



Research Article

Amelioration of distress Anxiety among mothers during Newborn stay in Neonatal Intensive care unit (NICU): An Interventional study

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ABSTRACT

Background: The neonatal period is a critical time for both newborns and their families, often marked by significant stress and anxiety for mothers due to the uncertainty and medical complexities of neonatal care. Understanding and mitigating these emotional challenges is essential for improving maternal well-being and enhancing the overall care experience. **Objective:** This study aims to measure distress, anxiety among mothers during Newborn stay in Neonatal Intensive care unit (NICU) in the clinical setting. **Methods:** This descriptive pilot study was conducted in regional tertiary care medical hospital of Andhrapradesh, India. In this total of 200 mother have been recruited. at first 100 mothers anxiety levels were measured with likert scale and without showing the treatment video of newborns at NICU (n=100) and further next 100 mothers anxiety levels were measured with likert scale with showing the treatment video recordings of the respective new born at NICU (n=100). **Results:** Preliminary findings suggest that psychological support, including counseling and showing the video recordings of the respective new born treatment to the mothers, significantly reduced maternal anxiety. Enhanced communication and educational initiatives regarding the newborn's condition and care also contributed to lower levels of distress. **Conclusion:** This study highlights the complex relationship between information and emotional well-being for mothers in the NICU. While treatment videos can improve understanding, they can also increase anxiety and stress. A balanced approach that combines information sharing with emotional support is crucial for ensuring positive experiences for mothers in the NICU. Future research should explore additional factors influencing maternal perceptions and investigate long-term effects of such interventions.

Keywords: Maternal anxiety, neonatal care, psychological support, family-centered care, stress management.

INTRODUCTION

The arrival of new family member as a baby is an exciting and emotional event. But when giving birth to a sick or premature baby can be quite unexpected for any parent. In such new born will require care in a Neonatal Intensive Care Unit (NICU). New born babies who need intensive medical attention are often admitted in tertiary care hospital at the NICU. The NICU combines advanced technology and trained health care professionals to provide specialized care for the neonates. Parents of NICU infants experience stress related feelings of helplessness, exclusion, aberration, lack of sufficient knowledge regarding parenting and medical teaching with tears when infant in the NICU. But critical new born's needs NICU care for first few days or even months. During this period parental joy is tempered by the unease of separation and the stress of fitting in regular visits at NICU. Bonding between mother and their new born baby is very essential at the initial days of birth to overcome the stress and anxiety of mother. There are a number of interventions to newborns by doctors and nurses in NICU can help in reduce the stress of mothers. This study aimed to measure anxiety

among mothers during their newborn stay in NICU by using fifteen questioner Likert scale and showing the treatment video clips of their baby.

Method:

This descriptive pilot study was conducted at NICU, in department of pediatrics at tertiary care hospital, Andhra Pradesh, India. Initially, on two occasions on same day, effort was made to bring down the distress level of the mothers by showing the video recordings of the respective new born, captured on smart phone. It was found to be successful

Study design: An Interventional pilot study was conducted with the approval of institutional ethics committee and written informed consent from the participants was obtained. The study recruited 200 mothers of babies admitted to the NICU, divided them into two groups. Power analyses were used in order to determine the sample size; as a result of a power analysis based on a previous study by Yurdakul et al., this study determined with 85% power that each group should be composed of 95 mothers. This study reached 86% power by examining. The first 100 mothers in each group (NICU or PCS) At first 100 mothers were intervened by using likert scale without showing their baby treatment video clips to measure the distress or anxiety levels when newborns in a NICU (n=100), new born data was collected in an order of cradle numbers. Further next 100 mother were interviewed by using likert scale with showing treatment video clips of their babies admitted in Level 2 and Level 3 NICU in an order of cradle numbers and data was collected. Likert scale consist of 15 questions each question contains 5 options like strongly agree, agree, not known, disagree, strongly disagree. Likert scaling is a bipolar scaling method, measuring either positive or negative response to a statement. Sometimes an even-point scale is used, where the middle option of "neither agree nor disagree" is not available. This is sometimes called a "forced choice" method, since the neutral option is removed. [(1)12]. The lycart scale has been prepared based on the State-Trait Anxiety Inventory Scale (STAI TX-1 – STAI TX-2) and Trait Anxiety Inventory Scale [4].Parents of newborn were counseled based on their baby treatment protocol every day morning as per the study planned. Their reactions are recorded verbatim, analyzed and reported. Grading scales of satisfaction level, distress level, anxiety level and their personal impressions was reported.

