ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF ALLIED HEALTH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF LEVEL OF STRESS AND ITS ASSOCIATED FACTORS AMONG POST NATAL MOTHERS WHOSE NEONATES ADMITTED TO NICU, PUBLIC HOSPITALS IN ADDIS ABABA, ETHIOPIA, 2016.

BY DEREJE BIKILA (BSc)

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, SCHOOL OF ALLIED HEALTH SCIENCES, DEPARTMENT OF NURSING AND MIDWIFERY FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR DEGREE OF MASTERS IN CHILD HEALTH NURSING.

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BY DEREJE BIKILA (BSc)

Email: bikiladereje@yahoo.com

ADVISOR: BIRHANE G/KIDAN (ASSISSTANT PROFESSOR)

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APPROVAL BY THE BOARD OF EXAMINATION

THIS THESIS BY DEREJE BIKILA (BSC) IS ACCEPTED IN ITS PRESENT FORM BY BOARD OF EXAMINERS AS SATISFYING THESIS REQUIREMENT FOR THE DEGREE OF MASTERS IN CHILD HEALTH NURSING.

INTERNAL EXAMINER:

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FULL NAME	RANK	SIGNATURE	DATE

RESEARCH ADVISOR/SUPERVISOR

BIRHANE G/KIDAN	ASSISTANT PROFESSOR	______________	__________
FULL NAME	RANK	SIGNATURE	DATE

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Table of contents

Table of Contents Page

Acknowledgment ii

Table of contents iii

List of tables v

List of figures vi

Acronyms and Abbreviations vii

Abstract viii

Background viii

Introduction 1

1.1. Background 1

1.2. Statement of the problem 3

1.3. Significance of the study 4

2. Literature Review 5

2.2. Socio demographic factors 5

2.3. Parental role and relationship factors 6

2.4. Physical facilities and sound 7

2.5. Physiological (baby looks and behaves) 8

2.6. Staff relation & communication 8

3. Objective of the study 11

3.1. General objective 11

3.2. Specific objectives 11

4. Methodology 12

4. 1.Study Area and Period 12

4.2. Study Design 13
4.3. Source population.. 13
4.4. Study population 13
4.5. Study unit 13
4.6. Inclusion and exclusion criteria.. 13
4.7. Sample size calculation 13
4.8. Sampling technique 14
4.9. Variables of the study.. 16
4.10. Data collection tool and Process 17
4.11. Data Quality Assurance.. 18
4.12. Data Processing and Analysis 18
4.13. Operational Definitions 19
4.14. Ethical consideration 20
4.15. Dissemination of the result.. 20
5. Result 21
6. Discussion 33
7. Strength and limitation of the study 36
8. Conclusion and recommendation 36
7. Reference 38
8. Annexes.. 42
Annex I Information Sheet and Consent Form: English Version 42
Annex II .Information Sheet and Consent Form: Amharic Version 44
Annex III Questionnaire (English version) 46
Annex IV Questionnaire (Amharic version) 53

List of tables

Contents page

Table 1: Socio demographic frequencies and percentages distribution of postnatal mothers whose neonate admitted to NICU of TASH, Gandi Memorial and Yekatit 12 hospital in AA, 2016(n=309) 22

Table 2:Frequency and percentage distribution of mothers' stress level with physical facilities in neonatal care unit, postnatal mothers whose neonates admitted to NICU of TASH, Gandi memorial and Yekatit 12 hospitals, Addis Ababa, Ethiopia, 2016(n=309). 27

Table 3: Frequency and percentage distribution of mothers' stress level with physiological domain while in the NICU, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.(n=309). 28

Table 4:Frequency and percentage distribution of mothers' stress level with parental role and relationship with baby, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.(n=309) 29

Table 5: Frequency and percentage distribution of mothers' stress level related to staff relation and communication, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016(n=309). 30

Table 6: Multivariate analysis of selected socio-demographic variables and associated factors of whose neonate admitted to NICU of TASH, Gandi Memorial and Yekatit 12 hospitals, Addis Ababa, 2016 32

List of figures

Content page

Figure 1: Conceptual frame work to assess level of stress and its associated factors among mothers' of neonate admitted to NICU developed by the principal investigator by reviewing different literatures(23,24,32,34,38). 10

Figure 2: the schematic presentation of sampling procedure to select study participants from 15

Figure 3: Pie chart showing educational level of mothers 23

Figure 4: Bar chart showing numbers of mothers' children 24

Figure 5: level of stress among postnatal mothers whose neonate admitted to NICU of TASH, Gandi memorial and yekatit 12 hospital, 2016. 25

Figure 6: Bar chart showing percentage distribution of mothers according to area wise stress level. 26

Acronyms and Abbreviations

AAP-American Academy of Pediatrics

AAU-Addis Ababa University

GA-Gestational Age

HCPS-Health Care Providers

IV-Intravenous

NICU-Neonatal intensive care unit

PICUS-Pediatric Intensive Care Units

PSS-Parental Stress Scale

SPSS- Statistical Package for Social Sciences

TASH-Tikur Anbessa Specialized Hospital

USA-United states of America

VLBW-Very Low Birth Weight

Abstract

Background

Stress is the tension producing factors that have the potential of weakening the normal lines of defense, which is divided into physical, physiological, emotional, cognitive, psychological and parental, economical domains. Neonatal intensive care services are specialized services provided to the sick or premature newborns in a Neonatal Intensive Care Unit. Parents of neonate admitted to neonatal intensive care face difficulty of tolerating the new environment. After neonate admitted to NICU the role of parent is restricted to certain extent and the overall care may be provided by health professionals which may made mothers' stressful. Mothers of physically challenged children admitted to NICU had 95% moderate stress and 5 % sever stress level. As noise in the NICU elevated 22.9% mothers leave the neonatal care which made mothers' in difficulty to keep attention to neonate and interact with health care providers.

Few research has been done to explore the level of stress and its associated factors in developing countries. Assessing level of stress and its associated factors may play great role to provide adequate family centered care in NICU and also proof quality of care.

Objective:

- To assess level of stress and its associated factors among mothers' of neonate admitted to NICU in TASH, Gandi memorial and Yekatit 12 hospitals, Addis Ababa, Ethiopia, 2016.

Methodology:

Institution based quantitative cross sectional study was conducted from March, 2016 to April, 2016. Three hospitals were selected randomly by lottery method from 6 public hospitals having NICU and 316 eligible mothers were selected by using systematic random sampling method.

Mothers were be proportionally allocated to size from each selected hospital. Data was collected through pretested standardized questionnaire by interviewing mothers. Both descriptive and inferential statistics was used to present the data. Bivariate and multivariate logistic regression was computed to assess statistical association between the outcome variable and independent variables using odds ratio. The result was then displayed by using text, graphs and tables.

Result: Present study showed that 74 (23.9%) mothers had severe stress, 154(49.5%) of mothers had moderate stress and remaining 81(26.6%) of mothers were with low stress level. Mothers were highly stressful in the area of material and equipment in NICU with mean score of 4.013, SD=0.7, which was followed by alteration of parental role (mean score =3.7, SD, 0.98 and staff

communication (Mean score, 3.7 and SD=074) respectively. Multi logistic regression showed that hospital stay with 7-10 days with AOR =(95%CI(2(1.07,5.03), presence of large number of professionals in the NICU with AOR=(95% CI(4(1.581,8.856), feeling of helpless to protect baby from painful procedures with AOR=(95% CI(4(1.88,9.35) and acting of staff as they couldn't understand the special need of baby with AOR=(95% CI(3(1.204,6.901), were the identified associated factors that made mothers in stressful condition in NICU.

Conclusion and recommendation

The current study showed that the mothers admitted their neonates in NICU had more stressed in the area of physical facilities with (mean score 4.013), which was followed by communication with staff with (mean score 3.7), Parental role and relationship role related stress with (mean score 3.7) and sight and sound stress related with (mean score 3.43). Therefore government, health administrators and concerned stakeholders should make an effort to initiate family centered care in order to decrease mother's stress during their visit in NICU.
Key words: Intensive care unit, mothers, stress, factors.

Introduction

1.1. Background

The newborn is a critical bridge between mother and child care and central to the paradigm of the continuum of care linking mother, child, and newborn care. The newborn intensive care unit (NICU) provides care to premature babies and other critically ill infant's. It enable to save the lives' of many premature or desperately ill newborns that in the past would have died soon after birth. Since its birth in the 1950s and 1960s, the history of neonatal intensive care has been remarkable. It has grown from a new field with limited resources and limited capabilities into a comprehensive, technologically advanced discipline able to address a wide range of newborn illnesses, and this growth has contributed to a rapid decline in neonatal mortality. American Hospital Association Annual Survey indicated that the total number of NICU beds in USA in 1998, 2001, and 2004 were 13,825, 14,997, and 17,109 respectively(1).

The levels of neonatal care and maternal care is based on the current American Academy of Pediatrics (AAP) standards. Preterm births have increased nationally 13% from 1990 to 2010 (from 10.6% to 12.0%), with the majority occurring in the late preterm gestational age (34-36 weeks). Very Low Birth Weight (VLBW) infants (less than 1500g or less than 32 weeks gestation) seem to have improved outcomes when delivered at the appropriate highest level facilities. There are concerns about the proliferation of NICU's not matched to population needs and failure of states to reach the Healthy People 2010 goal that 90% of VLBW deliver at level III facilities. Currently, in the world the average of VLBW infants being delivered in a level III (highest level) NICU (Pre-2012 Standards) is 74%(2).

Each year 15 million babies are born preterm and their survival chances vary dramatically around the world. For the 1.2 million babies born in high income countries, increasing complexity of neonatal intensive care the last quarter of the 20th century has changed the chances of survival at lower gestational ages. Middle-income and emerging economies have around 3.8 million preterm babies each year. South Asia and sub-Saharan Africa account for almost two-thirds of the world's preterm babies and over three quarters of the world's newborn deaths due to preterm birth complications. Worldwide, almost half of preterm babies are born at home, and even for those born in facilities, essential newborn care is often lacking(3).

The day of birth is the most dangerous day of all. Globally, in 2012, 2.9 million babies died within 28 days of being born: two out of every five child deaths. Of these, 1 million babies died within 24

hours, their first – and only – day of life, the identified causes of these deaths were premature birth, complications during birth and infections which is heart breaking and unacceptable by parents(4).

The environment of intensive care units may be seem stressful to non-medical person. There is large number of experts, different sounds, physiological changes occur on the baby, relationship with new staff and communication, alteration of parental role, types of care provided to new born made parent unclear about the health of their child. Giving psychosocial support to families whose neonates are admitted in the neonatal intensive care unit can advance parents' functioning as well as their relationships with their babies. Few neonatal intensive care units offer staff education that teaches optimal methods of communication with parents in distress. Support of families whose neonates admitted in NICU is equal in importance to provide medical care and developmental support to the baby(5,6).

Parental stress comes from participations when neonates admitted in NICU is difficult to tolerate. Birth of premature or sick infant is highly stressful for mothers which may cause worry and unhappiness. Families stress, anxiety, depression will change parental role and parent-infant communication(7).

Childbirth and the first week of a baby's life are the time of highest and greatest risk for mothers and children. In Ethiopia about 71% of neonatal deaths occur within the first week after birth and, the cumulative death rate reached 79 % in the second week. The risk of neonatal dying is lower for mothers' attend antenatal care and give birth in health institution having services of neonatal care units(8).

According to one report by Neonatologist head of Yekatit 12, regarding neonatal status majority of hospitals found in Ethiopia have Neonatal intensive care unit. At the present Ethiopia have 27 governmental & 4 private NICU and most of neonatal intensive care unit and pediatric department are separated. These hospitals have nurses working at NICU in which majority of nurses working in NICU hospitals have special training and others have no training on neonatal intensive care unit(9).

1.2. Statement of the problem

Stress is the tension producing factors that have the potential of weakening the normal lines of defense, which is divided into physical, physiological, emotional, cognitive, psychological and parental, economical domains. Period after delivery is a period of increased emotional vulnerability for many women. Immaturity, illness and concern about medical outcomes, made mothers to experience depression, anxiety, stress, and loss of control, and worried due lack of involvement in care(10,11).

Stress affect all population of the world. In America the majority of Americans are living with moderate (4 – 7 on a scale of 1 to 10, to little or no stress to higher stress level. Though they report similar average stress levels, women are more likely than men to report that their stress levels are on the growth and they are more likely to report physical and emotional symptoms of stress than men, such as having had a headache (41 percent vs. 30 percent), having felt as though they could cry (44 percent vs. 15 percent) (12).

