



THERAPEUTIC RECREATIONAL ACTIVITIES TO REDUCE STRESS ON POSTNATAL MOTHERS OF NEONATES IN THE NICU

, ¹ Dr. Raghuram.P, MOT (Paediatric) ² Dr.Loganathan, MOT (Neuro) ³ Dr.Sundaresan, MOT (Rehab.) ⁴ Ms. Srija.G

¹ Asso. Prof. & HOD, ² Asst. Prof. ³Asst. Prof. ⁴BOT- Intern,

¹ Dept. of O.T, SRMC & RI, Chennai, ² Dept. of O.T, SRMC & RI, Chennai, ³ Dept. of O.T, SRMC & RI, Chennai, ⁴ Dept. of O.T, SRMC & RI, Chennai

Abstract: This study has been undertaken to find out the effectiveness of Therapeutic Recreational Activities in Occupational Therapy to reduce Stress on Postnatal Mothers of Neonates in the NICU. with objective of reducing Stress on Postnatal mothers of (high-risk / preterm) Neonates admitted in the NICU and finding out the effectiveness of Therapeutic Recreational Activities. A total number of 6 samples were recruited from the NEW BORN INTENSIVE CARE UNIT from Sooriya Hospital Chennai by using non-probability convenient sampling technique. Quasi experimental one group Pre test – Post test study design was chosen as a framework to undertake this study. Assessment Scale (RUDAS) and Perceived Stress Scale (PSS) were used as a screening tool. Pre-test scores of Perceived Stress Scale (PSS) were obtained. The Therapeutic Recreation Activities were incorporated as an intervention modality in a group setting for consecutive days. Perceived Stress Scale (PSS) was re-administered to arrive at the Post-test scores. The data was analysed statistically. In the Outcome of this study, six mothers in the intervention groups completed the study. In the intervention group, there was a significant reduction in the post-test perceived stress scores when compared to the pre-test scores ($p=0.00$). Therapeutic Recreational Activities are effective as an intervention in reducing stress on postnatal mother of neonates in the NICU.

I. INTRODUCTION

Postpartum is the period begins following childbirth and lasts for approximately 6 weeks during which the body changes into the pre-pregnant state. Postpartum stress is defined as a constraining force produced by postpartum stressors (Hung 2001). These are described as conditions of change demand or structural constraints that are occurring or existing within 6 weeks of delivery. In addition to general stress, women commonly experience postpartum stress. To cope up with these stress factors, mothers may adopt coping strategies. Coping strategies refer to the thought and action used by the postnatal mother in terms of self-control, acceptance of reality, and problem-solving measures to alleviate the stress after childbirth. Postpartum period is associated with intense physical and emotional changes leading to anxiety and mood disturbances. Postnatal period is the period with increased vulnerability to psychiatric illness, if the mother fails to adopt positive coping strategies. Postpartum period is associated with intense physical and emotional changes leading to anxiety and mood disturbances.

1.1 The Introduction is organized under four headings:

- Postnatal Stress
- Perceived Stress on Postnatal Mothers
- Therapeutic Recreation
- Preterm Neonates in The NICU

1.2 Postnatal Stress

(Hung 2007) Postpartum is the period following childbirth and lasts for approximately 6 weeks during which the body changes into the pre-pregnant state. Postpartum stress is defined as a constraining force produced by postpartum stressors (Hung 2001). These are described as conditions of change demand or structural constraints that are occurring or existing within 6 weeks of delivery. Postnatal period is the period with increased vulnerability to psychiatric illness, if the mother fails to adopt positive coping strategies. Postpartum period is associated with intense physical and emotional changes leading to anxiety and mood disturbances. In addition to general stress, women commonly experience postpartum stress. In post-natal period women are more vulnerable to depression affecting about 10 to 20% of mothers during the first year after delivery. However, only 50% of women with the prominent symptom are diagnosed. Postpartum depression may directly affect a woman's capacity in unhealthy environment for psychological and social development. Hung (2007) showed that primiparous mothers experience higher levels of stress, compared with the multiparous ones. In this regard, social support is considered one of the most effective factors, and plays an important role in the mental health of the mothers.

