ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

DEPARTEMENT OF NURSING AND MIDWIFERY

KNOWLEDGE AND ATTITUDE OF HEALTH CARE PROVIDERS TOWARDS KANGAROO MOTHER CARE IN DESSIE HEALTH INSTITUTIONS, SOUTH WOLLO ZONE, EASTERN AMHARA REGIONAL STATE, ETHIOPIA 2015.

By: Dagne Belete

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY DEPARTEMENT OF NURSING AND MIDWIFE COLLEGE OF HEATLH SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR MASTERS DEGREE IN REPRODUCTIVE HEALTH AND MATERNITY

Advisor: Yemesirach Kalku

June, 2015

Addis Ababa, Ethiopia

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ADVISOR: Yemesirach Kalku (RN, BSC, MSC)

June, 2015

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Advisor's Approval sheet

This is to certify that the thesis entitled **"Assessment of Knowledge and Attitude of Health Care Providers regarding Kangaroo Mother Care in Dessie Health Institutions Eastern Amhara Regional State, south wollo, Ethiopia: A descriptive cross sectional study"** is submitted in partial fulfillment of the requirements for the degree of Masters in Reproductive Health and Maternity in Addis Ababa University and has been carried out by Dagne Belete ID No: GSR/2272/06 under my supervision.

Therefore, I recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department.

Yemesirach Kalku _____ _____

Name of Advisor Signature Date

Declaration

I hereby declare that this MPH thesis is my original work and has not been presented for a degree in any other university and all sources of material used for this thesis have been duly acknowledged.

Name: Dagne Belete

Signature: _____

Date: _____

This Master's thesis had been submitted for examination with my approval as thesis advisor.

Name: Yemesirach Kalku

Signature: _____

Date: _____

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Examiners' Approval Sheet

We, the undersigned, members of the Board of Examiners of the final open defense by Dagne Belete have read and evaluated his thesis "Assessment of Knowledge and Attitude of Health Care Providers regarding Kangaroo Mother Care in Dessie Health Institutions, South wollo zone, Eastern Amhara Regional State, Ethiopia: a cross sectional descriptive study" and evaluate the candidate. This is therefore to certify that the thesis has been accepted in partial fulfillment of the requirements for the Master degree in Reproductive Health and Maternity.

_____	_____	_____
Name of chairperson	Signature	Date
_____	_____	_____
Name of Advisor	Signature	Date
_____	_____	_____
Name of internal examiner	Signature	Date

Acknowledgement

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Abbreviations and acronyms

ANC	Antenatal Care
BEMONC	Basic Emergency Management of Obstetric & Neonatal Care
BF	Breast feeding
CI	Confidence interval
EBF	Exclusive Breast Feeding
FGAE	Ethiopian family guidance Association of Ethiopia
HBB	Helping Baby Breath
HCPs	Health care providers
HIV	Human Immunodeficiency Virus
IMNCI	Integrated Management of Newborn & Child illness
KC	Kangaroo care
KMC	Kangaroo Mother Care
KP	Kangaroo position
LBW	Low Birth Weight
MDG	Millennium development goal
NICU	Neonatal Intensive Care Unit
PI	Principal Investigator
PMTCT	Prevention of Mother To Child transmission
PSS	Proportional Sample Size
SNNP	Southern Nation Nationality and People
SSC	Skin-to-Skin Contact
SP	Source Population
UNICEF	United Nations International Children's Fund
WHO	World Health Organization

Abstract

Introduction: kangaroo mother care (KMC) is placing the naked newborn baby in upright position covered across the back and with a hat against mother's bare chest in a way the baby can feed breast. It has several advantages for mother and baby. Hence, all newborn babies wherever and whenever they are delivered, they should get KMC.

Objective: This study was aimed at exploring knowledge and attitude of health care providers towards Kangaroo Mother Care in Dessie health institutions, South Wollo, Ethiopia.

Methods: Institution based descriptive cross sectional study was conducted on 257 health care providers from January to June 2015. A simple random sampling method was employed to select Health care Providers among each institution. Structured self-administered questionnaire was also used to collect data. data was analyzed using SPSS version 16. Summery measure was used for descriptive statistics. To assess the association between independent variables with knowledge and attitude, first bivariate relationships was investigated by a binary logistic regression model and independent variables found at $\alpha \leq 0.25$ were transferred to multivariate logistic regression. Significance was determined using adjusted odds ratios with 95% confidence level at $P \leq 0.05$.

Result: 123(49.8%) HCPs were knowledgeable and 105(42.5%) had positive attitude about KMC. Sex, educational level, professional qualification, KMC guideline and BEMoNC, resuscitation, KMC trainings were positively associated with Knowledge, whereas sources of information and knowledge were positively associated with attitude of HCPs about KMC.

Conclusion: HCPs were not knowledgeable about KMC, although a positive association was observed between their knowledge**:** sex, training status, presence of KMC guideline, educational level, and professional qualification. Similarly, HCPs had negative attitude about KMC, though attitude was positively associated with knowledge and number of sources of information.

Keywords: Kangaroo Mother Care, Health Care Providers, Knowledge, Attitude

1. Introduction

1.1 Background

Kangaroo Mother Care/KMC or skin to skin contact/SSC is defined as placing the naked newborn baby in the upright position prone covered across the back with a warm cloth on the mother's bare chest instantaneously following birth [1, 2, 3, 4, 5].

The integration of KMC into routine newborn care services should be part of all maternal and newborn care initiatives and packages. However, there is a significant difference in application of KMC or bringing it in to practice. Across the African countries, and even within health institutions in the same country, there is great variation of KMC practice. This variation is resulted from the history of start, where the country has long been initiated, and the better the implementation of KMC that country will have [2].

KMC is effective in preventing hypothermia, establishing breastfeeding, and reducing neonatal mortality, morbidity, nosocomial infection in preterm babies and length of stay in health institutions with special attractiveness in resource-limited countries where incubator technology is in scarce [2, 6, 7].

Very early KMC/SSC is an effective intervention that improves baby's suckling competence, maternal satisfaction and weight increments [5, 8, 9, 10, 11, 12].

The practice of KMC or skin to skin contact/SSC was introduced more than several years ago in 1978 by Dr. Edgar Rey in Bogota, Colombia, as one component of an alternative approach to traditional neonatal intensive care unit (NICU) and it was meant only for low-birth weight babies (LBW) in response to overcrowded nurseries, scarce and costly resources such as incubators, and as well as high rates of neonatal infection and mortality [2,13,14].

Newborn babies who are placed in skin to skin contact warm more easily, cry less, have lower levels of stress hormones, and breastfeed sooner than newborns who are separated from their mothers [2, 15].

Current literatures suggested that all newborn babies shall have an access to KMC irrespective of their clinical condition, gestational age, and mode of delivery [2, 18, 20].

A study conducted in 2014 and published on Italian journal of pediatrics shows that KMC improves cerebral blood flow as well as development of brain of premature babies [3].

Furthermore, with the expanding evidence that an absence of skin to skin contact after birth contributes to less breast feeding, cognitive, psychological, behavioral and emotional development [4].

KMC has three components: The first of which is **kangaroo position:** soon after delivery the baby is positioned in skin-to-skin contact between the mother and the infant in a strictly vertical position, between the mother's breasts and under her clothes.
Second component is **kangaroo nutrition:** the kangaroo positioned baby is breast feed in a way that placed as comfortable as possible. The third component is that **clinical control** by which the newborn babies are monitored their clinical condition and then discharged as being placed in kangaroo position [7,14, 16].

In practice separation of mothers from their newborn babies at delivery is a usual and common error despite escalating evidences are showing that Kangaroo Mother Care is the most promising practice for both the mother and her newborn baby. A growing volume of research supports KMC or skin to skin contact between the mother and the newborn in the immediate post-delivery period or as soon as the babies clinical condition allows which should be started in the health institutions and continued at home [14,15].

Another study conducted in Michigan University in 2008, brought evidences that KMC diminishing pain response to heel lance in full term and moderately preterm neonate[17].

KMC is particularly attractive for low, middle and even in high-income health care settings by the mother under the supervision of health care providers and it is as good as incubator or even better than incubator in that it has no adverse effect rather with various baby – mother advantage which is absent in incubator [17].

