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PARENTAL SATISFACTION WITH NEONATAL INTENSIVE CARE UNIT SERVICES AND ITS ASSOCIATED FACTORS AT TIKUR ANBESSA SPECIALIZED HOSPITAL. ADDIS ABABA, ETHIOPIA, 2024/25 G.C.

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ADVISOR'S APPROVAL SHEET

This is to certify that the thesis entitled "Parental satisfaction with neonatal intensive care unit services and its associated factors at Tikur Anbessa specialized hospital; a cross sectional study" is submitted in partial fulfillment of the requirements for the specialty certificate program in pediatrics and child health to the Department of pediatrics and child health ,school of medicine ,College of Health Sciences at Addis Ababa University and has been carried out by: Samuel Asrat**,** under my supervision. The student has fulfilled the thesis requirements and hence hereby can submit the thesis to the Department.

Name of Major Advisor:	Signature	Date
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Contents

Acronym

NICU…...Neonatal intensive care unit

HRIC……High risk infant clinic

FCC…….Family-centered care

TASH…. Tikur Anbessa specialized hospital

NSS-8…..Neonatal Satisfaction Survey tool

SPSS……Statistical Package for Social Sciences version 25

LOS…….Length of hospital stay

SNNPR…South nation nationality people region

PI……....Principal investigator

GA……...Gestational age

SVD……Spontaneous vaginal delivery

CS……Caesarian section

CRC…….Compassionate and respectful care

Acknowledgement

First of all, I would like to thank God for all his giving. I would like to thank Addis Ababa University, College of Health Sciences, Department of Pediatrics and Child Health for giving me an opportunity to do this research. I would also like to extend my acknowledgement to my advisor Dr. Asrat Demitse who encouraged, supported and advised me throughout this research.

List of figures

List of tables

Abstract

Background: Satisfaction is a reflection of one's preferences, expectations, and the care received. Parental Satisfaction, shows how well the service meets their needs and perspective (3). Having a baby is always a challenging experience for parents. However, it gets even more stressful and emotional when a baby is born prematurely or with problems and is taken to a neonatal intensive care unit (4). When parents are dissatisfied, they may not adhere to the treatment/advice of the health professional. Thus, they under-utilize important health services. This may lead to poor utilization of health services and pose critical challenges to the success of universal health coverage and increased neonatal readmission, morbidity, and mortality (2).

Method: A facility-based cross-sectional study was conducted on 271 parent whose neonate was admitted to TASH NICU. Participants were selected using a simple random sampling technique. Data was collected through face-to-face interview by using Neonatal Satisfaction Survey (NSS-8) tool. Data were cleaned, entered, and analyzed using SPSS version 25.The demographic and clinical characteristics of the neonate and the parents were computed using descriptive statistics such as frequencies and percentage. Overall satisfaction was calculated by summing all items (50) measuring satisfaction and it was determined by the cutoff point, which is the mean score. Bivariable and multivariable logistic regression was done to assess the association between the overall satisfaction and the independent variable. Statistically significance was taken for p values of <0.05.

Result: Overall satisfaction towards NICU services at TASH were 59.4% (95% CI, 53.1, 66.1). Moreover, the study revealed the factors associated with overall satisfaction are shorter duration of hospital stay (less than 7 days) (AOR=5.81 95% CI (2.39, 14.1)), place of interview (NICU) (AOR=3.11, 955 CI (2.446, 3.3)) and admission diagnosis of neonatal Sepsis (AOR=2.8, 95% CI (1.29, 6.165)) and Jaundice (AOR=6.3 95% CI (1.155, 35.0)).

Conclusion: This study revealed a moderate level of overall satisfaction towards the NICU services in TASH. The factors associated with overall satisfaction are shorter duration of hospital stay(less than 7 days), admission diagnosis (Neonatal Sepsis and Jaundice) and place of interview (NICU).

1 Introduction

1.1 Background of the study

Satisfaction is a reflection of one's preferences, expectations, and the care received. Parental Satisfaction, shows how well the service meets their needs and perspective (3). Having a baby is always a challenging experience for parents. However, it gets even more stressful and emotional when a baby is born prematurely or with problems and is taken to a neonatal intensive care unit (NICU) (4). Family-centered care (FCC), defined as "[…] an interdisciplinary, comprehensive, and holistic care of neonates and families with maintaining their respect and dignity", is necessary to promote the quality of NICU care (5). Studies shows that FCC helps in decreasing stressful and anxious feelings in most of the parents (6) (4) and enhancing their satisfaction through involving them in the caring process (7).

Every year around the globe, almost 3.3 million babies die within the first month after their birth. In all world regions the death in the neonatal period have increased and is currently estimated to be 41%. More than 90% of these deaths happen in low and middle-income countries. In addition, sub-Saharan Africa has nearly one third of neonatal deaths. Out of the 20 countries in the world with the highest risk of dying within 28 days, 75% are in Africa. In Ethiopia, neonatal deaths account for nearly 42% of deaths of under-fives(8).

