



COLLEGE OF HEALTH SCIENCE
DEPARTMENT OF PUBLIC HEALTH

**KANGAROO MOTHER CARE UTILIZATION AND ASSOCIATED FACTORS
AMONG MOTHERS WHO HAVE PRETERM/LOW BIRTH WEIGHT NEONATES IN
NORTH SHOWA ZONE, AMHARA REGIONAL STATE, ETHIOPIA, 2020.**

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Kangaroo Mother Utilization Care and Associated Factors among Mothers who have Preterm/Low Birth Weight Neonates in North Showa Zone Amhara Regional State, Ethiopia, 2020

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ACRONYMS

ANC	Ante Natal Care
AOD	Adjusted Odds Ratio
COD	Crude Odds Ratio
CI	Confidence Interval
DBRH	DebreBerhan Referral Hospital
DBU	DebreBerhan University
FMOH	Federal Ministry of Health
KMC	Kangaroo Mother Care
LBWI	Low Birth Weight Infant
LMIC	Low and Middle Income Countries
NICU	Neonatal Intensive Care Unit
SPSS	Statistical Package for Social Science
WHO	World Health Organization
VIF	Variance Inflation Factor

TABLE OF CONTENTS

ACKNOWLEDGMENT.....	i
ACRONYMS.....	ii
TABLE OF CONTENTS.....	iii
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi
ABSTRACT.....	vii
1. INTRODUCTION.....	1
1.2 Background.....	1
2.1 Statement of the problem.....	2
1.3 Significance of the study.....	4
2. LITERATURE REVIEW.....	6
2.1 Utilization of Kangaroo Mother Care.....	6
2.2 Factors Affecting the Utilization of Kangaroo Mother Care.....	6
2.2.1 Socio Demographic Characteristics.....	6
2.2.2 Knowledge of Mothers on KMC Advantage.....	7
2.2.4 Socio-Cultural Related Factors.....	7
2.2.4 Obstetrics and Neonatal Related Factors.....	8
2.2.5 Organizational Related Factors.....	8
3. OBJECTIVES.....	11
3.1 General Objective.....	11
3.1 Specific Objectives.....	11
4. METHODOLOGY.....	12
4.1 Study Area and Period.....	12
4.2 Study Design.....	12
4.3 Source population.....	12
4.4 Study population.....	12
4.5 Inclusion and Exclusion Criteria.....	13
4.6 Sample Size Determination.....	14
4.7 Sampling Technique.....	15

4.8	Variables	16
4.8.1	Dependent variable	16
4.8.2	Independent variables	16
4.9	Data Collection Methods	17
4.11	Data Quality Assurance	18
4.12	Data Processing and Analysis	19
4.13	Ethical Consideration.....	20
4.14	Dissemination of Result.....	20
5.	RESULT	21
5.1	Socio-demographic Characteristics of Mothers	21
5.3	Obstetric and Neonatal Characteristics	23
5.4	Socio Cultural Characteristics.....	24
5.5	Knowledge of Mothers on Kangaroo Mother Care.....	26
5.6	Health Facility Related Characteristics.....	27
5.7	Utilization of Kangaroo Mother Care	30
5.8	Associated Factors of Utilization of Kangaroo Mother Care.....	31
6.	DISCUSSION	34
7	STRENGTH AND LIMITATION.....	36
8.	CONCLUSION AND RECOMMENDATIONS.....	37
8.1	Conclusion	37
8.2	Recommendations.....	37
	REFERENCES	39
	ANNEXS	43

LIST OF TABLES

Table 1: Socio-demographic Characteristics of Mothers who have Preterm /Low Birth Weight Neonates, North Showa Zone, Amhara Regional State, Ethiopia, 2020 (n=195).	21
Table 2: Socio Demographic Characteristics of Key Informants, North Showa zone, Amhara Regional State, Ethiopia, 2020.....	22
Table 3: Obstetric Related Characteristics of Mothers who have Preterm Neonates, North Showa Zone, Amhara Regional State, Ethiopia, 2020 (n=195).	23
Table 4: Socio-Cultural Characteristics of Mothers who have Preterm Neonate, North ShowaZone, Amhara Regional State, Ethiopia, 2020 (n=195).....	25
Table 5: Health Facility Related Characteristics North Showa Zone, Amahra Regional State, Ethiopia, 2020 (n=195).	29
Table 6: Utilization Status of Kangaroo Mother Care among Mothers who have preterm neonates, North Showa Zone, Amahra Regional State, Ethiopia, 2020 (N=195).	30
Table 7: Associated factors of Utilization of Kangaroo Mother Care among Mothers who have Preterm Neonates in North Showa Zone, Amhara Regional State, Ethiopia, 2020.....	33

LIST OF FIGURES

Figure 1: Conceptual frame work of associated factors of utilization of kangaroo mother care developed after reviewing different literature 2020.....	10
Figure 2: Schematic presentation of sampling procedure and technique in governmental hospitals, North Showa zone, Ethiopia, 2020.	16
Figure 3: Cultural reasons of mentioned by mothers North Showa Zone, Amhara Regional State, Ethiopia, 2020.	26
Figure 4: Functions of Kangaroo Mother Care responded by Mothers who have Preterm Neonates North Showa Zone, Amahra Regional State, Ethiopia, 2020.	27
Figure 5: Reasons for Mothers who have Preterm Neonates not Utilizing Kangaroo Mother Care, North Showa Zone, Amahra Regional State, Ethiopia, 2020.	31

ABSTRACT

Background: Low Birth Weight babies are at greater risk of illness and death as they lack the ability to control their body temperature. Although Kangaroo Mother Care promotes the health of the neonates via improving their body temperature, only little is known about its utilization and factors influencing it.

Objective: To assess kangaroo mother care utilization and associated factors among mothers who have preterm /low birth weight neonates in north Showa zone, Amhara, Ethiopia, 2020.

Methods: Institutional based mixed study design was employed from February to May 2020 among 204 mothers. The data were collected using a semi-structured interviewer administered questionnaire and document review. Three hospitals were randomly selected and proportional allocation was made. Then, systematic random sampling was applied to select the study participants. 10 key informants were proposed for an interview. Descriptive and analytical data analyses were applied using SPSS version 22. During bivariate analysis, factors whose p-value < 0.2 were taken to multivariable logistic regression analysis. Finally, variables with p-value < 0.05 at 95% CI were considered as statistically significant. Thematic analysis of qualitative data was manually made and triangulated.

Result: A total of 195 mothers who have preterm neonates were interviewed with 95.6% response rate. Among all, 47 (24.1%) utilize kangaroo mother care. 4 variables were statistically associated with the utilization of KMC. Mothers who gave birth spontaneously were 6.76 times (AOR = 6.76, 95% CI: 1.59, 28.59) more likely to use KMC than those who delivered in cesarean section and mothers who got counseling were 6.76 times (AOR=6.76, 95% CI: 2.02, 22.63) more likely to use KMC than those who were not counseled. Respondents who were supported by professionals were 4.17 times (AOR= 4.17, 95% CI: 1.12, 15.60) more likely to use KMC than those who were not supported and mothers who had privacy were 6.19 times (AOR= 6.19, 95% CI: 1.18, 32.47) more likely to use KMC than those who did not have privacy. This finding is in line with qualitative data that states the utilization of this procedure was low due to inadequate infrastructure, inefficient counseling and the mothers' cultural background impact.

Conclusion and recommendation: In the study area, kangaroo mother care utilization was found to be lower than most studies done in other countries but higher than a few studies in our country. Thus, it is recommended that kangaroo mother care needs to be promoted and practiced by taking measures on the affecting factors that prevent its utilization in health institutions consistently. Studies on kangaroo mother care acceptance and its application are also required.

Key Words: Kangaroo Mother Care, Utilization, North Showa Zone, Low Birth Weight

1. INTRODUCTION

1.2 Background

Kangaroo Mother Care (KMC) is prolonged skin-to-skin contact between mother and medically stable low-birth-weight infant (LBWI), weighing less than 2000 g, exclusive breastfeeding whenever possible, and early discharge with adequate follow-up and support (1).

Prematurity and low birth weight is still a significant public health problem globally and is associated with a range of both short- and long-term consequences and overall it is estimated that 15% to 20% of all births worldwide are LBW, representing more than 20 million births a year in low- and middle-income countries (LMICs) accounting for 18 million births (2).

Nowadays, LBW mortality is a global leading cause of neonatal mortality contributing to 60 to 80% of neonatal deaths. Low and Middle-Income Countries (LMICs) bear a higher burden of LBWI outcomes due to the high prevalence of LBWI deaths as compared to high-income countries and each year, more than 50% of the LBWIs that are born in LMICs do not survive as compared to high-income countries (3). According to the recent studies showed that this is not only a major predictor of prenatal mortality and morbidity, it also increases the risk for non-communicable diseases such as diabetes and cardiovascular disease later in life (4, 5).

Low birth weight and prematurity are strongly associated with neonatal morbidities and mortality. Neonatal hypothermia is a challenge related with morbidity and mortality (6). World Health Organization (WHO) has recommended scaling up low-cost solutions that could reduce these deaths by three-quarters which includes Kangaroo Mother Care (KMC) as one of the solutions (7).

Kangaroo mother care is one of the interventions proven to be a safe alternative to conventional neonatal care in resource-limited settings (8). It should be begun as soon as possible and from birth whenever possible, be provided to assist the newborn in transition after delivery and with appropriate and available support and continue 24 hour per day and continue until the infant gains weight (9). It can largely contribute to decrease the risk of death in neonates weighing less

than 2000g by improving body temperature. It should be initiated in the facility as soon as the baby is stable and should continue at home (10).

The procedure could be done during day and night and creates an optimal environment for adaptation of new born to extra-uterine life. In comparison between skin-to-skin contact between the mother and the baby and an incubator caring method, the former is proven to have a safe and inexpensive procedure for mothers and children as compared to the later. It plays a significant role on infant survival, neurodevelopment, and the quality of mother-infant bonding and preterm and LBW infants who are receiving KMC gain more weight per day, have better heart rate and breathing regulation and also facilitates the newborn early initiation and effective breastfeeding (11).

2.1 Statement of the problem

In 2018, 2.5 million children died in the first month of life globally. Approximately, 7000 newborn die every day accounting for 47% of all child deaths under the age of 5-years. Neonatal deaths among under-five in sub-Saharan Africa (36%), and had the highest neonatal mortality rate 28 deaths per 1,000 live births in 2018 followed by Central and Southern Asia with 25 deaths per 1,000 live births that remains the region with the highest under-five mortality rates. A child born in sub-Saharan Africa or in Southern Asia is 10 times more likely to die in the first month of life than a child born in a high-income country (12).

The majority of all neonatal deaths (75%) occur during the first week of life, and about 1 million newborns die within the first 24 hours. Preterm birth complications are the most neonatal deaths in 2017(13). In the world from all under 5 children deaths, the main killer is preterm birth complications 18% and among all neonatal deaths, 35% are due to preterm related complications (12). Low birth weight infants are approximately 20 times more likely to die when compared with heavier babies. One-third of LBW babies die within the first 12 hours after delivery. One of the main reasons that LBW/premature babies are at greater risk of illness and death is that they lack the ability to control their body temperature and a cold newborn stops feeding and is more susceptible to infection (14).

Kangaroo mother care also decreased mortality, sepsis, hypothermia and spent less time in the hospital than those who were given standard care. In preterm and LBW infants, skin-to-skin contact between the mother and her newborn decreases maternal postpartum depressive symptoms and improves self-efficacy (15). Other than the neonatal and maternal health benefits, KMC is an important tool in reducing the postpartum hospital stay, thereby minimize the overall healthcare expenditure and provides economic benefit to the parents (15, 16).

It can also reduce mortality among low birth weight and premature babies by up to 40% when implemented appropriately and as part of quality care for small newborns (17).

Ethiopia is one of the ten countries with the highest number of neonatal deaths, in which 320,000 babies are born preterm each year and 24,400 children under five die due to direct preterm complications (18, 19).

To fight the mortality of small infants in Ethiopia, KMC was started at black lion hospital in 1996. Since then, KMC services have been expanded in community and health care settings (20). KMC was integrated in the National Strategy for Newborn and Child Survival in Ethiopia for 2015/16–2019/20 of high impact child survival interventions package along the continuum of care with targeting 90% coverage by 2020 and also was covered in the Health Sector Transformation Plan (HSTP), which aims to improve equity, coverage and utilization of health services, and improve quality of health care. Building on the HSTP, the Ethiopian National Healthcare Quality Strategy was developed to improve the quality of prioritized interventions such as KMC (21).

According to EDHS report prevalence of low birth weight in 2016 in Ethiopia was different in different regions: Afar 26.2%, Amhara 22.2% Oromiya 13.1% (22). On the other hand, in 2014 report, from all neonatal deaths, 37% was caused by preterm complications (23).

A recent recommendation by the WHO that KMC should be routine care for newborns weighing less than 2000g, but only modest KMC coverage has been achieved globally. Millions of LBW babies still do not have access to KMC and other essential neonatal care interventions such as preventing and curing infections and ensuring adequate nutrition (24). Currently, only a few

preterm babies in low-income countries have access to this intervention and most health institutions don't start KMC for those low birth weight infants (25, 26).

In Ethiopia, KMC utilization has a discrepancy among regions and still low. But most neonatal and infant morbidity and mortality occurs due to preventable preterm complication (27, 28).

But, only little is known about its utilization and factors influencing it in Ethiopia including the current study area. Most preterm/LBW neonates are referred for incubator rather than using KMC while it is a cost-effective and without needing sophisticated machines for prevention and treatment of hypothermia and other preterm related complications and neonates who are referred from different health institutions for incubator; they will die with hypothermia and hypoglycemia because preterm babies cannot breast feed properly.