In USA the lack of parental role in neonatal intensive care unit leads mothers to stress (52%) and depressive symptoms (38%) and in India among mothers of neonates admitted to hospital 70 % had moderate stress and 30% sever stress (11,12).

The birth of neonate with critical disease makes unexpected crises and stressful situation for mothers and alter parental involvement in care. Unpublished study done in Ethiopia at Black Lion specialized hospital on parents 'involvement in decision making about their neonate in NICU indicated that 70% of parents have no participation during decision making and 83.1% decision making was covered by health care providers(13).

Reducing supporting mothers in neonatal intensive care unit is significantly associated with increased level of stress, anger, fatigue, anxiety, depression and sleep disturbances(7,14).

Neonatal care units are often noisy, bright, and hot. They can be overcrowded and parts of every unit will be "high technology. The sickest preterm infants may be in hospital for many months, and visiting can be difficult, exhausting, and a financial drain for parents .Professionals can reduce stress of parents by helping parents to visit their neonate's frequently, breastfeed, hold their infants, and ask questions concerning their neonates. Involving family cantered care which may help to improve satisfaction with care, decreased parental stress, allowing parents to stay with their babies, improve mother comfort is essential(15,16).

Hence, the present study will identify level of stress and associated factors among mothers of neonates admitted to NICU hospitals in AA which may contribute to improving nurses' support for mothers.

1.3. Significance of the study

Separating a mother and her newborn during the 1st week of the child's life involves much emotional strain for the mother, even though the newborn is not seriously ill. The result of this study will be useful in helping the health professionals and pediatric unit to deliver adequate family centered care to reduce maternal stress and associated factors when their children admitted to neonatal intensive care unit.

The study also enables mothers to receive information about transition to home from the NICU and will be, understand information concerning their baby's care during their stay in the NICU, talk as much as they want with nurses and physicians during babies in hospital, to understand factors that causes stress and interfere with parental role activities, and facilitate condition to get adequate information about new technologies in the NICU, meaning of alarm that can exacerbate level of stress at admission.

The study will be aimed at assessing level of stress and its associated factors among mothers of neonates admitted to NICU. Since it is new in our country it will serve as base line for those who wish to conduct study on this area. We also believe that the results of this finding will help policy makers, researchers, planners and for making consideration regarding stress and its associated factors in the neonatal care unit. The mothers of all new born admitted to NICU will be beneficiary of education that will be based on findings. Planning to reduce the impact of stress can improve the quality of nursing services in intensive care units and, thus, decrease the adverse effects of stress on workers and parents.

2. Literature Review

stress is regarded as a relational concept, i.e., stress is not defined as a specific kind of external stimulation nor a specific pattern of physiological, behavioral, or subjective reactions. Instead, stress is viewed as a relationship between individuals and their environment (16). Parental stress start as their neonate admitted to NICU which may create problems in the parent child relationship and may lead to difficulty in parenting. The NICU staff in a position may help to minimize parental stress by providing information, support.

Research study conducted in ,Boston, MA, USA at stress level and depressive symptoms in NICU mothers in the early postpartum period showed that lack of parental role leads to experienced increased stress (52%) and had also significant depressive symptom (38%)(17).

A cross –sectional comparative study conducted in Atlanta, USA on depressive symptoms and the relationship of stress, sleep, and well-being among NICU mothers revealed that when mothers of infants in the NICU experienced higher depressive symptoms, they also developed grater stress and experienced lesser sleep which may affect mother's ability to learn and care for a child in the NICU(18).

Non - experimental descriptive design conducted to assess the stress and coping Strategies among mothers of physically Challenged Children in an Integrated School at Mangalore, India revealed that stress among mothers of physically challenged children majority (95%) of the mothers had moderate stress and 5% of them had severe stress(19).

The level of stress among mothers' of neonate admitted to intensive care may varied. Finding from India to assess level of stress in NICU showed that 28(70%) had moderate stress, 12(30%) of mothers was having sever stress and no mothers with mild stress. Another study from same country on stress and coping among mothers of cerebral palsy clients revealed that 120(80%) mothers were with moderate level of stress,30(20%) were with severe stress (11,20).

2.2. Socio demographic factors

The birth of a premature baby is a stressful events for parents. Study on stress in parents of VLBW preterm infants hospitalized in neonatal intensive care unit in South American Neonatal Network identified factors that caused stress of parents as education less than 8 years, unemployment, not having held the newborn infant, and respiratory support requirement were associated with higher parental stress levels has higher stress levels and unemployed parents or housewives were associated with a higher stress level ($p= 0.024$)(21).

Pediatric intensive care units (PICUs) are highly technological settings in which advanced care is used to restore health to critically ill children; however, they are also places where neonates have greatest risk of dying. A comparative study conducted among pediatric departments in four public hospitals of a large Italian town showed that caregivers of hospitalized children perceived high levels of stress , anxiety and perception of stress was influenced by length of hospitalization and participation of families in services given to children(22).

Unplanned hospitalization of chronically ill children is painful to parents. A descriptive study conducted on stress and coping among mothers of cerebral palsy clients in India showed that age of the child, occupation of mothers and income affected the level of stress in the neonatal care unit. And study in the same country to assess level of stress among 40 parents in neonatal care unit showed that 15% of mother loss their income due to child admitted to neonatal care unit(11,20).

A Double-Blind Randomized Controlled Trial to study The Effect of the Educational Program on Iranian Premature Infants' Parental Stress in a Neonatal Intensive Care Unit showed that parents' educational program can reduce level of stress and they can spend their energy to support and care for their baby(23).

2.3. Parental role and relationship factors

After neonate admitted to NICU the role of parent is restricted to certain extent and the overall care may be provided by health professionals which may made mothers' stressful.

A Survey from Picker Institute Europe to assess Parents' experiences of neonatal care unit stated that where admission of a baby to a neonatal unit was decided, 41% of parents were given the chance to visit the neonatal unit and 81% said that their partner is not allowed to stay with them.(24)

Unexpected admission of the new born to neonatal intensive care unit causes parents and family members in stressful. A comparative study in two hospitals of Ostrava on the needs of mothers to newborns hospitalized in intensive care units indicated that higher level of stress were in the area of parental role and relationship with child 107(72.8%). (25)

Study from India to assess level of stress and coping Strategies seen among 40 parents of neonates admitted to NICU showed that 42% of mothers' felt lonely and helpless to help their child , 35%of mother asked to participate in care of their baby and 22.50% of mother have been explained about condition in language to understand (11).

Mothers always need to take care of neonate after delivery. In NICU the care of infants is highly covered by nurses. Parents thought as they cannot do anything if not involved in the care of their

neonate. Study conducted in Iran on maternal stressor agents showed that parent felt helpless to protect the infant from pain and painful procedures (60.7%) as major source of stress(26).

2.4. Physical facilities and sound

Sensory overload occurs when one or more of the body's senses experiences over-stimulation from the environment. There are many environmental elements that impact an individual. Among this overcrowding, noise, technology, can cause stress in NICU. One survey from Picker Institute Europe to assess Parents' experiences of neonatal care identified that 43% parents were not given enough information and 46% were not clearly told about the purpose of the machines, monitors and alarms used in the unit which were major sources of stress(24).

New born and mothers in the neonatal intensive care unit are subjected to stress, including high intensity sound. Study done in Ostrava on the needs of mothers to newborns hospitalized in intensive care unit showed that visual stimuli and sounds were the most stressful causing factors of which materials around the infants caused medium level of stress 40(27.2%)(25).

Study from Spain on characterization of noise level in NICU stated as noise level was major stressful in the unit. Another cross sectional study conducted in Iran on effects of stress on mothers of hospitalized children in a hospital identified as noise pollution (44%) was the identified cause of high stress(27,28).

A cross sectional study from Brazil on effect of noise in the NICU showed that whenever elevated noise 77% mothers stayed in the environment and 22.9% leave the neonatal care, leaving child alone and the effect of noise made mothers' in difficulty to keep attention and interact with health care professionals which may lead to stress(29).

The sound environment in the NICU is louder than most home or office environment. It contains disturbing noises at different irregular intervals. Study done in Iran on maternal stressor agents showed that sound of machine in the neonatal care unit (25.7%) and breathing apparatus of infant (37.9%) were the major stressful agents to mothers(26).

A cross-sectional study done in Iran showed that fear of disease in the other sibling (84%), unpleasant odors in the ward (56%), were the identified causes of stress in the neonatal care unit. Another study in the same country on effects of stress on mothers of hospitalized children in a hospital also showed that fear of other children having the same disease (84%), failure to provide

comfort to other children due to child illness (82.7%) and problems related to drug availability (59.6%) were the leading factors of stress to mothers(27).

A lot of factors can lead mothers in NICU to stress. Study conducted in Nnamdi Azikiwe University, Nnewi Campus, Nigeria, to determine Correlates of the stress experienced by parents to the neonatal intensive care unit (NICU) environment identified that sight and sounds were major causative factors of stress to mothers(30).

2.5. Physiological (baby looks and behaves)

Parents experienced “a little” to a moderate degree of stress regarding how their baby looks and behaves. Mothers of babies born with low gestational age have high level of stress than those of term babies. Study conducted in New York on Parental stress in the NICU, influence of parent and infant characteristics showed that parents of infants less than 28 weeks of GA get significantly higher stress occurrence score than parents whose infants who were in the 28–36-week range(31).

Study done at Abington Memorial hospital, USA to evaluate the internal and external stressors related to the NICU stated that parents observing their baby in distress or appearing significantly ill, seeing their baby stop breathing and being discharged from the hospital before their baby improved were the major causes of highest stress score(32).

Study done in two Hospitals of Ostrava on needs of mothers to hospitalized newborn showed that behavior of neonates, appearance and medical treatment which were 61(41.5%) , another study from Iran on maternal stressor agent showed that behavior of infant(70.7%),sudden skin discoloration of infant(55%) as stressor to mothers and finding from Nigeria identified mean of PSS for infant behavior and appearance were major causes of stress to mothers in neonatal care unit (25,26,30).

2.6. Staff relation & communication

Staff communication and relationship is very important for parents’ of neonate in NICU. One survey from Picker Institute Europe indicated that as 36% staff discussed with mothers’ expectation after birth, 22% of them said that a member of staff did not talk to them, only 40% got enough written information, 27% did not get any written information to help them understand their baby’s condition and treatment and only 55% included by staff in discussions about their baby’s care, while 37% were not allowed to discuss about the condition of neonates(24).

Neonatal intensive care unit environments may pose many challenges to open visitation. Study done in Wayne State University, USA on Family-Centered Care in the Pediatric Intensive Care Unit stated

that families of critically ill child desired information, assurance from staff, and proximity to their loved one and alteration of parental role was identified as the greatest source of stress among parents in neonatal intensive care unit(12).

Study from Italy on Environmental factors associated with stress stated that explanation to mother about infants' condition, creating opportunity to discuss the infant's clinical state with health professionals will reduce stress level and providing chance to see and touch their infants', teach them how to massage their infants could reduce feelings of helplessness(23).

A survey assessment done in Sweden to identify strengths and weaknesses of parent–staff communication in the NICU between doctors and nurses showed that parents felt something was lacking in communication with nurses (27.2%) and doctors (21.2%) and another study from Ostrava hospital also showed that personnel and communication behavior lack of informing about any changes related to child health, of the staff also cause medium stress to parents 30(20%)(25,33).

Study conducted in Helsinki on Parents of preterm-born children; sources of stress and worry and experiences with an early intervention programme showed that getting intervention,advce,guidance and emotional support in the NICU staff made them felt less stress and more confident than parents' without information and support(34).

A cross sectional study conducted in Saudi Arabia on perception of nursing support in NICU experience showed that many of parent did not able to obtain adequate information easily from the unit ; information delivered was difficult to understand and a reduction in support by nurse increased level stress and anxiety level(35).

Descriptive correlative survey design conducted in India on maternal anxiety and family support among mothers of neonates admitted in neonatal intensive care unit showed that increased family support will decrease stress level of mothers and 95% mothers expressed their need for support and 85% of them were supported by their close families(36).

Lack of family centered care is the major cause of stress in the neonatal care unit. Study from Iran on mothers of hospitalized children showed that, Lack of adequate explanation about inserting IV lines (54.2%), inadequate explanation about the illness (53.8 %) and inadequate explanation about lab results and diagnostic procedures by physicians (47.6%) were common identified sources of stress in neonatal care unit(27).

