



School of Nursing

Knowledge and associated factor of hypothermia among postnatal attending mothers in St Paul's Millennium Hospital Medical College Hospital in A.A, Ethiopia, 2022

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ABBREVIATIONS AND ACRONYMS

ANC.....	Antenatal care
AOR.....	Authorized Organization Representative
CPR.....	Cardiopulmonary Resuscitation
LBW.....	Low Birth Weight
MMC.....	Millennium Medical Collage
NICU.....	Neonatal Intensive Care Unit
PNC.....	Postnatal Care
SPHMMC.....	Student Paul’s Millennium Medical College
SPSS.....	Statistical Software For Social Science
St.....	Student
VLBW.....	Very Low Birth Weight
WHO.....	World Health Organization

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Abstract

Background: Neonatal hypothermia is a global health problem and a major factor for neonatal morbidity and mortality, especially in low and middle-income countries. the proportion of infants experiencing hypothermia during neonatal period is high. Care givers or Mothers role is crucial in preventing neonatal hypothermia. The study aimed to the maternal knowledge and associated factor of neonatal hypothermia in St. Paul’s Millennium Medical College.

Objective: the Aim of this study is to assess knowledge and associated factor of hypothermia among postnatal mothers in St. Paul’s Hospital Millennium Medical Collage. Hospital in 2022.

Methods: Descriptive cross-sectional study was conducted from Dec to Jan 2023 in St. Paul’s Hospital Millennium Medical Collage. Hospital. Data were collected using

structured interviewed questionnaire. Random Sampling method was used to select 272 postnatal attendant mothers at St Paul's Hospital in the postnatal ward. The data were processed and analyzed using SPSS version 25.

Results: in this study majority of the mothers 208 (84.6%) have no Source of Information on neonatal hypothermia and only few of 24 (9.8%) the respondents reported as immediately washing of baby can cause hypothermia. Regarding sign and symptoms of hypothermia. Majority of mothers 245 (99.6%) and 237 (96.3%) have no information as lethargy, cyanosis and cold extremities were sign of hypothermia in neonates respectively.

Conclusion and recommendation: the finding of this study indicated low knowledge on neonatal hypothermia. Therefore healthcare providers (HCPs) have to equip mothers with adequate knowledge and practices regarding neonatal hypothermia cause ,prevention and sign and symptoms.

Key word: Hypothermia, knowledge, postnatal mothers, postnatal care factor.

CHAPTER ONE:

1. INTRODUCTION

1.1 Background

Neonatal hypothermia is a progressive reduction in the axillaries temperature of the newborn (temperature is $<36.5^{\circ}\text{C}$). It is categorized as mild hypothermia (36°C – 36.4°C), moderate hypothermia (32°C – 35.9°C), and severe hypothermia ($<32^{\circ}\text{C}$) (1).

Neonatal hypothermia is a worldwide problem with higher prevalence rate among low resource settings. In sub-Saharan countries, it increases neonatal death by 80% for every 1 degree Celsius decrease of body temperature because it affects all neonatal body systems. It is a major co-morbid of prematurity, severe infections and asphyxia contributing much for the smallest decline in neonatal mortality rate of the Eastern Mediterranean and the African regions. A global burden of neonatal hypothermia indicated that 53% of newborns in Ethiopia developed hypothermia due to different sociolect-demographic, physiologic, contextual and behavioral factors (2). In developed countries, neonatal hypothermia takes for 28% of the world burden. More than 98% of yearly neonatal mortality occurs in developing countries (4). Similarly, different studies conducted in Ethiopia showed that the prevalence of neonatal hypothermia ranges from 53% to 69.8% (1).

Immediately after birth, neonates can lose heat through conduction, convection, evaporation and radiation that can cause a reduction of up to 2°C of their body temperature within the first 10–20 min of birth. Evaporative loss forms the major route of heat loss in the immediate newborns. Therefore, if no action is taken immediately after delivery, the core and skin temperatures of a term neonate can decrease at a rate of approximately 0.1°C and 0.3°C per minute respectively due to their risky characteristics of large surface area per unit body weight, decreased subcutaneous fat, greater body water content, Immature skin and poorly developed thermoregulatory mechanism. Morbidity and mortality of newborns is uniformly higher among premature and low birth weight newborns as compared to their counter parts.

Several conditions of immature thermal regulation, such as low birth weight (LBW), prematurity, intrauterine growth restriction, and asphyxia (with heat loss due to lack of oxygenation, where attempted during reanimation efforts) during birth are significantly associated with abnormal low body temperature. Inadequate intra-natal and postnatal care is another factor which contributes for the onset of neonatal hypothermia. Newborn bathing within the first day after birth, poor socioeconomic status, pitiable kangaroo mother care practices, initiation of breastfeeding after 1 hour, massage of neonates with oil and insufficient health maternal knowledge on thermal care were determinant factors for neonatal hypothermia. Identifying the determinants of neonatal hypothermia have a greater input to attain sustainable development goal (SDG-3) of ensuring healthy lives and promote well-being for all at all age. Interventions hypothermia management might have a substantial impact on neonatal mortality prevention. Indeed, approaches that can prevent and treat neonates with hypothermia are vital to hasten the advancement of newborn survival (3).

More over Mothers play a significant role in newborns' life and their level of knowledge would help the neonate to survive from dangerous conditions, notably hypothermia(7). As a result, mothers or other close caregivers of neonates must be knowledgeable about Thermal care such as skin-to-skin contact (SSC), delaying bath and breastfeeding (5).

Hypothermia can be prevented through strict observance of the chain of warm that includes keeping the baby and the mother together. Gaps occur when the neonate is not initially given SSC with the mother immediately in the delivery room, transferred to advanced care, or discharged from the hospital. Hence, this chain is interrupted. Therefore, the mothers have adequate knowledgeable and practices regarding neonatal hypothermia, beginning immediately after birth. SSC/ KMC and breastfeeding should be encouraged even for term or stable preterm neonates. These two techniques remain genuine strategies in producing natural heat and hold numerous other benefits that will enhance further positive outcomes for the growing neonate(6).