NICU admissions are rising and therefore the quality and capacity of services being offered by NICUs in tertiary hospitals, especially in developing countries, must become better. In Ethiopia, a lot of effort and resources invested has been in the sector to reduce neonatal mortality with improvement in NICU infrastructure and training. However the Progress is slow despite efforts made for improvements. According to Ethiopia's 2020 Mini Demographic and Health Survey, the neonatal mortality rate is still 30 per 1,000 live births.

At times weak quality care in health care settings can be a cause of neonatal mortality due to which parents end up discharging the baby from the hospital against medical advice. When parents are dissatisfied, they may not adhere to the treatment/advice of the health professional. Thus, they under-utilize important health services. This may lead to poor utilization of health services and pose critical challenges to the success of universal health coverage and increased neonatal readmission, morbidity, and mortality (2).If parents are more satisfied and less stressed, their babies tend to recover more quickly (9).

1.2 Statement of the Problem

The neonatal intensive care unit is not only a unique and challenging environment but also one of care that is often very difficult and fraught with chaos; thus, it is important for both health care professionals and administrators to assess satisfaction with care to provide an optimal, quality of care that is responsive to the consumer (10).

The NICU environment has been evolving for several years. Recent Literature indicates that the clinical application of developmental and family-centered care has enhanced care of the infant and family through conversion of the environment to be more individualized and supportive of their needs (10).

However recent studies are lacking about the satisfaction level of parents of neonates requiring intensive care in the study setting. Therefore we planned this study with the objective of assessing parental satisfaction with NICU services in TASH and identifying the areas that need improvement.

1.3 Significance of the study

- How satisfied are parents with NICU services?
- Are there things that caregivers could do better?
- Are changes needed within the caregiving environment to enhance parent satisfaction with the NICU experience?
- Recent studies are lacking about the satisfaction level of parents of neonates requiring intensive care in the study setting.

2 Literature Review

An integrative review on parent satisfaction with care in Neonatal Intensive Care Units from the US, UK, Canada, Australia, Netherlands, South Africa, and Israel shows that parents reported a moderate to high overall satisfaction with the care given to their infants in the NICU, although this satisfaction differed markedly across healthcare centers. Satisfaction among parents regarding particular elements of care in the NICU was also found to be moderately high to high(10).

Bern's et al. (2007) assessed specific care-related elements, including parents' reports of satisfaction with their involvement in the NICU, the quality of communication with the medical staff, and the adequacy of the information. The vast majority of parents (78%) felt they were involved in their infants' care as much as they wanted to be ; four fifths (80%) were able to talk to their infants' nurses and doctors as much as they wanted and three quarters (75%) were given "just the right amount" of information regarding care given to their infants(11).

Similar findings were made by Bruns and Klein (2005), who assessed parents' perceptions of NICU practices in a number of areas, including the environment, caring for their infants, communication with the healthcare professionals, and relationships with the healthcare team. Parents rated items on a 4-point scale indicating their level of satisfaction or agreement (agreed, no opinion/neutral, disagreed, or not applicable). The majority of items (six of eight) related to the NICU environment had 80% or higher rates of agreement, and the majority of items (9 of 11) regarding communication with health care professionals had 75% or higher rates of agreement. Relationships with the health care team also received a positive rating from parents (all six items had 75%or greater rate of agreement)(12).

Even though many parents felt satisfied with certain aspects regarding their infant's care, research indicated that, overall, fewer parents expressed satisfaction with the NICU care they received. For example, in a large national study conducted in the U.S. (11) only 37% of parents of preterm infants expressed that they felt 'prepared' for home transition during their NICU admission, and 24% of British parents of very-low-birth-weight infants indicated that they felt 'underprepared' for the discharge from the NICU (14). In South Africa, slightly more than half of parents (57%) of very-low-birth-weight infants expressed overall satisfaction with the communication that took place while their infant was in the NICU (13).

Between the few studies that focused on factors linked or associated to parent satisfaction with neonatal intensive care unit (NICU) care, there was minimal agreement on which parent or child demographic variables were associated with satisfaction. One large multisite study conducted in the United States indicated that satisfaction scores were associated with age, education and race/ethnicity; satisfaction scores were slightly higher for parents who were older, White and more educated (15). Researchers also identified lower family income and non-White race as significant predictors for lower satisfaction in the multivariate modeling (15). Conversely, other researchers did not report a correlation between parent sociodemographic factors and mothers' and fathers'

satisfaction with the care received (2).Similarly, one study found a positive relationship between mothers' satisfaction and the child demographic characteristic of birth weight (15) . But, another study did not find any association between mothers' or fathers' ratings of satisfaction with care, and birth weight (2).

