

Research Article

Factor That Influences Parental Satisfaction with Neonatal Intensive Care Unit Care Services

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Abstract

Introduction: Satisfaction is a belief and attitude regarding the level of services provided by a certain institution. Parental and patient satisfaction is a tool for evaluating the healthcare. Neonatal Intensive Care Units (NICUs) are a place where giving critical care that is both costly and efficient while utilizing a diverse team approach is required to get better results.

Methods and Materials: A cross-sectional research with an institutional focus was carried out between October 10, 2022 and January 10, 2023. The sample frame was made up of the parent of a newborn whose newborn has finished receiving hospital care and treatment and is getting ready to be discharged. Purposive sampling techniques were employed to choose the 299 individuals for the sample. The association between the dependent and independent variables was evaluated using the IBM SPSS software program, version 20.0 (Armonk, NY: IBM Corp). **Result:** The satisfaction rate of the participants in this study was 57%. This study analyses showed that mothers were 4 times more satisfied than fathers (AOR = 4.11; 95%CI: 2.81-5.63; P = 0.013). The odds of parental satisfaction on neonatal services were 7 times higher among residents of rural than who are residents of urban (AOR = 6.94; 95%CI: 3.42-8.06; P = 0.092) and parents of a neonate with a normal birth weight of 1.14 (AOR = 1.14; 95%CI: 1.00-3.94; P = 0.110) times more satisfied than their matching part.

Conclusion: In this study, slightly more than half (57%) of the parents expressed satisfaction with the infant's care services. This finding suggests that parental satisfaction was usually poor as compared to earlier study. Parental gender, parental place of residence and neonatal birth weight were all linked variables. Therefore, medical professionals and hospital administrators should collaborate to enhance NICU services in order to provide high-quality care and satisfy parents.

Keywords: Parental Satisfaction; Neonatal Intensive Care Unit; Factor Influencing; Cross Sectional Study

Introduction

Despite significant expenditures and attempts to reduce neonatal mortality, 2.5 million infants died before turning one month old in 2017 with 27 deaths per 1000 live births in Africa and 29 deaths per 1000 live births in Ethiopia [1]. It is a problem that hospitals do not provide proper infant care [2].

The role of parents in the healing process is crucial and patients who are pleased recover more rapidly. Research has found a connection between parents' happiness with their ability to get medical care and their capacity to give their kids the care they need [3].

Satisfaction is a viewpoint and attitude regarding the standard of services provided by a certain organization. Parent and patient satisfaction is a tool for evaluating the healthcare system and an input for developing strategies and providing patients with

accessible, long-lasting and financially sustainable treatment is one of the goals of every hospital that offers NICU care [4-7]. In Neonatal Intensive Care Units (NICUs), a varied team strategy must be used to deliver critical care that is both costly and efficient in order to have better results [8-10].

The possibility that a baby will hasten the healing of a disease and improve the neonate's health and happiness. In contrast, parental dissatisfaction in the NICU increases the risk that a baby would require a readmission, suffer an accident, or pass away [11,12]. Studies on parental satisfaction with newborn care in the NICU undertaken in various medical facilities throughout the world, shows 48.7% in Greece to 73% in Germany 89% in Sri Lanka 41.8% in Addis Ababa, Ethiopia and 77% in Debre Birhan, Ethiopia [13-17].

Parental satisfaction was regularly influenced by problems such, poor communication, rudeness and disrespectful behavior by healthcare professionals not being able to see their infant, limitations on family and sibling visits, the hospital's physical environment, the price of care and how easily supplies and equipment were available [18,19].

Due to the paucity of research on this subject in Ethiopia and the study area, it is important to identify the factors that affect parents' satisfaction with NICU care services at Harar Hiwot Fan Specialized Hospital in order to identify the hospital's service gaps and then recommend appropriate improvement strategies.