1.3 Perceived Stress on Postnatal Mothers

The birth of a child can cause intense stress to the mother and is linked to the social, psychological, and physical adaptations required by new parenthood. Many events are perceived as stressful by mothers following childbirth, such as the interaction with health care personnel, organization of their return home, or the establishment of breastfeeding

Addressing stress during pregnancy and the postpartum period is important as these periods are physically, psychologically and socially distinct periods in a women's lifetime during which mothers experience concerns about the health of their child, their own health, changes in their bodies and the subsequent effect on changes in their marital relationship. Additionally, worries regarding economic insecurity, breastfeeding, and bonding with the infant can exacerbate the stress often experienced in this period. Perceived stress is a person's appraisal of certain life events as potentially threatening. This perception is reached in light of the person's ability to cope with such events. There are few validated tools for the measurement of stress during pregnancy or during the postpartum period. One commonly used scale is the 10-item Cohen Perceived Stress Scale (PSS-10). The PSS-10 has been used to research stress among different population groups including healthy university students, drug addicts, elderly populations, as well as pregnant and postpartum women. Perceived stress and lack of social support were predictors of depression in couples who were in the 6 to 8 weeks after the delivery.

1.4 Therapeutic Recreation

Therapeutic recreation is a holistic process that purposefully uses recreation and experiential interventions to bring about a change- either social, emotional, intellectual, physical, or spiritual- in an effort to maintain and improve health status, functional capacities and quality of life.

Therapeutic recreation may be applicable to all individuals whose need and goals would seem to benefit from such an intervention in whatever setting they find themselves. Therapeutic Recreation- A practical approach.

1.5 Preterm Neonates in the NICU

Preterm birth is the single most important determinant of adverse outcomes for infants and parents in terms of infant morbidity and mortality, the impact on the family (eg, quality of life) and costs for health services. The highest mortality and morbidity occurs in very preterm babies born prior to 32 weeks gestation.

Preterm birth has been associated with increased parenting stress in early infancy, and some reports have found this to be a risk factor for later behavioral problems. Giving birth to a preterm infant is considered to be a stressful event for parents. Many studies have shown that mothers of these infants experience increased levels of stress in the neonatal period compared with mothers of term infants.

II. OBJECTIVES

- To reduce Stress on Postnatal mothers of (high-risk / preterm) Neonates admitted in the NICU.
- To find out the effectiveness of Therapeutic Recreational Activities.

III. REVIEW OF LITERATURE

3.1 Rachel Margret Mathew et al (2017) Conducted a quantitative descriptive study among 100 postnatal mothers. Convenience sampling technique was used. Hung postpartum stress scale and coping strategies inventory short form had been used for the assessment of postpartum stress and coping strategies. Among the 100 participants, 63% of the postnatal mothers had mild stress, 33% had moderate stress, and only 4% had severe stress. Majority of the mothers had used problem-focused engagement as a coping strategy. There was a positive correlation found between the level of perceived postpartum stress and coping strategies such as emotion-focused engagement and emotion-focused disengagement. There was significant association found between the level of perceived postpartum stress and demographic variables such as age, education, length of marriage, status of pregnancy, method of baby feeding, pregnancy events, intrapartum events, birth weight of baby, child birth experience, status of newborn, and postpartum events.

3.2 Dr.S KalaBarathi et al (2018) Assessed the level of perceived stress among postnatal mothers and to associate the level of perceived stress among postnatal mothers with the selected demographic variables. It was a Descriptive study which was conducted to assess the level of perceived stress among postnatal mothers at Saveetha Medical College Hospital. The population consisted of postnatal mothers who had delivered both by vaginal and caesarean section within 6 weeks of postnatal period. The samples were selected by non-probability convenient sampling technique. Structured interview method was used to collect the demographical variables and level of stress was assessed by perceived stress scale. The data was analyzed by descriptive statistics. The study findings depicts that 46(77%) had mild stress, 12(20%) had moderate stress and 2(3%) had severe stress and there was statistically significant association with level of perceived stress among postnatal mothers with type of family and parity at $p < 0.05$ level. The study findings shows that there is a statistically significant association with level of perceived stress among postnatal mothers in type of family`.

3.3 Hima B. John et al (2018) Assessed the effect of Activity based group therapy on maternal anxiety in the NICU when compared to a control group. The study was a prospective phase lag cohort study. In Phase 1 the control group were recruited and assessed using the State-Trait Anxiety Inventory (STAI-S) once at recruitment and again 4 weeks later. In phase 2, mothers were invited to take part in activity-based groups of 1 h duration once a week for 4 weeks. The STAI-S was administered before and after every group session. Seventeen mothers each in the control and experimental groups completed the study. In the experimental group, there was a significant reduction in the post-test anxiety scores when compared to the pre-test in the first ($p = 0.005$), third ($p = 0.07$) and fourth ($p = 0.009$) sessions. The post-test anxiety scores of the intervention group were significantly lower than that of the control group ($p = 0.009$). thus she concluded that Activity based group therapy is effective as an intervention in reducing maternal anxiety in the NICU .