Despite this, there was a connection between the child's health and parent satisfaction with NICU care. Mc-Cormick et al. (2008) concluded that the most important predictor of parent satisfaction was the parents' report of their infant's health status at a follow-up interview three months after discharge; Parent satisfaction ratings improved with their perception of their child's health status. In this study, more than half the parents expressed satisfaction with the neonatal care received by their neonates (15).

Among few studies done in Ethiopia one study examined the parental satisfaction concerning their neonatal care and associated factors in selected governmental hospital in Addis Ababa in 2017 showed 41.8% of overall parental satisfaction (16). In in another study done on the magnitude of parental satisfaction with NICU service in public hospitals in Ethiopia's SNNPR regional state in 2022 showed 63% overall parental satisfaction(17). Similarly in a study done in public hospitals in Bahir Dar, Northwest Ethiopia and University of Gondar Comprehensive Specialized Hospital more than half of the parents were satisfied with the neonatal care provided to their neonates (3, 18).Parental age and sex, LOS, history of readmission, parental involvement in decision-making, availability of chair in the waiting area were factors associated with parental satisfaction.

3 Conceptual framework

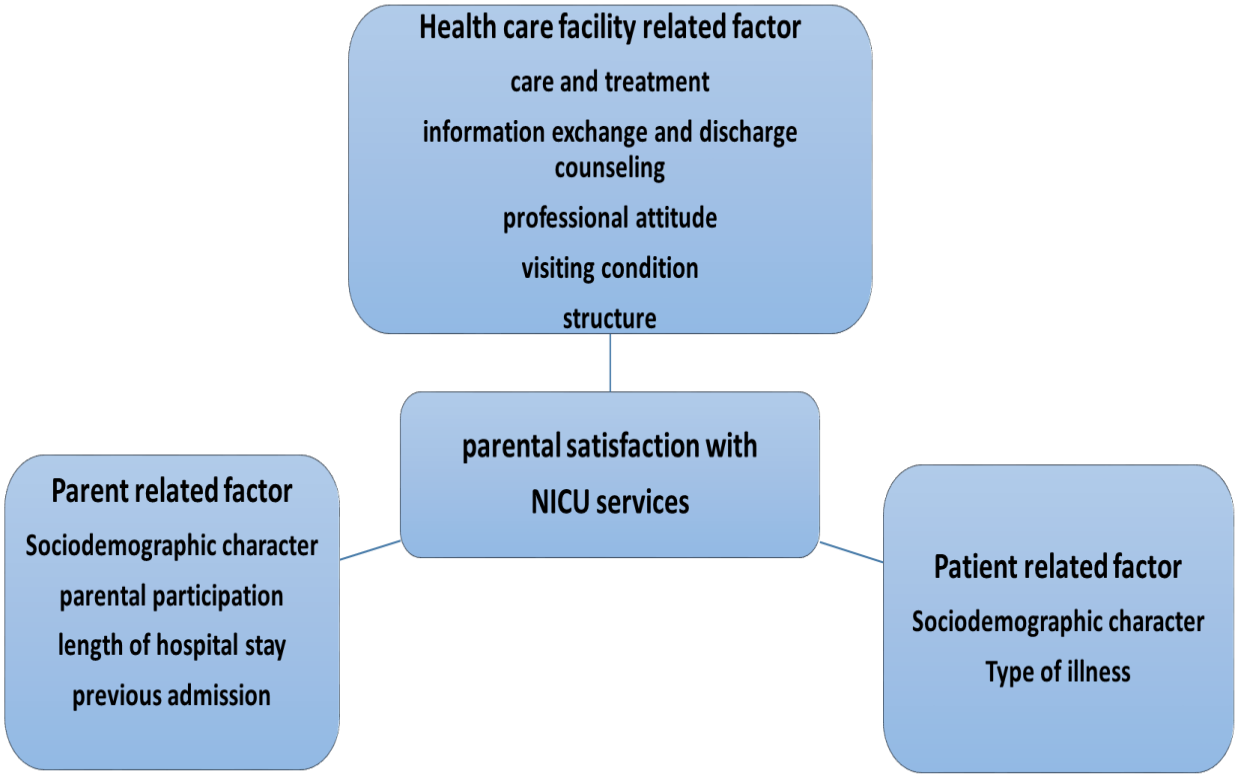

Figure 1: Conceptual framework of Parental satisfaction with neonatal intensive care unit services and its associated factors at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia, 2024 G.C.

4 Objectives

4.1 General

To asses Parental satisfaction with neonatal intensive care unit services and its associated factors at Tikur Anbessa specialized hospital; a cross sectional study.

4.2 Specific

To asses parental satisfaction with neonatal intensive care unit services.

To identify factors associated with parental satisfaction with neonatal intensive care unit services.

