

A DESCRIPTIVE CROSS-SECTIONAL STUDY TO ASSESS THE LEVEL OF ANXIETY AMONG PARENTS OF NEONATES ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT OF A TERTIARY CARE HOSPITAL IN SUBURBAN PARTS OF CHENNAI

Dr. Rangesh Kumar Balakrishnan ¹,
Dr. Balakrishnan T ² and Dr. Santosh Kumar K ^{3*}

¹ Department of Pediatrics, Saveetha Medical College Hospital,
SIMATS University Chennai, India.

² Post Graduate, Department of Pediatrics, Saveetha Medical College and Hospital,
SIMATS University, Chennai, India.

³ Professor, Department of Neonatology, Saveetha Medical College and Hospital,
Chennai, India. *Corresponding Author Email: drsantoshmddm@gmail.com

DOI: [10.5281/zenodo.11613788](https://doi.org/10.5281/zenodo.11613788)

Abstract

Neonatal Intensive Care Units (NICUs) play a critical role in managing acute health issues in neonates, but the experience can be stressful for parents, affecting bonding and long-term development. This cross-sectional study aimed to assess parental stress levels in NICU settings and explore associations with sociodemographic and clinical variables. Conducted in a tertiary care hospital in suburban Chennai, the study included 100 parents of neonates admitted to the NICU. Results revealed high levels of anxiety (77%) among parents, with concerns about misfortunes and indecisiveness prevalent. Mothers exhibited higher anxiety rates compared to fathers, influenced by factors such as education, socioeconomic status, and previous neonatal deaths. Findings underscore the need for targeted interventions to alleviate parental anxiety and promote well-being in NICU settings.

Keywords: Neonatal Intensive Care Unit (NICU), Parental Stress, Anxiety Levels, Sociodemographic Factors, Clinical Variables, Neonatal Health, Chennai.

INTRODUCTION

Neonates requiring Intensive care are sent to Neonatal Intensive Care Unit (NICU) to manage acute problems. Some of the common problems that require NICU admission are prematurity, maternal health issues like pre- eclampsia, gestational diabetes mellitus causing neonatal problems, problems that during labor and child birth (birth asphyxia and delayed transition), respiratory distress syndrome, anemia, apnea and neonatal jaundice. This can be stressful to the parents mainly the mother which in turn affects the mother baby bonding and long term development of the baby. This is further aggravated by the financial and social burden. To bring out the effect of this a study was conducted on parents of neonates admitted in NICU with the following objectives:

- 1) To determine the levels of stress experienced by parents of babies admitted in NICU
- 2) To find out the association between stress level and sociodemographic and clinical variables of mothers and their new-born.

MATERIALS AND METHODS

This was a cross-sectional study conducted on parents of neonates admitted in NICU of Tertiary Care Hospital in sub urban parts of Chennai during a period of 3 months from September to November 2022. Consent was obtained from the participants. Parents of neonates who were admitted in NICU for more than 24 h were included in

the study. A semi-structured validated interview-based questionnaire consisting of questions on anxiety – STATE TRAIT ANXIETY SCALE was used.

The sample size was set to be 100. All the participants were explained about the study, in their own understandable language and a valid consent were taken. Those who didn't give their consent were excluded from this study. Data was collected using a pre-tested semi structured questionnaire consisted of questions regarding anxiety. Data was collected in privacy with maintaining at most confidentiality. Informed written consent was also obtained from the respondents. The collected data were numerically coded and entered in Microsoft Excel 2007, and then analysed using SPSS Inc. Version 18.0., Released 2009, (SPSS Inc, Chicago, USA). Data was analysed by calculating Percentages and Proportions and was presented in suitable tables. Statistical test like Odds ratio and Chi-Square was used for finding the factors associated with the study variables.

