

A Study to Assess the Level of Stress and Coping Mechanism among Mothers of Neonates Admitted in Neonatal Intensive Care Unit in Selected Hospitals of Guwahati, Assam

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Abstract

Aim and Objectives: The aim of the study was to assess the level of stress and coping mechanism among mothers admitted in neonatal intensive care unit and to find the association between stress and coping with selected demographic variables in selected hospitals of Guwahati, Assam.

Methods: The research approach adopted for the study was quantitative descriptive approach and the research design was descriptive survey design. The samples of 150 were selected by convenient sampling hospitals technique from three randomly selected hospitals of Guwahati city. A structured interview schedule was developed to collect the demographic information, stress, and coping mechanism among mothers. The data obtained were analyzed in terms of frequency and percentage distribution, Pearson's correlation coefficient and Chi-square value were presented in tables and graphs.

Results: The findings revealed that 64.0% of sample had moderate level of stress, followed by 24.0% had high level of stress and only 12.0% low level of stress. On the other hand, maximum, that is, 59% had poor coping mechanism, 37% had moderate level of coping mechanism, and only 4.0% had high level of coping mechanism. A significant positive correlation ($r = 0.223$) was observed between stress and coping mechanism. There was no significant association observed between stress and selected demographic variables. On the contrary, except family income there was no significant association found between coping mechanism and selected demographic variables.

Conclusion: The findings of the study concluded that mothers of neonate always in stress. Hence, there is a need for interventional program to make adjustment or adapt to the hospitalization to overcome with the stress.

Keywords: Coping mechanism, Guwahati city, Level of stress, Mothers, Neonatal intensive care unit, Neonate

INTRODUCTION

Everyone in the modern world experiences stress at least occasionally in life. It has devastating effects on individual, interpersonal, and societal level. It is simply a reaction to a stimulus that disturbs physical and mental equilibrium. In other words, it is an omnipresent part of life.^[1]

Stress is the tension producing factors that have the potential of weakening the normal line of defense, which is divided into

physical, physiological, emotional, cognitive, psychological parental, and economical domains.^[2]

The transition to parenthood is an emotional life experience. Giving birth to a healthy baby and bringing the child home shortly thereafter is a significant emotional occasion. Even when everything goes as smoothly as possible, parents often deal with various degrees of stress and anxiety. Their lives will never be the same and they will have an entire new set of responsibilities swaddled in a little blanket.^[3]

Parents of infants admitted to a neonatal intensive care unit (NICU) are believed to experience heightened distress, including increased anxiety, depression, and trauma symptoms, compared with parents of healthy infants.^[4]

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People under large amounts of stress can become tired, sick, and unable to concentrate or think clearly. Sometimes, they even suffer mental breakdowns. The body responds to stress which is called the general adaptation syndrome (GAS). The GAS occurs in three stages—alarm, resistance, and exhaustion. The fight or flight response is the most common type of alarm stage.^[5]

Stressful events frequently provoked psychiatric disorders and also provoked emotional reactions that disturbed the individual. Coping strategies serve to reduce the impact of stressful events. Thus attenuating the emotional and somatic responses make it more possible to maintain normal performance at that time. Stress produces physiological and psychological responses and inadequate handling of stress can lead to physical or mental illness or both.^[5]

Richard Lazarus and Susan Folkman defined coping as the sum of cognitive and behavioral efforts, which are constantly changing, that aim to handle particular demands, whether internal or external, that are viewed as taxing or demanding.^[6]

The neonatal period—the first 28 days of life carries the highest risk of mortality per day than any other period during childhood. The daily risk of mortality in the first 4 weeks of life is 30 fold higher than the post-neonatal period that is from 1 month to 59 months of age. India contributes to one-fifth of global live births and more than a quarter of neonatal deaths. About 0.75 million neonates die every year in India, the highest for any country in the world.^[7]

A retrospective study was conducted by Harrison and Goodman (2015) on epidemiologic trends in neonatal intensive care from 2007 to 2012, in 38 US states and the District of Columbia. The results revealed that admission rate during the 6 years study period increased from 64.0 to 77.9 per 1000 live births.^[8]

The first few days are a critical time in a child's life, and it is a critical bonding time for the baby and the new parents, "Harrison says, "spending time in a NICU is not the same as time spent at home or in a birthing pavilion. It is very stressful for both the infant and the family."^[9]

When neonates, no matter how early or late in gestation, are admitted to neonatal intensive care or high care unit, the mother and neonates are separated. What started off as an enduring bond which developed from the beginning of pregnancy is put under strain as the neonate is removed from the mother's bedside, possibly at delivery and cared for in a location to some extent distant from the mother. This leads to many different stressors impacting on the mother, her partner and perhaps her immediate family.^[10]

NEED FOR THE STUDY

NICU mothers' experience multiple stressors related to preterm birth, medical conditions of the baby, complexity of the NICU environment, and perceived vulnerability of the infant.^[11] Although a lot of studies have been carried out to assess the stress of mothers of neonate admitted in NICU there were few such studies which focus on stress and coping mechanism, thus

the researcher felt the need to conduct a study on stress and coping mechanism of mothers of neonate admitted in NICU.

