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Environmental stressors, coping mechanisms and support system for mothers with infants at the neonatal intensive care unit: a descriptive cross-sectional study

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Abstract

Introduction: *mothers with their babies admitted to the Neonatal Intensive Care Unit (NICU) experience numerous stressors associated to preterm birth, the infant's medical condition and the complexity of the NICU atmosphere. This study assessed the environmental stressors and coping mechanisms and support systems for mothers with their infants admitted at the Neonatal Intensive care unit of Tamale Teaching Hospital.* ***Methods:*** *the data was collected from the Tamale Teaching Hospital's NICU using a descriptive cross-sectional hospital-based design with a quantitative approach. A convenient sampling technique was used to recruit 316 mothers from the NICU in this study. A structured questionnaire was used to collect data following approval from the Tamale Teaching Hospital Research and Development Unit from April 2020 to September 2020. Stata version 14.1 was used to analyze the data. The overall stress level was tested for normality using the Shapiro-Wilk test, which revealed a normal distribution (p=0.150). The variables that predicted maternal stress levels were determined using simple and complex linear regressions.* ***Results:*** *the study revealed an overall mean stress score of 2.78 (SD=0.59). Ninety-nine point four percent (99.4%) of mothers left the matter in the hands of God. A multiple linear regression analysis revealed mothers aged 35 and above with infants at the NICU had an increased stress level compared to mothers aged 20-24 years [B=10.14, 95%CI=2.21, 18.07), p=0.012]. Mothers of preterm infants had an increased level of stress compared to the mothers with term infants [B=6.72, (95%CI=0.85,12.58), p=0.025]. Again one-day increased in the days in NICU decreased the level of stress of mothers [B= -0.63, (95%CI= -1.14, -0.11), p=0.017].* ***Conclusion:*** *motherly stress is significant to the wellbeing of the mother thus interventions that minimize stress and provide comfort, relaxation, education, counseling, and means of expressing their emotions should be promoted.*

Introduction

The atmosphere of the Neonatal Intensive Care Unit (NICU) has the potential to increase stress in parents of infants hospitalized to the unit. Individual or combined NICU stressors may interfere with the parent-infant bond, causing additional challenges for the pair and other family members [1]. The difficulties in accomplishing their parenting role, medical technology utilized for saving lives, and the communication forms and behavior of the staff are all elements that can impact parents' distinct responses to having a baby in the NICU [2]. The seriousness of their infant's diagnosis, the infant's appearance and degree of functioning, the length of their infant's stay in the unit, and the child's gestational age are all factors that impact parents' decisions while their children are in the NICU [3]. Stress in the NICU can lead to depression, anxiety disorders, exhaustion, and sleeping problems in parents, which can last long after they leave the hospital, jeopardizing the formation of parent-child ties [4]. In most cases, the bonding between parent and child that happens during the newborn period lays the groundwork for a lifelong relationship. When an infant is born at risk and spends the first few weeks or months in the NICU, this normal procedure does not always occur [3]. In addition to pressures associated with the typical transition

process to motherhood, NICU moms face various stressors linked to preterm birth, the medical state of the baby, the complexity of the NICU environment, and the infant's perceived vulnerability [5]. According to studies conducted in the United States, the NICU atmosphere has a considerable impact on families, particularly moms, who frequently assume the position of primary caregiver. In the United States, over 7% of births result in newborns who require NICU treatment [6]. A study in the United Kingdom revealed that pre-existing conditions, pregnancy, labor, and delivery, admission to the NICU and the hospital environment, baby illness, anxieties about the result, loss of parental responsibility, and contact with clinical staff are all mentioned as possible negative effects. However, the use of many instruments, methodologies, and stress models frustrates attempts to synthesize a full picture of the situation [7].

