Original Article

Effect Of Counselling On Parental Stress In The Neonatal Intensive Care Unit Using Parental Stressor Scale: Neonatal Intensive Care Unit (Pss: Nicu)

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Abstract

Aims and objective: The present study was conducted with the aim of determining effect of counselling on parental stress in the neonatal intensive care unit.
Material and Method: The study was conducted in the NICU of a tertiary care hospital in Himachal Pradesh. Parents of 300 neonates born during the study period with neonate having been in NICU for at least 24 hours and the parents having visited him/her at least once were enrolled. Both parents were administered the questionnaire PSS: NICU separately both before and after a counselling session. For neonates accompanied by only one parent, the available parent was administered the questionnaire.
Results: A total of 259 fathers and 269 mothers filled the questionnaires. Mean pre counselling stress scores for both parents were 4.3 ± 0.3. The Mean score decreased from 4.3 ± 0.3 pre counselling to 3.79 ± 0.47 post counselling for the mothers. The Mean score decreased from 4.3 ± 0.3 pre counselling to 3.70 ± 0.55 post counselling for the fathers. The mean scores as well as mean Subscore1 (parental role alteration), Subscore2 (appearance and behaviour), Subscore3 (sights and sounds) for both the mothers and fathers decreased significantly from Pre-counselling to Post-counselling with p value of 0.001 for all the parameters.
Conclusion: Counselling had a positive effect on mitigating stress for both mothers and fathers in the NICU.

Key Words: NICU, Parental Stress, PSS:NICU, Parental Counselling

INTRODUCTION

While the Neonatal Intensive Care Unit (NICU) has been instrumental in saving an increasing number of infants, it has also been a recognized source of stress for the parents. In the last 20 years, there has been an increase in the understanding of the impact of parental stress associated with the admission of sick neonates to intensive care units. Parental stress in such situations necessitates social support to help them cope. Specific needs of the parents with neonates admitted in the NICU include being close to their baby, getting authentic information regarding their baby, and believing that their child is receiving the best possible

care. The indifference in staff attitudes, following of strict hospital protocols and lack of knowledge of parental needs are usual barriers for allowing parents to visit their neonates in NICU.[1-3]

Miles (1989) has identified four different aspects of the NICU environment that have a possibility to be highly stressful for parents. The physical environment of NICU, the physical appearance and behavior of infant, interaction of staff and parent and alterations in the parent role are the main sources of stress.

The Parental Stressor Scale: Neonatal Intensive Care Unit (PSS: NICU) was developed to measure the perception of stressors arising from physical environment of the NICU. The PSS: NICU questionnaire contains 22 items, where each item is scored on a five-point Likert type scale with 5 indicating extremely stressful and 1 as not stressful. The instrument includes three dimensions of stressors: the physical environment of the unit, the way the baby looks and behaves and change in the parental role as primary caregivers. Sights and Sounds measures stress arising from the appearance and sounds of the physical environment of the NICU. Infant behavior and appearance measure parental stress induced by the appearance and behavior of the sick-looking infant. Parental role alteration measures stress related to changes in the expected parental role with an infant as well as stress imposed on parenting role by the child's illness and treatments.[4]

In a study by Meyer et al, it was seen that 28% of mothers of preterm infants admitted in NICU reported clinical psychological distress as compared to only 10% of the normative population.[5] Another study done by Singh et al showed that 79% of fathers of neonates in NICU experienced extreme level of anxiety.[6] Ahn and Kim observed that special educational counselling helped to decrease the stress level in fathers in NICU when compared with mothers.[7-9]

Dealing with highly anxious parents in these situations is also challenging for the pediatricians. Hence the need to identify and mitigate the sources of stress for the parents is of utmost importance to the care provider.[10]

Our study aimed to assess the stress level of parents while their neonates were admitted in NICU, using the PSS: NICU and to study the effect of parental counselling in mitigating this stress.

