.4 million untreated complications and 95.1 million women without access to the EmONC service [8]. The difference is visible within Sub-Saharan African countries ranging from 9.9 to 65.1% met-need for EmONC services [9–13], with inequitable service distribution across the study areas. Despite substantial investments in the scaling-up of health services in recent years, half of 'Ethiopia's women with obstetric problems do not receive EmONC services [14].

Health systems deliver optimum health services when those in need access services and receive high-quality care [15]. In low-income countries, health systems face several challenges [16], and women needing EmONC services often have difficulty accessing and utilizing them [17]. Though several studies assessed the EmONC service utilization, many assessed it quantitatively, and limited evidence exists regarding women's contextual challenges when seeking care from health facilities. Accordingly, essential aspects of the problem, such as interpersonal, traditional, community, and health system-related barriers and enablers to EmONC service, have not been assessed in-depth, particularly in Ethiopia. This study, therefore, qualitatively explored the various aspects of barriers and enablers to women's EmONC services utilization in southern Ethiopia.

Methods

Study setting

The study was conducted in the Wolaita Zone, southern Ethiopia, located 330 km south of Addis Ababa, the capital of Ethiopia. This Zone is projected to have more than 2.6 million population in 2020 [18]. The Zone has ten hospitals (including one comprehensive specialized hospital), 70 health centers, and 326 health posts [19], providing services to the people dwelling in the Zone and other neighboring zones.

Study design

The study used a qualitative case study research design [20] and explored the barriers and enablers of EmONC services by gathering data from multiple sources. Case study research helps to investigate the circumstances, such as 'how' or 'why' some phenomenon works or does not work in a particular context [20]. The method was relevant for the current study since the study required an extensive and in-depth description of the phenomenon (EmONC service utilization-related barriers and enablers) and how it was influenced by the context within which it was situated [21].

Boundaries of the study

This study's case is EmONC services. The activity boundary of the case is service utilization. It is further bounded conceptually - barriers and enablers of EmONC service use; geographically -Wolaita Zone, and temporally -study period of April 01 – August 31, 2020. The actor/informant boundary of the study was- women with obstetric emergencies, service providers (health care professionals and traditional birth attendants), and facility and community leaders. As the causes for potential perceived success (utilization of health service) are numerous and diverse, theories such as the health belief model [22], attribution theory [23], the WHO health system framework [24], and the three delays model [5] were reviewed and assisted with developing a framework to guide the study and identify the unit of analysis. Accordingly, five units of analysis were identified: service users' perceptions and experiences, community-related factors, access and availability of services, healthcare financing, and health facility-related factors.

Sampling and participant selection

Thirty-seven participants (22 key informant interviews and 15 individual in-depth interviews) participated in the qualitative inquiry. Potential study participants were selected through the *purposive stratified sampling technique* [25], using the *maximum variation sampling* method. Accordingly, the study participants were selected from various perspectives, such as service

providers, service users, and other individuals, including traditional birth attendants and women development army leaders, who can provide rich and tick perspectives and experiences of EmONC services utilization. Besides, to increase variation in the sample, study participants were selected after stratifying them into rural and urban sites, types of obstetric complications, and pregnancy outcomes. The number of participants was determined by the principle of theoretical saturation of data. Potential participants were selected based on their attributes to the research question.

Seven front-line EmONC service providers and seven managers/heads were recruited from health facilities and district and zonal health offices based on their experience and knowledge of EmONC services. Nine women from health facilities (one from each facility) and six from the community (homes) who had obstetric emergencies were selected to obtain rich information on barriers and facilitators of EmONC service use. Although the facility-based recruitment addressed women's experience with EmONC service utilization, it mainly focused on the challenges of receiving quality EmONC services. In contrast, women from the community were chosen to explore barriers to EmONC service utilization. Therefore, they were selected based on the criteria of not utilizing EmONC facilities, despite the experience of having obstetric emergencies (complications).

Furthermore, the study recruited community leaders (kebele/village leaders and health development army leaders) to explore the perspectives of the community regarding EmONC services delivery and community-related barriers and facilitators of EmONC service utilization. Therefore, the interview guide focused on the socio-cultural factors related to the non-utilization of EmONC services and the community's perception of quality of care. Besides, traditional birth attendants (TBAs) were also interviewed to unveil why women failed to seek care from health facilities. This study, therefore, collected data from multiple sources to holistically explore the complex situation of EmONC service use-related barriers and facilitators.

Data collection

This study used semi-structured interview guides for key-informant interviews (KIIs) and individual in-depth interviews (IDIs). The principal investigator developed the interview guides and was assured by the co-investigators to explore the barriers and enablers of using the EmONC service. Five interview guides (Additional file 1) were used and conducted in the local languages, Wolaita Dona or Amharic (where applicable), by the principal investigator (male) along with a female research assistant (with a Master's degree in Public Health and experience in qualitative research) using a tape recording of audios and field notes.

Confidentiality and privacy of the participants and information were maintained by conducting the interviews in offices, staff rooms (quiet places in participants' working units), and homes at their convenient times. The interviews were initiated after clearly informing the aim of the study and receiving permission (consent). The interviews began with general questions to elicit interest. Besides, efforts were made to establish rapport between the interviewer and respondents. The interviews lasted 30 to 60 minutes.

The health facility leaders and service providers were interviewed at their convenient time in a separate room in their respective facilities. The content of the interview guide mainly focused on the challenges related to EmONC service provision and quality of care. Women selected from health facilities were interviewed in a separate room in the respective facility where no one was allowed to enter so that they confidently interacted with the interviewer and responded freely. The interviews of those women chosen from the community were conducted in their homes conveniently to ensure they behaved naturally without interruption. At convenient times, the community leaders' interviews took place in their respective kebele offices (peasant association office, the smallest local administrative structure in Ethiopia). Besides, traditional birth attendants (TBAs) were also interviewed at their homes without interruption.

Data analysis

The overall compositional structure of the study was guided by the *linear-analytic structure* approach [20], which started with the research problem and ended up with a conclusion and implications for the problem studied. The quality of the study was guided by the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist (Additional file 2) [26].

Data analysis started while collecting data to identify emerging themes for the consecutive interviews. The principal investigator transcribed the data verbatim and translated it into English. The transcription was rechecked with the original data to confirm consistency. The data were read and re-read by the investigators. NVIVO (QSR International Pty Ltd. Version 12) qualitative data analysis software was used for data coding and analysis. Codes were identified and grouped into themes. The principal investigator coded the data. The three investigators organized the data to analyze the results thematically in analytical categories based on the research aim and ideas arising during the data collection. The study adopted Braun and Clarke's six steps for thematic analysis, which include*(a)*

familiarization *with data, (b) generation of codes, (c) searching, (d) revision, (e) definition and naming themes, and finally (f) producing the report* [25].

This study applied an *integrated coding approach* that relied on theoretical propositions and analyzed the data from the ground up [20]. This analysis strategy assisted the study in defining codes deductively and inductively. Some codes were defined deductively (derived from literature) before starting analysis, and some were defined inductively (emerged from the data) not to miss relevant data (codes) [20, 27, 28]. Hence, a *logic model* case study analytic technique was used for the analysis since it guided in matching empirically observed events identified through the inductive coding to theoretically predicted events of the deductive coding [20].

Trustworthiness of the study

Initially, the investigators prepared the study protocol, including the aim, study design, data collection, analysis, and reporting. Based on the protocol's activity plan, the collected data, procedures, and study steps were well-documented and stored confidentially and privately. The study tool was translated into the local language for the interview. The principal investigator and research assistant were fluent speakers of the local language and familiar with the study community. Besides, all members of the research team (two with a Ph.D. in Public Health and one Ph.D. fellow) with prior experience with qualitative research and adequate academic background conducted the data collection. This helped the study maximize the *credibility* of its findings.

Data were collected from multiple sources, including women who had various types of obstetric emergencies, health care providers, health facility managers, traditional birth attendants, and community leaders. Hence, the themes were built by converging data from multiple sources (perspectives of participants), enhancing the 'study's *credibility*. There were regular discussions and briefings between investigators that assisted in minimizing mistakes during analysis. This enhanced the *confirmability* of the study. The investigators, therefore, understood emerging codes and categories in the same way. Repeated interviews of similar settings were done till theoretical saturation of data was attained, which enhanced the *transferability/dependability* of the study. As a result, the study revealed a rich and detailed description of the EmONC utilization-related challenges. The final report was presented to discuss the major findings. Then, the overall report was examined by maternal and child health scholars in the study area, and experts (in the field of study) were consulted.

Ethical considerations

The study was approved by the Biomedical Research Ethics Committee of the University of KwaZulu-Natal, South Africa, and the Institutional Review Board of Wolaita Sodo University, Ethiopia. After receiving permission from the Wolaita Zone Health Department, the 'study's data collection process was initiated. Furthermore, respondents received informed consent after explaining the 'study's goal and communicating the privacy and confidentiality of their responses.

Result

Characteristics of study participants

The participants' characteristics are shown in Table 1. The mean age of participants was 31.2years. Most of them were females, government employees, and in the age range of 25-34years old. All participants gave consent to participate in the study.

The barriers and enablers of EmONC service utilization were analyzed in five themes: 1) service users' perception and experiences, 2) community-related factors, 3) access and availability of services, 4) healthcare financing, and 5) health facility-related factors. (Fig. 1).

Service users' perceptions and experiences with EmONC services

Knowledge and awareness of EmONC service availability

Many women had appeared unaware of the availability of EmONC services and their benefits. Some women delivered their babies at home, and others used traditional birth attendants. Most women were exposed to the EmONC services for obstetric complications when they were first admitted to the ward. They explained that they

Table 1 Sociodemographic characteristics of participants, EmONC service utilization-related challenges, Wolaita Zone, Southern Ethiopia

Characteristics		Number
Age	< 25	5
	25-34	22
	>= 35	10
Sex	Male	12
	Female	25
Education	Cannot read and write	10
	Primary (Grade 1-8)	5
	Secondary (9-12)	4
	College/University	18
Occupation	Housewife	4
	Government employee	19
	Other[a]	14

[a] Farmer, merchant, student, TBA, daily labor

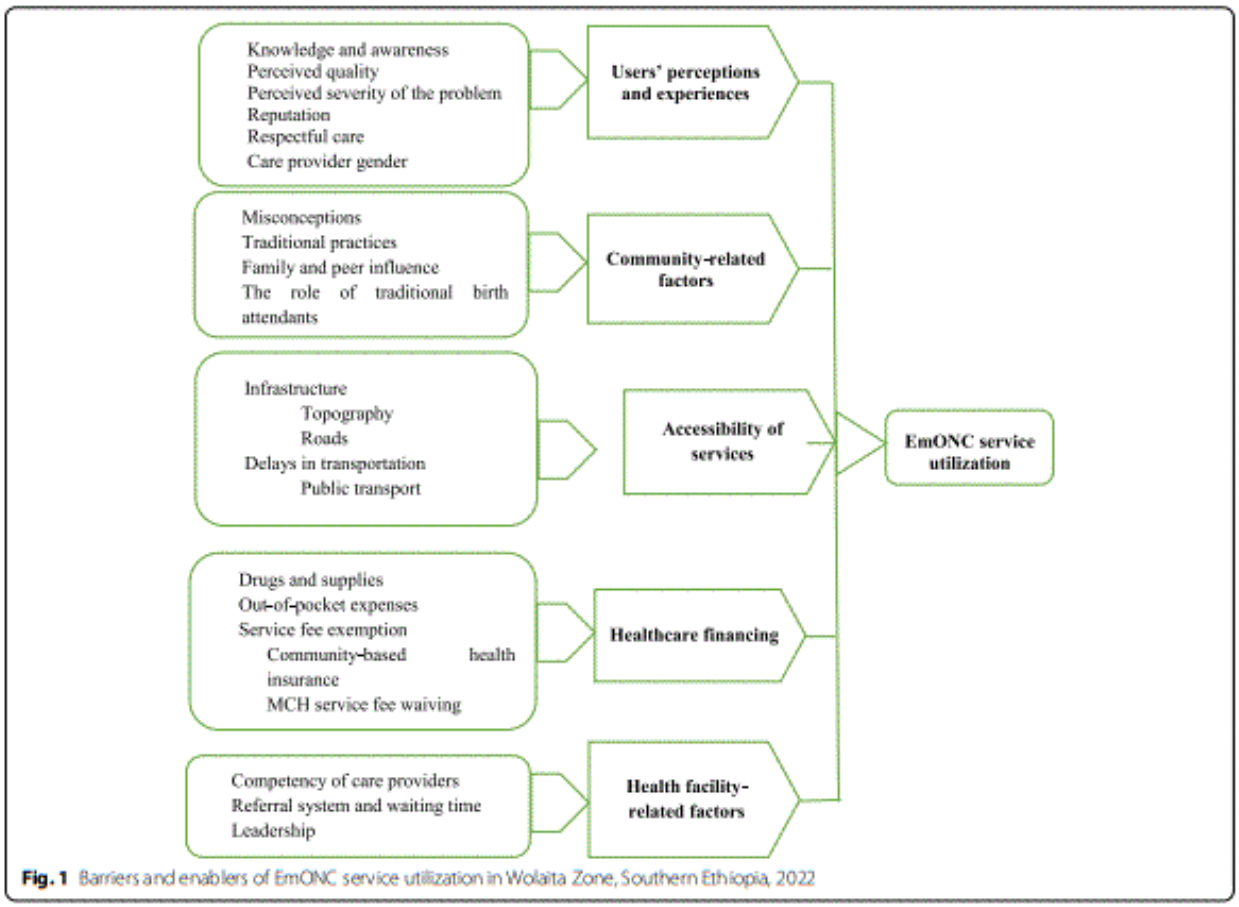

Fig. 1 Barriers and enablers of EmONC service utilization in Wolaita Zone, Southern Ethiopia, 2022

were not informed about the services or were unwilling to accept the advice until they faced the current obstetric emergencies. Unlike most women who delivered at home or 'TBA's home, women who visited health facilities for obstetric emergencies explained that they valued the service as lifesaving.

For instance, a 30 - year old woman who lost her baby because of the delay in seeking care from EmONC facilities explained the impact of lack of awareness on her health and wellbeing as follows:

> *'I did not know the availability of such services given to mothers with pregnancy-related emergencies. This is my third delivery at home. I have no information about the benefit of giving birth at a health center (IDI, WC#1, a 30-year-old woman with stillbirth)*

> *'Problems such as excessive bleeding ... could be stopped and our lives could be saved if we visit health facility sooner ... Many women with similar conditions like me need an operation [cesarean section] and save their babies.' (IDI, WF#2, 26-year-old woman with pregnancy-induced hypertension)*

On the contrary, although some women have access to health services, they fail to use them, and some use the services later in their pregnancy after adverse health outcomes. Some women explained that the lack of awareness negatively affected their health and wellbeing.

> *'We frequently came to Sodo town for our livelihood and we knew a big hospital there. But, we thought labor-related health problems could be managed at home rather than going to the hospital'. (IDI, WF#5, a 20-year-old woman with postpartum hemorrhage)*

Perception of the quality of care Women perceived that the quality of EmONC services was 'poor.' This valuation was substantiated by their experiences in health facilities with various obstetric complications. For instance, many women who visited EmONC health facilities said

that they were severely ill, their babies died, and/or had heard/seen their neighbors or their babies die due to preventable obstetric complications. The women mentioned that poor quality caused the women's deaths and other adverse health outcomes. They explained that their perceptions of the quality of care provoked them to refrain from visiting health facilities for obstetric emergencies.

> *'We are not interested in going there [health facility] because their service is poor.'(IDI, WF#1, a 30-year-old woman with prolonged labor)*

Reputation and respectful care Respondents explained that the health facilities' reputation was a motivating factor for women's EmONC service use. Respondents mentioned that the community had its own informal *'criteria'* (mostly care providers- related factors and availability of drugs) for health facility preference to visit. They emphasized that the presence of a health facility with passionate care providers in their locality was an encouraging factor for women's EmONC service use and vice versa.

> *' .... I prefer the Wamura health center though Shamba health center is nearer to my home. I preferred Wamura because health professionals are always ready to take care of us ... ' (IDI, WF#6, a 26-year-old woman with postpartum hemorrhage)*

According to IDIs with the women, experiencing disrespect and abuse discouraged women from using EmONC services in the study area. They mentioned that some care providers *slapped and shouted* at them. Furthermore, some women reported being neglected or left unattended for days and nights by care providers. They also said some women with life-threatening conditions and severe labor pain are left unattended by care providers.

> *'I shouted at one care provider because no one observed me the whole night though I was suffering from the wound pain. He told me to calm down, but I continued to be emotional. Then, he slapped me and told me to stay calm and wait till they got time to observe me. It is too rude to do so for a mother like me who lost her baby and suffered more on operation [œsarean section]' (IDI, WF#3, a 26-year-old woman with stillbirth)*

> *'Health professionals are not punctual when a mother arrives at the health center. ... Women face disrespect and negligence from care providers. Some health care providers even insult them. So, women, their attendants, and families lose interest and refuse to revisit that facility.' (KII, CL#4, a 27-year-old women's development army leader)*

Despite the care providers' misconduct (that discouraged women from EmONC service use), humble, compassionate, and caring care providers' existence was a facilitating factor for EmONC use.

> *'The care providers in the health facility immediately secured the IV line while asking me questions about labor duration and the steps we took. They rushed to help me ... called the ambulance to refer me to the hospital. They were humble and caring. This is really motivating to visit again in the future ... ' (IDI, WF#5, 20-year-old woman with PPH)*

Care provider gender Besides, care providers' gender was also implicated in their perceptions of quality. Most of them said they preferred male care providers to females since they perceived those male providers were more passionate and understood their interests better. They reported that every woman would be interested in visiting health facilities if all the facilities hired such compassionate and respectful professionals.

> *' ... unlike the female care provider mistreating me, the male care provider treating the woman next to me in the delivery room was an excellent care provider. I observed his commitment and passion for helping the woman.' (IDI, WF#6, 26-year-old woman with PPH)*

Community-related factors

Misconceptions

Based on their previous home delivery experiences, some respondents perceived all pregnancies and labor as usual as in their previous deliveries. For instance, women who didn't access medical care for obstetric emergencies perceived the complications as self-healing health problems.

> *'I was waiting for days for it [the bleeding] to stop by itself because, in our community, bleeding is perceived as normal during childbirth ... so people around me were praying now and then.' (IDI, WC#3, 23-year-old woman with PPH)*

Traditional management of obstetric complications Some respondents explained the impact of traditional

management of obstetric complications and its contribution to home delivery and delayed arrival at the health facility. The community has various local terms for obstetric complications, such as *'xessayminttiis'* (waist tightness) for obstructed/prolonged labor, *'sugettaa'* for neonatal distress, and traditional feeding habits like drinking a locally made drink composed of wormwood herb (*Artemisia absinthium*), milk, and milk products to decrease labor pain and prevent delivery-related complications. Those women who delivered at home also explained that the people around them (most from rural settings) prefer to get treatment at home than go to health facilities.

> *'... whenever newborns become sick, our society traditionally perceives it as 'sugettaa,' and they massage the newborns' abdomen. (KII, CL#2, a 32-year-old women development army leader)*

The role of traditional birth attendants

TBAs were found to be facilitators and barriers in the EmONC service utilization. They described their role, including making referrals to the health facility, as vital since they strive to reduce maternal deaths. All of them explained that they refer mothers when the complications worsen. On the contrary, the availability of TBAs in the community held back women's EmONC service use. When women faced life-threatening obstetric complications, they thought that the traditional birth attendants (neighbors and family) would manage it. A 26-year-old woman with stillbirth after delayed arrival at EmONC facility explained the TBA's role on her health and well-being as follows:

> *'I know my labor was not so bad, but the local birth attendants made my labor worst. ... they were telling me that the baby would be born very soon since its head was visible. ... and I also believed their words and wished to see my baby soon. However, I lost my baby after three-day long labor ... hoping and believing their words.' (IDI, WF#3, 26-year-old woman with stillbirth)*

TBAs explained that they prepare local (traditional) medicine to manage obstetric complications. Most use a locally made medication to treat/manage obstructed/prolonged labor (which they call 'waist tightness'). They also manage/treat hemorrhages (postpartum or antepartum) by exerting pressure over the mother's lower abdomen or vagina till the bleeding stops. The procedure is time-consuming, so waiting a few hours is needed to see the effect. When the effect is not observed after hours (it might last the whole day and night), they decide to send the mother to a health facility.

> *'I prepare a mixture of drinks made from 'natira' [local name for Artemisia absinthium], butter, and yogurt, ... and order her to drink it, which eases the labor and gives strength to the mother. I thoroughly massage the womb with my hands if she has waist tightness [prolonged/obstructed labor] or rotate the baby manually when she faces Marsha [breech presentation]. ... sometimes, the bleeding [antepartum hemorrhage] becomes difficult to stop ... and the mother loses energy ... In that case, I refer her to health facility ... ' (KII, TB#1, 50-year- old TBA)*

The TBAs also perceived better quality care at health facilities than theirs. However, many women preferred to be served by TBAs mainly because of the poor approach of healthcare providers and the friendly approach of TBAs.

> *' ... Even I cut the cord by using a blade that I wash with boiled water ... I know that the health facility has gloves, syringes, drugs ... However, women prefer me because I am always available when they seek me. I also encourage and give hope to them' (KII, TB#2, 48-year-old TBA)*

Family and peer influence

The husband, family, neighbors, and others were found to have a significant role in the decision for EmONC service use. Many women, who failed to seek EmONC service, explained it as a *'decision of others'* than executing their interest. Community leaders and women described that the close interaction with peers and neighbors resulted in believing and accepting their advice to stay at home, regardless of the complications' severity. Besides, women also explained that arguing with aged women's thoughts would affect their smooth interaction with the community. Hence, in some circumstances, they accept (unwillingly) to stay at home and call the traditional birth attendants.

> *'... everyone around me, my husband, my neighbors, ... encourage giving birth at home. ... many women in my village gave birth at home.' (IDI, WC#8, a 29-year-old woman with sepsis)*

Accessibility of services

Infrastructure

The difficulty in accessing health facilities was also among the barriers to EMONC service utilization.

Participants mentioned distance from the facility and the locality's difficult, rugged topography as significant barriers to EmONC service use. The distance did not matter much in some cases, but the topography made it difficult to arrive at the facility on time.

> *'They decided to carry me to the health center ... my home is just beneath [near to] mount Damota. ... so, the landscape was challenging even for the people carrying me. [Then] They changed their minds and decided to visit our village's known [famous] traditional birth attendant. ... we were taking a rest in between the footwalks. ... finally, after a three-hour walk, we arrived at the traditional birth attendant's home.' (IDI, WC#9, a 22-year-old woman with stillbirth)*

Some respondents described that though women had an interest and good perception of EmONC services, they could not get the service because of difficulties in the accessibility of facilities.

> *' ... after I faced a falling accident when fetching water from the river, a few minutes later, ... I started to see blood coming out from my private part [genitals]. ... the place is out of rich of transportation ... so, I was waiting for it [remnants] to expel completely ... ' (IDI, WC#3, a 19-year-old woman with post-abortion complication)*

Delays in transportation to the medical facility

In contrast to the distance and topography of the localities, respondents also explained that some facilities are located in relatively accessible places. However, the limited availability of public transport was the cause of the delay in EmONC service utilization. A 30-year-old woman with prolonged labor, who had a stillbirth, explained the challenges associated with the availability of public transport:

> *' ... my home is just on the roadside, but it was midnight so we could not get public transport. I arrived at the health facility in the morning, but ... I was not lucky to hug my baby ... ' (IDI, WF#1, a 30-year-old woman with prolonged labor)*

Healthcare financing

Drugs and supplies

Respondents raised the availability of medical equipment and drugs as one of the major contributors to women's preference for seeking EmONC services. An adequate supply of drugs and other facilities motivated women to seek care from health facilities. Nevertheless, they explained that the facilities frequently ran out of cheap medical supplies (such as gloves, syringes, and needles) and expensive drugs (such as ceftriaxone). Laboratory and radiology services frequently stopped functioning because they ran out of reagents/inputs. The care providers and facility leaders explained that these problems compromised the service provision, worsened complications, and discouraged women's revisits.

> *'Recently, we are facing a frequent shortage of drugs. ... we order patients to purchase also drugs, gloves, and syringes from private pharmacies. But women were unhappy, ... frequently complaining and losing interest in seeking care.' (KII, SP#3, 28-year-old midwife)*

They explained that inadequate supply and lack of appropriate utilization of resources resulted in a shortage of supplies. Some care providers and facility leaders mentioned that the available supplies were dispensed and prescribed unreasonably. They explained that this further resulted in both care providers' and users' dissatisfaction with the service. The facility leaders also described that these shortages ultimately caused women's loss of interest in seeking care from health facilities.

> *'We hear prescription and drug administration and control are weak at hospitals and health facilities. This caused patients' dissatisfaction' (KII, FL#6, 36-year-old program leader)*

Out-of-pocket expenses

Fear of the unaffordability of food and transportation costs was also mentioned as a barrier to EmONC service use. Respondents explained that expenses related to long-distance travel and prolonged hospital stay negatively affected women's health-seeking behavior. Respondents added that the extra economic burden exerted on women and their families because of purchasing expensive drugs from private drug stores did not allow many women to seek care from EmONC facilities.

> *' ... Women do not want to suffer from such challenges [mentioned above] in the health facility, so they refuse to go to health facilities.' (KII, CL#1, 30-year-old kebele leader)*

Service fee exemption

Health office heads/managers, care providers, and community leaders mentioned the importance of community-based health insurance (CBHI) for improving the

health-seeking behavior of the community in general. They explained it as a considerable asset mainly for the poor, who could not afford the ever-increasing medical cost and other equipment purchases. To EmONC services, the fee waiving for all maternal and child health services was mentioned as a facilitator of increased uptake of EmONC services.

> *'The community health insurance is gaining acceptance in our village. This supports their financial needs. ... and governmental health facilities give maternal and child health services free. This eliminates the stress related to unplanned health care-cost expenditure. '(KII, CL#1, 30-year-old kebele leader)*

Health facility-related factors

Competency of care providers

Women preferred visiting health facilities with more qualified care providers and committed and well-experienced workers. Facility managers also emphasized that care providers' training positively impacted women's health-seeking behavior by enhancing their satisfaction with the service. They emphasized that women's satisfaction was the main reason for revisiting the facilities for obstetric emergencies.

> *'We are recruiting care providers with minimal exposure and training in managing obstetric emergencies. But, I think this is not a major problem in hospitals because they have more qualified doctors. So, many women prefer to go to a distant hospital than get the service from our health center.' (KII, FL#3, 30-year-old facility head)*

Referral system and waiting time

Health care providers and health office heads/leaders highlighted that care providers with poor knowledge and skill usually refer women to higher-level facilities though the complication could be managed/treated there. Though women expected to get the service at their initial arrival at the health facility, they were further referred to other facilities (drug stores, laboratories, and tertiary facilities). Some women refrained from going to the referral facility, and others went unhappily.

> *'I was informed that the hospital gives mothers free of charge services. But, they referred me to a private facility for laboratory diagnosis. How can I afford 450 birrs [ETB]? ... My fate is going home ... ' (IDI, WF#3, 26-year-old woman with stillbirth)*

The unavailability of ambulances and drivers' lack of passion were also barriers to timely EmONC service utilization. The challenge is more eminent during night-shifts. In some cases, the ambulances were available, but the drivers were not cooperative during midnights.

> *' ... we called the health extension worker, and she [the health extension worker] was repeatedly calling the ambulance driver, but he was not responding to her call the whole night. ... ' (IDI, WF#1, a 30-year-old woman with prolonged labor)*

The health facilities' patient flow and waiting time were stated as a challenge for women's EmONC service utilization. They explained that they were obligated to wait further within the facility to be diagnosed and treated. They explained that this further worsened their complications, despite the long travel duration's impact.

> *'There was a huge queue, and since I had no referral letter, I was obligated to wait for hours. I don't recommend this hospital to others because of the crowding and long waiting time ... ' (IDI, WF#4, 25-year-old woman with spontaneous abortion)*

Leadership

Respondents also mentioned that the loose monitoring and evaluation contributed to the women's lack of interest in utilizing EmONC services. They described that the lack of appropriate measures for misbehaving care providers was a triggering factor for the dissatisfaction of both service providers and users. They implicated it to the women's lack of interest in visiting EmONC services. Besides, they added that the health facilities were not working hard to attract service users and make the facility a *patient-friendly* institution.

'The delivery room lacks cleanliness and readiness for the next patient. Such issues drive back patients from revisiting our facility.' (KII, FL#6, a 36-year-old program leader).

Discussion

This study explored the barriers and facilitators of EmONC service utilization from multiple sources in the Wolaita Zone, southern Ethiopia. Though every woman has the right to attain the highest standard of health, including the right to dignity, and compassionate and respectful care [29], this study reported that many women and their newborns missed EmONC service utilization. Our findings show that various factors contributed to the women's utilization/non-utilization of EmONC services during obstetric emergencies. Accordingly, the findings were merged under five themes:

service users' perception and experiences, community-related factors, access and availability of services, healthcare financing, and health facility-related factors.

Service users' perceptions and experiences

Despite the health system's increased emphasis on enhancing the coverage and quality of obstetric services [30, 31], the current study reported that low awareness and negative perceptions of EmONC services impact their utilization. Previous safe home delivery or delivery with minimal complications emboldened women's perception that *'every pregnancy and home deliveries are safe*. Women also believed that obstetric complications subside by themselves. Evidence from Nigeria also showed that women misinterpreted the signs of obstetric complications [32] and that the perceived susceptibility and threat, and perceived severity [22] of obstetric complications affected women's decision to seek care from EmONC facilities [33]. This problem is not limited to LMICs [34, 35]. Evidence shows that women's expectations [34] and prior negative experiences with health services and care providers [35] negatively influenced maternity care utilization. The better perception of women who recently visited health facilities implied that behavior change interventions could substantially impact marginalized women's behavior. Evidence from central Ethiopia also suggested that women's health education had a noticeable effect on service utilization [36].

The perceived poor quality of the EmONC services in the study area, particularly fear of health professionals' disrespect and abuse, were among the barriers to accessing EmONC services. In the current study, women's experience of disrespectful care resulted in dissatisfaction with the obstetric care services. Besides, discrepancies between expectations and experienced care are also reported as important factors for women's dissatisfaction with care [34, 35]. Since negligence, disrespect, and abuse were serious obstacles to maternal health services utilization [37], and they rid women of their right to have care with dignity, they must be taken seriously, and relevant authorities, such as local health administrations, take measures – including training care providers on respectful care and make frequent supervisions. Furthermore, efforts to improve the perceived quality of care need to balance women's expectations of EmONC services and outperform their past experiences to satisfy them with the current services and enhance the utilization of such services in the future. This depicted that the quality of care is vital for EmONC service utilization.

Community-related factors

The impact of some traditional practices was palpable in the current study, which tremendously affected women's healthcare-seeking behavior. The TBAs' role in referring women to health facilities was considered an enabling factor for EmONC service use in the current study. Nevertheless, it should be emphasized that recovery is less likely for women referred on the verge of adverse health outcomes. This is evident in the case of a study conducted in Tanzania, where many TBAs did not know the signs and symptoms of obstetric complications [38], which further contributes to delays in referral.

This study also identified that social networking influenced women's decision to seek care from EmONC facilities, where the husbands, peers, relatives, and family were either sole or dominant decision-makers. The existing evidence has shown that the delay in the decision to access care is highly influenced by the decision-making power of women [5] and substantially contributes to maternal and neonatal death [6, 7, 39, 40].

Access and availability of services

Though some women in the study area perceived EmONC services as a valuable component of maternal and child health services, they were not lucky to obtain them due to difficulties accessing the facilities. The main challenges they reported were distance, topography, and availability of public transport, which were also reported in other studies [32, 41]. These challenges are common in LMICs [7, 42–45] and could be addressed by improving the wise use of available infrastructures, such as ambulances, assigning a dedicated staff for the service, having a functional referral system, and soliciting logistics from nearby health facilities whenever possible. Besides, according to the Ethiopian health policy [30], EmONC services are waived of any fee, including ambulance services, which are crucial for the timely arrival of women with EmONC complications. However,in some instances, the drivers were accused of negligence and lack of cooperation. Besides, the health facilities' poor resource management limited ambulance service in the current study. Hence, not only the lack of facilities or infrastructure but also poor resource management needs to be addressed to improve the availability and utilization of EmONC services.

