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A descriptive study to assess the stress, anxiety and depression among mothers whose babies are admitted in NICU, PGIMS, Rohtak

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Abstract

Introduction: The birth of a newborn requiring admission to a Neonatal Intensive Care Unit (NICU) can represent a traumatic experience for the parents. It exacerbates the stress and anxiety of mothers of neonates, symptoms of anxiety tend to be subsumed within diagnosis of depression, which can result in anxiety being minimized or overlooked in the absence of depression. This study will help to identify parent's needs and ways that professionals can offer meaningful support.

Background: Almost half of parents whose children were admitted to Children's National Health System's neonatal intensive care unit (NICU) experienced postpartum depressive symptoms, anxiety and stress when their newborns were discharged from the hospital. Parents who were the most anxious also were the most depressed, according to research presented during the 2017 American Academy of Pediatrics (AAP) national conference.

Objectives of the study: To assess stress, anxiety and depression among mothers whose babies are admitted in NICU, PGIMS, Rohtak and to find out association of stress, anxiety and depression with demographic variables.

Material and methods: This study was conducted among 60 mothers whose babies were admitted in NICU, PGIMS, Rohtak. A descriptive study was done by using purposive sampling technique and structured questionnaire (DASS) was used to assess stress, anxiety and depression through interview schedule.

Result: According to DASS findings, 40% of mothers have mild to moderate level of stress, 56.65% of mothers have mild to severe anxiety level and 48.32% of mothers have mild to severe depression. Hence there is significant degree of stress, anxiety and depression

was found in mothers of babies admitted in NICU.Stress, anxiety and depression are not associated with age, education, gravida, economic status and family structure except locality in which there is no association of stress and depression with locality but a significant association of anxiety with locality is present.

Conclusion: Majority of mothers have mild to moderate level of stress, anxiety and depression. A few mothers have severe level of anxiety and depression.

Keywords: Stress, Anxiety, Depression, Mother,NICU (Neonatal Intensive Care Unit).

Introduction

Background of the study: Mental health problems are a major public health issues for women of reproductive age (15–44 years) in both high and low-income countries. About 7% of the global burden of diseases among women is contributed to mental health problems, especially among women of reproductive age.[1] Birth of a child can be a time with a variety of emotions and parents often experience well wishes and congratulations from others after the child's birth. Yet what is less often discussed is the significant stress, anxiety and depression that may occur in postpartum period.

Between 0.5% to 61% of women will experience depression after delivery.[2] Postpartum psychosis occurs in about 1–2 per thousand women following childbirth.[3] In the United States, postpartum depression is one of the leading causes of the murder of children less than one year of age which occurs in about 8 per 100,000 births.[4,5]

Medically fragile infants are born into families of all races, religions, nationalities and cultural backgrounds without regard for their social environment. As technology increases, smaller and more medically fragile infants are being treated and kept alive in highly technical neonatal intensive care unit (NICU) environment. Child has inherent ability to influence the environment to affect child mother interaction. The stress of having a new born hospitalized in the NICU raises a mother's risk for significant depressive symptoms. While clinically significant depressive symptoms are common in the general population of mothers during their first three months after delivery. In typical circumstances, the parent-infant bonding process that occurs during the new born period establishes the foundation for a lifelong relationship. Though this distinctive procedure does not essentially take place for every infant born at risk, and spends the initial numerous weeks or months in the NICU. Any interruption in this attachment influenced negatively Childs emotional development.

The birth of a new born requiring admission to a Neonatal Intensive Care Unit (NICU) can represent a traumatic experience for the parents. Due to the condition of organic instability neonates require specialized medical care in the NICU and mothers experience from their neonates with insecurity about the survival and outcomes of later life, NICU environment exacerbate the mother's anxiety.

Need for the study: Neonatal Intensive Care Unit (NICU) environment has the potential to exacerbate stress for parents of infants admitted to the unit. In addition to normal stressors of transition process of parenthood, mothers experience manifold stressors related to preterm birth, health condition of the baby, complex NICU environment and reported vulnerability of the child. Mothers get support from the family while neonate in the NICU. Family's ability to adjust or the capability to perform changes within the family system when facing a distressing event, is related to the

family's internal and social resources. This helps to maintain the family's equilibrium, functioning normal and adoption of strategies to face up with the situation during the hospitalization of the infant in the NICU.[6] Mothers, in turn, have higher levels of anxiety than fathers. [7,8] This situation creates a need for practices that support parents during the acute phase of their infant's hospitalization in neonatal intensive care unit.[9] The facilitation of maternal confidence and positive parenting in the NICU may be a key point in establishing and sustaining long-term healthy mother-infant interaction and positive child outcomes.[10] Nurses can play a vital role in facilitating by assisting mothers of babies in the NICU to cope with the experience through exploration of the psychological aspects of the mother and by encouraging the family members about the need for the family support during the stay in the hospital. Parents are the most important member of a baby's care giving team and the delivery of effective Family Cantered Care (FCC) requires sensitivity and understanding. To identify the need to distinguish between postnatal depression and anxiety, and to discern cases where depression and anxiety co-exist. This study will help to identify parent's needs, and ways that professionals can offer meaningful support.