2.7. Conceptual frame work of the study

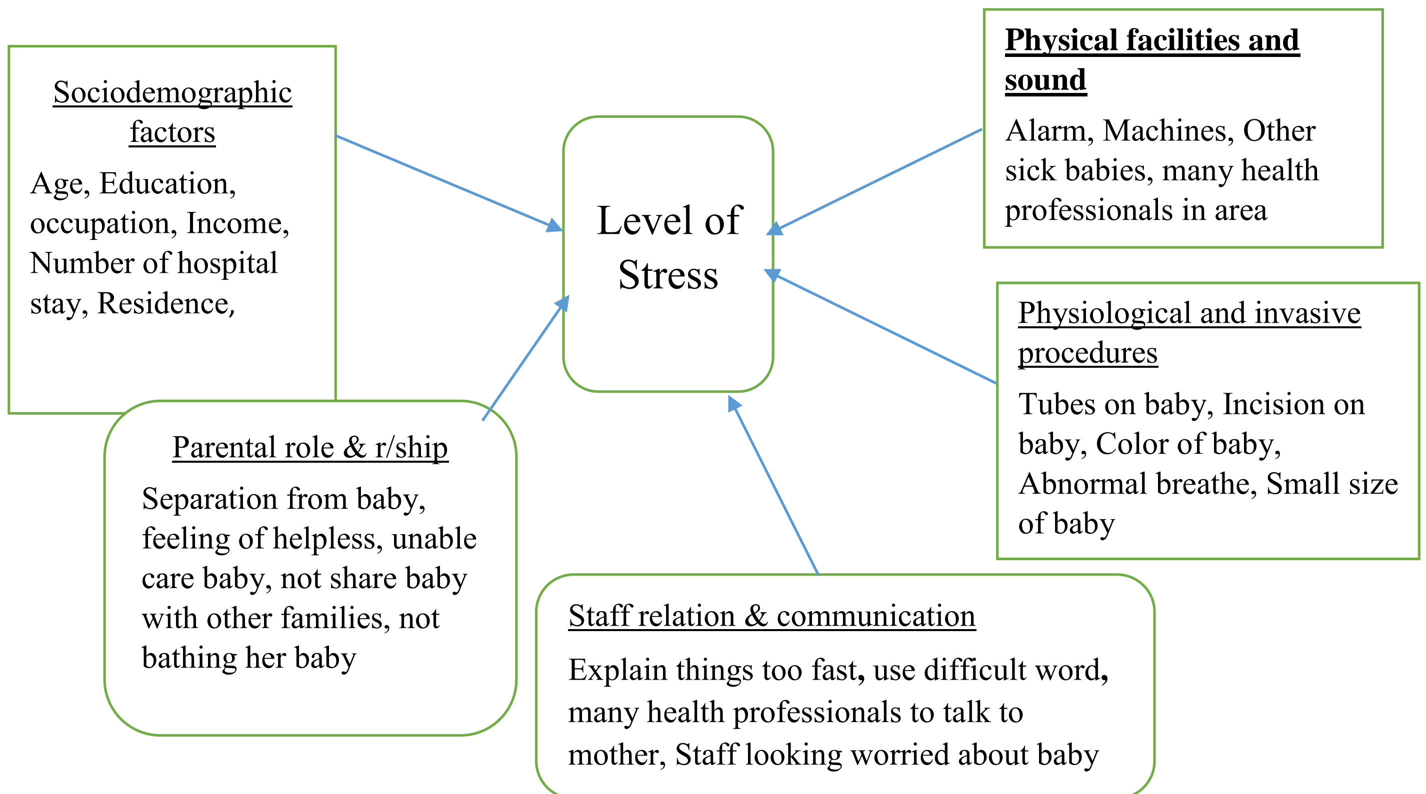

Figure 1: Conceptual frame work to assess level of stress and its associated factors among mothers' of neonate admitted to NICU developed by the principal investigator by reviewing different literatures(22,23,31,33,37).

3. Objective of the study

3.1. General objective

To assess Level of Stress and its associated factors among postnatal mothers of neonates admitted to NICU public Hospitals in Addis Ababa, Ethiopia from March, 2016 to April, 2016.

3.2. Specific objectives

- To determine the level of stress among mothers' of neonates admitted to neonatal intensive care unit of public hospital , Addis Ababa, Ethiopia
- To identify factors associated with stress among postnatal mothers of neonates admitted to neonatal intensive care unit of public hospital, Addis Ababa, Ethiopia.

4. Methodology

4. 1.Study Area and Period

The study was conducted in Addis Ababa. Addis Ababa is the capital city of Ethiopia and Seat of African Union and the United Nations World Economic Commission for Africa. It covers an area of 527 square kilometers and has 10 sub cities. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), Addis Ababa city has a total population of 3,384,569 (38). The city has 12 government hospitals among this only 6 hospitals have NICU.

The study was conducted in Black Lion, Yekatit 12 and Gandi Memorial hospital which was selected randomly by lottery method. Six hundred ten (610) mothers were admitted to NICU for the three hospital in one month which was obtained from the log book record to know the mothers flow to these hospitals; among which 189 are found in Black Lion, 221 in Gandi Memorial and 200 in Yekatit 12 hospital.

Black Lion hospital was established in 1966 and located in Lideta Sub City. Formerly it was called Princess Mekonnen for memory Harar, but in 1975 it is named as Black Lion hospital. It is the largest referral hospital in the nation at a tertiary level and its placement covers an area of 4500 meter square. According to human resource statics of hospital, it is currently it is under Addis Ababa University (AAU) as part of the center of teaching hospital. It has 543 beds and around 2000 patients admitted per month on average.

Gandhi memorial specialized hospital located at the center of Addis Ababa and founded in 1951 E.C on the 6225 m^2 land during the 21st coronation of Imperial Hailesilassie former Emperor of Ethiopia. Currently the hospital has around 248 total man powers who deliver service to the community according to statistics of human resource report. The composition contain 13 doctors, 136 diploma and degree nurses and 98 other health professionals and the rest administrative staff dedicated to providing health care services. The hospital have a total number of 128 bed categorized into four class based on case served as first class, second class ,class prenatal ward and emergency.

Yekatit 12 hospital was established in 1945 E.C. According to the report of statics of human resources of Yekatit 12, this hospital currently give services like Maternal Health service, Child Health services, Adolescent reproduction Health and the human resource of this hospitals are doctors 19 with specialty, GP 30, BSC nurse 162, diploma nurse 192 and certificate 13, academicians 12 and also other supportive staffs.The study period was from March, 2016 to April, 2016.

4.2. Study Design

An institutional based cross-sectional quantitative study design was used to assess level of stress and its associated factors among postnatal mothers whose neonates admitted to public hospitals having NICU in Addis Ababa, Ethiopia from March, 2016 to April, 2016.

4.3. Source population

The source population were all postnatal mothers whose neonates admitted to public hospital with NICU in Addis Ababa, Ethiopia.

4.4. Study population

All selected mothers' of neonate admitted to NICU in 3 public hospitals having NICU in Addis Ababa and those fulfilling inclusion criteria during data collection period.

4.5. Study unit

- Each mothers with neonate admitted to NICU.

4.6. Inclusion and exclusion criteria

Inclusion criteria

- All mothers with admitted child in NICU and who gave consent to be involved in the study during the study period
- Mothers' who were conscious and volunteer during data collection.
- Stayed in the hospital for at least 3 days

Exclusion criteria

- Very seriously ill, unconscious mothers who were admitted in obstetrics ward
- Mother having mental illness and cannot hear.

4.7. Sample size calculation

The sample size was determined by using a single population proportion formula and since I hadn't get published research done which was similar to my topic in the country during literature search, by considering the following assumptions: prevalence (p) level of stress 0.5 = standard normal distribution value at 95% confidence level of $Z\alpha/2$ = 1.96 and margin of error (d) = 5%.

$$n = \left(\frac{Z_{\alpha/2}}{d}\right)^2 P(1-P)$$

$$n = \frac{Z^2 X\ \alpha/2 X P(1-P)}{d^2}$$

n = $(1.96^2 X0.5X0.5)$ ∕(0.052) =384

Since the total number of mothers' is less than 10,000 sample size was adjusted using correction formula.

The total number of postnatal mothers flow to six hospital within one were 1140. (N).

$$nf = \frac{ni}{1+ni/N}$$

$$nf = \frac{384}{1+384/1140} = 287$$

=10 % contingency for non-response rate

nf=10%X287=316

Hence, the final sample size is=316

Where;

nf = the final sample size,

ni = initial sample size

N = number of postnatal mothers whose neonates admitted to NICU among hospitals having NICU in Addis Ababa public hospitals.

P = is estimated prevalence rate in percent

d = the margin of sampling error tolerated (5%).

Z_1 = the standard normal distribution at (1-x) % confidence level and α/2 is mostly 5% that is 95 % confidence interval.

4.8. Sampling technique

Three hospitals was selected randomly out of 6 public hospitals having NICU found in Addis Ababa region using lottery method. After that proportional allocation was done for three hospitals to collect the desired sample size among postnatal mothers' of neonate admitted to NICU. Then the study subjects from each hospital were selected using systematic random sampling method where every 2 parents/care givers was included in the study.

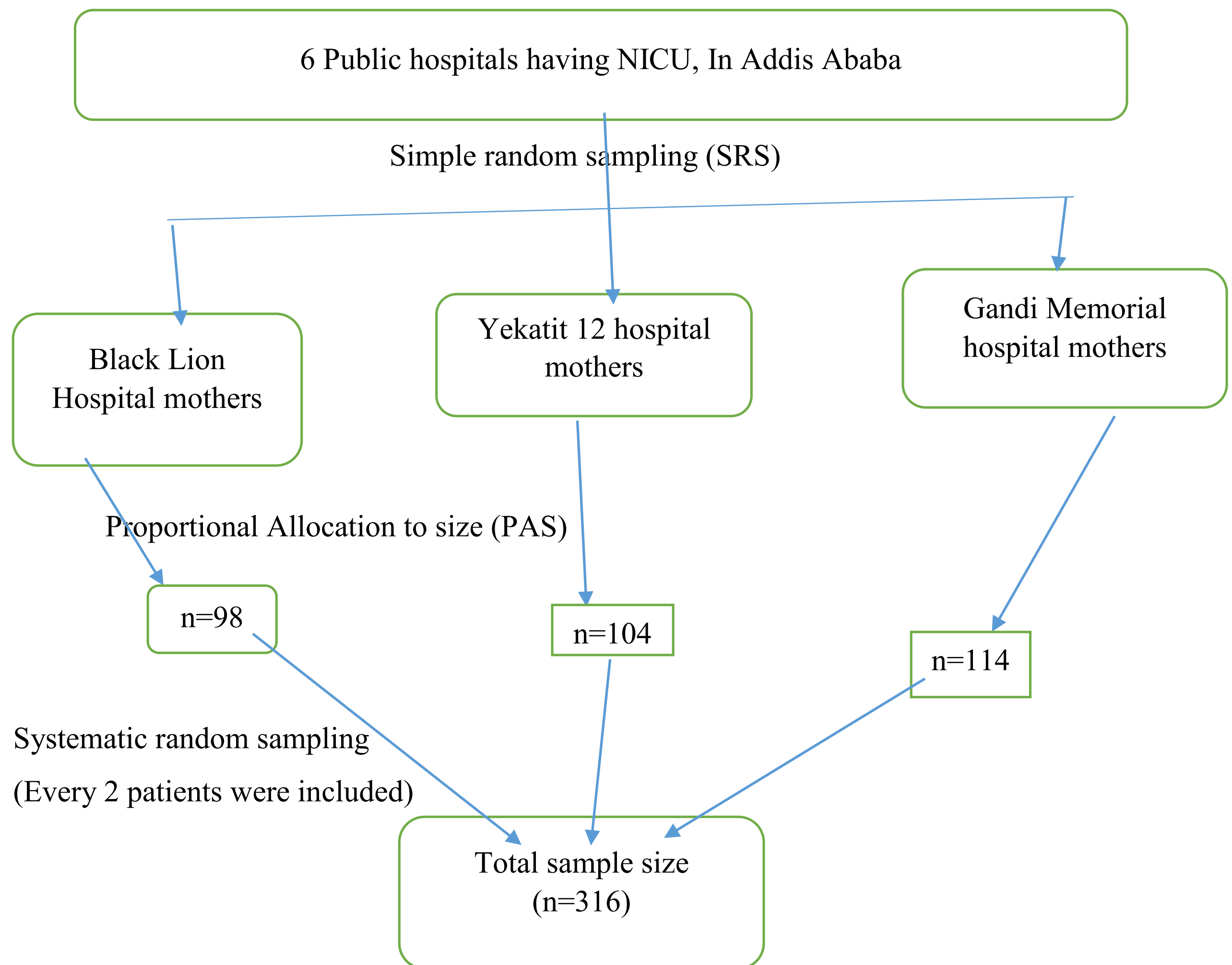

Figure 2: the schematic presentation of sampling procedure to select study participants from Selected hospitals Addis Ababa, 2016.