Additionally, early skin to skin contact facilitates the initiation of breastfeeding, helps neonatal thermoregulation and promotes maternal-infant bonding. Skin to skin contact may also ensure colonization of the baby with the mother's own skin flora, which the child will be provided with some resistances[18, 19].

There are evidences that demonstrated KMC to be cost saving modality by shorter hospitalization, elimination of incubator use, lower antibiotic use and infant formula costs [22, 23, 25].

KMC was proved to have weight gain, growth, better temperature control, less pain from nosocomial sepsis, early discharge from hospital and less risk of death[26, 27].

Kangaroo Mother Care should be a basic right for all newborns that it should be an integral part of the management for low-birth weight babies and preventive measure for term babies in all countries, settings and levels of care [28].

1.2 Statement of the Problem

Though, the global community has reached at a consensus with various advantages of KMC for mother and her baby's well-being, Health care professionals and families who give care for the newborn babies across all countries are not implementing KMC similarly and as expected. The visible difference present overseas to practice KMC is resulted from certain facilitating and hindering factors which can affect HCP's knowledge and attitude towards KMC [2].

Remarkable progress has been made in recent decades to reduce the number of neonatal deaths worldwide but the death is declined at a slower pace with yet a large proportion of newborn deaths are preventable [16].

Ethiopia, as country had been working to identify gaps within the health care system that could contribute to massive number of neonatal and maternal deaths in the country for the triumph of MDGs. For the successful implementation of skin to skin contact or Kangaroo Mother Care knowledge and attitude of health care providers is very much crucial as they are the sole guiding sources for mothers to practice KMC. KMC could therefore aid in reducing the current neonatal morbidity and mortality statistics in Ethiopia.

All professional midwives, nurses, public health officers and physicians, working in antenatal, delivery and neonatal care are expected to have proficient knowledge and positive attitude of KMC[1].

Even though there is a decrement in neonatal mortality rate from 54 deaths per 1,000 live births to 37 deaths per 1,000 live births over the past 15 years, still the neonatal mortality rate remains high in Ethiopia [30].

Despite sound evidence for the effectiveness for the aforementioned benefits and UNICEF's Baby Friendly best practice campaign which calls for early skin to skin contact, this practice is still possible to say not being implemented in the labor room in Ethiopia. This can be due to lack of health care provider's knowledge or Attitude or the

combination of the two about the benefits of Kangaroo Mother Care.

Nurse's/midwives should demonstrate that motivate, encourage, and expects members in the multidisciplinary team to act in an appropriate manner to ascertain that high-quality KMC is practiced and maintained, while keeping with this role the KMC clinician should incorporate teaching, educating or training of parents, staff and all other role players and stakeholders to make certain that quality care is optimally provided in the hospital and at home. HCP should be a role model at all times, treating parents and for this end they themselves must have proficient knowledge and positive attitude towards KMC [28].

Institutional delivery room stabilization is currently a technologically focused event in which the neonate is separated immediately after delivery from the mother and placed in a radiant warmer or simply the newborn babies are held covered with cloths separately from their mother. Current global publications are evidently showing that KMC is promising means of caring all newborn babies. Therefore the question now comes why HCP don't widely practicing it might be due to problems related with knowledge, attitude or both.

Identifying knowledge level and attitude of HCPs will help in designing and implementing in-service education programs to educate HCP about the importance of KMC.
Additionally, identifying the knowledge and attitudes levels of HCP towards practicing KMC or SSC will help in designing interventions to decrease the resulting factors and increase the factors that potentially facilitate KMC.

Increasing knowledge level of HCP, decreasing factor causing poor knowledge and negative Attitude, or increasing factors that facilitate positive attitude as well as enhancing knowledge KMC will help in increased implementation of KMC.
As far as the knowledge of the researcher is concerned, there is no recent data about the knowledge and Attitude of health care providers regarding Kangaroo Mother Care in this study area. Therefore, the finding of the present study can have both practical as well as theoretical relevance.

1.3 Significance of the Study

The final findings of this study will provide policy makers, stake holders, health care providers and other concerned bodies a base line information and clues to improve, develop, implement strategies, programs and policies with regard to prevention of neonatal death aimed at addressing newborn health specially, practices like Kangaroo Mother Care are too cost effective, feasible and practical with paramount importance to decrease neonatal mortality rate.

2. Literature Review

A thorough search of the literature revealed a large number of studies that focused on various aspects of skin-to-skin contact including benefits to the mother. Much of the available research conducted across the world has been shown that KMC or skin to skin contact has profound benefits for the baby & mother. However, only few studies are indicated about the level of knowledge and attitudes of health care providers about KMC.

Many health care providers in developing countries perceived KMC as “a poor man’s alternative” and considered to represent extra work for staffs. However, evidences have been shown that KMC is a rather a low-cost intervention, a components of good-quality of newborn care in health institutions which is mainly provided by mother after she is well-trained to have proficient knowledge and positive attitude from the already have HCPs to practice it. So the workload during this period rather decreased (as mother relieves the work of KMC, HCPs will perform their routine activities). The same study also shown that there are some cultures which forbids Professionals, mothers and their families not to apply direct skin-to-skin contact between a naked infant and KCPs considered it unusual or even improper, mothers are exposed to strangers while learning the Kangaroo position/KP, infants should not wear cap or socks in hot climate (They therefore regard the use of caps and socks as exaggerated and inappropriate) [2].

Similar research conducted in Cape Town, South Africa comparing the knowledge and attitude of health clinical nursing staffs showed that sixty six percent of the nursing staffs believed that KMC has no disadvantages, whereas thirteen percent of clinical staffs indicated that KMC is disadvantageous to the children and family members at home and seven percent believed that KMC is harmful to infants. All nurses believed that KMC promotes bonding, enhances maternal confidence to handle her baby, and resulted in effective suckling. Majority of the nurses (60%) believed KMC should be initiated few hours after birth, some of them (20%) believed KMC should be practiced on low birth weight infants & none of them (0%) believed as if the nurses are facilitators of KMC practice. Majority of the nurses had knowledge of advantages of KMC for promotion of bonding (60%), it brought about growth and weight gain (53.3 %), improvement of

temperature regulation (26%), decrease infection rate (26.7 %), improves breastfeeding (20.0 %), simpler carrying and handling (20.0%), decreases use of incubators (13.3%) [22].

Another study conducted in India to assess the change of knowledge of ANC mothers after giving education on KMC was found to be significantly increasing in knowledge in terms of all variables in the post education intervention period: E.g. time of starting of KMC (43.3% - 90 %), awareness regarding certain aspect of KMC, fair initially like it can be given to low birth weight babies 54.2 %, to normal baby weight 67.5 & can others give KMC 30.8 % & all of which are increased to 97.5 % in the post intervention period [25].

Training and orientation; supportive supervision; integrating Kangaroo Mother Care into quality improvement; continuity of care; presence of guideline and client-oriented care are among factors affecting HCP's knowledge and attitude [28, 31].

Another qauzi- experimental study conducted in Mansura university children hospital Egypt revealed that 16.7% of health care providers were aged b/n 20 - less than 25 years old & 83.3 % of the others were age 25-greater than 30 & mean age 26.02+-1.944. The average year of experience was found to be 2.433 ± 0.6978 years with 3.3 % less than 1 years of experience, 58.4 % 1-3 years, 30% 4-6 years, 8.3 % 7- 9 years of experiences. Furthermore, total pretest 29.7500 ± 3.758 while posttest was 51.9167± 7.12668 in which knowledge were significantly associated with training[29].

Another quazi- experimental conducted on knowledge and attitude of HCPs in two primary health centers in Ahmedabad district and 5 urban health centers located in Ahmedabad municipal corporation, India shown that significant association (positive) was observed between training status of the HCPs and their total score regarding knowledge related to KMC ($p<0.0001$) as well as their age and total knowledge score ($p<0.004$). While association between their education level ($p= 0.604$) and total score and experience ($p= 0.653$) and total score was statistically insignificant [30].

India revealed that shown that there was significant association between training status of HCPs, age with regard to knowledge related to KMC[35].

