



KANGAROO MOTHER CARE PRACTICE AND ASSOCIATED FACTORS AMONG
POSTNATAL MOTHERS IN TERTIARY CARE HOSPITALS, SOUTHERN NATION,
NATIONALITIES AND PEOPLES REGION, ETHIOPIA, 2023

MSc THESIS

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HAWASSA UNIVERSITY, HAWASSA, ETHIOPIA

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A THESIS SUBMITTED TO THE
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DECLARATION

I hereby declare that this MSc in pediatrics and child health nursing thesis entitled “‘kangaroo mother care practice and associated factors among postnatal mothers in tertiary care hospitals in Southern Nation, Nationalities, and Peoples Region, Ethiopia, 2023’’ is my original work and has not been presented for a degree in any other university, and all sources of material used for this thesis have been acknowledged.

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TABLE OF CONTENT

DECLARATION	i
ADVISORS' APPROVAL SHEET.....	ii
EXAMINER'S APPROVAL SHEET	iii
ACKNOWLEDGEMENT	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATIONS AND ACRONYMS	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION.....	1
1.1. Back ground	1
1.2. Statement of the problem	3
1.3. Significant of the study	4
1.4. R esearch questions	4
CHAPTER TWO: LITERATURE REVIEW	5
2.1 Kangaroo mother care practice of postnatal mothers.....	5
2.2 Associated factors of practice on kangaroo mother care.....	6
2.2.1 Socio demographic characteristics of mothers	6
2.2.2 Obstetrics factors	7
2.2.3 Baby's health	8
2.2.4 Environmental factors.....	8
2.2.5 Source of information	8
2.2.6 Knowledge status of the mothers.....	9
2.3 Conceptual Framework	10
CHAPER THREE: OBJECTIVES	11
3.1 General objective.....	11
3.2 Specific objective	11

CHAPTER FOUR: METHOD AND MATERIALS	12
4.1 Study area and period	12
4.2 Study Design	12
4.3 Population.....	13
4.3.1 Source population	13
4.3.2 Study population	13
4.3.3 Study unit	13
4.4 Eligibility Criteria	13
4.4.2 Inclusion Criteria	13
4.4.3 Exclusion criteria	13
4.5 Sample size determination and procedure.....	13
4.6 Sampling techniques and procedure.....	15
4.7 Study variables	17
4.7.1 Dependent variable	17
4.7.2 Independent variables:	17
4.8 Operational definitions.....	17
4.9 Data collection method.....	18
4.9.1 Data collection procedure and Instrument	18
4.10 Data quality control.....	18
4.11 Data processing and analysis.....	18
4.12 Ethical Clearance.....	19
4.13 Dissemination and utilization of results	19
CHAPTER FIVE: RESULT	20
5.1 Socio-demographic factors.....	20
5.2 Practice of KMC.....	21
5.3 Obstetric related factors	22
5.4 Environmental factors	23

5.5	Source of information.....	24
5.6	Knowledge of mothers about KMC	25
5.7	Associated factors	26
CHAPETER SIX: DISCUSSION.....		29
CHAPTER SEVEN: CONCLUSION		31
CHAPTER EIGHT: RECOMMENDATION.....		32
CHAPTER NINE: THE STUDY'S STRENGTH AND LIMITATIONS		33
REFERENCE.....		34
ANNEXS		xii
Annex I: Information sheet		xii
Annex II: Consent form		xiv
Annex III: English version of questionnaire		xiv
Annex IV: Amharic Version of questionnaire		xix
Annex V: Tests of normality.....		xxvii
Annex VI: Ethical letter		xxix
Annex VII: supportive letter from nursing school		xxx

LIST OF TABLES

Table 1 The sample size for objective two is based on factors associated with kangaroo mother care among postnatal mothers, calculated by an open-epi online	14
Table 2: Socio-demographic characteristics of mothers who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n = 130)	20
Table 3 KMC practice observational checklist for mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)	21
Table 4: Obstetric-related factors of mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)	22
Table 5 Environmental and social support factors in KMC unit among who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n=130).....	24
Table 6 : Knowledge question for mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)	25
Table 7 Bivariate and multivariate logistics regression analysis output among mothers who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n=130)	27

LIST OF FIGURES

Figure 1. Conceptual frame work which was adapted by investigator from different related previous Studies for study on the assessment of practice and associated factors towards kangaroo mother care among postnatal mothers at compressive specialized public hospitals	10
Figure 2 Schematic presentation of sampling procedures for a study on the assessment of kangaroo mother care practice and associated factors among post-natal mothers of low birth weight and preterm at selected public hospitals in SNNPR, 2023.	16
Figure 3 Mode of delivery among mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130).	23
Figure 4 Newborn baby birth weight and gestational age frequency distribution found in KMC units in tertiary care hospitals in SNNPR, Ethiopia, 2023 (n = 130).	23
Figure 5: Source of information frequency distribution among mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 204).	24
Figure 6 : Knowledge of the mother about KMC who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)	25

ABBREVIATIONS AND ACRONYMS

AOR	Adjusted Odds Ratio
BSc	Bachelor of Science
CSA	Central Statistical Agency
FMOH	Federal Ministry of Health
IMI	Instituto Materno Infantil
KMM	Kangaroo Mother Care
LBW	Low birth weight
MSc	Master of Science
NEMMCSH	Nigist Ellen Mohammed memorial compressive specialized hospital
NICU	Neonatal Intensive Care Unit
PI	Principle Investigator
SNNPR	South Nation Nationality people's region
SPSS	Statistical package for social science
SVD	Spontaneous Vaginal Delivery
US	United State
VIF	Variance Inflation factor
WCSH	Werabe compressive specialized hospital
WHO	World Health Organization
WSCSH	Wolita Sodo compressive specialized hospital
WUTSCH	Wolkite University teaching compressive specialized hospital

ABSTRACT

Background: Kangaroo mother care is early, prolonged, and ongoing skin-to-skin contact between the mother and her child while they are both in the hospital and following their discharge. The country-level practice of kangaroo mother care has been low, and few studies have examined the reasons for this poor practice. Therefore, this study aimed to assess kangaroo mother care practice and associated factors among mothers in tertiary care hospitals in the Southern Nation, Nationalities, and Peoples Region in 2023. **Method:** An institutional-based cross-sectional study was conducted among 132 mothers from May 1 to June 30, 2023. A single population proportion with an adjusted formula was used to calculate the total sample size. A face-to-face interview with a structured questionnaire and an observant checklist for the practice part was used to collect data. Data was collected through the Kobo toolbox, exported into an Excel sheet, and finally exported into SPSS version 25 for statistical analysis. Bivariate and multivariate logistic regressions with proportion values <0.25 and <0.05 were used, respectively. A Hosmer and Lemeshow model fitness test was checked, and the model was adequate and well-fitted. **Result:** A total of 130 participants were included in the study, with a response rate of 98.48%, of which 68 (52.3%) had good KMC practice. Type of recent birth [AOR: 6.59 (95% CI: 1.46, 29.67)], spontaneous vaginal mode of delivery [AOR: 8.24 (95% CI: 2.12, 32.01)], mothers who got help from other mothers [AOR: 4.16 (95% CI: 1.02, 16.94)], and mothers who had good knowledge [AOR: 6.54 (95% CI: 1.82, 23.42)] were significantly associated factors with good kangaroo mother care practice among mothers with pre-term and low birth weight babies. **Conclusion:** More than half of postnatal mothers have good kangaroo mother care practice. Current single birth, spontaneous vaginal delivery, support from other mothers in the unit, and mother's knowledge about kangaroo mother care, were identified as significantly associated variables. Hence, hospital administration and health care providers should be engaged in encouraging others to share experiences with other mothers in the unit and provide adequate awareness about the overall procedure and benefits of kangaroo mother care.

Key-words: kangaroo mother care, practice, Preterm, Low birth weight

CHAPTER ONE: INTRODUCTION

1.1. Back ground

The importance of Kangaroo mother care is apparent in the reduction of morbidity and mortality in preterm and low birth weight (LBW) newborns. Kangaroo mother care is early, prolonged, and ongoing skin-to-skin contact between the mother (substitute(s)) and her child, along with exclusive breastfeeding while they are both in the hospital and following their discharge(World Health Organization 2023), KMC is a cost-effective innovation that improves neonatal health at a lower cost than using an incubator(Giulietta et al., 2022).

Kangaroo Mother Care was founded and developed in Bogota, Colombia. Dr. Luis Navarrete and Dr. Hector Martinez worked on its development until the Kangaroo Foundation was established in 1994 after Dr. Edgar Rey came up with the idea in 1978(Kostandy and Ludington-Hoe, 2019) .At Black Lion Hospital, KMC was first implemented in Ethiopia in 1996(Asmare et al., 2021). KMC was recently included in a number of policy papers issued by the FMOH, including the Ethiopian National Health Care Improvement Strategy, the Health Sector Reform Plan, and the Newborn and Child Welfare Strategy 2015/16-2019/2(Mony et al., 2021).

The central components of KMC are the kangaroo position, which secures the baby in an upright skin-to-skin position against the mother's chest, exclusive breastfeeding, and ambulatory care. The preterm infant is discharged from the hospital in the kangaroo position earlier than in the case of conventional neonatal care with the support of a reliable follow-up system(Duramaz et al., 2023, Makokha, 2022). Theoretically, the infant should be kept in the skin-to-skin position for as long as possible. When skin-to-skin care is practiced for more than 20 hours a day, skincare for a few hours a day is called intermittent KMC(World Health Organization 2023).

KMC is a highly cost-effective intervention; it is more effective in enhancing short- and long term infant outcomes and costs less to provide in a healthcare facility than traditional newborn care(Group, 2022), (Acharya et al., 2014, Nimbalkar and Sadhwani, 2019). Compared to traditional treatment, KMC given to stable newborns in hospitals is related with a 40% relative decrease in the risk of mortality, a 65% relative reduction in the

risk of nosocomial infections, and a 72% relative reduction in hypothermia at discharge or 40–41 weeks postmenstrual age(Mazumder et al., 2018a).KMC accelerates growth, increases breastfeeding rates, and decreases hospitalization and morbidity in newborns with VLBW(Mishra et al., 2017, Nimbalkar et al., 2023, Ayele et al., 2023b, Coppen, 2023). Preterm and low-birth-weight newborn care provided by kangaroo mothers was linked to reduced postpartum maternal depression, stress, decreases maternal blood cortisol levels and anxiety as well as improved mother-infant engagement and bonding(Pathak et al., 2023, Cristóbal Cañadas et al., 2022).

According to the present WHO suggestion to start kangaroo mother care only once a baby is stable it can take 3 to 7 days on average, initiating it right away after birth has the potential to save up to 150,000 additional lives per year(World Health Organization, 2022). Compared to non-KMC-preformed babies, KMC was linked with a statistically significant lower likelihood of death, nosocomial infection/sepsis, and hypothermia at discharge, or forty to forty-one weeks postmenstrual age(Conde-Agudelo and Díaz-Rossello, 2016). As compared to traditional care, KMC offered to stable newborns in hospitals is linked with a 40% relative reduction in the risk of mortality, a 65% reduction in the risk of nosocomial infections, and a 72% reduction in hypothermia at discharge or 40-41 weeks postmenstrual age(Mazumder et al., 2018b).

Even if several plans to expand KMC's presence in healthcare settings were made, there is still a discrepancy between the Ethiopian Federal Ministry of Health and the real KMC coverage. A study indicates the poor performance of KMC services in Ethiopia. About 46.4% of the LBW newborns got KMC practice. (Weldearegay et al., 2019).

Nevertheless, only four studies have investigated on KMC practice and associated factors among postpartum mothers in Ethiopia(Ayele et al., 2023b, Gebremedhin et al., 2020, Yezengaw, 2022, Getie et al., 2022b) and there are none in the hospitals serving people of SNNP region. There is also still much uncertainty on postnatal mothers on KMC practice to their own newborn infant regarding to maternal role. I have been able to identify the study done in Tigray(Gebremedhin et al., 2020), but the generalizability of the finding was problematic due to sampled population included in the study were difficulty to study KMC practice. The information sources about KMC and environmental factors were crucial for maximizing KMC practice, but they were not included as factors in this study(Ayele et al., 2023b, Gebremedhin et al., 2020).

By identifying the variables that affect KMC practice, the study on KMC practice and associated factors among mothers of preterm and/or low birth weight babies can assist to close this gap.

1.2. Statement of the problem

Prematurity is regarded as the second most prevalent cause of child death globally and one of the top causes of neonatal fatalities (Lawn et al., 2023). Globally, preterm birth and low birth weight are estimated to account for around 15 million and 20 million of all births each year, respectively (World Health Organization, 2022). In Sub-Saharan Africa, the prevalence rate of newborn neonates with LBW as determined at birth was 9.76%. The pooled prevalence of LBW in Ethiopia was 17.3%, and the country's combined magnitude of birth before 37 weeks was 11.4% (Tessema et al., 2021, Sendeku et al., 2021).