4.9. Variables of the study

Dependents variable

- Level of stress

Independent variables

- Socio-demographic factors(age, education, occupation, income)

Physical facilities and sound

- Alarm or machine
- Numbers of professionals in the room
- Other sick babies in the NICU room
- Noise(sound)

Parental role and relationship

- Separation from baby
- Unable to feed baby by self
- Feeling of helpless
- Not share baby with other families

Staff communication and relation related:

- Explain things too fast
- Not telling about treatment and test done.
- Not getting information
- Staff looking worried about my baby.

Physiologic domain and invasive procedure on baby

- Tubes on baby
- Incision on baby
- Color of baby, Abnormal breath/stop breathing

4.10. Data collection tool and Process

Data was collected using standardized questionnaires by interviewing mothers. The questionnaires has six parts, which is open to use and the author is acknowledged. The first part containing socio demographic information, the second part containing over all feeling of stress by mothers related to having neonates in NICU which contain 18 items. The general stress-level questions developed by Berry and Jones (1995) that summarizes the parents' overall feeling of stress related to having an infant in the NICU and describe feelings, perceptions about the experience of being parent and how mothers' relationship with her child or children typically is. It is a 5-point Likert scale ranging from 1 = strongly disagree, 2 = Disagree, 3 = Undecided, 4 = Agree and 5 = strongly agree(39).

Part 3,4,5 and 6 of questionnaires contained questions that were related to four subscales which consisted of five sub-scales that measure stress related to physical facilities (e.g. presence and noise of monitors and equipment, other sick babies, alarm noises, large number of staff), appearance and behavior of the infant (e.g. tubes and equipment on, in or near the infant, infant color, size, cry, movements, labored breathing), the impact on parents' role and their relationship with their baby (e.g. being separated from their infants, unable to feed and care for the infant, fear of touching or holding the baby, feeling helpless to help the infant), and the parents' relationship and communication with the staff (e.g. Staff explaining things too fast, not enough information, and staff looking worried about infant or not understanding) will be collected by using Parental Stressor Scale: Neonatal Intensive Unit (PSS-NICU) developed by Miles and Funk (1987) and designed to measure the parents perception of stressors within the NICU will be used by the researchers in this study(30).

The responses to the PSS: NICU was scored on a 5-point Likert scale ranging from 1point for "not at all stressful", 2 points for "mild stress", 3 points for "fairly moderate stress", and 4 points for "very stressful" and 5 points for "extreme/severe stress". Higher scores indicated more stress and lower score indicate low stress.

The questionnaire was translated into Amharic (national language) by language experts and back to English to check the exact fitness of two versions. Data was collected by interviewing the mothers' of neonate in NICU. 3 BSc Nurses was recruited to collect data who were working in other hospitals. Before data collection training and orientation about the purposes of the study was explained to data collectors for one day and the data collection process was supervised by the principal investigators.

4.11. Data Quality Assurance

In order to maintain quality of the data, data collectors and supervisors was trained on objective, consent, confidentiality, purposes and expected outcomes of the study and data collection procedures for one day. The questionnaire was also carefully designed and Amharic version was used for data collection. Before actual data collection time the questionnaire (tool) was checked for clarity, comprehensiveness and content validity by an expert as well as pretested for reliability on 5% of the total sample at Zawditu referral hospital 2 weeks prior to the data collection period, after which possible adjustment or modification was made on the tool. The collected data was then reviewed and checked for completeness and consistency by the principal investigator on a daily basis.

4.12. Data Processing and Analysis

Each completed questionnaire was coded. The data entry and clearance was performed by principal investigator using Epi data version 3.1. Then, the entered data was checked and exported to Statistical Package for Social Sciences (SPSS) version 22 for analysis. All variables were checked for missing value after export.

In order to assess overall level of stress by using PSS: NICU 18 items, question number 1, 2,5,6,7,8,17 and 18 were reversely coded. Finally, 18 items were computed and Inter-quarter range was used to determine level of stress.

In order to see association between the dependent and independent variables the five liker scale was reduced to two (dichotomous).Accordingly, in bivariate after 18 items were computed the mean was used in order to classify into two. Those who score above mean were categorized as stressful condition and those had below mean as no stress. Independent variables were classified into 3 for bivariate and multivariate analysis as low stress level for (no stress and little stress), moderate stress level for (moderately stressful), and sever or high stress level for (very stressful and extremely stressful). Independent variables which had a P –value of less than 0.2 in bivariate analysis were entered to multivariate analysis to get adjusted odd ratio. The strength of association was determined using crude odds ratio in the bivariate analysis and adjusted odds ratio in multivariate analysis.

The data was analyzed using descriptive statistics and presented with diagrams, tables and figures. Significant of statistical association was assured or tested using 95% confidence interval (CI) and p value (<0.05). Results was summarized in frequencies and percentages.

4.13. Operational Definitions

Neonate: Referred to the first month of life or the interval from the birth to 28 days of age who are admitted in NICU.

Neonatal Intensive Care Unit (NICU): an area that provides care to premature babies and other critically ill infant's.

Stress: Stress is the tension producing factors that have the potential of weakening the normal lines of defense, which is divided into physical, physiological, emotional, cognitive, and parental, economical domains which are commonly experienced by mothers of whose neonates have admitted in NICU (11).

In this study level of stress will be determined by using Parental stress scale. Parental stress scale: 18 – Item self-report scale – items represent positive (e.g. emotional benefits, personal development) and negative (demands on resources, restrictions) themes of parenthood and attempts to measure the levels of stress experienced by parents which was developed by Berry and Jones (1995)(39). Which can be described as follow.

Low level of stress: Individual who scores on the Parental stress scale of value less than the first inter-quarter range.

Moderate level of stress: mothers' who score on Parental stress scale between the first and third inter-quarter range.

High level of stress: mothers' who score on the parental stress scale value of greater than third inter-quarter range.

Physical facilities (noises): are different materials that are found in the NICU to provide care for sick neonates and that causes different noises or sound. (E.g. presence and noise of monitors and equipment, other sick babies, alarm noises, large number of staff).

Appearance and behavior of the infant: physiologic changes that occur on baby in the NICU and uses of different materials. (E.g. tubes and equipment on, in or near the infant, infant color, size, cry, movements, labored breathing).

Parents' role and their relationship: is relation of mothers and care with their baby (e.g. being separated from their infants, unable to feed and care for the infant, feeling helpless to help the infant).

Communication with the staff: exchanging idea between mothers of neonate and health professionals regarding care of neonate, NICU environment and treatment.

4.14. Ethical consideration

Ethical clearance was obtained from Addis Ababa University (AAU), College of Health Science, and Department of Nursing and Midwifery Institutional Review Board (IRB) research committee. After obtaining official letter from the department, a permission letter was provided to Black Lion, Yekatit 12 and Gandi memorial Hospitals directors and Addis Ababa Health Bureau before data collection.

The study participants was informed about the objective, purposes and expected outcomes of the study and written consent was obtained for guaranteeing their choice of participation or refusal. All the information was recorded anonymously and confidentiality was assured throughout the study.

4.15. Dissemination of the result

The final result of this paper will be presented and submitted to Addis Ababa University, College of Health Sciences, School of Allied Health, Department of Nursing and Midwifery, school of post graduate studies, Addis Ababa health Bureau and to administrative offices of the studied hospitals. Attempts will be made to publish in national and international peer-reviewed journals.

5. Result

5.1. Socio-Demographic Characteristics

Of 316 sampled postnatal mothers whose neonate admitted to NICU of TASH, Gandi memorial and Yekatit 12 hospitals, 309 mothers were participated in the study providing response rate of 97.8%. Mothers of neonate with congenital anomalies 7(2.2%) refused to complete an interview. The mean age of respondent was 27.86(STD $\pm$4.67). Among 309 mothers majority were house wife 134(43.8%), 108(35%) were private employee and only 67(21.7%) were government employee. The median income of respondent was 1500 Ethiopian birr. Majority of respondents were living in Urban 261(84.5%) and 48(15.5%) in rural area. Among respondents 160(51.5%) were Orthodox Christian followers and 98(31.7%) Oromo in Ethnicity. (Table 1).

Table 1: Socio demographic frequencies and percentages distribution of postnatal mothers whose neonate admitted to NICU of TASH, Gandi Memorial and Yekatit 12 hospital in AA, 2016(n=309)

Sociodemographic data		Frequencies	Percentages (%)
Age	Less than 25	97	31.4
	26-30	137	44.3
	Greater than 30	75	24.3
Religion	Orthodox Tewahido	160	51.8
	Muslim	81	26.2
	Protestant	60	19.4
	Catholic	8	2.6
Ethnicity	Oromo	98	31.7
	Amhara	90	29.1
	Gurage	54	17.5
	Silte	37	12
	Tigrie	30	9.7
Income in Ethiopian birr	Less than 1000	126	40.8
	1000-1500	41	13.3
	1501-2200	66	21.4
	Greater than 2200	76	24.5
Hospital stay period			
	3-6 days	216	69.9
	7-10	53	17.2
	11-14	40	12.9

Majority of mothers were completed 9-12 grade 97(31.4%), and 57(18.4%) had no formal education. (Figure 3).

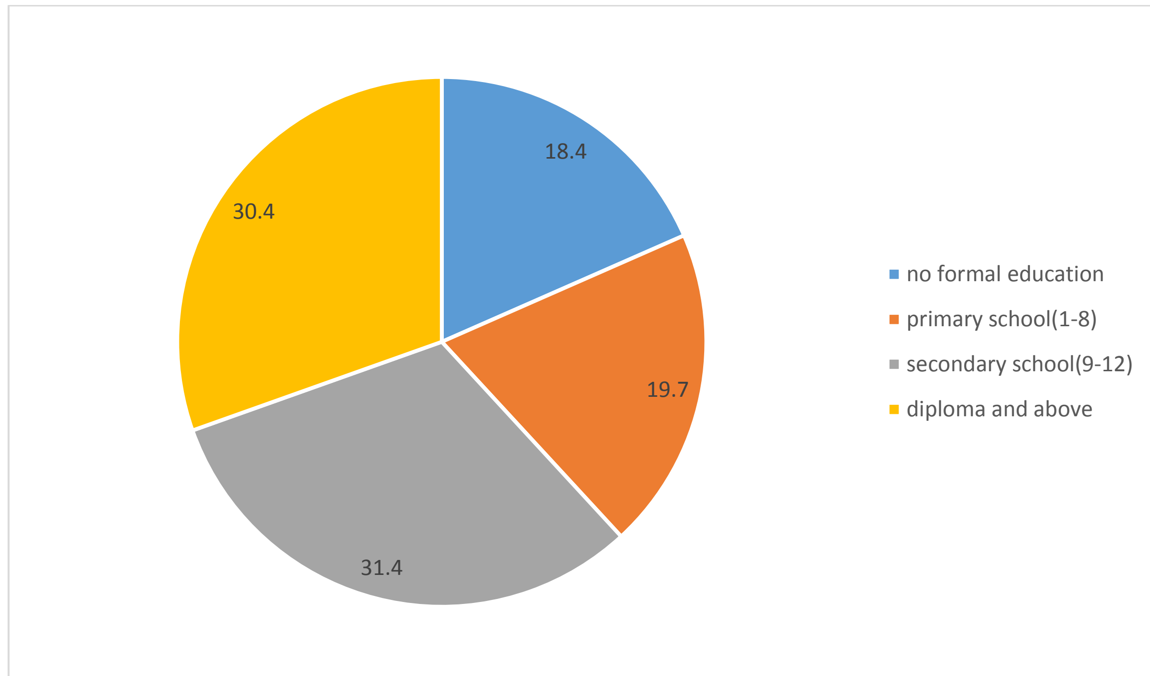

Figure 3: Pie chart showing educational level of mothers

Among 309, majority of mothers 163(52.8) had 2-3 children, while 46(14.9%) of them had greater than 3 children. (Figure 4).