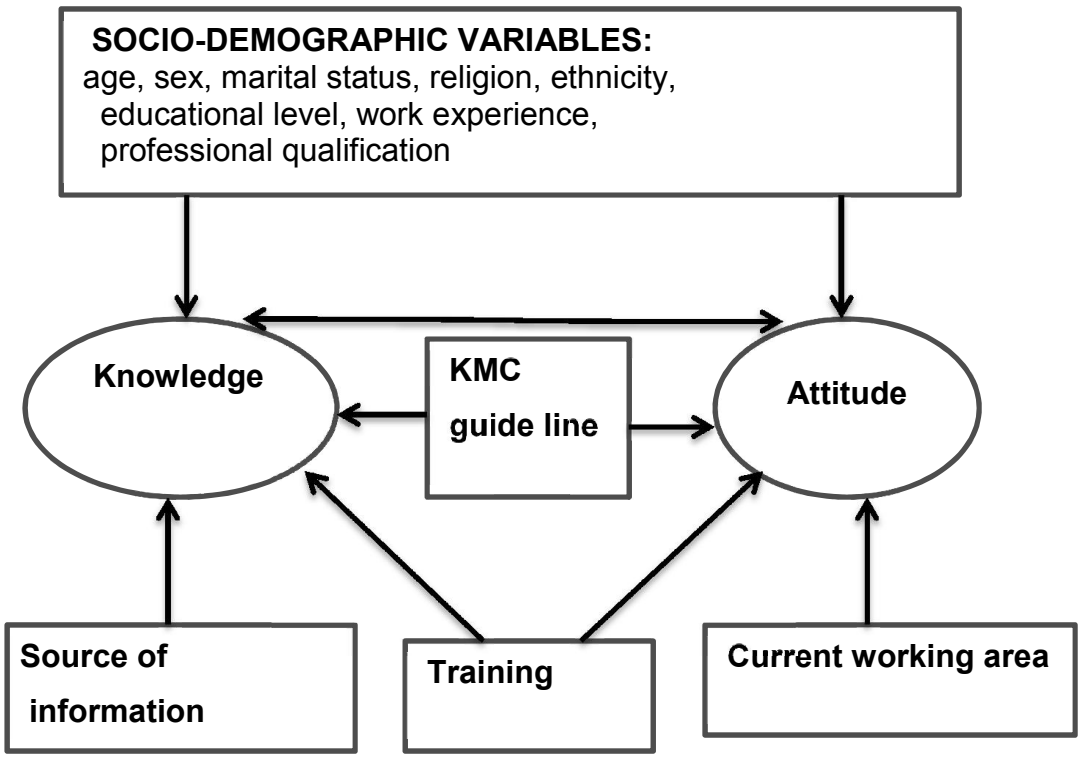
A quazi- experimental study conducted in two hospitals of Mohali, Punjab to assess the effectiveness of teaching protocol on knowledge related to KMC among staff nurse was found to be 32.5% not knowledgeable while 67.5% knowledgeable before they got KMC training, whereas all of them were found to be knowledgeable after they took KMC training. The overall knowledge level in pretest was 20.5% with the increment of the score to 29.54 in the post test.

The overall mean knowledge score in a pre-test was 39.1% whereas it had been increased to 94.5% in the post test. This result was shown that there was significant association p level (0.005 b/n training and knowledge). This study concluded that HCPs who are involved in neonatal care should have more training programs to carry out this cheap, effective method of newborn care [38].

Conceptual Framework

The overall view of this study as illustrated in fig.1 each factors are interrelated with the knowledge & attitude.

Fig.1 Conceptual frame work for knowledge, attitude of KMC and related factors



3. Objectives

3.1 General Objective

The goal of this study is to determine the prevalence and factors associated with knowledge and attitude of heath care providers towards Kangaroo Mother Care or skin to skin contact in Dessie town health institutions, 2015.

3.2 Specific Objectives

1. To assess health care provider's Knowledge regarding Kangaroo Mother Care
2. To assess health care provider's Attitude regarding Kangaroo Mother Care
3. To identify factors associated with health care provider's knowledge about Kangaroo Mother Care
4. To identify factors associated with health care provider's attitude about Kangaroo Mother Care

4. Methods and Materials

4.1 Study area

Dessie town is found 401 kilo meters away from Addis Ababa, capital city of Ethiopia in the north east direction, particularly in Amhara regional state, south wollo. Dessie town is surrounded by Tehuledere woreda in the north, Dessie zuria woreda in south, Combolcha town east and both kutaber as well as Dessie zuria to the western side. Dessie is the main trade center of eastern Amhara having four get ways: 1. from Gojam via Mekane-selam (western direction), 2. from Tigray, Gondar and north Wollo (northern direction), 3. from Kutaber (north- west direction), and 4. There is another capital way which is either from Afar or Addis Ababa or Combolcha (southern direction)

According to the Zonal survey conducted in 2006 E.C, the city has a total population of 208,588, out of which 110,158 of them are females while the rest 98,430 are males. According to same report, 26,492 and 6,495 of the population are children and infants respectively. Further it is reported that in the city, there are 534 neonatal deaths from 7,029 live births.

Currently, there are numerous health institutions, doctors and other health care providers in the city and that is why many called the town “Ethiopian Botswana”.

Accordingly, there are around 16 private health institutions (3 general hospitals, 13 clinics), 9 government health institutions 2 of which are hospitals (1 rural and 1 referral), and 7 health centers which is believed to be every 2 km apart and 2 senior non-governmental clinics serving these people.

Besides this, there are more than 1000 health care providers working in these health institutions and nearly six hundreds of them are Nurses, midwives, public health officers, general practitioners, obstetricians/gynecologists and pediatricians who can potentially involve in maternal and neonatal care services.

4.2 Study design and period

Institution based descriptive cross sectional quantitative research design was used to gather information about the level of knowledge and attitude of health care providers towards KMC or SSC, from April 7 - 21, 2015.

4.3 Source population

All health care providers working in Dessie town health institutions.

4.4 Study population

Health employed health assistants, Nurses, Midwives, Public health officers, general practitioners, obstetricians/gynecologists & Pediatricians working in Dessie town health institutions.

4.5 Study participants

Nurses, Midwives, Ho, GPs, Pediatricians & obs/gynecologists working in Dessie health institutions and who fulfill inclusion criteria

4.6 Inclusion and exclusion criteria

4.6.1 Inclusion criteria

All employed health care providers (Health assistant, Nurses, Midwives, Public health officers, general practitioners, Pediatricians & obstetricians/gynecologists) who are potentially involve in maternal & neonatal care were included this study.

4.6.2 Exclusion criteria

Health care providers who were not appeared in the health institution during data collection days might be due to illness, annual leave, & long term training were excluded in this study.

4.6 Sample size determination

To meet the objectives of this study, single proportion population formula was used and sample size was calculated using the following assumptions: 95% confidence level, 5% margin of error, and since the proportion of Knowledge or Attitude of HCP regarding KMC is not known in our country, both p and q (1-P) was taken as 0.5 and 10% non-response rate was added to final sample.

$$n = \frac{(z\alpha/_2)^2 . (p) (q)}{w_2}$$

p = Expected population proportion of HCPs who have Knowledge/positive Attitude about KMC

q = Expected population proportion of HCPs who are not knowledgeable or who do have negative Attitude regarding KMC,

Z = the standard normal value of confidence desired which in this study is (95% confidence level) which in turn corresponds to the value 1.96 at z table

w = proportion of sampling error tolerated at 5% or desired degree of precision

$$\mathbf{n = \frac{(1.96)^2 * (0.5).(0.5)}{(0.05)^2} = 384}$$

Since the population is less than 10,000 there is a need to calculate and rearrange using correction formula, which is:

$$n_{final} = \frac{n}{1 + \frac{n}{N}} = \mathbf{234.15 \sim 234}$$

Where, n_{final} = the final sample size calculated and N (600) is total source population and by taking in to account 10% for non-response rate, 23 HCPs were included to the final sample which is = 234 + 23 (10 % non-response rate) = **257**

4.7 Study variables

4.7.1 Dependent variables

- ✦ Knowledge of HCPs towards KMC
- ✦ Attitude of HCPs regarding KMC

4.7.2 Independent variables

4.7.2.1 Socio-demographic variables

- ➢ Age in complete year
- ➢ Sex
- ➢ Marital status
- ➢ Religion
- ➢ Ethnicity
- ➢ educational level
- ➢ professional qualification
- ➢ work experience

4.7.2.2 Other factors for HCP's knowledge and attitude about KMC

- ❖ source of information

- ❖ trainings (BEMoNC, Neonatal resuscitation, KMC)
- ❖ KMC guideline
- ❖ Current working area(type of health institution)

4.8 Data collection tools

Well-structured questionnaire was used to collect data.