OBSERVATION AND RESULTS

Of the 100 parents who were involved in the study 70 of them were mothers and 30 were fathers. With respect to the gender of the baby admitted in the NICU 48 were female babies and 52 were male babies

Parameter	No/(%)
Sex of the admitted neonate	
Male	52(52%)
Female	48(48%)
Parent	
Father	30(30%)
Mother	70(70%)
Education of the parent	
Illiterate	12(12%)
Primary education	24(24%)
Secondary education	42(42%)
Non professional	18(18%)
Professional	2(2%)
Occupation of the parent	
Unskilled	34(34%)
Semi-skilled	40(40%)
Skilled	24(24%)
Professional	2(2%)
Socioeconomic status	
Lower	20(20%)
Middle	56(56%)
Upper	24(24%)
Previous NICU admissions	
Yes	15(15%)
No	85(85%)
Previous neonatal death	
Yes	8(8%)
No	92(92%)
Anxiety levels	
Low	15(15%)
Moderate	8(8%)
High	77(77%)

Overall anxiety rates:

Out of the 100 parents 40 % of the parents said they felt tense in the NICU often and 24 % felt tense during the whole stay in NICU and 28 % said they somewhat felt tense in the NICU and 8% said that they felt tense only sometimes during the NICU stay. Almost 70% of the parents said they felt strained and were worrying about possible misfortune's and more than 70% parents said the stress and anxiety made them indecisive during the stay in NICU. Only a small percent that is around 10 to 30 % parents said they felt calm or at ease and self-confident during the NICU stay.

DISCUSSION

77 out of 100 parents of NICU admitted parents had high anxiety and stress levels which is also seen in Ganguly R etal [1] and Janet D Carter etal [3]

Parameter	Low anxiety	Moderate anxiety	High anxiety
Gender			
Male	9(17%)	3(6%)	40(77%)
Female	6(13%)	5(10%)	37(77%)

Their anxiety levels of parents of both male and female babies were almost similar and no significant change is noted which is in contrast to study by Gurpreet Singh Chhabra etal [2] and similar to study by Ganguly R etal [1] Musabirema P etal [5]

Parameter	Low anxiety	Moderate anxiety	High anxiety
Parents			
Father	13(43%)	4(13%)	13(43%)
Mother	2(3%)	4(6%)	64(91%)

The anxiety levels seem to be higher in mothers than the fathers 91% of mother with high anxiety and only 43 % of fathers with high anxiety, this was similar to studies by Gurpreet Singh Chhabra etal, Janet D Carter etal Palma I E,etal and Sikorova Letal ,[2] [3] [6] [7] [8] and was contrast to studies [1] [4]

Parameter	Low anxiety	Moderate anxiety	High anxiety
Education			
Primary / Illiterate	0	4(12%)	32(88%)
Secondary or above	8(13%)	11(17%)	45(70%)

The anxiety levels in lesser educated people were more than in higher educated people, 88% in lesser educated parents as compared to 70% in higher educated parents which is similar to Ganguly R etal [1] Musabirema P etal [5] and contrast to Gurpreet Singh Chhabra etal [2], Miles MS etal [4]and Dudek-Shriber L etal [10]

Parameter	Low anxiety	Moderate anxiety	High anxiety
Socio Upper	13(65%)	3(15%)	4(20%)
Economic middle	2(3%)	5(9%)	49(88%)
Status lower	0	0	24(100%)

The lower socio-economic class have 100% high anxiety levels and 88% of middle socio-economic class have high anxiety levels but majority of upper socio-economic class 65% have low anxiety levels, this was also seen in more stress in mothers due to low income in study conducted by Janet D Carter etal [3]

Parameter	Low anxiety	Moderate anxiety	High anxiety
Previous NICU admission	2(13%)	1(7%)	12(80%)
Previous neonatal death	13(15%)	7(8%)	65(77%)
Previous neonatal death	0	1(14%)	7(86%)
death	15(16%)	6(7%)	71(77%)

The high anxiety levels of parents with previous NICU admission doesn't show any significant alteration from the parents with no previous NICU admission of their children. Which is in contrast to Janet D Carter etal [3]

The anxiety levels with parents with previous neonatal deaths have seen to be increased as in 86 % of parents with neonatal deaths and 77% of parents with no neonatal deaths.