Objectives of the study

The objectives are:

- To assess the level of stress of mothers of neonate admitted in NICU
- To assess the coping strategies of mothers of neonate admitted in NICU
- To find correlation between stress and coping of mothers of neonate admitted in NICU
- To find out the association between level of stress and selected demographic variables. (E.g., Age of the mother, religion, education, family income, type of family, number of children, place of residence, occupation, and birth order of the child.)
- To find out the association between level of coping and selected demographic variables. (E.g., Age of the mother,

**Table 1: Demographic characteristics of the sample.
n=150**

Characteristics	Category	Respondents	
		N	%
Age of mothers	Below 20	19	12.67
	21–25 years	60	40.0
	26–30 years	48	32.0
	31–35 years	23	15.33
Religion	Hindu	104	69.33
	Muslim	46	30.67
Occupation	Housewife	145	96.66
	Service	5	3.34
Educational status	No formal education	14	9.33
	Primary	10	6.67
	Secondary	66	44
	Higher secondary	49	32.67
	Graduate and above	11	7.33
Family income	Rs.980–Rs.2935	3	2
	Rs.2936–Rs.4893	29	19.34
	Rs.4894–Rs.7322	68	45.33
	Rs.7323–Rs.9787	27	18
	Rs.9788–Rs.19574	12	8
	More than Rs. 19574	11	7.33
Type Of Family	Nuclear family	93	62
	Joint family	57	38
place of residence	Urban	47	31.33
	Rural	103	68.67
No. of children	1 child	94	62.66
	2 child	47	31.34
	3 or more child	9	6
Birth order of neonate	1 st born	93	62
	2 nd born	48	32
	3 rd and above	9	6
Duration of hospital stay	1–5 days	115	76.67
	6–10 days	25	16.66
	11–15 days	3	2
	More than 15 days	7	4.67

Table 2: Frequency, percentage, mean, and standard deviation of sample to describe the level of stress. $n=150$

Level of stress	Score range	Frequency (f)	Percentage	Mean	Standard deviation
Low	20–44	18	12	47.53	4.45
Moderate	45–52	96	64		
High	53–60	36	24		
Total		150	100.0		

Table 3: Frequency, percentage, mean, and standard deviation of sample to describe the level of coping mechanism. $n=150$

Level of coping	Score range	Frequency (f)	Percentage	Mean	Standard deviation
Poor	20–38	89	59	37.20	3.305
Moderate	39–42	55	37		
High	43–60	6	4		
Total		150	100.0		

religion, education, family income, type of family, number of children, place of residence, occupation, and birth order of the child.).

Hypotheses

The hypotheses for the study are as follows:

- H_1 : There is a significant association between level of stress and coping mechanism among mothers of neonate admitted in NICU
- H_2 : There is a significant association between stress levels of mothers with selected demographic variable.

DESCRIPTION OF THE TOOL

A structured three point stress and coping scale were developed by the investigator which was used to collect data. The tool comprised three sections. Section I – consists of demographic characteristics, Section II consists of stress related items to assess the level of stress, and Section III consists of items related to coping mechanism. There are 20 numbers of items related to the stress and of mothers whose babies were admitted NICU. In each statement, there are three levels of stress responses. The maximum obtainable score was 60 and the minimum was 20 and the level of stress scores are categorized as Mild: Scores between 20 and 44, Moderate: Scores between 45 and 52, and Severe: Scores between 53 and 60. Level of coping mechanism was categorized as Poor: Coping mechanism between 20 and 38, Moderate: Coping mechanism between 39 and 42, and High: Coping mechanism between 43 and 60.

Setting

The settings have been selected from the hospital which has NICU. There are total 23 hospitals including Govt. and private in Guwahati city and out of 23 hospitals, eight hospitals have the NICU facilities. Out of these eight hospitals, three hospitals were selected randomly. They are Gauhati Medical College and Hospital, Mahendra Mohan Choudhury Hospital and Pratiksha Hospital.

Study population

Mothers of neonate admitted in NICU in selected hospitals of Guwahati city.

Table 4: Correlation between the level of stress and coping mechanism of the sample. $n=150$

Variable	Mean	Karl Pearson correlation (r)	P-value	Remark
Level of Stress	47.53	0.223	0.006	Significant at 5% probability level
Coping	37.20			

Sample size

A total of 150 samples were taken for the study.