1.2 Statement of problem

Neonatal hypothermia is a serious health problem in both among those born at home (32-85%) and at different levels of hospitals (11 to 90%). Moreover, 34% of neonates had hypothermia out of NICU admission. Globally the magnitude of Neonatal hypothermia was 61.5%. Age < 24 h, delayed initiation of breast feeding within one hour of birth, no skin to skin contact with mother immediately after delivery, resuscitation at birth, low birth weight, and bathing within 24 h were all factors significantly associated with neonatal hypothermia. In sub-Saharan Africa with Nigeria 6%, Ethiopia 4%, and the Democratic Republic of the Congo 3% and Tanzania 2% accounts for of the global burden of neonatal deaths, respectively.

In Ethiopia, there was prevalence of hypothermia ranging from 53%-69.8%. Literature review say that there has been limited progress in preventing neonatal hypothermia even in healthy full-term. Ethiopia is applying the thermal care principle which is one of the components of essential newborn care (ENBC) recommended by WHO and though predisposing factors for hypothermia are easily preventable, the problem of hypothermia remains a challenge (12).

Although hypothermia is rarely a direct cause of death, it contributes to a substantial proportion of neonatal mortality globally, mostly as morbidity. A high prevalence of neonatal hypothermia has been reported from countries with the highest burden of neonatal mortality (7).

As for a newborn, the most frequent caretaker is their mothers, mother's knowledge and practices that determine the future of the newborn. Traditional care practices at home, especially by caregivers and in the community affect maternal and newborn health inevitably.

The knowledge deficit along the continuum from health providers to primary care givers has sustained the silent epidemic of hypothermia. The challenges of recognition, understanding of local risk factors and communication have meant a lack of informed thermal care for newborns. Simple, feasible interventions exist, but need to be applied, based on local risk factors that disrupt the warm chain(11).

Therefore, reducing the prevalence of neonatal hypothermia in low-resource communities has a significant contribution to reducing the Global.

Hence, this study aimed to assess the knowledge and associated factor of hypothermia among postnatal mothers.

1.3. Significance of the Study

This study believed to contribute by showing the status of mothers' understanding on prevention of hypothermia among their neonates.

This study may also help as an input for government policy makers, non-government organizations, and other stakeholders to work towards minimizing the burden and risks related with hypothermia of the neonates and helpful for concerned body to identifying the contributing factors for mother's knowledge on preventing hypothermia among neonates.

It may be also help maternal and neonatal health care providers to activities in empowering mothers and involving on care and decision making of her newborn in preventing hypothermia from their own newborns. The study may also serve as an input for those who want to conduct further studies in this regard Understanding the level of knowledge of the mother will contribute for the practitioner to design health education towards activities that easily demonstrated by the mother in the care of her baby on prevention of hypothermia.

CHAPTER TWO:

2. Literature Review

2.1. Over View of Neonatal Hypothermia

Neonatal hypothermia is a global health problem and a major factor for neonatal morbidity and mortality, especially in low and middle-income countries. Mechanism or Newborns lose heat through conduction, radiation, convection or evaporation. The World Health Organization (WHO) defines neonatal hypothermia as maxillary temperature below 36.5°C (97.7°F) among newborns aged below 28 days. It is stratified as either mild (36°C-36.4°C), moderate (32°C-35.9°C) and severe hypothermia (<32°C) with the severity scale carrying prognostic implications (13).

This chapter presents review of literature relevant to the study that was obtained from Various sources that include medical and nursing journals, text books and internet and is Presented in relation to study objectives that includes; To assess the knowledge and associated factors Among postnatal mothers on neonatal hypothermia in SPHMMC.

Previous study of WHO says risk factors and consequences of neonatal hypothermia in the very settings where exposure is greatest. in these settings there are very few data available even on the epidemiology of neonatal hypothermia, much less sufficient evidence on the role that thermal care practices may have in either hypothermia prevention or management, and thus, their potential role in improving neonatal survival(14).

2.2. Knowledge of Postnatal Mothers on Neonatal Hypothermia.

Global knowledge on neonatal hypothermia is generally poor as highlighted by a study in Dhaka by Dragovich *et al.*, (2007) about knowledge of postnatal mothers on hypothermia. Assessed mothers' knowledge and practices regarding neonatal hypothermia, as they are typically the primary caregivers responsible for recognizing changes in the neonate for timely interventions and management before complications arise. Therefore, healthcare providers (HCPs) have to equip mothers with adequate knowledge and practices regarding neonatal hypothermia, beginning immediately after birth.(15).

As previous studies of Kurunegala A large proportion of them (45.52%) were in the poor knowledge group and 42.27% of them were in very poor knowledge group on prevent hypothermia. The results showed clearly that mothers' knowledge of prevention of neonatal hypothermia was the most deficient knowledge field of mothers who lived in Kurunegala area (16).

The pretest knowledge scores of mothers revealed that 6.66% had good knowledge, 56.66% had average knowledge and 36.66% had poor knowledge. Almost similar findings to the above were obtained in Pakistan study among postnatal mothers.

Chouduri (2009), noted that among 50 mothers 20% had good knowledge, 46% had average knowledge and 34% had poor knowledge regarding prevention of neonatal hypothermia.

A similar study conducted in Srilanka on mothers' knowledge on thermoregulation of that very few mothers 7% knew the normal body temperature of a neonate. The mothers who know regarding hypothermia, 60% of their babies were hypothermic while 40% of them were norm thermic.

Apart from that, out of mothers who did not know the normal body temperature of a neonate, 63% of babies were hypothermic and 37% (n=50) of the babies were normothermic (Zhu and Pang, 2013).