Materials and Methods

A Prospective Before-After study was conducted in the NICU of the Department of Pediatrics, of a tertiary care hospital in Himachal Pradesh. All parents of neonates admitted to the NICU who fulfilled the inclusion criteria were enrolled.

Inclusion criteria:

1. The neonate has been in NICU for at least 24 hours.
2. The parents have visited him/her at least once.

Exclusion criteria:

1. Parents not available
2. Mothers diagnosed with postpartum psychosis

Methodology

Demographic data pertaining to parents' age, urban/rural background and socioeconomic status was recorded. Neonatal data like birth weight, sex, gestation, duration of NICU stay, nature of illness and presence of birth asphyxia was recorded. Both parents were administered the questionnaire PSS: NICU after taking informed consent.

Total scores were calculated using a system called metric 1 where an item not experienced was coded as 0. Denominator for obtaining the average score for each parent was include only those items which have been experienced. The criteria for discarding questionnaire a priori were questionnaires with a rating of 0 for more than 50% of the items. Total, as well as mean scores was obtained.

The parents were then counselled verbally regarding the condition of the baby, probable diagnosis, need for NICU stay, treatment being given, likely duration of stay, feeding and visiting policy, their role in caring for the baby and discharge policy of the unit and any queries they may have regarding their baby was answered. Both parents were administered the questionnaire PSS: NICU again within 24 hours after the counselling session.

Statistical analysis

Data obtained was analyzed by SPSS Software version 22.0. Total, as well as mean stress scores, were obtained. The mean sub-scores for the three dimensions of stressors were also calculated. Mean stress scores and sub scores

before and after the counselling session were compared using paired student t test.

Results

A total of 259 fathers and 269 mothers filled the questionnaires. Table 1 shows the baseline sociodemographic profile of the parents as well as gestational and birth weight categorization of the neonates enrolled.

Table 1: Sociodemographic profile of the parents and gestational age, Gender and birth weight categorization of the neonates enrolled.

	Mean	**Std. Deviation**	
Fathers age	28.97	3.35	
Mothers age	26.36	3.31	
	Frequency	Percent	
Mothers' education			
Illiterate	13	4.3%	
Primary	134	44.7%	
Higher Secondary	150	50.0%	
Graduate	2	0.7%	
Postgraduate	1	0.3%	
Fathers' education			
Illiterate	4	1.3%	**Mean±SD**
Primary	75	25.0%	
Higher Secondary	214	71.3%	
Graduate	6	2.0%	
Postgraduate	1	0.3%	
Place of Residence			
Rural	211	70.3%	
Urban	89	29.7%	
Socioeconomic status			
Lower Middle	101	33.7%	
Upper Lower	12	4.0%	
Upper Middle	185	61.7%	
Upper	2	0.7%	
Gestational age of neonates	Frequency	Percent	Mean±SD
<35	15	5.0%	31.13±3.50
35-37	88	29.3%	36.40±0.73
>37	197	65.7%	38.81±0.80
Baby gender			
Female	148	49.3%	
Male	152	50.7%	
Birth weight	Frequency	Percent	Mean±SD
<1000	4	1.3%	568.00±272.08
1000-1500	3	1.0%	1256.66±133.82
1500-2500	76	25.3%	2226.31±239.92
>2500	217	72.3%	2965.48±294.75

The age of the fathers of the neonates enrolled ranged from 22 to 44 years with a mean of 28.97 ± 3.35 years and mothers ranged from 20 to 40 years with a mean of 26.36 ± 3.31 years. Majority of the mothers were educated upto higher secondary (50%) or Primary level (44.7%). Majority of the fathers were educated upto higher secondary (71.3%) or Primary level (25.0%).

Of the 300 neonates enrolled, there was an equal distribution between males (50.7%) and Females (49.3%). Majority of the neonates enrolled had birth weight of ≥2500 Grams (72.3%). The mean birth weight of neonates enrolled was 2729.17 ± 516.82Grams.