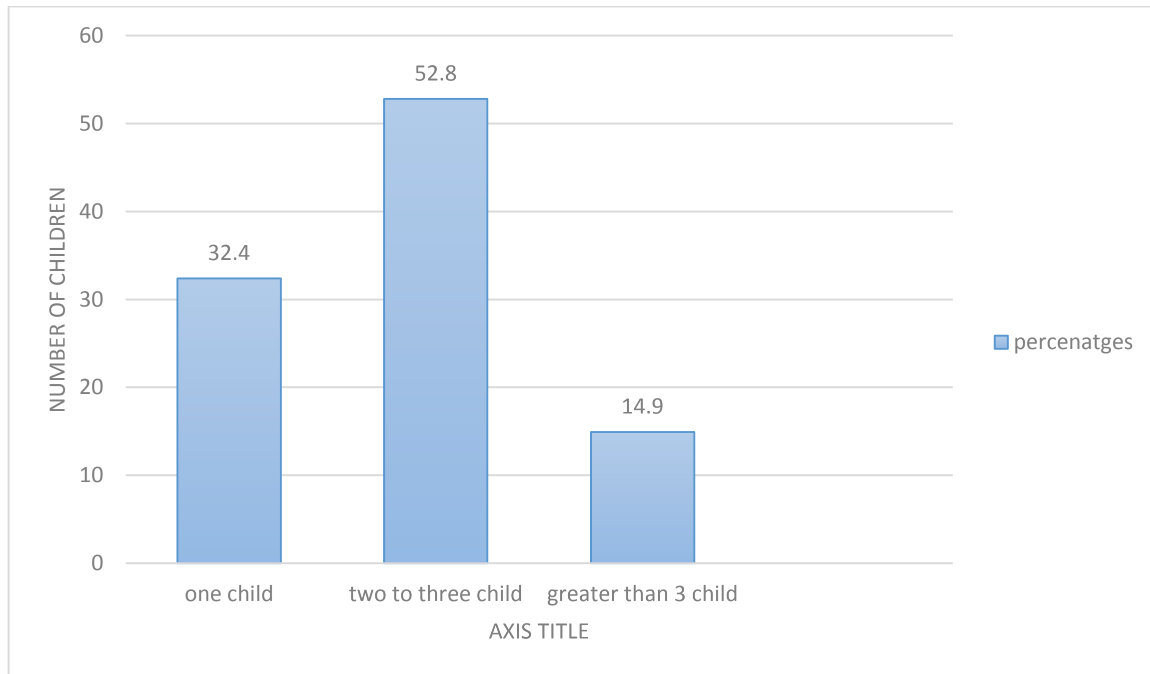

Figure 4: Bar chart showing numbers of mothers' children

5.2. Distribution of mothers according to their Stress level based on PSS

Among 18 PSS Questions (1, 2, 5, 6, 7, 8, 17, and 18) were reversely recoded as (5=1, 4=2, 3=3, 2=4, and 1=5)(39). Finally, 18 items were computed to find total sum of 18 PSS questions and Inter-quarter range was used to determine level of stress. Accordingly mothers who score on PSS of less than 33 were classified as low stress level, those who score between 34-44 as moderate stress level and PSS greater than 44 as high or sever stress.

The PSS score for the study participant were ranged from 21 to 77 with mean of (39.4757), with higher scores indicating higher parental stress. From a total of 309 mothers 154(49.5%) of mothers had moderate stress, 74 (23.9%) mothers had severe stress and remaining 81(26.6%) in low level of stress. (See figure 5).

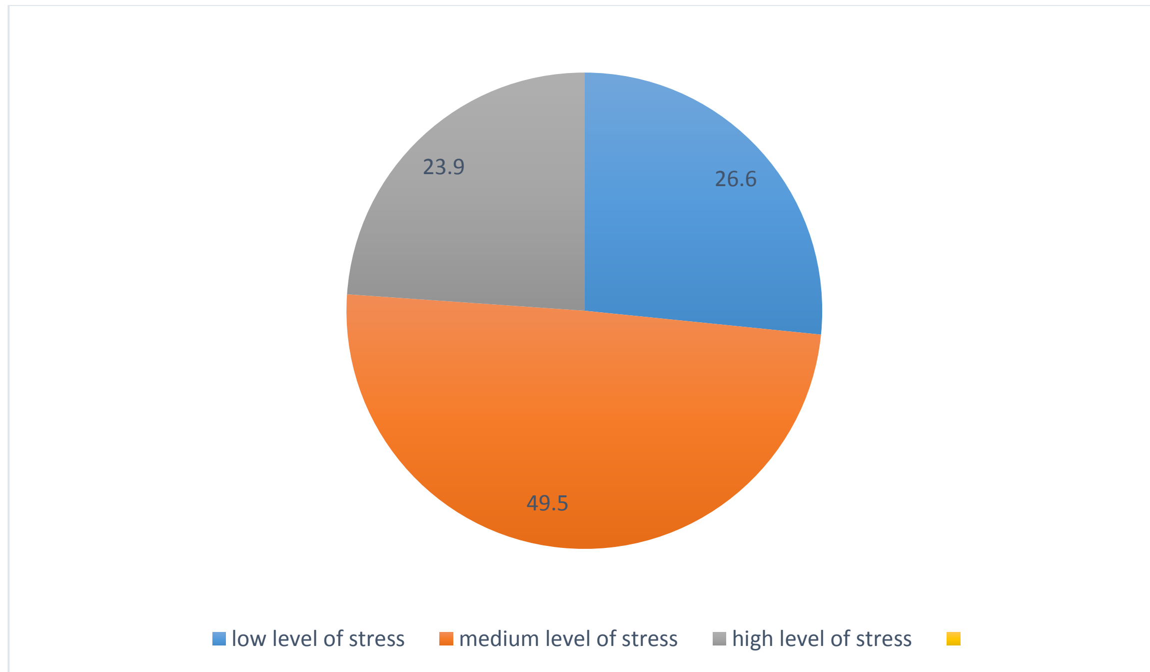

Figure 5: level of stress among postnatal mothers whose neonate admitted to NICU of TASH, Gandi memorial and yekatit 12 hospital, 2016.

5.3. Stressor Effects on Mothers of Hospitalized Children in NICU according to Parental Stress Subscale

Among parental stress scale, subscales mothers reported that physical facilities, parental role alteration and communication with staffs were the most stressful factors with mean score of 4.013 and 3.7 respectively and the least identified stressful was sight and sound related stress.(figure 6).

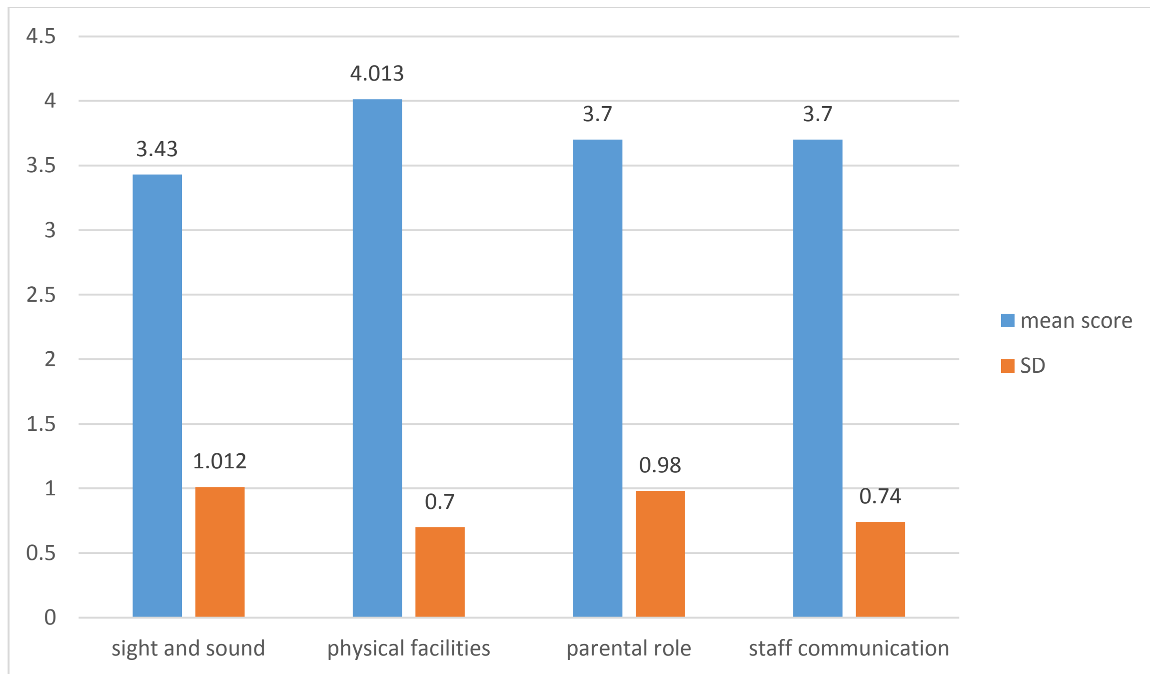

Figure 6: Bar chart showing percentage distribution of mothers according to area wise stress level.

In the area of physical facilities and sound found in neonatal care unit, most stressful factor identified by responders were the presence of other sick babies in the room which made mothers very stressful (42.7%), which was followed by presence of noise and sudden onset of alarm (36.6%) with respectively. Other stressful factors for this area (presence of monitors & equipment and large number of people working in the unit) was identified as low stressful event (Table 2).

Table 2:Frequency and percentage distribution of mothers' stress level with physical facilities in neonatal care unit, postnatal mothers whose neonates admitted to NICU of TASH, Gandi memorial and Yekatit 12 hospitals, Addis Ababa, Ethiopia, 2016(n=309).

	Not stressful. Freq. (%)	Little stressful. Freq. (%)	Moderate stressful. Freq. (%)	Very stressful. Freq. (%)	Extreme stressful. Freq. (%)
Presence of monitors & equipment	63(20.4)	66(21.4)	54(17.5)	87(28.2)	39(12.6)
Presence of noise	23(7.4)	78(25.2)	47(15.2)	113(36.6)	48(15.5)
Sudden noise of alarm and monitors	29(9.4)	62(20.1)	49(15.9)	113(36.6)	56(18.1)
Other sick babies in the room	61(19.7)	25(8.1)	49(15.9)	132(42.7)	87(28.7)
large number of people working in the unit	61(19.7)	54(17.5)	45(14.6)	95(30.7)	54(17.5)

in the area of physiologic stressful factors, the most stressful factor reported by mothers was when baby stop breathing which made mothers(37.5%) in very stressful and 53.4% extremely stressful condition, which was followed by baby's abnormal breathing and the least stressful factor was when mothers saw tubes and equipment on the baby.(table 3).

Table 3: Frequency and percentage distribution of mothers' stress level with physiological domain while in the NICU, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.(n=309).

	Not stressful. Freq. (%)	Little stressful. Freq. (%)	Moderate stressful. Freq. (%)	Very stressful. Freq. (%)	Extreme stressful. Freq. (%)
Tube and equipment on the baby	11(3.6)	33(10.7)	43(13.9)	139(45)	83(26.9)
Cuts or incision on my baby?	3(1)	19(6.1)	42(13.6)	134(43.4)	111(35.9)
Unusual color of baby	4(1.3)	22(7.1)	39(12.6)	143(46.3)	101(32.7)
Babies' abnormal breathing	3(1)	14(4.5)	24(7.8)	140(45.3)	128(41.4)
Seeing my baby stop breathing	4(1.3)	7(2.3)	17(5.5)	116(37.5)	165(53.4)
Small size of baby	9(2.9)	24(7.8)	42(13.6)	148(47.9)	86(27.8)
Seeing needles & tubes put in my baby	7(2.3)	18(5.8)	49(15.9)	142(46)	93(30.1)
Baby fed by tube	7(2.3)	17(5.5)	57(18.4)	143(46.3)	85(27.5)
My baby seemed to be in pain	5(1.6)	20(6.5)	44(14.2)	128(41.4)	112(36.2)
Restless or jerky movement of baby	3(1)	16(5.2)	45(14.6)	150(48.5)	95(30.7)
My baby crying for long period	4(1.3)	24(7.8)	38(12.3)	150(48.5)	93(30.1)
Baby not cry like others' baby	5(1.6)	17(5.5)	42(13.6)	142(46)	103(33.3)

In the area of parental role mothers became stressful as they worried about recovery of their child, which account 32.7% were extremely stressful while 44% very stressful and followed by felt of helpless how to help their baby during painful procedural time and not able share baby with other families members was the least reported stressful factor. (Table 4).