Nepal studies that awareness of the importance of thermal control and basic knowledge on thermal regulation and thermal protection were insufficient as 65% of them stated that neonatal hypothermia can only be prevented by incubating the baby in prenatal warmers and not by skin to skin care (Basaventhappa, 2010).

Study in India by Dutta, (2008), 73% of mothers know the signs of hypothermia .Out of them 67.5% of their babies were hypothermic and only 32.5% were normothermic. On the other hand 50% of babies were hypothermic and another 50% were norm thermic from the mothers representing 27% of those who did not know the signs of hypothermia which was attributed to a universal lack of knowledge on prevention of neonatal hypothermia.

In the African study conducted in Lufwanyama, Zambia showed that there was a general awareness among mothers that exposure to cold places newborns at risk for adverse morbidity and mortality but however, 70% of the mothers never adhered to the recommended thermo protective measures for neonates.

Tanzania studies showed that 66% of mothers know the possible problems of hypothermia but 57% of their babies were hypothermic and 43% were norm thermic.

Previous study (2018) In Ethiopia lack of adequate prenatal care is one of the factors for onset of hypothermia, there is a high prevalence of home delivery which accounts 73% and Institutional deliveries accounts only 26%. Low socio-economic status, poor kangaroo mother care practice, low birth weight, bathing of a newborn within 24 h, delayed initiation of breastfeeding, a traditional practice of oil massage of Neonates and inadequate knowledge of thermal care among maternal care determinant factors for hypothermia.

New mothers, or the nearest caregivers, should be aware that hypothermia is a newborn danger sign, in order to apply best practices regarding neonatal hypothermia prevention to reduce subsequent mortality. Result about 97% of mothers had in adequate knowledge, and the majority (83%) had in adequate neonatal hypothermal practices in Ruanda. This condition unchecked leads to high-risk life-threatening complications. Prevention should emphasize on observed gaps of maternal knowledge to decrease deaths related to neonatal hypothermia. (17)

2.3. Factors Associated With Neonatal Hypothermia

2.3.1. Environmental

Infant's body temperature is associated with maternal temperatures. Babies who born during the night were more likely to develop hypothermia as compared to neonates who born during day time. A similar finding has been reported from other study in Ethiopia. This might be because room temperature is low during the night as compared to day time. It also is, due to the work overload during night time as the number of healthcare workers 9-working in the labour room during the night is not equal to day time staff.

2.3.2. Physiological

Hypothermia where higher among preterm neonates when compared to term neonates. The possible reason might be a preterm neonate skin is immature and thin that increases loss of heat through radiation. In Addition they have immature hypothalamic thermal control, and they have insufficient neural mechanisms for temperature control by shivering, have low glycogen stores and adipose tissue. Hence, they have decreased ability to regulate their body temperature, by producing heat through non-shivering thermo genesis. Hypothermia where higher among neonates with low birth weight when compared to those who had normal birth weight. This is consistent with a study done in Northwest Ethiopia, Nigeria, and Pakistan. The study conducted in Ethiopia reported that LBW had increased the risk of hypothermia by 3.7-fold. This is because babies with small weight have a large surface area per unit of body weight which makes them prone to develop hypothermia. The other reason is, low birth weight babies have decreased thermal insulation due to less subcutaneous fat and the reduced amount of brown fat.

2.3.3. Behavioral

This might be due to the reason that breast milk is the source of energy or calories to produce heat for thermoregulation and they have no adequate adipose tissue for glucose breakdown which results in hypothermia. Besides skin-to-skin contact is an external heat source for the baby during breastfeeding. This finding is lower than the finding reported in Ethiopia. Besides, early bathing contributes significantly to heat loss and increases the incidence of hypothermia in cold climates, and should be postponed until at least after the first 6 h of life, and possibly longer.

2.3.4. Socioeconomic Factors

Infant's low body temperature is also associated with having a young and inexperienced mother, coming from a family with low socioeconomic status, or being born to a mother who already had multiple births. The following strategies should be implemented to reduce the prevalence of neonatal hypothermia: early initiation of breast feeding, education of staff and mothers, warm chain, drying, wrapping, and quality improvement (18).

2.4. Conceptual Frame Work of the Study

This conceptual framework was developed after based on review of different relevant literatures like musambemariya and Birhanu Wondimaneh to assess the mother's level of knowledge and associated factors regarding essential newborn care. Therefore it is use in assessing the knowledge and associated factor of neonatal hypothermia. The four main factors are the socio-demographic, obstetrical characteristics of the mothers, environmental factors and neonatal factors.

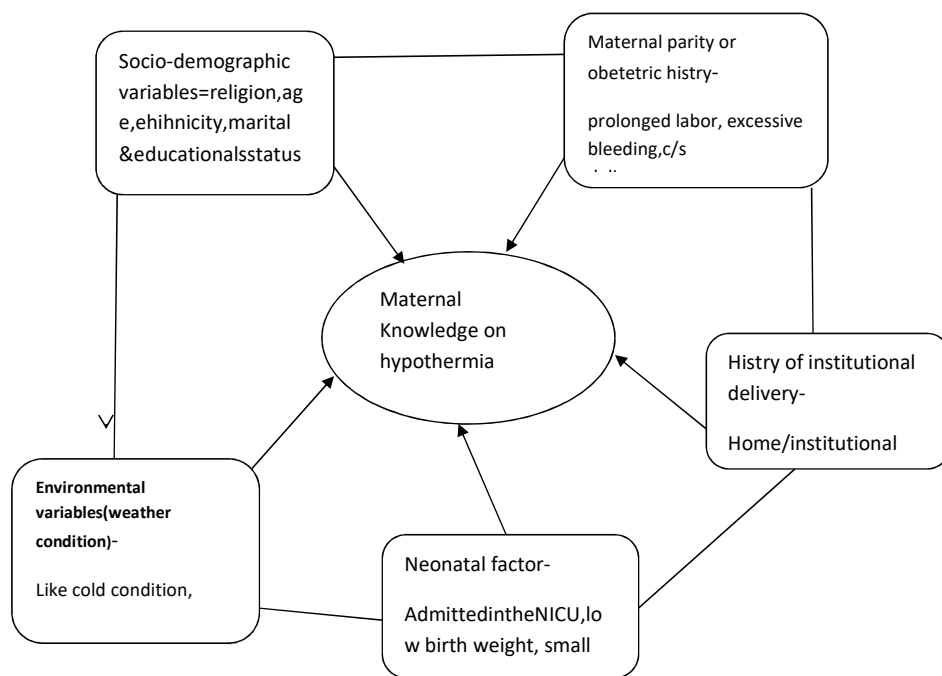


Figure 1 Conceptual frame work adapted from study conducted by musambe mariya(2019) and Birhanu Wondimaneh