Approximately one million premature babies pass away worldwide every year due to preterm delivery, which is the primary cause of mortality for infants under 28 days of age (Kassahun et al.). LBW is a prevalent problem in both high- and low-income nations, and it is associated with high rates of morbidity and mortality (Tessema et al., 2021, Jember et al., 2020). A newborn born in an economically prosperous country has a ten-fold higher risk of dying during the neonatal period than one born in Africa, which is sub-Saharan. Between nations, the greatest mortality country had a nearly 53-fold increased risk of newborn death compared to the lowest mortality country (Walani, 2020, World Health Organization, 2022, Sivanandan and Sankar, 2023). The pooled prevalence of preterm neonatal death in Ethiopia was 12.97% (Hambisa et al., 2023). Early neonatal mortality in SNNPR was 27 deaths per 1000 live births (Orsido et al., 2019).

One of the variables that determines newborn mortality among preterm babies is not providing kangaroo mother care (Birhanu et al., 2022). The risk of death, nosocomial infection risk, and hypothermia at discharge or 40–41 weeks postmenstrual age increase by 40%, 65%, and 72%, respectively (Mazumder et al., 2018).

Although many studies are done on different aspects of KMC in various foreign countries, studies in Ethiopia regarding the level of practice and associated factors of postnatal mothers towards KMC, including this study, are few. No studies were done in the SNNP region about the KMC level of practice and associated factors on postnatal mothers with high mortality, taking the population group of newborns (LBW and preterm). KMC practice was highly associated with the mother's educational attainment, the place of delivery,

being granted a private KMC area in the hospital, and being eligible for family support (Getie et al., 2022a, Gebreslassie et al., 2020). As a result of this additional assessment of the factors influencing KMC practice, it is preferable to lower newborn mortality by focusing on them. From the above studies, only four include associated factors regarding the practice of KMC. Therefore, this study is intended to assess the practice and associated factors of KMC among postnatal mothers in tertiary care hospitals in the SNNP region of Ethiopia in 2023

1.3. Significant of the study

By studying mothers' KMC practices and related factors, mothers will benefit from this study's awareness and skills about KMC; tertiary care hospitals and health professionals will improve the planning and implementation of strategies that enhance the practice of KMC; policymakers will formulate recommendations for policy; offer health education and training programs on KMC; and serve as a reference for further upcoming research in the topic field.

1.4. Research questions

1. What is the level of kangaroo mother care practice among mothers with LBW and preterm at tertiary care hospital?
2. What are the determinant factors that affect KMC practice among postnatal mothers?

CHAPTER TWO: LITERATURE REVIEW

2.1 Kangaroo mother care practice of postnatal mothers

According to the WHO protocol, mothers whose newborns are admitted to neonatal intensive care units or KMC units should be offered opportunities to provide KMC for their infant, to the extent that they are willing and able to do so and as permitted by the infant's health status and management. Research showed there were factors that hindered the practice of KMC: family-related barriers, time, newborn-related barriers, the NICU, and the home environment. So, determining the accurate level of KMC practice and barriers to KMC practice was necessary for policymakers and concerned bodies to plan to reduce morbidity and mortality in preterm and low-birth-weight infants.

A cross-sectional study conducted on a sample of 50 women in Jakarta, India, to assess the skill of KMC among mothers with low-birth-weight babies revealed that 43.52% of postnatal mothers practice kangaroo mother care(Mustikawati et al., 2022).

A cross-sectional study conducted in Sri Lanka on clients' perceived quality of KMC on postnatal mothers in public specialized hospitals following a normal vaginal delivery found that above two-third(76.7%) of the whole sample of 1300 postnatal mothers who perform kangaroo mother care.(Wickramasinghe et al., 2019).

According to a descriptive cross-sectional study done on the understanding, perception, and practices of kangaroo mother care among 220 mothers of neonates with body weight < 2.5 kilograms for a one-year period in India, whole moms feel close to their infant, and above two-thirds (80%) of postnatal mothers performed KMC on their newborns(Gulati et al., 2019).

In another descriptive cross-sectional study done on practice regarding KMC among postnatal mothers attending a tertiary care hospital in Nepal, the sample of 76 mothers for a thirty-day duration showed that over one-third (40.80%) of postnatal mothers accurately practiced KMC by putting on diapers, gloves, caps, and socks. overall KMC practice for their infant was more than half (61.80%)(Ghale and Mehta, 2022).

Similarly, a study conducted in Saudi Arabia on KMC skills and barriers found that two-thirds of women from the sample of 254 mothers did not appropriately apply KMC(Hawsawi et al.).

In incomparable research done on a hospital-based prospective and descriptive cross-sectional study carried out for a two-month duration on the practice of kangaroo mother care among sixty mothers in Lagos, Nigeria, one-thirds (35%) of the respondents performed kangaroo mother care(Olawuyi et al., 2021a).

An institutional-based cross-sectional study conducted in the Tigray Region state for six months on a sample of 411 study participants regarding KMC practice revealed that about half (54.4%) of mothers practiced KMC for their low-birth-weight babies (Gebreslassie et al., 2020) and other research done in the same region on a sample of 349 women showed that around two-thirds (70.2%) of women gave KMC to their infants (Ayele et al., 2023b).

Another hospital-based cross-sectional study that was done on mothers' KMC knowledge, skill, and perception in the Amhara regional state for a three-month duration on a sample of 630 women showed that more than one-third (41.3%) of mothers practice KMC with their infants(Getie et al., 2022b).

Another institutional-based cross-sectional study carried out on KMC knowledge and practice in Harari and Dire Dawa on a sample of 349 participants shows that about half (54.15%) of women with LBW babies had good kangaroo mother care skills(Abrham et al., 2017) . Another research done on the knowledge, perceptions, and skill of kangaroo mother care by postpartum mothers who gave birth to premature and LBW babies in Harar on a sample of 166 women shows that about one-third (32.1%) of mothers practiced KMC in hospitals and were also willing to continue at their living shelter(Jamie, 2020)

2.2 Associated factors of practice on kangaroo mother care

2.2.1 Socio demographic characteristics of mothers

According to a systematic review done in Europe, 103 articles on enabling factors of KMC practice showed that the mother's health condition, lack of resources (money), and distance of the facility from the client's home have a significant effect on KMC (Seidman et al., 2015).

A systematic review of 30 articles in sub-Saharan Africa revealed that stress related to long stays in the hospital, extra costs to support the living expenses of women and babies in the hospital, and worries about responsibility at home were the most frequently listed factors in maintaining KMC practice(Kinshell et al., 2021).

According to a study conducted in Nigeria among preterm and low birth weight children, parents who have adopted kangaroo mother care in the state of Edo, the age range of 25–29 years, married women, and civil servants have significant correlations with the practice of KMC(Esewe and Phetlhu, 2022).

Similar research conducted in Tigray regional state on a sample of 411 and 349 women shows that women who were housewives, ages 40–44 and 45–49, had a significant relationship with the practice of caring for kangaroo mothers (Gebreslassie et al., 2020, Ayele et al., 2023b). Another study carried out in a similar region revealed that women who were government-employed, ages 20–24, and had monthly incomes greater than 3,000 Ethiopian Birr had a significant correlation with KMC practice(Gebremedhin et al., 2020).

Another similar study in the Amhara region shows that mothers who could read and write had a 2.3-fold higher likelihood of practicing KMC than mothers who couldn't(Getie et al., 2022a).

2.2.2 Obstetrics factors

A qualitative study of barriers and facilitators to conducting kangaroo mother care in US tertiary hospitals showed that the practice of KMC is significantly impacted by maternity leave (limited or inflexible maternity leave) and cesarean section (Lewis et al., 2019, Cai et al., 2022, Watkins et al., 2018).

A literature review conducted in Ethiopia revealed that LBW infants born at health centers were twice as likely to undergo KMC as those delivered in hospitals (Weldearegay et al., 2019). A hospital-based cross-sectional study in Tigray found that problems during childbirth, mother age, and the kind of current delivery, parity, and sickness during pregnancy were all very weakly related with a 25% level of significance(Gebreslassie et al., 2020, Azmeraw Getie et al., 2022). Another study in the Tigray region shows that mothers who delivered their babies in private hospitals were 71% more likely to practice KMC than mothers who delivered their babies in government hospitals(Gebremedhin et al., 2020).

According to research conducted in Baharidare, postpartum women who gave birth in government hospitals had a 2.4-fold higher likelihood of having excellent KMC practice than mothers who gave birth at home(Getie et al., 2022a).

Another study on the quality of Kangaroo mother care services in Ethiopia shows facilities with dedicated neonatal corners were more likely to start KMC services (Weldearegay et al., 2019).

According to a study done in Yirgalem observed that the respondents who were vaginally delivered were more likely to practice KMC than those who had a cesarean section. Regarding the place of delivery, the mother who delivered at a government hospital was 25.136 times more likely to practice KMC than those who gave birth at home (Yusuf et al., 2018b).

2.2.3 Baby's health

According to an institutionally based cross-sectional study on a sample of 411 study participants in the Eastern and Central zone of the Tigray Region, women who had healthy newborns were 3.1 times more likely to conduct KMC than mothers who had complicated newborn babies (Gebreslassie et al., 2020, Gebremedhin et al., 2020).

2.2.4 Environmental factors

According to systematic research on obstacles and enablers of kangaroo mother care practice in Europe, poor views of staff attitudes or interactions and a lack of assistance with KMC practice and other tasks are significantly associated with KMC practice (Seidman et al., 2015).

An umbrella review done in China revealed that KMC maternal practices were influenced by various cultures, religions, and traditional beliefs, as well as healthcare providers' attitudes toward KMC and family and friend support (Cai et al., 2022).

Study in Amhara region shows that mothers who receive assistance from other close relatives are twice more likely to practice KMC than mothers who do not and Compared to women who were from the NICU maternal waiting area, postpartum mothers from the KMC corner were 1.5 times as likely to perform KMC (Getie et al., 2022a).

2.2.5 Source of information

According to a study conducted in British Columbia, it is critical to provide parents with clear instructions given the evidence of the stabilizing effects of the KMC relationship's short-term effects (Conde-Agudelo and Díaz-Rossello, 2016).

An institutional-based cross-sectional study of 249 postpartum mothers in Addis Ababa revealed that community acceptance of KMC and information source, were statistically significant influences on mothers' practice of KMC(Zewditu, 2019).

Study done in Amara region, Ethiopia among postnatal mothers got information from health professionals have significant influences on mothers' practice of KMC.(Getie et al., 2022b)

2.2.6 Knowledge status of the mothers

According to a research study conducted in the US, mothers of newborns who had finished their formal primary, secondary, and college were more likely to practice KMC than mothers whose mothers had not finished their formal primary education(Lawal et al., 2023).

The results of a study conducted in Nigeria on the use of kangaroo mother care (KMC) among mothers in neonatal wards of a tertiary care facility revealed that mothers' knowledge of KMC had a significant impact on its application(Olawuyi et al., 2021a, Dawar et al., 2019, Getie et al., 2022b, Gebreslassie et al., 2020, Ayele et al., 2023b).

According to research done in Malawi on KMC knowledge, perception, practice, and determinant factors among mothers of low birth weight, the knowledge of mothers about KMC can be one of the factors that contribute to making it easier to practice KMC(Mathias et al., 2020).

Another study done in South Africa on knowledge, skill, and associated factors revealed that a mother's level of knowledge in KMC has a significant association with KMC practice(Ndou et al., 2021).

According to a research conducted in the Amhara Regional State, postpartum women with college degrees or above were 2.3 times more likely than those who couldn't read or write to practice KMC well(Azmeraw Getie et al., 2022).

2.3 Conceptual Framework

The conceptual frame work of this study will adapted by investigator from different related previous studies and it described different factors related with practice of postnatal mothers on kangaroo mother care.