Uses of Video Counseling

Parents feel more involved strengthening the trust on the relationships and provides reassurance, allowing healthcare professionals to focus on the job of caring for their NICU patients. There will be a reduction in the distress and anxiety levels of the mothers. A significant enhancement of satisfaction levels of the mothers A greater extent of acceptance of outcomes of hospitalization of newborns. Qualitatively better care is offered to newborns. The aim of our study was to compare the anxiety levels of 200 mothers, 1st 100 mothers asking the 15 question likert scale without showing the video recordings of their newborn treatment when baby is in NICU and next 100 mothers asking the 15 question likert scale a after watching the baby treatment through video. We aimed to determine the factors that can impact anxiety in mothers. **NICU treatment Video:** NICU treatment video helps families develop with bond with their presence or hospitalized infant, even when they cannot be at the bedside. (Parents, siblings and relatives get to know their new born by watching daily progress.

Result:

Descriptive Statistics

Mothers who did not view the treatment videos of their babies had an average mean score of 2.04 (SD = 0.56), while those who viewed the videos reported a higher mean score of 2.54 (SD = 0.80). This indicates a generally more positive perception among mothers who were exposed to the video recordings. This finding implies that viewing the treatment videos may have had a beneficial effect on the mothers' emotional well-being, potentially providing reassurance and reducing anxiety related to their baby's care. Overall, a higher mean in this context reflects a lower perceived level of stress and anxiety among mothers who had access to the video content.

Tab I:

S.NO	QUESTIONS	GROUP-I (No Video) N=100	GROUP-II (With Video) N=100	t-test for Equality of Means	Df (degree of freedom)	Sig. (2-tailed)
1	I feel stressed right now	M=2.06 SD=0.468 SE=0.047	M=2.76 SD=0.965 SE=0.097	-6.527	198	0.000
2	I get scared that something will about to happen	M=2.17 SD=0.620 SE=0.062	M=3.07 SD=1.008 SE=0.101	-7.606	198	0.000
3	Worrying thoughts are coming to my mind	M=2.09 SD=0.653 SE=0.065	M=2.86 SD=0.995 SE=0.100	-6.470	198	0.000
4	I can't stay still in one place	M=2.00 SD=0.512 SE=0.051	M=2.82 SD=1.067 SE=0.107	-6.926	198	0.000

5	I want to see the treatment of my baby	M=2.17 SD=0.620 SE=0.062	M=1.99 SD=0.362 SE=0.036	2.505	198	0.013
6	I am worried about my baby's treatment	M=2.18 SD=0.575 SE=0.058	M=3.39 SD=0.942 SE=0.094	-10.965	198	0.000
7	I feel like I'm at home	M=4.10 SD=0.577 SE=0.058	M=4.45 SD=0.609 SE=0.061	-4.170	198	0.000
8	I am happy.	M=4.04 SD=0.695 SE=0.070	M=3.88 SD=0.988 SE=0.099	1.325	198	0.187
9	I am very depressed.	M=2.13 SD=0.812 SE=0.081	M=2.56 SD=1.122 SE=0.112	-3.104	198	0.002
10	I am anxious	M=2.19 SD=0.506 SE=0.058	M=2.94 SD=0.802 SE=0.080	-7.909	198	0.000
11	I don't even think about how I am	M=1.99 SD=0.438 SE=0.044	M=2.52 SD=0.948 SE=0.095	-5.076	198	0.000
12	I can't even sleep	M=2.06 SD=0.664 SE=0.066	M=2.86 SD=1.035 SE=0.103	-6.506	198	0.000
13	I wonder why this happened to my baby	M=1.85 SD=0.359 SE=0.036	M=1.95 SD=0.411 SE=0.041	-1.832	198	0.068
14	I get a sudden feeling of fear	M=2.13 SD=0.506 SE=0.051	M=2.70 SD=1.030 SE=0.103	-4.968	198	0.000
15	Every minute I am thinking about Baby	M=1.83 SD=0.514 SE=0.051	M=2.06 SD=0.617 SE=0.062	-2.866	198	0.005
	Weighted average (grand mean)	M=2.04 SD=0.56	M=2.54 SD=0.8			

M=Mean, SD=Standard Deviation, SE= Standard Error.