5 Methods and Material

5.1 Study setting

The study was conducted in Tikur Anbesa Specialized Hospital, in NICU, Addis Ababa, Ethiopia. Tikur Anbesa Specialized Hospital, established in 1974, is the largest tertiary hospital in the country. The hospital is administered by Addis Ababa University and is the largest and oldest

teaching hospital. Black Lion hospital offers diagnosis and treatment for approximately 400,000 patients a year. Under the department of pediatrics and child health the NICU provides care for the sick newborns from all over the country. The NICU has 60 Beds. Currently there is 1 neonatologist, and 2 neonatology fellows. The NICU provide services for more than 150 neonates every month.

5.2 Study design and period

This study was conducted using a hospital-based cross sectional study design from November 1, 2024 to January 30, 2025.

5.3 Source Population

All parents whose neonates were admitted in NICU of TASH.

5.4 Study population

Sampled parents who were visiting the NICU or HRIC of TASH during the data collection period.

5.5 Sample size and Sampling methods

The sample size is determined using single population proportion formula by considering parental satisfaction 41.8% with NICU service from previous study conducted in selected public hospitals in Addis Ababa in 2017.

Sample size calculation formula: $n = \frac{(Z\ \alpha/2)^2\ P\ (1-P)}{d^2}$

Where: n is sample size, z is the probability of the error going to estimate (1.96), d is precision required (5%), and p is 41.8 %

Sample size = 371

According to the data from HMIS at NICU and HRIC total number of neonate over 3 months were 1000/N/ and Using the correction formula

$$n = \frac{n_o}{\left(1 + \frac{n_o}{N}\right)}$$

Final sample size became 271

Participant were selected by simple random sampling

5.6 Inclusion and exclusion criteria

Inclusion criteria:

- All parents whose neonate was admitted to TASH NICU for more than 48 hr.

Exclusion criteria:

- Parents who left against medical advice.
- Parents whose neonate died.

5.7 Data collection and measurements

All relevant data were collected from the medical records and parents of the neonate by data collectors upon discharge from the NICUs and at high risk infant clinic. Data were collected by using a validated Neonatal Satisfaction Survey (NSS-8) questionnaire (19).The questionnaire has eight dimensions (care and treatment, information sharing, parental involvement in the decision of their neonate's care, care providers' attitude, visiting condition, counseling at discharge, and hospital structure and sociodemographic characteristics-related items). The questionnaire items was measured using a Likert scale with 5 alternatives (1 = strongly disagree, 2 = disagree, 3 = not sure, 4 = agree, 5 = strongly agree) to measure parental satisfaction status.

5.8 Data handling

The data were collected using a google format and the primary investigator checked for data cleanness and completeness.

5.9 Study variables

Dependent variables-parental satisfaction with NICU services.

Independent variables

- Health care facility related factor- care and treatment, information exchange and discharge counseling, professional attitude, visiting condition, structure.
- Parent related factor- Sociodemographic character, parental participation, length of hospital stay, previous admission.
- Patient related factor- Sociodemographic character, Type of illness, Severity of illness.

5.10 Data Quality Assurance

Primary investigator checked collected data completeness and its consistency before carrying out any statistical analysis.

5.11 Data analysis

After thorough cleaning and checking for its completeness data were entered into Statistical Package for Social Sciences ver. 25 (SPSS) for subsequent descriptive analysis such as Mean, frequencies and percentage as appropriate. Bivariable and multivariable logistic regression was done to assess the association between the overall satisfaction and the independent variable. Statistically significance was taken for p values of <0.05.

6 Ethical consideration

Ethical clearance to conduct this study was obtained from the Pediatrics and Child Health Department Research and Publications Committee of the School of Medicine, College of health Sciences, Addis Ababa University. Confidentiality was fully maintained during Data Collection and analysis and dissemination of results.

7 Operational definitions

- Parental satisfaction: it is defined as attaining the parents' needs or desires.
- Overall satisfaction was calculated by summing all items measuring satisfaction and was determined by the cutoff point, which is the mean score.
- Satisfied - Parents who scored equal to or above the mean score were classified as satisfied with the NICU services.
- Unsatisfied - those who scored below the mean score.

8 Result

8.1 Socio-demographic characteristics of parents

In this research, 271 parents involved with a response rate of 100%. Of those, 256 (94.5%) parents of neonates were female. In addition, 194 (78.6%) parents were married. As for educational history, 115 (42.4%) had completed primary-level education, while 166 (61.3%) parents were between the ages of 26 and 34. (See table 1 below).

Table 1. Socio-demographic characteristics of parents in Neonatal Intensive Care Unit Services at Tikur Anbessa Specialized Hospital. Addis Ababa, Ethiopia, 2024 G.C.