CHAPTER THREE:

3. Objectives of the Research

3.1General Objective

The objective of the study was to assess knowledge and associated factors towards neonatal hypothermia among postnatal mothers attending at St. Paul's hospital Millennium Medical College, Addis Ababa Ethiopia, 2022

3.1Specific Objectives

- To determine postnatal mother's knowledge on neonatal hypothermia
- To identify factors associated with maternal knowledge regarding neonatal hypothermia.

CHAPTER FOUR:

4. METHODS AND MATERIALS

4.1. Study Area

This study was conducted at Saint Paul Hospital Millennium Medical College that is located at Gulele sub city, Addis Ababa Ethiopia. It was built by Emperor Haile Selassie in 1969 by the help of the Germany Evangelical Church aimed to serve the poor. The hospital has 622 beds totally. Averages of 598864 clients are served annually, and have more than 5 million populations. The Hospital has 5598 clinical and non-clinical staffs. Out of these staffs, there are 60 neonatal nurses. The hospital provides service of MCH, ANC, NICU, PNC pediatric, delivery etc.

4.2. Study Design & Study Period

An Institution-Based descriptive Cross-Sectional Study was conducted in St. Paul's Hospital millennium medical college from December 1 To December 30 2022.

4.3. Source of Population

All Mothers In Postnatal Ward Getting Postnatal Care, Labor Care And Admitted At Postnatal Ward.

4.4. Study Population

The Study Population Are Postnatal Mothers Who Will Be And Full-Fill The Inclusion Criteria.

4.5. Eligibility Criteria

4.5.1. Inclusion criteria:

Postnatal mothers with no serious illness and mentally competent, mothers with alive baby and which the mother delivered at home and came to St. Paul's Hospital millennium medical college for the different health problem was included in the study.

4.5.2 Exclusions criteria:

Critically ill mothers during study were not included in the study.

Mothers of still birth.

4.6. Study variable

4.6.1. Dependent variable:

- Maternal knowledge on prevention hypothermia.

4.6.2. Independent variable:

- Maternal Socio demographic variable
 - ✓ Age
 - ✓ Religion
 - ✓ Ethnicity
 - ✓ Educational Status
 - ✓ Marital Status
 - ✓ Residence
- Environment condition(weather condition)
 - ✓ Cold Environment
 - ✓ Night/day
- Maternal parity
 - ✓ Parity
 - ✓ Prolonged Labor
 - ✓ C/S Delivery
 - ✓ Excessive bleeding
- History of institutional delivery
 - ✓ Home delivery
 - ✓ Institutional delivery
- Neonatal factor
 - ✓ Which Admitted to NICU
 - ✓ Low Birth Weight
 - ✓ Small For GA

3.6. Operational definitions:

Maternal knowledge on hypothermia and associated factor refers to postnatal Mothers level of understanding on knowledge of neonatal hypothermia and associated factor in this study is categorized as Good and poor.

- Good knowledge: a mother who was considered to have good knowledge on hypothermia if she correctly responds to more than or equal to 50% of knowledge assessing questions
- Poor knowledge: a mother was considered to have poor knowledge on hypothermia if she correctly responds to less than 50% of knowledge assessing questions.

3.7. Sampling size determination Technique

The sample size was calculated based on number of delivering mother who attended the SPHMMC. The average Number of monthly deliveries in St. Paul's hospital millennium medical in the past year where 682. The target sample size of this study was calculated using the population value is 50%, confidence interval of 95% and a margin error of 5% as the following.

$$n = Z^2 * p(1-p) / D^2 = n_f = n_i / N + 1$$

the result of n then ni/the result of n=n_f=246

Z=confidential interval

n= sample size,

N= number of total population,

D = value of accepted error

P=population value

Accordingly, the sample size required for this 246.

4.8. Data collection Technique

To be enrolled to the study, out of the total mothers receiving postnatal care during the data collection period, 272 mothers was selected using simple random sampling technique.

3.9. Data collection tools and procedures:

Data was collected using quantitative data collection techniques. Before data collection by face to face interview with postnatal mothers after they received postnatal care. For quantitative data was collected with per coded self-administered questionnaire using data. The questionnaire had two parts (maternal knowledge on prevention of neonatal hypothermia and association factor) which are going to be assessing by the principal investigator during the self-administered questionnaire. The questionnaire was prepared in English and the data was collected by the principal investigator. The tool is prepared based on review of literature which have variables that suit for the current study (21).

4.9. Data Quality Control

Before data collection a two day theoretical and practical training was given for the data collectors. The data collectors were four neonatal nurses. In order to evaluate the clarity of the questionnaires, validity of the instrument and the reaction of respondent the questionnaire pre tested on postnatal ward mothers receiving postnatal care at Ghandi Hospital, in 10% of the study population was done before the beginning of the actual data collection which was not be included in the actual data. After the pretest the finding and observation obtained was used to modify the questionnaire and the data collection process accordingly.

4.10. Data Processing and Analysis

After data collection, each questionnaire was coded separately and data was entered to SPSS software version 25 by the principal investigator, after cleaning, and editing were done, the data analysis was undertaken.