Healthcare financing

Though Ethiopia has nationally uniform guidelines for health centers and hospitals [30], the availability of medical equipment and essential drugs varied across facilities in the study area. This mainly compromised the quality of care and further discouraged the revisit of women for their obstetric emergencies. Besides, the extra economic burden (transportation and food cost) exerted on women from low socioeconomic classes did not allow many women to seek care from EmONC facilities. Similarly,

minorities in high-income countries are deprived of healthcare access due to catastrophic out-of-pocket expenditures [46]. Overall, strengthening and scaling up alternative means of supporting these marginalized groups, such as *'maternity waiting home'* programs [47–49], could reduce out-of-pocket expenditures and increase the EmONC service utilization.

Another important implication is that the CBHI, introduced in 2011in Ethiopia [31], had an evident effect on the health-seeking behavior of society in general and supplying facilities with medical infrastructure. Notably, the service fee exemption [50] was reported to positively impact the uptake of EmONC services in the study area. However, ensuring the application of policies into practice is required since many facilities were facing shortages of medical supplies (though they are supposed to give free of charge). Nevertheless, if further efforts are exerted, including community awareness and testing and applying new innovations that are tried elsewhere [51–53], the improvement of maternal and newborn health is not too far to achieve.

Health facility-related factors

The existence of basic and comprehensive EmONC service training, Integrated Management of Newborn and Childhood Illness (IMNCI) training, and others were mentioned as contributors to women's EmONC service use. The evidence stated that a well-performing workforce is needed to achieve the best health outcome [24]. Hence, in-service training had a crucial role in enhancing competency and reducing unnecessary referrals. This ultimately attracts women who perceive poor care provider skills in the facilities [54].

Long waiting time was also identified as a barrier to EmONC service utilization after arrival in the facility. The third delay resulted in worsening complications and contributed to patients' dissatisfaction and failure to visit EmONC facilities. Therefore, Interventions tried elsewhere, which can address the long waiting time, including obstetric triage improvement programs, can be tested and applied to decrease the waiting time, enhance patients' satisfaction, and increase service uptake [55].

The lack of wise utilization of resources, inadequate monitoring and evaluation, and poor leadership were identified as barriers to EmONC service utilization in the study area. It was raised that most challenges could have been resolved or lessened with good leadership. For instance, the irrational dispensing/prescription of available supplies, disrespect and abuse, and inequitable distribution of logistics could have been resolved with good leadership. Furthermore, exploring other available sources for medical logistics can enhance the quality of care and increase service uptake. Therefore, leadership and governance, as one of the building blocks of the health system [24], need the staff's and leaders' commitment to monitor and control the expenditure wisely. It further needs strategies and policy frameworks that ensure the effectiveness of resource utilization, distribution, regulation, and accountability [24].

Limitations and strengths of the study

The study's limitation is that women who sought care outside the health facility might have had difficulty expressing their complications since complications need physical examinations and rigorous diagnosis. However, the study involved an adequate number of women with different experiences to unveil thick descriptions to strengthen the trustworthiness of the findings. The study explored EmOC services utilization problems from women's direct voices and perspectives, which are vital for designing and implementing a contextualized program to address them. Another strength of the study is that data were collected from multiple sources (women with various backgrounds and complications, health care providers, health facility managers, traditional birth attendants, and community leaders). Therefore, the analysis was built by converging data from multiple perspectives to holistically explore the complex situation of EmONC service utilization-related challenges, enhancing the study's credibility.

Conclusion and recommendation

Many women and their newborns in the study area suffered severe and life-threatening complications because of non-utilization or delayed utilization of EmONC services. The study identified barriers and enablers of EmONC service utilization. It summarized them under the themes: service users' perception and experiences, community-related factors, access and availability of services, healthcare financing, and health facility-related factors. A key policy priority should therefore be to plan to enhance women's awareness, eliminate misconceptions, improve women's autonomy, and ensure the role of traditional practices on EmONC service utilization. Community awareness programs and interventions to promote birth preparedness and health education can be required to enhance the EmONC service uptake. Researchers and other stakeholders can investigate the extent and effect of community awareness on reducing maternal and newborn morbidity and mortality.

The evidence from this study suggests that service quality improvement has a central role in enabling women to access and use EmONC services. Furthermore, the health systems must emphasize addressing the inequitable distribution of EmONC facilities (geographically) and medical supplies. The care provider training will also play a vital role in eliminating the bottlenecks, including

care provider incompetency, unnecessary referrals, and women's dissatisfaction. Further study can also confirm the outcome of training on improving maternal and newborn morbidity and mortality. Though the CBHI and fee exemption had a crucial role in enabling women, the financial constraints of out-of-pocket expenses need to be addressed to motivate women of poor socioeconomic status. Furthermore, some interventions need intersectoral collaborations beyond the health system, such as strengthening and maintaining a legal framework to control home deliveries, access to essential drugs, training TBAs, and empowering women.

Abbreviations

CBHI: Community-based Health Insurance; EmONC: Emergency Obstetric and Newborn Care; IDI: Individual In-depth Interviews; KIIs: Key-informant Interviews; LMICs: Low and Middle-income countries; TBA: Traditional Birth Attendant; WHO: World Health Organization.

Supplementary Information

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Additional file 1: Information sheet, consent to participate in research, and interview guide.

Additional file 2: COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

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Authors' contributions

M.A. conceptualized the study, analyzed the data, and wrote the original draft; M.A., BY, and N.K. Designed the methodology, reviewed the manuscript, and wrote the paper. All authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

This study was ethically cleared and approved by the Biomedical Research Ethics Committee (BREC) of the University of KwaZulu-Natal, South Africa, and the Institutional Ethics Review Committee of Wolaita Sodo University, Ethiopia. All methods were performed in accordance with the relevant guidelines and regulations. Written informed consent was obtained from all participants. The participants were informed that they had full right to participate or not in the study.

Consent for publication

Not applicable.

Competing interests

The authors have declared that no competing interests exist.

Author details

[1] School of Public Health, College of Health Sciences and Medicine, Wolaita Sodo University, Wolaita Sodo, Ethiopia. [2] School of Nursing and Public Health, Discipline of Public Health, University of KwaZulu-Natal, Durban, South Africa. [3] School of Population and Public Health, the University of British Columbia, Vancouver, BC, Canada.

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Publisher's Note

Bridging statement

The following chapter (Chapter Eight) synthesizes the major findings of chapters 4, 5, 6, and 7. Besides, it presents the EC of the EmONC services model, the study's implications, and concludes the overall project.

CHAPTER EIGHT: SYNTHESIS

8.1. Introduction

The preceding chapters (chapters 1 to 7) elucidated the introduction, literature review, and the study's methodology and investigated and presented the EC of EmONC services, quality of care, and barriers and enablers to EmONC services. This chapter synthesizes the study's main findings and develops a model. Besides, it elucidates the study's strengths, limitations, implications, and conclusion.

8.2. Major findings

This study has shown a low EC of EmONC services and its correlated factors. The fourth chapter (scoping review) noted that the EC of EmONC services was given little attention in Africa. The review (chapter 4) reported that the evidence of EC of EmONC services is lacking in Africa. Besides, it explored evidence on crude coverage and quality of EmONC services with a wide variability across studies, study period, and sub-national administrative structures. Most included studies were from East and Western African countries and targeted only health facilities (lacking data from the community). Furthermore, the review yielded three themes: EmONC service utilization and trend, quality of EmONC services and trends, and factors linked with quality EmONC services utilization. (Figure 8-1)

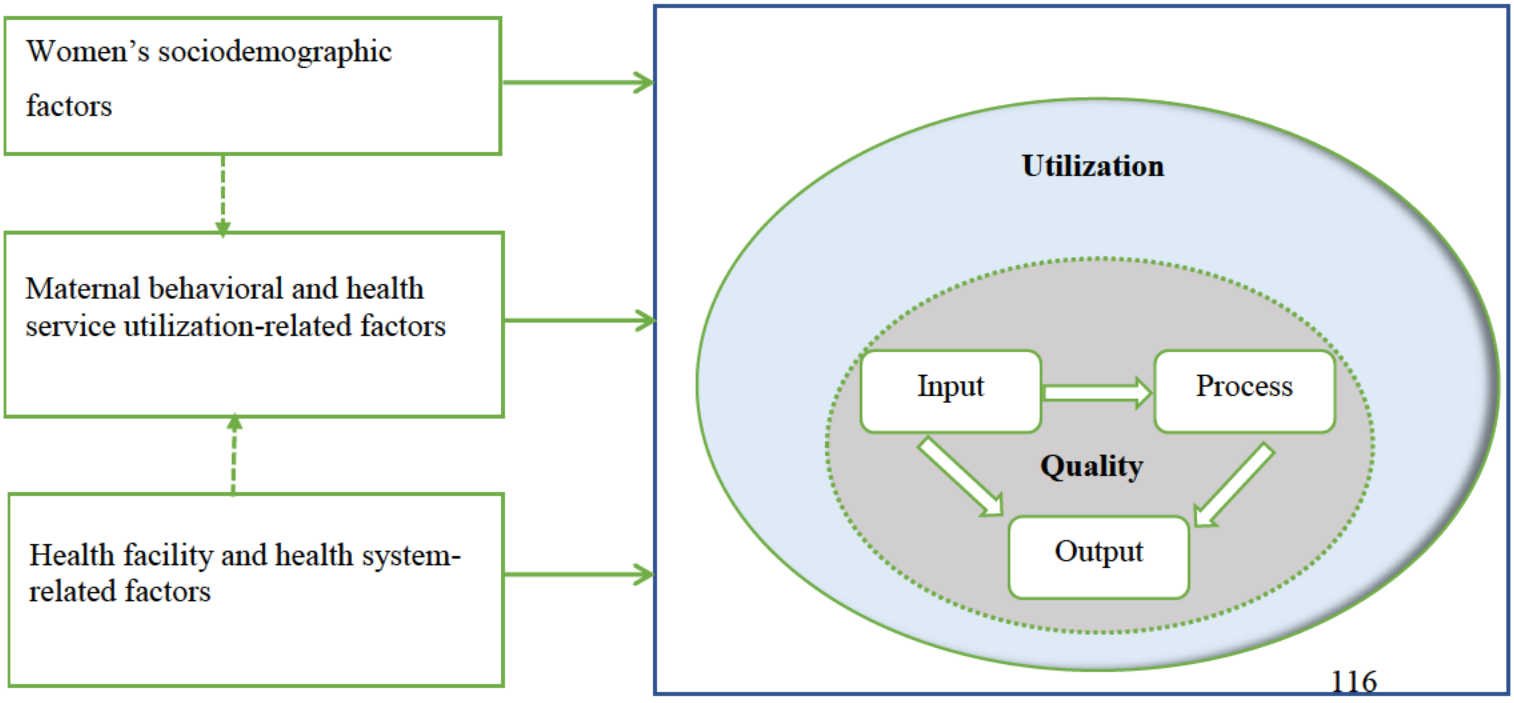

Figure 8- 1: Factors linked with the effective coverage of EmONC services in Africa, a scoping review

Chapter five (manuscript 2) showed that the EC of EmONC services was 50% in Wolaita Zone, southern Ethiopia. Besides, it reported a 72.1% (95% C.I: 67.7%, 76.4%) prevalence of EmONC services utilization based on the house-to-house survey, with a wide variation across districts ranging from 59.4% to 80%. Similarly, a low level of EmONC services quality was reported, where most of the studied districts had an average quality of care below 75%. All the indices (crude coverage, quality of care, and EC) were higher in urban districts than rural ones, and the quality of care exceeded the crude coverage in BEmONC facilities. Besides, the quality of care is higher in BEmONC facilities than in CEmONC facilities. However, the EC was more elevated in CEmONC facilities, which is attributable to the high crude coverage.

Chapter six (manuscript 3) investigated the quality of EmONC services using Donabedian's quality of care framework. The mean structural/input quality of EmONC service was 74.2% (95% C.I: 71.1%, 77.1%, SD = 5.9%), which varied from facility to facility, ranging from 63.3% to 85%. Most facilities fulfilled at least 75% of the structural quality index. Some facilities (21.4%) had a shortage of beds, so patients shared beds or slept on the floor. On the contrary, the availability of an electric supply, room for delivery, rehydration fluids, cord tie/clip, and a baby weighing scale was not a challenge in all the assessed facilities. However, all the audited facilities did not provide food for patients except one referral hospital. Most facilities provided parenteral antibiotics (100%) and manual removal of placenta (92.9%), whereas few facilities (28.6%) provided parenteral anticonvulsants to patients with obstetric emergencies.

Furthermore, chapter six emphasized the process quality of EmONC services. Accordingly, it reported a 69.4% (95% C.I: 67.9, 70.8%) mean observed quality (SD =15.4%). The observation of care provision has revealed that some standard clinical actions were poorly addressed, such as asking women whether they had danger signs of pregnancy (cough or difficulty breathing in 10.9% of women and convulsion or loss of consciousness in 15.6% of women). In contrast, some standard clinical actions were commonly practiced, such as checking clients' cards (98.1%) and wearing gloves before pelvic examinations (96.9%). The majority of participants (59.2%) received poor quality service (below 75% of the standard clinical actions). This chapter has also investigated the output quality of EmONC services based on the patient's satisfaction with the services they received and reported a 79.6% (95% C.I: 78.5%, 80.7%) mean output quality (SD= 12.1%).

The multiple linear regression analysis in chapter six confirmed the factors associated with the observed quality of EmONC services. Accordingly, the more the woman is educated, the higher the possibility of getting quality service. Hence, the average quality index was nearly 5% higher among women with primary education (B=5.35, 95% C.I: 0.56, 10.14) and 8% higher with high school education (B=8.38, 95% C.I: 2.92 13.85) than illiterate women. Similarly, older women (30 years and above) were more likely to receive quality service than the young (B= 3.86, 95% C.I: 0.39, 7.33). Besides, the longer patients stay in health facilities, the better they get quality EmONC services. Accordingly, a one-day increase in health facility stay increased the quality of care by almost 4% (B= 3.58, 95% C.I: 2.66, 4.9). On the contrary, caseload was inversely related to the quality of care in which every patient increment in the delivery room decreased the quality of care by 4% (B= -4.14, 95% C.I: -6.14, -2.13). Furthermore, care providers' experience was directly related to the provision of quality EmONC services in which each year increase in care providers' experience, increased the average quality of care by 1.3% (B= 1.26, 95% C.I: 0.83, 1.69). (Figure 8-2)

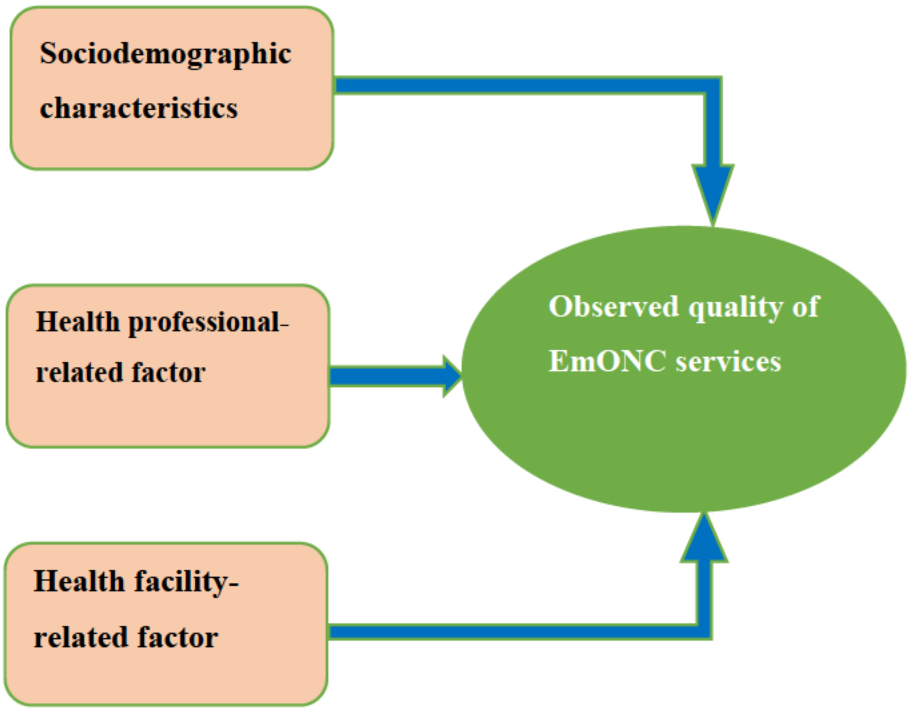

Figure 8- 2: Predictors of observed quality of EmONC services

The qualitative study (chapter 7) explored the barriers and enablers of EmONC service utilization, and five themes emerged, including a) perceptions and experience of women, b) community-related factors, c) accessibility and availability of the EmONC services, d) healthcare finance, and

5) facility-related factors. Women's perceptions and experiences that affected the utilization of EmONC services were knowledge and awareness of EmONC services' availability, perception of the quality of care, reputation, and respectful care, and care providers' gender. The community-related factors were misconceptions, traditional management of obstetric complications, the role of traditional birth attendants, and family and peer influence. The accessibility and availability of services-related factors were infrastructure and delays in transportation to the medical facility. The healthcare financing-related factors were drugs and supplies, out-of-pocket expenses, and service fee exemption). The health facility-related factors that affected the utilization of EmONC services were competency of care providers, referral system and waiting time, and leadership. (Figure 8-3)

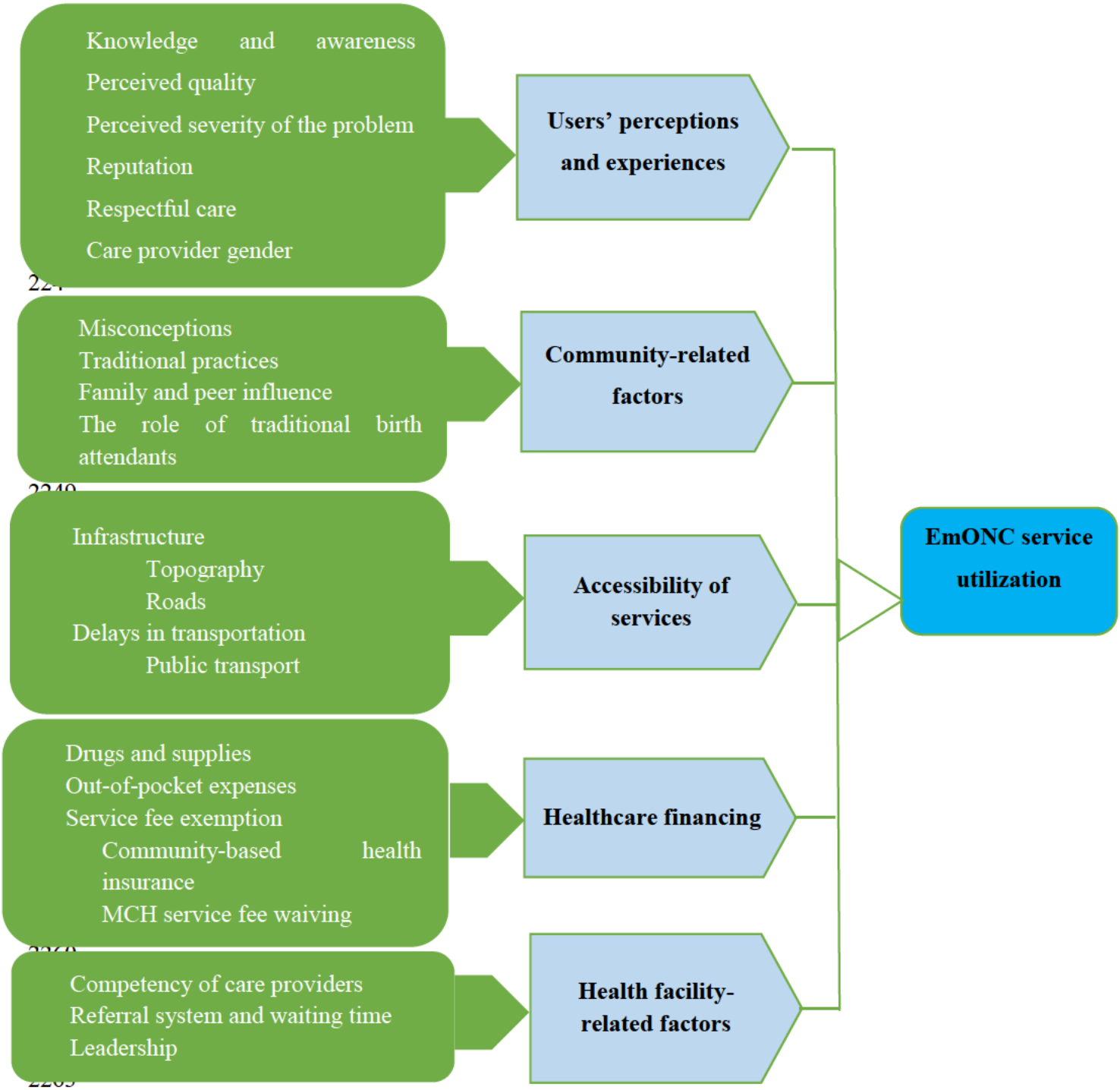

Figure 8- 3: Factors affecting EmONC services utilization in Wolaita Zone, Southern Ethiopia, 2022

8.3. The approach of the study

This study followed the *pragmatism* philosophy (Pranas Zukauskas et al., 2018, John W. Creswell, 2014) that guided the researcher to use all the available research approaches (John W. Creswell, 2014). Hence, this study used various strategies, data collection, and analysis techniques to understand the research problem comprehensively. It implemented an explanatory sequential mixed method approach to provide evidence for the EC of EmONC services.

The initial phase of the research was searching for evidence on EC of EmONC services in Africa, with the ultimate goal of assisting the researcher in identifying the gaps in EmONC services through literature. It also assisted in conceptualizing the prospective primary research activities. Accordingly, the researcher learned critical evidence gaps, obtained three essential themes, and confirmed a lack of evidence on the EC of EmONC services in Africa. This further assisted the researcher in implementing the primary research to fill the literature gap and generate evidence for relevant interventions in the study area and other similar settings.

Since the concept of EC needs an all-inclusive approach (Shengelia B et al., 2005), the use of multiple data collection techniques, strategies, and analyses (as stated in chapter three), were the crucial steps the current study underwent to overcome the limitations of the individual methods. It also assisted in complementing the findings to understand the phenomenon comprehensively. The researcher employed quantitative and qualitative approaches, collected data from health facilities and communities, and used various data collection techniques (facility audit, record review, direct observation of care provision, face-to-face interview, IDI, and KII). Besides, the researcher collected data from diverse participants, including care providers, women who used and did not use the services, women with various types of obstetric complications, community leaders, facility leaders, and traditional birth attendants. For instance, the community-based survey data of crude coverage were triangulated with the facility-based quality of care data to yield the overall EC of EmONC services. Furthermore, the quantitative data generated the EC figure (along with its components) and predictors of quality of care, while the qualitative data enabled the researcher to understand the context and explore the barriers and enablers of EmONC services utilization.

8.4. Discussion on the major findings

The study's main findings are discussed under three concepts: EC of EmONC services, quality of care and its predictors, and factors influencing the utilization of EmONC services.

8.4.1. Effective coverage of EmONC services

This study identified essential indices that assisted in estimating the EC of EmONC services. Initially, it estimated the crude coverage (proportion of women with major direct obstetric complications who obtained treatment from health facilities (WHO et al., 2009; Admasu et al., 2011) through a house-to-house survey. Then, a facility survey was undertaken to measure the quality of EmONC services. Finally, the two surveys' findings were triangulated, and the overall EC was estimated as a product of crude coverage and quality of care (with emphasis on process/observed quality).

Chapter five has confirmed the low EC of EmONC services in the Wolaita Zone (southern Ethiopia), indicating a 50% loss in the potential health gain to the population in need. It has shown variation across districts, facilities, and residences. Though the scopes, study settings, and study periods are not similar to our study, comparable levels of ECs were reported in Kenya (51.3%) (Nguhiu et al., 2017) and Burkina Faso (44.6%) (Marsh et al., 2020). A wide discrepancy across studied countries (24% in Haiti to 66% in Malawi) was also reported, indicating variation in EC attributable to several factors (Wang et al., 2019). This entails that our study and other similar studies underlined that the EC of maternal and newborn services varies due to several conditions, including geographical/administrative boundaries, socio-economic conditions, and the type of health intervention provided. Nevertheless, chapter four reported a lack of evidence on the EC of EmONC services in the country and the continent, implying the health system's subordinate emphasis on the problem.

Notwithstanding Ethiopia's heavy investment in the health system (FMH Ethiopia, 2021; FMOH Ethiopia, 2014), only half of the health gain was attained in the study area regarding EmONC service provision. Besides, this finding highlights the gap between contact and EC (Amouzou et al., 2019) and underlines the importance of EmONC services' EC measurement to track the progress toward universal health coverage (UNDP, 2015).

Though obstetric complications are the major causes of maternal and newborn mortality and morbidity (WHO, 2003), more than a quarter of the current study's participants (with obstetric complications) did not seek care from EmONC facilities. I.e., they either stayed at home (despite the excruciating pain and complications) or visited traditional or religious places. Chapter four reported the variable levels of unmet need for EmONC services in Africa, ranging from 3% to 73% (Admasu et al., 2011; Ouedraogo et al., 2016) and a progressive improvement in some countries (Kabo et al., 2019; Augusto et al., 2018; Kouanda et al., 2016). This figure indicates the presence of variable bottlenecks in the provision of EmONC services despite the health system's investment in expansion. Comparable results were also reported in some African countries (Marsh et al., 2020; Nguhiu et al., 2017).

The gap between the crude coverage (72.1%) and EC (50%) implies that the target population visited health facilities but did not necessarily receive a standard quality of care. Therefore, the drop-off in EC is attributable to the health facilities' deficiencies in service quality. This discrepancy across districts resulted from variations in the utilization and quality of care. Hence, to improve the EC of EmONC services, emphasis should be given to enhancing crude coverage and quality of care, depicting a double burden. Furthermore, the study reported that the health facility's level (health center, primary hospital, referral hospital, or specialized hospital) and quality of care were inversely related, implying the need to emphasize quality of care at tertiary facilities.

Furthermore, this study identified the inequitable distribution of health services in the study area. It reported that all the studied indices (utilization, quality of care, and EC) were higher in urban areas than in rural. This implies that maternal and newborn health service delivery remained unequally distributed (Gebre et al., 2018) despite the health system's immense effort (FMOH Ethiopia, 2021). Evidence supports our finding that women and newborns in rural areas (Wilunda et al., 2015), young women, and women from low socio-economic status (Nguhiu et al., 2017) were the most deprived sub-groups. Our study also supported this evidence that the proportion of young women (aged below 25 years) in the house-to-house survey was twice the proportion in the facility-based survey.

Improving crude coverage and quality of care impacts the enhancement of EC. Likewise, our study's low EC of EmONC services was attributable to the two indices (utilization and quality of

care). The health system's capacity to deliver adequate care to the population in need is influenced by various factors that might play roles at national, local, or individual levels. Hence, it was essential to learn the contexts of these indices and provide relevant inferences and recommendations. Therefore, the subsequent sections discuss the potential factors that can influence the quality of care and crude coverage (utilization) of EmONC services.

8.4.2. Quality of EmONC services and its predictors

According to the *WHO health system framework*, six building blocks construct a health system: service delivery, human resource, information, medical product, vaccine and technology, finance and leadership, and governance. These building blocks are achieved through the intermediate goals of access, coverage, quality, and safety (WHO, 2007). Quality of care is believed to be the cornerstone of health interventions, and it can prevent approximately three-quarters of death if quality service is provided to women and newborns presenting with obstetric emergencies (Adam W and Mariam C, 2004). Evidence underlined that the inadequacy of quality had challenged the reduction of mortality more than access insufficiency. This indicates that more than eight million deaths could have been saved if quality services were provided in LMICs (Kruk et al., 2018).

Chapter six briefly investigated the quality of EmONC services and influencing factors in the study area. Using Donabedian's framework of quality of care assessment, the chapter measured the quality of care in its three dimensions: input/structure, process/observed quality, and output (satisfaction with the service). The chapter described the mean quality scores of the three indices as 74.2%, 69.4%, and 79.6% for input, process, and output qualities, respectively, with a substantial disparity across facilities. Though the three indices have shown relatively comparable scores, the process/observed quality was the lowest quality of care index in the assessed facilities. This entails that adherence to the clinical care standard is the main compromised component of EmONC services quality.

The lack of evidence on the quality of EmONC services, particularly the process component, is reported in chapter four. It was stated that only two studies reported the quality of EmONC services using process indicators in which direct observation of care provision (Nada et al., 2011) and documentation of process indicators (Kosgei et al., 2016) were used. Yet, chapter four highlighted that poor process quality was also eminent in the reviewed studies. For instance, the content of care was given lately among 50% of patients, and 62% of patients' vital signs were not recorded

in a study from Egypt (Nada et al., 2011). Besides, variable levels of process indicators were reported from a multi-site study from Kenya, particularly regarding documentation of patients' clinical history (Kosgei et al., 2016).

Chapters 4 and 6 also emphasized the literature gap on the quality of EmONC services in the specific study area and the continent. The chapters also depicted the challenge behind the consistency of measurement approaches. Using only one or two of Donabedian's triads, the inconsistency in data collection tools/items and the ultimate conclusion as if it represents the overall quality have challenged the generalization and comparison of findings in the EmONC service quality. Despite the stated challenges, several studies' reports of poor-quality service revealed the difficulty behind providing quality EmONC service in the continent (Kosgei et al., 2016; Mpunga Mukendi et al., 2019; Pearl Thwala et al., 2018; Solnes Miltenburg et al., 2017). The problem was prominent, particularly concerning the availability of essential drugs and medical equipment, care providers' qualification, and administration (Solnes Miltenburg et al., 2017; Mpunga Mukendi et al., 2019; Kosgei et al., 2016; Pearl Thwala et al., 2018; Ayanian and Markel, 2016).

Chapter 6 reported that the care content (direct observation of clinical actions) was highly compromised in most (59.2%) study participants. Although the study setting and scope vary, similar findings were reported (Fisseha et al., 2017; Kruk et al., 2016), indicating that women and their newborns visit health facilities but receive poor quality, which could expose patients to dissatisfaction and loss of interest to revisit the facility, and further expose them to adverse health outcomes.

Chapters 4 and 6 also assessed the output quality of EmONC services based on the satisfaction with the services the participants received. Satisfaction is considered one of the essential components of health interventions in which the quality of health services is indirectly measured from the service users' perspective (Ayanian and Markel, 2016). Chapter 6 reported a 79.6% output quality of EmONC services measured from the patient's perspective. Chapter 4 stated the availability of relatively better evidence in this index with varying levels. It noted that the perceived quality of EmONC services was higher in some studies (Banke-Thomas et al., 2019; Stal et al., 2015; Kumsa et al., 2016) and lower in others (Stal et al., 2015; Berhane et al., 2019). However, the review identified the methodological and analytical inconsistencies across studies as

a primary challenge to the comparability of the results, implying the need for a uniform (harmonized) technique.

The quality of EmONC services was affected by several factors (chapters 4 and 6). Besides, chapter 5 emphasized that the low level of EC is attributable to the low quality and crude coverage levels, implying the possibility of overlaps in the bottlenecks. Hence, the factors that hinder either crude coverage or quality of care, in one way or another, affect the EC of EmONC services. Furthermore, the findings of chapter 7, though emphasizing the barriers and enablers of crude coverage, underlined the interaction of quality of care and crude coverage impacting each other in a vicious cycle (Figure 8-4). These factors are discussed in the succeeding sections.

Socio-demographic factors

Chapter 6 reported that women's education and age affected the quality of care they received. The regression analysis of chapter six identified that the average quality of care index was higher among educated women than non-educated, and the coefficient was much higher in better-educated women. It also reported that younger women were less likely to receive quality services. However, minorities (young women and women from low socio-economic status) are more exposed to obstetric complications and subsequent adverse health outcomes (WHO, 2019a). This revealed the presence of bottlenecks concerning service delivery and caregivers' attitudes toward addressing need-based health interventions.