Methods

Study Period, Design and Setting

Between October 10, 2022 and January 10, 2023, hospital-based cross-sectional study was conducted in the NICU of the Hiwot Fana Specialized Referral Hospital, Harar. The hospital was first established in Ethiopia, some 525 kilometers from Addis Abeba, the nation's capital during the Italian colonial era in 1933 G.C. the hospital provide its services to the region and neighborhood regions.

Inclusion and Exclusion Criteria

The parent of the neonate whose neonate has completed their care and treatment service from the hospital and prepared for discharge were included and the parent of the neonate whose neonate is not complete the care and treatment service from the hospital like those with left against medical advice or referral slips to other institutions were excluded from the study.

Sampling and Sample Size

Under the following suppositions, the sample size was determined using a single population proportion formula. The sample size was determined using the formula $n = (Z/2)^2 p(1-p)/d^2$, where n is the number of study participants, Z is the value of the standardized normal distribution curve for the 95% confidence interval (1.96), P is the satisfaction with newborn care in the NICU in Debre Birhan, Ethiopia, which was 0.77 and d is the desired precision of the estimate (the margin of error between the sample and population, 5%) = 0.05 = $(1.96)^2(0.77)(0.23)/(0.05)^2 = 272$. The total sample size was 299 after adding 10% of the non-respondent rate and the data was collected from all consecutive parents who met the inclusion criteria until the intended sample size was achieved.

Data Collection Tools

The Newborn Satisfaction Survey (NSS), which was created by Hagen IH, Svindseth MF and Nettet E in Norwegian university, Norway and by researching related literature, served as the basis for the questionnaire's creation. The survey included questions about the socio-demographics of the parents and newborns as well as satisfaction measurement items. The information was collected through a pre-tested, interviewer-administered structured questionnaire at discharge or exit of the hospital with five - point likert scale types (having a scale of range 1 very dissatisfied to 5 very satisfied). Data was collected by four data collectors (degree nurses) and supervised by one public health officer. For ease of comprehension, the questionnaire was translated into regional language. Each questionnaire was reviewed daily for completion and any necessary feedback was given to the data collectors on the spot. Data was then entered by two separate data Clerks.

Operational Definition

Satisfied: Parents who scored greater than or equal to the overall mean values were considered satisfied.

Dissatisfied: Parents who scored less than the overall mean values were considered dissatisfied.

Data Analysis

After data collection, the questionnaire was checked for completeness and coded. The data were entered into Epi-info version 3.5.3 and exported, cleaned and analyzed by using SPSS 20. Mono, bi and multivariate analyses were performed. Variables with a $p < 0.05$ in bi-variate analysis were entered into multiple logistic regression and variables with a $p < 0.05$ in multivariate analysis were considered statistically significant associations. Ethical clearance was obtained from the Harar Health Science College Ethics and Research Committee (Ref. Number HHSC-111/2022). Consent was obtained from administrative body of the hospital and the participants. Confidentiality of the data has been kept throughout the study.

Results

Socio-Demographic Characteristics of The Parents

The survey was completed by 288 parents in total, with a response rate of 96.3%. 241 (83.68%) of the participants were mothers, making up the majority. The parents' ages ranged from 15 to 45 years old, with a mean age of 31.2 (SD 6.2) years. The majority of respondents, 210 (72.92%), were married. Of the women, 106 (34.81%) had completed elementary education (grades 1-8). Of the respondents, 172 (59.72%) resided in rural regions. Of the respondents, 241 (83.68%) worked for private firms. The average monthly salary of the respondents was 2700 Ethiopian Birr (Table 1).

Socio-Demographic Characteristics of The Neonate

Of the 288 babies participating in the study under their parents, 148 were female and ranged in age from 2 to 27 days. A total of 230 births, or 79.86% of the total, occurred vaginally, with 187 (64.93%) babies arriving at term. Infants admitted to the NICU most frequently had neonatal sepsis and their average hospital stay was 9.31 (+/-SD, 5.7) days. Hospital stays varied from 2 to 38 days (Table 1).