4.9 Pre test

- Was done 2wks before actual data collection
- The questionnaire was assessed for its clarity, length and completeness
- To exclude involvement of individuals who were participated in main research, pretest was done in Combolcha town health institutions.

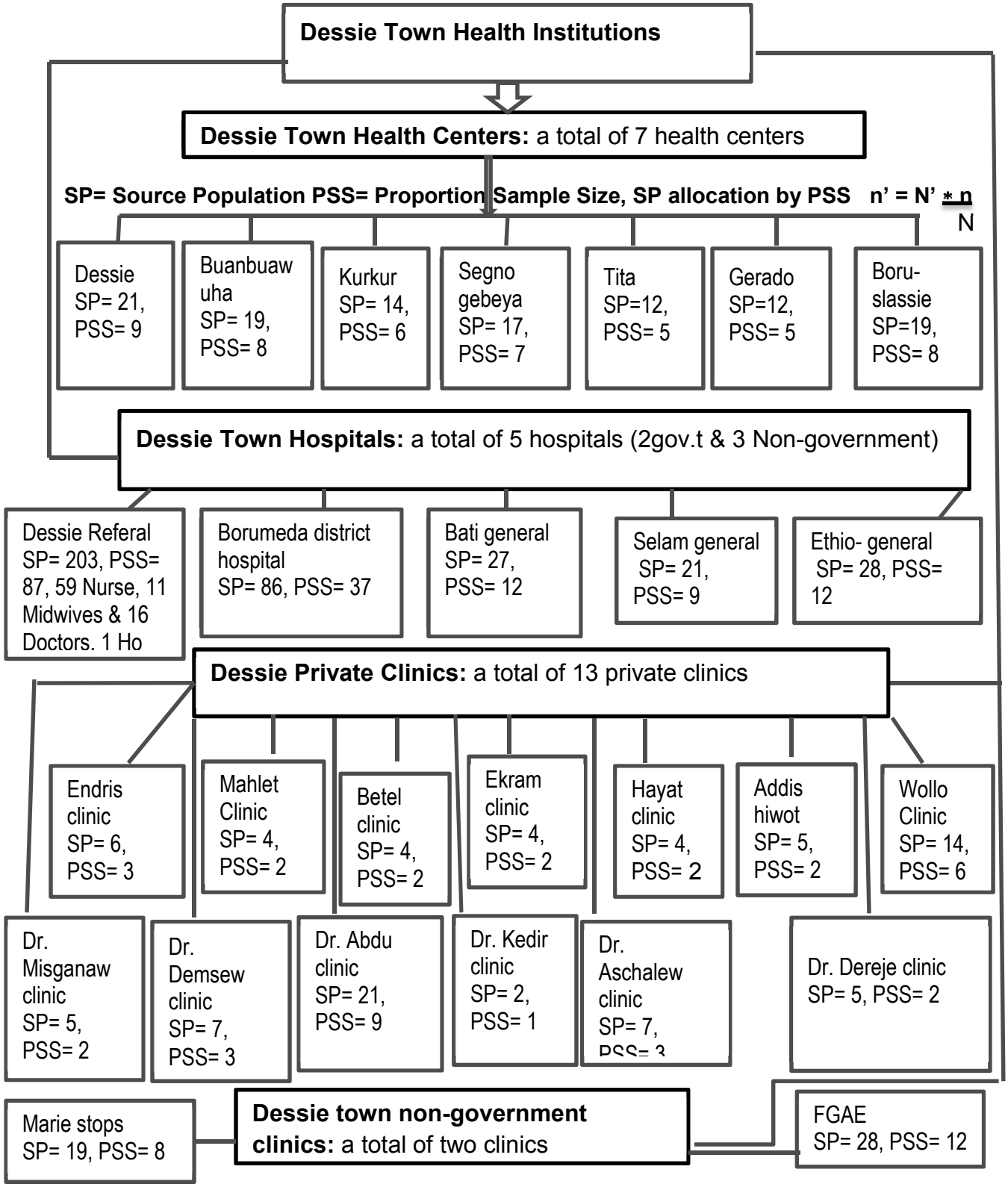
4.10 Sampling procedure

Since this thesis is institution based research and focused to study Health Care Providers, all health institutions in the city were included in order to include many participants. Thus, numbers of HCPs included among each health institution was proportionally allocated. Using the formula**: PSS, n' =** $n' = N' * \frac{n}{N}$

where n'= sample size of certain health institution, N' = population size of certain institution, n = total sample size and N = total population size.

Eventually, simple random sampling method was employed to select health care providers using alphabet from roster present in the human resource department. After proportionally allocated the possible number of HCPs among each institution, it was once again necessary to determine number of participants in Dessie referral hospital (highest number of participants) department wise. This was meant to ascertain representativeness of the participants in each profession& make the result more conclusive. **See figure 2 in next page**

Figure 2: Sampling Procedure



4.11 Data collection procedure

Authorization for data collection was obtained from AAU department of Nursing and midwifery, medical directors, Matron and CEO at each health institutions and each participant.

Finally, participants were selected randomly from roster found among each health institutions, questionnaire coded accordingly and eventually distributed by data nurses and midwives.

Participants who were not submitted their questionnaire during data collection weeks (April 7- 21) were supplied with a new questionnaire, and asked to submit it no later than one week afterwards.

4.12 Data Quality Assurance

Questionnaire was validated by a gynaecologist and paediatrician who are experts in the fields.

4.13 Data processing analysis

Data was entered, cleaned and analyzed using SPSS version 16.0 and data cleaning was performed to check for consistencies and missed values of variables. Any logical and consistency error identified during data entry was corrected after revision of the original completed questionnaire. The cleaned and edited data was made ready for appropriate statistical analysis.

Frequency, percentage and summery figures were used to describe both categorical (age, work experience, etc.) and continuous variables (knowledge and attitude questions). Binary logistic regression analysis was carried out to assess the effect of predictor variables over dependent variables. Bivariate analysis was first run to select potential confounders at $\alpha \leq 0.25$. Candidate variables from bivariate analysis were selected and transferred to multi variable binary logistic regression analysis and significance was declared at $p \leq 0.05$.

The final model was then tested by Omnibus test and its goodness of fit by Hosmer and Lemeshow was best fit.

4.14 Ethical consideration

The study was approved by institutional review board of Addis Ababa University Department Nursing and Midwifery.

After purpose and importance of the study was explained to each study participant's oral consent was obtained from each health institutions as well as from participants.

To ensure confidentiality of participants, information, anonymous typing was not used whereby the name of the participants and any participants' identifier was not written on the questionnaire to keep the privacy.

4.15 Dissemination of results

The final research report will be submitted to Addis Ababa University, College of Health Sciences, Department Nursing and Midwifery. A copy of it will be offered to Dessie town administration and if opportunities allowed, presentation in annual scientific meeting, symposiums, conferences, professional journals, and internet based articles will be considered.

4.16 Operational definitions

Health Care Providers those who are nurses, midwives, public health officers, general practitioners, pediatricians, neonatologist & obstetricians/gynecologists.

Knowledge[23]

- not knowledgeable is defined as those who scored below or equal to the mean score to knowledge related questions
- Knowledgeable is defined as those who scored above the mean score to knowledge related questions

Attitude [23]

- **Negative attitude** is defined as Health care Providers who scored below or equal to the mean score to Attitude related questions
- **Positive attitude** is defined as Health care Providers who scored above the mean score to Attitude related questions

Trained: are HCPs who received either or all (KMC, BEMoNC, neonatal resuscitation) trainings. This research findings shows, KMC training is not widely given in our country Ethiopia, but it can be partially substituted by BEMoNC and neonatal resuscitation.

5. Results

In the result section, there are Knowledge questionnaire comprising 19 questions regarding KMC. The total score was 19. The score 0 -12 falls within not knowledgeable category and 13 - 19 falls within knowledgeable category. for all knowledge questions, 1 was acknowledge for yes responses and o for no responses, but for question number four 0 was acknowledge for yes and 1 for no responses. Eventually, since, skewness was found to be - 0.285 (normally distributed) mean of the summation of all responses was computed. And also there are attitude questionnaire comprising 11 questions. The Score 11-35 falls within negative category, & 36- 55 falls within Positive category. for attitude question numbers (1, 2, 3, 4,7,10 and 11) strongly disagree and disagree responses were acknowledged as positive attitude while uncertain, strongly agree and agree responses for these questions were acknowledge for negative attitude. Additionally, for attitude question numbers (5, 6, 8, and 9) strongly agree and agree responses were acknowledged as positive attitude while uncertain, strongly disagree and disagree responses were acknowledged as negative attitude. Eventually, since, skewness was found to be 0.034 (normally distributed) mean of all responses was computed.