The reports of chapters 4 and 6 complement each other concerning socio-demographic factors affecting the quality of EmONC services. Chapter six explored how patients' residence, educational status, unemployment, distance, and age affected the probability of receiving quality EmONC services. Studies reported the critical role of socio-demographic factors on the quality of EmONC services (measured using case fatality rate) (Berhane et al., 2019; Okonofua et al., 2017; Chi et al., 2015). For instance, the socio-demographic factors' role was grievous as a study from Tanzania reported that the probability of expressing feelings and pain was affected by women's educational status. I.e., only educated women expressed their pain, feelings, and reactions during obstetric/gynecological procedures (Stal et al., 2015).

Health professional-related factors

Chapter 6 also investigated the direct correlation between care providers' experience and the quality of EmONC services. In addition to the explicit impact on improving complication handling and treating skills, experienced care providers could build effective communication and provide compassionate care (chapter 4). Based on the facility-based survey report of our study, a one-year increase in the health professionals' clinical work experience resulted in a 1.3% increase in the observed quality of EmONC services (chapter 6). This aligns with the building blocks of the health system's framework, with particular emphasis on the human resource for health (WHO, 2007) that suggests ensuring health professionals' adequate qualifications and experience. Chapter 4 reported the gap in care providers' clinical ability and lack of training as factors determining the delivery of quality EmONC services. A qualitative study from Ghana also reported severe complications due to the referring facility's clinical skill gap in recognizing the danger signs on time (Afari et al., 2014). Furthermore, the inadequacy of professional training was identified as a contributing factor to poor-quality EmONC services (Spitzer et al., 2014; Banke-Thomas et al., 2019; Chi et al., 2015; Kabo et al., 2019; Hirai et al., 2020).

Health system-related factors

In chapter 4, inefficient resource allocation related to health infrastructure, medical supplies, and transportation were identified as bottlenecks of quality service provision. Using transportation through vehicles other than ambulances was among quality-compromising conditions. This is related to the incapability to ensure adequate care during traveling (Afari et al., 2014) and its impact on delaying travel time, which increased the risk of CFR in a study from Nigeria (Kabo et al., 2019).

The increased workload exerted upon care providers due to the shortage of qualified staff ultimately led to poor-quality service provision (Afari et al., 2014; Banke-Thomas et al., 2019; Kabo et al., 2019; Hirai et al., 2020; Chi et al., 2015). Furthermore, in chapter 6, the observed quality decreased by 4% for every patient increase in the delivery room, underlining the effect of crowding on the quality of care. The chapter has also shown from the facility-based survey that a longer duration of facility stay was associated with better quality EmONC services. Outweighing the severity of complications and emphasizing severe complications that need prolonged hospital admission could ultimately lead to noncompliance with the standard clinical actions and

procedures. Evidence has also shown that early and unindicated discharge from health facilities increases the risk of death among emergency patients (Steinar B, 2020). Reduction of hospital stays positively impacted the wise utilization of limited resources through retaining healthcare costs and evacuating beds for new patients. Nevertheless, it should be underlined that ensuring access to quality EmONC services shall not be compromised during early discharge is essential. Inadequacy of supportive supervision, poor staff motivation, lack of regulation and monitoring, poor curriculum and treatment protocol, and gaps in policies and specific action plans were also explored in chapter 4 and found to affect the quality of EmONC services (Chi et al., 2015; Afari et al., 2014; Okonofua et al., 2017; Geleto et al., 2020; Hirai et al., 2020).

Maternal behavioral and health service utilization-related factors

Although the current study didn't get evidence on the association between maternal factors and quality of care, chapter four (scoping review) identified that studies from Nigeria and northern Ethiopia reported that visiting religious and traditional places resulted in an increased risk of adverse outcomes. In addition, Ignorance and the cultural preference for vaginal delivery increased the risk of adverse obstetric outcomes (Berhane et al., 2019; Okonofua et al., 2017). However, women who had ANC follow-up had higher odds of receiving quality EmONC services (Berhane et al., 2019).

8.4.3. Factors influencing the utilization of EmONC services

Chapter 4 reported that the crude coverage of EmONC services had wide variations across and within studied countries. It further suggested the need for implementing primary research to understand the context and determine the existing status quo in the local settings. Accordingly, chapter 5 determined the magnitude of EmONC services uptake using a house-to-house survey. The survey findings reported a 72.1% prevalence of EmONC services utilization. Though the WHO recommends a 100% met need for EmONC services, our survey indicated that more than a quarter of study participants didn't utilize EmONC services in Wolaita Zone, southern Ethiopia. This could have played a significant role in Ethiopia's deficiencies in achieving the Millennium development goals (reducing maternal mortality) (Tessema et al., 2017) and may continue to be a primary challenge to the progress of achieving SDG goals. Despite the country's noticeable efforts in health infrastructure (FMOH Ethiopia, 2021), the unmet need for EmONC services remained high. This evidence led the researcher to study the factors contributing to the unmet need for

EmONC services. Therefore, chapter 7 emphasized exploring the barriers and enablers to EmONC services utilization. Accordingly, the chapter analyzed the qualitative study findings in five themes discussed below.

Perceptions and experiences of women

Lack of awareness about the availability and importance of visiting EmONC facilities led women to refrain from using the services. Many women visited traditional places and went to health facilities after the complications had worsened. Women's negative perception of EmONC services quality also triggered the self-denial of service uptake. This perception mainly followed their past experience in health facilities with various obstetric complications. It was identified that women's perception of the EmONC services quality triggered them to abstain from visiting the facilities for treatment/management of obstetric emergencies they faced. It was also reported that the reputation of health facilities concerning compassionate and respectful care was an important factor influencing women's intention to use EmONC services. The immoral act of care providers, such as slapping, shouting, and ignoring patients, strongly influenced patients' preference for home deliveries and visiting traditional birth attendants. The severity of disrespect and abuse varied with the care providers' sex, being more severe among female care providers.

As stated in the social learning theory, by learning from the environment and interpersonal relationships, individuals develop and imitate similar practices from what they observe and hear (Bandura, 1985). Chapter 7 underlined that women's abstinence from visiting EmONC facilities resulted from poor knowledge, lack of awareness, and unfavorable attitude toward quality services, which they learned from their past experiences. Furthermore, the findings of chapters 5-7 implicated that quality improvement directly impacts service uptake, suggesting a comprehensive approach to overcome the situation.

Community-related factors

The norm of the community and traditional practice also affected women's utilization of EmONC services. The impact of traditional practices was revealed in chapter 7 by exploring the traditional birth attendants' role in managing obstetric emergencies. TBAs are not exclusively detrimental because they also play a role in referring patients to health facilities (enabling factor for EmONC utilization). However, the late referral (where recovery is less likely) and application of medically mistrusted procedures worsened the complications and resulted in adverse outcomes. Tanzanian

women also faced similar challenges in which TBAs didn't know the complications' signs and symptoms (Vyagusa et al., 2013). The influence of family, neighbors, and elderlies also impacted EmONC services utilization (chapter 7), ultimately exposing women and newborns to worsening complications and deaths. Indeed, women's decision-making power has highly influenced their health-seeking behavior (Shah et al., 2020; Illias et al., 2019). The report also recommends creating community awareness and applying new innovations to improve service uptake and enhance maternal and newborn health.

Health service delivery-related challenges

In some cases, women with good knowledge and positive attitude toward EmONC services were not lucky to use the services mainly due to accessibility-related challenges. Distance, topography, and availability of public transport were the main factors that affected service delivery. This implied that the health services expansion alone couldn't produce service uptake. For instance, the availability of facilities in the locality doesn't guarantee utilization since the availability of public transport and safety and security of transportation in the midnights obstructed many women from visiting EmONC facilities. The extra economic burden related to out-of-pocket payment, unnecessary referrals, and the high cost of medical procedures discouraged women from the low socio-economic class. Hence, scaling up health insurance and service charge exemptions and implementing policies into practice could motivate and enable such minorities to utilize the services.

Health professional training, shorter waiting time, and good leadership contributed to the facility's readiness, which further played a vital role in attracting women to use EmONC services. This implied that strategies should be directed at resolving the bottlenecks, such as need-based and sustainable training programs and improving obstetric triage to reduce the waiting time, which could enhance women's satisfaction and increase service uptake (Goodman et al., 2018). Furthermore, leadership and governance, the health system's building blocks (WHO, 2007), were crucial in enabling the health facility to pull women with obstetric emergencies to receive EmONC services.

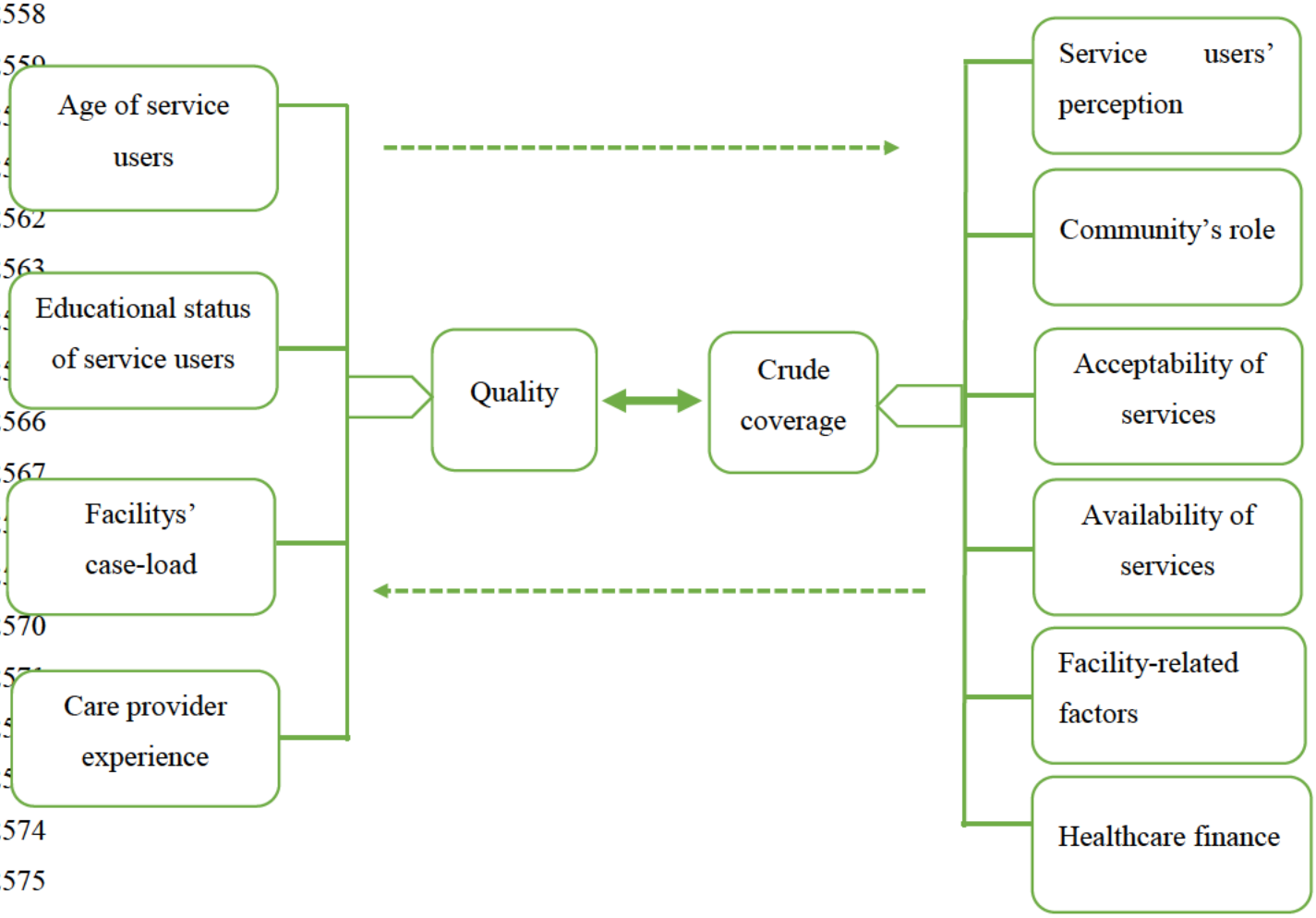

Figure 8- 4: Factors affecting effective coverage of EmONC services

8.5. Effective Coverage of EmONC services (EC-EmONC) model

8.5.1. Introduction to the model

Initially, the researcher reviewed the literature, discussed theoretical ground and conceptual framework, and mapped evidence on EC of EmONC services (chapters 2 and 4). Furthermore, in chapters 5-7, the researcher investigated and explored the existing context of the phenomenon in the study area using primary studies. These steps assisted in understanding the context in which various aspects of EmONC service delivery are operating. As a result, it was essential to revisit the conceptual framework (which was developed earlier in chapter 2) and visualize the different factors interacting at multiple levels, ultimately impacting the EC of EmONC services.

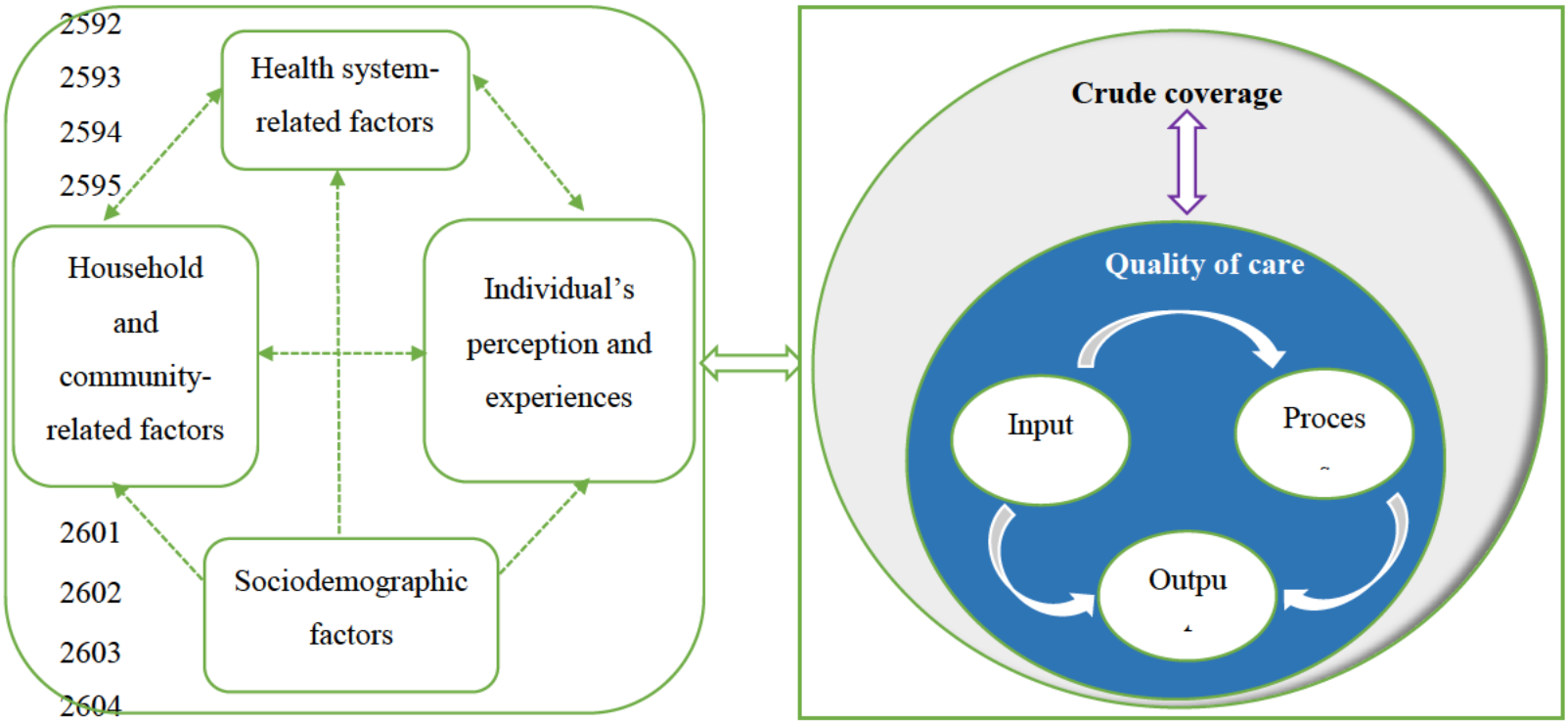

Figure 8- 5: Effective coverage of EmONC services model

8.5.2. The context of the model

This study combined the methodological, philosophical, and empirical facts behind EmONC services delivery into a model to visualize the EC of EmONC services and the inherent contextual relationships. The model combines concepts from the existing evidence (scoping review) with an empirical premise based on primary research. The evidence was obtained from several sources, including observational and interview data and diverse perspectives (experiences, beliefs, and preferences of patients, healthcare providers, community leaders, and others).

The study identified that evidence of EC of EmONC services is lacking in Africa. Besides, the incongruent methodological and analytic approaches resulted in difficulty in obtaining comprehensive evidence across the EC components. In a community with more than 2.6 million people (Wolaita Zone), a 50% loss in the potential health gain in providing EmONC services was

identified in the study. Every three in five women received poor quality service from EmONC facilities. Though maternal and child health services are given free of charge in the country, every one-in-four women (or newborns) with obstetric complications did not seek care from health facilities, sharply contrasting with the WHO's recommendation of 100% coverage (WHO et al., 2009).

8.5.3. Rational and purpose of the model

Evidence on EC of EmONC services is lacking, despite the health system's emphasis on improving maternal and newborn health. Besides, the fundamental bottlenecks for the quality and uptake of EmONC services were not well studied. Providing a clear depiction of the interactions of factors would be a vital input to the policy framework, evidence-based intervention, and further research. This model is, therefore, believed to fill the research gap in the EC of EmONC services and depict the interaction of factors.

8.5.4. Propositions

The model has the below-stated propositions and relational statements that were derived from the discussion arising from the study's main findings, literature, and scoping reviews.

- The relationship between crude coverage and quality of care is bidirectional, in which the performance of one affects the other and vice versa.
- Access and availability of services, healthcare financing (drugs and supplies, out-of-pocket expenses, and service fee exemption), and health facility-related factors influence the EC of EmONC services.
- Household and community-related factors impacted the service uptake, including the community's traditional practices, myths and misconceptions, and peer and family interactions.
- Providing quality EmONC services depends on the women's sociodemographic characteristics, such as age, education, and economy.
- Individual's perception and experiences determine their expectations and influence the perceived quality of care. This either encourages or discourages women concerning service utilization.

- Structural quality, such as the availability of essential drugs, medical equipment, and human resources, influences the process (observed) and output (satisfaction) qualities.
- The observed quality (adherence to the standard clinical actions) impacts women's satisfaction with the EmONC services.

8.5.5. Strengths and limitations of the model

The model was developed from different pathways and actions by reviewing related theories and models and conducting primary studies (quantitative and qualitative). It outlines the context from a more or less well-defined scope within health that can assist the health system in taking actions to result in improved maternal and newborn health. A range of attributes was congregated from various aspects and incorporated into the model. Though relevant steps were undertaken to widen the model's scope (including scoping and literature reviews), the model's context mainly emphasized a specific community (Wolaita Zone) in Ethiopia.

8.6. New knowledge

We obtained new evidence on the EC of EmONC services and factors influencing the provision of the services in Wolaita Zone, southern Ethiopia. Accordingly, the study confirmed that the service wasn't provided to the expected level in the studied community. Evidence regarding factors that affect the quality of care was obtained from the study in chapters 4 and 6. Chapter 6 mainly emphasized the process component (observed quality) of the quality of EmONC services, which has been overlooked in several studies. Hence, the content of EmONC services, particularly adherence to the standard clinical actions, was exhaustively investigated, and the potential bottlenecks were revealed.

Though the relevance of evidence for improving maternal and newborn health is undisputable, the researcher identified in chapter 4 that no published study existed regarding the EC of EmONC services in the country and the continent. Though the scoping review identified that numerous studies have attempted to investigate the quality of EmONC services, it underlined the incongruity of assessment methods that made the comparison handicapped.

It was highlighted in chapter 5 that the EmONC services uptake was low, which is affected by several factors that are explored in chapter 7 that interact at individual, community, and health system levels. It was also identified that the quality of care and crude coverages affect each other,

indicating the need for a comprehensive approach to tackle the bottlenecks. Though EmONC facilities are expected to provide life-saving interventions, some facilities were characterized by poor performance or non-performance of the signal function tests. The study underlined that the quality of EmONC services was tremendously affected by factors such as the age and education of patients, length of stay, crowding of the delivery room, and health professionals' experience.

The study also highlighted the urgency of providing standard care to every woman and newborn regardless of their characteristics and medical emergencies. It also underlined that the CBHI and MCH service fee exemption alone didn't fully enable poor women to uptake the services. Therefore, the constraints of marginalized women, particularly their out-of-pocket expenses, that need due attention were explored in chapter 7. Furthermore, the keys to resolving bottlenecks were also recommended, including intersectoral collaborations between legal frameworks, enhancing training and accessibility of essential drugs, and empowering women.

8.7. Contributions to the existing knowledge on effective coverage of EmONC services

8.7.1. Effective coverage of EmONC services

The EC of EmONC services was poor (50%) in the study area, in which the gap between crude and EC was highlighted in chapter 5. Similar findings were reported from Kenya (51.3%) (Nguhiu et al., 2017) and Burkina Faso (44.6%) (Marsh et al., 2020). However, the studies' scopes were inconsistent with our current study as their focus was broad and aimed to assess the maternal, child, adolescent, and nutritional coverage, so emphasis on the EmONC component was lacking.

In chapter 5, the average values of all the indices (utilization, quality of care, and EC) were higher in urban areas, indicating the inequitable distribution of health interventions in the study area. This is highlighted in chapter 7 that the health system shall focus on the equitable distribution of services and narrowing the gap in providing quality service. Existing evidence (though it varied with the scope of health intervention) has also emphasized the continuing challenge of equitable health service provision to marginalized people, including young women and women from rural and low socio-economic status (Gebre et al., 2018; Wilunda et al., 2015; Nguhiu et al., 2017).

8.7.2. Quality of EmONC services

A considerable amount of literature has been published on the quality of EmONC services. However, the approaches of data collection, indicators used, analysis techniques, and interpretations of findings grossly varied across studies. In the scoping review (chapter 4), a scarcity of evidence on the overall quality of EmONC services was reported. Therefore, this study followed Donabedian's quality of care assessment framework, which addressed all three indices (input/structure, process/observed quality, and output) of EmONC services.

In chapter 6, the mean structural quality of EmONC services was estimated to be 74.2% (95% C.I: 71.1, 77.1%, SD=5.9%) in Wolaita Zone. Chapter 4 reported that the met need for EmONC services ranged from 3% in 2011 in Ethiopia (Admasu et al., 2011b) to 73% in 2016 in Togo (Ouedraogo et al., 2016). The approaches to measuring crude coverage were similar across studies. However, the results have shown a varying extent of met needs. The discrepancies relied on the respective locality's socio-economic status, culture, operating health system, and other locally varying contexts.

As reported in chapter 5, the observed quality of EmONC services was the lowest (among the triads) quality of care index in the Wolaita Zone with a 69.4% (95% C.I: 67.9, 70.8%) mean score. Other studies also reported similar findings (Fisseha et al., 2019; Leslie et al., 2017). The mean output quality of EmONC services was 79.6% (95% C.I: 78.5, 80.7%) in the current study, indicating the extent of dissatisfaction with the services women received. Other studies also assessed the perceived quality of EmONC services (Berhane et al., 2019; Banke-Thomas et al., 2019; Okonofua et al., 2017; Kumsa et al., 2016; Stal et al., 2015) qualitatively and quantitatively despite variable interpretations. However, similar findings were reported from Northern (66.7%) and Western Ethiopia (Berhane et al., 2019; Kumsa et al., 2016).

Previous studies have reported varying levels of overall EmONC service quality that were measured through distinct approaches. For instance, a study from DRC reported the absence of high-quality EmOC services in the study area (Mpunga Mukendi et al., 2019) by emphasizing the input quality, while others reported a worsening trend (Kabo et al., 2019) and improvement (Augusto et al., 2018) based on case fatality rate. Our study, however, covered all the triads of quality of care assessment to understand the overall status of EmONC services. The researcher didn't use case fatality rates as a means of evaluating the quality of care since the absence of maternal death

is not suggestive of good quality (because severe and life-threatening cases are referred to tertiary facilities), so it is rarely used in LMICs (Kruk et al., 2016).

Chapter 6 reported that most women in Wolaita Zone received poor quality (<75% in the observed quality of adherence to standard clinical actions) of EmONC services. Comparable findings were reported from Ethiopia (Fisseha et al., 2017; Yakob et al., 2019) and five African countries (Kruk et al., 2016). Though the findings were reported from studies with varying scopes and methodologies, the broader perspective could imply the provision of poor-quality service across the maternal and child health dimension.

8.7.3. Factors linked with the utilization of EmONC services

Despite the WHO's recommendation of a 100% EmONC services utilization (WHO et al., 2009), it was noted in chapter 5 that only 72.1% (95% C.I: 67.7%, 76.4%) of women and newborns with obstetric complications utilized the EmONC services with a wide urban-rural discrepancy. This implies that the country's health system has to take serious action, as women and newborns were left untreated despite the complications' life-threatening cruelty. A body of literature assessed the utilization of EmONC services. As reported in chapter 4, the reports of studies in Africa indicated variability of the coverage level across studies and regions/states of the countries (EPHI, 2016, Malawi Health Ministry, 2015). Some reported an extremely low level (far below our finding) of EmONC service utilization. For instance, studies from Ethiopia (Admasu et al., 2011) and Nigeria (Abegunde et al., 2015) reported extremely low levels of EmONC services uptake, accounting for 3% and 3.9%, respectively.

Planning to address the universal coverage of primary health care is inconceivable without tackling the bottlenecks that hold back progress. Since the challenges behind utilizing EmONC services are multidimensional and vary with the population's local contexts, chapter 7 helped the researcher understand the context in Southern Ethiopia. It also explored the barriers and enablers of service utilization. Accordingly, the identified five themes exhaustively addressed the situation, revealed the associated factors and helped in suggesting implications.

8.8. Contribution to the enhancement of maternal and newborn health

Ethiopia's women and newborns are facing a considerable morbidity and mortality burden. The most recent WHO report has shown nearly two-fold maternal mortality (401 deaths/100,000 live

births) in Ethiopia compared to the global average (211 deaths/100,000 live births) (WHO, 2019). However, most deaths and associated complications could have been averted with the effective provision of EmONC services (Mgawadere et al., 2017). To respond to these problems, our study aimed at understanding the context of the problem and revealing the bottlenecks at individual, community, and health system levels. Our study highlighted that the low EC of EmONC services is among the major challenges behind achieving SDG goal 3. Accordingly, this study empowered the researcher to understand the context and forward recommendations for resolving the potential challenges. The developed model and suggested recommendations will complement the gap in the existing evidence and contribute to the realization of maternal and newborn health and well-being.

8.9. Strengths and limitations of the study

8.9.1. Strengths of the study

The study focused on an under-researched context in which no published research existed on the EC of EmONC services in Ethiopia. Hence, the current study filled the existing evidence gap to enhance maternal and newborn health and well-being. It is the first study that examined EmONC services quality across the triads of Donabedian's quality of care framework in Ethiopia. The direct observation of the content of care revealed the extent of standard care provided to the patients and assisted in reporting the level of adherence to the standard clinical action of EmONC services. The researcher triangulated the community and facility data to estimate the EC of EmONC services. Furthermore, the developed model can be utilized to improve the EC of EmONC services in the country and other similar settings.

This study applied philosophical (pragmatism) and theoretical (multiple theories) triangulations to understand the context. The methodological triangulation of applying a mixed methods approach strengthened the research by complementing the findings and limiting the drawbacks of each method. Furthermore, data collection triangulation through implementing various data collection methods (facility audit, direct observation, exit interviews, IDIs, and KIIs) and maximum variation sampling (women with different complications and experiences, service providers, facility heads, community leaders, and traditional birth attendants) enriched the study to produce thick description to strengthen the trustworthiness.

To obtain adequate data, we used standard sample sizes for two surveys (facility-based and community-based surveys). Besides, post-estimation diagnostics for multiple linear regression, such as homogeneity of variance, normality test, multicollinearity test, and adjusted R^2 value, were checked to rule out variables' interaction and confirm the model's fitness. Furthermore, the study ensured validity, reliability, and trustworthiness, which increased the generalizability of the study.

8.9.2. Limitations of the study

Since the quantitative study implemented a cross-sectional design, establishing a temporal relationship cannot be achieved. Recall and social desirability biases can be suspected in the study, though efforts were made to limit the effect. It is also impossible to rule out the Hawthorne effect, though the study rejected the first five observations to minimize its effect. Besides, some women in the community survey (who didn't visit EmONC facilities) might have difficulty expressing the obstetric complications since some complications need physical examinations and rigorous diagnosis. Furthermore, women who underwent cesarean section and other related surgical procedures were excluded from the quantitative study since they needed prolonged hospital stays and senior (specialist) doctor data collectors/observers. Since direct observation of the content of care for such patients is not practical, such patients were excluded from the study, so generalization of the findings should be made with caution.

8.10. Implications and recommendations of the study

Based on the evidence generated from the study and understanding of the existing context, our study developed a model (figure 8-5) that depicted the interactions between various factors and the EC of EmONC services. Hence, taking appropriate action on the factors influencing the quality of care and utilization can enormously enhance maternal and newborn health. The following recommendations are, therefore, suggested from the study.

Implication for policy

- The rural women and their newborns were disproportionately obtaining poor quality EmONC services, recommending that the health system ensure equitable resource allocation and maintain the quality of care. Furthermore, the variation of service utilization across geographical locations, socio-economic status, age, and specific health service types implies the necessity of context-specific service delivery.

- Enhancing women's awareness and autonomy, along with eliminating misconceptions and harmful traditional practices (that are related to maternity care), should be emphasized.
- The double burden of poor quality and low crude coverage highlighted that actions for improving EC must be addressed holistically since both the quality of care and crude coverage affect each other's performances and outcomes.
- Ensuring policy implementation into practice is required for care providers' adherence to EmONC services guidelines and management protocols. This can be enabled through adequate monitoring and motivating frontline health workers based on their performance and the compassionate care they provide.
- Poor resource management, inadequate supportive supervision, and insufficient human resource could be managed through good leadership and governance, which leads to improved quality and utilization of EmONC services. Furthermore, policy frameworks that ensure effective and efficient resource distribution, regulation, and accountability must be implemented.
- Strengthening the CBHI and service fee exemption for MCH services could further improve the uptake and quality of EmONC services.
- Intersectoral collaborations beyond the health system are needed to strengthen and maintain legal frameworks to prohibit home deliveries, increase access to essential drugs, and empower women.

Service delivery

- In-service and pre-service training can improve the care providers' competency, reduce unnecessary referrals, influence the attitude of care providers, and enhance the provision of compassionate care to women and newborns.
- Improving the availability of medical equipment and essential drugs is crucial in providing quality EmONC services.
- Care providers, district and zonal health office managers, and other stakeholders can reduce the gap in EC across districts and facilities by enhancing the service uptake.
- Reducing out-of-pocket expenditure with interventions such as '*maternity waiting home'* programs could enable marginalized groups to utilize EmONC services.

- Awareness creation and behavior change interventions could substantially impact the health-seeking behavior of marginalized women (uneducated and poor women) and ultimately increase the EmONC service coverage.
- The quality of care could be better improved by adhering to standard clinical actions of EmONC service provision, so care providers' commitment can tremendously improve the service quality.

Future research

- We recommend using harmonized indicators and data collection techniques to assist the comparison and monitor the progress of quality improvement interventions of EmONC services, particularly content of care components.
- We recommend further investigation to understand care providers' skills gap, predictors of women's dissatisfaction, and the extent of community awareness on reducing maternal and newborn morbidities and mortalities.
- We also recommend the implementation of interventions with structured progress management.