Variable	Category	Frequency	Percentage
Socio-demographic characteristics of parents			
Sex	Male	241	83.68
	Female	47	16.32
Age	15-25	186	64.58
	26-35	73	25.35
	36-45	29	10.07
Marital status	Not Married	78	27.08
	Married	210	72.92
Level of Education	No formal learning	49	17.01
	Primary school (1-8)	106	36.81
	Secondary school (9-12)	99	34.38
	College diploma/and above	34	11.80
Occupational	Private employ	241	83.68
	Government employ	39	13.54
	Non-Government employ	8	2.78
Residence	Rural	172	59.72
	Urban	116	40.28
Monthly financial family income	≤ 1000	43	14.93
	1001-5000	71	24.65
	5001-10000	174	60.42
Socio-demographic characteristics of neonate			

Sex of neonate	Male	140	48.61
	Female	148	51.39
Age	<=7 days	115	39.93
	8-14 days	69	23.96
	15-21 days	68	23.61
	22-28 days	34	11.81
Hospital stay	<=7 days	97	33.68
	8-15 days	65	22.57
	16-21 days	61	21.18
	22-28 days	48	16.67
	29+	17	5.90
Gestational age at birth	preterm	42	14.58
	term	230	79.86
	Post term	16	5.56
Mode of delivery	Spontaneous vaginal delivery	187	64.93
	Caesarian section	77	26.74
	Instrumental delivery	24	8.33
Birth weight	High birth weight	39	13.54
	Normal birth weight	173	60.07
	Low birth weight	76	26.39
Diagnosis	Birth asphyxia	20	6.94
	Congenital malformation	6	2.08%
	Neonatal jaundice	11	3.82
	Neonatal sepsis	77	26.74
	Prematurity	42	14.58
	Hypothermia	73	25.35
	Meconium aspiration	11	3.82
	Respiratory distress	43	14.93
	Others	5	1.74

Table 1: Socio-demographic characteristics of parents and their neonates admitted in the NICU of Hiowt Fana Specialized Referral Hospital, Harar, Ethiopia, 2023.

Care and Treatment

The majority of participants in this satisfaction measurement domain assessed the majority of the indicators (items) as gratifying. Level of correct medication always administered on time 273 (94.8%) and Level of emotional support that has been provided 247(85.76%) were highly rated markers of satisfaction from this. Every day we knew who of the doctors and nurses was responsible for our child was highly assessed as unsatisfactory, scoring 161 (55.91%), (Table 2).

Parental Participation

Most of the indicators from this category were regarded as pleasing by the vast majority of participants. From this, we were encouraged to stay close to our children. 244 (ranked as gratifying by 84.73%) and the nurses helped us in the bonding with our child 212 (evaluated as satisfying by 73.61%) were the highest-rated indications of satisfaction. The nurses stimulated us to help in the care of our child 200 (69.45%) and even during intensive procedures, we could always stay close to our child. 126 (43.75%) were the indications of satisfaction that were regarded as unsatisfactory (Table 2).

Organization

The participants assessed the majority of the indications from this category as satisfied, our child's incubator or bed was clean

288(100%) and The Neonatology unit made us feel safe 42(14.58%) was the indications of satisfaction that was regarded as unsatisfactory (Table 2).

Professional Attitude

The participants assessed the majority of the indications from this category as satisfied, the team worked hygienically 270(93.75%) and the doctors and nurses always took time to listen to us 111(38.54%) was the indications of satisfaction that was regarded as unsatisfactory (Table 2).

Information Exchange Between the Parent and Health Care Provider

To what extent do you receive clear information about the examinations and tests 214 (74.31%) and how much clear information is given regarding a child's illness 164(56.95%) were the highly ranked indicators of satisfaction that were assessed as unsatisfactory. Similarity How satisfied is you with the physicians' and nurses' information similarity 176 (61.11%) How you are satisfied with doctors' and nurses' honesty in providing information 176 (61.11%) were the markers of satisfaction that were regarded as extremely satisfied (Table 2).