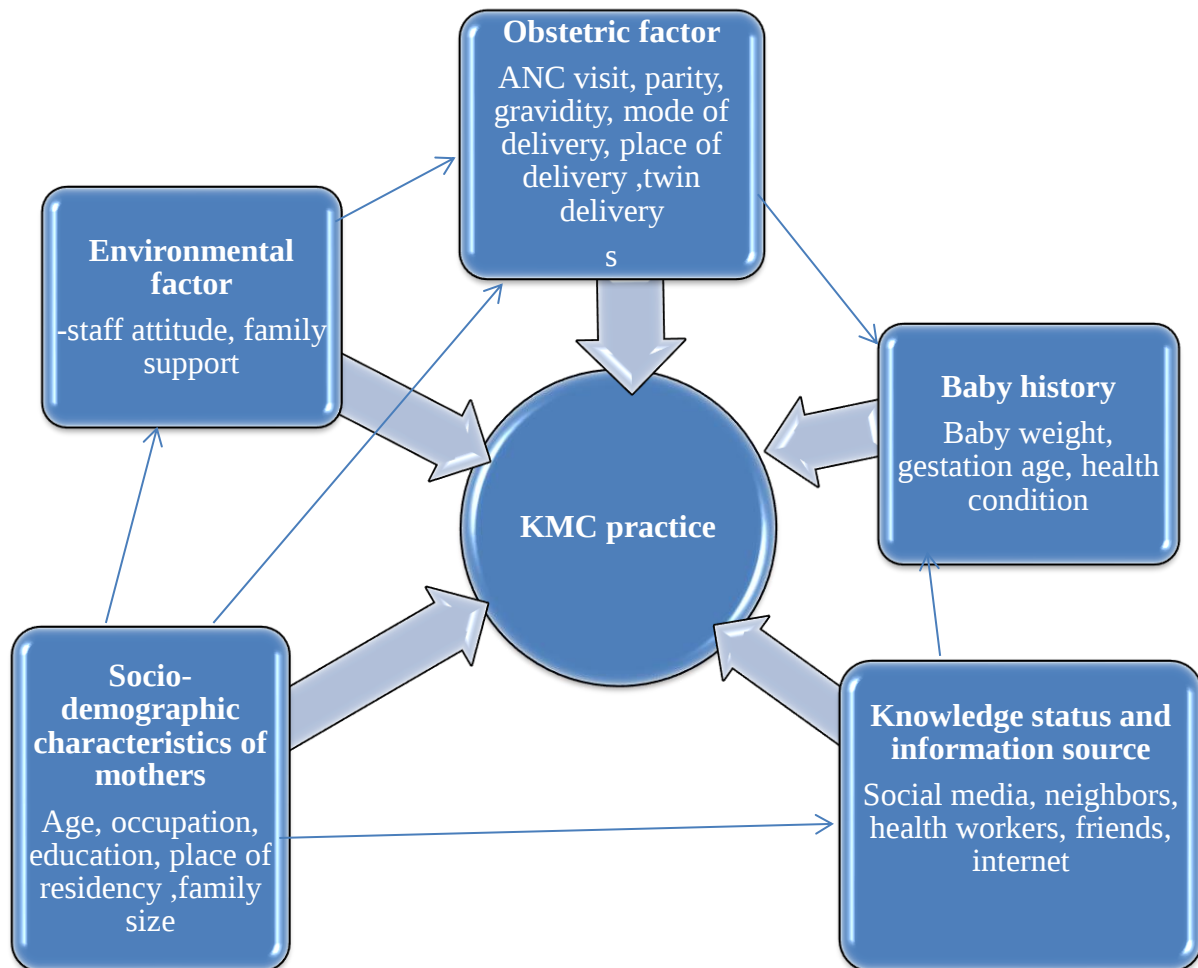


Figure 1. Conceptual frame work which was adapted by investigator from different related previous Studies for study on the assessment of practice and associated factors towards kangaroo mother care among postnatal mothers at compressive specialized public hospitals

Source: Adapted from literatures (Getie et al., 2022a, Tessema et al., 2021, Gebreslassie et al., 2020, Jember et al., 2020, Yusuf et al., 2018b, Kassahun et al., 2019).

CHAPER THREE: OBJECTIVES

3.1 General objective

To assess kangaroo mother care practice and associated factors among mothers in tertiary care hospitals in Southern Nation, Nationalities and Peoples region, Ethiopia, 2023

3.2 Specific objective

To describe the level of kangaroo mother care practice among postnatal mothers in tertiary hospitals in Southern Nation, Nationalities and Peoples region, Ethiopia, 2023

To identify the factors that influence kangaroo mother care among mothers in tertiary hospitals in the Southern Nation, Nationalities, and Peoples region, Ethiopia, 2023.

CHAPTER FOUR: METHOD AND MATERIALS

4.1 Study area and period

This study was carried out in the SNNP Region. The region had a total population of 13,566,889, of which 50.1% (6,797,016) were female, an area of 59,308 km², and a population density of 228.8/km² (Central Statistics agency, 2022). The study was conducted from May 1st to June 30th, 2023, at compressive specialized hospitals in SNNPR, namely Worebe, Nigist Ellen Mohammed Memorial, and Wolkite Comprehensive Specialized Hospitals.

The Worabe Comprehensive Specialized Hospital is located in Silte Zone, southern Ethiopia. It is 172 kilometers south of Ethiopia's capital, Addis Ababa, and 107 kilometers away in the Hawassa Centre region. The hospital offers a full range of obstetric services, including skilled delivery, and has a high volume of maternity patients and emergency medical, surgical, and other services for about 2 million people (Mohammed et al., 2022).

Nigist Ellen Mohammed Memorial Hospital is the comprehensive specialized hospital (NEMMCSTH) in Hadiya Zone in Hosanna town, 233 km away from Addis Ababa and 232 km away from Hawassa, the center of the region. It provides service for more than 1.5 million catchment populations. It was established in 1984, comprising different wards, outpatient departments, input, surgical, and others, a chronic disease follow-up unit, pharmacies, and other administrative departments (Tsegaye et al., 2023).

Wolkite University Teaching Referral Hospital (WUCSTH)' was established in 2018 G.C. and is located in Gubere town, 172 km south of Addis Ababa and 14 km along the road to Butajira from Wolkite town. It is one academic wing of the university that provides training for graduate and undergraduate health students. In the clinical part, it delivers different medical services for outpatients, emergency rooms, and inpatients for approximately 450–500 patients per day for 24 hours. The total service coverage of the hospital is about 4 million people in catchment areas (Mengistu et al., 2022, Terefe et al., 2022)

4.2 Study Design

Institution based cross sectional study was conducted.

4.3 Population

4.3.1 Source population

All postnatal mothers having preterm and/or LBW babies at tertiary care Hospitals in the SNNPR during the study period

4.3.2 Study population

Selected postnatal mothers had pre-term and/or LBW babies at selected tertiary Hospitals in the SNNP region at the time of data collection.

4.3.3 Study unit

Sampled postnatal mothers with preterm and/or LBW babies who actually participated in the study

4.4 Eligibility Criteria

4.4.2 Inclusion Criteria

Mothers who recently gave birth to LBW and/or preterm infants in the NICU and/or KMC took part in the study.

4.4.3 Exclusion criteria

Mothers who were ill and unable to provide KMC

4.5 Sample size determination and procedure

The required sample size for this objective was determined by using a formula for single population proportion using a confidence level of 95% and an acceptable margin of error of 5% and adding 10% to compensate for the non-response rate, and 54.4% had the good practice of KMC in preterm and low birth weight infants in health care settings in the Tigray region(Gebreslassie et al., 2020).

$$z \left(\frac{\alpha}{2} \right)^2 p(1 - P) / d^2$$

p = proportion of low birth weight (LBW) and preterm was 54.4%.

d is the margin of error (it has been taken as 5%).

Where; n = Minimum sample size for a statistically significant survey z= is the significance level (at 5% significance level its value is 1.96)

N: the two month (i.e. May and June, 2022) total number of preterm and low birth weight newborns in selected three hospitals (from NICU registration of selected hospitals).

$$(1.96)^2 0.544(1 - 0.544) / .05^2 = 381$$

- NEMMCSTH (N1=65) ,WCSH(N2=58) and WCSTH (N3=51)

So, the adjusted formula which is $n_{\text{final}} = \frac{ni}{1 + \frac{ni}{N}}$ because the total population was less 10,000

Therefore, $n_f = \frac{381}{1 + \frac{381}{174}} = 119.5$ equivalent to 120.

Adding the 10% non-response rate (12), the total sample size of postnatal mothers who gave birth to preterm and low birth weights is 132.

Table 1 The sample size for objective two is based on factors associated with kangaroo mother care among postnatal mothers, calculated by an open-epi online

No .	Variables affect KMC practice	Proportion of outcome	CI %	Pow er	AO R	Samp le size	Final sample size by adjustment formula and NR	Reference
1)	Place of delivery – gov't hospital	27.1	95	80	2.4	200	107	(Getie et al., 2022)
2)	Maternal age 45-49	1.79	95	80	9.3	174	91 rejected	(Ayele et al., 2023)
3)	Spontaneous vaginal delivery	7.02%	95	80	5.39	112	rejected	(Ayele et al., 2023)
4)	Parity 2-4 children	9.64%	95	80	8.38	54	----- rejected	(Ayele et al., 2023)
5)	Multipara	4.88	80	80	18.2	40	----- rejected sample)	(Ayele et al., 2023)

In the case of objective 2 (associated factors), the highest sample is 107.

So, the objective two sample size (i.e., 107) was less than the objective one sample size (i.e., 132). Due to this, the final sample size for this study was 132.

4.6 Sampling techniques and procedure

Tertiary hospitals were selected purposefully based on advanced service provision, including the Neonatal Intensive Care Unit (NICU) and KMC units. The lottery method was used to select three compressive specialized public hospitals from a total of four compressive (i.e., NEMMCSH, WSCSH, WCSH, and WUTSCH) Specialized governmental hospitals in SNNPR. The total sample size of the study was allocated to each selected hospital based on the flow of postnatal mothers with preterm and/or LBW babies to each hospital within two months (May 1, 2022–June 30, 2022) based on information obtained from each selected public hospital staff. To ensure the representativeness of the sample and its non-probability, a complete enumerative sampling method was used. In cases of multiple births, one baby was selected by the lottery method for the study.

The proportional allocation of sample size was done as follows.
$$In = \frac{n_{total}}{N_{total}} \times Ni$$

- In (i = 1-3) = proportionate sample of individual hospital
- n total = the total sample size
- Ni (i = 1-3) = number of postnatal mothers with LBW and/or preterm babies within two months at individual selected public hospitals.
- N total = total postnatal mothers with LBW and/or preterm babies within two months at three selected public hospitals.
- Proportionate sample of WCSH (n1) = $\frac{132}{174} \times 58 = 44$
- Proportionate sample of NEMMCTH(n2) = $\frac{132}{174} \times 65 = 49.310 \cong 49$
- Proportionate sample of WUTSH(n3) = $\frac{132}{174} \times 51 = 38.68965 \cong 39$

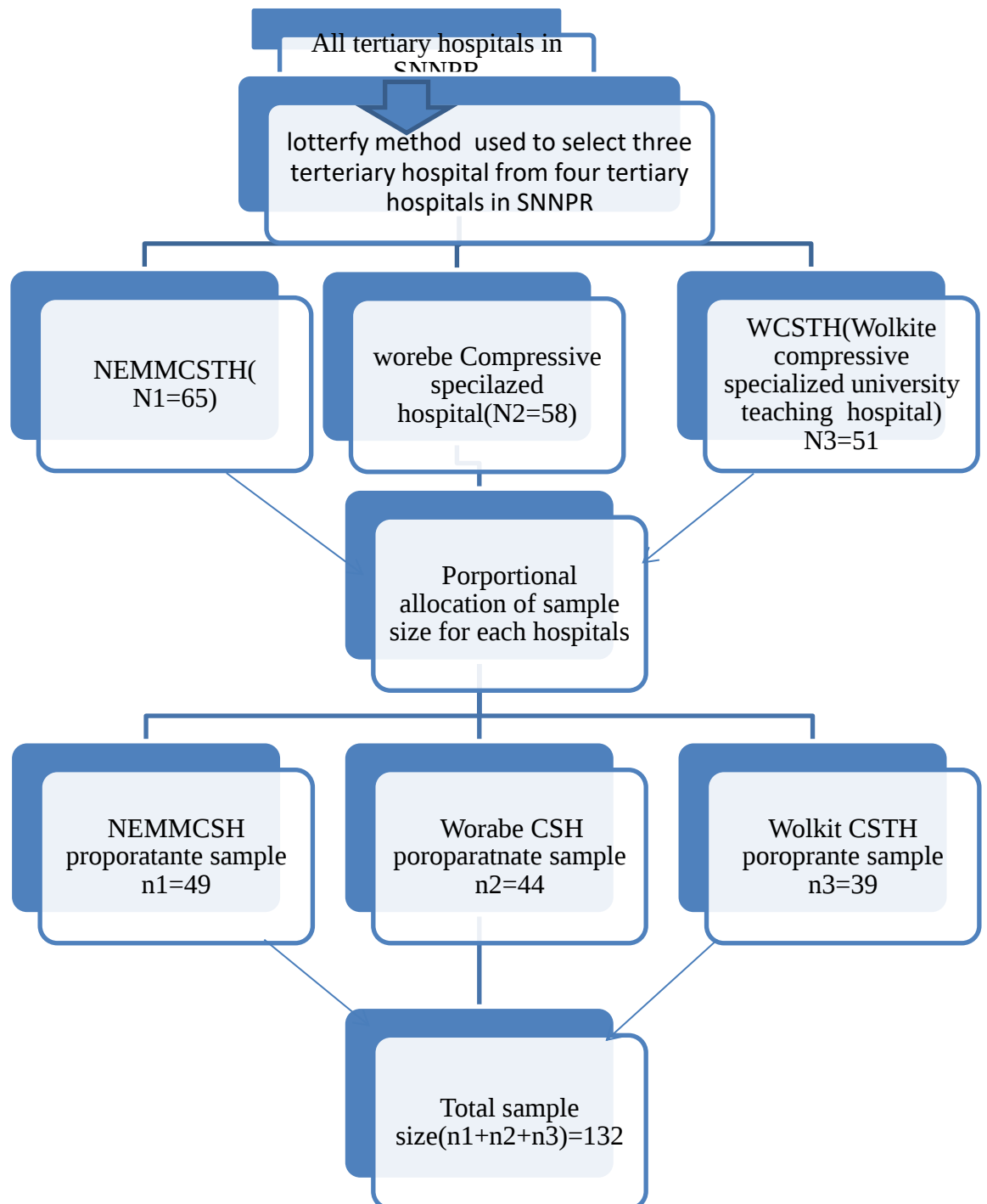


Figure 2 Schematic presentation of sampling procedures for a study on the assessment of kangaroo mother care practice and associated factors among post-natal mothers of low birth weight and preterm at selected public hospitals in SNNPR, 2023.