Thus, this study aims at assessing the utilization of KMC and associated factors among mothers of preterm/LBW neonates in north Showa zone governmental hospitals, Amahra regional state, Ethiopia.

1.3 Significance of the study

Identifying the specific factors that hinder mothers or care takers from implementing KMC is mandatory to take appropriate measures to decrease neonatal death from preterm or low birth weight complication by utilizing KMC needs a comprehensive study.

In order to increase the utilization of kangaroo mother care for preterm/LBW babies, the underlined causes should first be known. According to the zonal report, utilization of KMC in zone is very low for instance in 2018 and 2019. To the knowledge of the researcher, no KMC related study was conducted in the current study area before. Therefore, this study was try to assess the utilization status of KMC and associated factors among mothers/caretakers of preterm/LBW neonates and supposing to greatly benefit for different bodies.

since the assessment is holistic via assessing the patient's socio-demographic and cultural background, hospital-related factors and family issues; the patient will be benefited from being assessed in this way and will also get quality of health care service and will ultimately have a good outcome and since KMC reduces hospital stay and cost-effective than incubator, the

hospital will benefit economically. It may also serve the policy makers, who are engaged in preparing guidelines, as a point of reference.

The study will also assist researchers who are interested to conduct a further study in the area where gaps are needed to be closed as a springboard.

2. LITERATURE REVIEW

2.1 Utilization of Kangaroo Mother Care

Millions of LBW babies still do not have access to KMC and other essential neonatal care intervention to prevent, cure infections and ensure adequate nutrition (24).

Study conducted in Iran showed that KMC was applied among premature infants with a mean length of 32 min, averagely once a day despite the recommendation of its application at least three times a day with a minimum length of 1 hour care (29); and a study done in Kumasi, Ghana reported 84.6% of the mothers who have low birth weight initiated KMC immediately after birth and 7.9% initiated KMC after 24 hours (30).

In Ethiopia KMC coverage is still low, and there is also discrepancy among regions (5% in Amhara, 2% in Oromia, 2% in Somali and 1% in Southern(27, 28).

A cross sectional study conducted in Ethiopia revealed that from those who have low birth weight infants, eastern Ethiopia 54.15%, Yirgalem 14.4% mothers respectively practiced KMC in hospitals (31, 32).

According to an assessment conducted by save the Children led between 2014 and 2015 of the delivery of KMC in six hospitals and 19 health centers across three zones (East Shewa in Oromia Region, and Sidama and Gurage in SNNP Region)on service availability and delivery of care to premature and/or low birth weight babies, were surveyed using qualitative and quantitative techniques, only 14% of eligible babies were enrolled in KMC service, suggesting low levels of KMC initiation and identification of small(33).

2.2 Factors Affecting the Utilization of Kangaroo Mother Care

2.2.1 Socio Demographic Characteristics

Findings from a study done in Malawi revealed that there was a significant relationship between comfort with KMC position and the age of the participants. This can also affect the individual participants and they may decide to leave the hospital(34).

2.2.2 Knowledge of Mothers on KMC Advantage

Study conducted in Sweden identified that mother's or care taker's knowledge about the use of KMC, a lack of information about KMC and how to use it in practice are one of the affecting factors on the utilization of KMC(35).

According to study conducted in India identified that on KMC and its application barriers, the nurses believed one of the major reasons for not applying KMC was inadequate education and difficulty in convincing the mother about the importance of KMC(36).

A cross-sectional study done in Dilchora and HiwotFana specialized hospital, eastern Ethiopia revealed that the main factor that mothers/care takers not utilized KMC for their preterm neonates were due to lack of knowledge regarding KMC practice, 116 (33.24%) perceived it is not comfortable to the mothers(31).

2.2.4 Socio-Cultural Related Factors

According to study conducted in Zambia and India, one of the most important factors that mothers do not to utilize KMC was lack of family members' support, while they care their newborn (36, 37).

In Iran, a descriptive study conducted from the nurses' perspective on the utilization of KMC, mother-related factors were found to be the main barriers in the utilization as mothers did not present their infants due to fear of touching little neonates (29).

Traditional beliefs also other factors that hinder mothers to not use kangaroo mother care. In Zambia considering the care of the newborn, it is considered unacceptable to place and wrap a baby especially a premature baby who is less than 1 month old on the back or chest as it is believed that the baby is not strong enough and the mother not completely healed for the baby to be strapped with a wrapper. In addition, some mothers believe that premature babies are a bad omen, or that they cannot thrive, despite the care that may be provided(36).

Finding of Dilchora and Hiwot Fana specialized hospital, eastern Ethiopia revealed that 29 (8.31%) of mother who gave low birth weight mentioned that contacting the baby with skin to skin is culturally unacceptable(31).

Some mothers also may not use KMC due to cultural issues in terms of decision-making whereby the mother is not empowered to make decisions on her own but has to first consult with significant others. The study conducted in Malawi indicates that 17.6% of the participants had to be influenced by significant others for them to be in the KMC unit whereas about 82.4% were not influenced(34).

2.2.4 Obstetrics and Neonatal Related Factors

According to the study conducted in Ghana, it was reported that breast milk expression and other breastfeeding-related issues, discomfort related to temperature and mothers' medical issues also pose a major barrier to practice. These medical issues included pain from episiotomy repair, recovery from caesarean section, postpartum depression, and general maternal illness were associated factors of KMC utilization(30, 35).

Community-based cross-sectional study conducted in Yirgalem, Ethiopia on the utilization of KMC showed that, mode of delivery were associated with KMC practice which is the odds of mothers who vaginally delivered were 7.774 times more likely to utilize KMC than those who had caesarean section and mothers who delivered at a government hospital was 25.136 times more likely to utilize KMC than those who gave birth at home(32).

2.2.5 Organizational Related Factors

In Iran, due to inadequate facilities and space for mothers' 24 h accommodation in the ward, low quality and hygiene of mothers' room, and impossibility of the grandparent's attendance in the ward, mothers' impossible constant attendance in the ward were factors not utilizing of kangaroo mother care(29). But in other European countries, the condition in the hospitals is such that it lets mothers' 24 hours stay in NICU.

In this regard, a study conducted in Sweden in 2012 investigated the parents' approach toward organizational factors. The results of the study showed that the parents claimed to have the

needed facilities for their 24 hours stay in the ward with respect to their privacy and physician's order was found to be the most important barrier in application of KMC(35).

A mixed-methods study conducted in Uganda, lack of resources like beds/space, monitoring devices and lack of privacy were factors that influence mothers not to utilize KMC for their low birth weight infants(38). Regarding professional, a cross sectional study conducted in Hawassa Ethiopia revealed that professional support during KMC were the main predictors of utilization of KMC among mothers(39).

In summary, many studies that were conducted in different regions showed that uncomfortable environment, lack information about KMC, mothers' knowledge about the advantage of KMC, mode of delivery and support from relatives were factors that hinder mothers from utilizing KMC. In some studies, there are a controversial findings in some variables such as traditional believes and lack of privacy did not make associations.

Conceptual Frame Work of the study

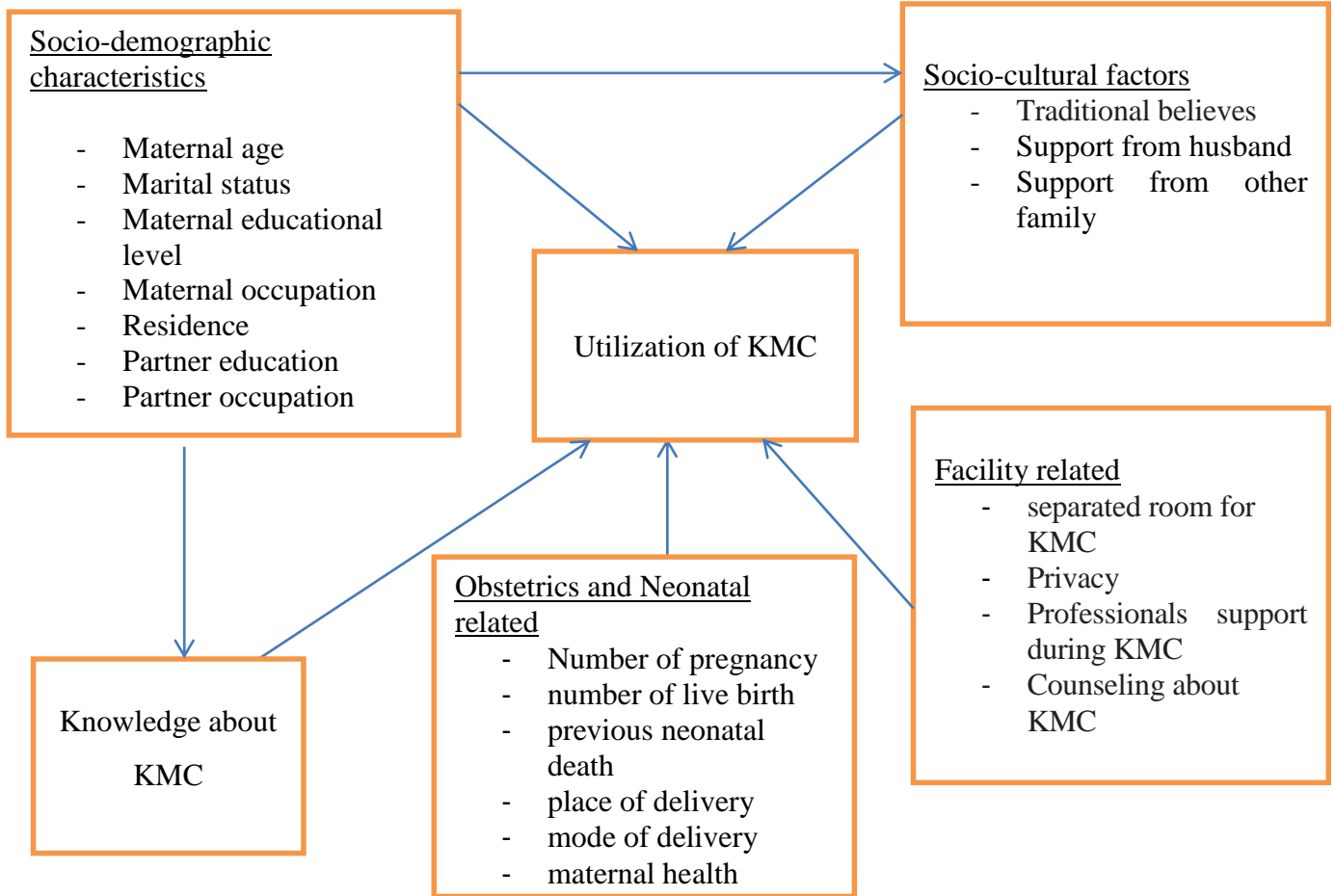


Figure 1: Conceptual frame work of associated factors of utilization of kangaroo mother care developed after reviewing different literature 2020.

3. OBJECTIVES

3.1 General Objective

To assess the magnitude of kangaroo mother care utilization and associated factors among mothers or care takers who have preterm and/low birth weight neonates in governmental hospitals, north Showa zone, Amara regional state, Ethiopia, 2020.

3.1 Specific Objectives

- To determine kangaroo mother care utilization rate among mothers who have preterm /low birth weight neonates in governmental hospitals, north Showa zone, Amahra regional state, Ethiopia, 2020.
- To identify factors that affect kangaroo mother care utilization rate of among mothers who have preterm /low birth weight neonates in governmental hospitals, North Showa Zone, Amhara regional state, Ethiopia, 2020.

4. METHODOLOGY

4.1 Study Area and Period

This study was conducted in north Showa zone of Amhara regional state, Ethiopia. The zone has a total of 24 districts, and Debre Berhan is the zonal town of north Showa zone; located at 130 kilometers to the north east of Addis Ababa. According to the information obtained from the zonal health office, there are 10 hospitals, 92 health centers, and 387 health posts which are run by government. All the hospitals and health centers give MCH service for their catchment area. There are also 2 hospitals and 65 clinics owned by the private owners in this zone. These governmental hospitals have organized NICU and KMC room to give services for in needy ones. The study was conducted from February to May 2020.

4.2 Study Design

Institutional based cross sectional study design method using both quantitative and qualitative data was employed in governmental hospitals in North Showa zone by 2020.

4.3 Source population

All postnatal mothers that gave preterm and/or low birth weight babies in North Showa zone governmental hospitals were the source of population.

4.4 Study population

Postnatal mothers who gave preterm and/or low birth weight neonates admitted in postnatal room and NICU in the three selected hospitals during the study period were the study population.

For qualitative

Source population

All health professionals found in north showa zone, governmental hospitals were the source population of the study.

Study populations

Health care professionals who work in NICU and postnatal room found in the selected hospitals during the study period were the study populations.

4.5 Inclusion and Exclusion Criteria

Inclusion

All mother or care takers who have a preterm or low birth weight infants admitted in postnatal room and NICU in the selected hospitals were included in the study.

Exclusion

Mothers who were critically ill during the study period were excluded from the study.

For qualitative

Inclusion

All health care professionals who work in NICU and postnatal room in the selected hospitals during the study period.

Exclusion

Internship students and health care professionals who give free service in the selected hospitals were excluded from the study.

4.6 Sample Size Determination

First, the sample size was calculated using Epi Info version 7.2.0.1 statistical software for the factors and single population proportion formula was calculated considering; Z=standard normal distribution (1.96) with confidence interval of 95%, margin of error 5% and the proportion of mothers who utilized KMC for their low birth weight infants were 54% (31). Finally, the proportion of KMC utilization was taken since it came up with the largest sample size.

$$\frac{ni = Z^2 * pq}{D^2}$$

Where n= required sample size

Z= z-value at 95% confidence

P= estimated prevalence rate in 54% (0.54)

D= marginal error (d= 0.05)

$$\frac{ni=1.96^2 * 0.54 * 0.46}{0.05^2} = 382$$

Since the total population is less than 10000, correction formula was used. The exact sample size was calculated as follows.

