



ASSESSMENT OF STRESS LEVELS AMONGST MOTHERS OF BABIES ADMITTED IN NEONATAL INTENSIVE CARE UNIT

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ABSTRACT

Introduction: The stressful nature of the hospitalization of a neonate in NICU and the NICU environment for parents especially mothers of sick babies is known.

Aim: To determine the stress levels among mothers of babies admitted in Neonatal Intensive Care Unit (NICU) and to identify demographic parameters that influence their stress levels.

Methodology: Stress levels were assessed using Parental Stressor Scale: Neonatal Intensive Care Unit (PSS: NICU) questionnaire among 100 NICU mothers by doctors. The data was analysed using SPSS Version.

Results: The mean scores for the subscales sights and sounds, looks and behaviour and alteration in the parental role were 2.86, 2.86 and 2.59 respectively. Those mothers who had normal vaginal delivery, baby's birth weight less than 2.5 kgs, high family income and mothers on admission were associated with higher stress levels.

Conclusion: NICU mothers are under significant stress and appropriate family centred counselling targeted towards specific stressors is required.

KEYWORDS : Maternal stress , Neonatal intensive care unit (NICU) , PSS: NICU, family centred

INTRODUCTION

The hospitalization of a neonate in NICU is usually stressful for the mother and all the other family members. NICU mothers experience multiple stressors related to preterm birth, medical condition of the baby, complexity of the NICU environment and perceived vulnerability of the infant, in addition to stressors associated with the normal transition process to parenthood. The parent-infant bonding process that occurs during the new-born period establishes the foundation for a lifelong relationship. This typical process does not occur when the infant spends the first several weeks or months in the NICU. Parent stress in NICU is often a neglected area. Much of the care giving is centred to infants. Quantifying stress levels of parents and identifying the greatest environmental stressor by understanding the aspects of infants, parents and the environment that can cause stress may be useful in assisting the health personnel in targeting a complete family centred care and thus improving quality of life.⁽¹⁾ This study was conducted to determine the levels of stress experienced by mothers of babies admitted in NICU using Parental Stress Scale: Neonatal Intensive Care Unit (PSS: NICU) and to identify infant and maternal characteristics which significantly influence their stress level.

MATERIALS AND METHODS:

The present study was conducted in tertiary care teaching hospital of Aurangabad city of Maharashtra state of India. The samples for the study were 100 newborn and these were

randomly selected. The sample size was selected on basis of number of admissions in NICU according to annual statistics of department. The participants of the study were mother and father of these admitted newborn and only those parents, who were in a cohabitating relationship, gave written informed consent and their newborn is admitted for at least 7 days in NICU were included in the study. Orphan and medico legal babies were excluded from the study. After recruitment, demographic details of NICU parents like age, education, occupation, income and hospitalization details of babies like gestation, birth weight, birth order, sex etc. were collected. Parental stress levels were assessed using the parental stressor scale: neonatal intensive care unit,⁽²⁾ a validated questionnaire in both English and Hindi language to measure parental stress. The scale consists of four subscales that measure stress related to (a) the sights and sounds of the unit (5 items), (b) the appearance and behaviours of the infant (19 items), (c) the impact on the parents' role and their relationship with their baby (10 items), and (d) the staff behaviours and communications (11 items). There is also a general stress-level question that summarizes the parents' overall feeling of stress related to having an infant in the NICU.

STATISTICS ANALYSIS:

It was done using SPSS v16, paired t test was applied to compare stress scores of mothers. Mean , SD were used to describe the outcomes.

Ethical considerations:

The study was conducted according to the Declaration of Helsinki; the protocol was reviewed and approved by the institutional ethics committee of the institute. A written informed consent was taken from all study participants after explaining the procedure.

RESULT:

Among the 100 infant characteristics, the mean age of the infant is 5.6 days (SD=5.5 days). 45% were females and 55 % were males. The mean birth weight is 2.2 kg (SD=0.7kg). The mean APGAR score is 7.2 (SD=1.6). 87% were adequate for gestational age and 13 % were small for gestational age. 35 % were on breast feeding and 40 % were on ryle tube feeding. The most common reason for admission were sick (42%), Observation (28%), needs ventilation support (18%), CPAP care (11%) and congenital heart disease with sepsis (1%). Regarding the source of money, 69% were using savings and remaining on loan.