4.7 Study variables

4.7.1 Dependent variable

- The mothers KMC practice

4.7.2 Independent variables:

- Socio-demographic and economic characteristics (age, educational level, religion, employment position, marital status& place of residence)
- Obstetric factor(ANC visit, parity, gravidity, mode of delivery, place of delivery &number of pregnancy)
- Source of information(Social media, neighbors, health workers, friends& internet)
- Environmental factors(staff attitude, family support ,inter-maternal support)
- Child's status (Baby weight, gestation age, health condition)
- Mothers KMC knowledge

4.8 Operational definitions

Kangaroo Mother Care (KMC): a method of care for low birth weight and preterm infant that includes early and prolonged skin-to-skin contact with the mother (or a substitute career) and exclusive and frequent breastfeeding (Ayele et al., 2023a, World Health Organization, 2017).

Low-birth weight: neonates born weighing less than 2500g, regardless of gestational age(Getie et al., 2022b).

Preterm birth: Birth at less than 37 weeks or 259 days' gestation (Sendeku et al., 2021).

Intermittent KMC: KMC is exercised two to three times a day, but not at night.(Gebreslassie et al., 2020)

Continuous KMC: KMC is used constantly during the day and night, with diaper changes the sole exception(Gebreslassie et al., 2020)

Knowledgeable/good knowledge; Mothers who got above the median score from the knowledge question were considered as knowledgeable(Yezengaw, 2022).

Good practice: Participants were deemed to have had good practice if they received a score on the practice questions of greater than or equal to the median (Gebremedhin et al., 2020).

Poor practice: Mothers scored less than median of the total score of observational checklist criteria(Yezengaw, 2022).

4.9 Data collection method

4.9.1 Data collection procedure and Instrument

A Kobo toolbox was used to collect the data. An adapted structured questionnaire was uploaded to the tool in both Amharic and English versions (Ayele et al., 2023b, Gebremedhin et al., 2020, Getie et al., 2022b). Four BSc nurses for data collection and one BSc neonatal nurse as supervisors were used. Eligible mothers were interviewed for 10 to 15 minutes and observed for the practice of KMC for 20 to 30 minutes at a time.

4.10 Data quality control

Two-day intensive training about tool utilization, ethics, data collection methods, and the study's purpose was given to data collectors and supervisor. Four BSc nurses participated in the study as data collectors, and one BSc neonatal nurse supervisor was involved in the study in order to monitor the daily activity, consistency, and completeness of the questionnaire and to provide the necessary support time for data collection. The principal investigator monitored the supervisors' and data collectors' daily tasks. To ensure the questionnaire's clarity, language, logical order, and skip patterns, 10% of the research sample was pre-tested in the Woliya Sodo comprehensive specialized hospital. A repeated checkup of individual data was done before it was synchronized to the server. The data was stored in a safe location after collection in order to protect its confidentiality and serve as a backup.

4.11 Data processing and analysis

The data was exported into an Excel sheet and again exported into SPSS version 25 for further statistical analysis. Descriptive statistics were conducted using frequency tables, graphs, and charts for all variables. To identify the candidate variables, crude ORs and 95% CIs with P less than 0.25 were computed in the bivariate logistic regression analysis to include in the multivariate logistic regression model. After controlling for covariates, the odds ratio with a 95% confidence interval and p-value of less than 0.05 was regarded as statistically significant. Before including predictors in the final logistic regression model, multicollinearity was tested using variance inflation factor (VIF) 10/Tolerance tests > 0.1. At a value of >0.05, the goodness of fit of the final logistic model was assessed using the Hosmer and Lemeshow test and fitted.

4.12 Ethical Clearance

The study was approved by the Institutional Review Board of the University of Hawassa with reference Ref:No.IRB/314/15 and formal approval from all the associated tertiary hospitals. The mothers were informed about the study's objectives, risks, and benefits. Following the reading of the participant information, written and signed consent is acquired. Following data collection, all postnatal mothers and their families were educated on the benefits of kangaroo mother care.

4.13 Dissemination and utilization of results

The result of the study will be presented to Hawassa University College of Medicine and Health Science School of Nursing. Finally, the result will be disseminated to tertiary hospitals in SNNPR to enable them to make considerations during planning and policymaking to improve KMC practice. At last, an attempt will be made to publish in a journal for further dissemination.

CHAPTER FIVE: RESULT

5.1 Socio-demographic factors

A total of 130 participants were involved in this study, with a response rate of 98.48%. The mean age of the mother was 28 years, with a standard deviation (SD) of 5.73 years. The age of the 69 (53.1%) participants was found to be in the range of 26 to 35 years. Out of the total participants, 49 (37.7%), 66 (50.8%), 121 (93.1%), and 67 (51.5%) attended primary school by educational status, housewives by their occupation, married, and urban dwellers, respectively. The estimated average family monthly income of 70 (53.8%) participants was between 1651 and 5250 Ethiopian birr, and 95 (73.1%) participants reported that their family size was between 3 and 6 (Table 2).

Table 2: Socio-demographic characteristics of mothers who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n = 130)

Variables with category		Frequency(N=130)	Percent
Age of the mother	15-25	47	35.4%
	26-35	69	53.8%
	>=36	14	10.8%
Educational status	Unable to read and write	14	10.8%
	Attend Primary (1-8)	49	37.7%
	Attend secondary (9-12)	35	26.9%
	College and above	32	24.6%
Marital status	Single	5	3.8%
	Married	121	93.1%
	Widowed	2	1.5%
	Separated	2	1.5%
Occupation of the mother	Housewife	66	50.8%
	Merchant	16	12.3%
	Government employee	20	15.4%
	Private employee	16	12.3%
	Daily laborer	8	6.2%
	Others	4	3.1%
Residence of the respondent	Urban	67	51.5%
	Rural	63	48.5%
Average family monthly income	<=1650	19	14.6%
	1651 to 5250	70	53.8%
	5251 to 7800	24	18.5%
	>7800	17	13.1%

Family size	<=2	25	19.2%
	3 to 6	95	73.1%
	>=7	10	7.7%

5.2 Practice of KMC

The median score of mother KMC practice was 9, with an interquartile range of 6. The majority of mothers who gave KMC were observed to have dressed their baby with a front-open shirt, cap, socks, and diaper. Over three-fourths (88.5%) of the mothers were observed while they practiced positioning the infant with its head up and between their breasts. About half (53.1%) of the mothers did not use a sling or binder to support the baby's lower body when they gave KMC in the KMC unit. Three-fourths, or 75.4%, of the mothers who gave KMC were observed to have repeatedly handled their babies.

Table 3 KMC practice observational checklist for mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)

Serial no	KMC practice items	No (N/%)	Yes (N/%)
1	Baby is clothed with a front-open shirt, cap, socks, and diaper.	48(36.9)	82(63.1)
2	The infant is positioned with its head up and between the mother's breasts.	15(11.5)	115(88.5)
3	According to local customs, kangaroo mother care has been provided wearing any front-open, light dress.	53(40.8)	77(59.2)
4	To maintain an unobstructed airway, the baby's head should be tilted to one side and held slightly raised	27(20.8)	103(79.2)
5	Inspect the baby's neck to make sure it is not too extended or flexed.	31(23.8)	99(76.2)
6	Mother and child are in direct eye contact while receiving care from a kangaroo mother	29(22.3)	101(77.7)
7	In a "frog" posture, the baby's hips are flexed, abducted, and the arms are likewise flexed.	27(20.8)	103(79.2)
8	A sling or binder is used to support the baby's lower body	69(53.1)	61(46.9)
9	The baby is covered with a blanket. At the parent's desire, screens may be utilized to give privacy.	37(28.5)	93(71.5)
10	Depending on the infant's health, the mother may express milk while holding the baby close to her chest, feed the baby using a spoon or tube, or hold the baby close to her chest to encourage milk production.	17(13.1)	113(86.9)
11	The baby is handled repeatedly.	32(24.6)	98(75.4)
12	The mother gradually sits down on a chair with the baby still in skin-to-skin contact.	52(40.0)	78(60.0)
13	With only diaper changes as an interruption, skin-to-skin contact will eventually increase to 24 hours per day	87(66.9)	43(33.1)
14	The mother can carry KMC while sleeping and relaxing?	66(50.8)	64(49.2)

The overall prevalence of good practice among mothers who gave KMC in the neonatal care unit (NICU) was 68 (52.3%) with a 95% CI (43.61, 61.01) (Table 3).

5.3 Obstetric related factors

From the total number of mothers who gave KMC, 67 (51.5%) of their babies were female by sex, and 105 (80.8%) were healthy by their health status. The majority of 105 (80.8%) mothers who practiced KMC in the NICU had a single recent birth. Of the total participants, 88 (67.7%) were multi-para, and almost all 127 (97.7%) mothers had ANC follow-ups for their recent birth. Regarding the place of delivery, 88 (67.7%), 34 (26.2%), and 8 (6.2%) gave birth at a governmental hospital, a health center, or a home, respectively (Table 4).

Table 4: Obstetric-related factors of mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)

Variables with category		Frequency (N=130)	Percent (%)
Sex of the newborn baby	Male	63	48.5%
	Female	67	51.5%
Health status of the newborn baby	Healthy	105	80.8%
	Sick	25	19.2%
Type of current birth	Single	105	80.8%
	Twin	25	19.2%
Number of birth	Prim-Para	42	32.3%
	Multipara	88	67.7%
ANC follow up during pregnancy	Yes	127	97.7%
	No	3	2.3%
Place of delivery of newborn baby	Government hospital	88	67.7%
	Health center	34	26.2%
	Home	8	6.2%

Most of the mother's mode of delivery for the newborn baby was SVD, followed by CS and instrumental delivery (Figure 3).

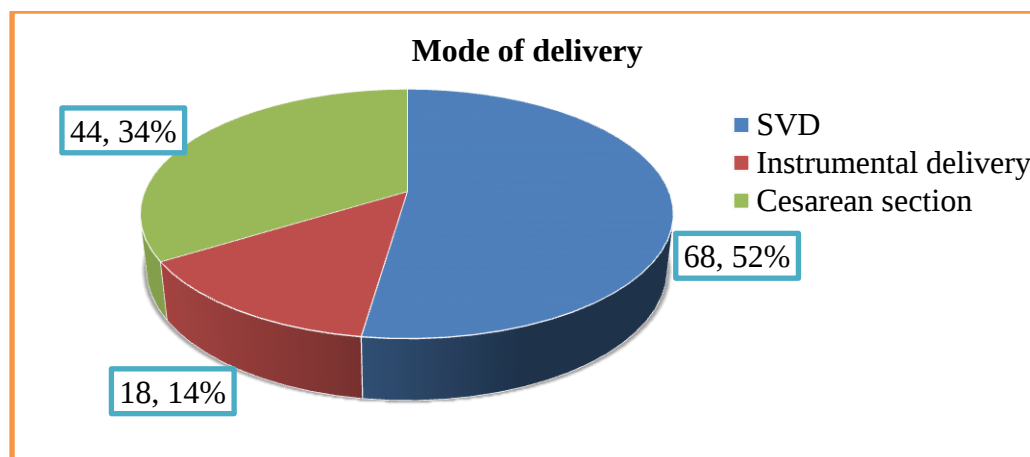


Figure 3 Mode of delivery among mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130).

Most 85 (65.4%) of the newborn babies had a low birth weight, and 83 (63.8%) were moderate to late preterm by their gestational age at birth (Figure 4).

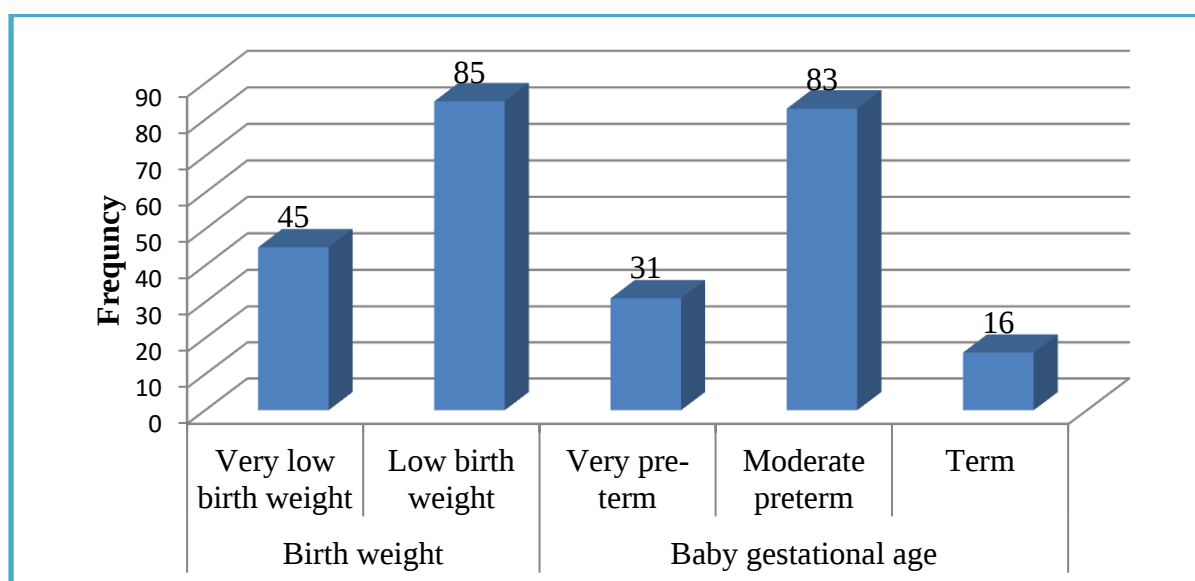


Figure 4 Newborn baby birth weight and gestational age frequency distribution found in KMC units in tertiary care hospitals in SNNPR, Ethiopia, 2023 (n = 130).