Low birth weight/preterm neonates admitted in NICU and postnatal room in 3 months in the three hospitals was in DBRH 168, Enat hospital 123 and Ataye hospital 104, Total 395

$$nf = \frac{ni}{1 + \frac{ni}{N}} \quad nf = \frac{382}{1 + \frac{382}{395}} = 194.2$$

By considering 5% nonresponse rate the final sample size is 204

For qualitative:

Key informants were selected including head of NICU, health care providers in the NICU and KMC room. It is recommended that 10-20 key informants for in depth interview. Accordingly, the least number of key informants, 10 was taken with the assumption of adding some more until the information is saturated. In contrast, if the information still saturates before the minimum number, the cut off for deciding the number of key informants was also supposed.

4.7 Sampling Technique

Enat, Ataye and DBRHs which provide NICU and KMC were selected randomly by considering their KMC service provision. Study participants were proportionally allocated to the three hospitals according to patient flow. Postnatal mothers that gave preterm and/or LBW were selected by systematic random sampling after the first sample was taken randomly until the allocated sample size obtained. In cases of multiple births, one baby was selected by lottery method for the study.

$$K = N/n \quad K = 394/204 = 1.93 = 2$$

Schematic presentation of sampling procedure

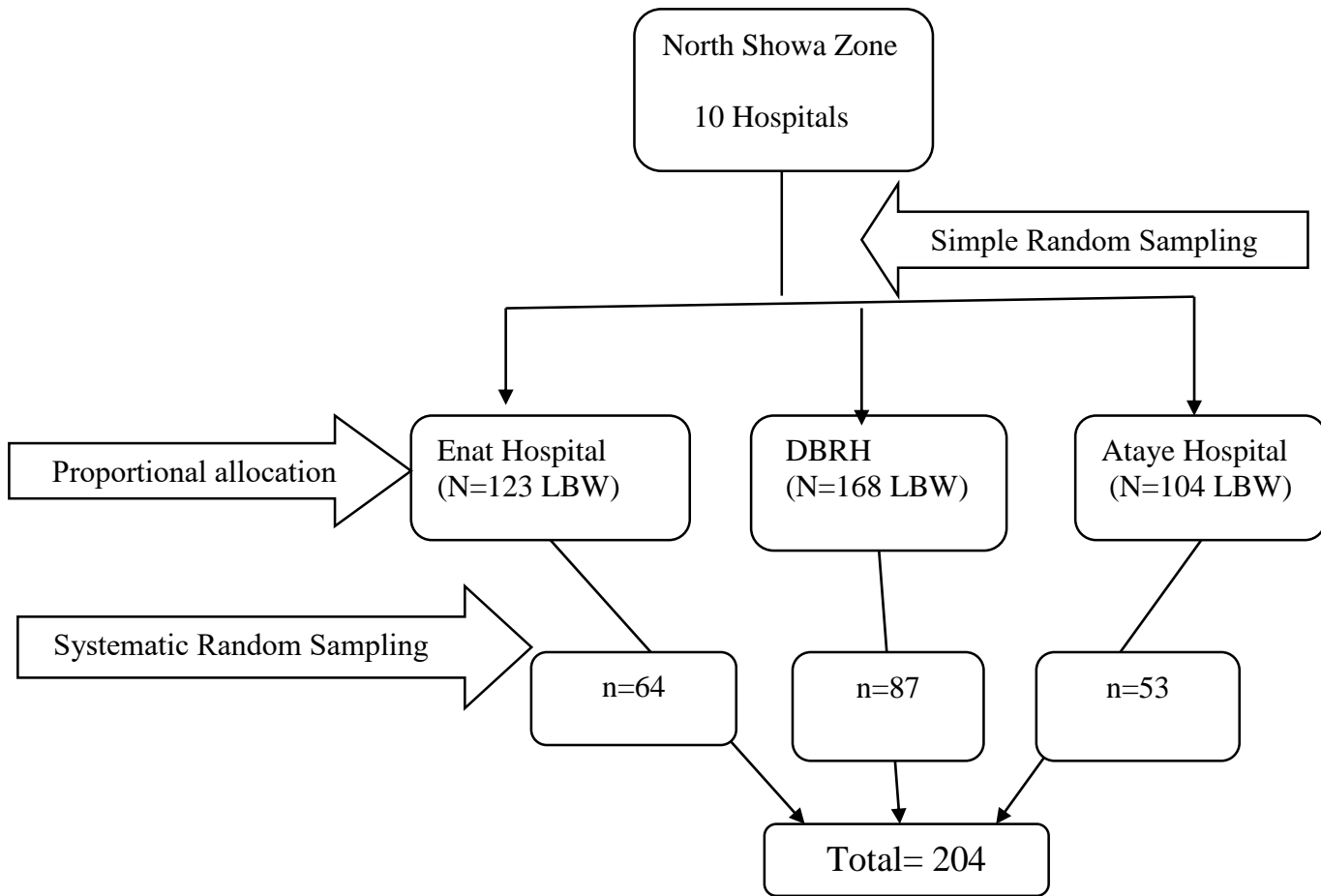


Figure 2: Schematic presentation of sampling procedure and technique in governmental hospitals, North Showa zone, Ethiopia, 2020.

4.8 Variables

4.8.1 Dependent variable

Utilization of kangaroo mother care

4.8.2 Independent variables

Socio demographic characteristics of the mother: Maternal age, residence, religion, marital status, maternal educational level, maternal occupation.

Socio-cultural factors: Lack of privacy, traditional believes, support from husband, support from other family, absence of attendant and decision maker for health care.

Obstetric and Neonatal related: number of delivery, number of live birth, previous neonatal death, number of neonatal death, ANC, place of delivery, mode of delivery, age of new born, weight of the newborn, gestational age during delivery.

Facility related: Separated room for KMC, Inadequate space for mothers', information from health professionals about KMC, support form health care providers and counseling about KMC

Knowledge: of the mothers/caretakers.

4.9 Data Collection Methods

The data were collected by using interviewer-administered semi-structured questionnaires to obtain information from mothers or caretakers of the neonates. The instrument was constructed from a review of available literature on utilization of KMC and WHO guideline and translated into local language to collect information about socio-demographic characteristics, socio-cultural characteristics, obstetrics related and facility related information. The knowledge of the mothers/caretakers were assessed by eighteen knowledge questions and scored one point for correct response and zero for wrong answer. Utilization of KMC by the mothers/caretakers were assessed by yes/no questions according to operational definition of KMC whether it is intermittent or continuous. Card review was conducted for neonatal information.

Mothers/caretakers were asked by three trained data collectors until the proportionally allocated sample size in each hospital was achieved. The supervisors checked for completeness at the end of each day.

For qualitative: to obtain qualitative data, an indepth interview were made with key informants by principal invetgator using key informant questionnaire guide. The data were recorded by audio recorder accompanied by transcribing and translating on daily basis.

4.10 Operational Definition

Utilization of KMC: If the mother obtained skin to skin contact for the neonate day and night(countinuous) or 6 to 8 hours within 24 hours (intermittent)(7).

Low birth weight: Birth weight less than 2000g.

Continuous KMC: KMC practiced continuously in a day and night.

Intermittent KMC: KMC practiced two or three times in a day not included in night.

Care takers: mothers or other family members (father, grandmother or relatives) who providing the care for premature/LBW infants in the mothers' absence or when she needs rest.

Privacy in KMC room: the room should serve for only KMC procedure (separated from other services)

Support from husband: when the father perform kangaroo care for the neonate

Support from other family: when family members perform kangaroo mother care for the neonate

Knowledgeable: Respondents who answer above the mean score from 18 knowledge questions were categorized as knowledgeable(31).

Maternal Health Problems: mothers who have pain from episiotomy repair, recovery from caesarean section, postpartum depression, and general maternal illness.

4.11 Data Quality Assurance

Questionnaire was prepared initially in English by the investigator and translated into Amharic, and retranslated by another translator to English to compare the consistency. Before the actual data collection, the questionnaire was pre-tested on 5% mothers/caretakers with preterm/low birth weight neonates and the finding was excluded from the main study and the reliability of the tool were checked using Cronbach's alpha test and it was 0.72. Amendments were made accordingly after pre-testing on the questions that are ambiguous, wording that misleads, logic and skipping order in how to proceed to the next. Data collectors and supervisors were trained for one day on the study instrument and data collection procedure. The principal investigator and the supervisors checked the collected data for completeness and corrective measures were taken accordingly and 1.96% questionnaire was rejected due to inconsistency and incompleteness. Then, the collected data were cleaned, coded and explored before analysis.

For qualitative: Qualitative data were collected in a better quality if the interviewer elicits the question by focusing on the core of the question than allowing the respondents when they degress widely out of the intention of the interview guide. The quality of the data can also be controlled by carefully transcribing and translating on daily basis to understand the data in-depth.

4.12 Data Processing and Analysis

The collected data were coded after checking for its completeness and consistency. The coded data were entered into Epi data version 3.1 and were transferred to SPSS (Statistical Package for Social Science) version 22 for further statistical analysis. Description of frequency, mean, proportion and Standard Deviation (SD) were undergone. All statistical analysis was performed.

Both bivariate and multivariable logistic regression model was used to see the association between each independent and dependent variables after the data recoded and dichotomized. The data was categorized in to four groups to see the association of independent variable with outcome variable. These groups are socio-demographic characteristics, neonatal and obstetric related, socio-cultural factors, facility related characteristics and knowledge of the mothers. During bivariate logistic regression, Crude odds ratio(COR) and their 95% Confidence interval (CI) was computed and all independent variables with p-value of less than 0.2 were taken into multivariable logistic regression model to control confounders and to determine the true association.

Logistic regression assumption tests were tested and the model goodness of fit was checked by using Hosmer Lemeshow goodness of fit and the result is 0.78 and multicollinearity test was done through VIF. Then, variables whose p-value less than 0.05 were taken as significantly associated. Finally, the results were presented using tables, graphs, figures and in narration form.

For qualitative data

Regarding qualitative data collection, the data were collected in in-depth interview. The key informant guide interview questions were presented to the interviewees and their responses were recorded using audio recorder. Then, the collected data from the key informants were transcribed and translated from Amharic to English. After reading continuously, information was

meaningfully categorized and most important quotes were identified/ coded for substantiating the findings of the quantitative ones. From the coded data, similar ideas and concepts were re-grouped in order to create theme. Themes were socio-cultural related, health facility related, KMC utilization. Finally, thematic analysis was made manually in the form of narration by supporting each theme with the direct quotes of the respondents to triangulate the quantitative with the qualitative data. The transcription text has been annexed as part of appendices.

4.13 Ethical Consideration

Proposal was approved by Ethical Review Board of College of Health Sciences before conducting the study. Permission to undertake the study was obtained from every relevant authority in the hospitals. Pertinent consent form and the information sheet had duly integrated along with the respective data collection instruments. All the study participants were clearly informed about the objective, benefits, significance and as it has no harm. Finally, their verbal informed consent was obtained before the interview.

4.14 Dissemination of Result

Up on the approval of this thesis by the board of the examiners, the finding of the study will be presented to DBU, department of public health and final report will be disseminated in each hospital, Debre Berhan zonal health department, Debre Berhan town health bureau and other non-governmental organizations which work on neonatal and child health. The finding will also be presented in different seminars, workshops and an attempt will be made for publication. Hard and soft copies of the result will be put in the library of DebreBerhan University for reference.

5. RESULT

5.1 Socio-demographic Characteristics of Mothers

A total of 195 mothers who have preterm neonates were interviewed from three hospitals with a response rate of 95.6%. Of them, 100(52.3%) and 95(47.7%) live in urban and rural respectively. A vast majority 185 (94.9%) of respondents are married. The mean age of respondents is 29.75 years with SD ± 5.821 which ranges from 20 to 42 years. (**Table 1**)

Table 1: Socio-demographic Characteristics of Mothers who have Preterm /Low Birth Weight Neonates, North Showa Zone, Amhara Regional State, Ethiopia, 2020 (n=195).

Variables	Number	Percent
Maternal age		
20-29	101	51.79
30-39	79	40.51
>40	15	7.70
Residence		
Rural	95	47.7
Urban	100	52.3
Marital Status		
Married	185	94.9
Others*	10	5.1
Religion		
Orthodox	141	72.3
Muslim	41	21
Others**	13	6.7
Maternal Educational level		
Illiterate	52	26.7
Primary	60	30.8
Secondary &above	87	42.5
Maternal occupation		
House wife	111	56.9
Private	53	27.2
Gov. employee	31	15.9
Partner's educational level (N=185)		
Illiterate	49	26.49
Primary	36	19.46
Secondary and above	100	54.05
Partner's Occupation		
Farmer	59	31.89
Private	86	46.49
Gov. employee	40	21.62
Family Income		
1000-3000	85	43.6
>3000	110	56.4

*single, widowed, separated ** catholic, protestant

5.2 Socio-demographic Characteristics of Key Informants

Table 2: Socio Demographic Characteristics of Key Informants, North Showa zone, Amhara Regional State, Ethiopia, 2020

Variables	Number	Percent
Age		
28	2	40
32	1	20
35	1	20
30	1	20
Total	5	100
Sex		
Male	2	40
Female	3	60
Total	5	100
Position		
Head of NICU	1	20
Neonatal Nurse	2	40
BSC Nurse	2	40
Total	5	100

Theme identified for qualitative data

After reading the data continuously, similar data were identified and coded to create theme and the identified themes are as follows:

1. Utilization of Kangaroo mother care
2. Lack of privacy in the kangaroo mother care room
3. Counselling on Kangaroo mother care
4. Professional support during Kangaroo mother care

5.3 Obstetric and Neonatal Characteristics

Among the respondents majority 148(75.9%) of them are multi gravid and vast majority of the women 186(95.4%) delivered in health institutions. About 118(59.5%) have spontaneous vaginal delivery. (Table 3)

Table 3: Obstetric Related Characteristics of Mothers who have Preterm Neonates, North Showa Zone, Amhara Regional State, Ethiopia, 2020 (n=195).