Previous studies have conceptualized depression, anxiety and stress symptoms separately, ignoring their comorbidity. Moreover, less studies are available where risk factors for these symptoms have been assessed together in one study sample.

Hypothesis: The mothers whose babies are admitted in NICU have significant stress, anxiety and depression.

Review of Literature

In a study conducted among parents whose neonates are hospitalized in NICU showed high levels of anxiety, depression and hostility which also revealed problems of psychosocial adjustment of the parents.[11] About 50% of mothers of premature infants have elevated levels of anxiety symptoms during hospitalization.[12] Maternal anxiety can have deleterious effects on mother-infant interaction, particularly on mother's abilities to form an attachment to their baby. Maternal anxiety was significantly ($p < 0{\cdot}05$) related to the infant's gender and duration of hospitalization.[13]

Vigod et al conducted a study in 2010 on prevalence and risk factors for postpartum depression among women with preterm and low-birth-weight infants to review the prevalence and risk factors for PPD among women with preterm infants. In the study depression score of the participants and comparison groups were distracted from 26 articles included in the review, PDD risk factors were also extracted. Women with premature infants had up to 40% PPD in the early postpartum period. Earlier gestational age, lower birth weight, ongoing infant illness/ disability and perceived lack of social support were associated with depression sustainability[14].

Grant et al. in 2008 conducted the prospective study on maternal anxiety during transition to parenthood among 100 antenatal mothers found that women with more than one child were more likely to meet criteria for a postnatal anxiety or mood disorder than first time mothers. The study also revealed Chi- square analysis of anxiety and depression with demographic variables indicated maternal parity was marginally related to pregnancy; however women with more than one child were significantly more likely to meet the criteria of anxiety and depression than first time mothers.[15]

Literature review related to stress in mothers of babies of NICU.

Neetika et al conducted a cross sectional study in 2017 on Parental Stress experiences with NICU admission in

a tertiary care centre to determine the stress levels among parents of babies admitted in Neonatal Intensive Care Unit(NICU) and to identify demographic parameters that influence their stress level by using Parental Stressor Scale among 100 extramural NICU parents, The mean scores for the subscales sights and sounds, looks and behaviour, alteration in the parental role, staff behaviour and communication were (1.75), (2.11), (2.48) and (1.47) respectively. As a result NICU parents were under moderate stress and appropriate counselling targeted towards specific stressors was required.[16]

Chiejina in the year 2014 conducted a study on "Hospitalized infants in NICU: Correlates of parental stress to NICU environment". This study examined correlation of the stress experienced by parents to the neonatal intensive care unit (NICU) environment where their infants are hospitalized. It was descriptive survey of 216 parents of at-risk infants in the NICU. A questionnaire on NICU Parental Stress Scale was administered to the respondents. The result indicated that infant's gestational age and the fertility history of the parents significantly influenced parental stress to the NICU environment. However, no significant determination was on the number of children born by the parents stress over the behaviour and appearance of the infants.[17]

Chourasia et al conducted a study in 2013 on NICU admissions and maternal stress levels to determine the stress level among mothers of babies admitted in NICU to know the level of influence on stress of demographic parameters. Parental stressors scale was used to assess the stress level, PSS-NICU questionnaire was administered on mothers of babies admitted in NICU by doctors between 6thand 8th day of admission. The mean score for sights and sounds, was 2.55 and 4.1 for looks and behaviour whereas 4.12 for alteration were reported. Increased maternal age, prematurity of baby, longer NICU stay and inability to directly breastfeed the baby were associated with higher stress level. NICU mothers were under significant stress and appropriate counselling targeted towards specific stressors was required.[18]

Literature review related to incidence and prevalence of maternal anxiety.

Malligamoorthi Jambulingam has done a study in 2012 on anxiety in mothers with preterm infants in the NICU to synthesize and critically examine qualitative and quantitative research related to 1) mother's anxiety when their babies were admitted to and discharged from NICU 2) interventions NICU nurses use to alleviate maternal anxiety while their infants are in NICU by using the following databases: MEDLINE, PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Ebscohost, Psychinfo, Science Direct. Findings revealed that mothers of preterm infants reported guilt, stress, anxiety, depression and loss of control during hospitalization of their infants to NICU. Studies also noted varied nursing interventions to alleviate mother's anxiety.[19]

Literature review related to depression among postnatal mothers.

