"Effectiveness of modified COPE (Creating opportunities for parent empowerment) programme on the Stress, Anxiety and Coping ability of mothers of preterm babies admitted in NICU in selected hospitals at Udaipur, Raj"

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Abstract:

Background of the study:
Stress is the body's reaction to any change that wants an adjustment. The body reacts to the changes i.e physical, mental, and emotional responses. Stress is a part of life. One can experience stress from the environment, body, and thoughts. Even positive life changes such as promotion, mortgage, or the birth of a child produce stress.

Materials and methods: The researcher used a Quasi-experimental research approach, a non-randomized control group design. Settings of the study was selected Hospital, a total of 270 samples selected by non-probability convenient sampling techniques. The Modified COPE Program was used as an intervention in this study The data obtained were analyzed and interpreted in the light of objectives and hypothesis using both descriptive and inferential statistical in terms of frequency, percentage, and chi-square.

Results: The result revealed that the calculated t value of stress (54.390, P=0.001), anxiety (49.909, P=0.001) and coping ability (82.197, P=0.001) is found highly significant.The results shows that there is a significant relationship between the effect of modified COPE Program with stress, anxiety and Coping ability score of mothers. Hence research hypothesis $H_2$is proved.

Conclusion: The main focus of the study was to assess the effectiveness of the modified COPE Program on stress, Anxiety, and Coping ability of mothers of preterm babies. Mothers are experiencing stress, anxiety, and low coping ability due to a preterm baby admitted in NICU. After the implementation of the modified COPE Program mother's stress and anxiety level decreased gradually and improved coping ability.

Keywords: Stress, Anxiety, Coping ability, NICU, Effectiveness, Mothers, preterm.

Introduction:

A neonate is also called a newborn. The neonatal period is the first four weeks of a child's life. It is a time when changes are taking very fast. Many critical things can occur in this period of time, Feeding patterns are established, Bonding between parents and infant begins, The risk for infections that may become more serious is higher, and many birth or congenital defects are first noted.[1]According to WHO, Worldwide 10% of pregnant women&13% of women who had given birth had a mental health problem, primarily stress. Many research study has shown that the problem is higher in developing countries i.e. 15.6% during pregnancy and 19.8% after childbirth. Research gives an impact on a mother's activity of daily living. As a result, the children's growth and development may be negatively affected as well.[2]

Most preterm babies (>80%) are born between 32nd to 37th weeks of gestation (moderate/late preterm) and die needlessly because of a lack of simple, essential care such as warmth and feeding support. About 10% of preterm babies are born at 28th to < 32nd weeks of gestation and in low-income countries more than half of those will die but many could be saved with feasible care, not including intensive care such as ventilation. For babies born before 28 weeks gestation, intensive care would be needed to save most of them.[3]

Most babies admitted to NICU is preterm born before 37 weeks of pregnancy, have low birth weight (LBW) of less than 5.5 pounds, or have a health condition that needs care. In U.S. half a million babies were born preterm. Many of these babies have low birth weights (LBW). Twins, triplets, and multiples often are admitted to the NICU. This is because they tend to be born earlier and smaller than single birth babies. Babies with health conditions such as breathing difficulty, heart defect, infections, or birth defects have also cared for in the NICU. [4]WHO estimates of global rates of preterm births indicate that of the 135 million live births worldwide, about 15 million babies were born too early, representing a preterm birth rate of 11.1%. Over 60 % of preterm births occurred in sub-Saharan Africa and South Asia where 9.1 million births (12.8%) annually are estimated to be preterm.15 Rates are highest on average for low-income countries (11.8%) followed by lower-middle-income countries (11.3 %) and lowest for upper-middle and high-income countries (9.4% and 9.3%).[3]

In India out of 26 million live births annually, 3.5 million are preterm and out of these 3.03 lakh, babies die due to complications of preterm birth. According to Born Too Soon: The Global Action Report on Preterm Birth India tops the

list of 10 nations contributing 60% of the world's preterm deliveries with the maximum number of preterm births with 3,519,100 of them, almost 24% of the total number.[3]According to NHM (2016-17) Neonatal Mortality Rate (per 1000 live births) in India (26%), Odisha has the highest (36%) NMR and Kerala has the lowest (6%) NMR. In India Infant Mortality Rate (IMR) (per 1000 live births) was (39%), Madhya Pradesh has the highest (52%) IMR ,and Goa has the lowest IMR (10%).[5]