Babies who are medically vulnerable are born into families of various races, faiths, nationalities, and cultural backgrounds, regardless of their social circumstances. Smaller, more medically vulnerable children are being treated and kept alive in highly technological NICU conditions as technology progresses. Although the degree of stress experienced by parents as a result of this varies depending on a variety of conditions, one common experience shared by families of these infants is that the delivery, diagnosis, and hospitalization of their child produces stress characterized by uncertainty and dread [8]. The neonatal intensive care unit is a specialized location that provides medical treatment and nursing care to preterm or very unwell newborn newborns. Parent-infant bonding begins within the first few days after birth in most cases, and it establishes the foundation for a lifelong relationship between the parents and their children [9]. Admission to the NICU places a significant physiological and psychological strain on both parents. Acute stress disorder and an increased risk of post-traumatic stress disorder have been linked to NICU experiences in both mothers and fathers, according to studies. Studies have found that Post Traumatic Stress Disorder (PTSD) is linked to a lower quality of life, and that the symptoms of PTSD impair the parents' quality of life as well as the baby's development [10]. In addition, findings from a research study in Rwanda revealed that when a baby is born in some cultures, everyone in the family is excited and ready to welcome the newborn infant into their household [9]. The naming ceremony, held on the eighth day after a child's birth, is the first “formal” social gathering in the family to mark the infant's return home. If the newborn is admitted to a NICU, the usual ceremonies are not held, and the entire family may get discouraged and concerned about the infant's health [9]. Parents of newborns admitted to the NICU are at an increased risk of both acute and long-term stress. A transformation in their role as parents, the neonate's behavior/appearance, and anxiety about decision-making all influence the NICU parents' experience [11]. The admittance of a newborn baby to a NICU, combined with the various stressors of being in such a unit, can put parents under a lot of strain. During the infants' stay in a NICU, reducing parental stress and anxiety should be a vital nursing care role to improve parental skills in difficult conditions.

Recognizing features of newborns, mothers, and the surroundings that can create stress can help health professionals recognize their importance and improve the quality of care they provide. Understanding maternal stress may also aid health professionals in supporting mothers in improving their ability to meet the requirements of their infants and developing the skills necessary to fulfill their job. Globally Several studies have demonstrated how parents are usually stressed when their newborns are admitted to the NICU, there is the need for such a study to be conducted in the northern part of Ghana as the researchers have not found any of such studies conducted in the area in the northern part of Ghana. This study is to determine the environmental stressors, coping mechanisms and support systems for mothers of babies admitted into the NICU of

Tamale Teaching Hospital using the Parental Stress Scale: Neonatal Intensive Care Unit (PSS: NICU).

Methods

Study design: the study adopted a descriptive cross-sectional hospital-based design to collect data from mothers who had their babies admitted to the Neonatal Intensive Care Unit (NICU) of the Tamale Teaching Hospital.

Study setting and population: the study was conducted in Tamale Teaching Hospital (TTH). This hospital, in particular, was chosen because of its status as, a teaching hospital, a referral center, and its relatively high number of neonatal admissions. Tamale has a heterogeneous population, with almost all the major tribes in Ghana. The hospital is the northern region's largest health center (800 beds) and the only tertiary referral facility for Savana, the North Eastern, Upper West, and Upper East areas, as well as neighboring Burkina Faso. It acts as a clinical training center for medical and nursing students from the University for Development Studies' School of Medicine and Health Sciences in Tamale, Ghana. The study involved mothers with preterm babies admitted to the neonatal intensive care unit of the Tamale Teaching Hospital. The mothers used in the study were parents who were mentally sound and had their children on admission for more than 48 hours.

Sample size and sampling technique: the sample size was estimated using the Yamane [12] formula for sample size calculation. The formula is stated as:

$$n = \frac{N}{1 + N(e)^2}$$

Where n is the sample size, N is total population (1500), e is the level of precision, or the alpha level (0.05). By inserting these figures, n = 316. Respondents were recruited using a convenient sampling technique. Any available respondent in the NICU on each day was invited to a convenient and serene atmosphere, a questionnaire was served for a response. This process was repeated each day until the determined sample size was reached.

Inclusion/exclusion criteria: the criteria for inclusion was parents who had their children on admission for more than 48 hours, and those who had their child admitted for less than 48 hours were excluded from the study. Again, mothers with mental health problems were also excluded from the study as well as surrogate mothers.