Variables	Frequency(n=271)	Percentage (%)
Age group		
< 25 yrs.	66	24.4
26 - 34 yrs.	166	61.3
> 35 yrs.	39	14.4
Sex		
Male	15	5.5
Female	256	94.5
Marital Status		
Single	77	28.4
Married	194	71.6
Residence		
Urban	201	74.2
Rural	70	25.8
Occupation		
House wife	87	32.1
Private employee	106	39.1
Merchant	47	17.3
government employee	21	7.7
Farmer	10	3.7
Educational Level		
No formal Education	12	4.4
Primary	115	42.4
Secondary	100	36.9
College and Above	44	16.2
Monthly Income		
<1000	32	11.8
1000 – 5000	107	39.5
5000 -10000	120	44.3
>10000	12	4.4

8.2 Socio-demographic characteristics of the neonates

One hundred forty five (53.5%) were from HRIC. Regarding the age and sex of neonates, 114(42.1%) and 145 (53.5%) respectively were above the age of 21 days and females. 130 (48%) were born term. Whereas, 143 (52.8%) were born with normal birth weight. Neonatal sepsis account for 89 (32.8%) of the main admission diagnosis. Also, 106(39.1%) and 65 (24%) stayed in the hospital for 8-14 days and has history of re-admission respectively (See table 2 below).

Table 2. Socio-demographic characteristics of Neonates in Neonatal Intensive Care Unit Services at Tikur Anbessa Specialized Hospital. Addis Ababa, Ethiopia, 2024 G.C.

Variables	Frequency(n=271)	Percentage (%)
Place		
NICU	126	46.5
HRIC	145	53.5
Neonatal Sex		
Male	126	46.5
Female	145	53.5
Age		
<7days	52	19.2
7-14days	55	20.3
15-21 days	50	18.5
>21 days	114	42.1
Gestational Age		
<37 weeks	83	30.6
37-42 weeks	130	48.0
>42 weeks	58	21.4
Mode of Delivery		
SVD	158	58.3
Instrumental	8	3.0
C/S	105	38.7
Birth Weight		
<1000gm	20	7.4
1000-1500gm	51	18.8
1500-2500gm	54	19.9
2500-4000gm	143	52.8
>4000gm	3	1.1
Main Admission Diagnosis		
Neonatal Sepsis	89	32.8
Birth Asphyxia	11	4.1
Neonatal Jaundice	72	26.6
Congenital malformation	19	7.0
Prematurity	78	28.8
Length of Hospital Stay		
<7 days	65	24.0
8-14 days	106	39.1
> 15 days	100	36.9
Readmission?		
Yes	65	24.0
No	206	76.0

8.3 PARENTAL SATISFACTION WITH NICU SERVICES

Level of satisfaction was assessed by seven parameters which are, care and treatment, information exchange, parental participation, professional attitude, visiting conditions, counseling at discharge, and hospital facility.

Parental satisfaction with their neonatal care (NSS-8) domains

About 55 % of the parents were satisfied with the care and treatment given to their neonates. Regarding information sharing and counseling at discharge about 52 % and 54.6 % of the parents were satisfied respectively. Regarding to the visiting conditions (54 %), and hospital structure (53 %) of the parents were satisfied. However only half of the parents were satisfied regarding parental participation and attitude of health care providers. (See figure 1 below).

The main sources of dissatisfaction related to parental participation were their involvement in decision making on care and treatment of the neonate (151 parents among 271(56 %) not satisfied), regarding the professional attitude 140 parents (51 %) reported their relations with health care providers in the NICU was not friendly, regarding the hospital facility unavailability of drugs in pharmacies (62%) and special room for mothers to express breast milk (65%) were the main source of dissatisfaction (See figure 1 below).