Variables	Number	Precent
Gravidity		
Primi gravid	47	24.1
Multi gravid	148	75.9
No of live birth		
1-2	112	57.4
3-4	70	35.9
>4	13	6.7
Previous neonatal death		
Yes	60	30.8
No	135	69.2
Pregnancy Type		
Single	178	91.28
Multiple	17	8.72
ANC for current pregnancy		
Yes	167	85.6
No	28	14.4
Place of delivery		
Health institutions	186	95.4
Home	9	4.6
Gestational age during delivery		
Very preterm (28-31 wks)	70	35.9
Preterm (32-36 wks)	116	59.5
Term (>36 wks)	9	4.6
Mode of delivery Spontaneous		
vaginal delivery	118	60.51
Caesarean section	77	39.49
Sex of the new born		
Male	108	55.4
Female	87	44.6
Weight of the neonate		
Very low birth weight	25	12.8
Low birth weight	170	87.2

5.4 Socio Cultural Characteristics

This study assesses socio-cultural characteristics of mothers. Majority of 156(80%) of the respondents make decision with their husband and the rest 27(13.8%), 12(6.2%) have shared decision with other family and mother by herself respectively. More than half of the respondents 150(76.9%) did not have family support. About 50(25.6%) of the mothers responded that it is wrong putting new born direct skin to skin in related to cultural believes. (**Table 4**)

These cultural believe affect the utilization of KMC, which is substantiated by qualitative finding. According to the responses of the respondents, almost all of them share common ideas with regard to privacy of the room where KMC is practiced and how their cultural background hinders them from benefiting the advantages of KMC to their neonates. They explained that they do not dare to show their very little neonates in front of others as they consider it giving birth to such very low weighing infant is the mere problem of the mothers. They never know that the problem is also associated with other health related factors. This concept is developed by the response of a 4 year experienced neonatal nurse as, “...*Mothers culturally do not want their babies to be seen by others and she said, “ We usually show the procedures by undressing the women’s dress and this are considered to be shame since mothers consider giving birth to low birth weight is their own problem rather than it is some kind of health related problem....”*”

Table 4: Socio-Cultural Characteristics of Mothers who have Preterm Neonate, North ShowaZone, Amhara Regional State, Ethiopia, 2020 (n=195).

Variables	Number	Percent
Decision maker for the health of the neonate		
Mother herself	12	6.2
Mother and father together	156	80
With other family members	27	13.8
Husband support		
Yes	57	29.2
No	138	70.8
Other family support		
Yes	45	23.1
No	150	76.9
Privacy in the room		
Yes	148	75.9
No	47	24.1
Is it wrong putting new born direct skin to skin?		
Yes	50	25.6
No	145	74.4

5.4.1 Cultural reasons Mentioned by Mothers

From mothers who responded putting the neonate skin to skin contact is culturally taboo, 22(44%), mothers who reported that fear of exposing the new born in front of others is considered their sole problem and 13(26%) of them responded that they feel ashamed of giving birth to a little neonate to use the KMC.(Figure 3)

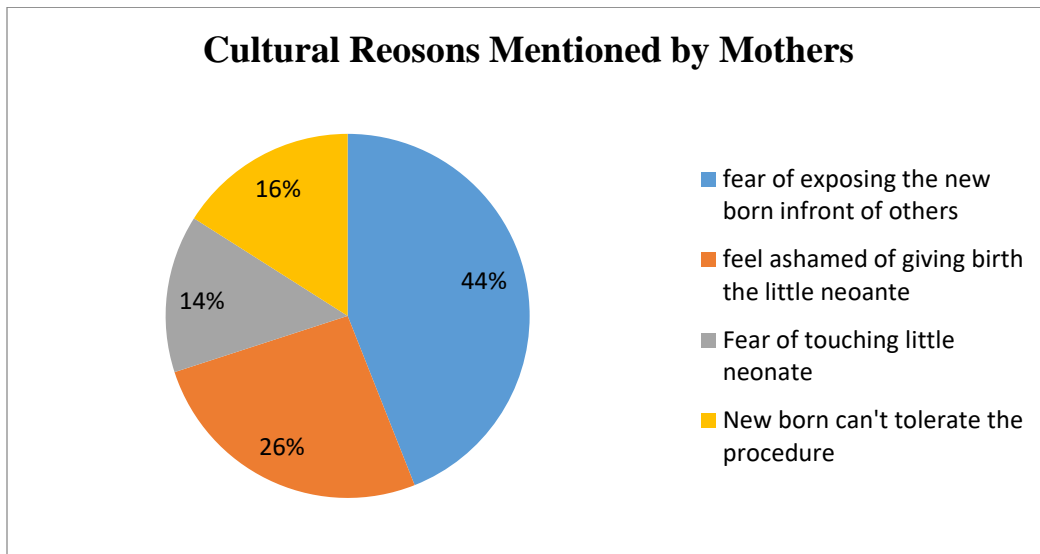


Figure 3: Cultural reasons of mentioned by mothers North Showa Zone, Amhara Regional State, Ethiopia, 2020.

5.5 Knowledge of Mothers on Kangaroo Mother Care

Knowledge of mothers on KMC was another factor assessed in this study. Among the respondents, 106(54.4%) were knowledgeable and 89(45.6%) were not knowledgeable. Besides, of the total respondents, 144(73.8%) described KMC properly by stating that it is skin to skin contact of the neonate on mother's chest and 51(26.2%) did not describe it correctly. Regarding the benefits of kangaroo mother care, 106 (54.4%) responded that KMC mainly helps to maintain the body temperature warm; 96 (49.2%) improves weight; 26(13.3%) decreases morbidity and mortality and the rest 12(6.2%), 12(6.8%), 10(5.1%) increase mother child bonding, frequent feeding; reduces hospital stay respectively. And yet, 19 (9.7%) did not know the main use of KMC at all. Most of the mothers 189 (96.9%) did not know the frequency of feeding for the baby

in KMC position. KMC positioning was correctly described by 128 (65.6%) mothers while the rest are unaware of proper KMC positioning. Concerning duration of KMC procedure, 71(36.4%) mothers responded that they stay until the baby gains weight, 40(20.5%) until the baby achieves regular body temperature, 17 (8.7%) until the child matures and the remaining 42 (21.5%) did not know for how long KMC is intended to be given. Regarding clothing during KMC, 130 (66.7%) mothers correctly stated that the baby should put on cap, socks and nappy (only with diaper) and the rest had no information on how to cloth the baby during KMC.(Figure 4)

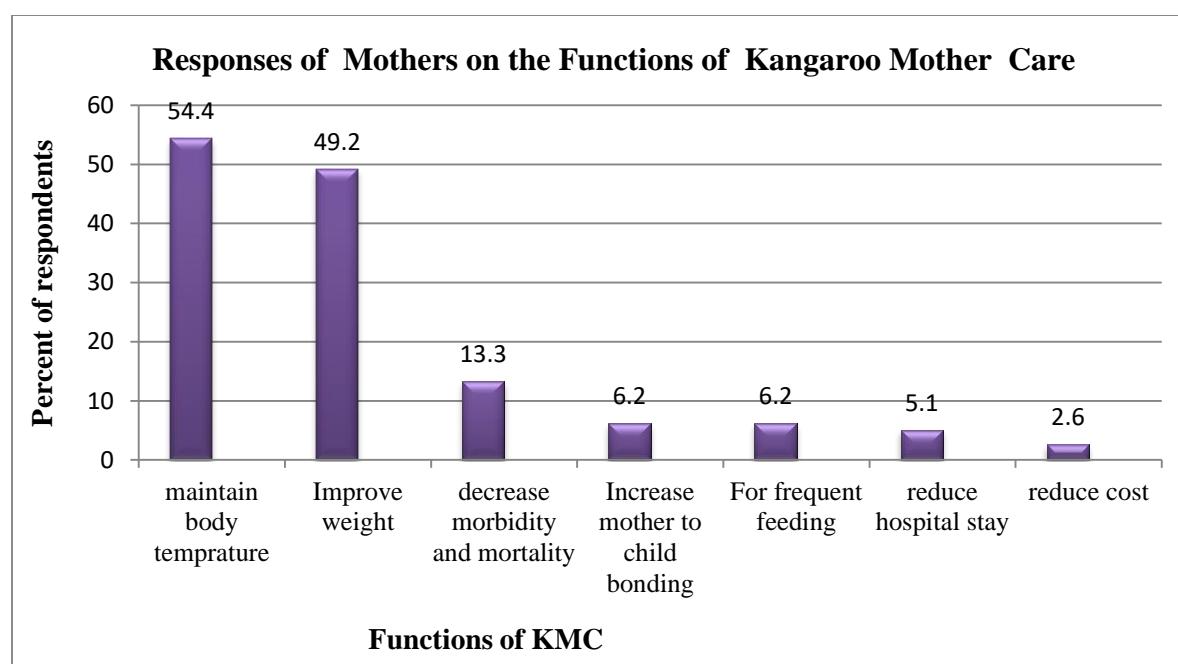


Figure 4: Functions of Kangaroo Mother Care responded by Mothers who have Preterm Neonates North Showa Zone, Amahra Regional State, Ethiopia, 2020.

5.6 Health Facility Related Characteristics

In this study, health facility related factors were assessed. Most of the mothers 112(83.58%) replied that the KMC room is not adequate for practicing. From the study mothers, 141 (72.3%) did not get any support from health professionals during KMC practice and 125(64.1%) were not counseled. (Table 5)

Following is a qualitative result that develops the above ideas. Accordingly, three major themes were created and their qualitative results were narrated in the way it can show triangulation with its quantitative counter part. The themes are taken from the umbrella service, health related facility such as:

- privacy
- Professional support
- Counselling

In relation with the first theme, the adequacy of the room, almost all the respondents agreed that there is no adequate room for practicing KMC. Some of the reasons they mentioned were: the frequent opening and shutting the room while the professionals are rounding for other services. It was also described that the hospital should improve the basic facilities such as beds and KMC belts. Supporting this idea, a 30 year old BSC female nurse pointed out, “... *Although KMC does not need to much resources, the hospital fails to fill full the basic infrastructure as the room is substandard; fails to posse KMC belt and the beds in KMC are also not comfortable both for sleeping and sitting in KMC position...*”

Regarding the professional support they give, the professionals hardly mentioned the support they give for the beneficiaries. They mentioned that support is one of the issues that remain undone. For instance, BSC nurse who worked for the last 4 years in NICU, said, “...*The shortage of human resource where KMC demands at least a nurse for a mother is impossible. Therefore, general advice on KMC benefits and position is given both orally and in posters for those who can read. We also focus on encouraging the one who effectively utilizes the service earlier...*”

With regard to counseling, it has been found that counseling is the most important but ignored service. The service could be given either in a formal way by professionals or in an informal way via service utilizers. Regarding this, a 28 year old neonatal female nurse said, “...*like in any situation, beginning something new is always challenging. The mothers resist using KMC mainly as a result of fearing their small weight neonates can be seen by others. But, after seeing others utilization this service and after receiving repeated counseling, they immediately shift their mind*

and use it as per needed. She further recommends, “Mothers need to be counseled continuously...”

To put things in a nut shell, it has been observed both in quantitative and qualitative finding that facility related factors such as infrastructure, professional support and counseling largely affect the utilization of KMC.

Table 5: Health Facility Related Characteristics North Showa Zone, Amahra Regional State, Ethiopia, 2020 (n=195).

Variables	Number	Percent
Separated room for KMC		
Yes	134	68.72
No	61	31.28
Is the room adequate (N=134)		
Yes	22	16.42
No	112	83.58
Got counselling		
Yes	70	35.90
No	125	64.10
Who counsel (N=70)		
Nurse	56	80
Doctors	14	20
Have you got support from health professionals		
Yes	54	27.7
No	141	72.3
Type of support		
By helping while doing KMC	19	35.2
By assuring during KMC practice	35	64.8

N= number of mothers

5.7 Utilization of Kangaroo Mother Care

From all study participants, 47(24.1%) utilized KMC for their neonates. Of these, only 18(38.3%) started KMC immediately after birth and the rest started after twenty-four hours. Most of the respondents 28(59.6%) did not breastfeed during KMC and majority of them 44 (93.4%) were willing to continue at home. **(Table 6)**

All Key informants stated that in this unit, KMC is utilized but the service is inconsistent. The mothers also start the service very late after being lobbied by health care providers. Concerning this, a 38 year old NICU head said, “...*They say that all they do is for their own children. However, since the room is getting hotter and hotter and also they got tired holding the babies for long time, we found them keep the babies by their side while they sleep. This seems that they are not consistent to the level of expected only due to physical tiredness and temperature...*”

Table 6: Utilization Status of Kangaroo Mother Care among Mothers who have preterm neonates, North Showa Zone, Amahra Regional State, Ethiopia, 2020 (N=195).