Data collection instrument: the instrument used was a questionnaire which reflected the objectives of the study. In designing the instrument, the objectives guiding the study were used as indicators; the expectation was that the items in the instruments reflect the objectives the research seems to achieve, and also some items were adapted from the parental stress scale: neonatal intensive care unit [13]. They were assembled according to the heading created from objectives. The items were reviewed by the Research Committee of the hospital for validity and reliability. Only closed-ended questions were included in the survey. The instrument was meticulously constructed, taking into account the relevant literature as well as the study's objectives. The tool was divided into sections: section A: demographic characteristics of mothers 13 items; section B: parental stress levels in the NICU, which included 29 items; and section C: coping mechanisms and support systems for parents with infants admitted at nicu 17 items. The questionnaires were serially numbered to make data input and analysis easier.

Data collection: the data were collected using a structured questionnaire after obtaining permission from Tamale Teaching Hospital Research and Development Unit. Data collection began in April 2020 and concluded in September 2020. Because some of the respondents lacked formal schooling, research assistants were trained to translate the questionnaire into the Dagbani and Twi languages before the main data collection.

In questioning, consistency and lack of bias were ensured. The administration of the questionnaire was done in more conducive environments of the ward. Where necessary, research assistants objectively and clearly explained questions to respondents. Confidentiality of respondents´ information was also ensured. Before questionnaire administration, they were taken through the informed consent process for their agreement of participation.

Validity and reliability: the data collection instrument was subjected to peer review by specialists and all of the writers in order for the authors to ensure content and face validity. In addition, the questionnaire was pretested at the metropolis's second-largest hospital (Tamale Central Hospital) to ensure that responders understood the questions. Some items that were deemed confusing were reorganized where necessary. Cronbach's alpha coefficient was also used to confirm the study instrument's internal consistency. With an overall Cronbach's alpha score of 0.76, the questionnaire was considered credible.

Statistical analysis: stata version 14.1 was used to analyze the data. For categorical data, descriptive statistics were employed; for continuous data, mean and standard deviation were used; and for discrete data, median and inter-quartile range were utilized. The overall stress level was calculated by adding all 28 PSS: NICU components together. Cronbach's alpha, often known as the reliability coefficient, was calculated for the PSS's NICU and overall scales. The overall stress level was tested for normality using the Shapiro-Wilk test, which revealed a normal distribution (p=0.150). The variables that predicted maternal stress level were determined using simple and complex linear regressions. In the simple linear regression, variables with a p-value less than or equal to 0.20 were chosen for the multiple linear regression. In the multiple linear regression, a p-value of 0.05 or less at the 95 percent confidence level was considered statistically significant. The Variance Inflation Factor (VIF) was calculated for the variables included in the multiple linear regression model to adjust for multicollinearity. The VIF was 1.80 on average.

Ethical consideration: the Tamale Teaching Hospital's Research and Development section granted ethical approval with the reference number TTH/R and D/SR/155. Before administering the questionnaire, authorization was obtained from the ward's supervisors, as well as written informed consent from the mothers. The mothers who volunteered to participate in the study were assured of their privacy and confidentiality throughout the process.

Results

Socio-demographic characteristics of mothers and infants at NICU of TTH: a total of 316 mothers with newborns in the Tamale Teaching Hospital's NICU took part in the study. The mean age of the mothers was 29.15 ± 3.92 years and a majority, 47.5% were aged 25-29 years. Muslims formed a higher proportion, 77.8% of the mothers. Most, 35.4% had no formal education and 44.0% were not employed. Nearly one-third, 30.1% of the infants were preterm and a majority, 75.6% were delivered through a spontaneous vaginal delivery (SVD). Almost half, 48.4% of the infants had low birth weight. The average number of days in the NICU was 4.76 ± 3.58 days. About a third, 35.4% of the infants had jaundice, 28.8% had neonatal sepsis, and 7.8% had a congenital abnormality. Majority (98.1%) of the women received social support from their husbands (Table 1).