Descriptive statistics (frequency and percentage) was computed and presented in different forms.

4.11. Ethical Consideration

The ethical approval and clearances was obtained from St. Paul's Hospital Millennium Medical College's Ethical review board. Informed verbal consent was obtained from each study participant after the purpose and significance of the study will explained by the data collector.

4.12. Dissemination of the Result

The paper will be presented for the school of nursing. After completion, appropriate recommendation will be made and the result will be submitted to SPHMMC. The result will be disseminated to concerned governmental organization& efforts will be made to publish the result in scientific journals.

CHAPTER FIVE:

5.1. Result

5.1.1. Socio-demographic characteristics of the respondents

A total of 246 respondents responded to the questionnaires with 100% response rate. Regarding their age majority 138 (56.1%) of them were in the age group 25 to 34. concerning their residence more than half 145 (58.9%) were resided in Addis Ababa. About their highest level of education more than one third 101(41.1%) Completed secondary school education. Regarding marital status of respondents all most all 244(99.2%) were in marriage union. Concerning income about one third 83(33.7%) had monthly income between 4000 to 6000 Ethiopian Birr. Regarding occupation of respondents majority 87(35.4%) of them were house wife and few 23 (9.3%) of them were farmers.

Table 1. Socio-demographic characteristics of the respondents

	Categories	Frequency	percent
AGE	15-19	4	1.6
	20-24	77	31.3
	25-29	80	32.5
	30-34	58	23.6
	35-39	25	10.2
	40-44	2	0.8
Residence	Addis Ababa	145	58.9
	Outside of Addis Ababa and from urban areas	72	29.3
	Outside of Addis Ababa and from rural areas	29	11.8
Educational status	No formal education	4	1,6
	primary (grade 1-8)	51	20.7
	Secondary (9-12)	101	41.1
	Diploma (12+3)	49	19.9
	Degree	39	15.9

	Masters and above	2	0.8
Marital status	Single	2	0.8
	Married	244	99.2
Income	Less than 4000	94	38.2
	4000-6000	83	33.7
	6001-8000	51	20.7
	GREATER8000	18	7.3
Occupation of respondent	Farmer	23	9.3
	Government employed	71	28.9
	Self-employed	65	26.4
	Housewife	87	35.4

5.2. ANC and birth outcome of mothers attending birth at SPHMMC, Addis Ababa, Ethiopia, 2022

Among 246 study participants' more than nifty percent 231 (93.9%) ANC four times and above. The mean age of babies in days was 3, 01 ($\pm$ 2.03 SD) days with minimum one day and maximum 13 days. The mean birth weight of babies in grams was 2869.12 ($\pm$ 477.3 SD) grams with 1500 grams and 4000 grams minimum and maximum respectively. Concerning birth weight of neonates about twenty percent 49 (19.9%) were under weight. regarding sex of babies 118(48%) were females and majority of the mothers 243 (98.3%) reported as they deliver in institution (Table 2).

Table 2. ANC and birth outcome of mother attending birth at SPHMMC, Addis Ababa, Ethiopia, 2022

Number of ANC	Two	5	2,0
	Three	10	4,1
	Four and above	231	93.9
Age of neonates in days	One day	55	22.4
	Two days	68	27.6
	Three days	53	21.5
	Four days & above	70	28.5
Birth weight of neonates	less than 2500gm)	49	19.9
	$\geq$ 2500 to 4000gm	197	80.1
Sex of neonates	Female	118	48
	Male	128	52
Place of delivery	Institution	243	98.3
	Home	3	1.7

5.3. Obstetric history of mothers attending postnatal care at SPHMMC, Addis Ababa, Ethiopia 2022

Among the 246 study participants, more than half 137 (55.7%) gave birth by SVD and regarding more than three fourth 199 (80.9%) were para I and II and only few 11(4.5%) of them were para IV and above .concerning gravidity, more than half 136 (55.3%) were gavida I and II. About duration or length of labor only 24 (9.8%) of respondents had prolonged history of labor. Regarding Antenatal and postnatal bleeding 10(4.1%) and 3(1.2%) were experienced it respectively. 6 (2.4%) of mother faced recent complication ANC bleeding (Table 3)

Table 3. Obstetric history of mothers attending postnatal care at SPHMMC, Addis Ababa, Ethiopia 2022

.variables	Categories	Frequency	Percent
Mode of delivery	SVD	137	55,7
	C/S	109	44.3
Respondent's parity	Para I	99	40.2
	Para II	100	40.7
	Para III	36	14.6
	Para IV and above	11	4.5
Respondent's gravidity	Gravida I	81	32.9
	Gravida II	97	39.4
	Gravida III	39	15.9
	Gravida IV and above	29	11.8
History of prolonged labor of the respondent	No	222	90.2
	Yes	24	9.8
History of antenatal bleeding	No	236	95.9
	Yes	10	4.1
History of postal bleeding	No	243	98.8
	Yes	3	1.2

5.4. Neonatal complication among infants born at SPHMMC, Addis Ababa, Ethiopia 2022

Among 246 neonates about one quarter 59 (24%) were admitted to Neonatal intensive care unit and among which 23 (9.3%) had low birth weight, 16 (6.5%) Small for gestational age, 21(8.5%) preterm, and 4(1.6%) were faced intrauterine retardation (Table 4).