Parent stress in NICU is often a neglected area. Much of the caregiving is centered on infants. Quantifying the 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 complete family-centered care and thus improving quality of life.[6]NICU mothers experience multiple stressors related to preterm birth, medical conditions of the baby, the complexity of the NICU environment, and the perceived vulnerability of the infant. Although a lot of studies have been carried out to assess the stress of mothers of neonates admitted to NICU there were few such studies that focus on stress and coping mechanisms, thus the researcher felt the need to conduct a study on stress and coping mechanisms of mothers of neonate admitted in NICU.[7]Mothers' coping may depend on the condition of their neonates, and how they are attached to their babies while being admitted. Again the mothers' relationship with healthcare professionals as well as with significant others such as family members, husbands, and their in-laws may affect their ability to cope.[7]

Effective communication and providing appropriate anticipatory guidance about what to expect when their baby is admitted to the NICU are essential aspects of nursing care provided to parents in the NICU. Knowing what to expect enables parents to more effectively cope with the stress of having a preterm baby and the fear of uncertainty associated with the health and well-being of their infant. Parental knowledge of the ICU has been attributed to an enhanced understanding of the situation, a sense of predictability of the NICU experience, and confidence to deal with the overall stress of having a preterm baby. One strategy aimed at enhancing parental knowledge employed by nurses caring for high-risk pregnant women was the opportunity for parents to tour the NICU before labor and birth. Parents who participated in the tour of the NICU reported it to be beneficial for several reasons: the tour decreased fear of the NICU, inspired a sense of hope for the outcome of the baby, and provided emotional preparation for the actual care provided in the NICU environment.[8]

Objectives of the study:
1. To assess the level of Stress, Anxiety, and Coping ability of mothers of preterm babies.
2. To evaluate the effectiveness of a modified COPE program on the level of Stress, Anxiety, and Coping ability of mothers of pretermbabies.
3. To find an association between the level of Stress, Anxiety, and Coping ability of mothers of pretermBabies with selected demographic variables.

Hypothesis:
- **H₁:** There is a significant difference in stress, Anxiety and Coping ability of mothers of pretermbabies admitted in NICU.
- **H₂:** There is a significant relationship between effect of modified COPE Programme & stress, Anxiety and Coping ability score of mothers of pretermbabies admitted in NICU.
- **H₃:** There is a significant relationship between pre test score obtained on Stress, Anxiety and Coping ability with selected demographic variables among mothers of pretermbabies admitted in NICU.

Methods:
Research approach: The research approach adopted for the present study was Quantitative Experimental Research Approach, **Research design:** A Quasi experimental, non-randomized control group design was used in this study. **Sampling technique:** Non Probability Convenient Sampling Technique is used for the present study. **Research Settings**: The study was conducted in the neonatal intensive care unit (NICU) selected hospital, Udaipur, Rajasthan. **Sample Size:** 270 mothers(Experimental group: 135 samples and Control group: 135 samples) were selected by using power analysis (solvin's formula), **Population:** The target Accessible population comprised of all mothers of pretermbabies admitted in NICU.

Sample selection criteria:
Inclusion Criteria: Mothers of preterm babies
- ✓ Born before 37 weeks of gestation.
- ✓ Admitted in NICU during the time of data collection.
- ✓ Who could understand and speak Hindi & English.
- ✓ Who stayed in NICU for more than 14 days.

Exclusion criteria: Mothers of preterm babies
- ✓ With significant neurological disorders such as intra ventricular hemorrhage.
- ✓ Who were not co-operative in the study.
- ✓ Who were not available at the time of data collection.

    ✓   With postpartum discomforts/ diseases that restrict their involvement in care of their newborn.

Instruments:
The study used 4 different tools to collect data. The first tool was socio-demographic variables such as Age in Years, Religion, education, Occupation, monthly family Income, No. of children, Birth order, Mode of delivery, Gravida, Gestational week, Baby weight, Type of Family, Area of residence, Baby Gender, Length of stay in NICU. This section consists of 15 items. The second tool was Modified Parental Stress Scale (PSS:NICU) to assess the level of stress of mothers of preterm babies who are admitted to NICU. This section consists of 42 items on selected aspects of a mother's stress. The third tool was Modified State-Trait Anxiety Inventory Form I & II scale (STAI I & II) to assess the Anxiety level of mothers of preterm babies who are admitted to NICU. This section consists of 45 items on selected aspects of a mother's Anxiety. The fourth tool was the Modified Coping Health Inventory for Parents scale(CHIP) to assess the coping ability of mothers of preterm babies who are admitted to NICU. This section consists of 42 items on selected aspects of mothers coping ability.