8.11. Conclusion

The researcher described the EC of EmONC services in this study and the context, correlates, and implications. The study has shown that the EC of EmONC services in the Wolaita Zone (Southern Ethiopia) is low, where half of the potential health gain was lost concerning EmONC services provision. The quality of care was sub-optimal in that most women received inadequate services. Despite the relevance of EmONC facilities' signal function tests in managing severe and life-threatening complications, most facilities were performing poorly or not providing the signal function tests in Wolaita Zone. The study also underlined that the care providers' adherence to the standard clinical actions was poor and is significantly associated with the age and education of women, length of stay, crowding of the delivery room, and health professionals' experience.

The inequitable EC of EmONC services across geographical and administrative structures (district, residence, and facility type) implied loose emphasis and suggested an urgent need for the health system's intervention to reduce the morbidity and mortality of women and newborns. Many women and their newborns suffer from life-threatening obstetric complications but are not utilizing

the services or utilizing the services lately on the verge of death and disability. The service uptake is far below the WHO recommendation. The perception of women, the community's influence, accessibility and availability of services, healthcare finance, and facility-related factors influenced service utilization. Therefore, interventions directed at the identified bottlenecks can improve the utilization and quality of care, ultimately enhancing the health and well-being of women and newborns. This could require intersectoral collaborations between the health system and other relevant stakeholders, including education, legal, finance, and international organizations.

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APPENDIX 1: Ethical clearance (UKZN)

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

01 September 2020

Mr Mihiretu Alemayehu Arba (219096244)
School of Nurs & Public Health
Howard College

Dear Mr Arba,

Protocol reference number: BREC/00001744/2020
Project title: Effective Coverage of Emergency Obstetric and Neonatal Care Service in Wolaita Zone, Southern Ethiopia
Degree Purposes: PhD

EXPEDITED APPLICATION: APPROVAL LETTER

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application.

The conditions have been met and the study is given full ethics approval and may begin as from 01 September 2020. Please ensure that outstanding site permissions are obtained and forwarded to BREC for approval before commencing research at a site.

This approval is subject to national and UKZN lockdown regulations dated 26th August 2020, see (http://research.ukzn.ac.za/Libraries/BREC/BREC_Lockdown_Level_2_Guidelines.sflb.ashx). Based on feedback from some sites, we urge PIs to show sensitivity and exercise appropriate consideration at sites where personnel and service users appear stressed or overloaded.

This approval is valid for one year from 01 September 2020. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be noted by a full Committee at its next meeting taking place on 13 October 2020.

Yours sincerely,

Prof D Wassenaar
Chair: Biomedical Research Ethics Committee

Biomedical Research Ethics Committee
Chair: Professor D R Wassenaar
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Email: BREC@ukzn.ac.za
Website: http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx

APPENDIX 2: Ethical clearance (Ethiopia)

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Wolaita Sodo University

College of Health Sciences & Medicine
Chief Academic & Research Director

Wolaita Sodo

ቁጥር/Ref.No CARD 41979/20 1.

ቀን/Date 14/12/12

TO WHOM IT MAY CONCERN

Name of principal investigator: Mihiretu Alemayehu Arba

Title of project: Effective coverage of emergency obstetric and neonatal care service in Wolaita zone, southern Ethiopia

This is to certify that the above research project is ethically cleared (approved) with recommendation by the Institutional Ethics Review Committee of College of Health Sciences and Medicine, Wolaita Sodo University, Ethiopia. The approval is valid with the period of September, 2020 to August, 2021.

With regards!

Zewde Zema Kanche

አከዳሚክና ምርምር ዳይሬክተር
Chief Academic and Research Director

The Federal Democratic Republic of Ethiopia Wolaita Sodo University College of Health Sciences and Medicine

Box.138 ☎Tel. 251-46-5511370መልሱንሲጽፉልንየእኛንቁጥርይጥቀሱ
E-maill:Wsuniv@ethionet.et Fax 251-46-5515113 In replying.Please quote our ref.number

APPENDIX 3: Permission letter (Wolaita Zone Health Department)

S/N/N/P/R/State Wolaita Zone Health Department
በደ/ብ/ብ/ሕ/ክ/መ የወላይታ ዞን ጤና መምሪያ

ቁጥር [illegible]/5485/224
ቀን 29/08/2012

To Whom It May Concern

Subject: **Provision of permission to conduct Research in Wolaita Zone**

Mr Mihiretu Alemayehu Arba has requested our zonal health department to provide permission to conduct a research on '*Effective coverage of Emergency Obstetric and Neonatal Care Service in Wolaita Zone, Southern Ethiopia: context, correlates, and implications*'.

Hoping that the research will add new knowledge for the health system, we will permit him to conduct the study mentioned above whenever he obtainsthe necessary ethical clearances and submit to our department.

Regards!

CC

- Wolaita zone health department
- Mr. Mihiretu Alemayehu Arba

[illegible]
Alemu G[illegible] G[illegible]
የጤና መምሪያ ኃላፊ
Health Department Head

✉ 36 ወላይታ ☎ 046-551-21-58
046-551-21-59
046-551-04-90
046-551-41-22
Fax0465511405
046-551-44-56

APPENDIX 4: Project approval from the school of nursing and public health

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Student Number: 219096244

14 March 2019

Mr MA Arba
Wolaita Soda University
Sodo
Ethiopia
138

Dear Mr Arba

ACCEPTANCE TO POST GRADUATE STUDIES IN 2019
Qualification: Doctor of Philosophy - PHD

Congratulations, I am pleased to inform that you have been accepted to study towards a **Doctor of Philosophy (PhD)** at the School of Nursing & Public Health, College of Health Sciences, University of KwaZulu-Natal (UKZN) commencing **01 January 2019 until 31 December 2022.**

Listed below are the 2018 Orientation and Registration details:

Date(s) of Registration: The on-line registration will be available from 9 January 2019 to 28 February 2019 and you may register from anywhere, either on or off campus. (Due to on-line registration, there will no longer be a "main" registration week)

Orientation: Please contact your Postgraduate Officers, on 031 2601641 and International Students Office (**ISO details below**) about their Orientation programme in January 2018.

N.B. Please check the **Pre-arrival dossier** attached for ISO orientation dates.

International Students Office (ISO) Details		
Howard College Daniel Y Kubelwa	**Pietermaritzburg Campus** Ms Nombuso Mtshali	**Westville/Edgewood** Ms Reshina Umra
Student Union Building 4th floor, Room 412, Howard College	International Student Office, Office F10 House Number 4, Milner Road, PMB Campus	Asoka Theatre, K block, Rm K101/102, Westville Campus
Tel: +27 (0) 31 260 2819 Fax: +27 (0) 31 260 2967	Tel: +27 33 260 5194/5313 Fax: +27 33 260 6024	Tel: +27 (0) 31 260 7253 Fax: +27 (0) 31 260 7638
Email address: kubelway@ukzn.ac.za	Email address: mtshalin@ukzn.ac.za	Email address: krishnav@ukzn.ac.za

Please confirm the applicable fees with the Student Fees Department (***Please refer to your attached Pre-Arrival Dossier for details).***

Please ensure that you have Financial Clearance before registration.

** **N.B.** **The duration of the course is three (3) academic years. The College of Health Sciences will only pay for tuition for 3 academic years. You will be exclusively responsible for the payment of tuition for the 4th academic year and beyond.**

School of Nursing and Public Health
Postal Address: Private Bag X54001, Durban 4000, South Africa
Telephone: +27 (0) 31 260 2499 **Facsimile:** +27 (0) 31 260 1543 **Website:** www.ukzn.ac.za

It is confirmed that you;

- comply with the University's language requirements,
- will be making satisfactory arrangements to pay for all your University fees (i.e. tuition fees, accommodation fees, student, levy and medical aid upfront),
- have made suitable accommodation arrangements,
- have been advised to apply for medical insurance while living in South Africa (i.e. Momentum or CompCare Medical insurance),
- Have been advised to return to your resident country once your studies have been completed.

Further, the University undertakes to notify the Department of Home Affairs should a student fail to meet admission requirements and/or de-register from the courses as covered by his/her study permit.

Please note:

- *The ISO can arrange transport from the airport to your place of residence if notified two weeks in advance and at your own cost (for more information contact the ISO on the numbers provided above).*
- That you are responsible for your own accommodation. You may contact:

Department of Student Residence Affairs			
Edgewood Campus	**Howard College**	**Westville Campus**	**Pietermaritzburg Campus**
Mr Julian King	Mr Bhekizizwe Nkosi	Mr Ezrom Lebodie	Ms Venilla Frank
+27 (0) 31 260 2118	+27 (0) 31 260 2183	+27 (0) 31 260 7875	+27 (0) 33 260 6226
kingj@ukzn.ac.za	nkosib@ukzn.ac.za	lebodie@ukzn.ac.za	franky@ukzn.ac.za

- If you are a student from outside of South Africa, please note that it is **YOUR** responsibility to apply for a Study Visa and passport. You may not register without this necessary document. For all further enquiries relating to your arrival at the University of KwaZulu-Natal please contact our International Student Support Officer (**ISO details above**). On your arrival, after you have settled in your residence and before you register; please take your study permit and confirmation of your medical aid cover, to the relevant International Student Support Officer on your campus, for clearance to register (**refer to ISO details for address**).

If you are a student from outside of South Africa, please note that you MUST have a Medical Insurance before you are allowed to register and when applying for a study permit. Only two South African Medical Insurance covers are accepted (as recommended by ABSA): CompCare Wellness and Momentum **(Please refer to your attached Pre-Arrival Dossier for details)**

- As noted above: Please ensure that your accommodation, study permit, medical aid and academic fees have been paid in full before registration for the current academic year.

I trust that your studies here will be both enjoyable and rewarding.

Please indicate your acceptance of this offer by returning the enclosed:

- Confirmation of Acceptance of Offer form together with the Consent and Indemnity forms, as soon as possible.

PLEASE ENSURE THAT when applying for a study permit at the office of the South African High Commission in your country, you have in your possession the following documents:

- Letter of acceptance to study and a letter in support of study visa application.
- Proof of Residence
- Proof of adequate financial means
- Proof of a South African Registered Medical Health Cover, either CompCare Wellness or Momentum Health as required by the University of KwaZulu-Natal.
- Provide valid medical and radiological reports (less than 6 months old)
- Provide the Yellow Fever Vaccination Certificate if relevant.
- Provide a valid Police Clearance Certificate (less than 12 months old). Ensure that you obtain your Certificate prior to submitting the application.
- Proof of a valid return air flight ticket or a Repatriation Guarantee Receipt.

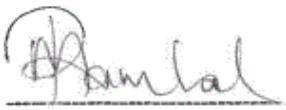
Should you have any queries with regard to any of the item/s indicated above, please contact: Your campus ISO (**ISO details above**)

ALSO NOTE: It is your responsibility to ensure that an ORIGINAL academic record is sent directly to the ISO from your previous Institution where your degree/s had awarded.

We wish you success in your studies.

Yours sincerely

Postgraduate Administration
School of Nursing & Public Health
UNIVERSITY OF KWAZULU-NATAL
DURBAN SOUTH AFRICA, 4041
KWAZULU-NATAL
TAX: 031 260 1543 TEL: 031 260 2499



Kind Regards
Michelle Ramlal
Administrative Officer | School of Nursing & Public Health
Postgraduate, Higher Degrees and Research
1st Floor, George Campbell Building, King George V Avenue, Durban.
Tel : 031 – 2601075 Fax: 031 – 2601543
Email : **ramlalm@ukzn.ac.za**

APPENDIX 5: Information sheet and consent form for facility survey/audit - Managers (English)

Information sheet

Date: _____

Greetings, my name is _____. I provide the information about the researcher Mr. Mihiretu Alemayehu Arba, a Ph.D. student at the University of KwaZulu-Natal and former staff of Wolaita Sodo University. His contact address is (+251913213443 or E-mail address: mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 14 health facilities in the Wolaita zone and 423 mothers who receive service for their pregnancy and childbirth-related complications. It will involve the following procedures. We are going to interview you. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 25 minutes. The University of KwaZulu-Natal funds this study.

The study has no risk or discomfort. By participating in this research project, you will provide information concerning this health facility's structure/input used for Emergency Obstetric and Neonatal Care services. Many care providers find it helpful to have the opportunity to talk. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study.

I kindly inform you that all the information you will give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me will be stored securely and kept confidential. The data will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care to that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 6: Information sheet and consent form for facility survey/audit - Managers (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ---------- ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠና ለሚገኘዉ ለአቶ ምህረቱ አለማየሁ አርባ መረጃ እየሰበሰብኩ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 14 የጤና ተቋማትና በነዚህ ተቋማት አገልግሎት የሚያገኙ 423 እናቶች ይተፋሉ፡፡ ይህ ጥናት እስዎን ቃለመጠይቅ በመጠየቅ ይፈጸማል፡፡ ጥናቱ ቢበዛ ከ25 ደቂቃ ሊወስድ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍዎ ምንም አይነት ጉዳት አይኖርም፡፡ እሰዎ በዚህ ጥናት ላይ በመሳተፈዎ ለኛ ስለዚህ ጤና ተቋም አገልግሎት አሰጣጥ በተመለከተ እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለመስጠት የሚያገለግሉ ግብዓቶችን ይነግሩናል፡፡ በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 ነዉ፡፡)

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢ.ምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ።። ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል።። አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ።። ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል።። በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም።። ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ።። በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ።።

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ።። በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም።። ጉዳትም አያደርስም።። የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም።። መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል።። ከዛም በኋላ በአግባቡ ይወገዳል።። ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ።። ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል።። ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም።።

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 7: Information sheet and consent form for facility survey/observation – service providers (English)

Information sheet

Date: _____

Greetings, my name is ----------. I provide the information about the researcher Mr. Mihiretu Alemayehu Arba, a Ph.D. student at the University of KwaZulu-Natal and former staff of Wolaita Sodo University. His contact address is (+251913213443 or E-mail address: mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** This research aims to learn how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 14 health facilities in the Wolaita zone and 423 mothers who receive service for their pregnancy and childbirth-related complications. It will involve the following procedures. We are going to observe the service you provide to women who have an obstetric emergency. The duration of observation, if you choose to enroll and remain in the study, depends on the obstetric complication of the woman and the service you will provide. This study is funded by the University of KwaZulu-Natal.

As the study is an observation of care provision, it may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort to be observed while giving service to obstetric patients who might have painful experiences with pregnancy and childbirth-related complications. Many care providers, however, may find it to be helpful to have the opportunity to be observed. We will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me will be stored securely and kept confidential. The data will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 8: Information sheet and consent form for facility survey/observation – service providers (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ---------- ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠና ለሚገኘዉ ለአቶ ምህረቱ አለማየሁ አርባ መረጃ እየሰበሰብኩ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 14 የጤና ተቋማትና በነዚህ ተቋማት አገልግሎት የሚያገኙ 423 እናቶች ይተፋሉ፡፡ ይህ ጥናት የሚከናወነዉ እርስዎ ለታካሚዋ የሚሰጡትን አገልግሎት በመመልከት ስለሚከናወን የሚፈጀዉ ጊዜ በሚሰጠዉ አገልግሎትና በበሽታዉ አይነት ይወሰናል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ ለታካሚዋ የሚሰጡትን አገልግሎት ስለምንመለከት በወቅቱ ታካሚዋ ከእርግዝናና ወሊድ ጋር በተገናኘ የሚያጋጥማት ህመም ለእርስዎ ጥሩ ስሜት ላይፈጥር ይችላል፡፡ በመሆኑም ይህ ስሜት እየተሰማዎት በመረጃ እያለ መረጃ ስንሰበስብ የአለመመቻቸት ስሜት ሊሰማዎት ይችላል፡፡ ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች

ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 ነው፡፡)

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 ወይም በኢምይል አድሻ mihiretua@gmail.com ሊያገኙ ይችላሉ፡፡ ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል፡፡ አድራሻዉ

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ፡፡ ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል፡፡ በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም፡፡ ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ፡፡ በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ፡፡

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ፡፡ በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም፡፡ ጉዳትም አያደርስም፡፡ የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም፡፡ መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል፡፡ ከዛም በኋላ በአግባቡ ይወገዳል፡፡ ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ፡፡ ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል፡፡ ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም፡፡

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል

በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 9: Information sheet and consent form for facility survey/observation – service users (English)

Information sheet

Date: _____

Greetings, my name is ----------. I provide the information about the researcher Mr. Mihiretu Alemayehu Arba, a Ph.D. student at the University of KwaZulu-Natal and former staff of Wolaita Sodo University. His contact address is (+251913213443, E-mail: mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia"**. The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 423 mothers who receive service for their pregnancy and childbirth-related complications in the randomly selected 14 health facilities of the Wolaita zone. It will involve the following procedures. We are going to observe the care provision you will receive and interview you at your exit. The duration of observation, if you choose to enroll and remain in the study, depends on the pregnancy-related complication you are facing and the service you receive. The exit interview is expected to be 25 minutes. This study is funded by the University of KwaZulu-Natal.

Since this study involves observation of the care you receive, it may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort to be observed while receiving the service for the health problem you are facing. We will provide counseling at the end of the interview if you feel discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation. However, we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If you would prefer to refuse the observation at any point, please feel free to tell me. We will stop the observation and terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me will be stored securely and kept confidential. The data will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

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KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 10: Information sheet and consent form for facility survey/observation – service users (Wolaita Dona)

Qonccissuwaa woraqataa

Gallasaa: _____

Saro Aqadi/Saro pe′adi. Ta sunttay_____. Taani pilggettaa projekttiyaa marajaa shiishshays. Ha pilgettaa oottiyagee ooso bolli peeshshiyagee Mantta Arbba Alamayo Mihireta, ikka dokteretettaa Asaa payyatettaa bolli KwaZuluNaataale Yuuniversitiyan Nersetettaanne Asaa payyatettaa, Derbbaane, Tohossa Afirkkan xanna′iyaagaa gididi kase wode Wolaita sodo Unburshiyan oottiidde takkiis. A Silkkiya paydoy +251 913213443 gidiyode emaile mihiretua@gmail.com geetettees. Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan oosettiya pilgettaa xeelliyagan kuushettanaadan nena shoobbaas. Ha pilggettaassi sintta qofaynne koshshay abbe ixetaaranne yeluwaara gaytidagan dinggate gakkiya metota woykko harggeta xeelliyaagan aayetussi immetiya haggaazaanne aara gayttida gaasota eranaassa. Ha xinaatiyan gelanaadan naagettiyageeti 14 payyateta naago (haakime) keettatun haggaazettiya 423 aayeta. Ha pilgettay neeni ekkiyo haggaazaa xeelliyogan polettees. Neeni ha pilggettan hashettiyo wode neni go'ettiyo haggaazaa xeellanaw koshiya wodee nena gakkida metuwadaaninne neeni haakimee immiyo haggaazaadan dummatees. Oyshaa polanaw koshiya wodee 25 daqiiqaa gakkanaw danddayes Ha pilgettay KwaZuluNaataale Yuuniversitiyan maadettees.

Ha pilggettay neesisi immettiya haggaazaa ayfiyan xeelliyoogaa gidiyo maaran guutta metotinne injetenna hanotati daanaw danddayoosona. Ha pilggettan hashettiyo wode neeni ekkiyo woykko go'ettiyo haggaazaa ayfiyan xeelliyogaa gidiyoogaara gayttidaagan neessi injettenan agganawu danddayees. Gelladan nebollan gakkiya azzanuwassinne injjiya pacaw nuni ha pilgettaa (xeelaa) wursettan zoriya haggaazaa immeettees. Hegaa bollan qassi kehiyaa zoriya haggaazaa neessi immanaadan haakime keettaara nena gattana. Ha pilggettan hashettiyogan neessi ha'i gakkiya go'ay baa. Giddope'attin ha pilgettaa wursettan ooratta demmiyobati zooniya payyatettaa kaletawunne hara malatettiya heerratun woykko biittatun immettiya haggaazaa xeelliyagan de'iya metuwaa birshshiyaa qulppe yohota demiyogaa taani ammanetayis

Ha xinaatee UKZN Biomedikal pilggettaa komitiyan xelletiddi tumattiis (piqaadiya paydoy BREC/00001744/2020).

Ne bolli gakkiya metuwassinne harabaassi /oyshaassi Manttaa Mihiretu (silkkee payduwaa +251913213443 woykko emaile: mihiretua@gmail.com). UKZN gayttana koyyikko Biomedical Research Committee giyaagaara gayttanawu:

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E-mail: BREC@ukzn.ac.za

Ha pilggettaayyo neeni hashetiyoy ne dosaana. Neeni ha pilgettan hashettanaw koyyana xayikko ay saatiyankka aggana danddayaasa, neeni oyshaa aggada biido gishshawu ayba qixaateekka woykko neeppe attiya akkamuwaa maadoy woykko hara go″ay neeppe attiyaabi baa Hayyannaa simi neeni yootanawu koyyenna gaasoy woykko harabay de′ikko taassi neeni koyyido wodiyan yoota. Qonccissoy shiiqidaagee alidaba gidikko woykko xinaatiyassi injetana xaykko, taanikka oyshaa ta koyyido wodiyan eessaaggana. Neeni ne wodiyaa yarshshada ha oosuwaassi wodiyaa immido gishshawu taani nena keehippe nashshays.

Neeppe ekkiyo ay qofaakka neeppenne taappenne hara asi erenna, woykko hara heezzantto asawu higgee paqadana xaykko imettenna. Neenikka immido ay qonccissuwaassikka oyshettakka. Ne oonatettaykka ha oyshaa gaasuwan oossinne qonccenna. Ha imettida qonccissoy oyshaappe duuxxidi issi qulppettida sohuwan uttees. Ha naqaashaykka hara asi erenna zuuraa payduwan qulpettidi ichashu laytta gakkanaw uttees Ha pilggettaa xeelliyaagan attamettiyaabatikka ne oonnattettaa xeelliyaabata oyqqokkona.

Maayettiyo Pormmiya

Ta sunttay _____ ha pilggeta huuphe qofay "**Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan**" Mantta Arbba Alamayo Mihiretuppe shiiqidaaga siyaas.

Taani ha pilgettaa koshshaanne kasiya-kaaluwa loyttada eras

Taani oychchiyo/oyshettiyo oysha ubbawu suure zaaruwa immanawu eraanne injje hanotaa demmaas. Ha pilgettaa bollan taani hashetidoy ta koshshaana gidiyoogaanne ta koyyana xayikko aggada baana danddayiyoogaanne hegaa gaasuwankka taassi oosettiya akkamoynne imettiya haggaazay qanxxettennaagaa eraas.

Ta bolli ha pilgettaa gaasuwan gakkiyaa ay metuwaassikka immiyoo haggaazay woykko xaliya akkamoy oosettiyoogaa eras.

Taassi ay qommo oyshay /ha xinaatiyaara ohettidaagee hassayettikko ha xinaatiya ottiyaagaa Mantta Mihireta demmanawu silke: +251913213443 woykko emaile: mihiretua@gmail.com gidiyogee odettiis

Ay qommo oyshaykka tawu de'ikko woykko ha pilgettaara gayttidaagan de'iya maataara oyqettidaban ha pilgettaa oottiyaagaara gayttidaagan koshshidabi de'ikko maadettanaw:

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Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Hashetidaagaa paramaa **Gallassaa**

_____ _____

Markkaa paramaa **Gallassaa**

_____ _____

Marajaa shiishidaaga parama **Gallassaa**

APPENDIX 11: Information sheet and consent form for facility survey/observation – service users (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ---------- ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠና ለሚገኘዉ ለአቶ ምህረቱ አለማየሁ አርባ መረጃ እየሰበሰብኩ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 14 የጤና ተቋማትና በነዚህ ተቋማት አገልግሎት የሚያገኙ 423 እናቶች ይተፋሉ፡፡ ይህ ጥናት የሚከናወነዉ ለእርስዎ የሚሰጠዉን የህክምና አገልግሎት በመመልከት ስለሚከናወን የሚፈጀዉ ጊዜ በሚሰጠዉ አገልግሎትና በበሽታዉ አይነት ይወሰናል፡፡ ቃለ መጠይቁ እስከ 25 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚሰጥዎትን አገልግሎት ስለምንመለከት አገልግሎቱን እየወሰዱ በመመልከታችን ምቾት ላይሰማዎት ይችላል፡፡ ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ

በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 **ነው፡፡)**

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ፡፡ ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል፡፡ አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ፡፡ ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል፡፡ በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም፡፡ ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እንዲጨርሱ አበረተታለሁ፡፡ በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ፡፡

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ፡፡ በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም፡፡ ጉዳትም አያደርስም፡፡ የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም፡፡ መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል፡፡ ከዛም በኋላ በአግባቡ ይወገዳል፡፡ ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ፡፡ ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል፡፡ ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም፡፡

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 12: Information sheet and consent form for facility survey/audit – Health workers in the maternity ward (English)

Information sheet

Date: _____

Greetings, my name is ----------. I provide the information about the researcher Mr. Mihiretu Alemayehu Arba, a Ph.D. student at the University of KwaZulu-Natal and former staff of Wolaita Sodo University. His contact address is (+251913213443 or E-mail address: mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolatia Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 14 health facilities in the Wolaita zone and 423 mothers who receive service for their pregnancy and childbirth-related complications. It will involve the following procedures. We are going to interview you. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 20 minutes. The University of KwaZulu-Natal funds this study.

The study has no risk or discomfort. By participating in this research project, you will provide me the information concerning this facility's Emergency Obstetric Care signal function tests. Many care providers find it to be helpful to have the opportunity to talk. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

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Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me will be stored securely and kept confidential. The data will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolatia Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

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Private Bag X 54001

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Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 13: Information sheet and consent to participate form for the community-based survey- Women who had obstetric emergencies (English)

Information sheet

Date: _____

Greetings, my name is ----------. I provide the information about the researcher Mr. Mihiretu Alemayehu Arba, a Ph.D. student at the University of KwaZulu-Natal and former staff of Wolaita Sodo University. His contact address is (+251913213443 or E-mail address: mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolatia Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 406 women in the Wolaita zone by involving the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 20 minutes. The University of KwaZulu-Natal funds this study.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort in disclosing your painful experience with pregnancy and childbirth-related complications. Many women, however, may find it to be helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions you may contact the researcher Mr Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

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Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide us, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolatia Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

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Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 14: Information sheet and consent to participate form for the community-based survey- Women who had obstetric emergencies (Wolaita Dona)

Qonccissuwaa woraqataa

Gallasaa: _____

Saro Aqadi/Saro pe′adi. Ta sunttay_____. Taani pilggettaa projekttiyaa marajaa shiishshays. Ha pilgettaa oottiyagee ooso bolli peeshshiyagee Mantta Arbba Alamayo Mihireta, ikka dokteretettaa Asaa payyatettaa bolli KwaZuluNaataale Yuuniversitiyan Nersetettaanne Asaa payyatettaa, Derbbaane, Tohossa Afirkkan xanna′iyaagaa gididi kase wode Wolaita sodo Unburshiyan oottiidde takkiis. A Silkkiya paydoy +251 913213443 gidiyode emaile mihiretua@gmail.com geetettees. Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan oosettiya pilgettaa xeelliyagan kuushettanaadan nena shoobbaas. Ha pilggettaassi sintta qofaynne koshshay abbe ixetaaranne yeluwaara gaytidagan dinggate gakkiya metota woykko harggeta xeelliyaagan aayetussi immetiya haggaazaanne aara gayttida gaasota eranaassa. Muleera Wolaita zoniyappe 406 aayeti ha xinaatiyan gelanaadan naagettiyageetoosona. Ha pilgettay neena aychiyogan polettees. Neeni ha pilggettan hashettiyo wode oyshaa polanaw koshiya wodee 20 daqiiqaa gakkanaw danddayes. Ha pilgettay KwaZuluNaataale Yuuniversitiyan maadettees.

Ha pilggettan guutta metoti woykko injetenna hanotati daanaw danddayoosona. Ha pilggettan hashettiyo wode neeni ekkido woykko go'ettido haggaazaa xeelliyagan issi issi oyshati neeni aattido meto wodeta woykko yeluwa baggaara gakkida harggeta hassayisanaw danddayiyo gishshaw nessi injjetennan agganaw woykko azzantanaw danddayees. Gelladan nebollan gakkiya azzanuwassinne injjiya pacaw nuni ha pilgettaa (xeelaa) wursettan zoriya haggaazaa immeettees. Hegaa bollan qassi kehiyaa zoriya haggaazaa neessi immanaadan haakime keettaara nena gattana. Ha pilggettan hashettiyogan neessi ha'i gakkiya go'ay baa. Giddope'attin ha pilgettaa wursettan ooratta demmiyobati zooniya payyatettaa kaletawunne hara malatettiya heerratun woykko biittatun immettiya haggaazaa xeelliyagan de'iya metuwaa birshshiyaa qulppe yohota demiyogaa taani ammanetayis

Ha xinaatee UKZN Biomedikal pilggettaa komitiyan xelletiddi tumattiis (piqaadiya paydoy BREC/00001744/2020).

Ne bolli gakkiya metuwassinne harabaassi /oyshaassi Manttaa Mihiretu (silkkee payduwaa +251913213443 woykko emaile: mihiretua@gmail.com). UKZN gayttana koyyikko Biomedical Research Committee giyaagaara gayttanawu:

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Research Office, Westville Campus

Govan Mbeki Building

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Durban
4000
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Ha pilggettaayyo neeni hashetiyoy ne dosaana. Neeni ha pilgettan hashettanaw koyyana xayikko ay saatiyankka aggana danddayaasa, neeni oyshaa aggada biido gishshawu ayba qixaateekka woykko neeppe attiya akkamuwaa maadoy woykko hara go″ay neeppe attiyaabi baa Hayyannaa simi neeni yootanawu koyyenna gaasoy woykko harabay de′ikko taassi neeni koyyido wodiyan yoota. Qonccissoy shiiqidaagee alidaba gidikko woykko xinaatiyassi injetana xaykko, taanikka oyshaa ta koyyido wodiyan eessaaggana. Neeni ne wodiyaa yarshshada ha oosuwaassi wodiyaa immido gishshawu taani nena keehippe nashshays.

Neeppe ekkiyo ay qofaakka neeppenne taappenne hara asi erenna, woykko hara heezzantto asawu higgee paqadana xaykko imettenna. Neenikka immido ay qonccissuwaassikka oyshettakka. Ne oonatettaykka ha oyshaa gaasuwan oossinne qonccenna. Ha imettida qonccissoy oyshaappe duuxxidi issi qulppettida sohuwan uttees. Ha naqaashaykka hara asi erenna zuuraa payduwan qulpettidi ichashu laytta gakkanaw uttees Ha pilggettaa xeelliyaagan attamettiyaabatikka ne oonnattettaa xeelliyaabata oyqqokkona.

Maayettiyo Pormmiya

Ta sunttay _____ ha pilggeta huuphe qofay "**Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan**" Mantta Arbba Alamayo Mihiretuppe shiiqidaaga siyaas.

Taani ha pilgettaa koshshaanne kasiya-kaaluwa loyttada eras

Taani oychchiyo/oyshettiyo oysha ubbawu suure zaaruwa immanawu eraanne injje hanotaa demmaas. Ha pilgettaa bollan taani hashetidoy ta koshshaana gidiyoogaanne ta koyyana xayikko aggada baana danddayiyoogaanne hegaa gaasuwankka taassi oosettiya akkamoynne imettiya haggaazay qanxxettennaagaa eraas.

Ta bolli ha pilgettaa gaasuwan gakkiyaa ay metuwaassikka immiyoo haggaazay woykko xaliya akkamoy oosettiyoogaa eras.