Stress level of mothers with infants admitted to the NICU of the Tamale Teaching Hospital: the mean scores of the components of the Parental Stress Scale (PSS: NICU) are presented in Table 2. The mean scores were 2.27 (SD=0.90) for sights and sounds in the unit, 2.28 (SD=0.91) for an infant's appearance and behaviour, 3.84 (SD=0.70) for relationship with infant and parental role, and 2.72 (SD=0.74) for staff behaviours and communication. The mean overall stress score was

2.78 (SD=0.59). The Cronbach´s alpha revealed a reliability coefficient of 0.78 for sights and sounds, 0.87 for an infant's appearance and behaviour, 0.76 for parental role and relationship with infant, 0.78 for staff behaviours and communication components. The overall reliability coefficient was 0.88. Table 3 shows the mean level of stressors in mothers with infants admitted to the NICU in the four different sub-scales of the PSS: NICU. For sight and sounds in the units, the mean score was highest for mothers having a machine breathe for their baby (mean=2.59, SD=1.36), followed by the constant noise of monitors and alarms (mean=2.54, SD=1.32) and the least in other sick babies in the room (1.86, SD=1.18). About "appearance and behaviour of an infant" sub-scale, the mean score was highest in the unusual colour or wrinkled appearance of the baby (mean=2.68, SD=1.34) and baby´s unusual abnormal breathing pattern (mean=2.68, SD=1.26). The mean score of most of the items in the relationship with infant and parental role subscale were greater than 4; thus, not being able to hold baby when wanted (mean=29, SD=0.91), not feeding baby by self (mean=4.05, SD=0.91), not being able to care for baby by self (mean=4.03, SD=0.97), and being separated from baby (mean=4.03, SD=0.96). Staff using words that mothers did not understand was the highest stressor in staff behaviours and communication sub-scale and had a mean score of 3.56 (SD=1.25), followed by staff acting as if they did not want parents around (mean=3.41, SD=1.16), and staff explaining things too fast (mean=3.30, SD=1.17).

Factors associated with stress level of parents with infants admitted to the NICU of the Tamale Teaching Hospital: a multiple linear regression analysis revealed that mothers aged 35+ with infants at the NICU would have an increased stress level compared to mothers aged 20-24 years [B=10.14, 95%CI=2.21,) > 18.07), p=0.012]. Mothers with vocational education and tertiary education would also have an increased level of stress [B=16.24, (95%CI=6.35, 26.12), p=0.001; B=8.70, (95%CI=0.24, 17.15), p=0.044] respectively compared to those with no formal education. Mothers who had private sector and government sector employment had a decreased stress level compared to those who were self-employed [B= -10.74, (95%CI=-17.79, -3.69), p=0.003; B= -23.36, (95%CI= -23.52, -3.21, p=0.010 respectively]. Mothers of preterm infants had an increased level of stress compared to the mothers with term infants [B=6.72, (95%CI=0.85, 12.58), p=0.025]. A one day increased in the days in NICU would decrease the level of stress of mothers [B= -0.63, (95%CI= -1.14, -0.11), p=0.017]. This is illustrated in Table 4.

Coping mechanisms and support systems parents with infants admitted to NICU use: **Table 5**represents the coping mechanisms and support systems mothers with infants at NICU used. All, 100% mothers prayed that things would work out whiles almost all, 99.4% left the matter in the hands of God. A majority, 97.5% obtained strength through the thinking of all the difficulties they have endured, 95.6% hoped that situation will improve in the future, 93.3% shared their feeling with friends or family members, 92.4% helped others with their problems. About 88.0% also had some friends and relatives together to assist them with problem.

Discussion

The study aimed at exploring environmental stressors, copying mechanisms and support systems for parents with infants admitted at the neonatal intensive care unit of the Tamale Teaching Hospital. The study looked at the sights and sounds of the unit, appearance and behaviour of an infant, relationship with infant and parental role, and staff behaviours and communication. The mean score for sight and noises in the units was greatest for mothers who had their baby breathed by a machine, followed by continual noise from monitors and alarms, and lowest for other sick babies in the room (2.59, 2.54, 1.86, respectively). This is corroborated by a study conducted by Umasankar, and Sathiadas, [14] which revealed

that the highest level of stress experienced by mothers were in sight and sound with a mean of 3.04±1.04. The likely cause of this outcome is that in some NICU settings, very unwell newborns and babies who are ventilated are handled in a cubicle with glass walls, where mothers are only allowed to observe from a distance and where sounds such as alarms and monitor beeps are blocked by the glass divider [5]. With the appearance and behaviour of an infant sub-scale, the mean score was highest in the unusual colour or wrinkled appearance of the baby with mean of 2.68, and the baby´s unusual abnormal breathing pattern with mean of 2.68. Most of the questions in the relationship with infant and parental role subscale had a mean score of more than 4. This is supported by comparable research, which found that the stressors with the highest scores were "Feeling helpless and unable to safeguard baby," "Feeling helpless about how to help baby," and "Not feeding my kid myself." [2].