Intervention: The Modified COPE Program is an educational, behavioral and relaxation intervention program for mothers who have just experienced the preterm birth of an infant. It is designed to begin very early in the course of the NICU admission and extends through the first week after discharge. The program consists of progressive muscle relaxation, Breathing Exercise & Information booklet. The initial draft was PMR (progressive muscle relaxation). The final tool was tested for reliability. The reliability of the tool was established by testing the stability using Cornbach's alpha formula. The internal consistency of the tool was as follows.
Modified Parental Stress Scale (PSS:NICU): 0.88, Modified State-Trait Anxiety Inventory Form I & II scale (STAI I & II): 0.91& 0.90 and Modified Coping Health Inventory for Parents scale(CHIP): 0.79

Data Collection Procedure: A written permission was obtained from the hospital authority prior to the onset of the study. The researcher selected 270 mothers based on eligibility criteria. The purpose of the study and the method of data collection was explained to the participants. The researcher obtained informed written consent from the study participants. A direct interview was conducted with each individual and confidentiality of the study subject was assured.The pre test questionnaire was administered on day 1st Structured interview schedule was used to assess the level of Stress, Anxiety and Coping ability of Mothers of Preterm Babies admitted in NICU. Data collection tools were given to the participants by the researchers during face-to-face interview. The tool consist of socio demographic Performa, PSS:NICU, STAI-I&II, CHIP which was translated into vernacular language. The average time taken by each participants was 50 minutes & scoring time was 10 minutes. The language was found to be clear and items where easy comprehended by participants. After the pre-test on day 2nd Modified COPE Programme includes Progressive Muscle Relaxation Technique (PMRT), breathing exercises were conducted in a calm and quite environment and Information booklet regarding Care of preterm babies was given to all participants after relaxation therapy. Post-test was on done after 15th day of pretest and follow-up was done after 7 days of posttest. Data was collected and analyzed by using descriptive and inferential statistics. Researcher did not found any problem to conduct pilot study, hence researcher carried same tool to conduct main study as per the expert suggestion.

A study was conducted in 4 phases:
Phase-I (Pre-Test): Assess the Stress, Anxiety, and coping ability of Mothers of Preterm Babies admitted to NICU. **Phase-II (Intervention):** Modified COPE Programme was administered to Mothers of Preterm babies admitted to NICU. **Phase-III (Post-test):** Assess the effectiveness of the Modified COPE Programme on Mothers of Preterm Babies admitted to NICU. **Phase-IV (Follow Up):** Follow-Up to conduct after post-test.

Statistical analysis: The obtained data were analyzed in terms of the objectives of the study using descriptive and inferential statistics. The plan for data analysis was as follows Organization of data in the master sheet. Obtained data were analyzed in terms of frequencies and percentages. Description Statistics: Description of demographic characteristics mean, median, SD, and mean percentage was used to describe the area-wise pre-test, post-test & follow-up in an experimental and control group of the participant regarding stress. Inferential Statistics: paired 't'- test was used to find out the effectiveness of COPE Program on the mothers of preterm babies admitted in NICU. Chi-square was used to find the association between the pre-test stress score of the experimental group & control group participants with socio-demographic variables.

Results:
The collected data was entered into a master sheet for tabulation and statistical processing. The data were analyzed and interpreted using descriptive and inferential statistics based on the objectives and hypothesis formulated for the present study. The findings are presented under the following headings:

- **Section A:** Description of Socio-Demographic Variables of Study Participants.
- **Section B:** Level of Stress, Anxiety, and Coping ability among Mothers of preterm babies in Experimental & Control Group.

• **Section C:** Effectiveness of Modified COPE Program on Level of Stress, Anxiety and Coping ability among Mothers of preterm babies in Experimental & Control Group.
• **Section D:** Association between Pre-Test Stress Anxiety and Coping ability scores among Mothers of preterm babies with selected Socio-Demographic Variables in Experimental & Control Group.

Section A: Description of Socio-Demographic Variables of Study Participants.

Table 1: Description of Socio-Demographic Variables.

N=270

Sl. No	Demographic variables	Experimental Group N=135		Control Group N=135	
		Frequency	Percentage	Frequency	Percentage
1.	**Age in years**				
a)	19-23 years	20	14.8	34	25.2
b)	24-28 years	53	39.3	45	33.3
c)	29-33 years	43	31.9	41	30.4
d)	>33 years	19	14.1	15	11.1
2.	**Religion**				
a)	Hindu	92	68.1	99	73.3
b)	Muslim	25	18.5	15	11.1
c)	Christian	18	13.3	21	15.6
3.	**Education**				
a)	No Formal Education	64	47.4	54	40.0
b)	Primary Education	17	12.6	45	33.3
c)	Secondary Education	28	20.7	21	15.6
d)	Higher Secondary Education	16	11.9	4	3.0
e)	Graduation and above	10	7.4	11	8.1
4.	**Occupation**				
a)	House Wife	64	47.4	70	51.9
b)	Government Employee	25	18.5	31	23.0
c)	Private Employee	6	4.4	6	4.4
d)	Business	28	20.7	17	12.6
e)	Others	12	8.9	11	8.1
5.	**Monthly family income**				
a)	less than Rs. 10000	70	51.9	51	37.8
b)	Rs. 10001-20000	34	25.2	50	37.0
c)	>Rs. 20000	31	23.0	34	25.2
6.	**Number of Children**				
a)	One	102	75.6	87	64.4
b)	Two	21	15.6	40	29.6
c)	Three	12	8.9	8	5.9
7.	**Birth Order**				
a)	First	102	75.6	87	64.4
b)	Second	21	15.6	40	29.6
	Third	12	8.9	8	5.9
8.	**Mode of Delivery**				
a)	Vaginal	94	69.6	91	67.4
b)	LSCS/Cesarean	41	30.4	44	32.6
9.	**Gravida**				
a)	Primi	102	75.6	87	64.4
b)	Multi	33	24.4	48	35.6
10.	**Gestational age**				
a)	<28 weeks	44	32.6	39	28.9
b)	28-32 wks	52	38.5	65	48.1
c)	33-37 wks	39	28.9	31	23.0
11.	**Weight of Baby**				
a)	<1000 Grams	18	13.3	29	21.5
b)	1001-1500 Grams	70	51.9	81	60.0
c)	1501-2000 Grams	47	34.8	25	18.5