Care and Treatment	1	2	3	4	5
Level of child's comfort taken into account by the doctors and nurses?	46(15.97%)	94(32.64%)	44(15.28%)	56(19.44%)	48(16.67%)
Level of team alertness to the prevention and treatment of pain of neonate?	22(7.64%)	31(10.76%)	31(10.76%)	103(35.76%)	101(35.07%)
Level of care taken to nurses while in the incubator/bed?	11(3.82%)	22(7.64%)	25(8.68%)	18(6.25%)	212(73.61%)
Level of correct medication always administered on time?	6(2.08%)	5(1.74%)	4(1.39%)	52(18.06%)	221(76.74%)
Level of emotional support that has been provided?	15(5.21%)	13(4.51%)	13(4.51%)	49(17.01%)	198(68.75%)
The doctors and nurses responded well to our own needs	38(13.19%)	57(19.79%)	99(34.38%)	0(0.00%)	94(32.64%)
Transferrals of care from the neonatal intensive care unit staff to colleagues in the high-care unit or pediatric ward had gone well?	57(19.79%)	66(22.92%)	39(13.54%)	41(14.24%)	85(29.51%)
Every day we knew who of the doctors and nurses was responsible for our child.	113(39.24%)	48(16.67%)	43(14.93%)	45(15.63%)	39(13.54%)
How closely did doctors and nurses collaborate during work?	13(4.51%)	28(9.72%)	42(14.58%)	125(43.40%)	80(27.78%)
Level of a common goal: to provide the finest care and treatment for our child and ourselves.	28(9.72%)	29(10.07%)	49(17.01%)	83(28.82%)	99(34.38%)
The team as a whole was concerned for our child and you.	12(4.17%)	51(17.71%)	58(20.14%)	79(27.43%)	88(30.56%)
Our child's requirements were met promptly	47(16.32%)	49(17.01%)	15(5.21%)	89(30.90%)	88(30.56%)
The extent of doctors' and nurses' professional knowledge of what they are doing?	41(14.24%)	42(14.58%)	11(3.82%)	98(34.03%)	96(33.33%)
How satisfied are you with the doctors' and nurses' understanding	17(5.90%)	25(8.68%)	42(14.58%)	97(33.68%)	107(37.15%)