Variables	Number	Percent
Start KMC		
Yes	47	24.1
No	148	75.9
Start Time (N= 47)		
Immediately after birth	18	38.3
After 24 hours	29	61.7
Pattern of KMC		
Continuous	8	17
Intermittent	39	83
Continue at Home		
Yes	44	93.6
No	3	6.4
Breast feed during KMC		
Yes	19	40.4
No	28	59.6

5.7.1 Reasons for not utilizing KMC for mothers who have preterm neonates

According to the mothers who have preterm neonates, the following were found to be some of the factors that inhibit them from utilizing KMC. These are mothers have reported as: 38(25.7%) have health problems, 31 (20.94%) have a lack of information about KMC. (Figure 5)

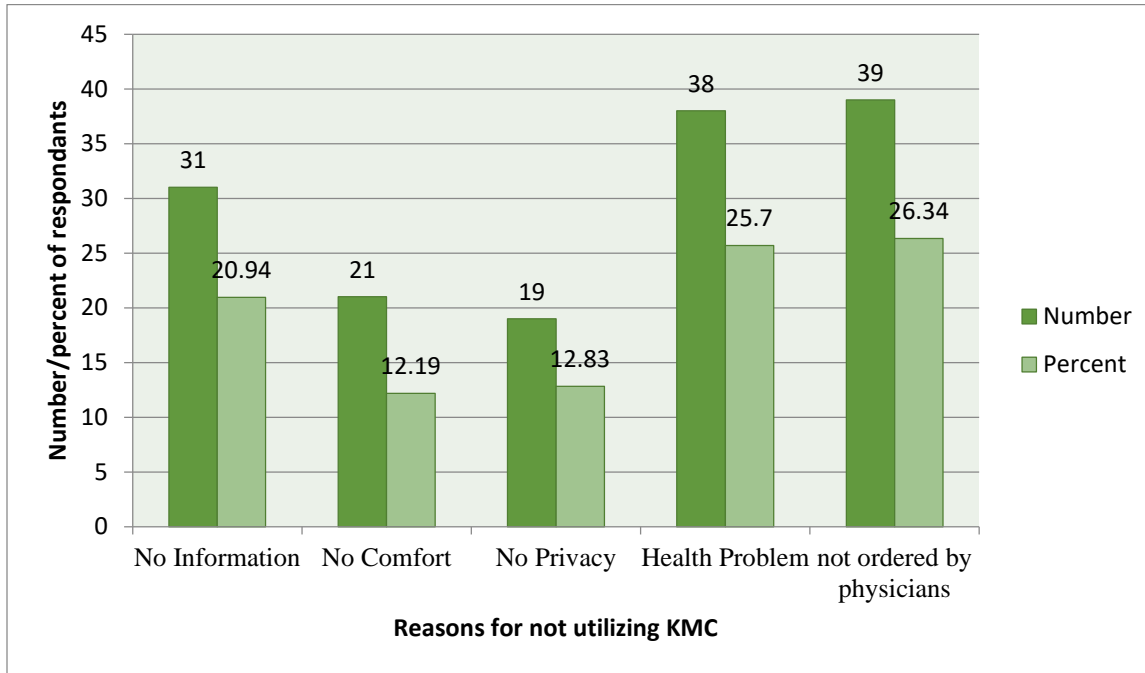


Figure 5: Reasons for Mothers who have Preterm Neonates not Utilizing Kangaroo Mother Care, North Showa Zone, Amahra Regional State, Ethiopia, 2020.

5.8 Associated Factors of Utilization of Kangaroo Mother Care

In this study, each independent variable was assessed for the association with the outcome variable.

Result from bivariate analysis indicates that: residence, maternal occupation, father occupation and family income were the factors that had shown association with utilization of KMC. From obstetric and neonatal factors, mode of delivery was associated with KMC. From socio –cultural factors, husband support and other family support were associated with the outcome variable. Among facility related factors, privacy, counseling and professional support were associated with utilization of KMC.

After adjusting for confounders in the final model (multivariable logistic regression): mode of delivery, privacy in KMC room, counseling, professional support were significantly associated with the utilization of KMC.

The respondents who vaginally delivered were 6.76 times (AOR =6.76, 95%CI: 1.59, 28.59) more likely to utilize KMC than those who had caesarean section. Mothers who have had privacy were 6.19 times (AOR= 6.19, 95% CI: 1.18, 32.47) more likely to utilize KMC as compared to mothers who did not have privacy. The odd of utilizing KMC among mothers who got counseling were 11.81 times (AOR= 11.81, 95% CI: 2.97, 46.89) more likely compared from those who did not counseled. The odd of utilizing KMC among mothers who were supported by health professionals during KMC utilization were 4.17 times (AOR= 4.17, 95% CI: 1.12, 15.60) more likely than those who did not supported by health professionals during KMC utilization. **(Table 7)**

Table 7: Associated factors of Utilization of Kangaroo Mother Care among Mothers who have Preterm Neonates in North Showa Zone, Amhara Regional State, Ethiopia, 2020.

Variables	KMC		COR(95% CI)	AOR(95% CI)	
	Yes	No			
Residence	Rural	14	81	.35 (.17, .71)	.38(.09, 1.47)
	Urban	33	67	1	1
Maternal occupation	Housewife	15	96	1	1
	Private	20	33	.25(.10,.611)	.41(.07, 2.32)
	Gov. employee	12	19	.96(.39, 2.39)	1.06(.18, 6.45)
Partner occupation	Farmer	5	54	1	1
	Private	26	60	.14(.046, .42)	.20(.02, 1.77)
	Gov. employee	16	24	.65(.29, 1.42)	.44(.09, 2.29)
monthly income	1000-3000	13	72	.40(.19, .83)	.54(.64, 2.75)
	>3000	34	76	1	1
Mode of Delivery	SVD	43	75	10.46(3.58, 30.63)	6.76(1.59,28.59)**
	CS	4	73	1	1
Information	Yes	45	99	11.14(2.59, 47.82)	.97(.09, 10.54)
	No	2	49	1	1
Knowledge	Knowledgeable	38	68	4.97(2.24,11.01)	1.25(.23, 6.69)
	Not knowledgeable	9	80	1	1
Husband support	Yes	22	35	2.84(1.43, 5.65)	.97(.23, 4.17)
	No	25	113	1	1
Other Family support	Yes	20	25	3.64(1.77, 7.49)	1.69(.37, 6.83)
	No	27	123	1	1
Privacy	Yes	43	105	4.40(4.49, 13.02)	6.19(1.18, 32.47)*
	No	4	43	1	1
Counselling	Yes	37	33	10.57(4.92, 22.68)	11.81(2.97, 46.89)*
	No	10	115	1	1
Professional support	Yes	39	30	19.18(8.12, 45.31)	4.17(1.12, 15.60)**
	No	8	118	1	1

*statistically significant (p<0.05), ** statistically significant (p<0.001), 1 - reference

6. DISCUSSION

The purpose of this study was to assess kangaroo mother care utilization rate and associated factors among mothers who have preterm neonate residing in north Showa zone. The overall utilization of kangaroo mother care was 24.1% (95% CI: 17.9, 30.8). This finding is greater than finding from Yirgalem town Ethiopia, East Showa Zone, Ethiopia, Sidama Zone, Ethiopia and Gurage Zone Ethiopia(32, 33). These differences could be due to the differences in time (i.e. the more recent research is expected to exceed the furthest one).

And it is less than the finding from eastern Ethiopia and Kumasi Ghana(30, 31). This difference could be due to differences in facilities such as the privacy of the room, suitability of infrastructure in the room. And due to the difference in sample size.

From those who utilized KMC, 18(38.3%) started immediately after birth and 177(61.7%) started after twenty four hours. When we compare the current immediate utilization of KMC with the finding in Kumasi, Ghana it was found to be very low (30).The difference may be due to lack of information when to start KMC for their neonate and the women may not feel comfort right after birth; they feel pain and not ready to apply this procedure psychologically needs professional support and advice.

The odds of mothers who delivered vaginally were 6.76 times (AOR: 6.76, 95% CI: 1.59, 28.59) more likely to use than those who delivered in the cesarean section. This finding is consistent with study conducted in Yirgalem, Ethiopia. This similarity is due to maternal common problem clinically where every cesarean delivered mothers feel wound pain in the cesarean section(32).

Mothers who reported that there is privacy in KMC room were 6.19 times (AOR: 6.19, 95% CI: 1.18, 32.47) more likely to utilize KMC than those who responded there is no privacy in the KMC room. This is in line with the study conducted in Sweden and Uganda (35, 38). This concept was also substantiated qualitatively by stating that there is no privacy in the unit where KMC procedure is applied. The similarity may be due to cultural fear of exposing the new born in front of others needs privacy in KMC room. This inconsistent with study done in Zambia(36). The difference may be cultural difference in different communities.

Mothers who got counseling about KMC were 11.81 times (AOR: 11.81, 95% CI: 2.97, 46.89) more likely to utilize KMC than those who did not get counseling about KMC. This result is in line with the result from Zambia (36) and majority of key informants highlighted that KMC utilization seems difficult at the beginning. A neonatal nurse stated, “...when they are continuously advised and counseled, they were seen shifting their mind and start utilizing the procedure as per our discussion...”

Thus, both quantitative and qualitative finding support each other implying that mothers need continuous counseling about KMC for its effective utilization. This similarity implies, mothers need continuous counseling on utilization of KMC effectively and continuously.

Pertinent to professional support during KMC, mothers who were supported by health professionals during KMC were 4.17 times (AOR: 4.17, 95% CI: 1.12, 15.60) more likely to utilize than mothers who were not supported by health professionals. This is in line with study conducted in Zambia and Hawassa, Ethiopia (36, 39). According to the informant’s opinion, “...when professionals support the mothers, they tend to use the service more effectively...”. The possible explanation for this KMC needs support while they wrap their neonates as the procedure is not comfortable.

In this study, factors that hinder KMC from utilizing were found to be lack of husband and other family members support while they care the neonates. It is in line with findings from Zambia and India (36, 37). This is due to consideration of KMC utilization is merely left to mothers though the procedure can be carried out by any family members such as fathers, grandmothers, aunts, sisters so on and so forth. If it is done only by mothers who are very weak due to birth and the procedure itself is very tiresome, ultimately KMC procedure is less likely utilized.

Cultural related issues that directly impact the utilization of KMC procedure include the following. These are: some mothers do not want their neonates to be seen by others as the weights of the neonates are very low assuming this problem emanates from them. They also fear to touch the little neonate body as it is not comfortable to hold them during skin to skin contact. Some mothers also feel shame giving birth to such a little neonate and therefore want to hide them. Thus, these were found to be some of the factors that influence KMC utilization. This is

similar with the study done in Iran and eastern Ethiopia (29, 31), but different from the study conducted in Zambia (36). This may be due to cultural differences between the communities. Some informants highlighted that culture is the most important factor that impacts mothers' KMC utilization. Neonatal nurse explained, "...specifically when privacy of the woman as mothers culturally do not want their babies be seen by others, she responded that there is no privacy in the room..."

The other reasons that influence the utilization of KMC were health problem of the mother like pain from episiotomy repair, lack of information about KMC, not ordered by health professionals to practice KMC and did not feel comfortable while they care the newborn and breastfeed in KMC position. This findings is supported by other findings found in Southern Ethiopia and India (30, 40).

7 STRENGTH AND LIMITATION

7.1 Strength

The strength of this study is:

- Bias control mechanism (the data collectors were from other department)
- It's reviewing cards and gathering the information through interview from participants.
- Triangulation was also made by key informant interview from health care providers via subject triangulation.
- High response rate

7.2 Limitations

- Although, 10 key informants were proposed for the qualitative data the researcher could not meet the required number of informants due to the current world-threatening factor, COVID-19. There fore, only 5 key informants were involved in an idepth interview.
- One more tool (FGD) was also rejected as a result of this pandemic problem.
- As the study is cross-sectional type does not show the temporal relationship (cause-effect relationship).

8. CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

Kangaroo mother care utilization in this study area specially those who start immediately after birth was found to lower than most studies in other countries but higher than a few studies in our country and its practice was inconsistent. In the study, mode of delivery, privacy in KMC room, having KMC counselling, having professional support during KMC were factors that significantly associated with the utilization of KMC. These factors and the absence of standard room for KMC, absence of KMC belts and insufficient human resource make the KMC utilization very poor.

8.2 Recommendations

Based on the result of the study, the following recommendations were made to the concerned bodies in order to take measures on the factors that hinders mothers to utilize KMC and to increase its utilization.

For Zonal health office

- ✓ The health office should support all health facilities materially to promote KMC utilization.
- ✓ Should monitor the institutions to have standard KMC room.

For the hospital

The hospital should:

- ✓ Work on infrastructure to maintain privacy of the mothers.
- ✓ avail the necessary materials for providing the procedure, KMC belt,
- ✓ have sufficient and adequately trained human power

For health professionals

- ✓ Health professionals should support mothers by demonstrating how to put the neonates in KMC position.
- ✓ They should continuously counsel mothers and advocate KMC benefits.

For the researchers

- ✓ Studies on KMC acceptance and its application are further recommended.
- ✓ Community based Utilization of KMC also recommended.