5.1 Socio and demographic characteristics of HCPs

Out of 257 HCPs approached in each health institutions, 247 (96.1%) responded completely filled questionnaire. Among these, 130(52.6%) were females, 163(66%) aged 20 – 30, and 32(13%). 128(51.8%) of the respondents were married, whereas 6(2.4%) widowed. 208(86%) of HCPs were ethnically Amhara and only 5(2%) SNNP. 127(51.4%) of respondents were Orthodox and only 2(0.8%) were the Adventist religion followers (Adventists). After classified in terms of professional Qualification**:** Nurses accounted for the highest proportion 123(48.8%), and health officers the lowest proportion 26(10.5%). Out of the total 247 HCPs, 139(56.3%) of respondents were Diploma holders, while 36(14.6%) were medical doctors and specialists. Again Health care providers in this study were categorized in terms of their work experience. As a result 156(63.2%) of them had experiences b/n one to five years, and 12(4.9%) had served sixteen to twenty years.

Table 1: Socio and demographic characteristics of the respondents In DESSIE Town Health Institutions, Amhara Regional State, South wollo, ETHIOPIA, 2015 **(N=247)**

Variable Name	Frequency	Percentage (%)
Sex		
Male	117	47.4
Female	130	52.6
Age category of respondents		
20-30	163	66.0
31-40	52	21.1
=>41	32	13.0
Marital status		
Single	102	41.3
Married	128	51.8
Divorced	11	4.5
Widowed	6	2.4
Ethnicity		
Amhara	208	84.2
Tigrie	16	6.5
Oromo	14	5.6
Afar	4	1.6
SNNP	5	2
Religion		
Orthodox	127	51.4
Muslim	87	35.2
Protestant	28	11.3
Catholic	3	2.1
Adventist	2	0.8
Professional qualification		
Midwives	62	25.1
Nurses	123	49.8
Health officer	26	10.5
Medical doctor & specialists	36	14.6
Educational level		
Diploma	139	56.3
BSC degree	72	29.1
Doctorate	36	14.6
Work experience		
1-5	156	63.2
6-10	44	17.8
11-15	16	6.5
16-20	12	4.9
=>21	19	7.7

5.2 Responses related to knowledge questions

In this study, all respondents had prior information about KMC.

When HCPs were asked about the advantages of KMC, 189(80.2%) correctly answered, KMC prevents neonatal hypothermia, 179(72.5%) avoid neonatal deaths due to preterm complications, 180(72.9%) results in effective breast feeding, 187(75.7%) increases bonding, 149(60.3 %), brought about growth of newborn baby, 170(68.8 %) decreases NMR. When HCPs are inquired about who should provide KMC, 94(38.1%) incorrectly answered KMC should be only practiced by mother. 148(59.9%) correctly answered components of KMC and 170(68.8%) of HCPs knew that the time soon after delivery is ideal time that KMC is to be initiated and continue even at home following discharge.

The overall magnitude of knowledge of HCPs in current study was 123(49.8%) knowledgeable for KMC related questions. The mean knowledge score in this study was 11.64 with SD ±3.707. **See table in next page**

Table 2: Knowledge of respondents towards KMC in Dessie Town Health Institutions, Amhara Regional State, South wollo, ETHIOPIA, 2015 **(N=247)**

S. No	Variable	Responses	
		Correct	incorrect
		No (%)	No (%)
1	Have you ever heard about KMC?	247(100)	0(0.0)
2	KMC prevents neonatal hypothermia	198(80.2)	49 (19.8)
3	KMC prevents neonatal death due to preterm complications	179(72.5)	67 (27.5)
4	KMC should be provided only by mother	94 (38.1)	153(61.9)
5	any family member can provide KMC if mother is unable to do so	153 (61.9)	94(38.1)
6	KMC has maternal benefit	151(61.1)	96(38.9)
7	KMC increases bonding between mother & her baby	187(75.7)	60(24.7)
8	KMC simpler carrying and handling	163(66)	84(34)
9	KMC reduces neonatal infection rate	135(54.7)	112(45.3)
10	KMC reduces hospital stay and cost	164(66.4)	83(33.6)
11	HIV positive mothers can safely practice KMC	127(51.4)	120(48.6)
12	KMC increases maternal confidence about her baby	165(66.8)	82(33.3)
13	KMC decreases use of incubation	153(61.9)	94(38.1)
14	KMC decreases Neonatal Mortality Rate	170(68.8)	77(31.2)
15	KMC results in effective breast feeding	180(72.9)	67(27.1)
16	KMC increases baby weight	149(60.3)	98(39.7)
17	KMC has no profound benefit to the mother	151(61.1)	96(38.1)
18	KMC increases growth of newborn baby	166(67.2)	81(32.8)
19	Components of KMC are: KP, BF and early discharge	148(59.9)	99(40.1)
20	KMC should be started just after birth & continue at home	170(68.8)	77(31.2)
	Total knowledge score	**123(49.8)**	**124(50.2)**
	Mean score ± SD	**11.64 ± 3.707**	

5.3 Responses related to attitude questions

Only 68(27%) HCPs had positive attitude and believed that KMC can be practiced both at health institutions and home having positive attitude. 166(67.2%) of health care providers had fervent belief about KMC practice as if it affects maternal privacy being her chest is unclosed and they do have negative attitudes about KMC practice. Among 247 HCPs who were asked their attitude whether the potential benefit of KMC is overstated or not**:** 132(53.3%) HCPs had negative attitude that potential benefit of KMC have been overstated. Only 103(41.7%) believed (had positive attitude) that KMC could be applied for all newborn babies irrespective of their birth weight. 126(51%) HCPs had positive attitude that they believed KMC should be initiated with in few minutes following birth. Among HPCs Providers who were inquired their attitude, which mothers should be encouraged to practice KMC: only 86(34.8%) HCPs responded (had positive attitude) that all mothers should be encouraged to practice KMC. Overall, 247 health care providers were asked about their attitude towards kangaroo mother care if it leads newborn babies to increases risks and consequently: 83(33.6%) HCPs had positive attitude that KMC does not lead to undue risk for newborn baby. 62(25.1%), strongly agreed and 135(54.7%) HCPs believed (had positive attitude) that KMC is feasible in every setting where delivery is practiced. Response of HCPs with regard to professional satisfaction about KMC practice was: 137(55.5%) HCPs felt positive that KMC is professionally satisfying, while 146(59.1%) HCPs had negative attitudes that they belived KMC adds burden for them and the other 120(48.5%) HCPs had positive attitude they believed parents or mothers do not feel forced to practice KMC.

See table below

Table 3: response for Attitude related questions about the practice of KMC in DESSIE Town Health Institutions, Amhara Regional State, South wollo, ETHIOPIA, 2015 **(N=247)**

Variable	**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**
	N_o (%)	**N_o (%)**	**N_o (%)**	**N_o (%)**	**N_o (%)**
KMC should be applied only in institution	32(13)	36(14.6)	5(2)	52(21.1)	122(49.4)
potential benefit of KMC is overstated	43(17.4)	67(27.1)	22(8.9)	50(20.2)	65(26.3)
KMC affects maternal privacy	41(16.6)	40(16.2)	**19(7.7)**	**66(26.7)**	**81(32.8)**
KMC should be practiced only for babies with LBW	50(20.2)	53(21.5)	**11(4.5)**	**65(26.3)**	**68(27.5)**
KMC should begin within a few hours after birth	50(20.2)	61(24.7)	10(4)	61(24.7)	65(26.3)
all mothers should be encouraged to practice KMC	84(34.0)	69(27.9)	8(3.2)	37(15)	49(19.8)
KMC leads to increased risk for newborn baby	40(16.2)	43(17.4)	**22(8.9)**	**53(21.5)**	**89(36)**
KMC is feasible practice in every setting	45(18.2)	44(17.8)	23(9.3)	73(29.6)	62(25.1)
Facilitating KMC is professionally satisfying	55(22.3)	35(14.2)	20(8.1)	84(34)	53(21.5)
facilitating KMC is an added burden to health care providers	47(19)	54(21.9)	**17(6.9)**	**57(23.1)**	**72(29.1)**
Parents can feel forced to practice KMC	49(19.8)	71(28.7)	21(8.5)	59(23.9)	47(19)
Total Attitude score	**Negative N_o (%)** 142 (57.5)		**Positive N_o (%)** 105 (42.5)		
Mean score ± SD	**31.86 ± 7.237**				

5.4 Other factors for Knowledge of HCPs regarding KMC

In the bivariate analysis nine variables**:** sex, marital status, ethnicity, educational status, facility type, professional qualification, training, work experience and guideline were obtained significantly associated with Knowledge of health care providers about the practice of KMC at α value 0.25.