Table 1 Scores of mothers based on PSS:NICU scale

Subscale	Overall score
Sights sounds	2.86 ± 0.64
Baby looks and behaves	2.86 ± 0.67
Parental role	2.59 ± 0.72

The above table describes the various components of PSS: NICU and their corresponding parent stress score. Maximum stress score is found for sights sounds component and baby behaves component.

The mean stress score for Hospital and Depression scale – depression scale is 9.06 (SD = 2.7) and the mean stress score for Hospital and Depression scale – anxiety scale is 8.57 (SD = 2.2).

- The table shows the association between maternal stress level in relation to demographic & clinical parameters
- Those who have high income and mothers who are admitted are found to significantly stress in the study.

Table 2: Association between maternal stress level in relation to demographic & clinical parameters

Charac teristic	Groups	n	Mean subscale stress scores (S.D)			p value
			Sights & sounds	Looks & behaviour	Parental role	
Educati on	Primary	04	2.71 (0.24)	2.64 (0.21)	2.7 (0.21)	0.694
	Secondary	46	2.78 (0.55)	2.76 (0.54)	2.46 (0.68)	
	HSC	33	2.95 (0.66)	2.98 (0.80)	2.76 (0.83)	
	Graduate	11	3.03 (0.62)	3.07 (0.72)	2.54 (0.53)	
	PG	06	2.81 (1.07)	2.77 (0.65)	2.50 (0.64)	
Occupat ion	Anganwad i/ASHA	02	3.67 (1.33)	3.23 (1.04)	2.30 (0.90)	0.62
	Home maker	76	2.84 (0.58)	2.87 (0.68)	2.61 (0.75)	
	farmer	09	2.70 (0.51)	2.68 (0.49)	2.74 (0.45)	
	Self employed	06	2.92 (0.60)	2.91 (0.28)	2.33 (0.34)	
	Employed	07	2.98 (0.80)	2.83 (0.69)	2.40 (0.65)	
Residen ce (RU)	Rural	33	2.83 (0.66)	2.85 (0.72)	2.37 (0.68)	0.12
	Urban	67	2.88 (0.61)	2.87 (0.64)	2.69 (0.71)	
Income	<50000	23	2.71 (0.52)	2.70 (0.48)	2.57 (0.64)	0.001
	50001-100000	45	2.72 (0.54)	2.68 (0.56)	2.50 (0.67)	
	>100000	32	3.17 (0.71)	3.23 (0.76)	2.70 (0.81)	
Family type	Joint	51	2.88 (0.73)	2.79 (0.59)	2.50 (0.79)	0.40
	Nuclear	49	2.84 (0.50)	2.94 (0.73)	2.66 (0.62)	
Money source	Savings	69	2.93 (0.67)	2.98 (0.70)	2.60 (0.75)	0.12
	Loan	22	2.69 (0.57)	2.60 (0.53)	2.52 (0.67)	
	Sold something	09	2.78 (0.22)	2.63 (0.37)	2.55 (0.50)	