Table. 4 Neonatal complications among infants born at SPHMMC, Addis Ababa, Ethiopia 2022

Variables	Categories	Frequency	Percent
Did the neonate admitted to intensive care unit	No	187	76.0
	Yes	59	24.0
Did your baby born with low birth wt.	No	223	90.7
	Yes	23	9.3
The baby is low for gestational age	No	230	93.5
	Yes	16	6.5
The baby was pre term	No	225	91.5
	Yes	21	8.5
The infant faced Intra uterin growth retardation	No	242	98.4
	Yes	4	1.6

5.5. Maternal Knowledge assessment of mothers give birth at SPHMMC, Addis Ababa, Ethiopia 2022

Among the 246 , 41 (16.7%) reported as they received information on neonatal hypothermia, 38 (15.4%).majority of the mothers 208 (84.6%) have no Source of Information on neonatal hypothermia. only few of 24 (9.8%) the respondents reported as immediately washing of baby can cause hypothermia, and majority of mothers 243(98.8%) and 227(92.3%)reported that lying the baby in the cold place and alone can be source of hypothermia respectively. Regarding sign and symptoms of hypothermia. Majority of mothers 245 (99.6%) and 237 (96.3%) have no information as lethargy; cyanosis and cold extremities were sign of hypothermia in neonates respectively. Concerning complication arises due to hypothermia almost all mothers have no adequate information as, leads to dyspnea, hypoglycemia, Decrease in weight of the baby and even death. Regarding prevention of hypothermia 29 (11.8%) Not bathing immediately after birth, 238(96.7%) drying baby after bathing and wrap in warm cloth,37(15%) skin to skin contact and 125 (50.8%) early initiation of breastfeeding with in the first 4 hours prevents neonatal hypothermia respectively. The mean knowledge level of respondents on hypothermia was (2.78±0.80) and majority 207(84.1% of respondents had low knowledge on neonatal hypothermia (Table 5 and fig 2).

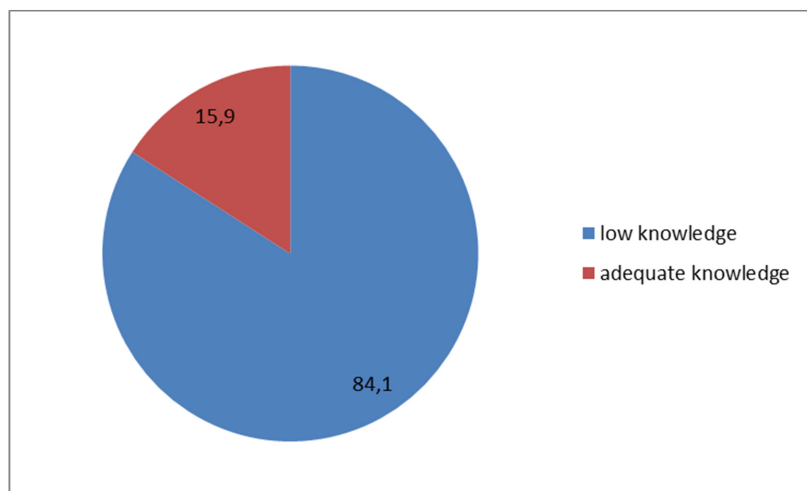


Fig 2. The level of Knowledge of hypothermia among postnatal attending mothers in St Paul's Millennium Hospital Medical College Hospital in A.A, Ethiopia, 2022

Table 5. Maternal Knowledge assessment of mothers give birth at SPHMMC, Addis Ababa, Ethiopia 2022

Variable	Categories	Frequency	Percent
The mother received information on hypothermia	No	205	83.3
	Yes	41	16.7
Source of Information on neonatal hypothermia n(n=41)	Nurse/midwives	41	16.7
	No information	208	84.6
causes of hypothermia			
Washing the neonate immediately after birth	No	222	90.2
	Yes	24	9.8
Covering the neonates with cold towel	No	5	2.0
	Yes	241	98.0
Lying the baby in cold area	No	3	1.2
	Yes	243	98.8
Lying the baby alone	No	19	7.7
	Yes	227	92.3
Sign and symptoms of hypothermia			
Cyanosis and cold extremities	No	237	96.3
	Yes	8	3.3
Lethargy	No	245	99.6
	Yes	1	0.4
Prevention of hypothermia			
No bathing immediately after birth	No	217	88.2
	Yes	29	11.8
Dry baby after bathing and wrap in warm cloth	No	8	3.3
	Yes	238	96.7
Skin-to-skin contact	No	209	85.0
	Yes	37	15.0
Early initiation of breastfeeding with in the first 4 hours	No	121	49.2
	Yes	125	50.8

5.5. Factors affecting Knowledge of hypothermia on Bi Variable logistic regression, among postnatal mothers attending St Paul's Millennium Hospital Medical College Hospital, Addis Ababa, Ethiopia 2022.

On bivariate analysis occupation, gravidity, history of postnatal bleeding 'history of neonatal intensive care unit, low birth weight small for gestational age,' intrauterine growth retardation, preterm and information about hypothermia were significantly associated with Knowledge of hypothermia among postnatal with p-value less than 0.20 (table 6).

Table 6. . Factors affecting Knowledge of hypothermia on Bi Variable logistic regression, among postnatal mothers attending St Paul's Millennium Hospital Medical College Hospital, Addis Ababa, Ethiopia 2022.

				OR,95% CI	
Variable	Categories	Good knowledge	Low Knowledge		P-Value
OCCUPATION	Farmer	6	17	1	
	Government employed	5	66	0.638(0.2-1.8)	0.41
	Self-employed	12	53	2.9(1.03-8.5)	0.04
	Housewife	16	71	0.9(0.42-2-)	0.9
Gravidity	Gravida I	11	70	1	
	Gravida II	17	80	0.7(0.3-1.6)	0.4
	Gravida III	4	35	1.3(0.4-4.6)	0.6
	Gravida IV and above	7	22	0.4(0.1-1.4)	0.1
History of postnatal bleeding	No	37	206	11.1(0.9-125.9)	0.05
	Yes	2	1	1	
Admitted to NICU	No	23	164	2.6(1.2-5.4)	0.008
	Yes	16	43	1	
Low birth wt. of baby	No	27	196	7.9(3.1-19.7)	0.001
	Yes	12	11	1	
Small for gestational age	No	32	198	4.8(1.6-13.8)	0.004
	Yes	7	9	1	
Pre term for the baby	No	28	197	7.739(3.01-19.8)	0.001
	Yes	11	10	1	
Intrauterine growth retardation	No			5.5(0.75-40.5)	0.09
	Yes			1	

\

5.6. Factors affecting Knowledge of hypothermia on multi Variable logistic regression, among postnatal mothers attending St Paul's Millennium Hospital Medical College Hospital, Addis Ababa, Ethiopia 2022.