of the child's medical history at the time of admission?					
Parenteral Participation					
How involved are you in making decisions about our child's care and treatment?	26(9.03%)	23(7.99%)	34(11.81%)	89(30.90%)	116(40.28%)
The nurses had trained us on the specific aspects of newborn care.	14(4.86%)	27(9.38%)	42(14.58%)	98(34.03%)	107(37.15%)
We were encouraged to stay close to our children.	9(3.13%)	17(5.90%)	18(6.25%)	70(24.31%)	174(60.42%)
Before discharge, the care for our child was once more discussed with us.	16(5.56%)	11(3.82%)	56(19.44%)	122(42.36%)	83(28.82%)
Even during intensive procedures, we could always stay close to our child.	40(13.89%)	86(29.86%)	44(15.28%)	30(10.42%)	88(30.56%)
The nurses stimulated us to help in the care of our child	101(35.07%)	99(34.38%)	29(10.07%)	28(9.72%)	31(10.76%)
The nurses helped us in the bonding with our child	10(3.47%)	23(7.99%)	43(14.93%)	122(42.36%)	90(31.25%)
We had confidence in the team	56(19.44%)	47(16.32%)	69(23.96%)	87(30.21%)	29(10.07%)
Organization					
The Neonatology unit made us feel safe	42(14.58%)	33(11.46%)	35(12.15%)	93(32.29%)	85(29.51%)
There was a warm atmosphere in the Neonatology unit without hostility	2(0.69%)	5(1.74%)	8(2.78%)	89(30.90%)	184(63.89%)
The Neonatology unit was clean	2(0.69%)	2(0.69%)	2(0.69%)	2(0.69%)	280(97.22%)
Our child's incubator or bed was clean	0(0.00%)	0(0.00%)	9(3.13%)	0(0.00%)	288(100.00%)
The team worked efficiently	6(2.08%)	7(2.43%)	48(16.67%)	38(13.19%)	189(65.63%)
There was enough space around our child's incubator/bed	0(0.00%)	0(0.00%)	0(0.00%)	6(2.08%)	282(97.92%)
Noise in the unit was muffled as good as possible	0(0.00%)	11(3.82%)	21(7.29%)	66(22.92%)	190(65.97%)
Professionals Attitude					
Our child's health always came first for the doctors and nurses	15(5.21%)	38(13.19%)	42(14.58%)	90(31.25%)	103(35.76%)
The team worked hygienically	0(0.00%)	0(0.00%)	0(0.00%)	18(6.25%)	270(93.75%)
Our cultural background was taken into account	19(6.60%)	18(6.25%)	21(7.29%)	119(41.32%)	111(38.54%)
The doctors and nurses always took time to listen to us	111(38.54%)	89(30.90%)	40(13.89%)	31(10.76%)	17(5.90%)
We felt welcome by the team	152(52.78%)	58(20.14%)	32(11.11%)	23(7.99%)	23(7.99%)
Despite the workload, sufficient attention was paid to our child and us by the team	59(20.49%)	19(6.60%)	32(11.11%)	99(34.38%)	79(27.43%)
Nurses and doctors always introduced themselves by name and	77(26.74%)	87(30.21%)	37(12.85%)	39(13.54%)	48(16.67%)

function					
We received sympathy from the doctors and nurses	94(32.64%)	74(25.69%)	24(8.33%)	35(12.15%)	61(21.18%)
At our bedside, the discussion between the doctors and nurses was only about our child.	132(45.83%)	11(3.82%)	44(15.28%)	20(6.94%)	81(28.13%)
There was a pleasant atmosphere among the staff	154(53.47%)	38(13.19%)	43(14.93%)	26(9.03%)	27(9.38%)
Information					
How satisfied are you with the physicians' and nurses' information similarity?	36(12.50%)	47(16.32%)	29(10.07%)	87(30.21%)	89(30.90%)
How are you satisfied with doctors' and nurses' honesty in providing information?	36(12.50%)	47(16.32%)	29(10.07%)	87(30.21%)	89(30.90%)
How satisfied are you with daily discussions with doctors and nurses about your child's care and treatment?	42(14.58%)	84(29.17%)	96(33.33%)	38(13.19%)	28(9.72%)
How understandable was the information provided by the doctors and nurses?	38(13.19%)	77(26.74%)	47(16.32%)	87(30.21%)	39(13.54%)
How satisfied were you with the clear answers to your questions?	23(7.99%)	36(12.50%)	84(29.17%)	58(20.14%)	87(30.21%)
How clear is the doctor's information about the consequences of the child's treatment?	89(30.90%)	64(22.22%)	69(23.96%)	48(16.67%)	18(6.25%)
To what extent do you receive clear information about the examinations and tests?	117(40.63%)	97(33.68%)	33(11.46%)	22(7.64%)	19(6.60%)
How much clear information is given regarding a child's illness?	88(30.56%)	76(26.39%)	11(3.82%)	39(13.54%)	74(25.69%)
Level of received understandable information about the effects of the drugs?	36(12.50%)	77(26.74%)	29(10.07%)	89(30.90%)	57(19.79%)
1=very dissatisfied, 2= dissatisfied, 3=neutral, 3=satisfied, 5= very satisfied					

Table 2: Hospital processes and structure determining parental satisfaction with care of neonates in the NICU of Hiwot Fana Specialized Referral Hospital, Harar, Ethiopia, 2023.