Religion	Hindu	79	2.88 (0.72)	2.88 (0.63)	2.64 (0.74)	0.52
	Muslim	21	2.81 (0.38)	2.78 (0.82)	2.37 (0.67)	
Obstetric History	PRIMI	63	2.80 (0.59)	2.84 (0.66)	2.63 (0.63)	0.24
	MULTI	37	2.96 (0.68)	2.90 (0.67)	2.49 (0.83)	
Delivery	NORMAL	76	2.87 (0.59)	2.83 (0.66)	2.61 (0.71)	0.41
	LSCS	22	2.88 (0.75)	3.00 (0.65)	2.54 (0.74)	
	PTVGD	02	2.33 (0.33)	2.55 (0.72)	2.00 (0.30)	
Mother admission	YES	38	3.11 (0.64)	3.11 (0.56)	2.72 (0.69)	0.01
	NO	62	2.71 (0.57)	2.71 (0.68)	2.49 (0.72)	
Rest place	FMW	56	2.69 (0.59)	2.69 (0.70)	2.51 (0.75)	0.008
	HOME	06	2.94 (0.42)	2.98 (0.45)	2.33 (0.33)	
	ADMISSI ON	38	3.11 (0.64)	3.11 (0.56)	2.72 (0.69)	
Previous baby loss	Yes	10	3.02 (0.82)	3.04 (0.76)	2.69 (0.68)	0.84
	No	90	2.84 (0.60)	2.84 (0.65)	2.57 (0.72)	
NICU Admission previous baby	YES	12	3.19 (0.75)	3.05 (0.65)	3.03 (0.86)	0.064
	NO	88	2.82 (0.60)	2.84 (0.66)	2.52 (0.67)	
ANC Complicati on	YES	22	3.09 (0.76)	3.01 (0.57)	2.47 (0.67)	0.065
	NO	78	2.80 (0.57)	2.82 (0.69)	2.61 (0.73)	
ANC Care	Yes	73	2.91 (0.66)	2.94 (0.68)	2.63 (0.68)	0.35
	No	27	2.74 (0.51)	2.68 (0.57)	2.45 (0.78)	
Holding now	Yes	74	2.86 (0.60)	2.87 (0.66)	2.65 (0.70)	0.26
	No	26	2.88 (0.70)	2.84 (0.67)	2.37 (0.71)	
BF Now	Yes	51	2.77 (0.58)	2.80 (0.70)	2.61 (0.76)	0.31
	No	49	2.96 (0.66)	2.93 (0.62)	2.55 (0.66)	
Birth Weight	<1000 gm	02	3.33 (0.33)	3.18 (0.18)	3.00 (0.00)	0.67
	1001-1500	18	2.92 (0.78)	2.83 (0.67)	2.57 (0.48)	
	1501-2500	44	2.85 (0.67)	2.89 (0.63)	2.65 (0.83)	
	>2501	36	2.82 (0.48)	2.83 (0.72)	2.48 (0.66)	
Admn Age	0-7 days	69	2.95 (0.63)	2.91 (0.73)	2.64 (0.74)	0.21
	>7 days	31	2.67 (0.58)	2.75 (0.48)	2.46 (0.63)	
Sex	Female	45	2.81 (0.71)	2.85 (0.78)	2.56 (0.67)	0.91
	Male	55	2.90 (0.55)	2.87 (0.56)	2.60 (0.75)	
Anomaly	Yes	12	2.57 (0.55)	2.49 (0.54)	2.22 (0.63)	0.17
	No	88	2.90 (0.63)	2.91 (0.67)	2.63 (0.71)	
Distance	0-10	57	2.93 (0.60)	2.90 (0.65)	2.69 (0.61)	0.22
	>10	43	2.77 (0.65)	2.81 (0.68)	2.43 (0.82)	
Vent	Yes	26	2.83 (0.59)	2.77 (0.60)	2.51 (0.79)	0.88
	No	74	2.87 (0.64)	2.89 (0.69)	2.60 (0.69)	
HADSD	0-10	67	2.88 (0.63)	2.84 (0.59)	2.57 (0.65)	0.71
	11-21	33	2.82 (0.63)	2.91 (0.79)	2.61 (0.83)	
HADSA	0-10	82	2.85 (0.64)	2.83 (0.67)	2.55 (0.67)	0.70
	11-21	18	2.94 (0.58)	3.01 (0.64)	2.74 (0.89)	

Table 3: Maternal depression and anxiety in relation to demographic & clinical parameters

Chara cterist ic	Group s	HADSD (n=100)		P value	HADSA (n=100)		P value
		0-10	11-21		0-10	11-21	
Educati on	Primari y	03	01	0.46	04	0	0.69
	Seco ndary	34	12		36	10	
	HSC	20	13		27	06	
	Gradu ate	04	07		10	01	
	PG	06	0		05	01	
Occup ation	Angan wadi/ Asha	01	01	0.49	02	0	0.27
	Home maker	50	26		62	14	
	farmer	07	02		08	01	