Taassi ay qommo oyshay /ha xinaatiyaara ohettidaagee hassayettikko ha xinaatiya ottiyaagaa Mantta Mihireta demmanawu silke: +251913213443 woykko emaile: mihiretua@gmail.com gidiyogee odettiis

Ay qommo oyshaykka tawu de'ikko woykko ha pilgettaara gayttidaagan de'iya maataara oyqettidaban ha pilgettaa oottiyaagaara gayttidaagan koshshidabi de'ikko maadettanaw:

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Govan Mbeki Building

Private Bag X 54001

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_____ _____

Hashetidaagaa paramaa **Gallassaa**

_____ _____

Markkaa paramaa **Gallassaa**

_____ _____

Marajaa shiishidaaga parama **Gallassaa**

APPENDIX 15: Information sheet and consent to participate form for community-based survey- Women who had obstetric emergencies (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ---------- ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠና ለሚገኘዉ ለአቶ ምህረቱ አለማየሁ አርባ መረጃ እየሰበሰብኩ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሚያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 14 የጤና ተቋማትና በነዚህ ተቋማት አገልግሎት የሚያገኙ 406 እናቶች ይተፋሉ፡፡ ይህ ጥናት የሚከናወነዉ ለእርስዎ የሚሰጠዉን የህክምና አገልግሎት በመመልከት ስለሚከናወን የሚፈጀዉ ጊዜ በሚሰጠዉ አገልግሎትና በበሽታዉ አይነት ይወሰናል፡፡ ቃለ መጠይቁ እስከ 20 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚሰጥዎትን አገልግሎት ስለምንመለከት አገልግሎቱን እየወሰዱ በመመልከታችን ምቾት ላይሰማዎት ይችላል፡፡ ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ

በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 **ነው፡፡)**

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ፡፡ ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል፡፡ አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ፡፡ ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል፡፡ በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም፡፡ ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እንዲጨርሱ አበረተታለሁ፡፡ በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ፡፡

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ፡፡ በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም፡፡ ጉዳትም አያደርስም፡፡ የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም፡፡ መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል፡፡ ከዛም በኋላ በአግባቡ ይወገዳል፡፡ ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ፡፡ ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል፡፡ ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም፡፡

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

የተሳታፊ ፊርማ	**ቀን**
የምስክር ፊርማ	**ቀን**
የመረጃ ሰብሳቢዉ ፊርማ	**ቀን**

APPENDIX 16: Information sheet and consent to participate form for qualitative study Women who had obstetric emergencies

Information sheet

Date: _____

Greetings, my name is **Mihiretu Alemayehu Arba**. I am a Ph.D. student at the University of KwaZulu-Natal and a former staff of Wolaita Sodo University. My contact address is (+251913213443, and my E-mail address is mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 28 women in the 14 selected health facilities of the Wolaita zone though it depends on the information we get. It will involve the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 45 minutes. This study is funded by the University of KwaZulu-Natal.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort in disclosing your painful experience with pregnancy and childbirth-related complications. Many women, however, may find it to be helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 17: Information sheet and consent to participate form for qualitative study - Women who had obstetric emergencies (Wolaita Dona)

Qonccissuwaa woraqataa

Gallasaa: _____

Saro Aqadi/Saro pe′adi. Ta sunttay **Mantta Arba Alamayo Mihirata**. Taani dokteretettaa Asaa payyatettaa bolli KwaZuluNaataale Yuuniversitiyan Nersetettaanne Asaa payyatettaa, Derbbaane, Tohossa Afirkkan xanna′iyaagaa gidada kase wode Wolaita sodo Unburshiyan oottaydda takkaas. Ta silkkiya paydoy +251 913213443 gidiyode emaile mihiretua@gmail.com geetettees. Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan oosettiya pilgettaa xeelliyagan kuushettanaadan nena shoobbaas. Ha pilggettaassi sintta qofaynne koshshay abbe ixetaaranne yeluwaara gaytidagan dinggate gakkiya metota woykko harggeta xeelliyaagan aayetussi immetiya haggaazaanne aara gayttida gaasota eranaassa. Ha pilgettay Wolaita zoniyan 14 haakime keetatun oosettiyagaa gidid 28 aayeti gelanaadan naagettiyageetoosona. Ha pilgettay neena aychiyogan polettees. Neeni ha pilggettan hashettiyo wode oyshaa polanaw koshiya wodee 45 daqiiqaa gakkanaw danddayes. Ha pilgettay KwaZuluNaataale Yuuniversitiyan maadettees.

Ha pilggettan guutta metoti woykko injetenna hanotati daanaw danddayoosona. Ha pilggettan hashettiyo wode neeni ekkido woykko go'ettido haggaazaa xeelliyagan issi issi oyshati neeni aattido meto wodeta woykko yeluwa baggaara gakkida harggeta hassayisanaw danddayiyo gishshaw nessi injjetennan agganaw woykko azzantanaw danddayees. Gelladan nebollan gakkiya azzanuwassinne injjiya pacaw nuni ha pilgettaa (xeelaa) wursettan zoriya haggaazaa immeettees. Hegaa bollan qassi kehiyaa zoriya haggaazaa neessi immanaadan haakime keettaara nena gattana. Ha pilggettan hashettiyogan neessi ha'i gakkiya go'ay baa. Giddope'attin ha pilgettaa wursettan ooratta demmiyobati zooniya payyatettaa kaletawunne hara malatettiya heerratun woykko biittatun immettiya haggaazaa xeelliyagan de'iya metuwaa birshshiyaa qulppe yohota demiyogaa taani ammanetayis

Ha xinaatee UKZN Biomedikal pilggettaa komitiyan xelletiddi tumattiis (piqaadiya paydoy BREC/00001744/2020).

Ne bolli gakkiya metuwassinne harabaassi /oyshaassi Manttaa Mihiretu (silkkee payduwaa +251913213443 woykko emaile: mihiretua@gmail.com). UKZN gayttana koyyikko Biomedical Research Committee giyaagaara gayttanawu:

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Research Office, Westville Campus

Govan Mbeki Building

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E-mail: BREC@ukzn.ac.za

Ha pilggettaayyo neeni hashetiyoy ne dosaana. Neeni ha pilgettan hashettanaw koyyana xayikko ay saatiyankka aggana danddayaasa, neeni oyshaa aggada biido gishshawu ayba qixaateekka woykko neeppe attiya akkamuwaa maadoy woykko hara go″ay neeppe attiyaabi baa Hayyannaa simi neeni yootanawu koyyenna gaasoy woykko harabay de′ikko taassi neeni koyyido wodiyan yoota. Qonccissoy shiiqidaagee alidaba gidikko woykko xinaatiyassi injetana xaykko, taanikka oyshaa ta koyyido wodiyan eessaaggana. Ha oyshaa wursettan neeni nunaara hagan gam'ido wodiya gishshaw 150 biraa (5 dolariya) neessi qanxxeettees. Neeni ne wodiyaa yarshshada ha oosuwaassi wodiyaa immido gishshawu taani nena keehippe nashshays.

Neeppe ekkiyo ay qofaakka neeppenne taappenne hara asi erenna, woykko hara heezzantto asawu higgee paqadana xaykko imettenna. Neenikka immido ay qonccissuwaassikka oyshettakka. Ne oonatettaykka ha oyshaa gaasuwan oossinne qonccenna. Ha imettida qonccissoy oyshaappe duuxxidi issi qulppettida sohuwan uttees. Ha naqaashaykka hara asi erenna zuuraa payduwan qulpettidi ichashu laytta gakkanaw uttees Ha pilggettaa xeelliyaagan attamettiyaabatikka ne oonnattettaa xeelliyaabata oyqqokkona.

Maayettiyo Pormmiya

Ta sunttay _____ ha pilggeta huuphe qofay "**Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan**" Mantta Arbba Alamayo Mihiretuppe shiiqidaaga siyaas.

Taani ha pilgettaa koshshaanne kasiya-kaaluwa loyttada eras

Taani oychchiyo/oyshettiyo oysha ubbawu suure zaaruwa immanawu eraanne injje hanotaa demmaas. Ha pilgettaa bollan taani hashetidoy ta koshshaana gidiyoogaanne ta koyyana xayikko aggada baana danddayiyoogaanne hegaa gaasuwankka taassi oosettiya akkamoynne imettiya haggaazay qanxxettennaagaa eraas.

Ta bolli ha pilgettaa gaasuwan gakkiyaa ay metuwaassikka immiyoo haggaazay woykko xaliya akkamoy oosettiyoogaa eras.

Taassi ay qommo oyshay /ha xinaatiyaara ohettidaagee hassayettikko ha xinaatiya ottiyaagaa Mantta Mihireta demmanawu silke: +251913213443 woykko emaile: mihiretua@gmail.com gidiyogee odettiis

Ay qommo oyshaykka tawu de'ikko woykko ha pilgettaara gayttidaagan de'iya maataara oyqettidaban ha pilgettaa oottiyaagaara gayttidaagan koshshidabi de'ikko maadettanaw:

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Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Hashetidaagaa paramaa **Gallassaa**

_____ _____

Markkaa paramaa **Gallassaa**

_____ _____

Marajaa shiishidaaga parama **Gallassaa**

APPENDIX 18: Information sheet and consent to participate form for qualitative study - Women who had obstetric emergencies (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ለአቶ ምህረቱ አለማየሁ አርባ ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠናሁ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 28 እናቶች ይተፋሉ፡፡ ሆኖም ግን ቁጥሩ እንደ አስፈላጊነቱ ሊጨምርም ሊቀንስም ይችላል፡፡ ይህ ጥናት የሚከናወነዉ እርስዎን ቃለመጠይቅ በማድረግና ድምጽዎትን በመቅዳት እንዲሁም የጽሁፍ መረጃ በመሰብሰብ ይሆናል፡፡ ቃለ መጠይቁ እስከ 45 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚያሳዝኑ ክስተቶችን ሊገልጹልን ይችላሉ፡፡ በመሆኑም ታያያዥ ሃዘን ሊሰማዎ ይችላል፡፡ ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 ነው።)

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 ወይም በኢምይል አድሻ mihiretua@gmail.com ሊያገኙ ይችላሉ። ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል። አድራሻዉ

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ። ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል። በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም። ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ። በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ።

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ። በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም። ጉዳትም አያደርስም። የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም። መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል። ከዛም በኋላ በአግባቡ ይወገዳል። ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ። ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል። ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም።

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 19: Information sheet and consent to participate form for qualitative study - Service providers (English)

Information sheet

Date: _____

Greetings, my name is **Mihiretu Alemayehu Arba**. I am a Ph.D. student at the University of KwaZulu-Natal and a former staff of Wolaita Sodo University. My contact address is (+251913213443, and my E-mail address is mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 14 care providers in the Wolaita zone though it depends on the information we get. It will involve the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 45 minutes. This study is funded by the University of KwaZulu-Natal.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort disclosing your painful experience treating women with pregnancy and childbirth-related complications. However, many care providers may find it helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions you may contact the researcher Mr Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 20: Information sheet and consent to participate form for qualitative study - Service providers (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ ለአቶ ምህረቱ አለማየሁ አርባ ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠናሁ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 14 የጤና ባለሙዎች ይተፋሉ፡፡ ሆኖም ግን ቁጥሩ እንደ አስፈላጊነቱ ሊጨምርም ሊቀንስም ይችላል፡፡ ይህ ጥናት የሚከናወነዉ እርስዎን ቃለመጠይቅ በማድረግና ድምጽዎትን በመቅዳት እንዲሁም የጽሁፍ መረጃ በመሰብሰብ ይሆናል፡፡ ቃለ መጠይቁ እስከ 45 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚያሳዝኑ ክስተቶችን ልትገልጽልን ትችላለህ፡፡ በመሆኑም ታያያዥ ሃዘን ሊሰማህ ይችላል፡፡ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 **ነው።)**

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ። ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል። አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ። ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል። በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም። ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ። በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ።

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ። በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም። ጉዳትም አያደርስም። የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም። መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል። ከዛም በኋላ በአግባቡ ይወገዳል። ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ። ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል። ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም።

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 21: Information sheet and consent to participate form for qualitative study - Kebele and health development army leaders (English)

Information sheet

Date: _____

Greetings, my name is **Mihiretu Alemayehu Arba**. I am a Ph.D. student at the University of KwaZulu-Natal and a former staff of Wolaita Sodo University. My contact address is (+251913213443, and my E-mail address is mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 8 kebele and health development army leaders in the Wolaita zone though it depends on the information we get. It will involve the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 45 minutes. This study is funded by the University of KwaZulu-Natal.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort in disclosing your experience with women who had a pregnancy and childbirth-related complications. However, many care providers may find it helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

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Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 22: Information sheet and consent to participate form for qualitative study - Kebele and health development army leaders (Wolaita Dona)

Qonccissuwaa woraqataa

Gallasaa: _____

Saro Aqadi/Saro pe′adi. Ta sunttay **Mantta Arba Alamayo Mihirata**. Taani dokteretettaa Asaa payyatettaa bolli KwaZuluNaataale Yuuniversitiyan Nersetettaanne Asaa payyatettaa, Derbbaane, Tohossa Afirkkan xanna′iyaagaa gidada kase wode Wolaita sodo Unburshiyan oottaydda takkaas. Ta silkkiya paydoy +251 913213443 gidiyode emaile mihiretua@gmail.com geetettees. Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan oosettiya pilgettaa xeelliyagan kuushettanaadan nena shoobbaas. Ha pilggettaassi sintta qofaynne koshshay abbe ixetaaranne yeluwaara gaytidagan dinggate gakkiya metota woykko harggeta xeelliyaagan aayetussi immetiya haggaazaanne aara gayttida gaasota eranaassa. Ha pilgettay Wolaita zoniyan 8 qaballene limate buduniya kaalletiyageeta koyyees. Ha pilgettay neena aychiyogan polettees. Neeni ha pilggettan hashettiyo wode oyshaa polanaw koshiya wodee 45 daqiiqaa gakkanaw danddayes. Ha pilgettay KwaZuluNaataale Yuuniversitiyan maadettees.

Ha pilggettan guutta metoti woykko injetenna hanotati daanaw danddayoosona. Ha pilggettan hashettiyo wode neeni siyido woykko be'ido yeluwaara gayttiyaggan aayetu bollan gakkida metoti woykko hargeti nena azzantanaw danddayoosona. Gelladan nebollan gakkiya azzanuwassinne injjiya pacaw nuni ha pilgettaa (xeelaa) wursettan zoriya haggaazaa immeettees. Hegaa bollan qassi kehiyaa zoriya haggaazaa neessi immanaadan haakime keettaara nena gattana. Ha pilggettan hashettiyogan neessi ha'i gakkiya go'ay baa. Giddope'attin ha pilgettaa wursettan ooratta demmiyobati zooniya payyatettaa kaletawunne hara malatettiya heerratun woykko biittatun immettiya haggaazaa xeelliyagan de'iya metuwaa birshshiyaa qulppe yohota demiyogaa taani ammanetayis

Ha xinaatee UKZN Biomedikal pilggettaa komitiyan xelletiddi tumattiis (piqaadiya paydoy BREC/00001744/2020).

Ne bolli gakkiya metuwassinne harabaassi /oyshaassi Manttaa Mihiretu (silkkee payduwaa +251913213443 woykko emaile: mihiretua@gmail.com). UKZN gayttana koyyikko Biomedical Research Committee giyaagaara gayttanawu:

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Govan Mbeki Building

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Durban

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KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Ha pilggettaayyo neeni hashetiyoy ne dosaana. Neeni ha pilgettan hashettanaw koyyana xayikko ay saatiyankka aggana danddayaasa, neeni oyshaa aggada biido gishshawu ayba qixaateekka woykko neeppe attiya akkamuwaa maadoy woykko hara go″ay neeppe attiyaabi baa Hayyannaa simi neeni yootanawu koyyenna gaasoy woykko harabay de′ikko taassi neeni koyyido wodiyan yoota. Qonccissoy shiiqidaagee alidaba gidikko woykko xinaatiyassi injetana xaykko, taanikka oyshaa ta koyyido wodiyan eessaaggana. Ha oyshaa wursettan neeni nunaara hagan gam'ido wodiya gishshaw 150 biraa (5 dolariya) neessi qanxxeettees. Neeni ne wodiyaa yarshshada ha oosuwaassi wodiyaa immido gishshawu taani nena keehippe nashshays.

Neeppe ekkiyo ay qofaakka neeppenne taappenne hara asi erenna, woykko hara heezzantto asawu higgee paqadana xaykko imettenna. Neenikka immido ay qonccissuwaassikka oyshettakka. Ne oonatettaykka ha oyshaa gaasuwan oossinne qonccenna. Ha imettida qonccissoy oyshaappe duuxxidi issi qulppettida sohuwan uttees. Ha naqaashaykka hara asi erenna zuuraa payduwan qulpettidi ichashu laytta gakkanaw uttees Ha pilggettaa xeelliyaagan attamettiyaabatikka ne oonnattettaa xeelliyaabata oyqqokkona.

Maayettiyo Pormmiya

Ta sunttay _____ ha pilggeta huuphe qofay "**Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan**" Mantta Arbba Alamayo Mihiretuppe shiiqidaaga siyaas.

Taani ha pilgettaa koshshaanne kasiya-kaaluwa loyttada eras

Taani oychchiyo/oyshettiyo oysha ubbawu suure zaaruwa immanawu eraanne injje hanotaa demmaas. Ha pilgettaa bollan taani hashetidoy ta koshshaana gidiyoogaanne ta koyyana xayikko aggada baana danddayiyoogaanne hegaa gaasuwankka taassi oosettiya akkamoynne imettiya haggaazay qanxxettennaagaa eraas.

Ta bolli ha pilgettaa gaasuwan gakkiyaa ay metuwaassikka immiyoo haggaazay woykko xaliya akkamoy oosettiyoogaa eras.

Taassi ay qommo oyshay /ha xinaatiyaara ohettidaagee hassayettikko ha xinaatiya ottiyaagaa Mantta Mihireta demmanawu silke: +251913213443 woykko emaile: mihiretua@gmail.com gidiyogee odettiis

Ay qommo oyshaykka tawu de'ikko woykko ha pilgettaara gayttidaagan de'iya maataara oyqettidaban ha pilgettaa oottiyaagaara gayttidaagan koshshidabi de'ikko maadettanaw:

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Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Hashetidaagaa paramaa **Gallassaa**

_____ _____

Markkaa paramaa **Gallassaa**

_____ _____

Marajaa shiishidaaga parama **Gallassaa**

APPENDIX 23: Information sheet and consent to participate form for qualitative study - Kebele and health development army leaders (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ አቶ ምህረቱ አለማየሁ አርባ ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠናሁ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 8 የቀበሌና ልማት ቡድን መሪዎች ይሳተፋሉ፡፡ ሆኖም ግን ቁጥሩ እንደ አስፈላጊነቱ ሊጨምርም ሊቀንስም ይችላል፡፡ ይህ ጥናት የሚከናወነዉ እርስዎን ቃለመጠይቅ በማድረግና ድምጽዎትን በመቅዳት እንዲሁም የጽሁፍ መረጃ በመሰብሰብ ይሆናል፡፡ ቃለ መጠይቁ እስከ 45 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚያሳዝኑ ክስተቶችን ልትገልጽልን ትችላለህ፡፡ በመሆኑም ታያያዥ ሃዘን ሊሰማህ ይችላል፡፡ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 **ነው፡፡)**

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ፡፡ ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል፡፡ አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ፡፡ ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል፡፡ በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም፡፡ ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ፡፡ በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ፡፡

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ፡፡ በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም፡፡ ጉዳትም አያደርስም፡፡ የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም፡፡ መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል፡፡ ከዛም በኋላ በአግባቡ ይወገዳል፡፡ ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ፡፡ ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል፡፡ ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም፡፡

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡ በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡ በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት አንደምችል አዉቄያለዉ፡፡

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Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

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KwaZulu-Natal, SOUTH AFRICA

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_____ _____

የተሳታፊ ፊርማ ቀን

_____ _____

የምስክር ፊርማ ቀን

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ ቀን

APPENDIX 24: Information sheet and consent to participate form for qualitative study - Traditional birth attendants (English)

Information sheet

Date: _____

Greetings, my name is **Mihiretu Alemayehu Arba**. I am a Ph.D. student at the University of KwaZulu-Natal and a former staff of Wolaita Sodo University. My contact address is (+251913213443, and my E-mail address is mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 8 traditional birth attendants in the Wolaita zone though it depends on the information we get. It will involve the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 45 minutes. This study is funded by the University of KwaZulu-Natal.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort in disclosing your experience with women who had a pregnancy and childbirth-related complications. However, many care providers may find it helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you get any discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

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Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

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Govan Mbeki Building

Private Bag X 54001

Durban

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KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 25: Information sheet and consent to participate form for qualitative study - Traditional birth attendants (Wolaita Dona)

Qonccissuwaa woraqataa

Gallasaa: _____

Saro Aqadi/Saro pe′adi. Ta sunttay_____. Taani pilggettaa projekttiyaa marajaa shiishshays. Ha pilgettaa oottiyagee ooso bolli peeshshiyagee Mantta Arbba Alamayo Mihireta, ikka dokteretettaa Asaa payyatettaa bolli KwaZuluNaataale Yuuniversitiyan Nersetettaanne Asaa payyatettaa, Derbbaane, Tohossa Afirkkan xanna′iyaagaa gididi kase wode Wolaita sodo Unburshiyan oottiidde takkiis. A Silkkiya paydoy +251 913213443 gidiyode emaile mihiretua@gmail.com geetettees. Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan oosettiya pilgettaa xeelliyagan kuushettanaadan nena shoobbaas. Ha pilggettaassi sintta qofaynne koshshay abbe ixetaaranne yeluwaara gaytidagan dinggate gakkiya metota woykko harggeta xeelliyaagan aayetussi immetiya haggaazaanne aara gayttida gaasota eranaassa. Ha pilgettan Wolaita zoniyan 8 baahilaawe yelisiyageeti gelanaadan naageetoosona. Ha pilgettay nena aychiyogan polettees. Neeni ha pilggettan hashettiyo wode oyshaa polanaw koshiya wodee 45 daqiiqaa gakkanaw danddayes. Ha pilgettay KwaZuluNaataale Yuuniversitiyan maadettees.

Ha pilggettay imettiya haggaazaa ayfiyan xeelliyoogaa gidiyo maaran gutta metotinne injetenna hanotati daanaw danddayoosona. Ha pilggettan hashettiyo wode neeni haggaazaa immiyo wodiyan aayetu bolan gakkida dinggate metoti/harggetinne keehippe seelliya hargiya bollan de'iya aayeta haggaazidobati hassayetiyode nena azzantanaw danddayoosona. Hara undenna haggaazanchati hanni mala wodiya demmidi bantta haniiddi de'iyabata odiyoogaa lo'obaadan xeelloosona. Gelladan nebollan gakkiya azzanuwassinne injjiya pacaw nuni ha pilgettaa (xeelaa) wursettan zoriya haggaazaa immeettees. Hegaa bollan qassi kehiya zoriyaa neessi immanaadan haakime keettaaara nena gatteettees. Ha pilggettan hashettiyogan neessi ha'i gakkiya go'ay baa. Giddope'attin ha pilgettaa wursettan ooratta demmiyobati zooniya payyatettaa kaletawunne hara malatettiya heerratun woykko biittatun immettiya haggaazaa xeelliyagan de'iya metuwaa birshshiyaa qulppe yohota demiyogaa taani ammanetayis

Ha xinaatee UKZN Biomedikal pilggettaa komitiyan xelletiddi tumattiis (piqaadiya paydoy BREC/00001744/2020).

Ne bolli gakkiya metuwassinne harabaassi /oyshaassi Manttaa Mihiretu (silkkee payduwaa +251913213443 woykko emaile: mihiretua@gmail.com). UKZN gayttana koyyikko Biomedical Research Committee giyaagaara gayttanawu:

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Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
E-mail: BREC@ukzn.ac.za

Ha pilggettaayyo neeni hashetiyoy ne dosaana. Neeni ha pilgettan hashettanaw koyyana xayikko ay saatiyankka aggana danddayaasa, neeni oyshaa aggada biido gishshawu ayba qixaateekka woykko neeppe attiya akkamuwaa maadoy woykko hara go″ay neeppe attiyaabi baa Hayyannaa simi neeni yootanawu koyyenna gaasoy woykko harabay de′ikko taassi neeni koyyido wodiyan yoota. Qonccissoy shiiqidaagee alidaba gidikko woykko xinaatiyassi injetana xaykko, taanikka oyshaa ta koyyido wodiyan eessaaggana. Ha oyshaa wursettan neeni nunaara hagan gam'ido wodiya gishshaw 150 biraa (5 dolariya) neessi qanxxeettees. Neeni ne wodiyaa yarshshada ha oosuwaassi wodiyaa immido gishshawu taani nena keehippe nashshays.

Neeppe ekkiyo ay qofaakka neeppenne taappenne hara asi erenna, woykko hara heezzantto asawu higgee paqadana xaykko imettenna. Neenikka immido ay qonccissuwaassikka oyshettakka. Ne oonatettaykka ha oyshaa gaasuwan oossinne qonccenna. Ha imettida qonccissoy oyshaappe duuxxidi issi qulppettida sohuwan uttees. Ha naqaashaykka hara asi erenna zuuraa payduwan qulpettidi ichashu laytta gakkanaw uttees Ha pilggettaa xeelliyaagan attamettiyaabatikka ne oonnattettaa xeelliyaabata oyqqokkona.

Maayettiyo Pormmiya

Ta sunttay _____ ha pilggeta huuphe qofay "**Abbe ixetaa wodenne yeluwaa wode dingate gakkiya metotussi immettiya akkamuwanne oosettiya haggaazaa xeelliyagan Tohossa Tophphiyan, Wolaytta Zooniyan**" Mantta Arbba Alamayo Mihiretuppe shiiqidaaga siyaas.

Taani ha pilgettaa koshshaanne kasiya-kaaluwa loyttada eras

Taani oychchiyo/oyshettiyo oysha ubbawu suure zaaruwa immanawu eraanne injje hanotaa demmaas. Ha pilgettaa bollan taani hashetidoy ta koshshaana gidiyoogaanne ta koyyana xayikko aggada baana danddayiyoogaanne hegaa gaasuwankka taassi oosettiya akkamoynne imettiya haggaazay qanxxettennaagaa eraas.

Ta bolli ha pilgettaa gaasuwan gakkiyaa ay metuwaassikka immiyoo haggaazay woykko xaliya akkamoy oosettiyoogaa eras.

Taassi ay qommo oyshay /ha xinaatiyaara ohettidaagee hassayettikko ha xinaatiya ottiyaagaa Mantta Mihireta demmanawu silke: +251913213443 woykko emaile: mihiretua@gmail.com gidiyogee odettiis

Ay qommo oyshaykka tawu de'ikko woykko ha pilgettaara gayttidaagan de'iya maataara oyqettidaban ha pilgettaa oottiyaagaara gayttidaagan koshshidabi de'ikko maadettanaw:

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Govan Mbeki Building

Private Bag X 54001

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Tel: 27 31 2604769 - Fax: 27 31 2604609

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_____ _____

Hashetidaagaa paramaa **Gallassaa**

_____ _____

Markkaa paramaa **Gallassaa**

_____ _____

Marajaa shiishidaaga parama **Gallassaa**

APPENDIX 26: Information sheet and consent to participate form for qualitative study – Health offices heads (English)

Information sheet

Date: _____

Greetings, my name is **Mihiretu Alemayehu Arba**. I am a Ph.D. student at the University of KwaZulu-Natal and a former staff of Wolaita Sodo University. My contact address is (+251913213443, and my E-mail address: is mihiretua@gmail.com). You are invited to consider participating in a study involving research in **"Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia."** The aim and purpose of this research are to learn about how women with pregnancy and childbirth-related complications get quality service and what factors affect the use of quality service. The study is expected to enroll up to 8 health office heads in the Wolaita zone though it depends on the information we get. It will involve the following procedures. We are going to interview you, record your audio and take notes. The duration of your participation, if you choose to enroll and remain in the study, is expected to be 45 minutes. The University of KwaZulu-Natal funds this study.

The study may involve minimum risk or discomfort. By participating in this research project, you may have minimum discomfort disclosing your painful experience helping women with pregnancy and childbirth-related complications. Many facility managers, however, may find it to be helpful to have the opportunity to talk. We (me and the research assistant) will provide counseling at the end of the interview if you feel discomfort. We will also refer and link you to counseling services in the health facility. There is no direct benefit to your participation, but we hope the study helps generate evidence to assist with improving Emergency Obstetric and Neonatal Care service provision in the locality and other similar settings.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee (approval number BREC/00001744/2020).

In the event of any problems or concerns/questions, you may contact the researcher, Mr. Mihiretu Alemayehu (+251913213443 or E-mail address: mihiretua@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

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Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

Your participation in this research is entirely voluntary. You may withdraw the participation at any point, and in the event of refusal/withdrawal of participation, you will not incur penalty or loss of treatment or other benefits to which you usually are entitled. If at any point you would prefer to refuse the interview, please feel free to tell me. We will terminate you from the study as soon as we receive a refusal/withdrawal. You will not incur any cost due to participation in this study. Upon completion of the interview, you will be reimbursed 150 ETB (≅$5) for the time spent in the discussion.

I kindly inform you that all the information you are going to give me will be kept secret. The researchers will not keep the record of your name or address in any of the study's documents. Any information you provide me, including your audio record, will be stored securely and kept confidential. The audio record will be stored in a password-protected computer until five years. The publications that will arise from this study will exclude any information that exposes your identification.

Consent to participate in research

I _____ have been informed about the study entitled (**Effective Coverage of Emergency Obstetric and Newborn Care services in Wolaita Zone, Southern Ethiopia**) by (Mr. Mihiretu Alemayehu Arba).