12.	**Type of family**				
a)	Joint Family	49	36.3	44	32.6
b)	Nuclear Family	86	63.7	91	67.4
13.	**Area of Residence**				
a)	Urban	30	22.2	41	30.4
b)	Semi Urban	65	48.1	70	51.9
c)	Rural	40	29.6	24	17.8
14.	**Baby Gender**				
a)	Male	69	51.1	64	47.4
b)	Female	66	48.9	71	52.6
15.	**Length of Stay**				
a)	<7 days	75	55.6	58	43.0
b)	8-14 days	41	30.4	59	43.7
c)	15 days and above	19	14.1	18	13.3

Table 1: Depicts that maximum of the respondents in experimental group 53 (39.3%) belonged to 24-28 years, 92 (68.1%) were Hindu, 64 (47.4%) had No formal education, 64 (47.4%) were House wife, 70 (51.9%) of them had monthly family income is less than Rs 10,000/-, 102 (75.6%) had one children, 102 (75.6%) was first birth order, 94 (69.6%) mode of delivery was Vaginal, 102 (75.6%) were Primigravida, 52 (38.5%) had 28-32 weeks of gestation, 70 (51.9%) had 1001 to 1500 grams of birth weight, 86 (63.7%) were belongs to nuclear family, 65 (48.1%) were residence in semi urban, 69 (51.1%) were male and 75 (55.6%) were stayed less than 7 days in NICU. Whereas in control group most of respondents 45 (33.3%) belonged to 24- 28 years, 99 (73.3%) were Hindu, 54 (40%) had no formal education, 70 (51.9%) were House wife, 51 (37.8%) of them had less than Rs 10,000/-, 87 (64.4%) had one children, 87 (64.4%) was first birth order, 91 (67.4%) mode of delivery was Vaginal, 87 (64.4%) were Primigravida, 65 (48.1%) had 28-32 weeks of gestation, 81 (60%) had 1001 to 1500 grams of birth weight, 91 (67.4%) were belongs to nuclear family, 70 (51.9%) were residence in semi urban, 71 (52.6%) were female and 59 (43.7%) were stayed 8 to 14 days in NICU.

Section B: Level of Stress, Anxiety and Coping ability among Mother's of preterm babies in Experimental & Control Group.

Table 2: Frequency and Percentage Distribution of Level of Stress of Mothers of preterm babies in experimental and control group