	Self employed	05	01		04	02	
	Employed	04	03		06	01	
Residence (RU)	Rural	23	10	0.69	27	06	0.97
	Urban	44	23		55	12	
Income	<50000	15	08	0.53	19	04	0.83
	50001-100000	30	15		31	14	
	>100000	18	14		26	06	
Family type	Joint	36	15	0.44	45	06	0.09
	Nuclear	31	18		37	12	
Money source	Savings	46	23	0.94	55	14	0.63
	Loan	15	07		20	02	
	Sold something	06	03		07	02	
Religion	Hindu	53	26	0.97	65	14	0.88
	Muslim	14	07		17	04	
Obs History	PRIMI	42	21	0.92	50	13	0.37
	MULTI	25	12		32	05	
Delivery	NORMAL	47	29	0.04	61	15	0.37
	LSCS	18	04		19	03	
	PTVGD	02	0		02	0	
Mother admission	YES	28	10	0.27	33	05	0.32
	NO	39	23		49	13	
Rest place	FMW	34	22	0.17	45	11	0.45
	HOME	05	01		04	02	
	ADMISSION	28	10		33	05	
Previous baby loss	Yes	08	02	0.36	08	02	0.86
	No	59	31		74	16	
NICU Previous admission	YES	10	02	0.20	08	04	0.14
	NO	57	31		74	14	
ANC Complication	YES	17	05	0.25	20	02	0.22
	NO	50	28		62	16	
ANC Care	Yes	46	27	0.16	62	11	0.21
	No	21	06		20	07	
Holding now	Yes	48	26	0.44	61	13	0.85
	No	19	07		21	05	
BF Now	Yes	30	21	0.07	45	06	0.09
	No	37	12		37	12	
Previous baby loss	Yes	08	02	0.36	08	02	0.86
	No	59	31		74	16	
Birth Weight gm	<1000	02	0	0.04	02	0	0.24

	1001-1500	17	01		15	03	
	1501-2500	25	19		38	06	
	>2501	23	13		27	09	
Adm Age	0-7 days	46	23	0.91	57	12	0.81
	>7 days	21	10		25	06	
Sex	Female	32	13	0.43	36	09	0.64
	Male	35	20		46	09	
Anomaly	Yes	09	03	0.53	11	01	0.35
	No	58	30		71	17	
Distance	0-10	37	20	0.61	44	13	0.15
	>11	30	13		38	05	
Vent	Yes	18	08	0.78	23	03	0.32
	No	49	25		59	15	

Those mothers who had normal vaginal delivery and those mothers whose babies having birth weight less than 2.5kg are found to be significantly more anxious.

DISCUSSION:

Parental stress in NICU is often a neglected area. Much of the care-giving in the NICU environment experienced by the infants is related to medical intervention. The NICU environment is often infant-centred instead of family-centred. The results of this research indicate that scores measuring a feeling of general stress were highest on the PSS: NICU, suggesting that the stress experienced by mothers is high. Similar observations also found in Chaurasia et al,(3) Agrawal(1) and Varghese(4).

In our study high family income is associated with high stressor scale. Similar observation found in study by Cheng et al.(5). Those mothers whose baby's birth weight less than 2.5 kgs are found to more stressful. Similar observations were found by a study by Varma(6). Those mothers with spontaneous normal vaginal delivery are found to be more anxious. Similar observation were seen in study by Chaurasia.(3).

Though the maternal characteristics like gravida, education and occupation did not significantly affect the stress levels of NICU mothers, irrespective of the educational background and previous delivery experience, NICU mothers are mostly always under stress and they require special attention and specific NICU educational support. According to study conducted by Dudek et al,(7) consistent predictors of stress were length of stay, extreme prematurity, and a cardiovascular diagnosis. As per Morgan Busse et al study, stress experienced by parents whose infant is hospitalized in the NICU is strongly correlated with anxiety, fatigue, depression, and sleep disruption. Knowledge of these relationships can be used to guide family-focused nursing care in the NICU (8). Identifying the stressors parents experience can assist NICU therapists in intervention planning. Family-centered care that addresses stressors concerning their roles and their understanding of their infant should be emphasized (9).

CONCLUSION:

The present study also highlights the need for appropriate counseling/ NICU education support to reduce stress among NICU mothers with respect to all the three subscales of PSS: NICU through family centred approach.

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