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any treatment or care that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at +251913213443 or by E-mail address: mihiretua@gmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

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Govan Mbeki Building

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_____ _____

Signature of Participant **Date**

_____ _____

Signature of Witness **Date**

_____ _____

Signature of Interviewer **Date**

APPENDIX 27: Information sheet and consent to participate form for qualitative study – Health offices heads (Amharic)

ዝርዝር መረጃ

ቀን: _____

እኔ ስሜ አቶ ምህረቱ አለማየሁ አርባ ይባላል፡፡ የወላይታ ሶዶ ዩኒቨርሲቲ መምህርና በአሁን ሰዓት በደቡብ አፍሪካ በክዋዙሉናታል ዩኒቨርሲቲ በሕብረተሰብ ጤና አጠባበቅ የዶክተሬት ትምህርት እያጠናሁ እገኛለሁ፡፡ ጥናቱ "እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" የሚል ሲሆን ለትምህርቱ ማሟያ ይሆናል፡፡ ተጨማሪ መረጃ ቢያስፈልግ የእሱ ስልክ ቁጥር +251913213443 ወይም የኢሜይል አድራሻ mihiretua@gmail.com ነዉ፡፡ የዚህ ጥናት ዋና ዓላማ በወላይታ ዞን የሚገኙ እናቶች እርግዝናና ወሊድ ጋር በተገናኘ የሚከሰቱ የጤና ችግሮችን ለማከም የሚሰጠዉን ጥራት ያለዉ አገልግሎት ተደራሽነትና በአገልግሎት አሰጣጡ ላይ ተጽዕኖ የሚያሳድሩ ጉዳዮችንና ሁኔታዎችን በማጥናት መፍትሔ ለማምጣት በሚደረጉ ተግባራትና ጥናትና ምርምር ላይ አስተዋጽኦ ማበርከት ነዉ፡፡ በጥናቱ ላይ 8 የጤና ተቋማት አመራሮች ይሳተፋሉ፡፡ ሆኖም ግን ቁጥሩ እንደ አስፈላጊነቱ ሊጨምርም ሊቀንስም ይችላል፡፡ ይህ ጥናት የሚከናወነዉ እርስዎን ቃለመጠይቅ በማድረግና ድምጽዎትን በመቅዳት እንዲሁም የጽሁፍ መረጃ በመሰብሰብ ይሆናል፡፡ ቃለ መጠይቁ እስከ 45 ደቂቃ ሊፈጅ ይችላል፡፡ ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ይደጎማል፡፡

በጥናቱ ላይ በመሳተፍ ልመጡ የሚችሉ መለስተኛ ጉዳቶች የሚከተሉት ናቸዉ፡፡በጥናቱ ላይ በመሳተፍዎ የሚያሳዝኑ ክስተቶችን ልትገልጽልን ትችላለህ፡፡ በመሆኑም ታያያዥ ሃዘን ሊሰማህ ይችላል፡፡ነገር ግን በርካቶች ይህን እንደመልካም አጋጣሚ ይገልጹታል፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡ ማንኛዉም አይነት የአለመመቻቸት ሁኔታ ቢፈጥርብዎ የምክር አለገልግሎት እንሰጣለን፡፡ የተሸለ የምክር አገልግሎት ቢያስፈልግዎ ከስነልቦና ባለሙያዎች ጋር እናገናኞታለን፡፡ በጥናቱ ላይ በመሳተፈዎ የሚያገኙት ቀጥተኛ ጥቅም አይኖርም፡፡ ይሁን እንጂ እርሰዎ የሚሰጡን መረጃ የእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ለማሻሻል እና ፖሊሲ ላይ ተጽዕኖ ለማምጣት ጉልህ ሚና ይኖረዋል፡፡

ይህ ጥናት በክዋዙሉናታል ዩኒቨርሲቲ ተገምግሞ ፈቃድ ያገኘበት ቁጥር (የፈቃድ ቁጥር BREC/00001744/2020 **ነው።)**

ተጨማሪ መረጃ ለማግኘት ቢፈልጉ ተመራማሪዉን በስልክ ቁጥር +251913213443 **ወይም በኢምይል አድሻ** mihiretua@gmail.com **ሊያገኙ ይችላሉ። ጥናቱን የሚከታተለዉን ተቋም በመጠየቅ ምላሽ ማግኘት ይቻላል። አድራሻዉ**

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

E-mail: BREC@ukzn.ac.za

በጥናቱ ያለማንም አስገዳጅነት ይሳተፋሉ። ዉይይቱ ከተጀመረ በኋላም ሆነ ሊያልቅ ስል ማቋረጥ ቢያሰፈልግ ይህንን በመናገር ማቆም ይቻላል። በዚህም ምክንያት የሚደርስብዎ ምንም ጉዳት አይኖርም። ነገር ግን ጥናቱ እጅግ ጠቃሚና ፋይዳ ያለዉ ስለሆነ ታግሰዉ ጥናቱን እነዲጨርሱ አበረተታለሁ። በዚህ ጥናት ላይ ለመሳተፍ ጊዜንና ጉልበትን መስዋዕት ስላደረጉ እጅግ በጣም አመሰግናለሁ።

የዚህ ጥናት ምስጢራዊነቱ የተጠበቀ ነዉ። በምንም ምክንያት ከአጥኝዉ እጅ አይወጣም። ጉዳትም አያደርስም። የእርስዎን ስም ወይም ማንነት የሚገልጽ ነገር አንይዝም። መረጃዉ ደህንነቱ በተጠበቀና በይለፍ ቃል በተቆለፈ ኮምፒዉተር እስከ አምስት አመት ድረስ ይቀመጣል። ከዛም በኋላ በአግባቡ ይወገዳል። ስለዚህ ይህን በመተማመን ቀጥሎ ያለዉን የስምምት ፎርም ይፈርሙ። ይህ ፎርም ከቃለ-መጠይቁ ተለይቶ ደህንነቱ በተጠበቀ ሁኔታ ይያዛል። ከዚህ ጥናት የሚወጡ ማንኛዉም አይነት ህትመቶች የርስዎን ማንነት የሚገልጽ ነገር አያካትቱም።

የስምምነት ፎርም

እኔ ስሜ _____ ሲሆን በአቶ ምህረቱ አለማየሁ አርባ የሚካሄደዉን እናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታን ለማከም የሚሰጥ የጤና አገልግሎት ዉጤታማ ተደራሽነትን በወላይታ ዞን ደቡብ ኢትዮጵያ" ተብሎ ስለሚጠራዉ ጥናት ተነግሮኛል፡፡

ስለ ጥናቱ ዓላማና አካሄድ በቂ መረጃ ተሰጥቶኛል፡፡

ስለሚጠየቁ ጥያቄዎች ምላሽ እንድሰጥና ጥያቄ ስኖረኝ እንድጠይቅ በበቂ ሁኔታ ዕድል ተሰጥቶኛል፡፡

በዚህ ጥናት ስሳተፍ ሙሉ በሙሉ ያለማንም አስገዳጅነትና በሙሉ ፈቃደኝነት ሲሆን ጥናቱን ማቋረጥ በፈለግኩ ጊዜ ማቋረጥ እንደምችልና ማናቸዉንም የማገኛቸዉ ሕክምናና ክብካቤዎች እንደማይጓደሉ ተነግሮኛል፡፡

በጥናቱ በመሳተፌ ምክንያት ሊደርሱ የሚችሉ ጉዳቶች ስለመኖራቸዉ ስላለመኖራቸዉ በዝርዝር ተነግሮኛል፡፡ ጉዳት ብደርስብኝ ሊኖሩ ስለሚችሉ ካሳዎች ተረድቻለሁ፡፡

ተጨማሪ መረጃዎች መጠየቅ ብያስፈልገኝ አቶ ምህረቱ አለማየሁ አርባን በ+251 913213443 በመደወል ወይም በኢሜይል mihiretua@gmail.com በኩል ማግኘት እንደሚችል ተነግሮኛል፡፡

በተጨማሪም ስላለኝ መብትና ሌላ መረጃ ብያስፈልገኝ ከዚህ በታች ባለዉ አድራሻ ማግኘት እንደምችል አዉቄያለዉ፡፡

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604769 - Fax: 27 31 2604609

Email: BREC@ukzn.ac.za

_____ _____

የተሳታፊ ፊርማ **ቀን**

_____ _____

የምስክር ፊርማ **ቀን**

_____ _____

የመረጃ ሰብሳቢዉ ፊርማ **ቀን**

APPENDIX 28: Structural/input quality assessment tool for EmONC services (English)

Identification of health facility and structure/input quality assessment

INSTRUCTION: *Direct the questions to the facility officer in charge except for items that need to be filled by yourself (such as date, data collector ID, geographic coordinates, etc.*

Identification of health facility

I1	Interview date (DD/MM/YYYY)	|___|___|/|___|___|/|___|___|___|___|	
I2	Interviewer ID	|___|___|	
I3	Facility Name	_____	
I4	Woreda Name		
I5	Town Name	_____	
I6	Kebele Name		
I7	Type of facility	Referral hospital General hospital Primary hospital Health center	1 2 3 4
I8	Managing Authority	Government/public NGO/not-for-profit Other (specify)	1 2 3
I9	Place	Urban Rural	1 2
I11	Does this facility have a specified catchment/administrative area for which the facility has direct responsibility for serving?	Yes. ..... 1 No ..... 0 *(If "No," skip to section 2)*	
I12	How many people are supposed to be in the catchment area for this facility?	|___|___|___|___|___|___|___|___|	
	Geographic Coordinates		
I13	Latitude (decimal format)	|___|___|___|___|___|___| North	
I14	Longitude (decimal format)	|___|___|___|___|___|___| East	
I15	Elevation	|___|___|___|___| meters	
I16	Accuracy reading	± |___|___| meters	

Structural/input quality assessment checklist

No.	Item	Response	Skip to
A2	How many beds are available and dedicated exclusively for Obstetric and gynecological patients (antenatal, postpartum, post-op, post-abortion, etc.) patients in the 1st and 2nd stage (delivery beds/couches)	|___|___|___| |___|___|___|	
A3	In the last 3 months, have any inpatients shared beds at any time before or after delivery?	1.. Ye 0 No	

No.	Item	Response	Skip to
A4	In the last 3 months, have obstetric and gynecologic patients slept on the floor?	1.. Yes 0. No	
A5	In the last 3 months, have delivery patients delivered on the floor, in a corridor or bathroom?	1.. Yes 0. No	
A6	Is food provided to obstetric and gynecologic patients by the facility?	1.. Yes 0. No	
A7	Are there empty beds for the next obs/gyne patients?	1.. Yes 0. No	
A8	Can you see any liquid spills/trash on the floor? (Observation)	1.. Yes 0. No	
A9	Is this facility connected to the electricity supply? *(even if irregular, circle 1 for "Yes")*	1.. Yes 0. No	
A13	Is there a functional generator functional for automatical replacement of loss in electric power?	1.. Yes 0. No	
A16	Is there a time of the year when the facility routinely has a severe shortage or lack of water?	1.. Yes 0. No	
A18	Is there a toilet in functioning condition for general **staff use**?	1.. Yes 0. No	If '0', skip to 'A20'
A19	What type of toilet or latrine is it?	1. Flush 2. Ventilated pit latrine 3. Pit latrine with slab 4. Pit latrine without slab/open pit 5. Other _____	
A20	Is there a toilet in functioning condition for **patient use**?	1.. Yes 0. No	If '0', skip to 'A22'
A21	What type of toilet or latrine is it?	Flush Ventilated pit latrine Pit latrine with slab Pit latrine without slab/open pit Other	
A22	**Does this facility have a (separate) room/space for…**		
A23	Antenatal care	1.. Yes 0. No	
A24	Labor and delivery together	1.. Yes 0. No	
A25	Labor (first stage)	1.. Yes 0. No	
A26	Delivery	1.. Yes 0. No	
A27	Maternity room for complications, e.g., pre-eclampsia/ eclampsia	1.. Yes 0. No	
A28	Postnatal room	1.. Yes 0. No	
A29	Post C/S ward	1.. Yes 0. No	
A30	General operating theatre	1.. Yes 0. No	
A31	Ob/gyn operating theatre	1.. Yes 0. No	
A32	Intensive Care Unit	1.. Yes 0. No	
A33	Newborn corner	1.. Yes 0. No	

No.	Item	Response	Skip to
A34	Neonatal intensive care unit (NICU)	1.. Yes 0. No	
A35	Pediatric ward/IMNCI clinic	1.. Yes 0. No	
A36	Laboratory and mini blood bank together	1.. Yes 0. No	
A37	Laboratory	1.. Yes 0. No	
A38	Separate mini blood bank	1.. Yes 0. No	

Essential Drugs, Equipment, and Supplies

These questions should be directed to the pharmacist.

No.	Item	Response	Skip to
A44	Does this facility have a pharmacy/drugstore?	1.. Yes 0. No	If '0', skip to 'A68'
A45	Is there a drug inventory register/system? *(this could be computerized)*	1.. Yes 0. No	
A46	Is there a regularly used mechanism to ensure that expired drugs are not distributed?	1.. Yes 0. No	
A47	*Observe whether the "First-in First-out" system for supply management is used for gentamicin (is stock arranged by the expiration date?).*	0. No 1. Yes 2. No gentamicin in stock	
A48	*Observe whether drugs are protected from moisture, heat, or infestation (e.g., placed on shelves or slats, ventilated).*	1.. Yes 0. No	
A49	*Observe the oxytocin stock to determine if it is refrigerated*	0. No 1. Yes 2. No oxytocin in stock	
A52	Does this facility have at least one functioning electric/gas (liquid or compressed) refrigerator other than the one used exclusively for vaccine storage (EPI)?	1.. Yes 0. No	
A51	Does this facility have at least one functioning solar refrigerator other than an EPI refrigerator?	1.. Yes 0. No	

Essential Drugs

No.	Drug	Available		Skip to
		Yes	No	
A52	Does this facility have antibiotics?	1	0	
A53	Does this facility have anticonvulsants?	1	0	
A54	Does this facility have antihypertensives?	1	0	
A55	Does this facility have oxytocics or prostaglandins?	1	0	
A56	Does this facility have drugs used in emergencies? (Adrenaline, Aminophylline, Atropine, Calcium gluconate, Digoxin, Hydrocortisone, etc)	1	0	
A57	Does this facility have anesthetics? (Lidocaine, Ketamine, Halothane, Bupivacaine, Propofol, etc)	1	0	

No.	Drug	Available		Skip to
		Yes	No	
A58	Does this facility have analgesics? (Paracetamol, Pethidine, Diclofenac, Tramadol, etc)	1	0	
A59	Does this facility have steroids? (Betamethasone, Dexamethasone, Prednisone, etc)	1	0	
A60	Does this facility have IV fluids? (Dextrose 5%, Glucose 10%, Glucose 40%, Normal saline, Ringer's lactate, etc)	1	0	
A61	Does this facility have antimalarials? (Chloroquine, Artemisium–based combination therapy (ACT), Quinine Dihydrochloride)	1	0	
A62	Does this facility have any antiretrovirals?	1	0	
A63	Does this facility have any contraceptives?	1	0	
A64	Does this facility have Vitamin K (for a newborn)?	1	0	
A65	Does this facility have Chlorhexidine (4% gel for cord cleansing)?	1	0	
A66	Does this facility have Nystatin (oral) (for a newborn)?	1	0	
A67	Does this facility have an Oral rehydration solution?	1	0	

Equipment and Supplies

No.	Item	At least one available and functional? Yes	No
General: Does the facility have…*(read all items below)*			
A68	Filled oxygen cylinder with cylinder carrier and key to open valve	[redacted]	[redacted]
A69	Ultrasound	1	0
A70	Blood pressure cuff	1	[redacted]
A71	Stethoscope (for adults)	1	[redacted]
A72	Fetal stethoscope	1	0
A73	Doppler	1	0
A74	Kidney basins	1	[redacted]
A75	Sponge bowls	1	0
A76	Clinical thermometer	1	[redacted]
A77	Low reading thermometer (32 or 35 degree C)	1	[redacted]
A78	Scissors	1	0
A79	Needles and syringes	1	[redacted]
A80	Suture needles/suture materials	1	[redacted]
A81	Catheter for IV line/adult cannulae (16-18)	1	0
A82	IV Infusion stand(s)	1	[redacted]
A83	Urinary catheters	1	[redacted]
A84	IV cannula 24 gauge	1	[redacted]

No.	Item	At least one available and functional? Yes	No
A85	Dipstick for urinalysis (protein, sugar, bacteriuria, bilirubin, etc.)	1	[redacted]
A86	Adult ventilator bag and mask	1	[redacted]
A87	Wheelchair	1	[redacted]
A88	Stretcher with trolley	1	[redacted]
A89	Examination table	1	0
A90	Labor/delivery table with stirrups	1	0
A91	Labor/delivery table without stirrups	1	0
A92	Dressing forceps	1	0
A93	Partograph form	1	0
A94	Watch or clock that can be easily seen	1	0
A95	Measuring tape	1	0
A96	Obstetric wheel (for measuring gestational age)	1	0
A98	Blankets for cold weather	1	[redacted]
A99	Water filter (or other means to make potable water available to patients and staff)	1	[redacted]
A100	HIV rapid testing kit	1	0
A101	Does the facility have Cloths or towels for drying the baby	1	0
A102	Does the facility have a complete episiotomy set?	1	0
A103	Does the facility have instrumental vaginal delivery sets (vacuum extractor and forceps delivery)?	1	0
A104	Does the facility have uterine evacuation equipments? (these are: Electric vacuum aspiration machine, Vaginal speculum, Sims, Sponge (ring) forceps, Postpartum curette, Uterine dilators and curettes, and Uterine sound)	1	0
A105	Does the facility have a complete manual vacuum aspiration set? (including lubricants and flexible cannulae)	1	0

Neonatal Care

Direct these questions to the head nurse or nurse in charge of neonatal care at the time of your visit

No.	Item	At least one available and functional? Yes	No
	Material for the newborn: Does the facility have…		
	a. Baby weighing scale	1	0
	b. Cord ties/clips	1	0
	c. Caps or hats to prevent heat loss	1	0
	d. Towels/blanket or cloth for newborn	1	0
	e. Incubator	1	0
A106	f. Exchange transfusion set	1	0

No.	Item	At least one available and functional? Yes	No
A107	g. Cup and spoon for infant feeding	1	0
A108	h. Laryngoscope newborn size	1	0
A109	i. Respirator for neonates	1	0
A110	j. 4% Chlorhexidine gel	1	0
A111	Is the equipment for resuscitation within the delivery unit always accessible?	1	0
A112	Are there decontamination supplies for the bag and mask?	1	0

Operating Theater

No.	Item	Response
A113	Does this facility have an operating theater for major operations, including cesarean delivery?	1 Yes 0 No
A114	Are there one or more separate operating theaters only for obstetric patients?	1 Yes 0 No
A115	Does the facility have the setting of blood donation activity for transfusion?	1 Yes 0 No

EmONC Signal functions

Instructions: *Answer the following questions regarding the EmONC Signal Functions by interviewing health workers in the maternity ward, reviewing facility registers, and through observation. You will record whether the function has been performed in the past three months.*

No.	Item	Responses		Skip to
S1 Parenteral antibiotics				
S11	Have parenteral antibiotics been administered to a pregnant or recently delivered woman in the last three months?	Yes.....1 No.....0		**If "No," skip to S13**
S12	If parenteral antibiotics were NOT administered in the last three months, why? ***(circle 1 for all spontaneous*)**	Spontaneously mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (specify)	1	0	
S2 Parenteral uterotonics				
S21	Have parenteral uterotonics been administered in the last three months?	Yes.....1 No 0		**If "No," skip to S24**
S22	If parenteral uterotonics were administered in the last three months, which type of uterotonic was used? ***(circle one)***	Oxytocin .....1 Ergometrine .....2 Both .....3 Other *(specify)* 4		
S23	Were they used …	Yes	No	
	a. For labor induction/augmentation? (Oxytocin only)	1	0	
	b. To prevent postpartum hemorrhage?	1	0	
	c. To treat postpartum hemorrhage?	1	0	
S24	If parenteral uterotonics were NOT administered in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	

	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (specify)_____	1	0	
S25	Is misoprostol used in this facility for obstetric/gynecological indications?	Yes.....1 No 0		**If No, skip to S3**
S26	Was it used …			
	a. For labor induction?	1	0	
	b. To prevent postpartum hemorrhage?	1	0	
	c. To treat postpartum hemorrhage?	1	0	
	d. To treat incomplete abortion?	1	0	
	e. To terminate pregnancy	1	0	
S3 Parenteral anticonvulsants				
S31	Have parenteral anticonvulsants been administered in the last three months?	Yes.....1 No 0		**If "No," skip to S33**
S32	If parenteral anticonvulsants were administered in the last three months, which type of anticonvulsant was used? ***(circle one)***	Magnesium sulfate.....1 Diazepam.....2 Both .....3 Other *(specify)* 96		
S33	If parenteral anticonvulsants were NOT administered in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (specify) _____	1	0	
S4 Manual removal of placenta				
S41	Has manual removal of the placenta been performed in the last three months?	Yes.....1 No 0		**If "No," skip to S5**

S42	If manual removal of the placenta was NOT performed in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (specify) _____	1	0	
S5 Removal of retained products				
S51	Has the removal of retained products been performed in the last three months?	Yes..... 1 No 0		**If "No," skip to S53**
S52	If removal of retained products was performed in the last three months, which method was used? ***(read options)***	Yes	No	
	a. manual vacuum aspiration	1	0	
	b. electric vacuum aspiration	1	0	
	c. dilation and curettage (D&C)	1	0	
	d. evacuation and curettage (E&C)	1	0	
	e. misoprostol	1	0	
	g. oxytocin	1	0	
S53	If the removal of retained products was NOT performed in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (*specify*)_____	1	0	

S6 Assisted vaginal delivery				
S61	Has assisted vaginal delivery (by vacuum extraction or forceps) been performed in the last three months?	Yes ..... 1 No 0		**If "No," skip to S63**
S62	What instrument was used if vacuum extraction or forceps delivery was performed in the last three months? ***(circle one)***	Vacuum extractor ..... 1 Forceps ..... 2 Both 3		
S63	If vacuum extraction or forceps delivery was NOT performed in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (*specify*) _____	1	0	
S7 Cesarean delivery				
S71	Has a cesarean section been performed in the last three months?	Yes ..... 1 No 0		**If "No," skip to S75**
S72	On average, how long would it take staff to start a cesarean section if you decide to start one right now?	|___|___|___| minutes		
S73	What type of anesthesia is currently used when performing a cesarean delivery? ***(read options out loud)***	Yes	No	
	a. general	1	0	
	b. spinal	1	0	
	c. epidural	1	9	
	d. ketamine	1	0	

	d. other (*specify*) _____	1	0	
S74	What health workers provided a cesarean section in the last three months? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. medical doctor (general practitioner)	1	0	
	b. ob/gyn	1	0	
	c. general surgeon	1	0	
	d. emergency surgical officer	1	0	
	f. health officer	1	0	
	f. other (*specify*)_____	1	0	
S75	If a cesarean was NOT performed in the last three months, why? **(circle 1 for all spontaneous answers; otherwise, circle 0)**	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (*specify*)_____	1	0	
S8 Blood transfusion				
S81	Has a blood transfusion been performed in the last three months?	Yes ..... 1 No 0		**If "No," skip to S83**

S82	If a blood transfusion was performed in the last three months, describe the primary supply of blood. ***(circle one)***	Blood comes from central blood bank ..... 1 Blood comes from a facility blood bank ..... 2 Blood is collected from family or friends as needed (i.e., direct transfusion) ..... 3 Other *(specify)* ..... 96 _____ _		
S83	If a blood transfusion was NOT performed in the last three months, why? ***(circle 1 for all spontaneous answers; otherwise, circle 0)***	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	
	f. no indication	1	0	
	g. other (*specify*)_____	1	0	
S9 Newborn resuscitation				
S91	Has newborn resuscitation with a bag and mask been performed in the last three months?	Yes..... 1 No 0		**If "No," skip to Q 203_5**
S92	If newborn resuscitation with a bag and mask was NOT performed in the last three months, why? **(circle 1 for all spontaneous answers; otherwise, circle 0**)	Spontaneously Mentioned	Not mentioned	
	a. lack of human resources	1	0	
	b. training needed	1	0	
	c. lack of supplies/equipment/drugs	1	0	
	d. weak management	1	0	
	e. unsupportive or no policy	1	0	

f. no indication	1	0	
g. other *(specify)* _____	1	0	

APPENDIX 29: Observation tool for process quality assessment of EmONC services (English)

INSTRUCTION:

- The observer/data collector needs to fill this section while the health care provider in charge is providing the EmONC services to women with obstetric complications.
- After obtaining consent from both (the care provider and the woman), fill out the questionnaire while observing the care provision.

I1	Service user's code	|__|__|__|
I2	Date (DD/MM/YY)	|__|__|/|__|__|/|__|__|
I3	Observer/Interviewer code	_____
I4	Provider qualification category	1. General practitioner 2. Obstetrician/gynecologist 3. Health officer 4. Nurse 5. Midwife 6. Integrated emergency surgical officer 7. Other _____
I5	Sex of provider	1. Male 2. Female
I6	Record the time the observation started	|__|__| : |__|__|
I7	The patient/client came to receive service for	1. Pregnancy complication treatment 2. Child delivery 3. Safe abortion or post-abortion care 4. Post-partum complication treatment 5. Other

Danger signs of current pregnancy			
P8	In column a, record whether the provider asked about any of the following for the current pregnancy. In column b, record whether the client/patient mentioned the presence of any of the danger signs.	Provider asked	Client mentioned presence
P9	Vaginal bleeding	1. No 2. Yes	1. No 2. Yes
P10	Fever	1. No 2. Yes	1. No 2. Yes
P11	Headache or blurred vision	1. No 2. Yes	1. No 2. Yes
P12	Swollen face or hands	1. No 2. Yes	1. No 2. Yes

P13	Tiredness or breathlessness	1. No 2. Yes	1. No 2. Yes
P14	Fetal movement (loss of, excessive)	1. No 2. Yes	1. No 2. Yes
P15	Cough or difficulty breathing for three weeks or more	1. No 2. Yes	1. No 2. Yes
P16	Foul-smelling discharge	1. No 2. Yes	1. No 2. Yes

Observation of initial patient/client assessment				
P17	Record whether the provider carried out the following steps and/or examinations:			
P18	Respectfully greets the pregnant woman			
P19	Encourages the woman to have a support person present throughout labor, delivery, or the existing health problem	1 Yes	0 No	
P20	Asks the woman (and support person if present) if she has any questions	1 Yes	0 No	
P21	Responds to woman's questions and concerns	1 Yes	0 No	
P22	Checks the client card OR asks the client her age, length of pregnancy, and parity	1 Yes	0 No	
P23	If the woman had a previous birth, asks about the following complications during previous pregnancies. If this is the first pregnancy for the mother, select '9'.	1. Yes	0. No	9. NA
P24	Washes his/her hands before any examination	1 Yes	0 No	
P25	Takes temperature	1 Yes	0 No	
P26	Takes pulse	1 Yes	0 No	
P27	Takes blood pressure	1 Yes	0 No	
P28	Asks/notes the amount of urine output	1 Yes	0 No	
P29	Tests urine for the presence of protein	1 Yes	0 No	
P30	Performs general examination (e.g., for anemia, edema)	1 Yes	0 No	
P31	Performs abdominal examination for fundal height, fetal presentation, and fetal heart rate	1 Yes	0 No	

P32	Performs vaginal examination (cervical dilation, fecal descent, position, membranes, meconium)	1 Yes	0 No
P33	Informs the pregnant woman of the findings	1 Yes	0 No
P34	**Observation of 1st stage labor**		
P35	At least once, explains what will happen in labor to the woman and/or her support person	1 Yes	0 No
P36	At least once, encourages woman to consume liquids/food throughout labor	1 Yes	0 No
P37	At least once, encourages/assist the woman to ambulate and assume different positions during labor	1 Yes	0 No
P38	Supports the mother during labor in a friendly way	1 Yes	0 No
P39	Drapes woman or gives a woman something to cover her	1 Yes	0 No
P40	Privacy assured during the examination	1 Yes	0 No
P41	Washes his/her hands before pelvic examination of the woman	1 Yes	0 No
P42	Wears sterile or high-level disinfected gloves for vaginal examination	1 Yes	0 No
P43	**Continuous observation of 2nd and 3rd stages of labor**		
P44	Puts on clean protective clothing in preparation for the birth that protects face, body, and hands from contact with fluids	1 Yes	0 No
P45	How many women were in delivery at the same time as this mother?	_____	
P46	Was an episiotomy performed?	1 Yes	0 No
P47	Was the mother's episiotomy stitched?	1 Yes	0 No
P48	If yes, was anesthesia used for the stitching of the episiotomy?	1 Yes	0 No

P49	**Did the mother receive any of the following around the time of delivery?**		
a)	Antibiotics or any other drugs by drip	1 Yes	0 No
b)	Injection or pill to stop bleeding/contract uterus after the baby was born above the usual amount	1 Yes	0 No
c)	Manual removal of placenta or removal of retained products	1 Yes	0 No
d)	Cesarean section	1 Yes	0 No
e)	Vacuum extraction (suction to pull the baby out)	1 Yes	0 No
f)	Other complications (specify)	1 Yes	0 No
P50	What was the outcome of the pregnancy?	1. Live born baby 2. Stillbirth 3. Abortion 4. Other	
P51	If a live-born baby, is the baby still living?	1 Yes	0 No
P52	If the baby is no longer living, how long after delivery did he/she die?	_____ in min	
P53	If the baby experienced any of the complications (infection, trouble feeding, jaundice, or trouble breathing after delivery) after delivery, did any health provider respond to the complication?	1 Yes	0 No
P54	**Mother-Baby Outcomes**		
P55	type of delivery	1. Spontaneous vaginal 2. Assisted (instrumented) 3. Cesarean	
P56	the outcome for the mother	1. Postpartum ward 2. Referred same facility 3. Surgery same facility 4. Referred other facility 5. Died 6. I don't know	
P57	the outcome for the newborn	1. Normal 2. Referred – same facility 3. Referred - outside the facility 4. Died 5. I don't know	
P58	Record the time the observation ended	|__|__| : |__|__|	

APPENDIX 30: Exit interview of EmONC users (English)

Instruction:

The data collectors will fill this section by interviewing women who utilized the EmONC services in the health facility.

Section 1: Identification

I1	ID of mother: |____|____|____|	I2	Date of interview: |__|__|/|__|__|/|__|__| (dd/mm/yy)
I3	ID of supervisor	I4	Name of health facility: _____
I5	Id data collector: |____|		

Section 2: Socio-demographic and household wealth characteristics

Socio-demographic characteristics of respondents

	Now, I would like to ask you some questions about yourself and your family.	
1.	What district/woreda do you live in?	_____
2.	What kebele/village do you live in?	_____
3.	What is the highest level of school you attended?	0 Not attended at all 1 Primary education 2 Secondary education 3 College/university
4.	What is your religion?	1 Protestant 2 Orthodox 3 Muslim 4 Other (specify) _____
5.	What is your marital status?	1 Never married 2 Currently married 3 Separated 4 Divorced 5 Widowed 6 Living with a partner as if married
6.	What is your occupation, that is, what kind of work do you mainly do?	1 Housewife 2 Farming 3 Government employee 4 Non-government employee 5 Daily laborer 6 Student

		7 Other (specify) _____
7.	How many people live in your household, including men, women, and children?	|__|__|__|
1.	How did you come to this health facility?	1 Came directly to this facility from home 2 Came from maternity waiting home at this facility 3 Sent to this facility by referral from another facility 96 Other (specify) _____
2.	What was the major transportation method you used to reach this health facility?	1 Ambulance 2 Walked 3 Motorcycle 4 Bajaj/taxi 5 Car (personal or borrowed) 6 Bus (public transport) 7 Other (specify) _____
3.	How long (*in minutes*) did it take you to travel to this health facility?	|__|__|__|minutes
4.	How many days did you spend/stay continuously at this health facility?	|__||__|

2.2.Household wealth index characteristics of respondents

W 1	Does your household have a functioning ……..: [write '1' if yes & '0' if no] D9.1. Television: |___| D9.2. Radio: |___| D9.3. Satellite dish: |___| D9.4. Mobile phone: |___| D9.5. Landline phone: |___| D9.6. Table: |___| D9.7. Chair/bench (not stool): |___| D9.8. Bed with sponge mattress:|__| D9.9. Bed with straw mattress:|___| D9.10. Kerosene lamp: |___| D9.11. Pressure lamp|___| D9.12. Kerosene stove:|___| D9.13. Electric 'mitad':|___| D9.14. Animal-drawn cart:|___| D9.15. Bicycle:|___| D9.16. Motorcycle/'bajaj':|___| D9.17. Refrigerator: |___| D9.18. Water pump diesel:|___| D9a1.1.hoe/mattock |___| D9a1.2 hammer/iron bar |___| D9a1.3 spade/shovel |___| D9a1.4ox plough |___| D9a1.5water pump |___| D9a1.6tractor |___|
W 2	Animals owned by the household:[for each animal, write the number owned by the household: if the household doesn't own an animal, write 000]

	D10.1. Plow oxen: |__|__|__| D10.2. Bulls: |__|__|__| D10.3. Cows/heifers: |__|__|__| D10.4. Calves: |__|__|__| D10.5. Sheep & goats: |__|__|__| D10.6. Horse, donkey & mules: |__|__|__| D10.7. Chicken: |__|__|__| D10.8. Bee-hives: |__|__|__|			
W3	How many rooms in this household are used for sleeping? |___|___|			
W4	Housing characteristics			
	D12.1. Roof: | |	D12.2. Wall: | |	D12.3. Floor: | |	
	1. Thatch/leaf 2. Plastic sheets 3. Corrugated iron sheet 4. Cement 5. Other [specify] _____	1. wooden & mud 2. cartoon 3. cement 4. stone with lime/cement 5. wood plank/shingles 6. Bricks 7. Other[specify]	1. Earth/ mud 2. Wooden 3. Ceramic tiles 4. Cement/bricks 5. Other specify]_____	
W5	Type of fuel mainly used for cooking? |___|; 1.electricity 2.wood 3.biogas kerosene 4.straw/shrubs/ grass 5.other (specify)_____			
W6	Usual place of cooking: |___|; 1.in the living house 2.in a separate building 3.outdoors 4.other (specify)			
W7	Who owns the house you are currently living in? |___| 1. Personal 2. Rented from government 3. Rented from individuals	D16	Do you have a separate room that is used as a kitchen? |___|; 0. No 1. Yes	
W8	Type of latrine owned by the household: |___|; 1. Flush /pour-flush toilet 2. Ventilated improved pit latrine 3. Pit latrine with slab 4. Pit latrine without a slab 5. No facility/bush/field 6. Other (specify)			
W9	Does any member of this household have a bank account or microfinance saving? |___| 0. No 1. Yes			

3	**SATISFACTION OF EMoNC CARE RECEIVED AT HEALTH FACILITY AND PERCEIVED QUALITY** I would like to ask you some more questions about how satisfied you were with your experience in this health facility. Please remember that nothing you tell me will be shared with the health facility, and your responses will not affect health care for you or your children in the future. **Tick '√' sign for the respondent's answer among the 5 Likert scale answers.**					
5.		5.Excellent	4.Very good	3.Good	2.Fair	1.Poor
6.	How would you rate the knowledge and competence of health workers at this facility for this service?					
7.	How would you rate the respect the providers showed you at this facility for this service?					
8.	How would you rate the availability of drugs at this facility for this service?					
9.	How would you rate the availability of modern medical equipment at this facility for this service?					