Table 4: Determinant factors for knowledge in bivariate analysis about KMC in DESSIE Town Health Institutions, Amhara Regional State, south wollo, ETHIOPIA, 2015

Knowledge Status					
Variable	Not knowledgeable	knowledgeable			
	N_o (%)	**N_o (%)**	**P**	**COR (95 % CI)**	**AOR(95 % CI)**
Sex					
Male	54(43.5)	63(51.2)	**0.012**	1.361(**1**.825, 246) **	3.213(1.287,8.021)**
Female	70(56.5)	60(48.8)		**1**	
Marital Status					
Single	58(46.8)	44(35.8)	**0.234**	**1**	
Married	52(41.9)	76(61.8)	0.318	1.27(1.17, 3.4)	1.927(0.137,3.264)*
Others	14(11.3)	3(2.4)	0.52	0.52(1.76, 2.54)	0.282(0.076,1.044)*
Ethnicity					
Amhara	94(75.8)	114(92.7)	0.231	**1**	
Tigrie	14(11.3)	2(1.6)	0.177	0.118(0.026, 0.531)	0.285(0.046, 1.764)*
Others	16(12.9)	7(5.7)	0.243	0.361(0.142, 0.914)	0.365(0.067, 1.985) *
Type of Training					
trained either KMC, BEMoNC, Resucitation	43(34.7)	81(65.9)	**0.007**	**1**	
trained other	60(48.4)	27(22)	0.014	0.239(0.133,0.429)	0.277(0.114,0.672)**
not trained at all	21(16.9)	15(12.2)	0.015	0.379(0.178,0.81)	0.503(1.154,1.637)**
Guideline					
Present	15(12.1)	86(69.9)		**1**	
Absent	109(87.9)	37(30.1)	**0.000**	0.059(0.031,0.115)	0.038(0.015, 0.1)***
Level of education					
Diploma	84(67.7)	55(47.7)	**0.000**	**1**	
BSC degree	28(22.6)	44(35.8)	0.000	2.4(1.34,4.3)	1.647(3.142,43.172)***
Continued----------					

Doctorate	12(9.7)	24(19.5)	**0.118**	3.055(1.412,6.609)	2.955(0.76,11.486)*
Professional Qualification					
Midwife	37(29.8)	25(20.3)	**0.004**	**1**	
Nurse	63(50.8)	60(48.8)	0.151	1.41(0.759,2.616)	0.4(0.127, 1.273)**
Health officer	12(9.7)	11(11.4)	0.014	1.727(**2**.686,4.346)	0.61(0.008, 0.489)**
MD or specialist	12(9.7)	24(19.5)	0.044	2.96(1.254,6.987)	3.254(1.224,8.649)**
Facility Type					
Health Center	23(18.5)	22(17.9)	**0.438**	**1**	
Gov't hospital	58 (46.8)	61(49.6)	0.968	1.1(0.554,2.184)	1.021(0.365,2.856)*
Non gov't hospital	10(8.1)	22(17.9)	0.133	2.3(0.89,5.941)	3.01(0.716,12.659)*
Private clinic	23(18.5)	10(8.1)	0.843	0.455(**1**.177,**2**.169)	0.865(0.207,3.616)*
Non gov't clinic	10(8.1)	8(6.5)	0.746	0.836(0.279,2.508)	0.739(0.119, 4.610)*
Work experience					
1-5 years	82(66.1)	74(60.2)	**0.143**	**1**	
6-10 years	22(17.9)	22(17.9)	0.712	1.108(0.567,2.164)*	0.809(0.262,2.501) *
11-15 years	10(8.1)	6(4.9)	0.272	0.665(0.23,1.919)*	0.421(0.09,1.972)*
16 - 20 years	5(4.0)	7(5.7)	0.366	1.551(0.472,5.099)*	2.416(0.357, 16.341)*
=>21years	5(4.0)	14(11.4)	0.044	3.103(1.066,9.031)*	7.752(0.059, 56)*

***Chi-squire sig level P≤0.001; **P≤ 0.05;*insignificant in multivariate (backward stepwise log- regression)

As depicted in the above table (table 4) at bivariate analysis nine variables**:** sex, marital status, ethnicity, educational status, facility type, professional qualification, training, work experience and guideline were selected as candidate (α 0.25)and transferred in to multivariate analysis for knowledge. As a result, applying multivariable logistic regressions which refine the possible confounding variables, the final predictors of Knowledge of health care providers about KMC were identified to be sex, training type, guideline, level of education, and Professional Qualification. As depicted in the above table (table 4), males were 3.213 times more knowledgeable than females (AOR**:** 3.213, 95% CI (1.287, 8.021). After adjusting confounders that might hide the fact, HCPs who took other MCH related training and took no training at all were found 72.3% and 49.7% times less knowledgeable than those health care workers who took at least one training from either of the three: KMC, BEMoNC, or Neonatal resuscitation (AOR: 0.277, 95%CI

(0.114, 0.672), (AOR: 0.503, 95%CI (0.154,1.637) respectively. In multivariate analysis, after managed cofounding effect of certain variables there was no statistical significant difference between Nurse's and Midwives' knowledge regarding KMC (AOR: 0.442, 95% CI(0.145,1.346), and Health officers were 39% less knowledgeable than midwives (AOR: 0.61, 95% CI (0.008,0.489). However, medical doctor or specialist were found 3.393 times knowledgeable than midwife AOR: 3.393, 95% CI (1.039, 14.924).

In multivariate analysis, the difference in knowledge persisted that BSC degree holders were 11.647 times knowledgeable than diploma holders (AOR: 11.647, 95%CI (3.142, 43.172). However, the adjusted result revealed that there is no statistically significant difference b/n having doctorate and diploma (AOR: 2.955, 95% CI (0.760, 11.486).

The final predictor of knowledge after multivariate analysis was that of guideline, in which health care providers who had not KMC guideline at their institutions were 96.2% less knowledgeable compared to those who had guideline at their health institution (AOR: 0.038, 95% CI (0.015,0.1).

Table 5: Determinant factors for Attitude in bivariate analysis about KMC in Dessie Town Health Institutions, Amhara Regional State, south wollo, Ethiopia, 2015

	Attitude Status				
Variable	**negative**	**positive**			
	N_o (%)	**N_o (%)**	**P**	**COR (95 % CI)**	**AOR(95 % CI)**
Source of Information					
One source	111(78.2)	71(67.6)	**0.04**	0.583(0.33, 0.45)	0.525(0.284, **0.** 971)**
Multiple sources	31(21.8)	34(32.4)		**1**	
Knowledge status					
Not Knowledgeable	59(41.5)	65(61.9	**0.015**	2.286(1.364, 3.831)	2.024(1.151, 3.649)**
Knowledgeable	83(58.5)	40(38.1)		**1**	
Ethnicity					
Amhara	124(87.3)	84(80)	**0.345**	**1**	
Tigrie	6(4.2)	10(9.5)	0.136	2.46(3.862, 7.026)	1.42(0.456,0.258) *****
Others	12(8.5)	11(10.5)	0.595	1.353(0.570, 3.21)	0.159(0.753,951) *****
Level of education					
Diploma	78(54.9)	61(58.1)	**0.079**	**1**	
BSC degree	47(33.1)	25(23.8)	0.282	0.68(0.377, 0.226)	0.707(0.376,1.329)*****
Doctorate	17(12)	19(18.1)	0.106	1.429(0.685, 2.981)	1.922(0.871,4.244)*****
Professional qualification					
Midwife	34 (23.9)	28 (26.7)	**0.096**	**1**	
Nurse	74(52.1)	49(46.7)	0.277	1.41(1.759, 2.616)	2.5(0.35,1.986) *****
Health officer	17(12)	9 (8.6)	0.246	1.727(1.686, 4.346)	1.56(0.265,3.94) *****
MD or specialist	17(12)	19(18.1)	0.013	2.96(1.254, 6.987)	3.1(1.23,2.458) ******
Guideline					
Present	67(47.2)	34(32.4)		**1**	
Absent	75(52.8)	71(67.6)	**0.072**	1.865(1.104, 3.154)	0.69(0.002,0.258)*****
Training type					
trained 1 of the 3	79(55.6)	45(42.9)	**0.099**	**1**	
trained other than 3	46(32.4)	41(39)	0.286	1.565(**1**.896, 2.733)	1.402(0.754,2.605)*****
not trained	17(12)	19(18.1)	0.033	1.962(**1.**927, 4.153)	2.457(1.076,5.610)*****