According to findings from related studies, the highest scores were for "not being able to care for my kid myself," "being separated from the infant," and "not feeding my baby" [15]. Staff using words that mothers did not understand was the highest stressor in staff behaviours and communication sub-scale and had a mean score of 3.56. Studies shows that “staff explaining things too fast” and “staffs looking worried” were the main stressors in the subscale staff behavior [15]. Interestingly, some study findings do not support the findings from the present study. The contrary findings show that the least stressful area for parents is staff behaviour and communication [14]. Mothers with vocational education and tertiary education had an increased level of stress. This is corroborated by a research work conducted by [16], the study revealed that period of stay in NICU (P-value 0.002) and mother's level of education were associated with stress levels experienced by the mother (P-value 0.04). This study also found that mothers of preterm infants had an increased level of stress compared to the mothers with term infants. This is supported by a study conducted by Prouhet *et al*. [17] which showed that Parental stress levels were shown to be considerably greater in preterm newborn fathers.

In this study, mothers used some forms of coping mechanisms to ease their stress. Almost all mothers in the study relied on God and obtained strength from the struggles they have had to endure, some had relief of stress through sharing of their feelings with friends and family. This is supported by a study by, [18] which revealed the NICU setting is difficult for parents, and it creates a situation where they seek hope and peace by praying to God for assistance However these findings are not inline with [19,20] which showed Coping seems easier where parents´ opinions are heard and also participating in care, getting away from the NICU, obtaining information, involving friends and family, and engaging with other NICU parents are some of the coping mechanisms used by parents to cope with stress during NICU admissions respectively.

Conclusion

The study revealed a high-stress level amongst mothers having infants admitted to the NICU of Tamale Teaching Hospital. Also, self-employed mothers were more stressed than their counterparts who were either employed by the government or private organizations. Again, mothers who were 35 years and above and those with preterm infants were more stressed than those who were below 35 years and mothers with term infants respectively. All the mothers who were involved in the study prayed to God as their first source of support during the period. Maternal stress is important to the wellbeing of the mother and hence ever-present stress experienced by mothers can be minimized by interventions that provide comfort, relaxation, education, counseling, and means of expressing their emotions.

What is known about this topic

- *Mothers with children admitted at the neonatal intensive care units are usually stressed.*

What this study adds

- *Self-employed mothers are more stressed than their counterparts who are either employed by the government or private organizations;*
- *Mothers who are 35 years and above and those with preterm infants are more stressed than those below 35 years and mothers with term infants respectively;*
- *Mothers declared that God is the first source of support during difficult periods.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Wuni Abubakari, Osman Abu Iddrisu Letitia Chanayireh and Abdul Malik Abdulai, contributed to the conception, design, data analysis, and draft of the first manuscript. Osman Abu Iddrisu, Letitia Chanayireh, Mohammed Iddrisu, Christopher Ababio-Boamah and Abdul Malik Abdulai collected data, worked on the methodology, and edited the manuscript. Abass Yakubu, Abdul Malik Sayibu and Millicent Kala also collected data and edited the manuscript. Abdul Razak Doat and Christiana Amalba contributed to the discussion and also edited the manuscript of the study. All authors read and approved the final manuscript for submission.