Table 4:Frequency and percentage distribution of mothers' stress level with parental role and relationship with baby, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.(n=309)

	Not stressful. Freq. (%)	Little stressful. Freq. (%)	Moderate stressful. Freq. (%)	Very stressful. Freq. (%)	Extreme stressful. Freq. (%)
Being separated from my baby	27(8.7)	39(12.6)	24(7.8)	133(43)	86(27.8)
Not feeding my baby myself	18(5.8)	46(14.9)	33(10.7)	135(43.7)	77(24.9)
Not able to carry my baby	16(5.2)	53(17.2)	42(13.6)	119(38.5)	79(25.6)
Not able to hold my baby when I want	16(5.2)	45(14.6)	54(17.5)	113(36.6)	81(26.2
Not able share my baby with other families	35(11.3)	38(12.3)	63(20.4)	98(31.7)	75(24.3)
Feeling helpless and unable to protect my baby from painful procedure	15(4.9)	39(12.6)	56(18.1)	91(29.4)	108(35)
Feeling of helpless how to help my baby during this time	9(2.9)	31(10)	39(12.6)	132(42.7)	98(31.7)
Am worried about recovery of my child	9(2.9)	31(10)	32(10.4)	136(44)	101(32.7)

In the area of staff communication and relationship the most stressful factor reported by mothers was when staff looking worried about baby, which was followed by Staff acting as if they don't understand about her baby's special need). A low level of stress was caused when Staff explain things too fast, Staff using word mothers' don't understand and telling mothers different things about her baby condition.(Table 5)

Table 5: Frequency and percentage distribution of mothers' stress level related to staff relation and communication, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016(n=309).

	Not stressful. Freq. (%)	Little stressful. Freq. (%)	Moderate stressful. Freq. (%)	Very stressful. Freq. (%)	Extreme stressful. Freq. (%)
Staff explain things too fast	20(6.5)	85(27.5)	90(29.1)	79(25.6)	35(11.3)
Staff using word I don't understand	12(3.9)	78(25.2)	82(26.5)	100(32.4)	37(12)
Telling me different things about my baby condition	10(3.2)	46(14.9)	73(23.6)	122(39.5)	58(18.8)
Not telling me about enough about test and treatment done to my baby	5(1.6)	18(9.1)	63(20.4)	143(46.3)	70(22.7)
Too many people(dr, nurse, others) talking to me	40(12.9)	25(8.1)	46(14.9)	120(38.8)	78(25.2)
Difficult in getting information and help during visit	10(3.2)	11(3.6)	65(21)	135(43.7)	88(28.5)
Staff looking worried about my baby	6(1.9)	11(3.6)	26(8.4)	126(40.8)	140(45.3)
Staff acting as if they don't understand about my baby's special need	8(2.6)	8(2.6)	30(9.7)	127(41.1)	136(44)

In order to see association between the dependent and independent variables, the five liker scale dependent variable was dichotomized. Accordingly, in bivariate after 18 items were computed the mean was used in order to classify into two. Those who score above mean of 39 were categorized as stressful and those scored below 39 no stress. Independent variables which had a P –value of less than 0.2 in bivariate analysis were entered to multivariate analysis to get adjusted odd ratio. The

strength of association was determined using crude odds ratio in the bivariate analysis and adjusted odds ratio in multivariate analysis.

Mothers who had educational level of primary school and high school, sudden noise of alarm and monitors and not able to care her baby by herself in NICU having COR [95% CL (0.496(0.256-0.962), 0.731(0.414-0.291),(2(1.059-2.992), 2(1.023-3.143) respectively has association with stress only in bivariate analysis.

In multivariate logistic regression, variables like, hospital stay with 7-10 days with AOR =(95%CI(2(1.07,5.03), presence of large number of professionals in the NICU with AOR=(95% CI(4(1.581,8.856), feeling of helpless to protect baby from painful procedures with AOR=(95% CI(4(1.88,9.35) , acting of staff as they couldn't understand the special need of baby with AOR=(95%CI(3(1.204-6.901)and not telling her enough about test and treatment done AOR= (95% CL(0.192(0.068-0.54),0.381(0.151-0.963) were significantly associated with stress in NICU.(Table 6).

Table 6: Multivariate analysis of selected socio-demographic variables and associated factors of whose neonate admitted to NICU of TASH, Gandi Memorial and Yekatit 12 hospitals, Addis Ababa, 2016

Variable	Stress		COR(95% CI)	AOR(95% CI)
	Yes n(%)	No n (%)		
not telling about test				
Low stress	23(16.1)	14(8.4)	1	1
Medium stress	19(13.3)	43(25.9)	0.269(0.114,0.633) **	**0.192(0.068-0.54)** *
Sever stress	101(70.6)	109(65.7)	0.564(0.275,1.156)	**0.381(0.151-0.963)** *
Hospital stay				
3-6 days	111(77.6)	105(63.3)	1	1
7-10 days	18(12.6)	35(21.1)	0.486(.26-0.912) **	**2(1.07-5.03)** *
11-14 day	14(9.8)	26(15.7)	0.509(0.25-1.028) **	0.881(0.341,2.281)
Large professional				
Low stress	13(9.1)	28(16.9)	1	1
Medium stress	12(8.4)	35(21.1)	0.699(.277-1.763)	0.88(0.276,2.859)
Sever stress	118(82.5)	101(60.8)	3(1.238-5.115) **	**4(1.581-8.856)** *
Feeling of helpless Low level of stress	17(11.9)	37(22.3)	1	1
Moderate level	23(16.1)	33(19.9)	2(.693-3.32)	2.162(0.844,5.538)
Sever level	103(72)	96(57.8)	2(1.234-4.42) **	**4(1.88-9.35)** *
Staff not understand need				
Low level of stress	14(9.8)	4(2.4)	1	1
Medium level	17(11.9)	16(9.6)	0.304(0.082-1.119)	**9(2.546,38.508)** *
Sever	112(78.37)	146(88)	0.219(0.07-0.684) **	**3(1.204,6.901)** *

- ** P<0.2 , * P<0.05

6. Discussion

The results of this study have shown that majority of mothers of infants admitted to the NICU had a moderate level of stress 154(49.9%). This finding is consistent with study done in India on level of stress and coping strategies among parents of neonate that indicated majority of parents were in moderate level of stress 28(70%) and other study done on stress among mothers of physically challenged children which indicated 95% mothers were in moderate stress. The moderate level of stress in current study was lower when compared with research conducted in India. The observed difference might be the research conducted in India used small sample size and also for physically challenged children(19,40).

Mothers reported that the most stressful areas were physical facilities, parental role and communication with staff. Sight and sounds was reported as causing lower level of maternal stress. This finding in line with study done in South American region which identified parental role alteration as most stressful factors among mothers in NICU and visual stimuli and sound, as it causes lower level of stress. This might be due to as mothers stayed in hospital for long period of time, the role of parent might be restricted based on the condition of the new born(21).But, different when compared with study done in Ostrava that showed visual stimuli and sounds were most stressful causing in NICU. The difference might be Study period, environment of NICU appear stressful to the non-medical person and Continuous noise and characteristic smells in the environment might be increased level of stress (25).

Mothers reported that unusual color of baby and sight and sound as more stressful factor with the mean score of 4.02 and 3.43 respectively. This study was consistent with study conducted in Australia which indicated the appearance and behavior of baby with mean score of 4.02 and sight and sound with mean score of 2.51 as stressful factors in NICU(5). This might be due the fact that Observing neonate in distress or appearing significantly ill, seeing their baby stop breathing, sudden skin discoloration of the skin and if not clearly told about the purpose of the machines, monitors and alarms used around infant leads to high maternal stress(27,28,32).

Unlike studies conducted in South American Neonatal Network, level of education, occupational status of mothers had no association with stress. The difference might be due to the fact that, research conducted in South America used educated mothers and classify occupational status only as

employed and unemployed, while the current study involves all level of educational and occupational status and also included both fathers and mothers.(21).

From current study, from area of staff communication and relationship the most stressful factor was when staff looking worried about baby (Mean=4.24, SD=0.894) and act of staff as if they don't understand about her baby's special need, (Mean=4.21, SD=0.912). This finding in line with study done in Sweden to identify strengths and weaknesses of parent–staff communication in the NICU, showed that parents felt something was lacking in communication with nurses and study from Ostrava hospital also showed personnel and communication behavior, lack of informing about any changes related to child health, of the staff also cause medium stress to parents(25,33,41). This might be due to the fact that personnel and communication behavior, lack of information about any changes to child health and lack of staff support and guidance increase level of stress in NICU(32).

In this study, PSS for sight and sound had mean score of 3.43 with SD ± 1.02, PSS for parental role alteration had mean score of 3.07 with STD ± 0.98, and PSS for NICU staff communication had mean score of 3.7 with SD ± 0.74. This studying finding was higher when compared with the study conducted in Nigeria which indicated PSS for sight and sound with mean score of 2.57 with SD ±0.81, PSS for NICU of parental alteration with mean score of 3.07 with SD ±1.08 and PSS for staff communication had mean score of 2.61 with SD ± 0.6. The observed difference might be the study design and study population of the current study which involve only mothers and it was cross sectional, while that of Nigeria was correlation , included both mother and father and additional questionnaire items adopted from Parenting Stress Index (PSI) were added to the questionnaire sub-scales of infant behavior and parental role alteration(30).

In this study the odds of stress among mothers who stayed in NICU for 7-10 days was 2 times when compared to mothers who had short length of hospitalization with AOR = (95%CI (2(1.07, 5.03).This study was similar with study conducted in four public hospitals of a large Italian town that showed caregivers of hospitalized children perceived high levels of stress and perception of stress was influenced by length of hospitalization and participation of families in services given to children. This might be the environment of NICU is highly technological advance to restore critically ill children and also places where neonates have greatest risk to die. As length of hospitalization increases, depression, sleep disturbance, economic burden increases maternal stress(22).

The presence of large number of professionals in the NICU made mothers 4 times in severe stress when compared with mothers without stress or lower level of stress,[AOR=(95% CI(4(1.581-8.856)] (42).This study in line with the study conducted in Rwanda on parents perceptions of stress in a neonatal intensive care unit which identified presence of large number of staff with AOR(95% CI(2.4(2.0-2.7). This might be due the fact that presence of large number of professionals in the NICU can made mothers not to give attention to neonates. At the same time mothers may face to get adequate information easily from the unit and even the delivered information might be difficult to understand and different health professionals may provide different information about baby condition which can increase stress(35).

The odds of stress of mothers who had feeling of helpless to protect their baby from painful procedures was 4 times when compared with mothers without stress,[AOR(95%CL(4(1.88-9.35)]. These findings in lined with the study conducted. This study was higher when compared with the study conducted in Rwanda on parents perceptions of stress in a neonatal intensive care unit which identified presence of large number of staff with AOR(95% CI(2.4(2.0-2.7), in Rwanda on parents perceptions of stress in a neonatal intensive care unit which identified feeling of helpless and cannot protect baby from procedures with AOR(95%(2.6(2.4-2.9) as stressful factors in NICU (42). The similarity might be in NICU care might be limited to nurse. Due to this parent of neonate thought as they cannot do anything for their neonate. As a result feeling of helpless, unable to give care by self or feed their neonate increase level of stress to mothers(26).

Acting of staff as they couldn't understand the special need of baby made mothers 3 times in severe stress and 9 times in moderate stress when compared with mothers without stress,[AOR=(95%CL(**3**(1.204,6.901), 9(2.546,38.508)] respectively. This might be due to the fact that NICU pose many challenges to open visitation. Families of critically ill child desire information, assurance from staff and proximity to their loved one. Lack of talking with parent of neonate and not providing information to help them understand their baby's condition and treatment mothers are in greater stressful condition(12).

The odds of stress to mothers when not telling her enough about test and treatment done was 0.192 times in moderate stress and 0.381 in severe stress when compared with mother with lower level of stress with AOR= (95% CL(0.192(0.068-0.54),0.381(0.151-0.963) respectively. This might be due to lack of adequate explanation about treatment, inadequate explanation about the illness(27).

7. Strength and limitation of the study

7.1. Strength of the study

- Study can be considered as base for further similar and large scale studies
- Add significant contribution to staff working in the NICU to help mothers get adjust to NICU of hospitals environment by giving information and proper explanations throughout the Child's stay which include orientation of mothers about the condition of their child in the NICU.

7.2. Limitation of the study

- May have social desirability factors.
- May have recall bias.
- Difficult to clearly identify the exact cause and effect relationship between dependent and independent variables as the study was cross sectional.
- Lack of adequate literatures on the same or related topic in Africa especially in Ethiopia.

8. Conclusion and recommendation

8.1. Conclusion

_Based on the findings of this study, the following conclusions were made:

- Present study showed that 74 (23.9%) mothers had severe stress, 154(49.5%) of mothers had moderate stress and remaining 81(26.6%) of mothers were with low stress level.
- In area wise classification mothers were stressful in the area of material and equipment in NICU with mean score of 4.013, SD=0.7, which was followed by alteration of parental role (mean score =3.7, SD ±0.98 and staff communication (Mean score, 3.7 and SD ± 0.74) respectively.
- Presence of large health professionals, length of hospital stay, not telling her enough about test and treatment done, feeling of helpless to protect baby from pain and acting of staff as they couldn't understand the need of baby were significantly associated with mother's stress level.