On multi variables logistic regression ,all variables that were significantly associated on binary logistic regression were not significantly associated with knowledge of hypothermia among postnatal mothers attending SPHMMC, with p- value less than 0.05;

Commented [WU1]: Where is the table?
Please make visible the associated factor variable below 0.05 by adding asterisk And uses the variables for discussion.

Chapter 6:

6. DISCUSSION

The finding of this study shown that , Among the 246 , 41 (16.7%) respondents reported as they received information on neonatal hypothermia, and the information was obtained from nurses and mid wife. majority of the mothers 208 (84.6%) have no Source of Information on neonatal hypothermia. only few of 24 (9.8%) the respondents reported as immediately washing of baby can cause hypothermia, and majority of mothers 243(98.8%) and 227(92.3%)reported that lying the baby in the cold place and alone can be source of hypothermia respectively.

Regarding sign and symptoms of hypothermia, majority of mothers 245 (99.6%) and 237 (96.3%) have no information as lethargy; cyanosis and cold extremities were sign of hypothermia in neonates respectively. Concerning complication arises due to hypothermia almost all mothers have no adequate information as, hypothermia in neonates leads to dyspnea, hypoglycemia, decrease in weight of the baby and even death.

About prevention of hypothermia, the study participants reported as: 29 (11.8%) not bathing immediately after birth, 238(96.7%) drying baby after bathing and wrap in warm cloth,37(15%) skin to skin contact and 125 (50.8%) early initiation of breastfeeding with in the first 4 hours prevents neonatal hypothermia respectively.

Neonatal hypothermia is a global health problem and a major factor for neonatal morbidity and mortality, especially in low and middle-income countries. Mechanism or Newborns lose heat through conduction, radiation, convection or evaporation.

The World Health Organization (WHO) defines neonatal hypothermia as maxillary temperature below 36.5°C (97.7°F) among newborns aged below 28 days. It is stratified as either mild (36°C-36.4°C), moderate (32°C-35.9°C) and severe hypothermia (<32°C) with the severity scale carrying prognostic implications (13).

Global knowledge on neonatal hypothermia is generally poor as highlighted by a study in Dhaka by Dragovich et al., (2007) about knowledge of postnatal mothers on hypothermia.

Commented [WU2]: Rewrite the discussion by focusing on the main outcome the knowledge level and the factors which is only significant.
And compare these outcome with the previous study. Pleases.

Assessed mothers' knowledge and practices regarding neonatal hypothermia, as they are typically the primary caregivers responsible for recognizing changes in the neonate for timely interventions and management before complications arise. Therefore, healthcare providers (HCPs) have to equip mothers with adequate knowledge and practices regarding neonatal hypothermia, beginning immediately after birth.(15).

As previous studies of Kurunegala A large proportion of them (45.52%) were in the poor knowledge group and 42.27% of them were in very poor knowledge group on prevent hypothermia. The results showed clearly that mothers' knowledge of prevention of neonatal hypothermia was the most deficient knowledge field of mothers who lived in Kurunegala area (16).

Almost similar findings to the above were obtained in Pakistan study among postnatal mothers.

Chouduri (2009), noted that among 50 mothers 20% had good knowledge, 46% had average knowledge and 34% had poor knowledge regarding prevention of neonatal hypothermia. A similar study conducted in Srilanka on mothers' knowledge on thermoregulation of neonates showed that very few mothers 7% knew the normal body temperature of a neonate.

Nepal studies that awareness of the importance of thermal control and basic knowledge on thermal regulation and thermal protection were insufficient as 65% of them stated that neonatal hypothermia can only be prevented by incubating the baby in prenatal warmers and not by skin to skin care (Basavanthappa, 2010).

Study in India by Dutta, (2008),73% of mothers know the signs of hypothermia . In the African study conducted in Lufwanyama, Zambia showed that there was a general awareness among mothers that exposure to cold places newborns at risk for adverse morbidity and mortality but however, 70% of the mothers never adhered to the recommended thermo protective measures for neonates.

Previous study (2018) In Ethiopia lack of adequate prenatal care is one of the factors for onset of hypothermia, there is a high prevalence of home delivery which accounts 73% and Institutional deliveries accounts only 26%. Low socio-economic status, poor kangaroo mother care practice, low birth weight, bathing of a newborn within 24 h, delayed initiation of breastfeeding, a

traditional practice of oil massage of Neonates and inadequate knowledge of thermal care among maternal care determinant factors for hypothermia.

6.1. Strength and limitation

6.1.1. Strength of the study-

The strength of this study is that, it focuses on neglected area where limited studies were conducted

6.1.2. Limitation of the study

- Being cross sectional study ,its cause and effect is unknown
- Respondent social desirability bias

6.2. Conclusion and Recommendation

The finding of this study indicated that majority 207(84.1% of respondents had low knowledge on neonatal hypothermia. Therefore healthcare providers (HCPs) have to equip mothers with adequate knowledge and practices regarding neonatal hypothermia cause, prevention and sign and symptoms.