5.4 Environmental factors

Above three-fourths; 113 (86.9%) of the mothers thought that KMC was important for their baby, and nearly two-thirds of the participants reported that KMC was culturally acceptable in their community. Nearly all 124 (95.4%) mothers reported that hospital staff members facilitated and encouraged them to do KMC. Also, over half (56.2%) of the mothers

got help from other mothers who came for similar purposes and assisted their relatives (Table 5).

Table 5 Environmental and social support factors in KMC unit among who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n=130)

Questions	No (N/%)	Yes (N/%)
Does your family think that KMC is important for the baby?	17(13.1)	113(86.9)
Is KMC culturally acceptable in your community?	45(34.6)	85(65.4)
Is your home environment conducive for KMC?	54(41.5)	76(58.5)
Did you get help from other family members during KMC procedure?	54(41.5)	76(58.5)
Do hospital staffs facilitate you to perform KMC in the hospital?	6(4.6)	124(95.4)
Did you get help from other mothers in hospital?	57(43.8)	73(56.2)

5.5 Source of information

Health professionals were a major source of information about KMC, followed by friends and neighbors (Figure 5).

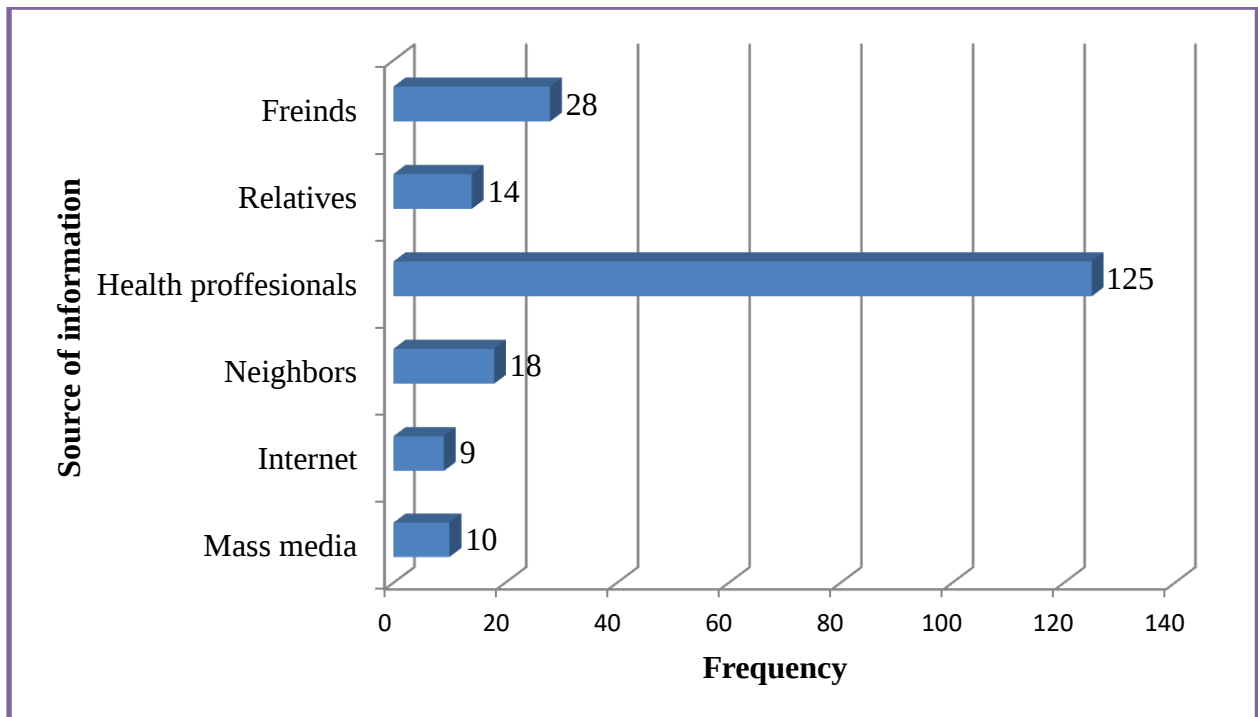


Figure 5: Source of information frequency distribution among mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 204).

5.6 Knowledge of mothers about KMC

Nearly all 125 (96.2%) mothers knew that KMC is holding small baby's skin-to-skin with a care to keep them warm and 124 (95.4%) said that pre-term babies required KMC. About half of the mothers said that KMC is keeping babies beside a fire to warm them. However, 101 (77.7%) mothers said that KMC is not putting a hot water bottle in the cot to warm babies.

About two-thirds (68.5%) of the mothers agreed that breastfeeding during KMC is necessary for the baby (Table 6).

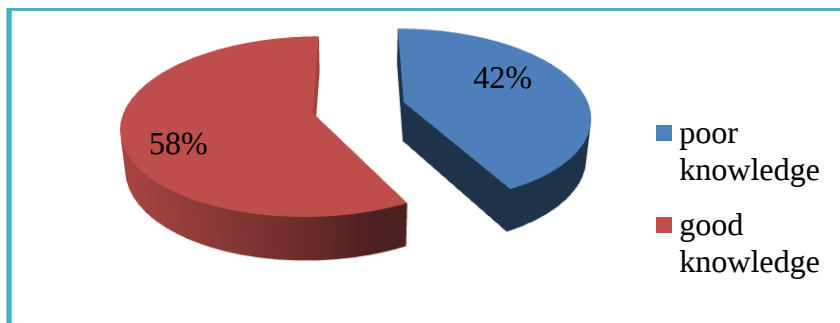


Figure 6 : Knowledge of the mother about KMC who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)

Table 6 : Knowledge question for mothers who gave KMC in tertiary care hospitals, SNNPR, Ethiopia, 2023 (n = 130)

Variables with category		Frequency (N=130)	Percent (%)
KMC is a way of carrying baby in front of Mother only	Yes	80	61.5%
	No	50	38.5%
KMC is holding small babies skin-to-skin with caregiver to keep baby warm	No	5	3.8%
	Yes	125	96.2%
KMC is putting hot water bottle in the cot to warm babies	Yes	29	22.3%
	No	101	77.7%
KMC is keeping babies beside fire to warm them	Yes	66	50.8%
	No	64	49.2%
Which newborn requires kangaroo mother care	Other than pre-term	6	4.6%
	Pre-term baby	124	95.4%
Baby can breastfeed during KMC	No	41	31.5%
	Yes	89	68.5%
Benefits of kangaroo mother care	Stimulate mother bonding only	17	13.1%
	Makes baby warm and grow faster	113	86.9%

More than half of 75(58%) of the participant had good knowledge about KMC.

5.7 Associated factors

Bivariate binary logistic regression was conducted for each variable. Variables with a $PV < 0.25$ were considered for multivariate analysis.

After controlling the confounding variables through a multivariate binary logistic with a $PV < .05$, they were considered significant associated factors. Hence, the type of recent birth, SVD mode of delivery, getting support from other mothers in the KMC unit, and knowledge about KMC were significantly associated with KMC practice. Regarding the type of recent pregnancy, mothers who had a single current birth were 6.59 times more likely to practice KMC as compared to those mothers who had twins [AOR: 6.59 (95% CI: 1.46, 29.67)]. Those mothers who gave birth through SVD were 8 times more likely to have good practice of KMC as compared to those who gave birth through CS and instrumental delivery [AOR: 8.24 (95% CI: 2.12, 32.01)]. Concerning social support, those mothers who got help from other mothers in the KMC unit are four times more likely to practice KMC as compared to their counterparts [AOR: 4.16 (95% CI: 1.02, 16.94)]. Based on their awareness of KMC, mothers who had good knowledge were 6.5 times more likely to perform KMC as compared to those who had poor knowledge about KMC [AOR: 6.54 (95% CI: 1.82, 23.42)].(Table 7)

Table 7 Bivariate and multivariate logistics regression analysis output among mothers who gave KMC in tertiary care hospitals SNNPR, Ethiopia, 2023 (n=130)

Variables with category		Mothers KMC practice		COR(95%CI)	AOR(95%CI)	p-value
		Poor practice (N/%)	Good practice (N/%)			
Educational status	Unable to read and write	11(78.6)	3(21.4)	.09(.02, .41)	1.46(.09,21.74)	.781
	Attend Primary (1-8)	26(53.1)	23(46.9)	.29(.11, .78)	.68(.09, 5.08)	.713
	Attend secondary (9-12)	17(48.6)	18(51.4)	.35(.12, .99)	.19(.02, 1.34)	.097
	College and above	8(25.0)	24(75.0)	1	1	
Residence of the respondent	Urban	23(34.3)	44(65.7)	3.10(1.51,6.36)	4.31(.72,25.77)	.109
	Rural	39(61.9)	24(38.1)	1	1	
Health status of the newborn baby	Healthy	46(43.8)	59(56.2)	2.28(.92, 5.62)	.61(.13, 2.86)	.538
	Sick	16(64.0)	9(36.0)	1	1	
Type of recent birth	Single	43(41.0)	62(59.0)	4.5(1.68,12.37)	6.59(1.46, 29.67)	.014
	Twin	19(76.0)	6(24.0)	1	1	
Mode of delivery	SVD	23(33.8)	45(66.2)	3.11(1.41,6.83)	8.24(2.12,32.01)	.002
	Instrumental delivery	12(66.7)	6(33.3)	.79(.25, 2.51)	.33(.05, 2.09)	.241
	Cesarean section	27(61.4)	17(38.6)	1	1	
Does your family think that KMC is important for the baby?	No	14(82.4)	3(17.6)	.15(.04, .58)	.20(.02, 1.64)	.137
	Yes	48(42.5)	65(57.5)	1	1	
Home safe for KMC	No	36(66.7)	18(33.3)	.26(.12, .54)	.39(.11, 1.41)	.152
	Yes	26(34.2)	50(65.8)	1	1	

Did you get help from family members	No	37(68.5)	17(31.5)	.22(.11, .47)	.43(.10, 1.77)	.246
	Yes	25(32.9)	51(67.1)	1	1	
Hospital staffs facilitate KMC to do	No	5(83.3)	1(16.7)	.17(.01, 1.49)	.19(.005, 7.07)	.373
	Yes	57(46.0)	67(54.0)	1	1	
Did you get help from other mothers in hospital?	No	36(63.2)	21(36.8)	1	1	
	Yes	26(35.6)	47(64.4)	3.09(1.51,6.37)	4.16(1.02,16.94)	.046
Knowledge of the mother	Poor knowledge	38(69.1)	17(30.9)	1	1	
	Good knowledge	24(32.0)	51(68.0)	4.7(2.24,10.05)	6.54(1.82,23.42)	.004
Age of the mother	15-25	20(43.5)	26(56.5)	3.25(.88,11.89)	1.47(.31, 6.84)	.623
	26-35	32(45.7)	38(54.3)	2.96(.84,10.37)	.14(.01, 1.40)	.096
	>=36	10(71.4)	4(28.6)	1	1	
Birth weight of the newborn baby	Very low birth weight	18(40.0)	27(60.0)	1.61(.77, 3.34)	1.38(.39, 4.87)	.608
	Low birth weight	44(51.8)	41(48.2)	1	1	
Average family monthly income	<=1650	15(78.9)	4(21.1)	.14(.03, .64)	1.30(.05,30.22)	.868
	1651 to 5250	33(47.1)	37(52.9)	.61(.20, 1.83)	4.15(.44,38.89)	.213
	5251 to 7800	8(33.3)	16(66.7)	1.09(.29, 4.03)	7.65(.63,92.30)	.109
	>7800	6(35.3)	11(64.7)	1	1	
Number of birth	Prim-para	16(38.1)	26(61.9)	1.78(.84, 3.76)	.96(.21, 4.37)	.961
	Multipara	46(52.3)	42(47.7)	1	1	

Note: P-value less than 0.05 were significantly associated variables which are indicated by bold font size in the table

CHAPETER SIX: DISCUSSION

The aim of this study was to determine the level of practice of KMC and identify associated factors among mothers who gave KMC to their pre-term and low-birth-weight newborn babies in tertiary care hospitals in SNNPR, Ethiopia.

Accordingly, the prevalence of good practice in KMC was 68 (52.3%) with a 95% CI (43.61, 61.01). The magnitude of this study is lower than studies conducted in Sri Lanka at 76.7%(Wickramasinghe et al., 2019), Nepal 61.8% (Ghale and Mehta, 2022), Uganda 75% (Morgan et al., 2018) and northern Ethiopia in the Tigray region at 70.2%(Ayele et al., 2023b). The difference could be due to sample size differences, accessibility of health infrastructure, and variation in information dissemination about KMC for those mothers.