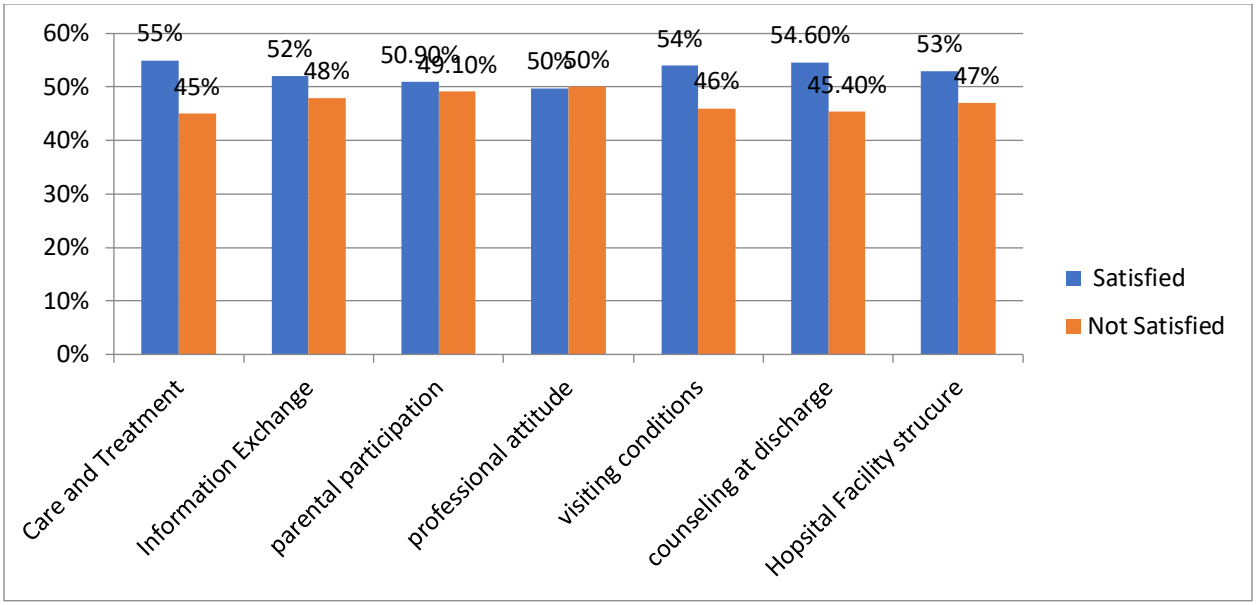

Figure 2. Satisfaction from each parameters among parents in Neonatal Intensive Care Unit Services And Its Associated Factors At Tikur Anbessa Specialized Hospital. Addis Ababa, Ethiopia, 2024 G.C

Overall satisfaction towards NICU at TASH

Overall satisfaction was assessed from the seven parameters in the tool each was set in a Likert scale type. Thus, as already stated in the operational definition, it was computed from these parameters then it was dichotomized based on the mean score of the overall satisfaction variable. Those who score below the mean i.e. 141.5 were declared to be unsatisfied and those who score above the mean were satisfied. Accordingly 161 (59.4%), 95% CI, (53.1, 66.1) were satisfied (see figure 2 given below).

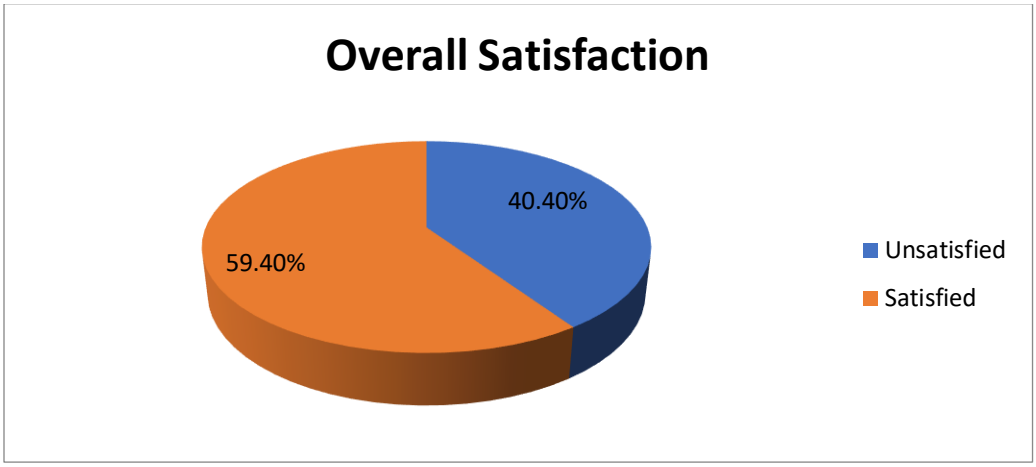

Figure 3. Overall Satisfaction towards Neonatal Intensive Care Unit Services and Its Associated Factors at Tikur Anbessa Specialized Hospital. Addis Ababa, Ethiopia, 2024 G.C.

Factors Associated with Overall Satisfaction

Bivariable was done for seven independent variables supposed to have an association with Overall Satisfaction. Thereby, seven variables were checked whether they have a p-value of less than 0.25 to be taken to the multivariable logistic regression model. Accordingly, four variables, length of stay, place of interview, main admission diagnosis, readmission, and were candidates for the final model at $p<0.25$. Also, Hosmer and Lemeshsow test of goodness of fit of a model was checked and revealed non-significant result and suggesting fitted model ($p>0.53$). Finally in the multivariable logistic regression model three variables suggested presence of a statistical significant association with overall satisfaction towards NICU service at TASH.

Moreover, the study revealed parents whose neonate stayed in the hospital for less than 7 days have a 5.81 times (AOR=5.81 95% CI (2.39, 14.1)) increased chance of being satisfied than who stayed in the hospital greater than 15 days. Also, parents who was interviewed in the NICU have

a 3.11 times higher chance being satisfied than those who were interviewed in the high risk infant clinic. (AOR=3.11, 955 CI (2.446, 3.3)).Likewise, parents whose neonates have been diagnosed for neonatal sepsis and jaundice have a 2.8 times (AOR=2.8, 95% CI (1.29, 6.165) and a 6.3 times (AOR=6.3 95% CI (1.155, 35.0) increased chance of being satisfied than those parents whose neonate admission diagnosis is congenital malformation

Table 3. Bivariable and Multivariable Logistic Regression analysis for Overall satisfaction towards NICU with independent variables in TASH, 2024/25