Over All Proportion of Parental Satisfaction

Neonatal hospital care across all respondents (n=288) revealed that 165 (57.29%, or almost 57%) of parents were satisfied with the treatment their neonate got in the hospitals. 104 (or 36.11%) of parents were on average very satisfied, compared to 61 (or 21.18%) of parents on average who were satisfied (Fig. 1).

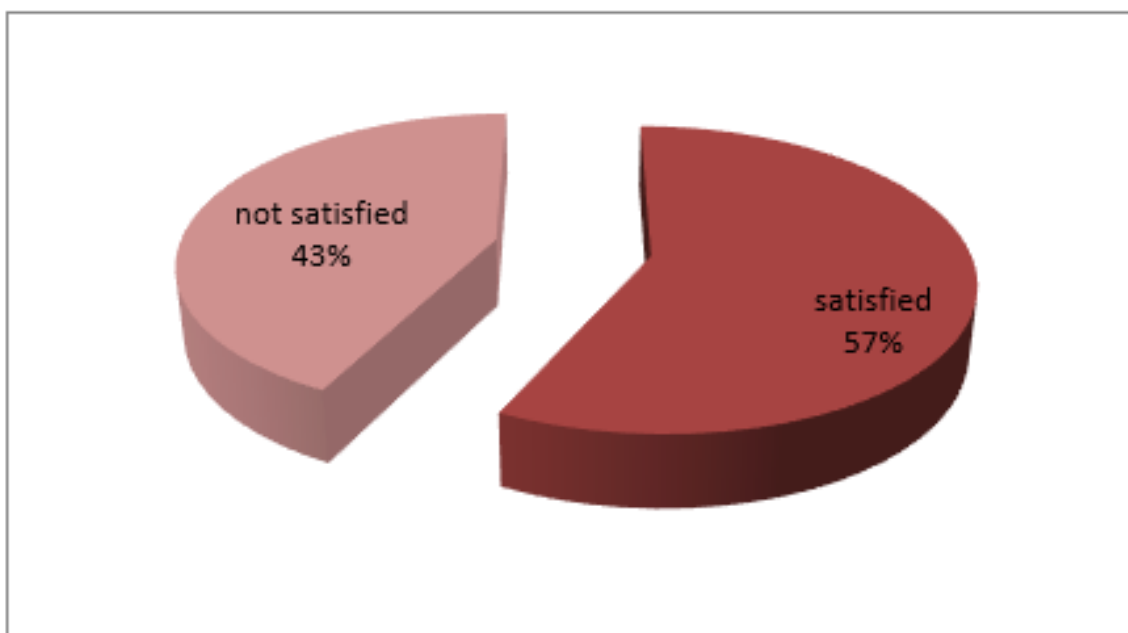


Figure 1: Level of parental satisfaction to NICU services, Hiowt Fana Specialized Referral Hospital, Harar, Ethiopia, 2023.

Factors Associated with The Overall Parental Satisfaction of NICU Care Service

Variables considered for multivariate logistic regression analysis were those with a p-value < 0.5 in bi-variate analysis and those significantly associated with bi-variable analysis were; parental gender, parental educational level, residency, hospital stay, birth weight and gestational age. After controlling confounding variables using multiple logistic regressions; parental gender, residency and birth weight were significantly associated with parental satisfaction on neonatal services.

The multivariate logistic analyses showed that mothers were 4 times more satisfied than fathers (AOR = 4.11; 95%CI: 2.81-5.63; P = 0.013). The odds of parental satisfaction on neonatal services were 7 times higher among residents of rural than who are residents of urban (AOR = 6.94; 95%CI: 3.42-8.06; P = 0.092) and parents of a neonate with a normal birth weight of 1.14 (AOR = 1.14; 95%CI: 1.00-3.94; P = 0.110) times more satisfied than their matching part (Table 3).