This research finding is comparable with studies conducted in Tigray (Gebremedhin et al., 2020) and eastern Ethiopia in Harar and Dire Dawa(Roba et al., 2017) where 54.4% and 54.15% of mothers perform good practices of KMC, respectively. However, this finding was relatively higher than the study conducted in Nigeria (35%) (Olawuyi et al., 2021b) , Northern Ethiopia, and the Amhara region (41.3%)(Getie et al., 2022b). The possible explanation for this variation could be the duration of the study period, the source of information they used, and the variation of sociodemographic characteristics, specifically the educational background of the participants.

This study also identify associated factors with the outcome variables which are type of recent birth, mode of delivery, get support from other mothers in KMC unit and knowledge about KMC. Regarding with the type of recent pregnancy, mothers who had single pregnancy 6 times more likely to practice KMC as compared to those mothers who had twin pregnancy [AOR; 6.59(95% CI: 1.46, 29.67)]. Unfortunately most studies were related with gravidity and parity of the mother significantly affects the practice of KMC. However this study tried to address the relation of type of resent birth that is single and twin birth with KMC practice. Hence others with resent single birth were significantly associated with KMC practice. The possible explanation of this finding could be maternal comfort to position and able to give adequate care will be denied while the babies are two or more at a time.

Those mothers who gave birth through SVD were 8 times more likely to have good practice of KMC as compared to those who gave birth through CS and instrumental delivery [AOR: 8.24 (95% CI: 2.12, 32.01)].

The finding was similar to a study conducted in Yirgalem(Yusuf et al., 2018a) and Tigray general public Hospital(Ayele et al., 2023b). The association due to maternal health problems, those mothers with CS and instrumental delivery may not give appropriate care due to fear of wounds as well as the postoperative pain experienced by mothers that restricts their mobility.

Concerning social support, those mothers who got help from other mothers in the KMC unit are four times more likely to practice KMC as compared to their counterparts [AOR: 4.16 (95% CI: 1.02, 16.94)]. The findings of this study are incongruous with those of studies conducted in the Amhara region(Getie et al., 2022b) and Tigray region (Ayele et al., 2023b) which revealed that family and husband support are significantly associated with the good practice of KMC. However, this study revealed that support from other mothers in the KMC unit was significantly associated with KMC practice. This difference might be due to cultural and normative value variations across groups of nations. Actually, mothers in the KMC unit who had prior exposure could have more experience than the newcomer mothers, and the KMC unit is restricted to other social members. Hence, inter-mother support in the unit should encourage them to share their experience.

Based on their awareness of KMC, mothers who had good knowledge were 6.5 times more likely to perform KMC as compared to those who had poor knowledge about KMC. The findings of this study are similar to those of studies conducted in Nepal, Nigeria, the Amhara region, and the Tigray region (Ayele et al., 2023b, Getie et al., 2022b, Ghale and Mehta, 2022, Olawuyi et al., 2021b). This similarity implied that an educational background, good awareness, and adequate information about KMC, which obviously increased the practice of KMC among postnatal mothers with low birth weight and pre-term newborn babies.

CHAPTER SEVEN: CONCLUSION

About half of postnatal mothers in the KMC unit have good KMC practices. The overall prevalence of KMC practice among postnatal mothers with low birth weight and preterm infants was comparable with other evidence conducted in Ethiopia. Type of delivery, mode of pregnancy, getting support from other mothers in the KMC unit, and mothers' knowledge about KMC were identified as significantly associated variables with KMC practice.

CHAPTER EIGHT: RECOMMENDATION

Based on the findings of this study, the following recommendations will be forwarded:

- The hospital administration should work on the provision of health education and awareness creation about KMC prior to admitting mothers with low birth weight and pre-term newborn babies to raise KMC practice levels.
- The tertiary hospitals should focus on strict follow-up on the progress of labor for those mothers with known pre-term and low birth weights to reduce unwanted and complicated procedures.
- Those hospitals that have KMC units should encourage and strengthen inter-maternal support and sharing experience in KMC units for newly admitted mothers with preterm and low-birth-weight babies.
- Researchers should conduct further inquiries by modifying the study design and sampling technique based on this insight.

CHAPTER NINE: THE STUDY'S STRENGTH AND LIMITATIONS

The study used multiple tools, including an observational checklist and interview administrative questionnaires, to assess the problem. Despite this strength, the finding also has some weaknesses, which the readers should understand with caution. Firstly, the temporal relationship is not known due to the limitations of the study design used in the study. Secondly, a non-probability sampling technique was used, which affects the generalizability of the findings.

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ANNEXS

Annex I: Information sheet

Hello. My name is -----I am data collector of the study will conduct by Takele Mathewos, who is master's student at Hawassa University College of medicine and health science, school of nursing. He is conducting this research for partial fulfillment of master's degree in pediatrics and child health nursing. We are appreciate your participation in this study and the information you will tell us will be important for us to know the practice towards kangaroo mother and determent factors affecting it among post-natal mothers to modify the knowledge and practice of kangaroo mother care to reduce mortality and morbidity of low birth weight babies related to inadequate provision of kangaroo mother care and this questionnaire doesn't take more than 15-30 minute to complete it.

Title of the Research: kangaroo mother care practice and associated factors among postnatal mothers on tertiary hospitals in South ,Nation, Nationalities and Peoples region, Ethiopia, 2023

Introduction: This form was developed for post-natal women who decided to participate in this research study and was hospitalized in the KMC unit, NICU, and post-natal ward in certain tertiary government hospitals.

Purpose: The purpose of this study is to evaluate postnatal mothers' kangaroo mother care practices and critical aspects. The information you will provide is crucial not only for the successful completion of the study, but also for producing relevant information that will aid in improving the provision of services for post-natal mothers focusing on kangaroo mother care, and I will provide research results to the appropriate body for intervention.

Procedure: To achieve the aforementioned goal, data will be gathered from post-natal mothers who gave birth to low birth weight and preterm babies.

Risk: We hope you will participate in the study for the sake of the Benefit of the research result and we are sure there is any no risk in participating in this research.

Benefits: Your participation in our assessment of practice and influencing factors for post-natal mothers' kangaroo mother care is vital for us even if there may not be a direct benefit to

you. This will help us enhance the service provided to post-natal mothers regarding kangaroo mother care. You won't get paid for participating in this study.

Confidentiality: All records and other information obtained from you will be kept strictly confidential and all data collection tools will be identified by number or code.

Number of Participants: 132 post-natal mothers who gave birth to preterm and low birth weight babies.

Voluntary Participation: Anyone who will not be willing to participate in the study will have the right to refuse to participate and has no penalty or loss of benefits. If you are voluntary to give information for the study, you can show your willingness by saying “yes”.

Would you be willing to participate in the study? 1. Yes 2.No

1. If yes, proceed to the next page 2. If no, thank you, and skip to the next participant

Name of data collector _____ Signature of interviewer: _____ Date: ____/____/____

If you have questions, complaints or concerns about this study, you can contact the principal investigator Takele Mathewos Beyene. Phone number =0949257408

Email address: takelebeyene63@gmail.com

IRB (Institution Review Board): Medicine and health Science College

Annex II: Consent form

I assumed that all of the foregoing information and participation in this study were voluntary. I'd like to assure you that the answers to the questions will not be revealed to anybody else. If the respondent declines to be interviewed, thank them and go on to the next respondent. Continue if the reply responds "YES."

Annex III: English version of questionnaire

English version of questionnaire for assessment of practice and associated factors towards KMC practice and associated factors among post- natal mothers at selected compressive specialized public hospital, in SNNP Region, Ethiopia, 2023

Date of interview (date/month/year):-----

Name of the health Institution's:-----

Interviewer's name & signature: Name: ----- Signature-----

Supervisor's name & signature: Name: ----- Signature-----

Part 1:-Socio-demographic Characteristics of mothers associated to Practice of KMC			
S.N O.	Question	Responses with in Coding categories	Rem ark
01	How old are you? (In completed years)	-----	
02	What is your level of education?	A. Unable to read and write B. Attend Primary (1-8) C. Attend Secondary school (9-12) D. College and above	
03	What is your marital status?	A. Single B. Married C. Widowed D. Divorced E. Separated	
04.	What is your occupation?	A. House wife B. Merchant	

		C. Government employee D. Private employee E. Daily laborer F. Others (specify-----)	
05.	How much is monthly family income in Ethiopian birr?	-----	
06.	Where is your place of Residence?	A. Urban B. Rural	
07.	How many is your family size?	-----	

Part 2:- KMC Practice of postnatal mothers: observational checklist			
S.No.	Activity	Observational Response	
		Yes	No
101	Baby is clothed with a front-open shirt, cap, socks, and diaper?		
102	The infant is positioned with its head up and between the mother's breasts?		
103	According to local customs, kangaroo mother care has been provided wearing any front-open, light dress?		
104	To maintain an unobstructed airway, the baby's head should be tilted to one side and held slightly raised?		
105	Inspect the baby's neck to make sure it is not too extended or flexed.		
106	Mother and child are in direct eye contact while receiving care from a kangaroo mother?		
107	In a "frog" posture, the baby's hips are flexed, abducted, and the arms are likewise flexed.		
108	A sling or binder is used to support the baby's lower body.		
109	The baby is covered with a blanket. At the parent's desire, screens may be utilized to give privacy.		
110	Depending on the infant's health, the mother may express		

	milk while holding the baby close to her chest, feed the baby using a spoon or tube, or hold the baby close to her chest to encourage milk production.		
111	The baby is handled repeatedly?		
112	The mother gradually sits down on a chair with the baby still in skin-to-skin contact.		
113	With only diaper changes as an interruption, skin-to-skin contact will eventually increase to 24 hours per day.		
114	The mother can carry on KMC while sleeping and relaxing.		

Factors associated with practice of KMC

Part 3 :-Baby history Associated with Practice of mothers on KMC

R.No.	Question	Responses
201	How old is your baby now?(in days)	-----
202	What is the sex of your Baby?	A. Male B. Female
203	How much is the weight of your baby?	-----
204	How is the Health condition of your baby now?	1.Healthy 2. Sick
205	What was the gestational age of this baby?	-----
206	What was the type of your recent pregnancy?	1. Single 2. Twin 3. Multiple

Obstetrics factors associated with Practice of mothers on KMC

S.No.	question	Response
301	How many times you become pregnant?	1.One 2. Two 3. Three 4. Above three
302	How many live births did you have? (including this one)	1. One 2. Two 3. Three

		4. Above three
303	Did you have ANC Follow-up during pregnancy?	1. Yes 2. No
304	If yes, how many times?	1. Once 2. Twice 3. Three times 4. Four Times and/or more
305	Where did you delivered your current baby?	Governmental hospital Private hospital Health center Home Other specify-
306	With what type of delivery you delivered current baby?	1. SVD 2. Instrumental delivery 3. CS

Environmental factors associated with Practice of mothers on KMC

S. No	Question	Answer
401	Does your family think that KMC is important for the baby?	1. Yes 2. No
402	Is KMC culturally acceptable in your community?	1. Yes 2. No
403	Is your home environment conducive for KMC?	1. Yes 2. No
404	Did you get help from other family members during KMC procedure?	1. Yes 2. No
405	Do hospital staffs facilitate you to perform KMC in the hospital?	1. Yes 2. No
406	Did you get help from other mothers in hospital?	1. Yes 2. No

Source of information associated with Practice of mothers on KMC

S.No	Question	Response	Remark
501	Where did you get information about KMC? (can give multiple answer)	1. Mass media 2. Internet 3. Colleague 4. Neighbors 5. Health Professionals 6. Relative 7. Friends 8. Other specify..... 9. No information source	
knowledge associated with Practice of mothers on KMC			
601	KMC is a way of carrying baby in front of Mother only	Yes No	
602	KMC is holding small babies skin-to-skin with caregiver to keep baby warm	Yes No	
603	KMC is putting hot water bottle in the cot to warm babies	Yes No	
604	KMC is keeping babies beside fire to warm them	Yes No	
605	Which newborn requires kangaroo mother care	Pre-term Fat baby Post-term Baby greater than 4kg	
606	Baby can breastfeed during KMC	Yes No	
607	Benefits of kangaroo mother care	Makes baby warm and grow faster Stimulate mother bonding only	

Annex IV: Amharic Version of questionnaire

Amharic Version of Questionnaire for Assessment KMC practice and associated factors among post-natal mothers at selected tertiary governmental hospitals SNNP region, Ethiopia, 2023.