=270

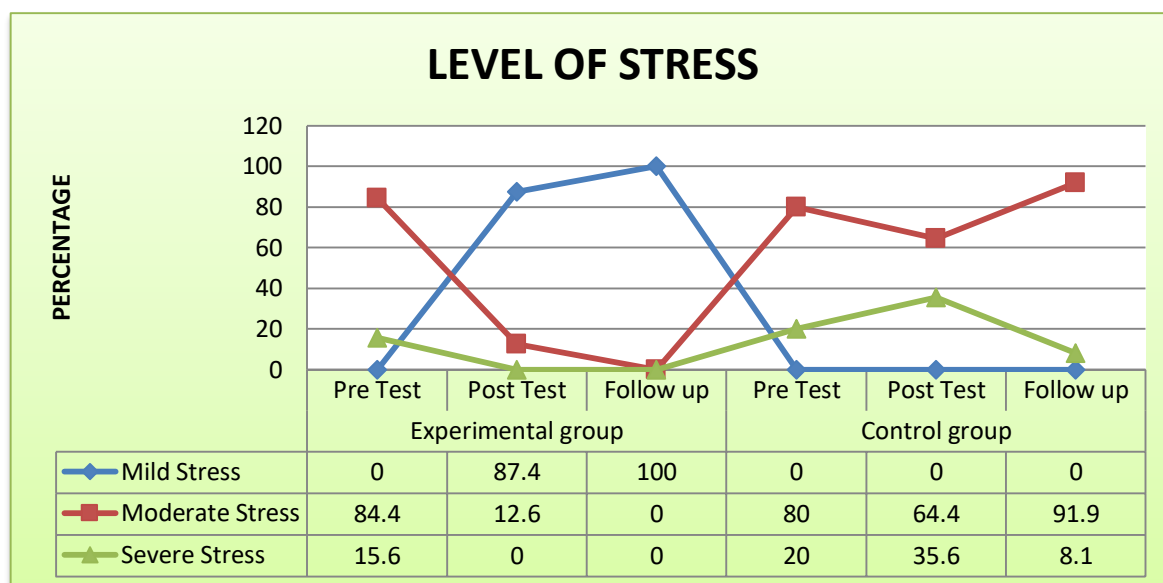| Sl. No	Stress	Experimental group						Control Group					
		Pre Test		Post Test		Follow up		Pre Test		Post Test		Follow up	
		F	P	f	p	f	p	f	p	f	p	f	p
1.	Mild Stress	0	0.0	118	87.4	135	100	0	0.0	0	0.0	0	0.0
2.	Moderate Stress	114	84.4	17	12.6	0	00	108	80.0	87	64.4	124	91.9
3.	Severe Stress	21	15.6	0	0.0	0	00	27	20.0	48	35.6	11	8.1
Total		**135**	**100**	**135**	**100**	**135**	**100**	**135**	**100**	**135**	**100**	**135**	**100**

Figure – 1: Representing percentage distribution of Level of stress among Mothers of preterm babies of experimental and control group.

Table-2 and figure-1: described the level of stress in experimental group 84.4% of respondents had moderate stress in pretest, 87.4% had mild stress in post test and 100 % had mild stress in follow up. Whereas in Control group 80% of respondents had moderate stress in pretest, 64.4% had moderate stress in post test and 91.9% had moderate stress in follow up. It showed that there was a significant relationship between stress score with mothers of preterm babies admitted in NICU. Hence, Research Hypothesis H_1 was accepted.

Table 3: Frequency and Percentage Distribution of Anxiety of Mothers of preterm babies in Experimental and Control group

N=270

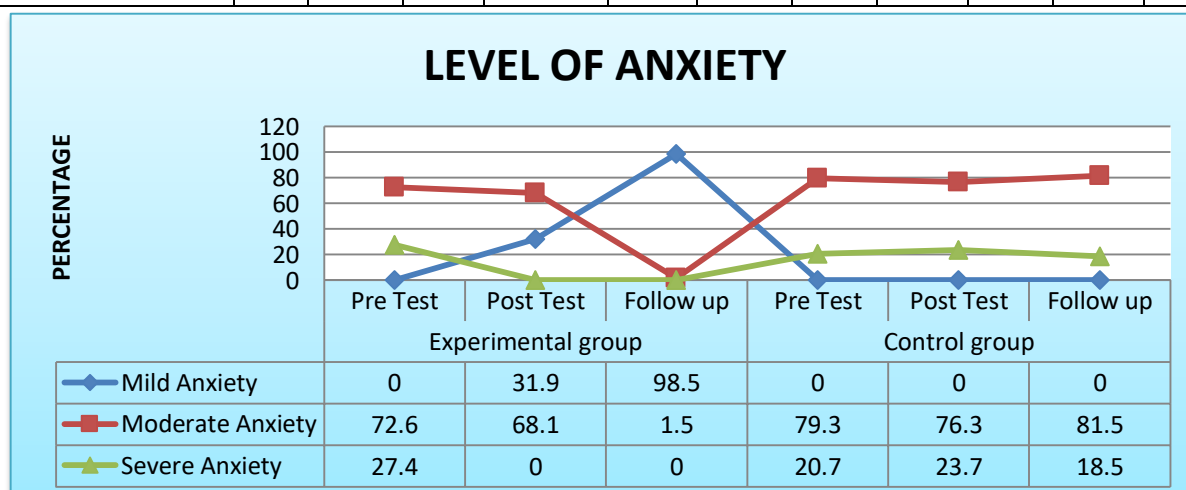| Sl. No	Anxiety	Experimental group						Control Group					
		Pre Test		Post Test		Follow up		Pre Test		Post Test		Follow up	
		F	P	f	p	f	p	f	p	f	p	f	P
1.	Mild Anxiety	0	0.0	43	31.9	133	98.5	0	0.0	0	0.0	0	0.0
2.	Moderate Anxiety	98	72.6	92	68.1	2	1.5	107	79.3	103	76.3	110	81.5
3.	Severe Anxiety	37	27.4	0	0.0	0	0.0	28	20.7	32	23.7	25	18.5
Total		135	100	135	100	135	100	135	100	135	100	135	100

Figure – 2: Representing percentage distribution of Level of Anxiety among Mothers of preterm babies of experimental and control group.