This was in contrast to to Ganguly R etal [1] saying there was no relation between NICU admission and anxiety levels

This study was also contrast to Gurpreet Singh Chhabra etal [2] which showed that Previous NICU experience, irrespective of the outcome (recovery/death of the neonate), was found to be associated with significantly lower anxiety levels and contract to study by Janet etal [3] which showed higher stress in mothers who have no previous NICU admission.

CONCLUSION

This study has showed that almost all parents who have their children admitted to NICU have anxiety regarding their child's health and also anxiety levels are influenced by socioeconomic classes and availability of resources to them which showed upper class parents having mostly low anxiety levels and lower-class parents having high levels of anxiety and middle-class parents had mixed anxiety levels with more of high anxiety levels. Anxiety levels are also influenced by parents' gender, education, and previous neonatal deaths. In the future changes should be made so that resources are available for all socio-economic classes at affordable prices by all. education of the parents who are lesser educated can be useful on reducing the stress and anxiety levels of the parents.

Reference

- 1) Ganguly R, Patnaik L, Sahoo J, Pattanaik S, Sahu T. Assessment of stress among parents of neonates admitted in the neonatal intensive care unit of a tertiary care hospital in Eastern India. *J Educ Health Promot.* 2020 Oct 30;9:288. doi: 10.4103/jehp.jehp_169_20. PMID: 33282993; PMCID: PMC7709741.
- 2) Gurpreet Singh Chhabra, Manmeet Kaur Sodhi, Amandeep Singh prevalence and predictors of neonates admitted to neonatal intensive care unit
- 3) Janet D Carter , Roger T. Mulder , Brian A. Darlow parenteral stress in NICU : The influence of personality , psychology , pregnancy and family factors.
- 4) Miles MS, Funk SG, Kasper MA. The stress response of mothers and fathers of preterm infants. *Res Nurs Health.* 1992 Aug;15(4):261-9. doi: 10.1002/nur.4770150405. PMID: 1496151.
- 5) Musabirema P, Brysiewicz P, Chipps J. Parents perceptions of stress in a neonatal intensive care unit in Rwanda. *Curationis.* 2015 Dec 3;38(2):1499. doi: 10.4102/curationis.v38i2.1499. PMID: 26842090; PMCID: PMC6091629.
- 6) Carter JD, Mulder RT, Frampton CM, Darlow BA. Infants admitted to a neonatal intensive care unit: Parental psychological status at 9 months. *Acta Paediatr.* 2007;96:1286–9.

- 7) Palma I E, Von Wussow K F, Morales B I, Cifuentes R J, Ambiado T S. Estrés en padres de recién nacidos hospitalizados en una unidad de paciente crítico neonatal [Stress in parents of hospitalized newborns in a neonatal intensive care unit]. *Rev Chil Pediatr.* 2017 Jun;88(3):332-339. Spanish. doi: 10.4067/S0370-41062017000300004. PMID: 28737191.
- 8) Sikorova L, Kucova J. The needs of mothers to newborns hospitalised in intensive care units. *Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub.* 2012 Dec;156(4):330-6. doi: 10.5507/bp.2011.046. Epub 2011 Sep 5. PMID: 22660204.
- 9) Doering LV, Moser DK, Dracup K. Correlates of anxiety, hostility, depression, and psychosocial adjustment in parents of NICU infants. *Neonatal Netw.* 2000 Aug;19(5):15-23. doi: 10.1891/0730-0832.19.5.15. PMID: 11949109.
- 10) Dudek-Shriber L., 2004, 'Parent stress in the neonatal intensive care unit and the influence of parental and infant characteristics', *American Journal of Occupation Therapy* 58, 509–520. 10.5014/ajot.58.5.509