8.2. Recommendation

Based on the findings and the conclusions made, the following recommendations were forwarded:

Based on the findings and the conclusions made, the following recommendations were forwarded:

To Government, health administrators and concerned stakeholders

- Make an effort to initiate family centered care in order to decrease mother's stress during their visit in NICU.
- Provide special attention to mothers in NICU.

To researchers:

- It is better if further study on the effectiveness of the stress management techniques among mothers admitted their neonates in NICU was conducted.

To all hospital heads and health professionals:

- According to these findings, all hospitals directors, department head of the NICU unit design policies and stress management programs for health professional to stable mothers of neonate admitted to NICU.
- Limited number health professional should visit mothers while their neonate is in critical condition and also should tell them what they are doing in clear way to mothers.
- All hospital having NICU should have Organization of stress management programs for mothers admitted their neonates in NICU.
- Incorporate integrated family centered care to make parents involvement in their neonate care, to become familiar with NICU environments.
- Care providers should identify the need of mothers and inform the procedure to be done for the neonate.

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8. Annexes

Annex I Information Sheet and Consent Form: English Version

Information Sheet

Hello, how are you? My name is_______________. This is an interview to be done with you for a study that is being conducted at Addis Ababa University, College of Health Sciences School of Allied Health, Department of Nursing and Midwifery.

The purpose of the study is to assess level of stress and its associated factors among postnatal mothers whose neonates admitted to neonatal intensive care unit.

We would like to ask you some questions that are related to stress and its associated factors while you are in the neonatal intensive care unit with your neonate. We believe that the results of this finding will help policy makers, planners and health professionals for making consideration regarding stress and its associated factors in the neonatal care unit and also contribute to provide adequate family centered care in the neonatal care unit.

Your contribution has a great input for the study and I would greatly appreciate your participation. There is no possible risk associated with participating in this study. Your name will not be written in the questionnaire and please be assured that all the information you give will be kept strictly confidential. Your participation is completely voluntary.

Therefore, you will not be obliged to answer any question that you do not want to and you may end this interview at any time you want to. There are also no obligations for not participating in the interview. The interview will take about few minutes.

If you have questions regarding this study or would like to be informed of the results after its completion, please do not hesitate to contact Ato Dereje Bikila (0922339175).

Consent Form

I have read the information sheet concerning this study (or have understood the verbal explanation) and I understand what will be required of me and what will happen to me if I take part in it. I also understand that any time I may withdraw from this study without giving a reason and without me or my families' routine service utilization being affected for my refusal.

Participant's signature ___________________ Date___________________

Interviewer signature certifying that the informed consent has been given verbally.

Interview's name ______________

Interview's signature ______________ Date ______________

May I continue the interview?

1. Yes ____________Continue the interview
2. No ______________Stop the interview and thank the respondent

Result: (to confirm for completeness)

A. Questionnaire completed _____________
B. Questionnaire partially completed _____________
C. Participant refused _____________
D. Others (please Specify) _____________

Checked by Supervisor:

Supervisor's Name _____________

Supervisor's Signature _____________

Date _____________

Annex II .Information Sheet and Consent Form: Amharic Version

ስለጥናቱ ማስታወቂና በጥናቱ ለሚሳተፉ ፍቃደኝነት መጠየቂያ ቅጽ

ስለጥናቱ ማስታወቅያ ቅጽ

ሰላምታ፡ እንደምን ወልሽ ወይም እንደ ምን አደርሽ

ስሜ-------------------------ይባላል፡፡ይህ ከእርሶ ጋር በአዲስ አበባ ዩኒቨርሲቲ በጤና ሳንይንስ ኮሌጅ፤ በተቀናጀ የነርሲግና ሚድዋይፈሪ ት/ቤት፤በነርሲግና ሚድዋይፈሪ ክፍል ለሚደረግ የምርምር ጥናት ቃለ መጠይቅ ነዉ፡፡

የጥናቱ አላማ እናቶች በተመሙ በጨቅላ ህጻናት ክፍል ዉስጥ ሆነው የምሰማቸዉን የጭንቀት ሁኔታ እና የጭንቀቱ ምንጮች ለማጥነት ነዉ፡፡ እርሶንም ከህጻናትዎ ጋር የህጻናት ጨቅላ ክፍል ዉስት ሆነዉ የተሰማዎትን ጭንቀት እና ፍራቻ አስመልክቶ ስላላቸዉ ግንዛቤ እና እዉቀት ጥያቄዎችን እንጠይቆታለን፡፡

የዚህ ጥናት ዉጤት ለፖሊሲ አስፈጻሚዎች፣ዕቅድ አዉጭዎች፣የጤና በላሙዋዎች በጨቅላ ህጻናት ዉስተ እናቶች ለይ የምደርስ ጭንቀት ለመረዳት እና የተበቃ ግንኙነት ከእናቶች ጋር በመፍጠር እንድከለካሉ ይረዳል ብለን እናምናለን፡፡ በዚህ ጥናት በመሳተፎ የሚናገኘዉ መረጃ ለጥናታችን ዉቴታማነት እንዲሁም የጥናቱ ዉጤት በሚያበረክተዉ አስተዋጽዎ ላይ ከፍተኛ እገዛ ይኖረዋል፡፡ ስለዚህም በዚህ ቃለ መጠይቅ ቢሳተፉ ምስጋናዬ የላቀ ነዉ፡፡

በጥናቱ በመሳተፍዎ ምክንያት የሚገጥመዎት ምንም ችግር አይኖረዉም፡፡ ስለሆነም እርሶ የሚሰጡት መረጃ በሙሉ ሚስጢርነቱ የተጠበቀ እንደሚሆን እርግጠኛ ይሁኑ፡፡ በጥናቱ ዉስጥም በማንናዉም ሁኔታ ስምዎ በመጠይቁ ላይ አይገለጽም፡፡ በዚህ ጥናት ለመሳተፍ የእርሶ ፈቃድ በጣም አስፈላጊ ነው፡፡ በተጨማሪም ለመመለስ የማይፈልጓቸውን ጥያቄዎች ካሉ ጥያቄዎችን ለመመለስ በፍጹም አይገደዱም፤እንዲሁም በጥናቱ ላለመሳተፍ ከፈለጉ በማንኛዉም ሰዓት ማቋረጥ ይችላሉ፡፡ ቃለ መጠይቁ ጥቂት ደቂቃዎችን ይወስዳል፡፡ ቃለ መጠይቁን በተመለከተ ወይም ስለጥናቱ ማንኛዉንም ጥያቄ ወይም አስተያየት ቢኖሮት በሚከተለዉ አድራሻ ማነጋገር ይችላሉ፡፡ ደረጀ ቢቂላ ስልክ ቁጥር 0922339175

ፍቃደኝነት መጠየቂያ አማርኛ ቅጿ

ከላይ በመግቢያው ላይ የተጠቀሰውን መረጃ አንብቢያለሁ ወይም በቃል የተሰጠኝን ማብራሪያ ተረድቻለሁ፡፡ በዚህ መሰረት ከእኔ የሚጠበቅብኝን ድርሻ በሚገባ አውቂያለሁ፡፡ እናም በዚህ ጥናት ላይ በመሳተፌ ሊከሰቱ የሚችሉትን ሁኔታዎች ተገንዝቢያለሁ፡፡ከዚህ ጥናት በማንኛውም ሠዓት ያለምንም ቅድመ ሁኔታና ምክንያት እራሴን ከተሳታፊነት የማግለል ሙሉ መብት እንዳለኝ ተረድቻለሁ፡፡ ይህን ውሳኔዬን ተከትሎ በእኔም ሆነ በቤተሰቦቼ ላይ በምንፈልገው የጤና አገልግሎት ላይ ምንም አይነት አሉታዊ ተጽኖ እንደማይደርስብኝ ተረድቻለሁ፡፡

የተሳታፈዉ ፊርማ--------------- ቀን----------------

ጥናቱን በተመለከተ የቃል ማብራሪያ የተሰጠ መሆኑን የሚያረጋግጥው

የቃለ መጠይቁ አድራጊ ስምና ፊርማ

የጠያቂው ስም--- ፊርማ--------------- ቀን -------------

መጠይቁን እንድቀጥል ፈቃደኛ ነዎት ?

1. ፈቃደኛ ናቸው---------------------- ቃለመጠይቁ ይቀጥላል፡፡

2. አይ ፈቃደኛ አይደሉም ------------------ ቃለመጠይቁን በማቆም አመስግነው ይለያዩ፡፡

ዉጤት(መጠይቁን መሙላቱን ለማረጋገጥ)

ሀ. ሙሉ ለሙሉ የተሞላ----------------

ለ. በከፊል የተሞላ-----------

ሐ.በከፊል ላለመሙላት ፍቃደኛ ያልሆኑ--------------

መ.ሌላ ካለ ይጠቀስ----------------

በተቆጣጣሪው የተረጋገጠ (መጠይቁን መሙላቱን ለማረጋገጥ)

የተቆጣጣሪው ስም--------------------ፊርማ--------------- ቀን -----

Annex III Questionnaire (English version)

Addis Ababa University

College of Health Sciences School of Allied Health

Department of Nursing and Midwifery

Questionnaire

This question is designed to collect data related to assess level of stress and its associated factors among mothers' of neonate admitted to NICU of, TASH,Gandi Memorial and Yekatit 12 hospitlas,Addis Ababa, Ethiopia,2016.

Instruction: Circle the alternative of your chosen or write your answer in space provided

Table 1: Sociodemographic data of mothers of postnatl neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.

S.NO	Demographic Variables of Mother		Answer
	Code of the mother		
101	Age in years	______________	
102	Educational Status of the Mother	1.No formal education	
		2. Primary School(1-8)	
		3. High School(9-12)	
		4. Graduate	
103	Occupation of the Mother	1. Housewife	
		2. Government Employee	
		3. Private Employee	
		4. specify if other	
104	Monthly Family Income in birr	____________birr	

105	Residence(Place of Living)	1. Urban	
		2. Rural	
106	Religion	1. Muslim	
		2. Orthodox Christian	
		3. Protestant	
		4.specify if other	
107	Ethnicity	Amara	
		Gurage	
		Silte	
		Oromo	
		Tigrie	
		Specify if others	
108	Number of Children	____________	
109	Number of days hospitalized	________	

Table 2: Assessment of overall level of stress of postnatal mothers in neonatal care unit using PSS of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.

S.NO	variables	Strongly disagree	Disagree.	Undecided.	Agree.	Strongly agree
201	I am happy in my role as a parent					
202	There is little or nothing I wouldn't do for my child (ren) if it was necessary					

203	Caring for my child (ren) sometimes takes more time and energy than I have to give.					
204	I sometimes worry whether I am doing enough for my child(ren).					
205	I feel close to my child(ren).					
206	I enjoy spending time with my child(ren					
207	My child (ren) is an important source of affection for me.					
208	. Having child(ren) gives me a more certain and optimistic view for the future.					
209	The major source of stress in my life is my child (ren).					
210	Having child (ren) leaves little time and flexibility in my life.					
211	Having child (ren) has been a financial burden.					

212	It is difficult to balance different responsibilities because of my child (ren).					
213	The behavior of my child(ren) is often stressful to me					
214	If I had it to do over again, I might decide not to have child (ren).					
215	I feel overwhelmed by the responsibility of being a parent.					
216	Having child(ren) has meant having too few choices and too little control over my life.					
217	I am satisfied as a parent					
218	I find my child(ren) enjoyable					

Table 3: Assessment of stress related to various physical facilities and sound found in neonatal care, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.

S.NO.	variables	Not stressful.	Little stressful	Moderate stressful.	Very stressful.	Extreme stressful.

301	Presence of monitors & equipment					
302	Presence of noise					
303	Sudden noise of alarm and monitors					
304	Other sick babies in the room					
305	Large number of people working in the unit					

Table 4: Assessment of stressful events related with baby looks and behaves while in NICU/physiological and equipment's in the NICU, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.

S.NO.	variables	Not stressful	Little stressful	Moderate stressful.	Very stressful.	Extreme stressful
401	Tubes & equipment on baby					
402	Cuts or incision on my baby					
403	Unusual color of baby					
404	Babies' abnormal breathing					
405	Seeing my baby stop breathing					
406	Small size of baby					
407	Seeing needles & tubes put in my baby					
408	Baby fed by tube					
409	My baby seemed to be in pain					
410	My baby crying for long period					
411	Restless or jerky movement of my baby					
412	Not able to cry like other babies					

Table 5: Assessment of stressful events related with parental role and relationship with baby, of postnatal mothers of neonates admitted to NICU of TASH, Gandi Memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2015/2016.