Table-3and figure-2: described the level of Anxiety in experimental group 72.6% of respondents had moderate Anxiety in pretest, 68.1% had moderate Anxiety in post test and 98.5 % had mild Anxiety in follow up. Whereas in Control group 79.3% of respondents had moderate Anxiety in pretest, 76.3% had moderate Anxiety in post test and 81.5% had moderate Anxiety in follow up. It showed that there was a significant relationship between Anxiety score with mothers of preterm babies admitted in NICU. Hence, Research Hypothesis H_1 was accepted.

Table4: Frequency and Percentage Distribution of Level of Coping ability among Mothers of preterm babies in Experimental and control group

N=270

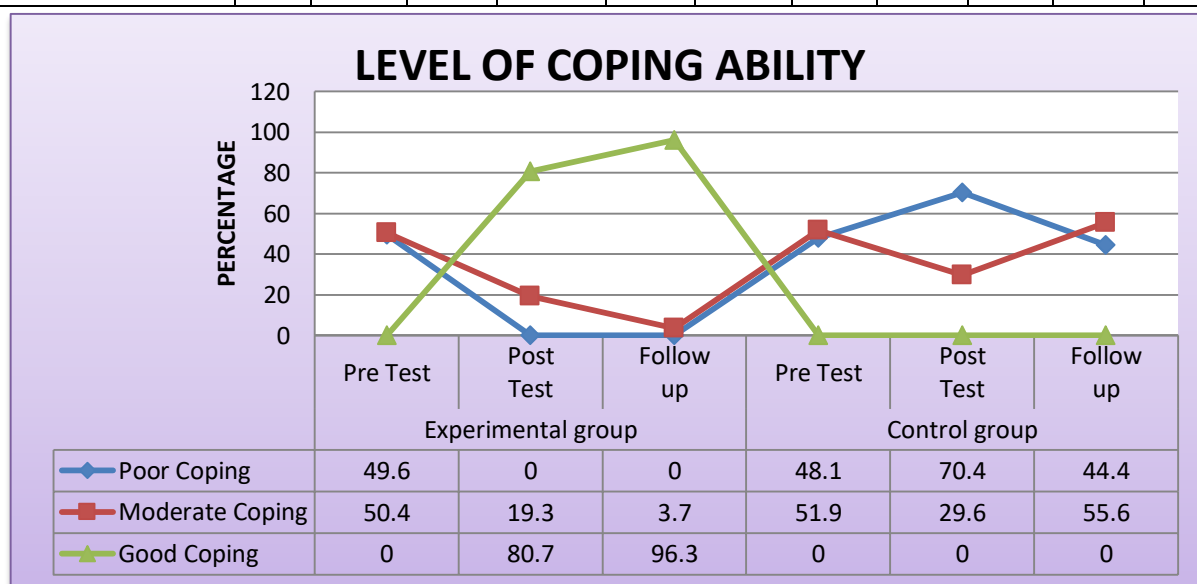| Sl. No	Anxiety	Experimental group						Control Group					
		Pre Test		Post Test		Follow up		Pre Test		Post Test		Follow up	
		F	P	f	p	f	p	f	p	f	p	f	P
1.	Poor Coping	67	49.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
2.	Moderate Coping	68	50.4	26	19.3	5	3.7	107	79.3	103	76.3	110	81.5
3.	Good Coping	0	0.0	109	80.7	130	96.3	28	20.7	32	23.7	25	18.5
Total		135	100	135	100	135	100	135	100	135	100	135	100

Figure – 3: Representing percentage distribution of Coping of Mothers of preterm babies of experimental group and control group

Table-4 and figure-3: described the level of Coping ability in experimental group 50.4% of respondents had moderate coping in pretest, 80.7% had good coping in post test and 96.3 % had good coping in follow up. Whereas in Control group 79.3% of respondents had moderate Anxiety in pretest, 76.3% had moderate Anxiety in post test and 81.5% had moderate Anxiety in follow up. It showed that there was a significant relationship between Anxiety score with mothers of preterm babies admitted in NICU. Hence, Research Hypothesis H_1 was accepted.

Section B: Effectiveness of Modified COPE Program on Level of Stress, Anxiety and Coping ability among Mothers of preterm babies in Experimental & Control Group.

Table -5: Comparison of level of stress among experimental group.