REFERENCES

1. World Health Organization, Kangaroo mother care to reduce morbidity and mortality and improve growth in low-birth-weight infants, 2014.
2. World Health Organization, WWGN, Global nutrition target 2025: Low birth weight policy brief, Geneva: 2014.
3. World Health Organization, The impact of the environment on children's health. World Health Organization, 2017.
4. Risnes KR, Vatten LJ, Baker JL, Jameson K, Sovio U, Kajantie E, et al. Birthweight and mortality in adulthood: a systematic review and meta-analysis. *International journal of epidemiology*. 2011;40(3):647-61.
5. World Health Organization, Health in 2015 from MDGs, millennium development goals to SDGs, sustainable development goals: World Health Organization; 2015.
6. Trevisanuto D, Putoto G, Pizzol D, Serena T, Manenti F, Varano S, et al. Is a woolen cap effective in maintaining normothermia in low-birth-weight infants during kangaroo mother care? Study protocol for a randomized controlled trial. *Trials*. 2016;17(1):265.
7. World Health Organization, Kangaroo mother care: a practical guide: World Health Organization; 2003.
8. Wubshet L. Kangaroo Mother Care: a randomized control trial on effectiveness of early kangaroo mother care for the low birth weight infants in addis ababa Ethiopia: 2014; *J trop ped*, 51(2): 93-97.
9. Nyqvist KH, Anderson G, Bergman N, Cattaneo A, Charpak N, Davanzo R, et al. Towards universal kangaroo mother care: recommendations and report from the first European conference and seventh international workshop on kangaroo mother care. *Acta Paediatrica*. 2010;99(6):820-6.
10. Charpak N, Gabriel Ruiz J, Zupan J, Cattaneo A, Figueroa Z, Tessier R, et al. Kangaroo mother care: 25 years after. *Acta Paediatrica*. 2005;94(5):514-22.
11. Dehghani K, Movahed ZP, Dehghani H, Nasiriani K. A randomized controlled trial of kangaroo mother care versus conventional method on vital signs and arterial oxygen saturation rate in newborns who were hospitalized in neonatal intensive care unit. *Journal of clinical neonatology*. 2015;4(1):26.
12. World Health Organization(WHO), World health statistics. 2019.

13. Hug L, Sharrow D, You D. Levels & trends in child mortality: report 2017. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. 2017.
14. Standley J. Kangaroo mother care implementation guide. Washington (District of Columbia): Maternal and Child Health Integrated Program, 2014.
15. Feldman R, Eidelman AI, Sirota L, Weller A. Comparison of skin-to-skin (kangaroo) and traditional care: parenting outcomes and preterm infant development. *Pediatrics*. 2002;110(1):16-26.
16. Charpak N, Ruiz-Peláez JG, Charpak Y. A randomized, controlled trial of kangaroo mother care: results of follow-up at 1 year of corrected age. *Pediatrics*. 2001;108(5):1072-9.
17. Conde-Agudelo A, Díaz-Rossello JL. Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane database of systematic Reviews*. 2016(8).
18. World Health Organization: Kangaroo mother care to reduce morbidity and mortality and improve growth in low-birth-weight infants, 2014.
19. World Health Organization: Profile of preterm and low birth weight prevention and care Geneva, 2014.
20. children St. Rapid Health Facility Assessment on Service Availability and Delivery of Care to Premature and/or Low Birth Weight Babies. 2015.
21. Federal Democratic republic of Ethiopia (FDRE), Ministry of Health, National new born and child survival strategy document brief summary, Health Sector Transformation Plan 2015/16–2019/20: 2015.
22. Federal Democratic Republic of Ethiopia, Ethiopian Demographic and Health Survey(EDHS), 2016.
23. ICF CSACEa. Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF International, central Statistical Agency, July 2017.
24. World Health Organization, Recommendation on interventions to improve preterm birth outcomes 2015.
25. Shrivastava SR, Shrivastava PS, Ramasamy J. Utility of kangaroo mother care in preterm and low birthweight infants. *South African Family Practice*: 2013;55(4):340-4.

26. Lawn JE, Mwansa-Kambafwile J, Horta BL, Barros FC, Cousens S. 'Kangaroo mother care' to prevent neonatal deaths due to preterm birth complications. *International journal of epidemiology*: 2010;39(suppl_1):i144-i54.
27. FMOH. Rapid Health Facility Assessment on Service Availability and Delivery of Care to Premature and/or Low Birth Weight Babies. 2017.
28. Ethiopian Public Health Institute AMD, Disability. Ethiopian Emergency Obstetric and Newborn Care (EmONC) Assessment 2016. Ethiopian Public Health Institute, Federal Ministry of Health, Columbia, 2017.
29. Namnabati M, Talakoub S, Mohammadizadeh M, Mousaviasl F. The implementation of kangaroo mother care and nurses' perspective of barriers in Iranian'NICUs. *Iranian journal of nursing and midwifery research*. 2016;21(1):84.
30. Nguah SB, Wobil PN, Obeng R, Yakubu A, Kerber KJ, Lawn JE, et al. Perception and practice of Kangaroo Mother Care after discharge from hospital in Kumasi, Ghana: A longitudinal study. *BMC pregnancy and childbirth*: 2011;11(1):99.
31. Roba A, Binoy S, Naganuri M. Knowledge, Attitude and Practice of Kangaroo Mother Care by Postnatal Mothers who Gave Birth to Preterm and Low Birth Weight Babies in Public Hospitals, Eastern Ethiopia. *J Neonatal Biol*. 2017;6(264):2167-0897.1000264.
32. Yusuf E, Fiseha F, Dulla D. Utilization of Kangaroo Mother Care (KMC) and Influencing Factors Among Mothers and Care Takers of Preterm/Low Birth Weight Babies in Yirgalem Town, Southern, Ethiopia. 2018;15(2):87-92.
33. Mathewos B SD, Valsangkar B, Musena Y, Tadesse L, Chan G, Tadesse Y. Delivery of Kangaroo Mother Care in Ethiopian facilities: Results from a Rapid Assessment in Three Zones, 2015.
34. Chisenga JZ, Chalanda M, Ngwale M. Kangaroo Mother Care: A review of mothers' experiences at Bwaila hospital and Zomba Central hospital (Malawi). *Midwifery*. 2015;31(2):305-15.
35. Blomqvist YT, Frölund L, Rubertsson C, Nyqvist KH. Provision of Kangaroo Mother Care: supportive factors and barriers perceived by parents. *Scandinavian Journal of Caring Sciences*. 2013;27(2):345-53.

36. Kampekete GSM, Ngoma C, Masumo M. Acceptance of kangaroo mother care by mothers of premature babies. *African Journal of Midwifery and Women's Health*. 2018;12(4):178-88.
37. Parikh S, Banker D, Shah U, Bala D. Barriers in implementing community based kangaroo mother care in low income community. *NHL J Med Sci*. 2013;2(1):36-8.
38. Morgan MC, Nambuya H, Waiswa P, Tann C, Elbourne D, Seeley J, et al. Kangaroo mother care for clinically unstable neonates weighing ≤ 2000 g: Is it feasible at a hospital in Uganda? *Journal of global health*. 2018;8(1).
39. Kassahun G, Efa A, Samuel H. Knowledge, Attitude, Practice and Associated factors among mothers or Care Takers of Preterm and Low Birth Weight Infants in Health Care Settings, Hawassa, Southern Ethiopia, 2018.
40. Seidman G, Unnikrishnan S, Kenny E, Myslinski S, Cairns-Smith S, Mulligan B, et al. Barriers and enablers of kangaroo mother care practice: a systematic review. *PloS one*. 2015;10(5):e0125643.

ANNEXS

DEBRE BIRHAN UNIVERSITY

COLLEGE OF HEALTH SCIENCE

DEPARTMENT OF PUBLIC HEALTH

Consent Form

Good afternoon, Recently, I am carrying out my post graduate research on utilization of Kangaroo mother care on mother of low birth weight or preterm neonates in this hospital. The objective of this questionnaire is to collect information on utilization of KMC and to identify factors that hinder the use of KMC from being utilized. I got permission from DBU and hospitals to conduct this research. Since the success of the study will highly depend on your honest response to the items, you are kindly requested to indicate your true feelings in the utilization of KMC and its current status. You are selected for this study randomly from those in the NICU and postnatal room.

The questioner may take 20 to 30 minutes. Your responses will be kept confidential. You are not expected to tell your name. Your participation is entirely voluntary and please feel free to withdraw if you feel any discomfort and you are not obliged to answer any question you do not wish to answer. This study may not benefit you directly but, it benefits the coming neonates and mothers like yours. For further information you can call to the principal investigator with this phone number (0911549450).

Are you willing to participate in this study?

Yes 2. No

Thank You in Advance.

Name of data collector _____ sign _____ Date _____

Supervisor's name _____ Sign _____ Date _____



Part One: Socio-demographic characteristics

Sr.No	Variables	Categories	Skip
101	age	_____	
102	Relation	Mother Father Other relative	
103	Marital status	Single Married Widowed Divorced	
104	Religion	Orthodox Muslim protestant Catholic Other	
105	Maternal Educational Status	Illiterate Read and write Primary Secondary Collage and above	
106	Maternal Occupation	House wife Farmer Private Merchant Governmental employee	
107	Residence	Urban Rural	
Partner's Information			
108	Partner's age	-----	
109	Partner's educational level	Illiterate Read and write Primary Secondary Collage and above	
110	Partner's occupation	Farmer Private Merchant Governmental employee Other specify	

Part Two: Neonatal and obstetric related characteristics

201	Gravidity	1. Primipara 2. Multi para	
202	Number of delivery	_____	
203	Number of live birth	_____	
204	Previous neonatal death	1. Yes 2. No →	Skip to: qes. 207
205	If yes, number of neonatal death	_____	
206	Reason for neonatal death	1. Disease 2. Preterm 3. Low birth weight 4. Other specify_____	
207	Current Pregnancy type	1. Single 2. Multiple	
208	ANC follow up for current pregnancy	1. Yes 2. No	
209	Gestational age during delivery	_____	
210	Place of delivery	1. Health Institution 2. Home	
211	Mode of delivery	1. Spontaneous vaginal delivery 2. Caesarean section	
212	Sex of the new born	1. Male 2. Female	
213	Age of new born in day	_____	
214	Weight of the new born in grams	_____	

Part Three: Mother's/caretaker's knowledge about KMC

301	Do you have information about KMC?	Yes No 	skip to qes. 303
302	If yes, source of information	Doctors Nurses Other specify_____	
303	What it KMC means?	Special care for the new born Direct skin to skin contact b/n mother and new born Only breast feeding I don't know	
304	Do you know the use of KMC?	Yes No 	Skip to qes. 306
305	If yes, what is its advantage? Encircle all she knows	to maintain the body temperature warm for frequent feeding improve weight gain reduce hospital stay reduce infection promote mother-baby bonding reduce morbidity and mortality reduce cost	
306	Which Babies Need KMC?	For preterm neonates For low birth weight(<2000g) For all neonates I don't know	
307	Who can practice KMC?	Mother	

		Father Other relatives Both mother and father	
308	When is KMC started?	Immediately after born After 24 hours I don't know	
309	How is the position of the new born during KMC? Encircle all she knows	Between the mother's breasts in upright position Head turned to one side and slightly extended Frog position and arms flexed Baby's abdomen at the level of mother's stomach Baby's bottom supported by a sling I don't know	
310	For how long the baby kept in skin to skin contact?	For one hour For two hour For three hour For four hours For greater than six hours I don't know	
311	For how long the baby should keep under KMC?	As I can Until the baby gain weight Until the baby achieves regular body temperature Until the child matures/reaches term	

		I don't know	
312	How can the baby dress during KMC?	no information how to cloth the baby I dress the baby light clothes baby should dress cap, socks and nappy (only with diaper	

Part Four: KMC utilization status

Sr. No	Variables	Categories	Skip
401	Have you utilized KMC for your new born?	Yes No →	Skip to ques.407
402	If yes, at what time you start	immediately after birth after 24 hours of birth other specify	
403	At what time you perform KMC?	Day and night Only day Only night Other	
404	For how long you kept your baby skin to skin contact per day?	For one hour For two hour For three hour Other specify_____	
405	Didyou breastfeed your baby in KMC position?	Yes No	
406	will you continue KMC at home	Yes No	
407	For question n _o 401 is No, What is the reason? Encircle all she mentioned	I have no information about KMC I have no comfort during KMC There is no space There is no privacy I have health problem Other specify	

Part Five: Socio-cultural characteristics

501	Who decide for the health of your child	Myself My husband Together Other specify _____	
502	Is it wrong to put skin-to-skin contact for the new born?	Yes No I don't now	Skip to qes.504
503	If yes, what is the reason?	_____ _____ _____	
504	Have you got support from your husband during KMC?	Yes No	
505	Is there any support from other family during KMC?	Yes No	
506	Is there lack of privacy during KMC?	Yes No	
507	Have you an attendant?	Yes No	

Part six: Health Facility related

601	Have you got counselling about KMC?	Yes No	Skip to qes. 503
602	If yes, who counsel you?	Doctors Nurses My family Other	
603	Is there separated room for KMC	Yes No	Skip to qes. 505
604	Is the room has adequate space for mothers to carry out your new born?	Yes No	
605	Have you got support form health care providers?	Yes No	
606	If yes, what type of support?	By providing adequate space By supporting while doing skin to skin contact By assuring while doing KMC Other	

ANNEX 2

ደብረ-ብርሃን ዩኒቨርሲቲ

ጤና ሳይንስ ኮሌጅ

የህብረተሰብ ጤና አጠባበቅ ችግሮች ምርመራ ክፍል

በመጠይቁ ለሚሰጥ ተፈላጊ የሚገቡትን መረጃዎች

ጤናዎ ስለሆነ፣ ስምዎ _____ ይጻፉ። በአሁኑ ሰዓት የሁለተኛ ድግሪ ምርመራ የመመረቁ ጥናትን ወክሎ ነው የመጣሁት። ጥናቱም በሰሜን ሸዋ ሆስፒታሎች ያለገዢያቸው ለተወለዱ እና ክብራቸው ከትክክለኛው በታች ሆነው ለተወለዱ ጩቅላ ህጻናት የሚደረግ የካንጋሮ እናት እንክብካቤ ላይ ነው። የዚህ ጥናት ዓላማ በአሁኑ ሰዓት የካንጋሮ እናት እንክብካቤ አጠቃቀም ምን እንደሚመስል እና እንዳይጠቀሙ የሚያደርጉ ምክንያቶችን መለየት ነው። ይህንን ጥናት ለማድረግ ከደብረ ብርሃን ዩኒቨርሲቲ አና ከሆስፒታሉ ፍቃድ አግኝቻለሁ። እርሶም ለዚህ ጥናት የተመረጡት በአጋጣሚ ሲሆን ለዚህ ጥናት መሳካት የእርሶ ትክክለኛ ምላሽ ከፍተኛ አስተዋፅኦ አለው። ስለዚህ በካንጋሮ እናት እንክብካቤ አጠቃቀም ላይ ያሉትን ትክክለኛ መረጃ እንዲጠቁሙ በአክብሮት እጠይቃለሁ። መጠይቁ ከ 15 እስከ 20 ደቂቃ ሊፈጅ ይችላል።

ጥቅም ላይ የሚውል፡- እርሶ በዚህ ጥናት በመሳተፍ ቀጥተኛ ተጠቃሚ ባይሆኑም በቀጣይ እንደዚህ አይነት ችግር ለሚያጋጥማቸው እናቶችና ህፃናት ከፍተኛ ጥቅም አለው። ለሚሰጡት ምላሽ ሚስጥራዊነቱ የተጠበቀ ሲሆን ስሞትን መናገር አይጠበቅቦትም። ይህን ቃለመጠይቅ ለመመለስ በእርሶ ፍቃደኝነት ላይ የተመሰረተ ሲሆን ምችት ካልተሰማዎት በማንኛውም ሰዓት ማቆረጥ ይችላሉ።

ቃለመጠይቁ ለመሳተፍ ፍቃደኛ ሆነዎል?