***Chi-squire sig level P≤0.001; **P≤ 0.05;*insignificant in multivariate (backward stepwise log- regression)

5.5 Other factors for attitude of HCPs regarding KMC

As shown in (table) above, Ethnicity, Training type, professional qualification, educational level, source of information and knowledge were identified to be candidates for multivariate analysis about attitude of health care providers towards KMC.

After applying multivariable logistic regressions, the final predictors of Attitude of health care providers about KMC were identified to be knowledge and source of information. As a result, HCPs who don't have knowledge were 2.024 times less positive attitude than those who do have knowledge about KMC **AOR:** 2.024, 95 % CI (1.151, 3.649). While it was compared attitude of HCPs who received information from single source with HCPs who got information from multiple sources, it was found that HCPs who heard from single source were 47.5% less likely to feel positively towards KMC than HCPs who got information from multiple sources **AOR:** 0.525, 95 % CI (0.284, 0. 971)

6. Discussion

Kangaroo Mother Care has consistently been shown to be safe, effective and low-cost intervention in the care of newborn babies[17]. KMC is largely a procedure performed in delivery ward, neonatal room & in Community areas or home. In our context, HCPs who potentially assigned/work in the first two places are Midwives by in large, Nurse, health officers, general practitioners, pediatricians, neonatologists, and obstetricians. Furthermore, the promotion & practice of kangaroo mother care is made true if the above mentioned health care providers do have proficient knowledge and positive attitude towards KMC as they are the prime care givers. With this view the present study was carried out to determine the knowledge & attitude of HCPs, as well as to identify the associated factors with these outcome variables.

According to Health Care Providers socio-demographic characteristics (table1), the current study found that most of HCPs were young females (52.6%) whose age (66%) is from 20 to 30 with mean age 30.42 (SD= 8.144) years and had 1-5 years of experience with mean of 7.12 (SD= 7.65) years, this is compatible with [36]**,** the mean age of the HCPs was 26.5 (SD=1.944). Furthermore, more than half of HCPs (51.8 %) were married, 84.2% belonged to Amhara ethnic group & 51.4% are Orthodox Christian followers. The highest proportion which account nearly half (49.8%) of HCPs were Nurses at diploma level (56.3%). Contrary to the findings of this study, the result reported by Samya El-N, Josephin L, & Howida M, in journal natural resource, age was significantly associated with knowledge of HCPs at (P <0.004), but educational level (p= 0.604**)** and experience (p= 0.653) were not associated with knowledge [35].

However, the result of this thesis found that age (P=0.3) is not significantly associated the total score of knowledge of KMC. This might be probably due to the reason that the knowledge experienced HCPs had might be accumulated by youngsters (technologically better) within short time using modern technology. In this study, there was significance difference in the knowledge score of HCPs between trained (trained at least one from KMC, BEMoNC, or Neonatal resuscitation) and untrained (either other than these three

or took no MCH related training at all) at (P=0.007). This finding is alike to the finding reported by Arohi Dalal, DV Bala, Sandeepkumar Chauhan at International Journal of Medical Science and Public Health & Samya El-N, Josephin L, Howida M, at Journal of Natural Sciences Research p=0.005, p<0.0001, respectively [3, 37].

In present study, knowledge of HCPs was significantly associated with sex in which males knew 3.213 times better than females about KMC. The visible difference in knowledge found between males and females might be due to the fact that every burden found at home: including food preparation, washing of cloths, child rearing and the likes are left to females, which this in turn consumes much of their reading time.

The overall knowledge level of HCPs who answered correctly for all knowledge related questions was found to be 123 (49.8%) with Standard deviation of ± 3.707 from them mean (11.64). which is contrary to a quazi- experimental study conducted in two hospitals of India, to assess the effectiveness of teaching protocol on knowledge related to KMC among staff nurse which was 67.5% knowledgeable before intervention was made [30].
Another qauzi- experimental study conducted in Mansura university children hospital Egypt revealed that the total pretest knowledge level was 29.7500 ± 3.758 [36].

It is well established that individual's attitudes towards something are a major determinant of behavior about certain aspects. In this study 'agree' to 'strongly agree' acknowledgement (positive attitude) was given to responses regarding: KMC should begin within a few hours after birth, all mothers should be encouraged to practice KMC, KMC is feasible practice in every setting where delivery is taking place, and facilitating KMC is professionally satisfying. Contrary to this, 'agree' to 'strongly agree' responses to rest attitude questions do have opposite meaning (considered negative attitude).

In this study, only 105 (42.5%) of health care providers felt positive about KMC practice, in which the result is contrary to the finding reported by Pauline C, Ken S. Sharon G, a study conducted at a teaching hospital in Melbourne, Australia, "most HCPs working in neonatal intensive care Unit responded positively" [25]. More of negative attitude in this

study findings might be probably due to the fact that HCPs with uncertain attitude to some questions were acknowledged (added) to be or have negative feeling about kangaroo mother care.

Likewise, knowledge was associated with training status or type of training (p=0.007). Educational level/ highest qualification attained (P= 0.000). Though BSC degree holders (p=0.000) were tangibly found with better knowledge than diploma holding health care providers, there was no significant variation between being medical doctor or specialist (P=0.118) and diploma holder. This might be due to the fact that doctors are more involved in managing diseases while HCPs whose qualification is at lower level are concerned much more in preventive measures which does not require special knowledge by far Kangaroo Mother Care is one among the best of such measures.

Compared to HCPs who had KMC guideline at their health institution, HCPs who didn't had KMC guideline were found less knowledgeable at (P=0.000) than those who had kangaroo mother care at their institution, which is similar to the findings from in Australia to study impact of KMC guideline among health care providers working in neonatal care unit [36].

Professional qualification (P= 0.31) was resulted in significant association with knowledge, which Health officers were 39 % times less likely to have knowledge than midwives and medical doctor or specialist were 3.393 times more knowledgeable than being midwife.

Those HCPs who received Either KMC, BEMoNC or Neonatal Resuscitation were found to be 72.5% more knowledgeable than HCPs who were untrained. This is similar to the findings from study conducted in India (P= 0.005) training was associated with knowledge [26].

In this study, it was found that Attitude of HCPs is affected by source of information **(p= 0.040)** and Knowledge **(P= 0.15).** As the HCPs got information from multiple sources, they would have better attitude towards Kangaroo Mother Care. Furthermore, HCPs in

this study were found to have more negative towards KMC, this is because; as the knowledge of health care providers is increased their attitude will also be increased.

7. Strength and Limitation

7.1 Strength

- The use of different statistical methods, to control possible confounding factors.
- Questionnaire was checked by experts in the field
- The use of pre- testing and well - structured questionnaire

7.2 Limitations

A notable trouble of this study was limited available literatures on the very similar topic. The other limitation faced was that it would have been better to conduct an interventional study rather than cross sectional study if it was granted with sufficient resources (time and money).

8. Conclusion and Recommendation

8.1 Conclusion

In this study HCPs were not knowledgeable about KMC, although knowledge was statistically associated with: sex, training, educational level, professional qualification and KMC guideline. Hence training opportunity should be facilitated (especially KMC, BEMoNC and Neonatal resuscitation), women's burden(especially at home) should be equally shared with men, and KMC guideline should be appeared in every health institution in order to increase knowledge of HCPs about Kangaroo Mother Care. A statistically insignificant association was observed between experience and total knowledge score of HCPs which implies that their knowledge can be enhanced through provision of short term training, equal sharing of duty at home between males and females, increasing numbers of doctors, nurses as well as midwives in order to entirely cover neonatal care by these individuals and provision of guideline at every institution where delivery is possible.