10.	How would you rate the privacy you were given?					
11.	How would you rate the communication skills of the providers at this facility?					
12.	How would you rate the cleanliness of the rooms inside the facility, including the toilets?					
13.	How would you rate the accessibility of the health facility with regard to transportation and distance from your home?					
14.	Overall, taking everything into account, how would you rate the quality of care you received at this facility for this delivery?					
15.	How do you rate your satisfaction with the amount of time you waited before the health provider attended to you?					
16.	How do you rate your satisfaction with the affordability of treatment cost of receiving the service you have utilized?					
17.	How do you rate your satisfaction with your experience while receiving this service?					

D.	**Maternal health status and health service utilization related characteristics**	
	Now I'm going to ask you about your health in the past.	
18.	How many times have you visited a health facility (including this one) for any reason in the last 12 months?	|__|__|
19.	Overall in the last 12 months, how would you rate your health?	5 Very good 4 Good 3 Moderate 2 Bad 1 Very Bad
20.	Over the course of your life, how many births (babies born alive or dead) have you had, including this one?	|__|__|
21.	Of all of your births, how many of your children are still alive?	|__|__|
22.	How many of all your deliveries were outside of a health facility (such as your home, someone else's home, or somewhere else)?	|__|__|
23.	How many deliveries, including your last delivery, were at the health facility?	|__|__|

24.	If you have received any emergency obstetric care services (explain them) at **this** health facility before, how would you rate the overall quality of care you received at this facility for the last service you received?	5 Excellent 4 Very good 3 Good 2 Fair 1 Poor
25.	When was the last service you received?	|__|__|/|__|__|/|__|__| (mm/yy)
26.	Have you had an ANC follow-up for this pregnancy?	1 Yes 0. No
27.	If yes, where did you go for most of your antenatal care (ANC) for this pregnancy?	1. This health facility 2. Health center (not this one) 3. Hospital (not this one) 4. Health post 5. Private clinic 6. Other (specify)
28.	Overall, taking everything into account, how would you rate the quality of antenatal care (ANC) you received?	5 Excellent 4 Very good 3 Good 2 Fair 1 Poor
29.	Overall, how satisfied are you with how the health care system works in the woreda/district you live in?	5 Very satisfied 4 Somewhat satisfied 3 No opinion 2 Somewhat dissatisfied 1 Very dissatisfied

30.	Did you feel pressured to deliver at a health facility for this baby?	1 Yes, I felt a great deal of pressure 2 Yes, I felt somewhat pressured 3 No, I did not feel pressured at all
31.	If yes, where did the pressure come from?	1 My husband/partner 2 A female relative 3 Another relative 4 Community leader 5 Health extension worker 6 Another health professional 7 Other (specify)
32.	Did you have to pay for any of the following costs associated with the service you received?	1 Yes 0 No
33.	If yes, what was the service that you paid? SELECT ALL THAT APPLY.	1 Doctor's/nurse's fees (official and unofficial) 2 Drugs 3 Supplies (please include delivery kits, gloves, soap, etc.) 4 Medical tests/x-rays 5 Transport 6 Maternity waiting home 7 Food 8 Other _____
34.	How much do you think you paid overall to cover all the costs of the service? This includes all of your costs for treatment, transport, food, drugs, etc.	_____

35.	After you obtained the service, did you get any information or counseling about family planning options?	1 Yes 2 No
	FUTURE UTILIZATION OF HEALTH FACILITY	
	Do you plan to return to this facility for other related healthcare services?	1 Yes 0 No
36.	Do you plan to have more children?	1 Yes 0 No
37.	Where do you plan to deliver your next child?	1 Same facility 2 Another facility 3 Home 4 Other (specify) _____
38.	How likely are you to recommend this facility to others for general health services?	5 Very likely 4 Somewhat likely 3 No opinion 2 Somewhat unlikely 1 Not at all likely
39.	How likely are you to bring your child/children to this facility for health care in the future?	5 Very likely 4 Somewhat likely 3 No opinion 2 Somewhat unlikely 1 Not at all likely
40.	If you were a manager and could choose to do one thing to improve the care women get in this facility, what would it be?	0 Everything is okay 1 Shorten waiting time to see the doctor 2 Improve the skills of doctors/nurses 3 Clean facility 4 Improve respect of doctors/nurses toward patients 5 Improve confidentiality/privacy 6 Improve the supply of medicines 7 Reduce the cost of treatment 8 Improve women's ability to choose a health care provider 9 Other (specify) _____

APPENDIX 31: Exit interview for EmONC users (Amharic)

መመሪያ:

ይህ ክፍል በመረጃ ሰብሳቢ (ቃለመጠይቅ አድራጊ) የሚሞላ ሲሆን በእናቶችና ጨቅላ ህጻናት ላይ የሚደርስ ድንገተኛ በሽታ ህክምናን የተጠቀሙ እናቶችን በጤና ተቋም ዉስጥ በመጠየቅ ይሞላል፡፡

ክፍል 1. መለያ

I1	የእናት መለያ ቁጥር: I_____I_____I___	I2	ቃለመጠይቁ የተደረገበት ቀን: I__I__I/I__I__I/I__I__I (ቀን/ወር/ዓ.ም)

I3	የሱፐርቫይዘር መለያ ቁጥር:	I4	የጤና ተቋሙ ስም: _____
I5	የመረጃ ሰብሳቢዉ መለያ ቁጥር:: I____I		

Section 2: የማህበራዊ፤ ስነ-ህዝባዊና የቤተሰብ ሃብት ባህሪያትና ሁኔታዎች

2.1. የማህበራዊና ስነ-ህዝባዊ ሁኔታዎች

	አሁን የምጠይቅዎት ጥያቄ እርስዎንና ቤተሰብዎን የሚመለከት ይሆናል፡፡ እባክዎ ትክክለኛዉን መልስ ይስጡ፡፡	
8.	የሚኖሩበት ወረዳ	_____
9.	የሚኖሩበት ቀበሌ	_____
10.	የትምህርት ደረጃ	0 ፊደሞ አልተማርኩም 1 አንደኛ ደረጃ 2 ሁለተኛ ደረጃ 3 ኮሌጅ/ዩኒቨርሲቲ
11.	ሀይማኖት	1 ፕሮቴስታንት 2 ኦርቶዶክስ 3 ሙስሊም 4 ሌላ (ይጥቀሱ) _____
12.	የጋብቻ ሁኔታ	1 ፊደሞ አላገባሁም 2 አግብቻለሁ 3 ተለያይቼ እኖራለሁ 4 ፈትቻለሁ 5 የትዳር አጋሬ ሞቷል 6 አላገባሁም ግን አንድ ላይ እኖራለሁ
13.	የስራ ሁኔታ	1 የቤት እመቤት 2 አርሶአደር 3 የመንግስት ስራ ተቀጣሪ 4 መንግስታዊ ያልሆነ ድርጅት ተቀጣሪ 5 የቀን ሰራተኛ 6 ተማሪ 7 ሌላ (ይጥቀሱ) _____

14.	በቤታችሁ ስንት ሰዉ ይኖራል (ህጻናትም አዋቂም ሁሉም ተቆጥሮ)?	|__|__|__|
41.	ወደዚህ ጤና ተቋም እንዴት መጡ?	1 ከቤቴ በቀጥታ ወደዚህ ተቋም መጣሁ 2 አዚህ ከሚገኘዉ ከእናቶች ማቆያ 3 ከሌላ ጤና ተቋም መሪፈራል መጣሁ 96 ሌላ (ይጥቀሱ) _____
42.	ወደዚህ የመጡበት መንገገጥ ምንድነዉ?	1 አምቡላንስ 2 በእግር ጉዞ 3 ሞተር ሳይክል 4 ባጃጅ/ታክሲ 5 መኪና (የቤት)) 6 መኪና (የህዝብ ትራንስፖርት 7 ሌላ (ይጥቀሱ) _____
43.	ከቤትዎ እዚህ ለመድረስ ምን ያህል ጊዜ (ደቂቃ) ፈጀብዎት	|__|__|__| ደቂቃ
44.	በዚህ ጤና ተቋም ምን ያህል ቀናትን ቆይዋል	|__||__|

2.3. የቤተሰብ ሃብት መለኪያ ሁኔታዎች

W 1	ቤትዎ ዉስጥ የሚሰራ ወይም የሚያገለግል .....አለ? [ካለ'1' ከሌለ '0' ይጻፉ] D9.1. ቴሌቪዥን : |___| D9.2. ራድዮ: |___| D9.3. ሳተላይት ዲሽ: |___| D9.4. የሞባይል ስልክ: |___| D9.5. መደበኛ ስልክ: |___| D9.6. ጠረጴዛ: |___| D9.7. ወንበር (ኩርሲ አያካትትም): |___| D9.8. የስፖንጅ ፍራሽ አልጋ:|__| D9.9የገለባ ፍራሽ አልጋ:|___| D9.10. ፋኖስ |___| D9.11ማሾ |___| D9.12. ቡታጋዝ:|___| D9.13. ኤሌክትሪክ ምጣድ:|___| D9.14. ፈረስ/አህያ ጋሪ::|___| D9.15. ብስክሌት :|___| D9.16. ባጃጅ/ሞተርሳይክል:|___| D9.17. ፍሪጅ: |___| D9.18. የዉሃ ፓምፕ:|___| D9a1.1. መኮትኮቻ/ዶማ|___| D9a1.2 መዶሻ |___| D9a1.3 አካፋ |___| D9a1.4የእርሻ በሬ|___| D9a1.6 ትራክተር |___|
W 2	ቤት ዉስጥ ያሉ እንስሳት ብዛት[የእያንዳዱን እንስሳ ብዛት ቁጥር ይጻፉ፡፡ ቤተሰቡ ምንም እንስሳ ከሌለዉ 000 ይጻፉ]

	D10.1. የእርሻ በሬ |__|__|__| D10.2. ኮርማ (ለእርሻ ያልደረሰ): |__|__|__| D10.3. ላም |__|__|__| D10.4. ጥጃ: |__|__|__| D10.5. በግና ፍየል |__|__|__| D10.6. ፈረስ፣ አህያ እና በቅሎ |__|__|__| D10.7. ዶሮ: |__|__|__| D10.8. የንብ ቀፎ: |__|__|__|		
W3	እዚህ ቤት ዉስጥ ስንት የመኝታ ክፍሎች አሉ? |___|___|		
W4	የቤቱ ሁኔታ			
	D12.1. ጣሪያ: |___|	D12.2. ግድግዳ:: |___|	D12.3. ወለል:: |___|
	1. ሳር/ቅጠል 2. በላስቲክ የተሸፈነ 3. ቆርቆሮ 4. ሲሚንቶ 5. ሌሎች [ይጥቀሱ] _____	1. እንጨትና ጭቃ 2. ክርታስ 3. ሲሚንቶ 4. ድንጋይ በኖራ/ሲሚንቶ 5. ጣዉላ 6. ሸክላ 7.ሌሎች[ይጥቀሱ]_____		1. መሬት/ጭቃ/አፈር 2. እንጨት 3. ሴራሚክ 4. ሲሚንቶ/ሽክላ 5.ሌሎች[ይጥቀሱ]_____	
W5	ምግብ ማብሰያዉ ሃይል ምንጭ |___|; 1.ኤሌክትሪክ 2.እንጨት 3.ናፍጣ/ባዮጋዝ 4.ሳር/ገለባ/ቁጥቋጦ 5. ሌሎች[ይጥቀሱ]_____			
W6	የምግብ ባብሰያ ቦታ: |___|; 1.በመኖሪያ ቤት ዉስጥ 2. በሌላ ህንጻ/ቤት ዉስጥ 3. ዉጭ(ሜዳ ላይ) 4. ሌሎች[ይጥቀሱ]_____			
W7	የምትኖሩበት ቤት የማነዉ? |___| 1. የኛ 2.የመንግስት ኪራይ 3. የግለሰብ ኪራይ 4. ሌሎች[ይጥቀሱ]_____	D16	ተለይቶ ያለ ማዕድ ቤት (ኩሽና) አለ? |___|; 0. አይደለም 1. አዎ	
W8	የመጸዳጃ ቤት ሁኔታ: |___|; 1. በዉሃ የሚሰራ 2. ቨንቲሌትድ ዘመናዊ የጉደጓድ 3. የጉድጓድ (በሲሚንቶ የተሰራ) 4. የጉድጓድ (ሲሚንቶ ያልሆነ) 5. መጸዳጃ ቤት የለም/ሜዳ ላይ/ጫካ ዉስጥ መጸዳዳት 6. ሌላ (ይጥቀሱ) _____			
W9	ቤትዎ ዉስጥ የባንክ አካዉንት ያለዉ ሰዉ አለ? |___| 0. አይደለም 1. አዎ			

3	**የአገልግሎት አሰጣጥ እርካታና ጥራት አረዳድ ሁኔታ** ቀጥሎ ያሉት ጥያቄዎች ስለ አገልግሎት አሰጣጥ እርካታና በአገልግሎት አሰጣጥ ጥራት ዙሪያ የእርስዎን ስሜትና አረዳድ የተመለከቱ ናቸዉ። እባክዎ ቀጥሎ ስለማነሳቸዉ ጥያቄዎች ከራስዎ ልምድና እምነት በመነሳት ምላሽ ይስጡ። እንዲገነዘቡ የምፈልገዉ እስርስዎ የሚነግሩን መረጃ ለጤና ተቋሙ የማናሳዉቅ መሆኑንና ካሁን መጓላ ለሚጠቀሙት የትኛዉም አገልግሎት ላይ ምንም አይነት ተጽዕኖ እንደማይኖረዉ አረጋግላዉ። **ለመረጃ ሰብሳቢዉ፡-** የተጠያቂዉን መልስ ይህን '√' ምልክት በመጻፍ ይግለጹ።						
45.		5.እጅግ በጣም ጥሩ	4. በጣም ጥሩ	3. ጥሩ	2. መካከለኛ	1. ዝቅተኛ
46.	የጤና ባለሙያዎችን እዉቀትና ልህቀት እንዴት ይመዝናሉ?					

47.	የጤና ባለሙያዎች ለእርስዎ የሚሰጡትን አክብሮት እንዴት ይመዝናሉ?					
48.	የህክምና መድሃኒቶችን ከማግኘት አንጻር ይህን ጤና ተቋም እንዴት ይመዝናሉ?					
49.	ዘመናዊ የህክምና ቅቁሶች መኖርን በሚመለከት ይህን ጤና ተቋም እንዴት ይመዝናሉ?					
50.	ለእርስዎ የሚሰጠዉን አገልግሎት ልላ ሰዉ እንዳያይ ሚስጥራዊነትን ከመጠበቅ አንጻር ይህን ጤና ተቋም እንዴት ይመዝናሉ?					
51.	የጤና ባሙያዎችን የመግባባት ክህሎት እንዴት ይመዝናሉ?					
52.	የጤና ተቋሙን ክፍሎች ንጽህና (መጸዳጃ ቤቱን ጨምሮ) እንዴት ይመዝናሉ?					
53.	የጤና ተቋሙን ተደራሽነት ለትራንስፖርት ምቹነትና ከብተዎ ባለዉ ርቀት በተመለከተ እንዴት ይመዝናሉ?					
54.	ባጠቃላይ ሁለንም ነገር ከግንዛቤ ዉስጥ በማስገባት በዚህ ጤና ተቋም ያገኙትን አገልግሎት ጥራት እንዴት ይመዝናሉ?					
55.	ወደ ጤና ተቋሙ ከመጡ በኋላ አገልግሎት እስኪያገኙ ድረስ የቆዩበትን ጊዜ (ሰዓት) በሚመለከት የተሰማዎትን እርካታ እንዴት ይመዝናሉ?					
56.	ይህንን አገልግሎት ለማግኘት ያወጡትን የህክምና ወጪና የዋጋዉ ተመጣጣኝነት በሚመለከት የተሰማዎትን እርካታ እንዴት ይመዝናሉ?					
57.	ባጠቃላይ በተሰጠዎት አገልግሎት የተሰማዎትን እርካታ እንዴት ይመዝናሉ?					
D.	**የእናት ጤና ሁኔታና የጤና አገልግሎት አጠቃቀም ባህርያት**					
	ቀጥሎ ያሉት ጥያቄዎች ስለ ጤናዎት የተመለከቱ ናቸዉ። እባክዎ ቀጥሎ ስለማነሳቸዉ ጥያቄዎች ከራስዎ ልምድ በመነሳት ምላሽ ይስጡ።					
58.	ባለፉት አስራሁለት ወራት ዉስጥ ማንኛዉንም አገልግሎት ለማግኘት ወደ ጤና ተቋም ምን ያህል ጊዜ መጥተዋል (ያሁኑን ጨምሮ)?	__|__|				

59.	ባጠቃላይ ባለፉት 12 ወራት ዒስጥ የነበርዎትን ጤና እንዴት ይመዝናሉ?	5 በጣም ጥሩ 4 ጥሩ 3 መካከለኛ 2 መጥፎ 1 በጣም መጥፎ
60.	ባጠቃላይ ስንት ልጆችን ወልደዋል (ያሁኑን ጨምሮ)?	|__|__|
61.	ከተወለዱት ዒስጥ አሁን በህይወት ያሉ ስንት ናቸዉ?	|__|__|
62.	ባጠቃላይ ከወለዷቸዉ ዒስጥ ከጤና ተቋም ዉጭ የወለዱት ስንት ናቸዉ?	|__|__|
63.	ባጠቃላይ ከወለዷቸዉ ዒስጥ በዚህ ጤና ተቋም የወለዱት ስንት ናቸዉ?	|__|__|
64.	ካሁን በፊት በዚህ ጤና ተቋም ይህን መሰል አገልግሎት አግኝተዉ የሚያዉቁ ከሆነ ከዚህ በፊት ለመጨረሻ ጊዜ ያገኙትን አገልግሎት አጠቃላይ የአገልግሎት አሰጣጥ ጥራቱን እንዴት ይመዝናሉ?	5 እጅግ በጣም ጥሩ 4 በጣም ጥሩ 3 ጥሩ 2 መካከለኛ 1 ዝቅተኛ
65.	ይህን ከላይ የመዘኑትን አገልግሎት ያገኙት መቼ ነበር?	|__|__|/|__|__||__|__| (ወር/ዓ.ምmm/yy)
66.	ለዚህ እርግዝና የጽንስ ክትትል አድርገዋል?	1. አዎ 0. አይደለም
67.	አዎ ከሆነ መልስዎ የት ነበር የጽንስ ክትትል የሚያደርጉት?	7. በዚህ ጤና ተቋም 8. ጤና ጣቢያ 9. ሆስፒታል 10. ጤና ኬላ 11. የግል ክሊኒክ 12. ሌላ (ይጥቀሱ) _____
68.	ከላይ የተጠቀሰዉን የጽንስ ክትትል በሚመለከት ባጠቃላይ ያገኙትን የጽንስ ክትትል አገልግሎት አሰጣጥ ጥራት እንዴት ይመዝናሉ?	5 እጅግ በጣም ጥሩ 4 በጣም ጥሩ 3 ጥሩ 2 መካከለኛ 1 ዝቅተኛ
69.	ባጠቃላይ በወረዳችሁ በሚሰጠዉ የጤና አገልግሎት አሰጣጥ ምን ያህል ረክተዋል?	5.በጣም ረክቻለሁ 4.በተወሰነ ደረጃ ረክቻለሁ 3.ምንም ሃሳብ የለኝም 2.በተወሰነ ደረጃ አልረካሁም 1.በጣም አልረካሁም

70.	ይህን ጽንስ በጤና ተቋም እንዲወልድ ተገፋቻለሁ ብለዉ ያስባሉ?	1 Yes, I felt a great deal of pressure አዎ በጣም ተገፋፍቻለሁ ብዬ አስባለዉ 2 አዎ በተወሰነ ደረጃ ተገፋቻለሁ ብዬ አስባለሁ 3 አይ በፍጹም ተገፋቻለሁ ብዬ አላስብም

71.	አዎ ካለ ግፊቱ ከየት ነዉ የመጣዉ?	1 ከባለቤቴ/አጋሬ 2 ከሴት ዘመድ 3 ከሌላ ዘመድ 4 ከማህበረሰቡ መሪ 5 ከጤና እክስተንሽን ባለሙያ 6 ከሌላ ጤና ባለሙያ 7
72.	ከዚህ አገልግሎት ጋር በተገናኘ ገንዘብ እንዲከፍሉ የተጠየቁበት ሁኔታ አለ?	1. አዎ 0. አይደለም
73.	አዎ ከሆነ መልስዎ ክፍያ የተጠየቁበት አገልግሎ ምንድነዉ? ከተጠቀሱት ዉስጥ የሚመለከተዎትን በሙሉ ይምረጡ፡፡	1 የዶክተር/ነርስ ክፍያ 2 የመድሃኒት 3 ግብዓቶች (ጓንት፣ ሳሙና ...) 4 የላብራሪ ምርመራ/ራጅ ክፍያ 5 ትራንስፖርት 6 የእናቶች ማቆያ ክፍያ 7 የምግብ 8 ሌላ (ይጥቀሱ) _____
74.	ባጠቃላይ ላስፈለግዎት ሁሉም አገልግሎቶች ምን ያህል የከፈሉ ይመስልዎታል (ትራንስፖርት፣ ምግብ፣ መድሃኒት፣ ወዘተ)	_____ ብር
75.	ይህን አገልግሎት ካገኙ በኋላ ስለበተሰብ ምጣኔ አገልግሎት አጠቃቀም የምክር አገልግሎት ወይም መረጃ ተሰጥተዎታል?	1 አዎ 0. አይደለም
	የወደፊት የጤና አገልግሎ አጠቃቀም	
	ከዚህ በኋላ ለወደፊት አገልግሎ ለማግኘት ወደዚህ ጤና ተቋም ለመምጣት ያቅዳሉ?	1 አዎ 0. አይደለም
76.	ወደፊት ሌላ ልጅ ለመዉለድ ያቅዳሉ?	1 አዎ 0. አይደለም
77.	ወደፊት የት ቦታ ላይ ልጅ ለመዉለድ ይፈልጋሉ?	1 በዚሁ ጤና ተቋም 2 በሌላ ጤና ተቋም 3 እቤት ዉስጥ 4 ሌላ (ይጥቀሱ) _____
78.	ለአጠቃላይ የጤና አገልግሎት አጠቃቀም ይህን ጤና ተቋም ሌሎች እንዲጠቀሙ ከመደገፍ አንጻር ያለዎት አስተያየት ምን ይመስልዎታል?	5 በጣም የምደግፍ ይመስለኛል 4 በተወሰነ ደረጃ የምደግፍ ይመስለኛል 3 ምንም ሃሳብ የለኝም 2 በተወሰነ ደረጃ የማልደግፍ ይመስለኛል 1 በጭራሽ የማልደግፍ ይመስለኛል
79.	ልጅዎ/ልጆችዎ የጤና አገልግሎት መጠቀም ቢኖርበት/ቢኖርባቸዉ ወደዚህ ጤና ተቋም የማምጣት ሁኔታ ምን ይመስላል?	5 በጣም የማመጣቸዉ ይመስለኛል 4 በተወሰነ ደረጃ የማመጣቸዉ ይመስለኛል 3 ምንም ሃሳብ የለኝም 2 በተወሰነ ደረጃ የማመጣቸዉ አይመስለኝም 1 በጭራሽ የማመጣቸዉ አይመስለኝም
80.	እርስዎ የዚህ ጤና ተቋም ሃላፊ ቢሆኑ እናቶች ከሚያገኙአቸዉ አገልግሎቶች የትኛዉን ማሻሻል ይፈልጋሉ?	0 ሁሉም ነገር ጥሩ ነዉ 1 አገልግሎቱን እስክናገኝ ድረስ ያለዉን የመጠበቅያ ጊዜ አሳጥራለሁ

		2 የጤና ባለሙያዎችን ክህሎት አሻሽላለሁ 3 ተቋሙን ጽዱ አደርጋለሁ 4 የጤና ባለሙያዎች ለበሽተኞች የሚሰጡትን አክብሮት አሻሽላለሁ 5 የአገልግሎት አሰጣጥ ሚስጥራዊነቱን አሻሽላለሁ 6 የመድሃኒቶችን አቅርቦት አሻሽላለሁ 7 የህክምና ወጪን እቀንሳለሁ 8 የእናቶች የጤና ባለሙያ ምርጫን አሻሽላለሁ 9 ሌላ (ይጥቀሱ) _____

APPENDIX 32: A house-to-house survey tool for assessing EmONC service use (English)

NB: This section will be filled by interviewing the eligible women within the selected study areas of the community

Section 1: Identification

I1	ID of respondent:	|____|____|____|
I2	Interview date: (dd/mm/yyyy)	|__|__|/|__|__|/|__|__|__|__|
I3	Data collector's ID	| | |
I4	Supervisor's ID	|____|
I5	Name of woreda	_____

Section 2: Socio-demographic characteristics

H1	Residence	1. Rural 2. Urban
H2	Name of Kebele	
H3	The current age of respondent	| | |
H4	Marital status of the respondent	1. Single 2. married 3. divorced 4. widowed
H5	Ethnicity respondent	1. Wolaita 2. Dawro 3. Amhara 4. Gurage 5. Other (specify)
H6	Religion respondent	1. Protestant 2. Orthodox 3. Muslim 4. catholic 5. Traditional 6. Other (Specify)_____
H7	Occupation of respondent	1. Housewife 2. Farmer 3. Government employee 4. Merchant 5. Daily laborer 6. Non-governmental employee 7. Other (specify)_____
H8	Educational status of the respondent	1. No education 2. Primary 3. Secondary and above

Section 3: EmONC service utilization characteristics

H9	How many pregnancies have you ever had?	|___|
H10	How many live-born children have you ever had?	|___|
H11	If more than one, what is the birth interval	|___|___|

	between the last pregnancy and the earlier pregnancy? (in months)	
H12	Was your last pregnancy a planned pregnancy?	0. No 1. Yes
H13	Did you receive any ANC for your last pregnancy?	0. No 1. Yes
H14	If yes to the above question, How many times did you go for a pregnancy checkup?	|___|
H15	Where did you receive antenatal follow-up?	1. Health post 2. Health Centre 3. Hospital 4. Private
H16	Who provided you the antenatal care in the last pregnancy?	1. Doctor 2. Nurse 3. Health officer 4. Health extension worker 5. Other (specify)
H17	Have you faced (for the recent pregnancy) any of the following at pregnancy time and/or during childbirth? (Multiple answers are possible)	1. hemorrhage (antepartum and postpartum), 2. prolonged and/ or obstructed labor 3. postpartum sepsis 4. complications of abortion 5. severe pre-eclampsia and/or eclampsia 6. ectopic pregnancy 7. ruptured uterus 8. other
H18	If yes, did you visit a health facility?	0. No 1. Yes
H19	If you visited a health facility, which health facility did you visit?	2. Health post 3. Health center 4. Hospital 5. Private clinic 6. Other
H20	What was the transportation that you used to go to the health facility?	1. On foot 2. Ambulance 3. Three/four-wheel vehicle 4. motorcycle/ Bicycle 5. animal cart 6. other (specify)
H21	How long did it take to reach the health facility using the above transportation method? (Either in minutes or in hours)	In minute: |___|___|___|
H22	What did you do for the complication if you didn't visit a health facility?	1. Stayed at home 2. Went to a traditional birth attendant 3. Other

APPENDIX 33: A house-to-house survey tool for assessing EmONC service use (Amharic)

ማሳሰቢያ ፡ ይህ ክፍል የሚሞላው እርግዝና ጋር የተያያዙ የእናቶችና ጨቅላ ህጻናት ህመሞች ያለባቸዉን ሰዎች ቃለመጠየቅ በማድረግ ይከናወናል።

ክፍል 1: *መለየት*

I1	የተሳታፊዋ መታወቂያ	|____|____|____|
I2	የቃለ መጠይቅ ቀን፡ (ቀን/ወር/ ዓ.ም)	|__|__|/|__|__|/|__|__|__|__|
I3	የመረጃ ሰብሳቢ መታወቂያ	|____|____|
I4	የተቆጣጣሪ መታወቂያ	|____|
I5	የወረዳ ስም	_____

ክፍል 2: **ማህበራዊና ስነ-ሕዝብ ባህሪያት**

H1	መኖሪያ	1. ገጠር 2. ከተማ
H2	የቀበሌ ስም	_____
H3	የአሁኑ ዕድሜ	|____|____|
H4	የጋብቻ ሁኔታ	1. ያላገባች 2. ባለትዳር 3. የተፋታች 4. ባሏ የሞተባት
H5	ብሄር	1. ወላይታ 2. ዳውሮ 3. አማራ 4. ጉራጌ 5. ሌላ (ይግለጹ)_____
H6	ሃይማኖት	1. ፕሮቴስታንት 2. ኦርቶዶክስ 3. ሙስሊም 4. ካቶሊክ 5. ባህላዊ 6. ሌላ (ይግለጹ)_____
H7	ሥራ	1. የቤት እመቤት 2. ገበሬ 3. የመንግስት ሰራተኛ 4. ነጋዴ 5. የቀን ሰራተኛ 6. መንግስታዊ ያልሆነ ሰራተኛ 7. ሌላ (ይግለጹ) _____
H8	የትምህርት ደረጃ	1. ያልተማረች 2. አንደኛ ደረጃ 3. ሁለተኛ ደረጃ እና ከዚያ በላይ

ክፍል 3፡ **የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት አጠቃቀም ባህሪያት**

H9	ስንት ጊዜ አርግዘሻል?	|____|
H10	በህይወት የተወለዱ ስንት ልጆች አሉሽ ?	|____|

H11	ከአንድ በላይ ከሆኑ በመጨረሻው እርግዝና እና በቀድሞ እርግዝና መካከል ያለው የእድሜ ክፍተት ምን ያህል ነዉ? (በወራት)	|____|__|
H12	የመጨረሻው እርግዝናዎ የታቀደ እርግዝና ነበር?	0. አይ 1. አዎ
H13	ለመጨረሻ ጊዜ እርግዝናዎ ክትትል አድርገዋል?	0. አይ 1. አዎ
H14	ከላይ ላለው ጥያቄ አዎ ከሆነ፣ ስንት ጊዜ ሄዱ ?	|____|
H15	የቅድመ ወሊድ ክትትል የት ነበር ያደረጉት?	1. የጤና ኬላ 2. ጤና ጣቢያ 3. ሆስፒታል 4. የግል
H16	በመጨረሻው እርግዝና የቅድመ ወሊድ ክትትል ያደረገላችሁ ማን ነው?	1. ዶክተር 2. ነርስ 3. የጤና መኮንን 4. የጤና ኤክስቴንሽን ሠራተኛ 5. ሌላ (ይግለጹ) _____
H17	በእርግዝና ወቅት ወይም በወሊድ ጊዜ ከሚከተሉት ውስጥ አጋጥሞዎታል? (ብዙ መልስ ይቻላል)	1. የደም መፍሰስ (በወሊድ እና ከወሊድ በኋላ); 2. የተራዘመ እና/ወይም አስቸጋሪ ምጥ 3. የድህረ ወሊድ እንፈክሽን 4. የፅንስ መጨንገፍ ችግሮች 5. የደም ግፊት ችግሮች (ከእርግዝና ጋር የተያያዘ) 6. ከማህፀን ውጭ እርግዝና 7. ማህፀን መቀደድ 8. ሌላ _____
H18	አዎ ከሆነ፣ የጤና ተቋም ሄደዋል	0. አይ 1. አዎ
H19	ከሄድሽ የትኛዉን ጤና ተቋም ሄደዋል?	5. የጤና ኬላ 2. ጤና ጣቢያ 3. ሆስፒታል 4. የግል ክሊኒክ 5. ሌላ _____
H20	ወደ ጤና ተቋም የሄድሽበት መጓጓዣ ምን ነበር ?	1. በእግር 2. አምቡላንስ 3. ባለሶስት/ አራት ጎማ ተሽከርካሪ 4. ሞተርሳይክል / ብስክሌት 5. የእንስሳት ጋሪ 6. ሌላ (ይግለጹ) _____
H21	ከላይ ያለውን የመጓጓዣ ዘዴ በመጠቀም	በደቂቃ: |__|__|__|

	ወደ ጤና ተቋም ለመድረስ ምን ያህል ጊዜ ፈጅቷል? (በደቂቃ)	
H22	ጤና ጣቢያን ካልሄዱ ምን አደረጉ?	1. ቤት ቆየሁ 2. ወደ ባህላዊ ወሊድ አስተናጋጅ ሄድኩ 3. ሌላ _____

APPENDIX 34: Qualitative study tool

Individual in-depth interview guide for women who had obstetric emergencies (English)

NB: *This section will be assessed by conducting individual in-depth interviews using a tape record/note-taking of the responses of women who had at least one obstetric or neonatal emergency, namely: hemorrhage (antepartum or postpartum), prolonged or obstructed labor, postpartum sepsis, complications of abortion, severe pre-eclampsia and eclampsia, ectopic pregnancy, ruptured uterus, or neonatal sepsis/asphyxia*.