N=135

Test	Mean	Standard deviation	Mean difference	Standard error	t -Value	p value	Inference
Pre-test	135.49	13.944	57.16	1.700	33.615	0.001	S
post-test	78.33	14.463					
Post-test	78.33	14.463	12.32	1.27	12.319	0.001	S
Follow up	66.01	3.484					

Pre-test	135.49	13.944	69.48	1.27	54.390	0.001	S
Follow up	66.01	3.484					

S= Significant   **NS= Not Significant**

The calculated 't' value 54.390 was significantly higher than the table value at 0.001 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & stress score of mothers, hence the H$_2$ hypothesis was proved and accepted.

Table -6: Comparison of level of stress among control group.

N=135

Test	Mean	SD	Mean difference	Std. Error	t -Value	p value	Inference
Pre-test	145.64	13.252	3.38	1.671	2.007	0.047	**S**
post-test	148.99	15.898					
Post-test	148.99	15.898	8.37	1.321	6.334	0.001	**S**
Follow up	140.62	11.150					
Pre-test	145.64	13.252	5.02	1.364	3.676	0.001	**S**
Follow up	140.62	11.150					

S= Significant   **NS= Not Significant**

The calculated 't' value 3.676 was significantly higher than the table value at 0.001 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & stress score of mothers, hence the H2 hypothesis was proved and accepted.

Table -7: Comparison of level of Anxiety scores among experimental group

N=135

Test	Mean	SD	Mean difference	Standard error	t -Value	p value	Inference
Pre-test	98.41	12.43	42.64	1.14	37.117	0.001	S
post-test	55.77	5.03					
Post-test	55.77	5.03	9.79	0.42	9.257	0.001	S
Follow up	45.98	3.07					
Pre-test	98.41	12.43	52.43	1.05	49.909	0.001	S
Follow up	45.98	3.07					

The calculated 't' value 49.909 was significantly higher than the table value at 0.001 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & anxiety score of mothers, hence the H2 hypothesis was proved and accepted.

Table -8: Comparison of level of Anxiety scores among control group

N=135

Test	Mean	SD	Mean difference	Standard error	t -Value	p value	Inference
Pre-test	101.34	9.88	2.63	1.17	2.24	0.026	S
post-test	98.71	10.92					
Post-test	98.71	10.92	2.79	1.21	2.284	0.024	S
Follow up	95.92	10.64					

| Pre-test | 101.34 | 9.88 | 5.42 | 1.18 | 4.58 | 0.001 | S |
| Follow up | 95.92 | 10.64 | | | | | |

The calculated 't' value 49.909 is significantly higher than the table value at 0.001 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & anxiety score of mothers, hence the H2 hypothesis was proved and accepted.

Table -9: Comparison of coping ability scores among experimental group

N=135

Test	Mean	Standard deviation	Mean difference	Standard error	t -Value	p value	Inference
Pre-test	42.44	7.98	-57.23	1.40	36.338	0.001	S
post-test	93.67	14.21					
Post-test	93.67	14.21	-15.07	1.28	12.462	0.001	S
Follow up	108.74	5.58					
Pre-test	42.44	7.98	-66.3	0.80	82.197	0.001	S
Follow up	108.74	5.58					

The calculated 't' value 82.197 is significantly higher than the table value at 0.001 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & coping ability score of mothers, hence the H2 hypothesis was proved and accepted.

Table-10: Comparison of coping ability scores among control group

N=135

Test	Mean	Standard deviation	Mean difference	Standard error	t -Value	p value	Inference
Pre-test	48.33	9.91	3.33	0.93	3.584	0.001	S
post-test	45.00	11.22					
Post-test	45.00	11.22	-3.4	0.23	14.620	0.001	S
Follow up	48.40	10.37					
Pre-test	48.33	9.91	-0.07	0.87	0.085	0.933	S
Follow up	48.40	10.37					

The calculated 't' value 0.085 is significantly higher than the table value at 0.933 level of significance. There is a significant relationship between effectiveness of Modified COPE Program & coping ability score of mothers, hence the H2 hypothesis was proved and accepted.

SECTION C: Association between the pretest stress, anxiety and coping ability of mothers of preterm babies with demographic variables

The Findings revealed that the calculated chi square value of pre-test stress of experimental group with their selected socio-demographic variables such as family income ($\chi2$=3.741) was found significant at 0.05 and 0.01. So there is a significant association between experimental group stress with selected demographic variables. Hence H$_3$ was accepted. Whereas in control group chi square value of education ($\chi2$= 9.591), No. of children ($\chi2$=8.502), birth order ($\chi2$=8.502), gravida ($\chi2$=5.571), birth weight of baby ($\chi2$=9.788) and area of residence ($\chi2$=6.719) was found significant at level of

0.05 and 0.01. So there is significant association between control group stress with selected demographic variables. Hence H₃ was accepted.