Sampling technique

The technique adopted for the study was simple random and convenience sampling technique. Initially, simple random sampling technique was used to select the hospitals. Then, convenient sampling technique was used to select the sample. the sample was calculated proportionately from each hospital on the basis of total newborn admitted in NICU.

PLAN FOR DATA ANALYSIS

Data analysis is the process of organizing and synthesizing the data so as to answer research questions and test hypothesis. The data were analyzed using both descriptive and inferential statistics in terms of objectives of the study and are arranged in four sections as below.

- Socio demographic data were analyzed using frequencies and percentage
- Frequency, percentage, mean, and standard deviation are computed to describe the level of stress of the mothers
- Frequency, percentage, mean, and standard deviation are computed to describe the coping mechanism of the mothers
- Pearson correlation coefficient is computed and t -test is applied to find the relationship between the level of stress and coping mechanism of the mothers
- Chi-square test (χ^2) is used to find the association between the coping mechanism and selected demographic variables.

Table 5: Association between the level of stress and selected demographic variables. $n=150$

Demographic variable	Level of stress				Chi-square value	df	P value
	Low	Moderate	High	Total			
Age in years							
Below 20	1	9	9	19	8.590	6	0.198
21–25	6	39	15	60			NS
26–30	7	33	8	48			
31–35	4	15	4	23			
Religion							
Hindu	16	65	23	104	3.859	2	0.14
Muslim	2	31	13	46			NS
Occupation							
Housewife	18	92	35	145	0.862	2	0.65
Service	0	4	1	5			NS
Education							
No formal education	1	9	4	14	14.75	8	0.064
Primary	1	5	4	10			NS
Secondary	4	40	22	66			
Higher secondary	10	34	5	49			
Graduate and above	2	8	1	11			
Family income (in rupees)							
More than 19,575	2	7	2	11	12.87	10	0.231
9788–19,574	2	8	2	12			NS
7323–9787	5	19	3	27			
4894–7322	6	47	15	68			
2936–4893	3	14	12	29			
980–2935	0	1	2	3			
Family type							
Nuclear	11	58	24	93	0.441	2	0.802
Joint	7	38	12	57			NS
Residence							
Urban	7	33	7	47	3.25	2	0.196
Rural	11	63	29	103			NS
No of child							
1 child	13	58	23	94	1.687	4	0.793
2 child	4	33	10	47			NS
3 or more child	1	5	3	9			
Birth order							
1 st child	13	57	23	93	1.952	4	0.745
2 nd child	4	34	10	48			NS
3 rd child or above	1	5	3	9			
Duration of hospital stay							
1–5 days	15	75	25	115	2.905	6	0.821
6–10 days	2	16	7	25			NS
11–15 days	0	2	1	3			
More than 15 days	1	3	3	7			

Significant at $P < 0.01$ level, S: Significant, NS: Not significant

RESULTS

The data depicted in Table 1 show that maximum of the sample, that is, 40% belonged to the age group of 21–25 years and majority (69.33%) sample belonged to Hindusim. The educational status of the mothers, that is, majority 44% sample was having secondary education, 45.33% falls in the income range of Rs.4894–7322. In concern to their number of children, the majority 62.66% sample were having one child according to birth order and duration of hospital stay of neonate, maximum, that is, 62.0% are first born baby and 76.67% hospital stay duration was 1–5 days.

Level of stress among the mothers of neonate admitted in NICU

The data presented in Table 2 reveal that most of the sample, that is, 64% was having moderate level of stress, followed by

24% were having high level of stress and only 12% was having low level of stress.

Level of coping mechanism among the mothers of neonate admitted in NICU

The data presented in Table 3 reveal that more than 50% of the sample, that is, 59% among the sample of 150 had poor coping mechanism and only 4% had high level of coping mechanism whereas 37% subjects had moderate level of coping mechanism.

Pearson correlation test computed to find the relationship between the level of stress and coping mechanism of the mothers

From Table 4, it is clear that P -value ($0.006 < 0.05$) is significant at 5% level of significance. This leads to the conclusion that

Table 6: Association between the coping mechanism and selected demographic variables. $n=150$