Majority (65.7%) of the neonates were ≥ 37 weeks with 29.3% being 35-37 weeks and 5% Less than 35 Weeks Gestation. Mean Gestational age of the study population was 37.72±2.15 weeks.

As per nature of illness, Respiratory distress (51.3%) was the most common illness among the neonates followed by Jaundice (37.3%), Sepsis (17.0%), MAS (11.3%) and Birth Asphyxia (4.3%).

Table 2: Mean Pre counselling stress scores and sub scores for both parents

	Fathers (n=259)	**Mothers (n=269)**	**P Value**
	Mean ± SD	**Mean ± SD**	
Mean Score	4.3 ± 0.3	4.3 ± 0.3	**1.000**
Mean Sub Score 1 Parental role alteration	4.4 ± 0.3	4.4 ± 0.3	**1.000**
Mean Sub Score 2 Appearance & behaviour	4.4 ± 0.5	4.5 ± 0.4	**0.918**
Mean Sub Score 3 Sights and sounds	3.9 ± 0.2	4.0 ± 0.3	**0.927**

Sub score1 = Parental role alteration, Sub score 2 = Infant appearance and behaviour, Sub score 3 = Sights and Sounds

Mean pre counselling stress scores for both parents were 4.3 ± 0.3. The subscores for parental role alteration were also same for both (4.4± 0.3). Subscores for appearance and behaviour were 4.4 ± 0.5 for fathers and 4.5 ± 0.4 for mothers. Sub scores for sights and sound were also low for fathers as compared to mothers (3.9 ± 0.2 vs 4.0 ± 0.3). However, the difference was not statistically significant.

Table 3: Comparison of Mean Pre-counselling and Post-counselling PSS: NICU scores for Mothers

	Pre-counselling		Post-counselling		
Mothers	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**p-value**
Mean	4.33	0.26	3.79	0.47	0.001*
Subscore1-parental role alteration	4.41	0.32	3.81	0.55	0.001*
Subscore 2-appearance and behavior	4.50	0.40	4.34	0.76	0.001*
Subscore 3-sights and sounds	4.00	0.25	3.32	0.47	0.001*

The Mean score decreased from 4.3 ± 0.3 pre counselling to 3.79 ± 0.47 post counselling for the mothers. The mean scores as well as mean Subscore1 (parental role alteration), Subscore2 (appearance and behaviour), Subscore3 (sights and sounds) for the mothers decreased significantly from Pre-counselling to Post-counselling.

Table 4: Comparison of Mean Pre-counselling and Post-counselling PSS: NICU scores for fathers

	Pre-counselling		Post-counselling		
Fathers	**Mean**	**Std. Deviation**	**Mean**	**Std. Deviation**	**p-value**
Mean	4.31	0.27	3.70	0.55	0.001*
Subscore 1- parental role alteration	4.40	0.32	3.75	0.58	0.001*
Subscore 2 - appearance and behaviour	4.44	0.46	4.25	0.94	0.001*
Subscore 3-sights and sounds	3.98	0.23	3.23	0.44	0.001*

The Mean score decreased from 4.3 ± 0.3 pre counselling to 3.70 ± 0.55 post counselling for the fathers. The mean scores as well as mean Subscore1 (parental role alteration), Subscore2 (appearance and behaviour), Subscore3 (sights and sounds) for the fathers decreased significantly from Pre-counselling to Post-counselling with p value of 0.001 for all the parameters.

Discussion

Our study has shown that both parents experienced high and similar levels of stress when their baby was admitted for NICU care. There was a significant decrease in stress levels for both parents post counselling.

In current study, the age of the fathers of the neonates enrolled ranged from 22 to 44 years with a mean of 28.97 ± 3.35 years and mothers ranged from 20 to 40 years with a mean of 26.36 ± 3.31 years. Ashwani et al.[11] stated that the mean age of the parents participating in the study was 23.9±3.2 years which was lower than ours. Agrawal R et al.[12] stated that the mean age of the mother was 27.3 year with a range between 17 to 44, which was very similar to ours. Among the mothers, 49.2% were homemakers and 27% were not formally educated while the mean age of the father was 29.6 year with the range of 19 to 45, 48% were non-professionals by occupation and 18% were not formally educated. Dwivedi et al.[13] reported that the average age of the parents who participated in their study was 30 (4.37 years) which was slightly higher than ours.