Comparative Analysis

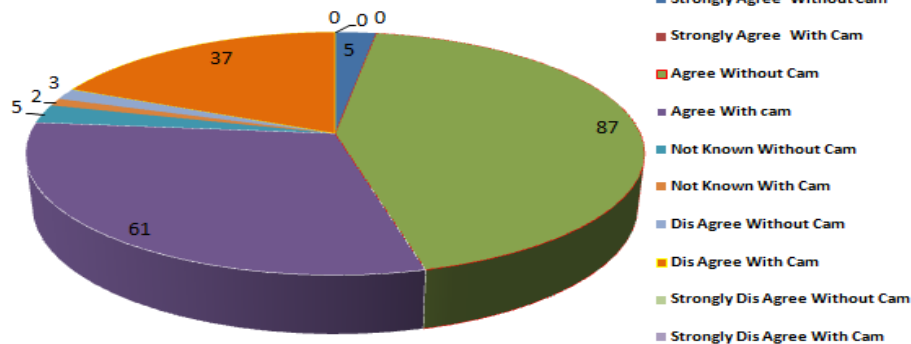
To evaluate the differences between the two groups, independent samples t-tests were conducted for each of the 15 questions. Significant differences were observed for several questions:

Question 1: "I feel stressed right now."

1. నేను ఇప్పుడు మానసిక ఒత్తిడికి గురి అవుతున్నాను.

1. I feel stressed right now?

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
5	0	87	61	5	2	3	37	0	0



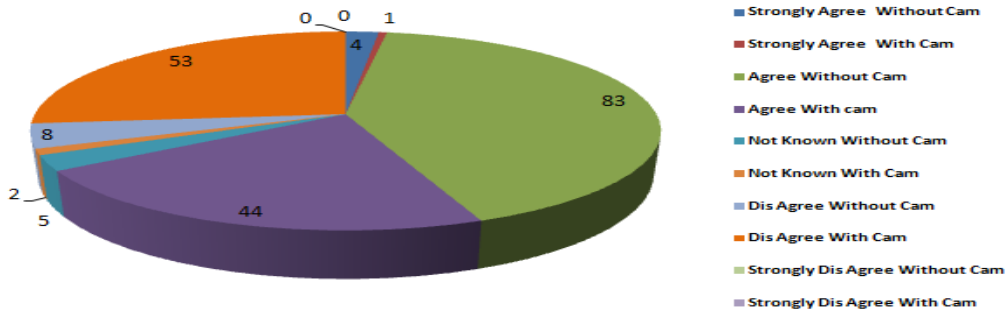
Mothers who viewed video recordings of their newborns' treatment in the NICU reported significantly lower stress levels ($M = 2.76$, $SD = 0.965$) compared to those who did not view the videos ($M = 2.06$, $SD = 0.468$), $t(198) = -6.527$, $p = 0.000$. This indicates that viewed the treatment video was associated with reduced stress among the mothers.

Question 2: "I get scared that something will about to happen."

2. నాకు ఎదో జరుగుతుందనే భయం వస్తుంది.

2. I get scared that something will about to happen.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
4	1	83	44	5	2	8	53	0	0



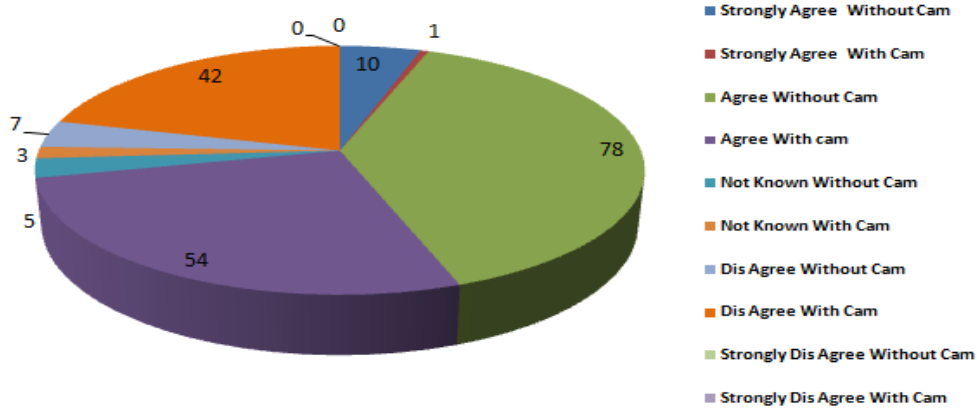
The mean score for mothers who viewed the videos ($M = 3.07$, $SD = 1.008$) was significantly higher than that of mothers who did not view the videos ($M = 2.17$, $SD = 0.620$), $t(198) = -7.606$, $p < 0.001$. This indicates that mothers who watched the treatment videos experienced less fear about potential negative outcomes regarding their babies.