Variables Injury		COR With 95% CI	AOR With 95% CI	P-value
Sex of Parents	Male	1	1	
	Female	2.03(1.619,6.108)*	4.11 (2.81,5.63)**	0.013
Parental Educational Level	Cannot read and write	1		0.092
	Can read and write	2.11(1.59,9.84)*	1.03 (0.27,5.41)	0.620
Residence	Urban	1		
	Rural	0.54(0.19,0.81)*	6.94(3.42-8.06)**	0.017
Hospital Stay	Less than 7 days	1		
	Greater than 7 days	3.54(1.19,7.18)*	1.54(0.19,2.18)	0,721
Gestational Age at Birth	Pre term	1		
	Term	3.14(2.19,6.11)*	2.77(0.19,7.55)	0.820
	Post term	4.54(1.89,7.01)*	1.31(0.19,9.92)	0.771
Birth Weight	Not Normal	1		
	Normal	2.54(1.92,5.18)*	1.14(1.00-3.94)**	0.110

COR, crude odds ratio; CI, confidence interval; AOR, adjusted odds ratio, *Variables that are significant at p-value ≤ 0.05 . in bivariate analysis, ** Variables that are significant at p-value ≤ 0.05 . in multivariate analysis,

Table 3: Bivariate and multivariate analysis.

Discussion

Customer happiness is currently the main criterion for quality in healthcare organizations. Family-centered care encourages parental involvement in medical decision-making, fosters continuity of treatment and lowers parental stress. This study's satisfaction level was 57%. It is less than research done at the Turkey Army Hospital (65.6%), Germany (73%), Debre Berhan Hospital, Ethiopia (77.8%, Sri Lanka (94%) and Greece (99%) [20-24]. Higher than the study carried out in Gondar, Ethiopia (50%) [25]. Increased parental expectations for the services they receive due to the quick improvements in technology and in people's ways of thinking and living may also be connected to the difference in sociocultural, economic and health care quality.

In this study, mothers were shown to be four times more likely than fathers to express satisfaction with the care of their newborns (AOR = 4.11; 95%CI: 2.81-5.63; P = 0.013). Similar research from Italy, Israel and Greece reveals the same conclusion [24,26,27]. Women may be allowed to stay in the NICU for a longer period of time, help with baby care and form more relationships with medical staff than dads do.

The results of this study showed that parents in rural areas were 7 times more likely than those in urban areas to be happy with infant care (AOR = 6.94; 95%CI: 3.42-8.06; P = 0.092). This result is consistent with research from Athens, Greece and Bahirdar, Ethiopia [27,28]. The most likely cause of this is because parents in remote locations may not be as aware of hospitals, have lower expectations, or desire less NICU care than is the case in real practice.

In this study, parents of infants with normal birth weights reported being happier 1 time (AOR = 1.14; 95%CI: 1.00-3.94; P = 0.110) than their matched group. This is analogous to research conducted at the Debre Tabor hospitals in Ethiopia and Norway [29,30]. Reasonably speaking, parents of full-term, normal-weight newborns are probably not in need of much complicated care, so they can be easily satisfied with the care provided, as opposed to parents of low-birth-weight infants who will likely need complicated care and will have to stay in the hospital for a longer period of time, making it difficult for them to be easily satisfied.

Limitation of the Study

The study was done only in the government hospital and due to the nature of the quantitative study there is a chance of not being able to fully explain parental experiences as qualitative aspects are missed.

Conclusion and Recommendation

In conclusion, slightly more than half (57%) of the parents in this research were happy with the newborn care provision. This result indicates that, in comparison to previous research, parental satisfaction was generally low. Neonatal birth weight, parental gender and place of residence were all related factors.

As a consequence, in order to deliver high-quality service and satisfy parents, medical experts and hospital managers should work together to improve NICU services.

Conflict of Interest

The authors have no conflict of interest to declare.

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