Demographic variable	Level of stress				Chi-square value	df	P-value
	Low	Moderate	High	Total			
Age in years							
Below 20	9	10	0	19	8.73	6	0.189 NS
21–25	38	18	4	60			
26–30	31	17	0	48			
31–35	11	10	2	23			
Religion							
Hindu	60	39	5	104	0.771	2	0.68 NS
Muslim	29	16	1	46			
Occupation							
Housewife	88	51	6	145	4.20	2	0.122
Service	1	4	0	5			
Education							
No formal education	11	2	1	14	12.30	8	0.138 NS
Primary	5	5	0	10			
Secondary	41	23	2	66			
Higher secondary	30	17	2	46			
Graduate and above	2	8	1	11			
Family income (in rupees)							
More than 19,575	3	8	0	11	29.58	10	0.001 S**
9788–19,574	3	6	3	12			
7323–9787	19	7	1	27			
4894–7322	44	24	0	68			
2936–4893	19	8	2	29			
980–2935	1	2	0	3			
Family type							
Nuclear	53	36	4	93	0.561	2	0.756 NS
Joint	36	19	2	57			
Residence							
Urban	24	21	2	47	1.99	2	0.36 NS
Rural	65	34	4	103			
No of child							
1 child	56	32	6	94	4.104	4	0.392 NS
2 child	28	19	0	47			
3 or more child	5	4	0	9			
Birth order							
1 st child	55	32	6	93	4.098	4	0.393 NS
2 nd child	29	19	0	48			
3 rd child or above	5	4	0	9			
Duration of hospital stay							
1–5 days	75	36	4	115	2.905	6	0.821 NS
6–10 days	10	13	2	25			
11–15 days	2	1	0	3			
More than 15 days	2	5	0	7			

Significant at $P < 0.01$ level, S: Significant, NS: Not significant

there exist significant positive correlation between the levels of stress and coping mechanism of the mothers in the sample under study.

Table 5 revealed that there is no significant association between the level of stress and demographic variable (at 0.05 level of significance). Hence, the researcher rejects the research hypothesis of association between stress levels and selected demographic variables.

Table 6 shows that there is significant association between coping mechanism and family income of the mothers (calculated $\chi^2_{(10)} = 29.58 > \text{tabulated } \chi^2_{(10)} = 18.31, P < 0.05$). Hence, it can be inferred that family income is dependent with the coping mechanism of mothers, that is, family income influence the coping mechanism.

Except family income there is no significant association between coping mechanism and selected demographic variable.

DISCUSSION

The present study was intended to assess the level of stress and coping mechanism among mothers of neonate admitted in NICU in selected hospitals of Guwahati, Assam. To achieve the objectives of the study descriptive quantitative research approach was adopted. To collect the data, a structured interview schedule was used to a total of 150 mothers of neonate admitted in NICU in selected hospitals of Guwahati.

Level of stress of mothers of neonate admitted in NICU

In the present study revealed that out of 150 mothers, 96 (64.0%) of mothers were having moderate stress, 36 (24.0%)

suffered from high stress, and 18 (12.0%) mothers were having low stress. Maximum mothers were suffering from moderate stress.

Related findings observed by Sarkar (2005), on 60 mothers of neonate to determine the level of stress experienced by them. The result showed that the majority of mothers 78.33% had moderate stress whereas only 5% had mild stress and 16.67% had severe stress.^[12]

Coping strategies of mothers of neonate admitted in NICU

The current study found that out of 150 sample, 89 (59%) were of them having poor coping mechanism, 55 (37%) subjects had moderate level of coping mechanism, and only 6 (4%) had high coping mechanism. Majority showed poor coping mechanism.

Contrary to the present findings Sudhana (2005) reported that maximum 58.3% of mothers were had moderate coping strategies to counter the stress, and remaining mothers 20% with good coping and 21.6% had poor coping mechanism.^[13]

Correlation between stress and coping of mothers of neonate admitted in NICU

In the present study, positive correlation was found $r = 0.223$ ($P < 0.006$) between the level of stress and coping mechanism of the mothers of neonate admitted in NICU. As the level of stress increased coping mechanism may also increase.

Similarly, a significant correlation ($r = 0.238$) was observed between stress and coping mechanism of mothers which was done by Shanmugam and Ramachandra (2015).^[14]

Association between level of stress and selected demographic variables

In the present study, no significant association was found between the level of stress and selected demographic variables.

This was supported by Sudhana that there is no significant association between the stress level with selected demographic variables such as age of the mothers, educational status, monthly family income, religion, area of living, and number of children.^[13]

Association between level of coping and selected demographic variables

The current study reveals that significant association was found only between the coping and monthly family income ($\chi^2_{(10)} = 29.58$, $P < 0.05$). Except family income other selected variables such as age, religion, education and occupation of the mothers, place of residence, birth order of the admitted neonate, and duration of hospital stay shows no significant association with coping mechanism.

Contrary to the present findings Rajalakshmi and Kalavathi (2016) found that there was significant association between selected demographic variables such as religion and number of children.^[2]

CONCLUSION

The environment of NICU has the potential to exacerbate stress for parents whose neonates are admitted to the unit. It is imperative that having a child in the hospital is an emotionally taxing situation for parents, no matter the circumstances. Thus, an in-depth study is essential to gain an insight into the actual picture to understand the stress perceived by the mothers and also different coping mechanism adopted by them while their newborn is in NICU.

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