IV. METHODOLOGY

This study aimed to assess the effectiveness of an Intervention on reducing Perceived Stress among the postnatal mothers of neonates in the NICU:

A Quasi Experimental- one group pre-test post-test design was conducted to assess the level of perceived stress among postnatal mothers whose neonates were in the NICU at Sooriya Hospital. The Sample size was 6 postnatal mothers who met the selection criteria. The samples were selected by non-probability convenient sampling technique. Rowland Universal Dementia Assessment Scale (RUDAS) and Perceived Stress Scale (PSS) were used as a screening tool. Pre-test scores of Perceived Stress

Scale (PSS) were obtained. The Therapeutic Recreation Activities were incorporated as an intervention modality in a group setting for consecutive days. Perceived Stress Scale (PSS) was re-administered to arrive at the Post-test scores. The data was analysed statistically.

4.1 Subjects

The population consisted of postnatal mothers who have delivered both by vaginal and caesarean section within 6 weeks of postnatal period. Mothers of babies admitted in the NICU who consented to participate, and who had a working knowledge of Tamil or English.

4.2 Hypothesis

4.2.1 Alternate hypothesis

There will be significant difference in Perceived Stress level on postnatal mothers of neonates in the NICU after implementing Therapeutic Recreational Activities.

4.2.2 Null hypothesis

There will not be significant difference in Perceived Stress level on postnatal mothers of neonates in the NICU after implementing Therapeutic Recreational Activities.

4.3 Procedure

- The neonate's mothers coming to the New born Intensive care unit at SOORIYA HOSPITAL, are screened for the inclusion and exclusion criteria. Patient who met the inclusion criteria were allotted in the intervention group (6) by convenient sampling method.
- Postnatal mothers were explained about the benefits of the study and obtained a written consent in accordance with guidelines of the ethics committee.
- Base line assessment was done using Performa which include demographic data of both mother and the neonate, Rowland Universal Dementia Assessment Scale (RUDAS) score, PSS [Perceived Stress Scale] Score. The postnatal mothers participated in a 2 weeks intervention programme.
- After the intervention the post-test scores were obtained by using the PSS [Perceived Stress Scale] to measure the current level of stress.

4.4 PRE-TEST:

- The individuals will be selected based upon the selection criteria
- Then Stress level is assessed using Perceived Stress Scale (PSS).
- The participants are provided Therapeutic Recreation Activities.

4.5 TREATMENT PROTOCOL:

- Duration per session: 45 mins
- Warm up session: 5 mins
- Activity session (Therapeutic Recreation Activity): 35 mins
- Wind up and feedback session: 5 mins

4.6 THERAPEUTIC RECREATION ACTIVITIES:

- Visual Stimulation Bottles
- Mom's Hand Print Photo Frame
- Baby Clay Modelling
- Auditory Stimulating Shakers
- Finger Puppet.
- Positive Writing Notes
- Peek-A-Boo Toy
- Sensory Touch Book

4.7 POST-TEST:

- Once again, the Stress level is assessed using Perceived Stress Scale (PSS).
- Then use of Therapeutic Recreation Activities will be identified by comparing the results between Pre-test and Post-test scores.

V. DATA ANALYSIS

The data was analysed using licensed version of SPSS.16 software from department of Community Medicine Sri Ramachandra Institute of medical science.

The p value was analysed using online Epi-info version 6 software. Paired t test was used for obtaining the results. The detail description of the study is given below.

Among the study participants 100% of the postnatal mothers' Marital status were married, 100% of the postnatal mother's educational status were Professional degree and their 100% of the postnatal mothers Occupation were Housewife.

In this study the minimum age of postnatal mothers was 25 years and maximum age of the participant was 31years. The mean age was 28.17 and standard deviation was 2.137.

Table 1: Comparison of Gravidity among the postnatal mothers

Primigravida / Multi gravida.

Primigravida /Multigravida	Frequency	Percent	Valid Percent	Cumulative Percent
Primigravida	2	33.3	33.3	33.3
Multigravida	4	66.7	66.7	100.0
Total	6	100.0	100.0	

Among the study participants 33.3% were Primigravida and 66.7% were Multigravida.