- 1. አዎ ምልክት አድርገህ ወደ ቀጣይ ጥያቄ ሂድ
- 2. አይደለሁም አድርገህ አቁም

በቅድሚያ አመሰግናለሁ።

የመረጃው ስም _____ ፊርማ _____ ቀን _____

የተቆጣጣሪ ስም _____ ፊርማ _____ ቀን _____

በማንኛውም ጊዜ ግልፅ ያልሆነ ነገር ካለ በዚህ ስልክ ቁጥር በዋናነት ጥናቱን ለምታደርገው ደውለው መጠየቅ ይችላሉ **(09115 49450)**።

መለያ _____

ካርድቁጥር _____

ክፍል አንድ፡ የእናት/የተንከባካቢ መሰረታዊ መረጃ

ተ.ቁ	ጥያቄ	መልስ	ዝላል
101	የእናት/የተንከባካቢ እድሜ	-----	
102	ከህፃኑ ጋር የሌላ ሰው ድጋግ	<ol style="list-style-type: none"> 1. እናት 2. አባት 3. ሌላ ሰው 	
103	የጋብቻ ሁኔታ	<ol style="list-style-type: none"> 1. ያገባች 2. ያላገባች 3. የፈታች 4. የሞተባት 	
104	ሀይማኖት	<ol style="list-style-type: none"> 1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 4. ካቶሊክ 5. ሌላ----- 	
105	የእናት/የተንከባካቢ የትምህርት ደረጃ	<ol style="list-style-type: none"> 1. ያልተማረ 2. ማንበብና መጻፍ 3. የመጀመሪያ ደረጃ 4. ሁለተኛ ደረጃ 5. ከሌጅ እና ከዚያ በላይ 	
106	የእናት የስራ ሁኔታ	<ol style="list-style-type: none"> 1. የቤት እመቤት 2. ግብርና 3. የግል ስራ 4. ነጋዴ 5. የመንግስት ስራ 	
107	የመኖሪያ አድራሻ	<ol style="list-style-type: none"> 1. ገጠር 2. ከተማ 	
108	የወር ገቢ ስምንት ያህል ይሆናል	-----	
109	የባለቤት ሽዕድ ሜስንት ነው	-----	
110	የባለቤት ሽዕድ የትምህርት ደረጃ	<ol style="list-style-type: none"> 1. ያልተማረ 2. ማንበብና መጻፍ 3. የመጀመሪያ ደረጃ 4. ሁለተኛ ደረጃ 5. ከሌጅ እና ከዚያ በላይ 	
111	የባለቤት ሽዕድ የስራ ዓይነት	<ol style="list-style-type: none"> 1. ግብርና 2. የግል ስራ 3. ነጋዴ 4. የመንግስት ስራ 5. የቀንስ ስራ 6. ሌላ----- 	

ክፍልሁለት፡ የስነተዋልዶእናህፃኑንየተመለከቱመረጃዎች

ተ.ቁ	ጥያቄ	መልስ	ዝላል
201	ስንትጊዜአርገዘሻል?	-----	
202	ስንትጊዜወልደሻል?	-----	
203	በህይወትየተወለዱብዛት	-----	
204	ከዚህበሬትበህይወትተወልዶበአንድወር ውስጥሞቶብሽያውቃል?	1. አዎ 2. አያውቅም →	ወደጥያቄጥር 207
205	መልስሽአዎከሆነስንትህፃንሞተብሽ?	-----	
206	የሞተበትምክንያትምንነበር?	1. ታሞ 2. ክብደቱትንሽሆኖ 3. ያለግዜውተወልዶ 4. ሌላካለይግለፁ---	
207	የአሁኑእርግዝናአይነት	1. አንድ 2. መንታ	
208	ለአሁኑእርግዝናክትትልነበረሽ?	1. አዎ 2. የለኝም	
209	የአሁኑንልጅየትወለድሽ?	1. ጤናተቸም 2. ቤትውስጥ	
210	በስንትሳምንትሽ/ወርሽወለድሽ?	_____ ሳምንት	
211	ህፃኑበትክክለኛጊዜውነውየተወለደው?	1. አዎ 2. አይደለም	
212	በምንመንገድወለድሽ?	1. በማህፀን 2. በአፕሬሽን	
213	የህፃኑፆታ	1. ወንድ 2. ሴት	
214	የህፃኑእድሜበቀን	_____	
215	እንደተወለደየህፃኑክብደትበግራም	_____	
216	የህፃኑየጤናሁኔታእንዴትነው?	1. ጤናኛነው 2. ታሞአል	

ክፍል ስምት፡

የእናቶች/የተንከባካቢዎች የካንጋሮ እናት እንክብካቤ እውቀት መለኪያ መጠይቅ

ተ.ቁ	ጥያቄ	መልስ	ዝላል
301	ስለ ካንጋሮ እናት እንክብካቤ ሰምተሽታ ውቂያለሽ?	1. አዎ 2. አልሰማሁም →	ወደ ጥያቄ ቁጥር 303
302	መልስ ሽልግ ሆነህ የትሰማሽ?	1. ከጤና ባለሙያዎች 2. ከዘመድ 3. ከሌላ ይግለጹ-----	
303	የካንጋሮ እናት እንክብካቤ ማለት ምን ይደነው? የምታውቀውን በሙሉ አክብብ	1. የተለየ የጨቅላ ህፃን እንክብካቤ ማለት ነው 2. በቀጥታ የህፃኑን የእናት የውቅዳላቆዳ መገናኘት ማለት ነው 3. ህፃኑን ጡት ብቻ ማጥባት ነው 4. ምን ማለት እንደሆነ በትክክል አላውቅም	
304	የካንጋሮ እናት እንክብካቤ ጥቅም ታወቂያለሽ?	1. አዎ 2. አላውቅም →	ወደ ጥያቄ ቁጥር 306
305	መልስ ሽልግ ሆነ ምን ምን ጥቅም ይሰጣል? ያወቀችውን መልስ በሙሉ ያክብቡ	1. የህጻኑን የሰውነት ሙቀት ለመጠበቅ 2. በተደጋጋሚ ጡት ለማጥባት 3. የሰውነቱን ክብደት ለመጨመር 4. የሆሰ ፒታልቆይታ ይንገለግል 5. የእናት የህጻኑን ግንኙነት ይጨምራል 6. የህጻኑን ህመም ለመቀነስ ይረዳል 7. ወጪን ይቀንሳል	
306	የካንጋሮ እናት እንክብካቤ የሚያስፈልገው ለምን እይነት ህፃን ነው?	1. ያለጊዜው ለተወለደ ጨቅላ 2. ክብደቱ እንሰለተወለደ ጨቅላ (ከ 2000 ግ በታች) 3. ለሁሉም ጨቅላ 4. አላውቅም	
307	የካንጋሮ እናት እንክብካቤ ማን ማድረግ ይችላል?	1. እናት 2. አባት 3. ሌላ ዘመድ 4. እናት ምላሽ ለሰጠው	
308	የካንጋሮ እናት እንክብካቤ መቼ ይጀምራል?	1. ወዲያው እንደተወለደ 2. ከ 24 ሰዓት በኋላ 3. አላውቅም	

		4. ሌላካለይገለፅ	
309	በካንጋሮ እናት እንክብካቤ ወቅት የህፃኑ አቀማመጥ አንዴት መሆን አለበት? ያወቀችውን መልስ በሙሉ ያክብቡ	1. በእናቴ ጡቶች መሀል ቆም ማድረግ 2. የህፃኑ ጭንቅ ላት ወደ አንድ አቅጣጫ ዘሮ በትንሹ ቀና ማድረግ 3. በእንቁራሪት ቅርፅ ሆኖ እጆቹን ማጠፍ 4. የህፃኑን ሆድ በእናት የውሆ ድትክክል ማድረግ 5. የህፃኑን መቀመጫ መደገፍ 6. አላውቅም	
310	ህፃኑን በቀን ለምን ያህል ሰዓት በካንጋሮ እናት እንክብካቤ መቆየት አለበት?	1. ለ አንድ ሰዓት 2. ለ ሁለት ሰዓት 3. ለ ሶስት ሰዓት 4. ለ አራት ሰዓት 5. ለ አምስት እና ከዚያ በላይ 6. አላውቅም	
311	ህፃኑን ለምን ያህል ጊዜ በካንጋሮ እናት እንክብካቤ መቆየት አለበት?	1. እንደ ቻልኩት 2. ህፃኑ ክብደት እስከ ሚጫ ምርድረስ 3. የህፃኑ የሰውነት ሙቀት እስከ ሚስተካ ክልል 4. ህፃኑ እስከ ሚያድግ/Until the child matures/reaches term 5. አላውቅም	
312	ለህፃኑ የካንጋሮ እናት እንክብካቤ በሚደረግበት ወቅት አንዴት መልስ አለበት?	1. እንዴት እንደ ማለብ ሰው አላውቅም 2. ቀለል ያለ ልብ ስለ አለብሁ 3. ኮፍያ፣ ካልሲ እና ዳይፐር	

ክፍል አራት: የካንጋሮ እናት እንክብካቤ አጠቃቀም ሁኔታ

ተ.ቁ	ጥያቄ	መልስ	ዝላል
401	ለህፃኑ የካንጋሮ እናት እንክብካቤ አድርገሻል?	1. አዎ 2. አላደረኩም →	ወደ ጥያቄ ቁጥር 407 ይሂዱ
402	መልስ ሽለሁ ከሆነ በወላድ ሽለስንት ሰዓት ጀመርሻ?	1. ወዲያው እንደ ወለድኩ 2. ከወላድኩ ከ 24 ሰዓት በኋላ 3. ሌላካለይግለፅ-----	
403	መቼ መቼ የካንጋሮ እናት እንክብካቤ ታደርጊያ	1. ቀንና ለሊት	

	ለሽ?	2. ቀንቀንብቻ 3. ለሊትለሊትብቻ 4. ሌላካለይግለፀ-----	
404	ህፃኑን በቀን ለምን ያህል ሰዓት በካንጋ ሮኔት እንክብካቤው ስጥታ ቆይቶታል?	1. ለአንድ ሰዓት 2. ሰሁን ለትሰዓት 3. ለሦስት ሰዓት 4. ሌላካለይግለፀ_____	
405	በካንጋ ሮኔት እንክብካቤው ቅትህ ህፃኑን ጡት ታጠቢቀዋል?	1. አዎ 2. አላጠባም	
406	የካንጋ ሮኔት እንክብካቤ ቤት ሽሶት ሄጂት ቀጥቷል?	1. አዎ 2. አላደርግም	
407	ለጥያቄ ቁጥር 401 መልስ ስለሰጠህ ለሌሎች ህፃናት ስለሚሰጡት ጥያቄዎች ምን ይሁን? የመለስ ችግርን በሙሉ አክብብ	1. ስለካንጋ ሮኔት እንክብካቤ ስለሰጠህ 2. የካንጋ ሮኔት እንክብካቤ በማድረግ በትውቅት ምቹት ስለሚሰጡት 3. የካንጋ ሮኔት እንክብካቤ ለማድረግ በቁጥር ታስለሌለ 4. የካንጋ ሮኔት እንክብካቤ ለማድረግ ክፍሉ ነፃነት ስለሌለው 5. የጤና ችግር ስለሌለብኝ 6. ሌላካለይግለፀ_____	

ክፍል አምስት: ማህበራዊና ባህላዊ ጉዳዮች

501	የልጅዎን ጤንነት በተመለከተ አብዛኛውን ጊዜ ማንነው የሚወስነው?	1. እኔ 2. ባለቤቴ 3. በጋራ 4. ሌላይግለፀ	
502	ጨቅላ ህፃንን ከገላጋ ማግኘት ነውርነው ብለው ያስባሉ?	1. አዎ 2. አላስብም 3. አላውቅም	ወደ ጥያቄ ቁጥር 504
503	መልሶ አዎክ ሆነ ምክንያቱም ምን ይሁን?	1. ----- 2. ----- 3. ----- 4. -----	
504	ባለቤት ሽያጭ ካንጋ ሮኔት እንክብካቤ በማድረግ ያግዛል?	1. አዎ 2. አያግዛኝም	
505	ሌሎች የቤተሰብ አባላት የካንጋ ሮኔት እንክብካቤ ማድረግ ያግዛሉ?	1. አዎ 2. አያግዛኝም	
506	የካንጋ ሮኔት እንክብካቤ ስታደርገክ ፍሉ ነፃነት አለው?	1. አዎ 2. የለውም	
507	አስታማሚ አለሽ/attendant?	1. አዎ 2. የለኝም	