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Tables

Table 1: socio-demographic characteristics

Table 2: stress levels of mothers with infants admitted to the Tamale Teaching Hospital's neonatal intensive care unit

Table 3: maternal stress level measure by PSS: NICU (n=316)

Table 4: factors associated with stress level of parents with infants admitted to the NICU of the Tamale Teaching Hospital

Table 5: coping mechanisms and support systems parents with infants admitted at NICU use

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Table 1: socio-demographic characteristics		
Variable	**Frequency (n=316)**	**Percent (%)**
Age		
Mean ± SD	29.15 ± 3.92	
20-24 years	36	11.4
25-29 years	150	47.5
30-34 years	99	31.3
35+ years	31	9.8
Marital status		
Married	316	100.0
Religion		
Christian	70	22.2
Muslim	246	77.8
Educational level		
No formal education	112	35.4
Primary	79	25.0
JHS	7	2.2
SHS	63	19.9
Vocational	14	4.5
Tertiary	41	13.0
Occupation		
Self-employed	121	38.3
Private sector	33	10.4
Government	21	6.7
Unemployed/house wife	139	44.0
Students/others	2	0.6
Gestation		
Preterm	95	30.1
Term	221	69.9
Type of delivery		
Spontaneous vaginal delivery	239	75.6
Caesarian section	77	24.4
Birth weight		
Low birth weight	153	48.4
Normal birth weight	163	51.6
Parity		
Median ± iqr	2 ± 3	
One child	122	38.6
2-3 children	110	34.8
4-5 children	69	21.8
>5 children	15	4.8
Number of days in NICU		
Mean ± SD	4.76 ± 3.58	
1-3 days	135	42.7
4-7 days	137	43.4
> 1 week	44	13.9
Medical condition		
Yes	242	76.6
No	74	23.4
Jaundice		
Yes	112	35.4
No	204	64.6
Neonatal sepsis		
Yes	91	28.8
No	225	71.2
Congenital abnormality		
Yes	23	7.3
No	293	92.7
Source: field data, 2020		

Table 2: stress levels of mothers with infants admitted to the Tamale Teaching Hospital's neonatal intensive care unit				
Variable	**Mean**	**SD**	**95%CI**	**Reliability coef.**
Sights and sounds in the unit	2.27	0.90	2.16 - 2.37	0.78
An infant's appearance and behavior	2.28	0.91	2.18 - 2.38	0.87
Parental role and relationship with infant	3.84	0.70	3.76 - 3.92	0.76
Staff behaviours and communication	2.72	0.74	2.64 - 2.82	0.78
Overall stress measurement	2.78	0.59	2.71 - 2.84	0.88
Source: field data, 2020				

Table 3: maternal stress level measure by PSS: NICU (n=316)		
Variable	**Mean**	**SD**
Sights and sounds of the unit		
The presence of monitors and other equipment	2.26	1.17
The constant noise/sudden noise of monitors and alarms in the unit	2.54	1.32
The presence other sick babies in the room	1.86	1.18
The large number of different people working in the unit	2.10	1.15
Having a machine or equipment breathe for my baby	2.59	1.36
An infant's appearance and behavior		
Equipment and tubes around or on my infant	1.95	1.12
Presence of Bruises, cuts or incisions on my baby	2.51	1.37
My baby's discoloured or unusually wrinkled appearance	2.68	1.34
My baby's having unusual or abnormal breathing pattern	2.68	1.26
The small size of my baby	1.82	1.48
Seeing needles and tubes put in my baby	2.30	1.20
My baby being fed by an intravenous drip	2.30	1.25
My baby unable to cry like other babies	2.03	1.12
Relationship with infant and parental role		
Separation from my baby	4.03	0.96
Feeding my baby not myself	4.05	0.91
Inability to to care for my baby by myself	4.03	0.97
Inability to hold my baby anytime I wish	4.29	0.91
Feeling helpless about how to help my baby during this time	3.53	1.13
Not being able to be alone with my baby	3.11	1.31
Staff behaviours and communication		
Staff speaking or explaining things too fast	3.30	1.17
Staff using Technical words I don't understand	3.56	1.25
Telling me different (conflicting) things about my baby's condition	2.36	1.19
Not usually explaining to my satisfaction about tests and treatments	2.92	1.18
Difficulty in getting information or help when I visit or telephone	1.37	1.46
Not feeling sure that I will be called about changes in my baby's condition	2.45	1.06
Staff looking worried about my baby	2.91	1.14
Staff acting as if they didn't want parents around	3.41	1.16
Staff acting as if they did not understand my baby's behaviour or special needs	2.26	1.42
Source: field data, 2020		