Vasa et al conducted a study in 2013 on postpartum depression in mothers of infants in neonatal intensive care unit: risk factors and management strategies to assess incidence, risk factors, and management strategies for postpartum depression (PPD) in mothers of NICU infants. Study was conducted on 131 mothers with the help of assessment tool (Edinburgh Postnatal Depression Scale with additional questions). PDD risk indication was considered 10 or above score (subclinical depression). Risk factors were examined

with particular emphasis on length of stay. Approximately 19.1% of mothers experienced (subclinical) PPD. Depression during current and previous pregnancy; problems with current delivery were strong predicting risk factors for PPD. As the LOS increased beyond 2 weeks, the odds of PPD risks initially increased, then levelled off and then decreased after 31 days.[20]

Aim and Objectives

Aim of the study: To assess the stress, anxiety and depression among mothers whose babies are admitted in a tertiary care center.

Objectives of the study

1. To assess stress, anxiety and depression among mothers whose babies are admitted in NICU, PGIMS, Rohtak.
2. To find out association of stress, anxiety and depression with demographic variables.

Material and Methods

The purpose of present study is to accomplish research objectives, which is to assess the level of stress, anxiety and depression among mothers whose babies are admitted in NICU and to find out association of stress, anxiety and depression with demographic variables.

Research design: In order to achieve the objective of the study a non-experimental descriptive design was selected for the study.

Schematic Representation of Research Methodology

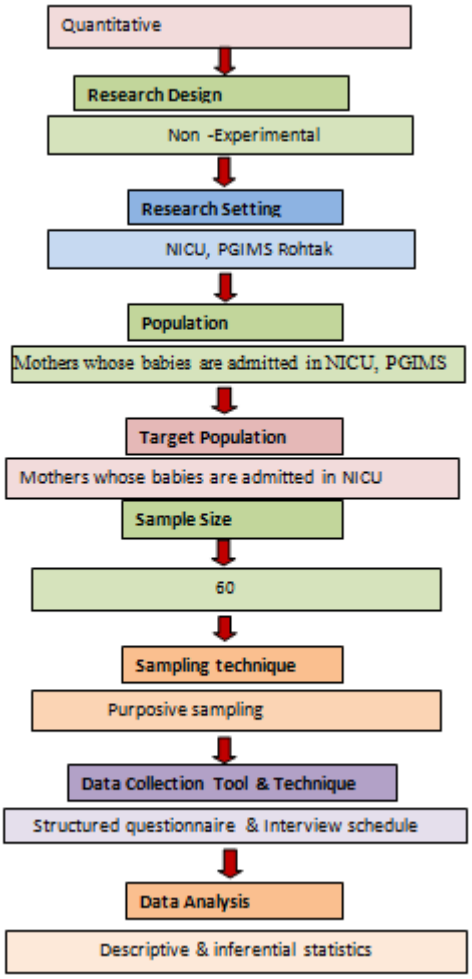

Figure 1: showing schematic representation of research methodology.

Setting of the study: The setting for the study is NICU (Neonatal Intensive Unit) of PGIMS, Rohtak.

Sample and sampling technique: Sample in the study is the mothers whose babies are admitted in NICU, PGIMS, Rohtak.

Sampling technique: Purposive sampling technique is adopted.

Sample size: Sample size is 60.

Population: In the present study the population is mothers whose babies are admitted in NICU, PGIMS, Rohtak.

Variable under the study

- Variable is an attribute that varies, takes on different values.

For the present study variables identified were:-

Research variables- Stress, anxiety and depression

Demographic variables- Age, educational Status, gravida, economic status, family Structure, locality.

Sampling criteria

Inclusion criteria

- Mothers whose babies are admitted in NICU, PGIMS, Rohtak
- Mothers who are willing to participate in study.

Exclusion criteria

- Mothers who have history of psychiatric illness.

Data collection tool and technique

Data collection tool in this study is structured questionnaire.

Development of tool: The tool consists of

1-The demographic performa was developed to collect the background information of the participants under the study. There are 6 items. It consists of age, educational status, gravida, economic status, family structure, locality.

2- DASS Scale[21]. Stress, anxiety and depression is measured by using the Depression Anxiety Stress Scale (DASS) which is reliable, valid and used in Indian setting[22]. The DASS is made up of 42 items to be completed over 5-10 minutes, each reflecting a negative emotional symptoms. Each of these is rated on a four point.