Similarly, HCPs had negative attitude about KMC, though there was a statistical significance association between Attitudes**:** sources of information and knowledge. This indicates that HCPs should have to have an opportunity to access information about KMC from multiple sources (internet, literatures, videos, pamphlets, trainings, conferences etc.) and their knowledge should be enhanced through training, education and provision of guidelines to health institution workers as this will further increase the positive feeling towards Kangaroo Mother Care.

8.2 Recommendation

Based on the findings of the present study, the following recommendations are suggested**:**

1. **To NGOs**
   - ✓ Establish KMC, BEMoNC, and neonatal resuscitation Training programs for all HCPS who potentially involve in newborn care
2. **To Government in general or Associations (Midwife, gynecologist, pediatrician)**

- ✓ KMC guideline should be prepared and made it available at every Health institution where delivery is possible

3. To health institution community (especially managers)

- Desk top computers and broad band internet access should be available at each health institution to help HCPs access with more sources of information about Kangaroo Mother Care.

Health care providers working at health institution should be provided with further education, as do highest institution community.

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Annexes

Annex1: Information Sheet

Addis Ababa University College of health sciences Department of Nursing and Midwifery study on Knowledge and Attitude of Health care providers regarding Kangaroo Mother Care Amhara regional state south wollo Zone, Dessie Ethiopia.

Greeting:

Hello, My name is_____. I am here today to collect data on Knowledge and Attitude of health care providers towards Kangaroo Mother Care. The study is conducted by Mr. Dagne Belete from Addis Ababa University College of health sciences department of Nursing & Midwifery, post graduate program. The objective of this study is to determine the Knowledge & Attitude status of health care providers south wollo Zone, dessie.

I request you to take part in this study and to respond genuinely.

Your cooperation and willingness is greatly helpful in identifying problems related to knowledge and attitude of Kangaroo Mother Care. The study will be conducted through self-administered questionnaire

Your name will not be written in this form and will never be used in connection with any information you tell us. There is no possible risk associated with participating in this study except the time spent for responding to the questionnaire. All information given by you will be kept strictly confidential. Your participation is voluntary and you are not obligated to answer any question you do not wish to answer. If you feel discomfort with the question, it is your right to drop it any time you want. If you have questions regarding this study or would like to be informed of the results after its completion, please feel free to contact the principal investigator.

Address of the principal investigator**:** Mr. Dagne Belete: **Cell phone:** +251 913731948,

E-mail: Dagne.dessieuvcy@gmail.com

Are you willing to participate in this study? **Yes** … Continue, **No** …Skip to the next participant

Annex2: Consent form

In signing this document, I am giving my consent to participate in the study titled "Assessment of Knowledge and Attitude of Health Care Providers regarding Kangaroo Mother Care in Health Institutions Eastern Amhara Regional State, south wollo, Ethiopia".

I have been informed that the purpose of this study is to assess Knowledge & Attitude of Health Care Providers regarding Kangaroo Mother Care in Dessie Health Institutions Eastern Amhara Regional State, south wollo, Ethiopia. I have understood that participation in this study is entirely voluntarily. I have been told that my answers to the questions will not be given to anyone else and no reports of this study ever identify me in any way. I have also been informed that my participation or non - participation or my refusal to answer questions will have no effect on me. I understood that participation in this study does not involve risks.

Please make an ‗X' mark to show the respondent's commitment to participate in the study questions:

1. I have understood the aims of the study and confidentiality procedures and freely consent to Participate [_____]
2. I have understood the aims of the study and the confidentiality procedures but I am not willing to participate [_____]

Signature of Participant _____Date of consent signed _____

Annex3: Questionnaire

Addis Ababa University, College of health sciences, Department of midwifery and Nursing questionnaire for assessing knowledge and attitude of health care providers regarding Kangaroo Mother Care in Dessie town Health Institutions Eastern Amhara Regional State, south wollo, Ethiopia.

Interviewer name _____Signature _____Date_____

Supervisor‘s name _____ signature _____Date _____

Results of interview questionnaire

1. Completed Questionnaire ID number_____
2. Refused
3. Partially completed

S.N	Variable	Response
101	Sex?	1. Male 2. Female
102	What is your age in completed years?	_____
103	What is your ethnicity?	1. Amhara 2. Tigrie 3. Oromo 4. Afar 88. Others, specify
104	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 88. Others, specify
105	What is your professional qualification?	1. Midwife 2. Nurse 3. Health officer 4. Medical doctor 5. Obstetrician/gynecologist 6. Pediatrician 88. Others, specify
106	What is highest qualification you attained/level of educational?	1. Diploma 2. BSC degree 3. Master's degree 4. Doctorate degree 88. other, specify
107	What is your work experience?	_____

S.N	Questions	Response
201	Have you heard or read about Kangaroo Mother Care?	1. Yes 2. No
202	Kangaroo Mother Care helps to prevent hypothermia in newborns	1. Yes 2. No
203	Kangaroo Mother Care helps to prevent neonatal death due to preterm birth complications.	1. Yes 2. No
204	Kangaroo Mother Care should be provided only by mother.	1. Yes 2. No
205	Kangaroo Mother Care can be provide by any family member of the family if mother is unable to do so	1. Yes 2. No
206	Kangaroo Mother Care has maternal benefit	1. Yes 2. No
207	Kangaroo Mother Care increases bonding between mother & her baby.	1. Yes 2. No
208	Kangaroo Mother Care helps simpler carrying and handling	1. Yes 2. No
209	Kangaroo Mother Care helps to reduce neonatal infection rate	1. Yes 2. No
210	Kangaroo Mother Care helps to reduce hospital stay and also cost	1. Yes 2. No
211	HIV positive mothers can safely practice Kangaroo Mother Care.	1. Yes 2. No
212	Kangaroo Mother Care increases maternal confidence about her baby.	1. Yes 2. No
213	Kangaroo Mother Care decreases use of incubation	1. Yes 2. No
214	Kangaroo Mother Care decreases neonatal mortality rate	1. Yes 2. no
215	Kangaroo Mother Care results in effective breast feeding	1. Yes 2. no
216	Kangaroo Mother Care increases baby weight	1. Yes 2. no
217	Kangaroo Mother Care has no profound benefit to the mother	1. yes 2. no
218	Kangaroo Mother Care increases growth of newborn baby	1. yes 2. no
219	Main components of Kangaroo Mother Care are: Kangaroo position, breast and early discharge.	1. yes 2. no
220	Kangaroo Mother Care should be started just after birth & continue at home	1. yes 2. no

S.N	Questions	Response
301	Do you think Kangaroo Mother Care should be applied only in institution?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
302	Do you think potential benefit of Kangaroo Mother Care has been overstated,	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
303	Do you believe that Kangaroo Mother Care should be practiced only for babies with LBW?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
304	Do you think Kangaroo Mother Care should begin within a few minutes after birth?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
305	Do you believe all mothers should be encouraged to practice Kangaroo Mother Care?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
306	Do believe Kangaroo Mother Care leads to increased risk for newborn baby?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree

307	Do you believe Kangaroo Mother Care leads to increased risk for newborn baby?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
308	Do you believe Kangaroo Mother Care is feasible practice in every setting where delivery is taking place?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
309	Do you think that facilitating Kangaroo Mother Care is professionally satisfying?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
310	Do you believe that facilitating Kangaroo Mother Care is an added burden to health care providers?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree
311	Do you believe Parents can feel forced to practice Kangaroo Mother Care?	1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree

S.N	Variable	Response
401	If your answer for the above question is yes, from where did you get the information? Multiple response is possible	1. Training 2. Formal education 3. Text books 4. Literatures 5. Internet 88. Others, specify
402	Have you had maternal and child health related trainings?	1. Yes 2. No
403	If your answer is yes for number 402 what is/are type of trainings you took? Multiple response is possible	1. BEMONC 2. Neonatal resuscitation 3. KMC 4. PMTCT 5. IMNCI 6. HBB 88. Other, specify
404	Which type of health Institutions you are currently working?	1. Health center 2. Government hospital 3. Non-government hospital 4. Private Clinic 5. Non-government clinic