Variables	Satisfied No (%)	Unsatisfied No (%)	COR(95%CI)	P-Value	AOR(95%CI)	P-value
Place						
NICU	76	50	0.2 (0.119, 0.340)	0.01*	3.11(2.446,3.3)	0.001**
HRIC	34	111	1	1	1	
Main Admission Diagnosis						
Neonatal Sepsis	30	59	0.32 (0.25, 0.443)	0.01*	2.8(1.29,6.165)	0.009**
Birth Asphyxia	2	9	0.8 (0.687, 0.935)	0.05*	2.16(0.925,5.08)	0.075
Neonatal Jaundice	25	47	0.4(.117, .534)	0.02*	6.3(1.155,35.0)	0.0034**
Prematurity	40	38	0.23 (.07, .235)	0.03*	0.967(0.260,3.59)	0.975
Congenital malformation	13	6	1	1	1	1
Length of Hospital Stay						
<7 days	20	45	2.337(1.22, 4.47)	0.01*	5.81(2.39,14.1)	001**
8 - 14 days	54	52	1.84(1.056, 3.227	0.03*	2.16(0.035,4.5)	0.14
> 15 days	36	64	1	1	1	1
Readmission						
Yes	22	43	1.45(.813, 2.61)*	0.2	.98(.427,2.277)	0.975
No	88	118	1	1	1	1
Maternal Education Level						
No formal Education	9	3	.231(.055,.972)	0.34		
Primary	54	61	0.782(0.387, 1.581)	0.49		
Secondary	29	71	1.695(0.809, 3.553)	0.28		
College and Above	18	26	1	1	1	1
Gestational Age						
37-42 weeks	57	73	1.238(.081,19.00)	0.878		
>42 weeks	14	44	0.735(0.053, 10.24)	0.818		
<37 weeks	39	44	1	1	1	1
Birth Weight						
1000-1500gm	27	24	0.442(0.161, 1.214)	0.213		
1500-2500gm	20	34	0.412(0.204, 0.830)	0.32		
2500-4000gm	54	89	0.32 (0.287, 0.335)	0.26		
>4000gm	1	2	0.41 (0.171, 1.314)	0.29		
<1000gm	8	12	1	1	1	1

9 Discussion

In this study the level of overall satisfaction towards NICU service among parents was 59.4%. The factors associated with overall satisfaction among parents were, shorter duration of hospital stay(less than seven days), admission diagnosis (Neonatal Sepsis and Jaundice), and place of interview (NICU).

The level of satisfaction revealed from this study is lower compared to an integrative review of parent satisfaction with Care provided in the Neonatal Intensive Care Unit on studies conducted in United State, United Kingdom, Canada, Australia, Netherlands, South Africa, and Israel. Parents reported a moderately high to high degree of overall satisfaction with care provided to their infants in the NICU, although this level of satisfaction varied significantly among health care facilities(10).Also, the finding from this study about the level of overall satisfaction, is lower as compared to a study done on the magnitude of parental satisfaction with NICU service in public hospitals in Ethiopia's SNNPR regional state in 2022 which showed 63% overall parental satisfaction(17). The possible justification for the disparity might be due to the fact that differences in set up. Also, differences in professionalism and approach, communication, CRC, presence and absence of complications and the diagnosis during admission might describe the observed difference.

In contrary the finding from this study was relatively higher as compared to few studies done in Ethiopia examined the parental satisfaction concerning their neonatal care in selected governmental hospital in Addis Ababa in 2017 which showed 41.8% of overall parental satisfaction (16).The possible justification for the observed difference might be attributable to relative advancement in the setting and better service from the care providers.

Among the factors associated with overall satisfaction , shorter duration of hospital stay(less 7 days), have a 5.81 times increased chance of being satisfied than who stayed in the hospital greater than 15 days.This finding was supported by a study from public hospitals in Bahir Dar and Gondar suggesting length of hospital stay and history of readmission, were factors associated with parental satisfaction (3, 18). Nonetheless, history of re-admission was not a factor associated with overall satisfaction in this study. This might be due to differences in sample size, lower frequency in rate of history of readmission from the present study as opposing the finding from the prior research. In this study admission diagnosis was also one of the factor associated with parental satisfaction.

Parents whose neonate has admission diagnosis of neonatal sepsis and jaundice have a 2.8 times and a 6.3 times increased chance of being satisfied than those parents whose neonate admission diagnosis is congenital malformation. This result is consistent with a study conducted from six different NICUs in Norway where Infant health as rated by the parents was negatively and statistically associated with parental satisfaction. Indicating that better infant health led to greater satisfaction with the NICU and less parental anxiety (19).

10 Conclusion

This study revealed a moderate level of overall satisfaction towards the NICU services in TASH. The factors associated with overall satisfaction are shorter duration of hospital stay(less than 7 days), admission diagnosis (Neonatal Sepsis and Jaundice) and place of interview (NICU).