S.NO.	Variables	Not stressful.	Little stressful	Moderate stressful.	Very stressful.	Extreme stressful.
501	Being separated from my baby					
502	Not feeding my baby by my self					
503	Not be able to care my baby myself(e.g. changing diaper, bathing)					
504	Not be able to hold my baby when I want					
505	Not be able to share my baby with other families members					
506	Feeling helpless and unable to protect my baby from painful procedures					
507	Feeling helpless about how to help my baby during this time					
508	I am worried about the recovery of the child					

Table 6: Assessment of stressful events related to staff relation and communication, of postnatal mothers of neonates admitted to NICU of TASH, Gandi memorial Hospital and Yekatit 12, Addis Ababa, Ethiopia, 2016.

S.NO.	Variables	Not stressful.	Little stressful.	Moderate stressful.	Very stressful.	Extreme stressful.
601	Staff explain things too fast					
602	Staff using word I don’t understand					

603	Telling me different things about my baby condition					
604	Not telling me enough about tests and treatment being done to my baby					
605	Too many different people(dr,nurse,others) talking to me					
606	Difficult in getting information or help when I visit					
607	Staff looking worried about my baby					
608	Staff acting as if they did not understand my baby's special need					

Annex IV Questionnaire (Amharic version)

በአዲስ አበባ ዩኒቨርሲቲ

በጤና ሳንይንስ ኮሌጅ፤ በተቀናጀ የነርሲግና ሚድዋይፈሪ ት/ቤት፤

ነርሲግና ሚድዋይፈሪ ክፍል

መጠይቅ

ይህ መጠይቅ የተዘጋጀዉ እናቶች በጨቅላ ህጻናት ክፍል ዉስጥ ሆነው የምሰማቸዉን የጭንቀት ሁኔታ/መጠን እና የጭንቀቱ ምንጮች ለማወቅ መረጃ ለመሰብሰብ የተዘጋጅ መጠይቅ ነዉ፡፡

መመሪያ : መልሱን በመክበብ ወይም በተዘጋጀዉ ቦታ ላይ በመጻፍ ይመልሱ፡፡

ክፍል 1፡መስረታዊ ጥያቄዎች

ተ.ቁ	ጥያቄ	መልስ	ቁጥር(%)
101	ዕድሜ	________	
102	የትምህርት ደረጃ	ማንበብ መጻፍ የማይችል የመጀመሪያ ደረጃ (1-8) ሁለተኛ ደረጃ (9-12) የተመረቀ/ች	
103	የሥራ ሁኔታ	የመንግስት ሠራተኛ የግል ሠራተኛ የቤት እመቤት ሌላ ካለ ይግለፁ	
104	ወርኃዊ ገቢ	.............ብር	
105	መኖሪያ ቦታ	ከተማ(አ.አ) ገጠር(ከአ.አ. ውጪ)	
106	ኃይማኖት	ሙስሊም ኦርቶዶክስ ተዋህዶ ፕሮቴስታንት ሌላ ከሆነ ይግለፅ	
107	ብሔር	አማራ ጉራጌ ስልጤ ትግራይ	

		ሌላ ካለ ይግለፁ	
108	የልጆች ብዛት	……………………..	
109	የሆስፒታል ቆይታ	………………………	

ክፍል 2፡በጽኑ በተመሙ የጨቅላ ህጻናት ክፍል ዉስጥ የሚገኙ እናቶች ላይ አጠቃላይ የምደርስ የጭንቀት መጠን ለማወቅ የቀረቡ ጥያቄዎች

ተ.ቁ.	ጥየቄ	በጣም አልስማማም	ኣልስማም.	እርግጠኛ አይደለሁም	እስማማለዉ.	በጣም እስማመለዉ
201	ወላጅ በመሆኔ ደስተኛ ነኝ					
202	አስፈላጊ ሆኖ ከተገኛ ትንሽም ብትሆን ለልጆቼ የመለደርገዉ ነገር የለም					
203	ለልጆቼ የሚሰጠዉ እንክብካቤ አንድ አንድ ጊዜ እኔ ከሚፈልገዉ በላይ ሰዓቴን እና ጉልበቴን ይጨርስብኛል					
204	አንዳንድ ጊዜ ለልጄ በቂ ነገር አድርጌያለሁ ለማለት ይጨንቀኛል					
205	ለልጄ ቅርበት የሰማኛል					
206	ከልጄ ጋር ሰዓት በማሳለፌ እደሰታለሁ፡፡					
207	ልጄ ለኔ ጠቃሚ ያለና የፍቅሬ ምንጭ ነው					
208	ልጅ በማግኘቴ የተረጋጋና በጎ አመለካከት እንዲኖረኝ ያደርገኛል					
209	በህይወቴ ወስጥ ዋናኛው የጭንቀቴ ምንጭ ልጄ ነው					
210	ልጅ መውሰዴ የተጣበበ ጊዜና ዘና ያለ ህይወት እንዳይኖረኝ አድርጎኛል፡፡					

211	ልጅ መውሰዴ የገንዘብ እጥረት/ጫና ፈጥሮብኛል					
212	ልጅ መውለዴ ሌሎች ከኔ የሚጠበቁ ሀላፊነቶችን ለመወጣት አስቸጋሪ አርጎብኛል					
213	የልጄ ባህሪ ብዙ ጊዜ ጭንቀት ይፈጥርብኛል					
214	ነገሮችን እንደገና ማከናወን ብችል ልጆች ላለመውለድ እወስን ነበር					
215	የወላጅ ኃላፊነትን በመውሰዴ ጫና ይሰማኛል					
216	ልጅ መውለድ ጠባብ እድል እንዲኖር እና በህይወት ላይ አነስተኛ ቁጥጥር እንዲኖር ያደርጋል					
217	እንደ ወላጅ በጠም ደስተኛ ነኝ					
218	ልጄ ደስታን ፈጥሮልኛል					

ክፍል 3፡በጽኑ በተመሙ የጨቅላ ህጻናት ክፍል ዉስጥ የሚገኙ እናቶች የተለያዩ የህክምና መሳሪዎች በሚያወጡት ድምፆች እነ ሁከት ላይ ያላቸው የጭንቀት መጠን ለማወቅ

ተ.ቁ.	ጥያቄ	ምንም አልጫናነቅም.	ትንሽ ይጨንቀኛል	በከፊል ይጨንቀኛል	በጣም ይጨንቀኛል	እጅግ በጣም ይጨንቀኛል
301	የተለያያ እቃዎችና ማሽኖች መኖራቸዉ					
302	ጩኃት በሚኖርበት ሰዓት					
303	የመቆጣጠሪያ(አላርም) ድንገት በምጮሕበት ሰዓት					
304	ሌላ የታመመ ህፃን ልጅ በክፍሉ ውስጥ በማያት					
305	ብዙ ሠራተኛ በክፍሉ ውስጥ መኖሩ					

ክፍል 4፡፡በጽኑ በተመሙ የጨቅላ ህጻናት ክፍል ዉስጥ የሚገኙ ህጻናቶች ለይ የሚታዘዙ የህክምና መሰሪየዎች እና ህጻናቶቹ በሚያሰዩ አካላዊ ለዉጦች ሚክንያት እናቶች ላይ የሚታይ የጭንቀት መጠን ለማወቅ የምጠየቁ ጥያቄዎች

ተ.ቁ	ጥያቄ	ምንም አልጫናነቅም.	ትንሽ ይጨንቀኛል	በከፊል ይጨንቀኛል	በጣም ይጨንቀኛል	እጅግ በጣም ይጨንቀኛል
401	ቱቦ እና እቃዎች በልጅ ላይ ተደርጎ ማየት					
402	በልጅሽ ሰውነት ላይ ቁስል ወይም የቆረጠው ነገር ሲኖር					
403	ያልታለመዳ የቀለም ለዉጥ ሲኖረው					
404	ልጅሽ ትክክል ያልሆነ አተነፋፈስ በማየት					
405	ህፃንሽ መተንፈሱን ሲያቆም በማየት					
406	የህፃኑ መጠን(ኪሎ) አነስተኛ ሲሆን					
407	መርፌ እና ትቦ ልጁ ላይ ሲያስቀምጡ በማየት					
408	ህፃኑ በትቦ ሲመገብ በማየት					
409	ልጅሽ የታመመ ሲመስልሽ					
410	ልጅሽ ለረጅም ጊዜ ቢያለቅስ					
411	ልጅሽ ብዙ ጊዜ ሲነጫነጭ					
412	ልጅሽ እንደ ሌሎች ህፃናት ማልቀስ ካልቻለ					

ክፍል 5፡በጽኑ በተመሙ የጨቅላ ህጻናት ክፍል ዉስጥ የሚገኙ ህጻናቶች የሚገኙ እናቶች ፤ የእናትነትን ሃላፍነትን እና ከልጆቸዉ ጋር በላቻዉ ግኑኝነት የሚተዩ የጭንቀት መጠን ለማወቅ የሚቀርቡ ጥያቄዎች

ተ.ቁ	ጥያቄ	ምንም አልጫናነቅም.	ትንሽ ይጨንቀኛል	በከፊል ይጨንቀኛል	በጣም ይጨንቀኛል	እጅግ በጣም ይጨንቀኛል
501	ከልጅዎ ብትለዩ					
502	ልጅሽ በራስሽ መመገብ ካልቻልሽው					

503	የልጅሽ እንክብካቤ በራስሽ መስጠት ባለመቻልሽ					
504	በፈለግሽ ጊዜ ልጅሽን ማቀፍ ካልቻልሽ					
505	ልጅዎን ለቤተሰብዎ ማሳየት ወይም ማገናኘት ካልቻሉ					
506	እርዳታ የላለሽንና ልጅሽን ህመም ከምያመጡ ነገሮች መከልከል ባለመቻልሽ					
507	በራስሽ አቅምም ሆነ በሌሎች እርዳታ ልጅሽ ያለበት ሁኔታ የማይስተካከል ሲመስልሽ					
508	ልጅሽ ወደ ጤናማ ሁኔታ መመለሱ እና አለመመለሱ ስታስቢዉ					

ክፍል 6፡በጽኑ በተመሙ የጨቅላ ህጻናት ክፍል ዉስጥ የሚገኙ እናቶች ከህክሚና በለሞያዎች በሚያደርጉት ግንኙነት እና የሀሳብ ልዉዉጥ ጊዜ የሚተይባቸዉ የጭንቀት መጠን ለማወቅ የቀረቡ ጥያቄዎች

ተ.ቁ	ጥያቄ	ምንም አልጫናነቅም	ትንሽ ይጨንቀኛል	በከፊል ይጨንቀኛል	በጣም ይጨንቀኛል	እጅግ በጣም ይጨንቀኛል
601	የጤና ባላሙያዎች ስለ ልጅሽ ሁኔታ በፍጥነት ቢያወሩልሽ					
602	ነርሶች የሚጠቀሙትን ቃላቶች አለመረዳት					
603	ስለ ልጅሽ ሁኔታ የተለያየ ነገር ቢነግሩሽ					
604	ስለሚሰጡ ህክምናዎች እና ሰለሚደረጉ ምርመራዎች በግልፅ ካልነገሩሽ					
605	የተለያየ ጤና ባለሙያዎች ስለልጅሽ ሁኔታ እየመጡ ቢያነጋግሩሽ					
606	ስለልጅሽ ሁኔታ መረጃዎችን ለማግኘት ቢከብድሽ					
607	ስለልጅሽ ሁኔታ ነርሶች ቢጨነቁና ቢያዝኑ					
608	ጤና ባለሙያዎቹ የልጄን ፍላጎት እንዳልተረዱ ቢያስመሲሉ					

Annex VII: Assurance of principal investigator

RESEARCH ADVISOR/ SUPERVISER

Birhane G/Kidan (assistant Professor) ----------------------- ------------------ -----------------

FULL NAME RANK SIGNATURE DATE

Declaration:

I, the undersigned, declare that this is my original work and has not been presented in this or any other University and all sources of materials used for this proposal have been fully acknowledged.

Principal investigator: Dereje Bikila

Signature: ___________________________________

Date: _______________________________________

Place: Addis Ababa University, College of Health Sciences, Department of Nursing and midwifery

This proposal has been submitted for examination with my approval as University advisor

Mr. Birhane G/Kidan (RN. BSc, MSc, Asst. Professor)

AAU Health Science College Head of Nursing & Midwifery Department

Signature: ____________________________________

Date: ____

Place: Addis Ababa University, College of Health Sciences, Department of Nursing and midwifery

Examiner/s:

Full Name	Rank	signature	date
1.______________________	__________	___________	____