የመረጃ ወረቀት

ሰላም! የእኔ ስም-----ነው። እኔ የሀዋሳ ዩኒቨርሲቲ፣ የጤና ሳይንስ ኮሌጅ፣ የነርቪንግ ትምህርት ቤት፣ የነርቪንግ ትምህርት ክፍል ተመራቂ የሆነው ታከለ ማቴዎስ ባጋጀው ጥናት የመረጃ ሰብሳቢ ነኝ። ፡ እርሱም የህፃናት ጤና አጠባበቅ ነርስንግ ሁለተኛ ዲግሪን በከፊል ለማሟላት ይህንን ጥናት ያካሂዳል። ፡ ሆኖም በዚህ ጥናት ውስጥ ያለዎትን ተሳትፎ እናደንቃለን። እርስዎም የሚነግሩን መረጃ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ያላቸውን እውቀትና ልምድ በማወቅ እና ተያያዥ ምክንያቶችን በመለየት የእናቶችን ዕውቀትና እና ልምዶችን በማሻሻል ዝቅተኛ ክብደት ያላቸውንና ከመወለጃ ጊዜያቸው በፊት የተወለዱ ጨቅላ የህፃናት ላይ በካንጋሮ እናት እንክብካቤ ጥናት ጋር ተያይዞ የሚከሰተውን ህመምና ሞት ለመቀነስ ይረዳናል። ፡ ሆኖም ይህንን መጠይቅ ለማጠናቀቅ ከ20 እስከ 30 ደቂቃዎች የበለጠ ጊዜ አይፈጅም።

የአማካሪ ስም፡- ዘውደ አልታዬ(ረዳት ፕሮፌሰር ማስተርስ ዲግሪ) እና አቶ ያረድ ረታ (ረዳት ፕሮፌሰር ፡ማስተርስ ዲግሪ)

የድርጅቱ ስም፡- ሀዋሳ ዩኒቨርሲቲ፣ የጤና ሳይንስ ኮሌጅ፣ ,የነርቪንግ ትምህርት ቤት ፣ የነርቪንግ ትምህርት ክፍል

የደጋፊ ስም፡- ሀዋሳ ዩኒቨርሲቲ የጥናትና ምርምር

ርዕስ፡- በ2023 እ.አ.አ በደቡብ ክልል ውስጥ በሚገኙ የተመረጡ በከፍተኛ ደራጃ የመንግስት ሆስፒታሎች የወልዱ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ያላቸውን ዕውቀት, ልምዶች እና ተያያዥ ምክንያቶች ለመገምገማ

መግቢያ፡- ይህ የመረጃ ወረቀትና የፈቃድ ቅፅ የተዘጋጀ ከተመረጡ የመንግስት ሆስፒታሎች ለወለዱና በእነዚህ ሆስፒታሎች የካንጋሮ እናት እንክብካቤ ክፍል ፣ የጨቅላ የህፃናት ጥብቅ ክትትል ክፍል የእኔ የወላጆች መኝታ ክፍል ውስጥ ላሉትና በዚህ ጥናት ለመሳተፍ ፈቃደኛ ለሆኑት እናቶች ብቻ ነው።

ዓላማ:- ይህ ጥናት የተዘጋጀው የወለዱ እናቶች በካንጋሮ እንክብካቤ ላይ ያላቸውን እዉቀትና ልመድ እና ተያያዥ ምክንያቶችን ለመገምገም ነዉ።እርሱም ሚነግሩን መረጃ ለዚህ ጥናት ስኬት ብቻ ሳይሆን በተጨማሪም ለእናቶች የካንጋሮ እናት እንክብካቤ ላይ ያተኮረና የተሻለ የወለዱ እናቶች አገልግሎት ለመስጠት የሚያግዙ መረጃዎችን ያስገኛል፡፡

የአሰራር ስርዓት:- ከላይ የተጠቀሰውን አላማ ለማሳካት አነስተኛ ክብደት ካላቸውና ከመወለጃ ጊዜቸዉ በፊት ከተወለዱ ጨቅላ የህፃናት እናቶች ለጥናቱ ጠቃሚ የሆኑ መረጃዎች ይሰበሰባሉ።

ስጋት:- ለጥናቱ ውጤት ጥቅም ሲባል በጥናቱ ውስጥ እንደሚሳተፉ ተስፋ እናደርጋለን። ደግሞም እርግጠኛ ነን። በዚህ ጥናት ላይ መሳተፍ ምንም አይነት ስጋት የለውም።

ጥቅማጥቅሞች:- ለርስዎ ቀጥተኛ ጥቅም ላይኖረዎት ይችላል ነገር ግን የርስዎ ተሳትፎ ለእኛ የወለዱ እናቶችን እ ዉቀና ልምድ እና ተያያዥ ምክንያቶችን በመገምገም ለወለዱ እናቶች የሚሰጠውን የካንጋሮ እናት እንክብካቤ አግልግሎት ለማሻሻል ይጠቅመናል እንጅ በዚህ ጥናት በመሳተፈዎ ምንም አይነት ክፍያ አይኖረዉም።

ሚስጥራዊነት:- ሁሉ ከእርስዎ የተገኙ መረጃዎችና ሌሎች መረጃዎች በጥብቅ ሚስጥራዊ ሆነዉ ይቀመጣሉ ደግሞም ሁሉም የመረጃ መሰብሰቢያ መሣሪያዎች በቁጥር ወይም በሚስጥር ቁጥር ተለይተው ይታወቃሉ። በፈቃደኝነ ት ላይ የ ተመሰረተ ተሳትፎ:- በጥናቱ ውስጥ ለመሳተፍ ፈቃደኛ ያልሆነ ማንኛውም ሰው ያለመሳተፍ መብት አለው; እንዲሁም ቅጣት ወይምጥቅም ማጣት የለዉም። እርስዎ ለጥናቱ መረጃ ለመስጠት ፈቃደኛ ከሆኑ "አዎን" ብለው በመናገር ፈቃደኝነትዎን ማሳየት ይችላሉ። በጥናቱ ለመሳተፍ ፈቃደኛ ትሆናላችሁ?

1. አዎ
2. አይደለሁም

1. አዎ ከሆነ, ወደ ሚቀጥለው ገጽ ይቀጥሉ
2. አይደለሁም ከሆነ , አመሰግናለሁ, እና ወደ ሚቀጥለው ተሳታፊ ይለፉ

የመረጃ ሰብሳቢዉ ስም----- የቃለመጠይቅ ጠያቂዉ ፊርማ ----- ቀን :-----/ወር ----
--/አ .ም----- ስለዚህ ጥናት ጥያቄዎች፣ ቅሬታዎች ወይም ስጋቶች ካለዎት ዋናና ተቆጣጣሪ ታከለ ማቴዎስን ማነጋገር ይችላሉ። የስልክ ቁጥር :- 0949257408/0924967581 የኢሜል አድራሻ:
takelebeyene63@gmail.com

የሥነ-ምግባር ዳሬክተሮች: የነርቢንግ ትምህርት ክፍል

ቃለ-መጠይቅ የ ተካሄደበት ቀን (ቀን / ወር / ዓመት):-		
የጤና ተቋሙ ስም: -		
የቃለ መጠይቅ የሚያደርገው ሰው	ስም:-----	ፊርማ-----
የተቆጣጣሪ	ስም:-----	ፊርማ-----
ክፍል 1: - የካነጋሮ እናት ልምዶች ጋር የሚያያዙ የእናቶች ማህበራዊ ሁኔታዎች		
ተ.ቁ	ጥያቄ	መልስ
01.	እድሜዎ ስንት ነው?(በሙሉ አመት)	-----
02.	የትምህርት ደረጃዎ ምንድን ነው?	1. ማንበብ እና መጻፍ የማይችል 2. የመጀመሪያደረጃ (1-8) 3. የሁለተኛ ደረጃ (9-12) 4. ኮሌጅ እና ከዚያ በላይ
03.	የጋብቻ ሁኔታዎ ምንድን ነው?	1. ያላገባ 2. ያገባ 3. ባለቤቷ የሞተባት 4. የተፋታች 5. ተለያይተው የሚኖሩ
04.	ሥራዎ ምንድን ነው?	1. የቤት አማላጅ 2. ነጋዴ 3. የመንግስት ሰራተኛ 4. የግል ሰራተኛ 5. የቀን ሰራተኛ 6. ሌላ ካለ ግለጹ-----
05.	አማካ የወርሀዊ የቤተሰብ ገቢዎ በኢትዮጵያ ብር ስንት ነው?	1. ----- 2. አላቀዉም
06.	የመኖሪያ ቦታዎ የት ነው?	1. ከተማ

		2. ገጠር
07.	የቤተሰብዎ ብዛት ስንት ናቸው?	-----

ክፍል 2፡ - የወለዱ እናቶች ለካንጋሮ እናት እንክብካቤ ልምድ የምልክት ዝርዝር			
ተ.ቁ	ልምድ	የሚታይ ምላሽ	
		አዎ	የለም
101	ህፃኑን ቆብ፣ ካልሲ፣ የሽንት ጨርቅ፣ እና ከፊት ክፍት የሆነ ሸሚዝ ለብሷል		
102	ህፃኑን ያለው በእናትየዋ ጡቶች መካከል ወደላይ ዞሮ ነው		
103.	ካንጋሮ እናት እንክብካቤ እየተሰራያ ለወፊቱ ክፍት በሆነ እና እንደ አካባቢው ባህል ቀላል ልብስ በመጠቀም ነው		
104.	የመተንፈሻ ቱቦውን ክፍት ለማድረግ የህፃኑ ጭንቅላት ወደ አንድ ጎን መዞር እና በትንሹ ዘርጋ ማለት አለበት		
105.	የህፃኑ አንገት በጣም አለመታጠፍ እና አለመዘርጋቱ ተረጋግጧል		
106.	በካንጋሮ እናት እንክብካቤ ጊዜ እናትየዋ ከህፃኑ ጋር የአይን ከአይን ግንኙነት አላት		
107.	የህፃኑ ሽንጥ እና ክንድ አጠፍ እና ዘርጋ ብሎ የእንቁራሪት አቀማመጥ መስሎ ተቀምጧል		
108.	የህፃኑ ታችኛው የሰውነት ክፍል በማስደገፊያ ተደግፏል		
109.	ህፃኑን ለመሸፈን ብርድ ልብስ ተተቅመዋል እና እናትየዋ ከጠየቀች ለመለያ መከለያ ሊሰጣት ይችላል		
110	ህፃኑን ወደ ደረት አስተግቶ መያዝ የወተት ምርትን ያነቃቃል ወይም ህፃኑን ካንጋሮ እናት እንክብካቤ እቅጣጫ ላይ እያለ የጡት ወተት አልባ በማንኪያ ወይም በቱቦ እንደ ህፃኑ ሁኔታ መመገብ ትችላለች		
111.	ህፃኑን በተደጋጋሚ መያዝ ተወግዷል		
112.	እናትየዋ ህፃኑን ቆዳውን/ዋን ከቆዳዋ ጋር አነካክታ እንደያ ዘች ወንበር ላይ ተቀምጣለች		
113.	የቆዳ ከቆዳ ንክኪ ቀስ በቀስ ወደ 24 ሰዓት እየጨመረ ነው እርሱም የሽንት ጨርቅ ለመቀየር ብቻ ነው ሚቋረጠው		
114.	እናትየዋ ካንጋሮ እናት እንክብካቤውን ስትተኛ እና እረፍት ስታደርግ መቀጠል ትችላለች		

ክፍል 3፡ - የወለዱ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ከልምድ ጋር ተያያዥ የሆኑ የህፃኑ ታሪክ ምክንያቶች		
ተ.ቁ	ጥያቄ	መልስ
201	አሁን የልጅ/ዎ እድሜ ስንት ነው?	-----
202	የልጅዎ ፆታ ምንድን ነው?	1. ወንድ 2. ሴት
203	ልጅዎ ክብዳት ስንት ክሎግራም ነው?	-----
204	የልጅዎ ጤና እንዴት ነው አሁን ?	1. ጤነኛ 2. ህመምተኛ
205	የዚህኛው ህፃን የእርግዝና ጊዜ ምን ያክል ነበር ?	-----
206	የአሁኑ አርግዝናዎ ምን አይነት ነበር ?	1. አንድ 2. መንታ 3. ብዙ

ክፍል ፡ 4 የወለዱ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ባያላቸው ልምድ ጋር ተያያዥ የሆኑ ተዋላዶዊ ምክንያቶች		
ተ.ቁ	ጥያቄ	መልስ
301	ስንት ጊዜ ነፍሰ ጡር ሆነ ዋል?	1. አንድ 2. ሁለት 3. ሶስት 4. ከሶስት በላይ
302	ስንት በህይወት ያሉ ልጆች አለዎት? (ያሁኑን ጨምሮ)	1. አንድ 2. ሁለት 3. ሶስት 4. ከሶስት በላይ
303	ነፍሰ ጡር እያሉሁ ክትትል ነበረዎት?	1. አዎ 2. የለም
304	አዎ ካሉ ስንት ጊዜ?	1. አንድ

		2. ሁለት 3. ሶስት 4. አራት ጊዜ እና ከዛ በላይ
305	የአሁን ህፃናትን የት ነው የወለዱት?	1. የመንግስት ሆስፒታል 2. የግል ሆስፒታል 3. ጤና ጣቢያ 4. ቤት 5. ሌላ ጥቀስ ---
306	የአሁኑ ህፃናትን በምን አይነት ወሊድ ነው የወለዱት?	1. በራሱ በመጣምጥ 2. በመሳሪያ የታገዘ ወሊድ 3. በቀዶ ጥገና