Key scoring- It is four point Likert scale of frequency or severity of the participants' experiences over the last week with the intention of emphasising states over traits. These scores ranged from 0, meaning that the client believed the item "did not apply to them at all", to 3 meaning that the client considered the item to "apply to them very much, or most of the time". It is also stressed in the instructions that there are no right or wrong answers.

Data collection technique in this study is interview schedule.

Validation of tool: The tool is standardised, valid and reliable as per Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety Stress Scale, (2nd. Ed.) Psychology Foundation, Sydney.

Reliability of tool: The tool is reliable and previously being used in Indian settings successfully.

- ❖ The data was collected from 01-12-2017 to 31-12-2017.
- ❖ Sample was collected according to the selection criteria.
- ❖ Informed written consent was taken from the participants.
- ❖ Structured questionnaire including demographic data and DASS (Depression Anxiety and Stress Scale) was administered for the assessment of stress, anxiety & depression.

The collected data was analyzed by using descriptive and inferential statistics.

- ❖ Descriptive statistics-For frequency percentage distribution, mean and standard deviation.
- ❖ Frequency and percentage was computed to describe the demographic data.
- ❖ Inferential statistics-Chi square test was used to associate stress, anxiety and depression with the demographic variables.

Analysis and Interpretation

The data was obtained from the sample of 60 mothers whose babies are admitted in NICU to assess stress, anxiety and depression. The raw data was collected and entered in a master sheet. Then it was analysed and interpreted using descriptive statistics and inferential statistics. The p value < 0.05 for significance was selected for the study. The data

analysed was based on the following objectives of the study

To assess stress, anxiety and depression among mothers whose babies are admitted in NICU, PGIMS, Rohtak.

- To find out association of stress, anxiety and depression with demographic variables.
- Frequency and percentage distribution of characteristics of samples of study.

Table 1: showing Frequency and percentage distribution of characteristics of samples of study (N =60)

Demographic Variables	Frequency	Percentage (%)
Age		
Below 20 yrs	7	11.666
20-30 yrs	40	66.666
30-40 yrs	13	21.666
Above 40	0	0
Education		
Less than 10^{th}	19	31.666
10^{th}	6	10
12^{th}	7	11.666
Graduation or more	16	26.666
Uneducated	12	20
Gravida		
First gravida	31	51.666
Second gravida	14	23.33
More than 2 gravida	15	25
Economic status		
Lower	36	60
Middle	23	38.333
Upper	1	1.666
Family structure		
Nuclear	45	75
Joint	15	25
Locality		
Urban	23	38.333
Rural	37	61.666

Table 1 reveals frequency and percentage distribution of characteristics of study subjects. A total number of 60 mothers of babies admitted in NICU, Pt. BDS PGIMS Rohtak were studied to assess the stress, anxiety and depression for whom demographic variables were analysed and presented in table – 1.

According to age (in years), majority (66.666 %) of subjects were in the group of 20-30 years of age followed by 21.666% in the age group of 30-40 years of age group and 11.666 % in the age group of less than 20, no sample was from above 40 years age group. According to education, 31.666% of subject were educated below 10^{th} standard followed by26.666% for the group of graduation and above, 20% of subjects were uneducated group and 11.666% were educated till 12^{th} standard while 10% were educated upto 10^{th} standard group. In the context of gravida, 51.666% mothers were primipara, 25% were multipara and 23.333% mothers were from 2^{nd} gravida group.

According to economic status, majority of subjects 60% were from lower income group followed by 38.333% from middle class and 1.666% from upper class income group. According to family structure, majority (75%) of subjects was having nuclear family and 25% of mothers were from joint family. According to locality, majority of subjects 61.666% of subjects live in rural areas and 38.333% subjects live in urban areas.

Hence it was concluded that majority of subjects were in the age group of 20 - 30 years and maximum were education below 10^{th} standard. Majority of mothers were primipara and lower income

group. Maximum subjects live in nuclear type of family and in rural areas.

Frequency and percentage distribution of stress, anxiety & depression.

Table 2: showing level, frequency and percentage distribution of stress, anxiety & depression. (N=60)

Variables	Level	Frequency	Percentage (%)
Stress	Normal	36	60%
	Mild	11	18.33%
	Moderate	13	21.66%
	Severe	0	0%
Anxiety	Normal	26	43.33%
	Mild	10	16.66%
	Moderate	16	26.66
	Severe	8	13.33%
Depression	Normal	31	51.66%
	Mild	13	21.66%
	Moderate	12	20%
	Severe	4	06.66%

Table 2 depicts the level, frequency and percentage of stress, anxiety and depression. The majority of subjects (60%) have normal range of stress while 21.66% have moderate and 18.33% mothers have mild level of stress. No subject has severe stress level. In case of anxiety, 43.33% of respondents have normal range followed by 26.6% having moderate, 16.66% having mild and 13.33% have severe stress. The majority of respondents (51.66%) have normal level of depression, 21.66% have mild while 20% of subjects have moderate level of depression. While 6.66% of respondents have severe level of depression.