Table 4: factors associated with stress level of parents with infants admitted to the NICU of the Tamale Teaching Hospital							
	Unadjusted			**Adjusted**			
Variable	**B**	**SE**	**p-value**	**B**	**SE**	**95%CI**	**p-value**
Age							
20-24 years							
25-29 years	2.00	3.12	0.522	1.90	2.96	[-3.92, 7.72]	0.521
30-34 years	0.16	3.27	0.960	-0.05	3.25	[-6.45, 6.35]	0.988
35+ years	7.27	4.12	0.079	10.14	4.03	[2.21, 18.07]	0.012
Religion							
Christian							
Muslim	-1.74	2.29	0.446				
Educational level							
No formal education							
Primary	2.36	2.40	0.326				
JHS	-9.01	6.37	0.158	2.94	2.55	[-2.07, 7.95]	0.249
SHS	1.45	2.57	0.573	-7.48	6.30	[-19.89, 4.93]	
Vocational	21.63	4.63	<0.001	16.24	5.02	[6.35, 26.12]	0.001
Tertiary	1.95	2.98	0.514	8.70	4.30	[0 .24, 17.15]	0.044
Occupation							
Self-employed							
Private sector	-9.61	3.28	0.004	-10.74	3.58	[-17.79, -3.69]	0.003
Government	-4.85	3.95	0.220	-13.36	5.16	[-23.52, - 3.21]	0.010
Unemployed/house wife	-0.24	2.07	0.906	0 .49	2.09	[-3.62, 4.61]	0.814
Students/others	1.39	11.90	0.907	-5.31	11.88	[-28.70, 18.08]	0.655
Gestation							
Term							
Preterm	6.76	2.04	0.001	6.72	2.98	[0 .85, 12.58]	0.025
Type of delivery							
SVD							
CS	1.95	2.21	0.378				
Birth weight							
Normal birth weight							
Low birth weight	4.39	1.88	0.020	0 .46	2.34	[-4.14, 5.06]	0.843
Parity	-0.01	0.02	0.495				
Number of days in NICU	-0.63	0 .26	0.018	-0.63	0.26	[-1.14, -0.11]	0.017
Medical condition							
No							
Yes	3.74	2.23	0.095	4.60	2.50	[-0.32, 9.52]	0.067
Jaundice							
Yes							
No	1.55	1.98	0.435				
Neonatal sepsis							
Yes							
No	3.50	2.09	0.094	2.04	2.11	[-2.11, 6.20]	0.335
Congenital abnormality							
Yes							
No	4.14	3.65	<0.001				
Source: field data, 2020							

Table 5: coping mechanisms and support systems parents with infants admitted at NICU use		
Variable	**Not used n (%)**	**Used n (%)**
I prayed that things would work themselves out	0 (0)	316 (100.0)
I asked someone to pray for me	136 (43.0)	180 (57.0)
I asked for blessings from a spiritual or religious person.	166 (52.5)	150 (47.5)
I used a cross for its distinctive powers in dealing with the problem	249 (78.8)	67 (21.2)
I left the matter in God's hands	2 (0.6)	314 (99.4)
I read from the Holy books for comfort and/or guidance	236 (74.7)	80 (25.3)
I asked for blessings from a spiritual or religious person	149 (47.2)	167 (52.8)
I had some friends and relatives together to assist with the problem	38 (12.0)	278 (88.0)
I shared my feelings with a friend or family member	21 (6.7)	295 (93.3)
I tried to forget about the situation	196 (62.0)	120 (38.0)
I thought of all the struggles mothers have had to endure and it gave me the strength to deal with the situation	8 (2.5)	308 (97.5)
I sought advice about how to handle the situation from an older person in my family or community	69 (21.8)	247 (78.2)
I hoped that things would get better with time	14 (4.4)	302 (95.6)
I helped others with their problems	24 (7.6)	292 (92.4)
I sought emotional support from family and friends	94 (29.8)	222 (70.2)
I sang a song to myself to help reduce the stress	228 (72.2)	88 (27.8)
I found myself watching more comedy shows on television/phone	264 (83.5)	52 (16.5)
Source: field data, 2020		