Findings revealed that the calculated chi square value of pre-test anxiety of experimental group with their selected socio-demographic variables such as Education(χ2=9.591), No. of children (χ2=8.502), Birth order (χ2=8.502), gravida (χ2=5.571), birth weight (χ2=9.788) and area of residence (χ2=6.719) was found significant at 0.05 and 0.01. So there is a significant association between experimental group anxiety with demographic variables . Hence H₃ was accepted. Whereas in control group all demographic variables was found not significant at level of 0.05 and 0.01. So there is no significant association between control group anxiety with selected demographic variables . Hence H₃ was rejected.

Findings revealed that the calculated chi square value of pre-test coping ability of mothers in experimental group with their selected socio-demographic variables such as No. of children (χ2=8.502), Birth order (χ2=1.530) and gravida (χ2=0.907)was found significant at 0.05 and 0.01. So there is a significant association between experimental group coping ability of mothers with demographic variables. Hence H₃ was accepted. Whereas in control group all demographic variables was found not significant at level of 0.05 and 0.01. So there is no significant association between control group coping ability with selected demographic variables . Hence H₃ was rejected.

Discussion:

The main purpose of the study to evaluate the effectiveness of Modified COPE program on level of stress, anxiety, and coping ability of mothers of preterm babies admitted in NICU. The findings of this study provide additional support to the previous studies on COPE program and other behavioral Intervention studies.

After participation in the study, results revealed that in comparison of pre and post-test stress in the experimental group the mean score was 135.49 and 78.33 with the 't' value of 33.615 which was significant, whereas, in the control group, the pre and post-test the mean score was 145.64 and 148.99 with the 't' value 2.007 which was not significant and pre and follow up stress score in the experimental group the mean score was 135.49 and 66.01 with the 't' value of 54.390 which was Highly significant, whereas in the control group, the pre and follow up the mean score was 145.64 and 140.62 with the 't' value 3.676 which was significant.

The Comparison of pre and post-test Anxiety in the experimental group the mean score was 98.41 and 55.77 with the 't' value of 37.117 which was Highly significant, whereas, in the control group, the pre and post-test the mean score was 101.35 and 98.71 with the 't' value 2.248 which was significant and pre and follow up Anxiety score in the experimental group the mean score was 98.41 and 45.99 with the 't' value 49.909 which was Highly significant, whereas in the control group, the pre and follow up the mean score was 101.35 and 95.93 with the 't' value of 4.58 which was significant.

The Comparison of pre and post-test Coping ability in the experimental group the mean score was 42.44 and 93.67 with the 't' value of 36.338 which was Highly significant, whereas, in the control group, the pre and post-test the mean score was 48.33 and 45.00 with the 't' value 3.584 which was significant and pre and follow up coping ability score in the experimental group the mean score was 42.44 and 108.74 with the 't' value 82.197 which was Highly significant, whereas in the control group, the pre and follow up the mean score was 48.33 and 48.41 with the 't' value of 0.085 which was not significant.

This clearly indicates that there was a significant reduction in the level of stress, anxiety and improve in coping ability among mothers of preterm babies after the administration of the modified COPE program to the mothers in the experimental group.

Similarly, In the study of Melnyk et al[10], all four phases of the COPE program were conducted in the USA shows that the maternal stress in the COPE program had significantly less than mothers in the control group and the mother's participation in taking care of the preterm did not have statistical significance between the two groups and also reduction in the traumatic symptoms, Richard J. Shaw et al[15], KaaresenPI[11]. Focussing on early individualized family-based interventions during neonatal hospitalization and transition to home has been shown to reduce maternal stress and depression and increase maternal self-esteem, Margarita Forcada-Guex et al[17], the length of hospital stay was reduced in the experimental group when compared to control group, Gonya et al [12]

This study also reveals that there was no association between demographic variables with the level of stress among mothers of neonates in the experimental group. Hence it shows that the COPE program can be applicable to all the mothers invariably according to their age, weeks of gestation, education, income, etc, **Melnyk et al**[14]to reduce the level of stress among mothers of neonates admitted to NICU.

This clearly indicates that there was a significant reduction in the level of stress among mothers of neonates after the administration of the COPE program to the mothers of neonates in the experimental group. Thus the COPE program was found to be effective in reducing the level of stress among mothers of neonates.

Conclusion:

Analyzing the results of the present study specified the level of stress, anxiety, and coping ability of mothers of preterm babies admitted to NICU. The implementation of the Modified COPE program accompanied by the empowerment of mothers can reduce such outcomes to a great extent. During this program, mothers learned about the differences between the physical and behavioral features of mature and immature neonates, growth and development, and behavioral and state cues and they also learned how to interact with the neonates by meeting their needs. Therefore, the results of this study confirm the findings of previous studies regarding COPE intervention with mothers of neonates that begins early in the NICU stay and results in less parental stress, anxiety and improves coping ability in the NICU.

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Conflict of Interest:

There are no conflicts of interest.

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