Mean pre counselling stress scores for both parents were 4.3 ± 0.3. The subscores for parental role alteration were also same for both (4.4± 0.3). Subscores for appearance and behaviour were 4.4 ± 0.5 for fathers and 4.5 ± 0.4 for mothers. Sub scores for sights and sound were also low for fathers as compared to mothers (3.9 ± 0.2 vs 4.0 ± 0.3). However, the difference was not statistically significant. Dwivedi et al.[13] determined that the mean pre counselling subscale stress level was greatest for baby behavior, followed by parent role modification, then staff behaviors, and finally sights and noises. According to the research conducted by Musabirema P et al., and Ganguly R et al.,[14] the most significant source of stress was sight and sound. While in a few other research, the most significant recognized stressor was a change in parental involvement and newborn appearance.[15-17] Ashwani et al.[11] reported that the magnitude of parents' sources of stress as assessed by the PSS:NICU, was low with mean scores of (2.48), (2.11), (1.75), and (1.47). The primary source of stress for parents was "alteration in parenting role," followed by "the appearance and behavior of the infants and special treatment," "sights and sounds," and "staff behavior."

Agrawal R et al.[12] stated that the overall perception of general stress associated with having a baby in the NICU ranged from low to moderately stressful for fathers and from moderately stressful to very stressful for

mothers (mean = 3.8±0.736). The highest score for mothers is in the field of Relationship with the baby and Parental Role (mean = 3.74) and the next to it is in the baby looks and behaves (mean = 3.23) both produced the highest score for mothers, while for fathers both the subscales produced almost equal stress scores (baby looks and behaves (mean = 2.84±0.582) and relationship with the baby and Parental Role (mean = 2.95±0.586).

Previous research has shown that mothers, on average, regard the Neonatal Intensive Care Unit (NICU) to be a significantly more stressful environment than do fathers.[6,18,19] In addition, mothers exhibited considerably greater stress levels across the board compared to fathers (p .001), both for the individual subscales and the overall scale. On the other hand, Franck et al. discovered that there were no significant differences between mothers and fathers in their sample from the United States.[20]

The mean stress scores reported in our study are higher than others. This could be due to the fact that the parents were relatively young with lower educational and socioeconomic status which could contribute to greater stress. Our study was carried out in a hilly district of Himachal Pradesh and differences due to regional and cultural expectations could also contribute to higher levels of perceived stress.

The Mean score decreased from pre-counselling to post-counselling (sub-scores and total score) for both the mothers and fathers. Dwivedi et al.[13] also stated that the difference in the stress scores after counselling was assessed and the significant reduction was observed in all domains which was similar to the present study as well. The post-counselling decrease in stress levels was also reported in other research[21-23] that used parental support programs as the intervention. Clarification of any uncertainties, enhanced support to parents, and a heightened feeling of engagement thanks to counselling are all possibilities as to why this occurred.

In research conducted by Månsson C et al.[24] the authors assessed the influence that an individualized parent support program had on the levels of stress experienced by the parents using the PSS: NICU scale. They also observed a decrease in stress in some individual subsets (for example, other sick babies being cared for in the room, my baby's unusual or abnormal breathing patterns, not being able to hold my baby, and being afraid of touching or holding my baby), but there was no difference in total stress scores in comparison to the control group.

Conclusion

The mean scores as well as mean Subscore1 (parental role alteration), Subscore2 (appearance and behaviour), Subscore3 (sights and sounds) for both parents decreased significantly from Pre-counselling to Post-counselling with p value of 0.001 for all the parameters. Hence regular counselling for the parents of neonates in NICU should be done as it alleviates their stress levels significantly.

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