Age: _____ Sex: _____

Education: _____ Occupation: _____

1. Please tell me what you understand about obstetric emergencies and what you would do if it happens.

Probe

- What is an obstetric emergency, and how is it treated?
- Please tell me your personal experiences and what you did when it happened to you.
- Where did you seek care? Why did you seek care from there?

2. How did you feel about the quality of EmONC services you received in the hospital/health center? (If the woman used EmONC services)

Probe

- How was the quality of the infrastructure of the facility?
- How did you feel about the care provision processes?
- How do you rate your interaction with care providers and other staff (interpersonal quality)?
- How do you see the reception in the health facility (the care providers and other staff)?
- How confident were the care providers in providing the best treatment and care?
- How do you explain the respect the health care providers have shown you?
- What was your experience of disrespect and abuse in the facility during service use?
- How did you feel about the availability of drugs, supplies, and equipment required for the service?
- How is your satisfaction with the care?
- What do you think is the reason for the good/poor quality of the care?

3. Why did you not use EmONC services in the health facilities? (If the woman did not use the EmONC services)

Probe

- What were the reasons you did not use EmONC services?
- What geographic, economic, social, and political factors made your decision to use or not use the EmONC services?
- What were your personal/family/community-related reasons for not using?
- Tell me if you had any good/bad experiences with health facilities in the past that impacted your decision regarding not using EmONC services

4. What are the challenges you or someone you know faced in EmONC services?

Probe

- What do you think caused them?
- What should have been done by the facility and care providers?
- How should the services be provided?

5. Please tell me your intentions of where you would prefer to give your future delivery.

Probes

- Where will you seek care if you have an obstetric emergency in the future?
- What conditions and quality elements will encourage to use of EmONC services? Why?
- Where will you recommend other women (with similar emergencies) to get quality service?
- Why did you recommend it to them?

6. How does the community perceive the EmONC service provided in your nearest facility?

Probe

- What is/are the main reason/s for doing so?

7. How should the health facility work on delivery care for you to get the best emergency obstetric care?

Probe

- How should the facility operate?
- What areas need improvements, and how should they be improved?
- What should the care providers, health facility administration, district/woreda administration, community, or husband/family do?

Individual in-depth interview guide for women who had obstetric emergencies (Wolaita Dona)

NB: Ha kifile pilgetiyoy aayetu zaaruwa cengursa dooqiyogaana. Ha pilgettan geliya asati abbe ixetanne yeluwara gaytiyagan yiya metoti woykko hargeti gakkido aayeta. Ha metotikka hagaappe kaalliyageeta: daro suuttay gukkiyoga *(shaara wodiyanika gidin yelishinikka gidikko), addussa wodiya ekiyanne waayissiya maarota, yeluwappe simmin gakkiya mishuwanne qoxuwa yeddiya hargiya, boshaara gayttiya hargiya, abbe ixetaara gayttiya suutta sugettaanne yicuwaa, mahitseniyappe kareera merettiya shaaraa, mahitseniya peerrettaanne gacino naatu hargiya*.

Layta: _____ Mattumaa: _____

Timirtiya xekkaa: _____ Oosuwa: _____

1. Ane taayo abbe ixetanne yeluwara gaytiyagan yiya metota woykko hargeta xeelliyagan neessi gelidaba oda qassi nena gakkiyakko waananaakko oda.

   Qoncissuwa

   - Abbe ixetanne yeluwara gaytiyagan yiya metota woykko hargeta giyoge aybe, waati akkamiyo?
   - Hagaa xeelliyagan ane nena gakkidabaanne neeni oottidobaa oda.
   - Akkamettanaw awa baadi? Aysi hegaw baadi?

2. Ha hargiya xeelliyagan xeena xaabiyan/hospitaliyan imettiya haggaazaa xiraaxee aymale? (aayyiya ha hagaazaa go'ettidaba gidikko)

   Qoncissuwa

   - Hikkimina buqurata xeelliyagan imettiya haggaazoy aymale?
   - Haakimee immiyo haggaazoy aymale?
   - Haakimiyaranne hara oosanchatuura de'iya gaytotettay aymale?
   - Haakimesoo geliyode de'iya mokettay aymalee?
   - Haakimeti bantanan aykeenaa ammanetiyonaa?
   - Haamimeeti nena waati bonchiyonaa?
   - Neni ha haggaazaa ekkanaw biyo wodiyan nena gakkida toosheenne cashshay de'ikko oda?
   - Xaletinne hara malatiya buquratu duussa xeelliyagan siyettiyabay aybee?
   - Ha haggaazaa xeelliyagan ay keena ufayttadi?

- Ha haggaazay lo'o gidikoka iita gidikkoka gidido gaasoy aybee?

3. Ha hagaazaa ayssi go'ettabeykki? (aayyiya ha haggaazaa go'ettibeennaba gidikko)

   Qoncissuwa

   - Neenni go'ettibeenna gaasoy aybee?
   - Heeraanne moottaa hanotaa, miishshaa pacaa, shoorotettaa allaaliya, polotica xeelliyagan neni go'ettenaadan oottidabati aybee?
   - Ne gille, so asaa, heeraa asaa xelliyagan go'ettenaadan ootida gaasoti aybee?
   - Haakime keettatura gaytiyagan hagaazaa go'ettenaadan nena ootida iitanne lo'o hanotata oda?

4. Haakime keettatun nenane neni eriyo asata gakkida metoti aybee?

   Qoncissuwa

   - Hageetussi gaasoy aybee?
   - Haakime keettay ay oottanaw besi? Haakimetishin ay ootanaw bessii?
   - Hagaazati ay mala hanotan imettana besiyona?

5. Sintanaw awan haggaazetanaw koyiyakko ane oda?

   Qoncissuwa

   - Sintanaw hagaa mala harggeene metoy gakkiko awan haggaazetute?
   - Ay male hanotatinne xiraatiya giigisoti diikko nena mintetiyona? Ayssi?
   - Hara aayeti awan go'ettanaada zoruutee (neegaa mala metoy gakkiyo aayeti) xiraatee de'iyo hagaazaa demmanaadan?
   - Ayssi hagaadan zoranaw koyyadi?

6. Intte moottan de'iya asay inte heeran de'iya haakime keettay immiyo haggaazaa waati xeellii?

   Qoncissuwa

   - Hagaassi gaasoy aybee?

7. Heekippe lo'o haggaazaa immanaw haakime keetay waatanaw bessii?

   Qoncissuwa

   - Haakime keettay waati oottanaw bessii?
   - Giiganaw bessiyabati aybee? Waani giiganaw bessiyona?
   - Payattettaa hagaazaa immiya haakimeti waatanaw bessiyona, haakime keettaa kaalettiyageetishin, woradaanne zooniya kaaletiyageetishin, heeraa asayshin, azinayshin, dabboy zareeshin?

Key-informant Interview guide for EmONC service providers (English)

NB: *This section will be assessed by conducting individual in-depth interviews using a tape record/note-taking of the responses of EmONC service providers*.

Age: _____ Sex: _____

Education: _____ Occupation: _____

1. Please tell me what you understand about and your experiences with EmONC services. Probe
    - What is the EmONC service?
    - What are your personal experiences as an EmONC service provider?
    - To what extent are EmONC services provided in this facility, and how standardized are they?
    - Who should use the EmONC service?
    - Who is using EmONC services in your facility? (Rich/poor/urban/rural/educated/uneducated/employed/unemployed?) Why?
    - Where and when is the service provided?
2. How do you explain the quality of EmONC service provided in your facility? Probe
    - What do you think is the reason for the poor/good quality of the facility?
    - How qualified are the care providers to provide EmONC services?
    - How prepared is your facility to provide quality EmONC (infrastructure, human resources, logistics, operation time, amenities to care, etc.)?
    - How do you see the waiting time to obtain EmONC in your facility?
    - How do you see the competency of the care providers on EmONC services? Why?
    - How do you welcome and approach patients?
    - To what extent are the clients respected in your facility? What do you understand about abuse and disrespect?
    - How do your colleagues/co-workers respect their patients?
    - What happens to care providers who abuse and disrespect maternity care clients in your facility? Give examples

- What are the missing elements that negatively impact the quality of EmONC in your facility?

3. How do your patients/clients perceive receiving quality treatment for obstetric emergencies at your facility?

   Probe

   - How do you assess if your clients are satisfied with the quality of care you provide in this facility?
   - How do you rate their satisfaction with the care your facility provides?
   - What do the patients expect from you?
   - How do you see the outcomes of EmONC service in your facility (death, cure, or complications)?

4. What conditions should be fulfilled in your facility for you to provide EmONC services?
   - Why are these conditions important?
   - Who should fulfill them?
   - How should the facility operate?
   - What should the care providers, health facility administration, district/woreda administration, community, patients, and husband/family of the patients do?

Key-informant Interview guide for EmONC service providers (Amharic)

ማሳሰቢያ፡ ይህ ክፍል የሚገመገመው የአገልግሎት ሰጪ ጤና ባለሙያዎችን ምላሾች ድምጽ በመቅዳትና ማስታወሻ በመያዝ ጥልቅ ቃለ-መጠይቆችን በማድረግ ነው ።

እድሜ: _____ **ጾታ**: _____

ትምህርት ደረጃ: _____ **ስራ**: _____

1. **እባክዎን ስለ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት የተረዱትን እና ያጋጠሞትን ይንገሩኝ?**

ማብራሪያ

- **ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ምንድን ነው?**
- **እንደ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ሰጪ ባለሙያ ያጋጠሙዎት ነገሮች ምንድናቸው?**
- **በዚህ ተቋም ውስጥ የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶች ምን ያህል ይሰጣሉ እና ምን ያህል ደረጃቸውን የጠበቁ ናቸው?**
- **የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎትን ማን መጠቀም አለበት?**
- **በእርስዎ ተቋም ውስጥ የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን የሚጠቀመው ማነው?**
  (ሀብታም/ድሃ/ከተማ/ገጠር/የተማረ/ያልተማረ/የተቀጠረ/ደሰራተኛ/ስራ አጥ?) ለምን?
- **አገልግሎቱ የት እና መቼ ነው የሚሰጠው?**

2. **በእርስዎ ተቋም ውስጥ የሚሰጠውን የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ጥራት እንዴት ያብራራሉ?**

ማብራሪያ

- **ለተቋሙ ደካማ/ጥሩ ጥራት ምክንያቱ ምንድነው ብለው ያስባሉ?**
- **ጤና ባለሙዎች ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን ለመስጠት ምን ያህል ብቁ ናቸው?**
- **ጥራት ያለው ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት (መሰረተ ልማት፣ የሰው ሃይል፣ ሎጂስቲክስ፣ የስራ ጊዜ፣ ወዘተ) ለማቅረብ የእርስዎ ተቋም ምን ያህል ተዘጋጅቷል?**
- **በእርስዎ ተቋም ውስጥ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ለማግኘት የሚያስጠብቀውን ጊዜ እንዴት ያዩታል?**

- በድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶች ላይ የጤና ባለሙያዎችን ብቃት እንዴት ያዩታል? ለምን?
- ታካሚዎችን እንዴት ይቀበላሉ፤ እንዴት ይቀርባሉ?
- በእርስዎ ተቋም ውስጥ ደንበኞቹ ምን ያህል የተከበሩ ናቸው? ስለ ማጎሳቆል እና አለመከበር ምን ይሰማዎታል?
- የስራ ባልደረቦችዎ ታካሚዎቻቸውን እንዴት ያከብራሉ?
- በእርስዎ ተቋም ውስጥ የእናቶች እንክብካቤ ደንበኞችን የሚያንገላቱ እና የማያከብሩ ተንከባካቢዎች ምን ይሆናሉ? ምሳሌዎች ካሉ ጥቀስ
- በእርስዎ ተቋም ውስጥ ያለውን ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት የጥራት ላይ አሉታዊ ተጽዕኖ የሚያሳድሩ የጎደሉ ነገሮች ምንድን ናቸው?

3. ታካሚዎ/ደንበኞዎ በተቋሙ ውስጥ ጥራት ያለው ህክምና መቀበላቸውን እንዴት ይገነዘባሉ?

ማብራሪያ

- ደንበኞችዎ በዚህ ተቋም ውስጥ በሚሰጡት የአገልግሎት ጥራት መርካታቸዉን እንዴት ይገመግማሉ?
- የእርስዎ ተቋም በሚሰጠው አገልግሎት ያላቸውን እርካታ እንዴት ይገመግማሉ?
- ታማሚዎቹ ከእርስዎ ምን ይጠብቃሉ?
- በእርስዎ ተቋም (ሞት፣ ፊውስ፣ ወይም ውስብስቦች) የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ውጤቶችን እንዴት ያዩታል?

4. የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን ለመስጠት በተቋማቱ ውስጥ ምን ዓይነት ሁኔታዎች መሟላት አለባቸው?

- እነዚህ ሁኔታዎች ለምን አስፈላጊ ናቸው?
- እነሱን ማሟላት ያለበት ማን ነው?
- ተቋሙ እንዴት መሥራት አለበት?
- የጤና ባለሙያዎች ምን ማድረግ አለባቸው? የጤና ተቋም አስተዳደር ምን ያድርግ? የወረዳ አስተዳደር፤ ማህበረሰብ፤ ታካሚዎች፤ የታካሚዎች፤ ባል/ቤተሰብ ምን ማድረግ አለባቸዉ?

Key Informant Interview guide for kebele and health development army leaders

NB: *This section will be assessed by conducting a key-informant interview using a tape record/note-taking of the responses of kebele and health development army leaders*.

Age: _____ Sex: _____

Education: _____ Occupation: _____

1. Please tell me what you understand about and your experiences with EmONC services.

   Probe

   - What is EmONC? What are the conditions that necessitate EmONC?
   - Who should use the EmONC service?
   - Where and when is the service provided?
   - Where should women seek care for obstetric emergencies?
   - Why should they seek care from there?
   - What should a woman do when she faces obstetric emergencies?
2. How do you explain the geographical accessibility and availability of the nearest EmONC facility? (explain EmONC to the respondent)

   Probe

   - How do you see the accessibility of transportation services?
   - How do you see the travel cost and distance?
   - What do you think affects the timely arrival of women with obstetric emergencies to reach the health facility?
   - How do you feel about the service cost that women are obligated to pay?
   - How do you feel about the availability of drugs, medical equipment, and laboratory services?
3. How do you perceive the quality of EmONC service provided at health facilities in your area?

   Probe

   - What is the reason for the good/poor quality?
   - How do care providers welcome and approach women with obstetric emergencies?

- How is the respect of the facility's staff for the patients?
- How is their facial expression toward their patients?
- What do you feel about the care the health professional gives to patients?

4. Which health facility do women in your locality prefer to visit when they face obstetric emergencies?
   - Why do they (or don't) prefer the mentioned facility?
   - What are the strengths of the mentioned facility?
5. What do you recommend to improve women's utilization of quality EmONC service?

Probe

- How should the facility operate?
- What areas need improvements, and how should they be improved?
- What should the husband/family, care providers, health facility, woreda, or zonal health administration do?

Key Informant Interview guide for kebele and health development army leaders (Amharic)

ማሳሰቢያ ፡ ይህ ክፍል የቀበሌና የጤና ልማት ሰራዊት አመራሮችን ምላሾች ድምጽ በመቅዳትና ማስታወሻ በመያዝ ጥልቅ ቃለ-መጠይቆችን በማድረግ ነው ።

እድሜ: _____ **ጾታ**: _____

ትምህርት ደረጃ: _____ **ስራ**: _____

5. **እባክዎን ስለ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት የተረዱትን እና ያጋጠሞትን ይንገሩኝ?**

   ማብራሪያ

   - **ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ምንድን ነው?**
   - **የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎትን ማን መጠቀም አለበት?**
   - **አገልግሎቱ የት እና መቼ ነው የሚሰጠው?**
   - **ሴቶች የት ማግኘት አለባቸው?**
   - **ለምን ከዚያ ማግኘጽ አስፈለገ?**
   - **አንዲት ሴት የወሊድ ድንገተኛ ሁኔታዎች ሲያጋጥሟት ምን ማድረግ አለባት?**

1. **በአቅራቢያዎ ያለውን የEMONC መገልገያ ጂኦግራፊያዊ ተደራሽነት እና ተገኝነት እንዴት ያብራራሉ? (ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ለተጠያቂው ያብራሩ)**

   ማብራሪያ

   - **የትራንስፖርት አገልግሎት ተደራሽነትን እንዴት ያዩታል?**
   - **የጉዞውን ዋጋ እና ርቀት እንዴት ያዩታል?**
   - **ድንገተኛ የእናቶችና ጨቅላ ህጻናት ጤና ችግር ያለባቸው ሴቶች ወደ ጤና ተቋሙ ለመድረስ በጊዜው መምጣት ላይ ምን ተጽእኖ ይኖረዋል ብለው ያስባሉ?**
   - **ሴቶች የመክፈል ግዴታ ስላለባቸው የአገልግሎት ወጪ ምን ይሰማዎታል?**
   - **ስለ መድኃኒቶች፣ የሕክምና መሣሪያዎች እና የላብራቶሪ አገልግሎቶች መገኘት ምን ይሰማዎታል?**

2. በአካባቢዎ በሚገኙ የጤና ተቋማት የሚሰጠውን የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ጥራት እንዴት ይመለከቱታል?

   ማብራሪያ

   - ለጥሩ/ደካማ ጥራት ምክንያቱ ምንድነው?
   - ጤና ባለሙያዎች ሴቶችን እንዴት ይቀበላሉ እና ይቀበላሉ?
   - የተቋሙ ሰራተኞች ለታካሚዎች ያላቸው ክብር እንዴት ነው?
   - ለታካሚዎቻቸው የሚሳዩት የፊት ገጽታቸው እንዴት ነው?
   - የጤና ባለሙያው ለታካሚዎች ስለሚሰጠው እንክብካቤ ምን ይሰማዎታል?

3. በአካባቢዎ ያሉ ሴቶች ችግሩ ሲያጋጥሚቸው የትኛውን የጤና ተቋም መጎብኘት ይመርጣሉ?

   - የተጠቀሰውን ተቋም ለምን ይመርጣሉ (ወይም አይመርጡም)?
   - የተጠቀሰው ተቋም ጥንካሬዎች ምንድናቸው?

4. ጥራት ያለው ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት አጠቃቀም ለማሻሻል ምን ትመክራለህ?

   ማብራሪያ

- ተቋሙ እንዴት መሥራት አለበት?
- የትኞቹ ሁኔታዎች ማሻሻያ ያስፈልጋቸዋል እና እንዴት መሻሻል አለባቸው?
- ባል/ቤተሰብ ምን ማድረግ አለበት? ጤና ባለሙያዎች፤ የጤና ተቋም፣ ወረዳ; የዞን ጤና አስተዳደር ምን ያድርግ?

Key Informant Interviews guide for traditional birth attendants (English)

NB: *This section will be assessed by conducting a key-informant interview using a tape record/note-taking of the responses of traditional birth attendants*.

Age: _____ Sex: _____

Education: _____ Occupation: _____

1. Please tell me what you understand about and your experiences with EmONC services.

Probe

- What is EmONC? What are the conditions that necessitate EmONC?
- Who should use the EmONC service?
- Where and when is the service provided?
- Where should women seek care for obstetric emergencies?
- Why should they seek care from there?
- What should a woman do when she faces obstetric emergencies?

2. What do you do when a woman with an obstetric emergency comes to you?

Probe

- How do you take care of her?
- How do you manage the obstetric problem the patient is suffering?
- What do you do when the obstetric emergency is difficult to be managed by you?
- Why do you do it?

3. How do you feel about the quality of obstetric care you provide to women with emergencies?

Probe

- What is the reason for the good/poor quality of the service you provide?
- How do you welcome and respect her?
- How is your facial expression to the patient?
- What do you think patients need from you?

4. How do you feel about the quality of EmONC service provided at health facilities?

Probe

- How do you feel about the general EmONC service quality in government health facilities?
- How do you feel about the quality at the nearest health facility in your locality?
- What do you think is the reason for the good/poor quality of the facility?
- How do you see the quality of obstetric care given at government facilities as compared to the service given by traditional birth attendants?
- Why do women prefer visiting traditional birth attendants (including you) to health facilities for pregnancy emergencies?
- What makes your service better than that of government facilities?
- Why do you think the health facilities can't provide the mentioned service?
- What do you think the health facilities can provide that you can't provide?

5. What do you recommend to improve women's utilization of EmONC service?
   Probe
   - Who should do what?
   - What should women, traditional birth attendants, husband/families, care providers of health facilities, health facility administration, and district/woreda administration do?

Key Informant Interviews guide for traditional birth attendants (Wolaita Dona)

Hasayisuwa: Ha kifile pilgetiyoy baahile haakimeta (yelisiya hiillanchata) aychidi eta cengurssa duuqiyoganine xaafidi ayqiyogan polettees.

Layta: _____ Mattumaa: _____

Timirtiya xekkaa: _____ Oosuwa: _____

1. Ane taayo abbe ixetanne yeluwara gaytiyagan yiya metota woykko hargeta xeelliyagan neessi gelidaba oda qassi nena gakkiyakko waananaakko oda.

Qoncissuwa

- Abbe ixetanne yeluwara gaytiyagan yiya metota woykko hargeta giyoge aybe, waati akkamiyo? Haga hagaazaa aayeti go'ettanaadan ootiyabay aybee?
- Ha haggaazaa ooni go'ettanaw bessii?
- Ha haggaazay awaaninne awude immettii?
- Aayeti awupe go'ettana koshii?
- Ayssi ha neeni giidosaappe go'ettana bessii?
- Ha metoy gakkiyode aayeti ay oottana bessii?

2. Abbe ixetaanne yeluwara gaytiya metoy gakkido aayyiay neekko yiyowode neeni waatay?

Qoncissuwa

- Aayiyo waata maadday?
- Ha aayeti metootiyo hargiya waata pattay?
- Ha hargee/metoy pattana giin neessi ixxiyo wode waatay?
- Ayssi hegaadan ootay?

3. Neeni immiyo hagaazaa xiraatee ay malee?

Qoncissuwa

- What is the reason for the good/poor quality of the service you provide?
- How do you welcome and respect her?
- How is your facial expression to the patient?
- What do you think patients need from you?

4. Haakime keettati immiyo hagazaa xiraatee ay malee?

Qoncissuwa

- Kawo haakime keettatun imettiya hagaaza xiraatee xaaxi waaxin ay malee?

- Ne heeran de’iya haakime keettaa haggaaza xiratee ay malee?
- Hagaassi gaasoy aybee?
- Kawo haakime keettatun imettiya haggaazuwanne bahile hakimeti immiyo haggazuwa yiggi xeelliyode ay malati?
- Aayeti daroto bahile haakimeta ayssi dooriyona?
- Ne haggaazaa kawuwagaappe kehees giissiyabay aybeee?
- Hagaa kawo haakime keettay ayssi polenne/kunttennee?
- Neni polana dandayenna bay kawo haakime keettati polana dandayiyobati aybee?

5. Aayeti haakime keettaa dooranadan oottanaw aybi giiganaw bessii?

Qoncissuwa

- Ooni ay oottanaw bessii?
- Aayeti ay oottana bessii? Bahile haakimetishin Azinay/daboy zareshin Kawo haakimetishin Haakime keettatu kaaletayshin Worada/zooniya kaaletayshin?

Key informant interview guide for the health center, hospital, district, and zonal health office managers (English)

NB: *This section will be assessed by conducting key-informant interviews using a tape record/note-taking of the responses of health facility managers*.

Age: _____ Sex: _____

Education: _____ Occupation: _____

1. Please tell me what you understand about your programmatic experiences with EmONC services.

Probe

- What do you understand about EmONC?
- Who should use the EmONC service?
- What is your overall assessment of EmONC services in your area (access, quality, affordability, acceptability, coverage, etc.)?
- Where and when is the service provided in your area?
- Who is using and who is not using EmONC services in your area? (Rich/poor/urban/rural/educated/uneducated/employed/unemployed?) Why?

2. How do you explain the quality of EmONC service provided in the health facility/facilities under your supervision?

Probe

- What do you think is the reason for the poor/good quality of the facility?
- How qualified are the care providers to provide EmONC services?
- How prepared is your facility/woreda/zone to provide quality EmONC (infrastructure, human resources, logistics, operation time, amenities to care, etc.)?
- How do you see the waiting time to obtain EmONC in your facility?
- How do you see the competency of the care providers on EmONC services in your facility/woreda/zone? Why?
- To what extent are the EmONC clients respected in your facility/woreda/zone?
- What do you understand about abuse and disrespect?
- How are disrespect and abuse of EmONC clients managed in your facility/woreda/zone?

- What happens to care providers who abuse and disrespect maternity care clients in your facility/woreda/zone? What mechanism is in place? Give examples
- How do you assess if EmONC clients are satisfied with the quality of care you provide in this facility/woreda/zone? How do you assess or obtain the patients' voice of quality of care?
- How do you see the outcomes of EmONC service in your facility (death, cure, or complications)?
- What are the missing elements that negatively impact the quality of EmONC in your facility/woreda/zone?

3. How do patients with obstetric emergencies perceive the quality of EmONC service provided in your facility/facilities?

Probe

- How do you rate their satisfaction with the care your facility provides?
- What do the patients expect from the facility/facilities?

4. Which facility/facilities provide a good quality EmONC service?

- How did you select them for the good quality service?
- What strength do the facilities have?
- Why are the other facilities categorized as relatively poor-quality service providers?
- What is the reason for the poor quality?

5. What do you recommend for the improvement of the quality of EmONC services?

Probe

- How should the facilities operate?
- What areas need improvements for the improvement of care?
- How should they be improved?
- How should the guidelines/protocols be prepared?
- What should the care providers, health facility administration, district/woreda administration, community, patients, and husband/family of the patients do?

Key informant interview guide for the health center, hospital, district, and zonal health office managers (Amharic)

ማሳሰቢያ፡ ይህ ክፍል የሚገመገመው የጤና ተቋም አመራሮች ቃለመጠይቆችን በማድረግ የምላሾቻቸዉን ድምጽ በመቅዳትና ማስታወሻ በመያዝ ነው ።

እድሜ: _____ **ጾታ**: _____

ትምህርት ደረጃ: _____ **ስራ**: _____

1. **እባክዎን ስለ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት የተረዱትን እና ፕሮግራማዊ ተሞክሮዎችዎን ንገሩኝ?**

ማብራሪያ

- **ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ምንድን ነው?**
- **የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎትን ማን መጠቀም አለበት?**

- **በአካባቢዎ ስላለው የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶች አጠቃላይ ግምገማዎ (ተደራሽነት፣ ጥራት፣ ተመጣጣኝነት፣ ተቀባይነት፣ ሽፋን፣ ወዘተ) ምን ይመስላል?**
- **ይህ አገልግሎት በአከባቢዎ የሚሰጠው የት እና መቼ ነው?**
- **በእርስዎ አካባቢ የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን የሚጠቀመዉና የማይጠቀመዉ ማነው?**
  (ሀብታም/ድሃ/ከተማ/ገጠር/የተማረ/ያልተማረ/የተቀጠረ/ስራ አጥ?) ለምን?

2. **በእርስዎ አመራር ስር ባሉ የጤናተቋማት ውስጥ የሚሰጠውን የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ጥራት እንዴት ያብራራሉ?**

ማብራሪያ

- **ለተቋሙ ደካማ/ጥሩ ጥራት ምክንያቱ ምንድነው ብለው ያስባሉ?**
- **የጤና ባለሙያዎች የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን ለመስጠት ምን ያህል ብቁ ናቸው?**
- **የእርስዎ ተቋም/ወረዳ/ዞን ጥራት ያለው ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት (መሰረተ ልማት፣ የሰው ሃይል፣ ሎጂስቲክስ፣ የስራ ጊዜ፣ የእንክብካቤ አገልግሎት ወዘተ) ለማቅረብ ምን ያህል ተዘጋጅቷል?**

- በእርስዎ ተቋም ውስጥ ድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ለማግኘት የሚያስጠብቀውን ጊዜ እንዴት ያዩታል?
- በእርስዎ ተቋም/ወረዳ/ዞን ውስጥ ያሉ የጤና ባለሙያዎችን በድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶች ላይ ያላቸውን ብቃት እንዴት ያዩታል? ለምን?
- በእርስዎ ተቋም/ወረዳ/ዞን ውስጥ የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ደንበኞች ምን ያህል ይከበራሉ?
- ህመምተኛዉን ስለማንቋሸሽ፤ ማጎሳቆል እና አለመከበር ምን ይሰማዎታል?
- በእርስዎ ፋሲሊቲ/ወረዳ/ዞን ውስጥ የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ደንበኞችን አለማክበር እና ማጎሳቆል እንዴት ነው የሚተዳደረው?
- በእርስዎ ተቋም/ወረዳ/ዞን ውስጥ ደንበኞችን የሚበድሉ እና የማያከብሩ ጤና ባለሙያዎች ምን ይሆናሉ? ምን ዓይነት ዘዴ ነው ያለው? ምሳሌዎችን ስጥ
- የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ደንበኞች በዚህ ተቋም/ወረዳ/ዞን በሚሰጡት የእንክብካቤ ጥራት ረክተው ከሆነ እንዴት ይገመግማሉ? የታካሚዎችን የጤና እንክብካቤ ጥራት እንዴት ይገመግማሉ ወይም ያገኛሉ?
- በእርስዎ ተቋም/አመራር (ሞት፣ ፊውስ፣ ወይም ውስብስቦች) የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት አገልግሎት ውጤቶችን እንዴት ያዩታል?
- በእርስዎ ተቋም/ወረዳ/ዞን የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ጥራት ላይ አሉታዊ ተጽዕኖ የሚያሳድሩ የጎደሉ ነገሮች ምንድን ናቸው?

3. ታካሚዎች በእርስዎ ተቋም/ተቋማት ውስጥ የሚሰጠውን የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎት ጥራት እንዴት ይገነዘባሉ?

ማብራሪያ

- እርካታ እንዴት ይገመግማሉ?
- ታማሚዎቹ ከተቋሙ/ተቋማቱ ምን ይጠብቃሉ?

4. ጥሩ ጥራት ያለው የ EMONC አገልግሎት የሚሰጠው የትኛው ተቋም ነው?

- እንዴት መረጧቸው?
- ምን ዓይነት ጥንካሬ አላቸው?
- ሌሎቹ ተቋማት በአንፃራዊነት ዝቅተኛ ጥራት ያላቸው አገልግሎት ሰጭዎች የተባሉት ለምንድነው?
- የጥራት መጓደል ምክንያቱ ምንድን ነው?

5. **የድንገተኛ የእናቶችና ጨቅላ ህጻናት ህክምና አገልግሎቶችን ጥራት ለማሻሻል ምን ይመክራሉ?**

ማብራሪያ

- **ተቋማቱ እንዴት መሥራት አለባቸው?**
- **ለአገልግሎት ጥራት ማሻሻያ የሚያስፈልጋቸው የትኞቹ ቦታዎች ናቸው?**
- **እንዴት መሻሻል አለባቸው?**
- ***መመሪያዎች/ፕሮቶኮሎች እንዴት መዘጋጀት አለባቸው?***
- **የጤና ባለሙያዎቹ ምን ማድረግ አለባቸው የጤና ተቋም አስተዳደር የወረዳ አስተዳደር ማህበረሰብ ታካሚዎች የታካሚዎች ባል/ቤተሰብ ያደርጋሉ?**