ክፍልስድስት፡ የጤናተቆሙንበተመለከተ

601	ስለካንጋሮእናትእንክብካቤከጤናባለሞያዎች ምክርተሰጥቶሻል?	1. አዎ 2. አልተሰጠኝም →	ከሆነወደጥያቄ ቁጥር 603
602	መልስሽአዎከሆነ፤ ማንነውምክፍንየሰጠሽ?	1. ሀኪም 2. ነርስ 3. ሌላ-----	
603	ለካንጋሮእናትእንክብካቤማድረጊያየተለየክፍል አለ?	1. አዎ 2. የለም →	ከሆነወደጥያቄ ቁጥር 605
604	መልስሽአዎከሆነ፤ክፍሉበቂነውብለሽታስቢያለ ሽ?	1. አዎ 2. አይደለም	
605	የካንጋሮእናትእንክብካቤበምታደርገበትወቅት ከጤናባለሞያዎችድጋፍተደርገልሻል?	1. አዎ 2. አልተደረገልኝም	
606	መልስሽአዎከሆነ፤ ምንአይነትድጋፍአደረጉልሽ	1. በቂታበመስጠት 2. ለልጄእንክብካቤሳደር ግበመርዳት 3. በማበረታታት 4. ሌላካለይግለፁ----- ---	

ANNEX 3

Qualitative Transcription

Qualitative Interview Guide

In-depth interviews were conducted with health professionals managing the KMC unit according to an interview guide. The tool comprised questions on acceptance of KMC, which were as follows:

Sex_____

Age_____

1. What is your current position?
2. How long have you worked in this unit?
3. Have you been trained in KMC?
4. Is KMC used in the management of premature and low birth weight babies in this unit?
5. In your opinion, what is the mothers' response to KMC like?
6. How often do you disseminate information on the benefits of KMC?
7. What challenges do you face in reinforcing KMC?
8. Does the hospital infrastructure support the implementation of KMC?
9. How do you support mothers in the implementation of KMC?
10. How can KMC be improved?
11. Have you initiate KMC for LBWI?

Key informant 1

In response to question, “Do mothers utilize KMC when they give birth to neonates under 2000g and if in case they do not utilize KMC in the neonatal intensive care unit what factors hinder them from using this technique?” A respondent who has been serving in this unit since 2012 G.C for 8 years has discussed the following points. He started the response by stating the eligible criteria for utilizing KMC. According to him, those neonates who were born premature and low birth weight are vast majority. However, the neonates whose weight is less than 2000g preterm and term are eligible to utilize KMC. For the aforementioned neonates to get this service, the respondent added that he and his colleagues are expected to convince the mothers/parents so that the service can be consistently utilized. On top of this, the neonates should also be stable in their breathing system, they should be able to breathe very well, they should also be able to feed breast and should be free from oxygen and glucose for convenience purpose. In line with this, any family members such as mother, father, aunt, uncle, sister or brother can give this KMC service for low birth weight children. Thus, we have not faced any significant problem while giving this service though we have discharged many neonates.

The respondent reacted to the question, “As you are the head of this NICU, have you ever been trained on how to deliver KMC services?” He mentioned that not alone to KMC, I was trained for a month and fifteen days (for 45 days) on basic neonatal care when I started this career. It has been long time since I got the training, the respondent said. Generally, the KMC procedure is under gone in this unit being assisted by the neonatal nurses. He explained the attitude of mothers for KMC as mothers are very eager to accept what we told them at the beginning. They say that all they do is for their own children. However, since the room is getting hotter and hotter and also they got tired holding the babies for long time, we found them keep the babies by their side while they sleep. This seems that they are not consistent to the level of expected only due to physical tiredness and temperature.

With regard to disseminating information on the benefits of KMC, he explained that the package of health education that contains KMC and others are given every morning. Therefore, mothers have the opportunity of getting the benefits of KMC such as: KMC stabilizes the breathing system of the children; it helps to increase their weight, body temperature and heartbeat. For not staying

long time in this room, mothers usually become happy to use KMC. The respondent also explained the challenges they face while reinforcing KMC. The room for this service is narrow and the traffic flow for knowing how good the health of the babies, the intention of having food in the same room from mothers and high level of eagerness from mothers side to leave the room before the expected weight of their babies are met are the most challenges they face.

Pertinent to the hospital infrastructure support for the implementation of KMC, specifically when privacy of the woman is considered, he said that the standard number of bed in a room is eight, but we have only seven in this room. Besides, it would be better if two rooms are arranged so that the intention of mothers not to show their babies to others can be maintained. He further responded to the question how they support mothers in the implementation of KMC as providing them basic information how the babies are held during health education, assigning at least two professionals who treat the mothers and who respond to what so ever they ask by availing him/herself all the time in the service room, teaching the mothers to take bath and change pyjamas before they join the service room, and help mothers whose babies are forced to feed by NG tube. For the improvement of KMC, the respondent added that the most important thing is informing and teaching the mothers that getting KMC service enable their children learn and know breast very closely. Usually, mothers want their babies to stay in NICU on contrary professionals want the babies to get KMC. Therefore, once the professionals teach the mothers the importance of KMC and how it soon improves their babies body weight and others, they are easily convinced. The respondent also recommends that the hospital management should seriously think of solving the narrow room; work on the guards so that human trafficking around the room is properly secured. New building with standard infrastructure and sufficient human resources are expected from the hospital management.

Key informant 2

According to a 28 years old neonatal nurse who has served for about two years response to question, “how much is KMC being implemented and if not what are the factors that hinder from implementing it?” According to this neonatal nurse, there are beds in NICU where no food is allowed except a mother and her baby. In relation to whether she has been trained for KMC, she responded as she did not get any specific on job training rather than the lesson she had got while

conducting the course. In response to question whether KMC is initiated for low birth weight or premature or not she responded that it is initiated based on the infants breathing stability, absence of related health problems and ability of breast feeding.

The attitude of mothers to KMC utilization, according to the nurse, only takes to time to couch. This is because of the infants body weight is too small to hold as needed; the mothers themselves cannot sleep as they need and many other reasons. But, when they see the changes KMC utilized mothers brought on their babies are communicated, the other mothers are highly encouraged. On top of that we the health professionals also insist on saying use KMC for your babies. She also talks about the frequency at which the benefits are communicated as the notice has already been posted about KMC for the literate mothers. Nevertheless, those who cannot read are told when they are admitted about the KMC benefits and how they are supposed to hold the infants. Yet, rather than what we professionals teach them, they are very close to be changed and impacted by the ones who had already been in the room. They are the best teachers, practitioners and practical trainers.

The respondent explained the challenges they face in reinforcing KMC as the room is in NICU, no separate room for KMC, when we go out of the room and come in opening and shutting the door many times disturbs. Since two services are being given in single room, making the room hot is one challenge. She further explained that KMC utilization is so far practiced by wrapping or holding the babies with parents' cloth. But, I strongly recommend the hospital to have standard baby holding belt for the service to be better.

With regard to the hospital infrastructure support for the implementation of KMC, specifically when privacy of the woman as mothers culturally do not want their babies be seen by others, she responded that there is no privacy in the room. We usually show the procedures by undressing the women and this is considered to be shame since mothers consider giving birth to low birth weight is their own problem rather than is some kind of health related problem. So, this also needs to be improved. She further explained the support they give for KMC utilizers as follows: The basic support we give is informing, teaching and changing their mind as giving low birth weight is not a curse: it happens as a result of other health problems. Look at these mothers and talk to each other. They then say that when I join this room, my baby was very small weighing

only...gm. After implementing KMC, she/he is getting fatter, growing very well; tomorrow I will leave...These and other interpersonal communication helped the mothers than what we directly teach them. Professionally, we also tell them the weight of their baby wasyesterday and got improved today. His heart beat and breathing stability is getting improved. Such a progress talk and communication gives them energy and encouragement to consistently utilize the KMC technique.

For the improvement of KMC, she recommends that the room should be wide enough. If possible, only two service utilizers in a room; otherwise, the unit should have fulfilled materials such as holding belt instead of tearing down the poor mothers' only cloth that may come from country side. The service is better be made either free or less expensive utilizers would stay as per needed. Some of the mothers go without our satisfaction.

With preference to incubator or KMC, which one do mothers prefer? Mothers usually prefer to stay with their children than sending them to incubator. However, we the health professionals do not give them alternatives. We tell them what should be and if they argue against this idea, we will gradually change their mind telling the real benefits of each preference.

Key informant 3

A 33 years old female BSc nurse who works in NICU for the last five years response to question, "Do mothers utilize KMC when they give birth to neonates under 2000g and if in case they do not utilize KMC in the neonatal intensive care unit what factors hinder them from using this technique?" In this unit, the KMC is utilized but, the service is inconsistent. The mothers also start the service very late after being lobbied by health care providers.

With regard to the attitude the mothers have for KMC utilization, she discussed that the beginning is always the most challenging issue. However, once they are advised both by health professionals and the service utilizers, they will soon change their mind and start KMC utilization.

The respondent explained the challenges they face in reinforcing KMC as the room is in NICU, no separate room for KMC, the human traffic is very high, human resource that independently work on KMC is insufficient.

With regard to infrastructure the hospital provide for this unit, we usually show the procedures by tearing the dress of the mothers. Hospital should provide standard belt for the procedure.

With regard to improving the KMC utilization, she further recommends that the hospital should diversify its services by building basic rooms like KMC. One of the reasons that mothers do not want to stay long in this room is its narrowness and exposure of their neonates to everyone.

Key informant 4

According to a 32 years old BSc nurse who worked for the last 4 years in NICU response in this unit, “How much is KMC being implemented and if not what are the factors that hinder them from implementing it?” He stated that the KMC in this unit is basically being implemented. However, the practice is not sufficient enough to the level of expected standards.

He also replied to the question, “What are the mothers’ responses or opinion to KMC utilization as follows?” Like in any situation, beginning something new is always challenging. The mothers resist using KMC mainly as a result of fearing their small weight neonates can be seen by others. But, after seeing others utilization this service and after receiving repeated counseling, they immediately shift their mind and use it as per needed.

With regard to the frequency of disseminating information on the benefits of KMC, he added on that no one delivers specific benefits of KMC alone. It is usually done when the service is demanded based on the weight of the neonates.

With regard to the challenges they face in reinforcing KMC, he explained that KMC practicing separate room is not available; the human movement also disturbs the service utilizers and this in turn leads to absence of privacy.

In relation to the hospital infrastructure support for the implementation of KMC, the nurse reported that the hospital believes that it has KMC service. Although KMC does not need to

much resources, the hospital fails to fill full the basic infrastructure as the room is substandard; fails to posse KMC belt and the beds in KMC are also not comfortable both for sleeping and sitting in KMC position.

In response to supporting the mothers, the shortage of human resource where KMC demands at least nurse for a mother is impossible. Therefore, general advice on KMC benefits and position is given both orally and in posters for those who can read. We also focus on encouraging the one who effectively utilizes the service.

He also suggested that KMC utilization is improved if the following measures are taken. Firstly, mothers need to be counseled continuously and the room needs to be adequately comfortable by full filling the standards of WHO guidelines.

Lastly, he mentioned that KMC is inconsistently initiated for LBWI. He also mentioned that they advise the mothers to utilize this KMC service even after they are discharged from the hospital.

Key informant 5

According a 29 years old neonatal nurse in this room who has served for three years response to the question, she mentioned that she and her colleagues did not get any on job training with regard to KMC practice. We have got the basic KMC knowledge during course coverage.

In response to question, “Do mothers utilize KMC when they give birth to neonates under2000g and if in case they do not utilize KMC in the neonatal intensive care unit what factors hinder them from using this technique?” The nurse replied that checking the health status of the neonates such as breathing stability, related health problem and their capability of breast feeding, they would soon start the service.

For the question whether they use KMC to manage premature or low birth weight babies in the unit, she replied that they start the service. But, the service is started after the physician sees the neonate and decides whether it should start or not. Thus, beginning KMC immediately is usually late due to these factors.

Regarding the opinion of mothers to KMC, she further explained that mothers have good interest to help their infants via this service. However, the situations in which the services are given are not in line with their cultural background such as showing such a very little infant to others is considered to be taboo.

Concerning the challenges they face in reinforcing KMC, she explained that KMC practicing separate room is not available; the human movement both the attendants and professionals make the room very busy. Furthermore, the lack of privacy as the room is very narrow remains another challenge. This directly related with mothers cultural background as they do not want their neonates be seen by others.

She also discussed that the hospital needs to work on improving the infrastructure for facilitating KMC. For instance, the room should be separate as per the standard. The facilities like KMC belt should also be full filled. Beds for this service should be comfortable.

With regard to supporting mothers in utilizing the service, she said that they usually use those service utilizer mothers to advice, encourage and share their experiences and benefits they got. Besides, we also show the mothers to follow the steps and positioning from the posted posters in the KMC room.

The nurse also reacted to the question, “Have you initiated KMC for LBWI?” The nurse said that KMC in the room is initiated. But, the service is inconsistent due to the procedure is tiresome for the mothers and the family also failed to support the mother although they can carry out this task.

DECLARATION SHEET

I, the undersigned, declare that this is my original work and has never been presented by another person in this or any other University and that all the source materials and references used for this thesis have been fully acknowledged.

Name of principal Investigator: _____

Signature: _____

Date of Submission: _____

The thesis has been submitted for technical review with my approval as university advisor.

Name of advisor: _____

Signature: _____

Date: _____