Table 2: Comparison of the Type of Delivery

Type of Delivery	Frequency	Percent	Valid Percent	Cumulative Percent
LSCS	4	66.7	66.7	66.7
Normal	2	33.3	33.3	100.0
Total	6	100.0	100.0	

Among the study participants 66.7% had delivered through Lower Segment Cesarean Section and 33.3% through Normal Vaginal Delivery.

Table 3: Comparison of the Purposeful Hobbies among the participants.

Purposeful Hobbies	Frequency	Percent	Valid Percent	Cumulative Percent
Book Reading	1	16.7	16.7	16.7
Arts & Crafts	1	16.7	16.7	33.3
Music	1	16.7	16.7	50.0
Cooking	1	16.7	16.7	66.7
Watching TV	2	33.3	33.3	100.0
Total	6	100.0	100.0	

Among the study participants 33.3% has Watching tv as their purposeful hobbies, 16.7% were reading books, 16.7% were arts and crafts, 16.7 % were music, 16.7% had cooking as their hobbies.

Table 4: Comparing the difference of Perceived Stress Scores among Postnatal mothers before and after implementing Therapeutic Recreational Activities.

Questionnaire on Perceived Stress Scale	Table Showing the difference of Paired observation of Pretest and Post test in Perceived Stress Scale among Postnatal mothers						
	Mean score		Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
	Pretest score	Post test score			Lower	Upper	
Pair 1 Item 1 Pretest – Item 1 Post test	3.00	1.67	0.816	3.33	0.476	2.190	0.10
Pair 2 Item 2 Pretest - Item 2 Post Test	2.50	1.17	1.033	0.422	0.249	2.417	0.025
Pair 3 Item 3 Pretest - Item 3 Post Test	3.00	1.50	0.548	0.224	0.925	2.075	0.01
Pair 4 Item 4 Pretest - Item 4 Post Test	1.83	0.33	0.548	0.224	0.925	2.075	0.01
Pair 5 Item 5 Pretest - Item 5 Post Test	2.00	0.67	0.516	0.211	0.791	1.875	0.01
Pair 6 Item 6 Pretest - Item 6 Post Test	2.50	1.33	0.408	0.167	0.738	1.595	0.01
Pair 7 Item 7 Pretest - Item 7 Post Test	1.83	1.17	0.816	0.333	0.190	1.524	0.102
Pair 8 Item 8 Pretest –Item 8 Post Test	2.00	1.50	0.548	0.224	0.925	2.075	0.01
Pair 9 Item 9 Pre-Test - Item9 Post Test	2.50	1.50	1.095	0.447	0.150	2.150	0.76
Pair 10 Item 10 Pretest - Item 10 Post Test	2.67	1.50	0.938	0.401	0.135	2.198	0.34

On analyzing with paired "T" test it was found that the scores of Post test of the Items 1, 2, 3, 4, 5, 6, 8, 9, 10 of Perceived Stress Scale were significant. Whereas the score of Post test of Item 7 of Perceived Stress Scale was not significant.

Table 5: Comparison of the Infant Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	1	16.7	16.7	16.7
Male	5	83.3	83.3	100.0
Total	6	100.0	100.0	

Among the six Neonates 83.3% were Male and 16.7% were Female.

Table 6: Comparing the Birth Weight and Gestational age at Birth of the infant

Birth weight of the infant (grams)	Gestational age at birth (weeks)	Mean	Birth weight of infant (grams)	2499.79
				Gestational age at birth (weeks)
1250	36	Median	Birth weight of infant (grams)	2700.00
1600	37		Gestational age at birth (weeks)	36.50
1700	31	Std. Deviation	Birth weight of infant (grams)	777.603
2100	35		Gestational age at birth (weeks)	2.811
2500	36			
2900	35			

Table 7: Comparison of the overall Scores of the Pre-test and Post test

Questionnaire on Perceived Stress Scale	Paired Differences						Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
Pair 1 Overall pre test score - over all post test score	23.17	11.33	0.408	0.167	11.405	12.262	.000

The overall mean of pre-test score was 23.17,

The overall mean of post test score was 11.33,

It has been shown in the above mentioned that the scores of Perceived Stress in Pre-test and Post test among postnatal mothers have significantly reduced by providing Therapeutic Recreational Activities as an intervention ($p = 0.000$).

The difference of observation between the Perceived Stress scale score among pre-test and post test was statistically significant

VI. RESULTS

The main objective of the study is to assess the Stress level of postnatal mothers before and after implementing Therapeutic Recreational Activities in order to assess the effectiveness of Therapeutic Recreational Activities.