የወለዱ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ባያላቸው ልምድ ጋር ተያያዥ የሆኑ አካባቢ ምክንያቶች		
ተ.ቁ	ጥያቄ	መልስ
401	ቤተሰብዎ ካንጋሮ እናት እንክብካቤውን ለህጻናት ጠቃሚ ነው ብለው ያስባሉ?	1. አዎ 2. የለም
402	ካንጋሮ እናት እንክብካቤ በሚኖሩበት ማህበረሰብ ተቀባይነት አለው?	1. አዎ 2. የለም
403	የርስዎ ቤት ካንጋሮ እናት እንክብካቤ በሌለበት ምቹ ነው?	1. አዎ 2. የለም
404	ካንጋሮ እናት እንክብካቤ ሂደት ጊዜ ከሌሎች የቤተሰብ አባላት እርዳታ አግኝተዋል?	1. አዎ 2. የለም
405	የሆስፒታል ሠራተኞች ካንጋሮ እናት እንክብካቤ ስራ ለማካሄድ ሁኔታዎችን ይፈጥራሉ?	1. አዎ 2. የለም
406	ሆስፒታል ውስጥ ከሌሎች እናቶች እርዳታ አግኝተዋል?	1. አዎ 2. የለም

ክፍል 5: -የ ወለዱ እናቶች በካንጋሮ እናት እንክብካቤ ላይ ባያላቸው ልምድ ጋር ተያያዥ የሆኑ የመረጃ ምንጮች		
ተ.ቀ	ጥያቄ	መልስ
501	ስለካንጋሮ እናት እንክብካቤ መረጃ የትያገኛሉ?(ከአንድ በላይ መልስ መስጠት ይችላሉ)	1.ከመገናኛ ብዙሃን 2. ከኢንተርኔት 3. ከጎረቤቶች 4. ከስራባ ልደርባ 5. ከጤና ባለሙያዎች 6. ከዘመድ 7.ጓደኞች 8. ሌላ ካለ ይግለጹ-----
502	የጤና ባለሙያዎች ከመወለጃ ጊዜያቸው በፊት እና ዝቅተኛ የወሊድ ክብደት ያላቸውን ህፃናትን እንዴት እንደምትንከባከቡ አሳውቀዋችሁ ነበር ?	1. አዎ 2. የለም

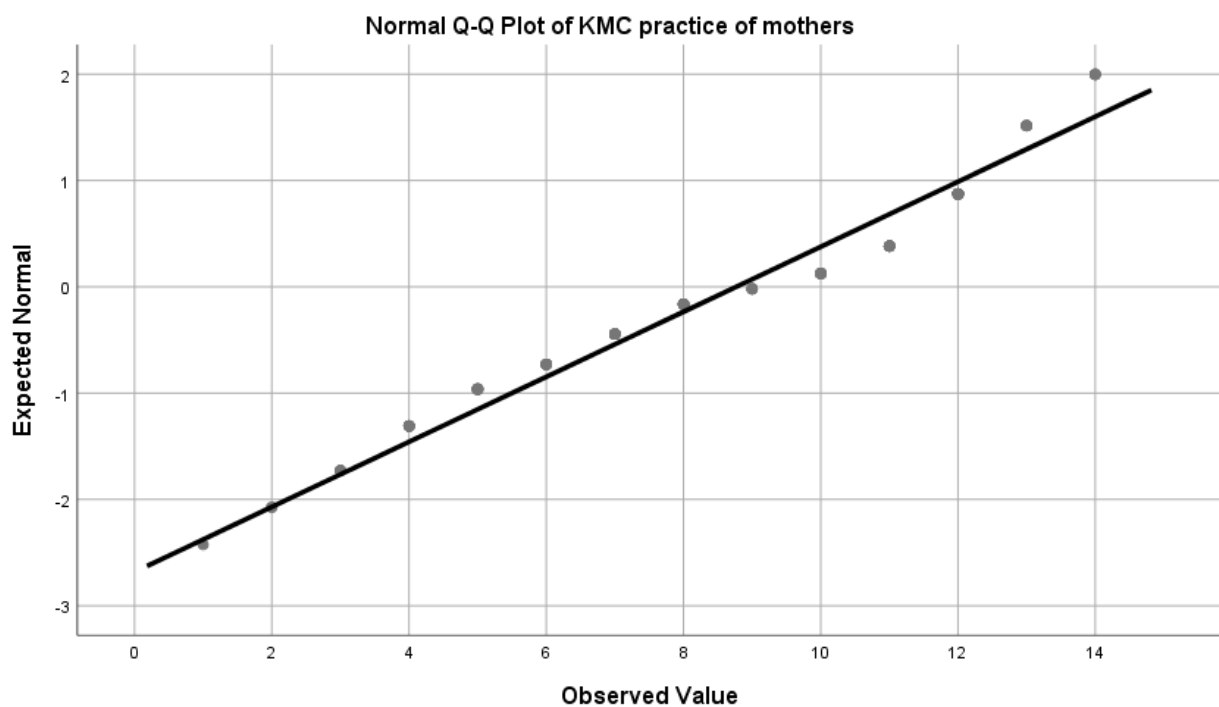
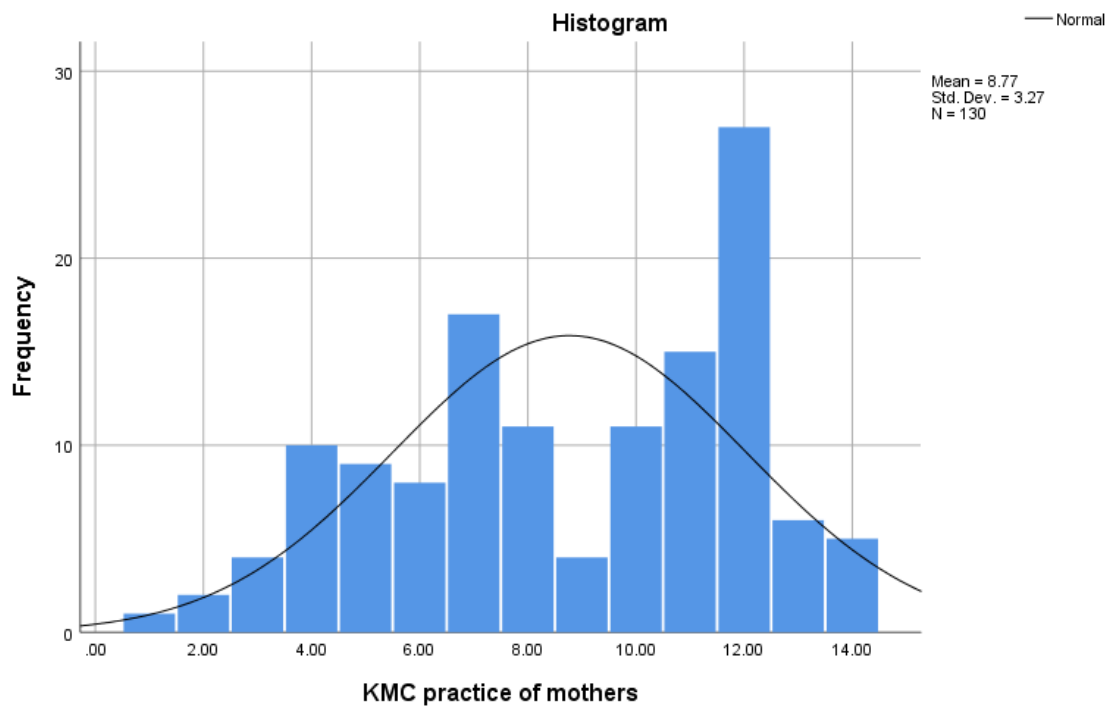
ስልተሳትፎዎ እናመሰግለን!

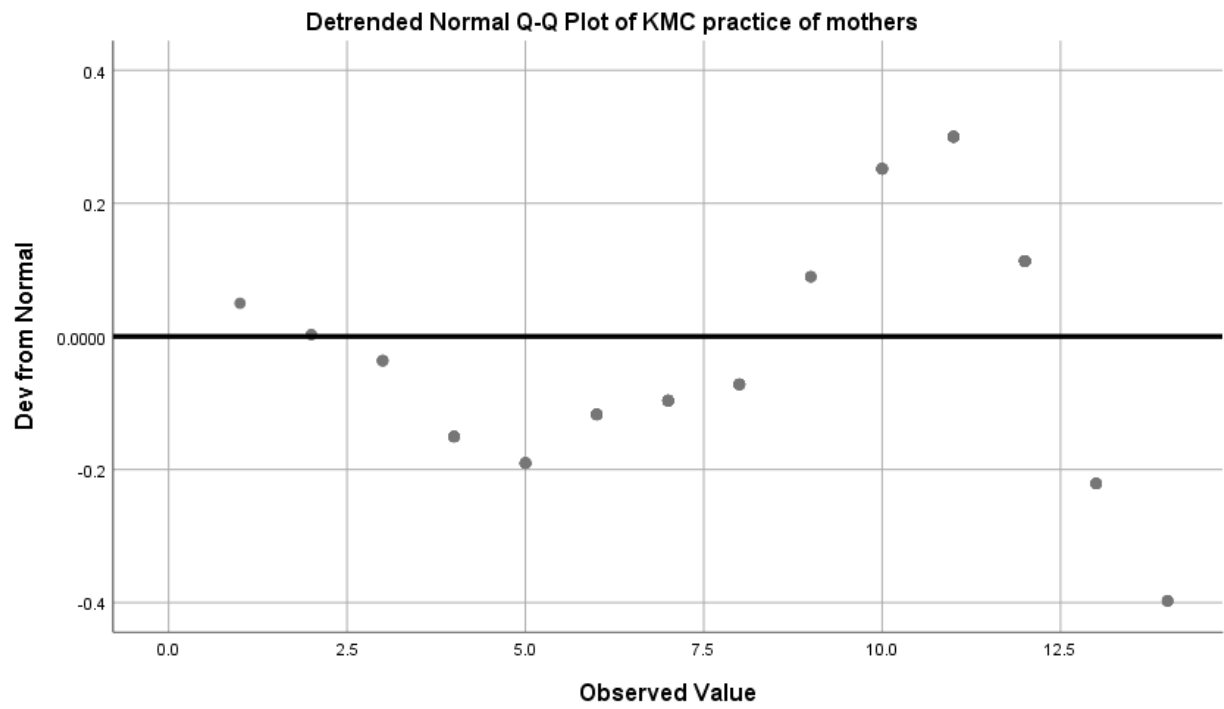
Annex V: Tests of normality

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
KMC practice of mothers	.160	130	.000	.939	130	.000

a. Lilliefors Significance Correction





Annex VI: Ethical letter

ሀዋሳ ዩኒቨርሲቲ
ወኪሎችና ጤና ሳይንስ ኮሌጅ
የምርምር ስነ-ምግባር ጥያቄ ሰርዶ

HAWASSA UNIVERSITY
COLLEGE OF MEDICINES
HEALTH SCIENCES
Institutional Review Board

Ref. No: IRB/23/14/15
Date: 25/04/2023

Name of Researcher(s): Takele Mathewos Beyene; Zewdie Otaye (Ass't Prof.); Yared Reta (Ass't Prof.)
Topic of Proposal: *Kangaroo mother care practice and associated factors among postnatal mothers in tertiary hospitals, southern nation, nationalities and peoples region, Ethiopia, 2023*

Dear researcher(s),
The Institutional Review Board (IRB) at the College of Medicine and Health Sciences of Hawassa University has reviewed the aforementioned research protocol with special emphasis on the following points:

- Are all principles considered?

1.1. Respect for persons:	☒ Yes	☒ No
1.2. Beneficence:	☒ Yes	☒ No
1.3. Justice:	☒ Yes	☒ No
- Are the objectives of the study ethically achievable?

☒ Yes	☒ No
---	--
- Are the proposed research methods ethically sound?

☒ Yes	☒ No
---	--

Based on the aforementioned ethical assessment, the IRB has:

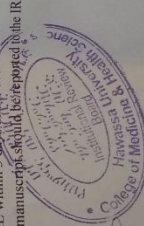
- Approved the proposal for implementation ☒ Approval period -25 April 2023 to 24 April 2024
- Conditionally Approved ☐ Element Approved: Protocol Version No. 1
- Not Approved ☐ Follow up report expected in 6 months

Obligation of the PI:

- Should comply with the standard international and national scientific and ethical guidelines
- All amendment and changes made in protocol and consent form needs IRB approval
- The PI should report SAE within 3 days of the event
- End of study, including manuscript should be reported to the IRB

Yours faithfully,


Dr. Embiale Mengistie (Ph.D. Associate Prof.)
Chairperson, Institutional Review Board



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Annex VII: supportive letter from nursing school


ሀዋሳ ዩኒቨርሲቲ
ህክምናና ጤና ሳይንስ ኮሌጅ
የትምህርት ት/ቢት

Hawassa University
 College of Medicine and Health
 Sciences
 School of Nursing

Ref No: 2151152115
 ቁጥር: 2151152115
 Date: 19/08/15
 ቀን: 19/08/15

ሰ:

ጉዳይ: ትብብር ሰጪ መመሪያ

በትምህርት ክፍላችን የ2ኛ አመት pediatrics and child health nursing የግስጥርስ ተግባር የሆኑት ታከለ ማቴሪያ
 kangaroo mother care practice and associated factors among post-natal mothers in tertiary hospitals in
 southern nation nationalities and people region, Ethiopia 2023" በጽሁፍ ርዕስ የመመረቅ ጽሑፋቸውን አየን።
 ስለግንኙ በእናንተ በኩል እረጋግጣለሁ መረጃ በመስጠት የተሳመደውን ትብብር እንድታደርጉላቸው በትኩረት አስጠይቃለን።


 Head School of Nursing
 Wogene Jember Biru
 ትምህርት ት/ቢት



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