11 Strength and limitation of the study

Strength of the study

- 1oo % response rate
- The interview was done both in NICU and HRIC

Limitation of the study

- Since it is a cross sectional study, Cause and effect relation of variables can't be established.
- The study is limited to single center tertiary governmental hospital.

12 Recommendations

To NICU and TASH

- Make an effort to initiate family centered care in order to
- To improve parental participation with their involvement in decision making on the care and treatment of the neonate
- To improve the health care provider relation with the parents.
- Avail commonly used drugs in the NICU pharmacies.
- Prepare special room for mothers to express breast milk.

To researchers

- Conduct a qualitative study using an interpretive descriptive approach.

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14 Annex: Data collecting Questionnaire

Neonatal Satisfaction survey (NSS-8) tool

Table 1

S.N	Sociodemographic character of the parents	
1	Age	<25 26-34 >36
2	Length of Hospital stay in days	<10 11-15 >16
3	Marital status	Single Married divorced
4	Sex of the parents	Male Female
5	Readmission	No yes
6	Educational status	No formal education Primary Secondary College and above
7	Residence	Rural Urban
8	Occupation	Government employee Private employee Merchant Farmer House wife Other---
9	Monthly income in Ethiopian birr	<1000 1000-5000 >5000

Table 2

S.N	Sociodemographic character of the neonate	
1	Age	<7 , 8-14 , 15-21 ,>22
2	Sex	Male female
3	GA	<37 WEEKS 37-42 >42 WEEKS
4	Mode of delivery	SVD CS INSTRUMENTAL DELIVARY
5	Birth weight	< 1ooo gm 1000-1500 gm 1500-2500gm 2500-4000gm >4000 gm
6	Main admission diagnosis	Birth asphyxia , Congenital malformation ,Neonatal jaundice ,Neonatal sepsis ,Prematurity Others

Table 3

		Level of satisfaction				
		Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
	Care and treatment satisfaction measuring items					
1	Satisfaction with care and treatment given to neonate					
2	Satisfaction with cooperation of the health care professionals in giving treatment and care					
3	Satisfaction with care given to parent upon arrival at the NICU					
4	Satisfaction with care gave for neonate upon arrival at the NICU					
5	Satisfaction with care and support given for parents later in the process					
6	Satisfaction with care and support given for neonate later in the process					
7	Satisfaction with compassion of the NICU staff					
8	Satisfaction by the nurses spend enough Time at your neonate's bedside					
9	Satisfaction with quick response to your neonate's needs					
10	Satisfaction with enough guidance & education given					
11	Satisfaction with health care providers in hearing your opinions					
12	Satisfaction with providers explanation given to you is understandable					
13	Satisfaction with confidentiality of neonate					
14	Satisfaction with time Waiting to get service in the hospital					
	Information exchange satisfaction measuring items					
15	Satisfaction with consistent inform about neonate's health condition					
16	Satisfaction with advice that the heath care provider give you about ways to stay health in your NICU stay.					

17	Satisfaction with answers by the care provider for your asked questions					
18	Satisfaction with information about result of your neonate's treatment					
19	Satisfaction with information given about your responsibilities in NICU					
20	Information concerning your neonate's illness/course of illness in the NICU stay					
21	Information about your neonate procedure results					
22	Information regarding planned medical tests and procedures for your neonate					
23	Information about the effects and side effects of new medication given to the neonate					
24	Information about neonate's expected health outcome					
25	Similarity of the information given by the doctors and nurses in the NICU					
	Parental participation satisfaction measuring items					
26	During intensive procedures close observation of the situation					
27	Participation in the care of neonate					
28	Staffs support for creation of bonding with Your neonate					
29	Involved in decision making on care and treatment of neonate					
	Professional attitude satisfaction measuring items					
30	Focuses of Doctors and nurses on your neonate's health care					
31	Respect for your neonate and yourself by the health care providers					
32	Appearance of professional competency of the health care providers					
33	Caring and friendly relations with health care providers in the NICU					
	Visiting condition satisfaction measuring items					
34	Visiting conditions at the unit					

35	Routine visiting at the unit					
36	Visiting conditions for your neonate in the unit					
	Counseling at discharge satisfaction measuring items					
37	information given about your neonate for the period following discharge					
38	information given to be confident with managing the necessary follow-up care of the neonate after homecoming					
39	information given about what to do if the neonate become ill after discharge					
	Hospital facility structure satisfaction measuring items					
40	Availability of enough chairs in the sitting room					
41	Cleanness and service of the toilet and shower in the NICU					
42	Cleanness and safety of the NICU environment					
43	Availability of special room for mothers to express breast milk					
44	Availability of resting and sleeping rooms near to the NICU for the parents					
45	Information given about the NICU rule and regulations					
46	Neonate's room quietness for him/her to rest					
47	Availability of prescribed investigations in the hospital's laboratory					
48	Availability of prescribed drugs in the hospital pharmacy					
49	All in all, with the care and treatment neonate has received					
50	All in all, care and support given to the parent in the stay					