The result of the study showed the overall effectiveness of Therapeutic Recreational Activities showed a remarkable change in pre and post test evaluation.

In this study a sum of six postnatal mothers of neonates in the NICU were enrolled. All the mothers in the study completed the questionnaire in English.

The pre-test perceived stress scores were comparatively high when compared with the post test. The post-test perceived stress scores of mothers in the intervention group were significantly lower ($p = 0.000$).

In the pre-test, 83.3% of mothers in the Intervention group had moderate and 16.7% had high Perceived Stress levels.

In the post test, 83.3% of mothers in the Intervention group had low level stress and 16.7% had moderate Perceived Stress levels.

Thus, the percentage of mothers with moderate Perceived Stress had declined to low level stress and the percentage of mothers with high Perceived Stress had declined to moderate level stress.

The overall mean score of perceived stress obtained in the pre-test was 23.17 and post test was 11.33

DISCUSSION

The discussion of the study is based on the findings obtained from the statistical analysis. This study supports the alternate hypothesis, that mothers, who participated in Therapeutic Recreational Activity groups once after the intervention, would demonstrate reduced Perceived Stress levels after completing the activity, when compared to pre activity levels.

Involvement in a purposeful activity may have provided parent to parent interactions, which reduced their sense of isolation, distracted them from negative thoughts, created an outlet for the expression of feelings. The project was a distraction and focused their minds on a different activity, able it linked to their baby. Similar studies involved Digital photo journaling which was appreciated by parents for the opportunity to record their thoughts and the pictures considered a lifetime treasure. Even Participation in a visual arts program reduced perceived stress levels in parents.

Qualitative findings from these three studies found that parents experienced an art-based activity as enjoyable, a medium to, stress relieving, calming and fun. It further diminished their sense of isolation; created distraction from the illness of their infant, and helped focused their minds on activities which were nevertheless linked to their infant. It also gave them hope for the future.

Therapeutic Recreational Activity groups when used in combination with an education- behavioral program may produce better long-term results in decreasing stress in mothers of preterm infant.

Similarly, Significant associations were found between the delivery of music and recreation therapy and the reduction of antepartum-related distress in women hospitalized with high-risk pregnancies.

Recreational activities carried out in groups provide an important benefit in establishing new friendships and social relationships. This situation shows that individuals get more pleasure from the activities they perform in groups and reflect these positive effects on their lives.

The theoretical frame work of the Creating Opportunities for Parent Empowerment (COPE) program states that providing objective information improves coping, by increasing understanding, predictability and confidence in being able to deal with the situation. The improved ability to cope, would then lead to a decrease in parental stress, anxiety and depression, which would in turn promote positive parent-infant interaction. Parental control can be enhanced, by providing information and parental role activities, which will empower parents and reduce their sense of helplessness.

People can participate to recreational activities as individually or groups. The current research results show that regular recreational activities carried out in groups contribute to a higher level of mental health than individual recreational activities.

LIMITATIONS

- Conducting a single small group with a smaller sample size was a limitation, due to this pandemic situation couldn't conduct this study in a larger population.
- Confounding factors to postnatal stress such as father's emotional status, marital conflict, socio-economic status or the extent of family support were not assessed. However, this could be a scope for future research.
- Other mental health issues other than stress were not assessed in this study
- It was challenging to organize a closed group session, as mothers were also actively involved in the care of their infants in the NICU.

RECOMMENDATIONS

- The same study can be replicated on large samples with a control group.
- Confounding factors to postnatal stress such as father's emotional status, marital conflict, socio economic status or the extent of family support can also be assessed for predicting.
- The similar study can be conducted in all stress related problems like anxiety, depression.
- Any other similar intervention strategies can be used in future research.

CONCLUSION

Therapeutic Recreational Activities had shown significant reduction on Perceived Stress levels on the postnatal mothers of neonates in the NICU, therefore can be universally implemented to reduce Postnatal Stress. Improving Postnatal Emotional wellbeing may indirectly contribute to better infant outcomes.

Therapeutic Recreational Activities can yield satisfaction in the mothers by making productive to a child / adult. The outcomes of these Activities will always remain as a memory to cherish in future. The mother who engaged in these activities can proudly say:

"Mommy was busy hoping on you little one, thus engaged in making toys and creating memories for you when you were inside the (NICU) NEONATAL INTENSIVE CARE UNIT"

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