56.66 % respondents have mild to severe anxiety level and 48.32% of mothers have mild to severe depression. It proves that the null hypothesis is rejected and research hypothesis is accepted. Hence there is significant degree of stress, anxiety and depression was found in mothers of babies admitted in NICU.

Table 3: showing mean & standard deviation of stress, anxiety and depression.

Content	Mean	Standard Deviation
Stress	14.15	5.226
Anxiety	9.38	4.465
Depression	10.33	5.203

This table 3 shows mean stress score 14.15 and SD 5.226 while mean anxiety score is 9.38 and SD is 4.465 and mean depression score is 10.33 and SD is 5.203.

Stress, anxiety and depression are not significantly associated with age, education, gravida, economic status and family structure as calculated value is less than tabulated value at the level of significance 0.05 except locality in which there is no significant association of stress and depression with locality but a significant association of anxiety with locality is present.

Summary: This chapter deals with the analysis and interpretation of the collected data. The findings and their discussions, summary, conclusion, recommendations, implications and limitations are dealt in the next chapter.

Discussion

The present study was conducted to assess stress, anxiety and depression among mothers whose babies are admitted in NICU, PGIMS, Rohtak.

Major finding of the study

The majority 60% of subjects have normal range of stress while 21.66% have moderate and 18.33% mothers have mild level of stress. No subject has severe stress level. In case of anxiety, 43.33% of respondents have normal range followed by 26.6% having moderate, 16.66% having mild and 13.33% have severe

stress. The majority of respondents (51.66%) have normal level of depression, 21.66% have mild while 20% of subjects have moderate level of depression. While 6.66% of respondents have severe level of depression.

Hence 40% of mothers have mild to moderate level of stress while 43.32% mothers have mild to moderate anxiety level and less (13.33%) have severe anxiety. 41.66% mothers have mild to moderate depression while a few mothers (6.66%) have severe depression.

The chi square test was used to see the association of stress, anxiety and depression with demographic variables. In stress, the value of chi square (x^2) test were 2.049 (age), 4.266 (education), 5.986 (gravida), 4.850 (economic structure),0.708 (family structure), 3.734 (locality) which shows that there is no significant association between stress and demographic variables. In anxiety, the value of chi square (x^2) test were 5.207 (age), 14.227 (education), 9.181 (gravida), 5.884 (economic structure),5.646 (family structure), 9.728 (locality) which shows that there is no significant association between anxiety and demographic variables other than locality which shows a significant association with anxiety. In depression, the value of chi square (x^2) test were 7.335 (age), 11.764 (education), 9.181 (gravida), 7.898 (economic structure), 0.910 (family structure), 5.647 (locality) which shows that there is no significant association between depression and demographic variables.

Hence stress, anxiety and depression are not significantly associated with age, education, gravida, economic status and family structure as calculated value is less than tabulated value at the level of significance 0.05 except locality in which there is no significant association of stress and depression with locality but a significant association of anxiety with locality is present.

Discussion

In the present study40% of mothers have mild to moderate level of stress. The results are in line with the findings of Chourasia et al [18] who found in their study that NICU mothers are under significant stress and appropriate counselling targeted towards specific stressors is required.

According to present study 43.32% mothers have mild to moderate anxiety level and (13.33%) have severe anxiety. The finding is in line with the results of Mizrak. et al[23] who reported that anxiety levels of mothers whose infants were in the NICU was determined to be higher as compared to those of mothers whose infants were in postpartum care service, being a mother of a sick newborn can elevate anxiety.

In present study 41.66% mothers have mild to moderate depression while a few mothers (6.66%) have severe depression is in line with the findings of Kardaşözdemir et al [24] according to which mothers whose infants are under care in NICU have moderate depression.

Respondents who have moderate or severe level of anxiety and depression were referred for psychological interventions.

Conclusion

- Majority of mothers have mild to moderate level of stress, anxiety and depression.
- A few mothers have severe level of anxiety and depression, all of these mothers were referred for psychological interventions.
- There is need to provide psychological and emotional support to mothers when their babies are admitted in NICU by family members and health professionals.

- Psychological assessment of care givers should be done for early identification of need for psychological help.

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