Commented [WU3]: Please add your for the stakeholders recommendations

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2. Alebachew Bayih W, Assefa N, Dheresa M, Minuye B, Demis S. Neonatal hypothermia and associated factors within six hours of delivery in eastern part of Ethiopia: a cross-sectional study. *BMC Pediatr*. 2019 Jul 24;19(1):252. doi: 10.1186/s12887-019-1632-2. PMID: 31340772; PMCID: PMC6651976.
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5. The magnitude of Neonatal hypothermia was 61.5 %. Age < 24 h, delayed initiation of breast feeding within one hour of birth, no skin to skin contact with mother ...
Missing: ~~hypothermia~~ They should include: hypothermia
6. July 2022 — Objective To assess mothers ' knowledge and practice of neonatal hypothermia at a selected provincial hospital in Rwanda.
7. Article in International Journal of Pediatrics, published September 2020
Yibeltal Asmamaw Yitayew, Endashaw Belayhun Aitaye, Helina Wondimu Lechissa, Lubaba Oumer Gebeyehu
8. STATEMENT OF THE PROBLEM. Neonatal hypothermia is a worldwide problem especially it is a major contributor cause of significant morbidity and mortality ...
9. Northwest Ethiopia: a hospital based cross sectional study." General Medicine: Open Access 2015 (2015)
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18. Prevalence of neonatal hypothermia and its associated factors in East Africa: a systematic review and meta-analysis
19. Conceptual framework of the Study. Specifically, it presents the existing literature about mother's "knowledge and practice regarding neonatal hypothermia.
20. Based on this frame work this study conceptualizes neonatal hypothermia as the result of interaction between various factors, some of which are directly related.

8.ANNEXES

ANNEX 1. CONSENT FORM

Greetings!

Dear respondents our name are _____. We are a post graduate student at St. Paulo's millennium medical college department of neonatal nurses. We are conducting a research to assess the maternal knowledge, and associated factor of neonatal hypothermia in postnatal ward of saint. Paul's Millennium Medical college Hospital. We would like to ask you some questions about maternal knowledge, and associated factor of neonatal hypothermia in postnatal ward at Saint Paul's hospital, Addis Ababa, Ethiopia, 2022. Please be assured that the information will be confidential and your name does not need to written in any page of the questionnaires, and you may choose to stop your participation at any time.

Refrain from any question. Only the researcher had the information and uses it for the study purpose only you have a full right not to participate in this study. Are you willing to participate?

Yes ----- No-----

Data collectors' name_____

Signature_____ Date_____

ANNEX I QUESTIONNAIRE

Part 1: demographic data of the respondents

Write in the blank space

S.No	Variables	Responses	Skip pattern
1	Age	_____ years	
2	Place of residence	1. Addis Ababa 2. Outside Addis Ababa and Urban 3. Outside Addis Ababa and rural	
3	Highest level of education completed	1. No formal education 2. Primary (grade 1-8) 3. Secondary (grade 9-12) 4. Diploma (12+3) 5. Degree 6. Masters and above	
4	Marital status	1. Single 2. Married (living together) 3. Divorced 4. widowed	
5	Average monthly income	_____ Birr	
6	Maternal occupation	1. farmer 2. government employed 3. self employed 4. Housewife 5. Not employed	
7	Religion	1. Orthodox Christian 2. Islam 3. Protestant 4. Catholic 5. Other, specify_____	
Part II: ANC and birth outcome			
8	Number of ANC follow up during pregnancy with _____ (baby name)	_____ times I don't remember	
9	Age of the baby	_____ days (if less than 7 day) or _____ weeks (if 7 day or older)	
10	Birth weight	_____ gram OR _____ Kg	

11	Sex of the baby	1. Female 2. Male	
12	Place of delivery	1. Institutional 2. home	
13	Place of delivery	3. Institutional 4. home	
Part III: Obstetric history			
14	Mode of delivery	1. SVD 2. C/S	
15	Party	3. Para I 4. Part II 5. Para III 6. Para IV and above	
16	Gravidity	1. Gravida I 2. Gravida II 3. Gravida III 4. Gravida IV and above	
17	History prolonged labour	1. Yes 2. No	
18	History of antenatal bleeding	1. Yes 2. No	
19	History of postnatal bleeding	1. Yes 2. No	
20	Was the last pregnancy complicated by antenatal bleeding	1. Yes 2. No	
	Was there postnatal bleeding when giving birth this baby	1. Yes 2. No	
Part IV: Neonatal complication			
21	Admitted to NICU	1. Yes 2. No	
22	Low Birth Weight	1. Yes 2. No	
23	Small GA	1. Yes 2. No	
23	Preterm	1. Yes 2. No	
24	IUGR	1. Yes 2. No	
Part V: Maternal Knowledge assessment			
25	Received information on neonatal hypothermia	1. Yes 2. No	
26	Source of information on neonatal hypothermia	1. Parent 2. Nurse or midwives	
27	Causes of hypothermia in new-born		
27a	Washing the baby immediately after birth	1. Yes	

		0. No	
27b	Covering the baby with a cold towel	1. Yes 0. No	
27c	Lying the baby in a cold area	1. Yes 0. No	
27d	Lying the baby alone	1. Yes 0. No	
28	Signs and symptoms		
28a	Cyanosis and cold extremities	1. Yes 0. No	
28b	Cyanosis and cold extremities	1. Yes 0. No	
28c	Lethargy	1. Yes 0. No	
29	Complications		
29a	Dyspnea	1. Yes 0. No	
29b	Hypoglycemia	1. Yes 0. No	
29c	Decrease in weight	1. Yes 0. No	
29d	Death	1. Yes 0. No	
30	Prevention		
30a	No bathing immediately after birth	1. Yes 0. No	
30b	Dry baby after bathing and wrap in warm clothe	1. Yes 0. No	
30c	Skin-to-skin contact	1. Yes 0. No	
30d	Early initiation of breastfeeding within the first 4 hours	1. Yes 0. No	

ANNEX III Associated Factor Of Neonatal Hypothermia

The undersigned agrees to accept responsibility for the scientific, ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Research or /and Department of neonatal nurses of St Paul's Hospital Millennium Medical College.

Name of Student _____ Date _____ Signature _____

Name of student _____ Date _____ Signature _____

Name of student _____ Date _____ Signature _____

Name of student _____ Date _____ Signature _____

APPROVAL OF ADVISOR

Name of the adviser: HANNA ABERA.....