Question 3: "Worrying thoughts are coming to my mind."

3. ఆందోళన కలిగించే ఆలోచనలు నా మనసులో వస్తుంటాయి.

3. Worrying thoughts are coming to my mind.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
10	1	78	54	5	3	7	42	0	0



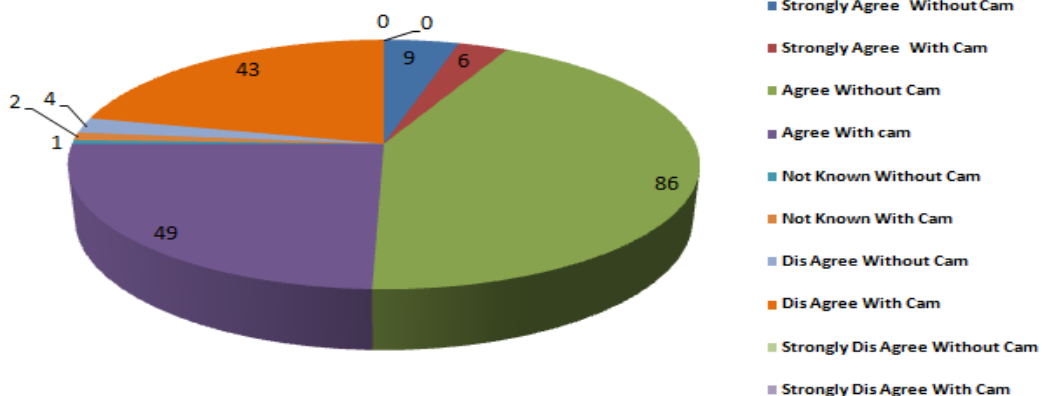
The mean score for mothers who viewed the videos ($M = 2.86, SD = 0.995$) was significantly higher than that of mothers who did not view the videos ($M = 2.09, SD = 0.653$), $t(198) = -6.470, p < 0.001$. This indicates that mothers who watched the treatment videos experienced fewer worrying thoughts.

Question 4: "I can't stay still in one place."

4. నేను ప్రశాంతముగా ఒక్క చోట కూడా ఉండలేక పోతున్నాను.

4. I can't stay still in one place

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
9	6	86	49	1	2	4	43	0	0



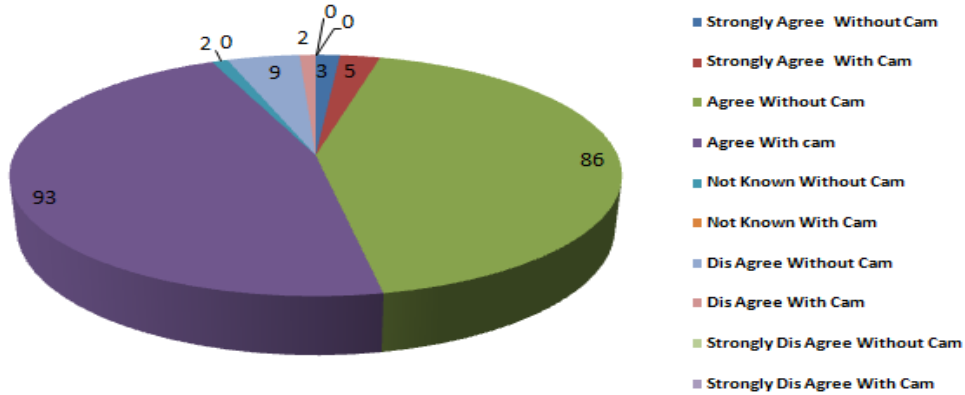
The mean score for mothers who viewed the videos ($M = 2.82, SD = 1.067$) was significantly higher than that of mothers who did not view the videos ($M = 2.00, SD = 0.512$), $t(198) = -6.926, p < 0.001$. This suggests that mothers who watched the treatment videos experienced less restlessness and were more capable of remaining calm.

Question 5: "I want to see the treatment of my baby."

5. నేను నా బాబు/పాపా యొక్క చికిత్స విధానమును చూడాలనుకుంటున్నాను.

5. I want to see the treatment of my baby.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
3	5	86	93	2	0	9	2	0	0



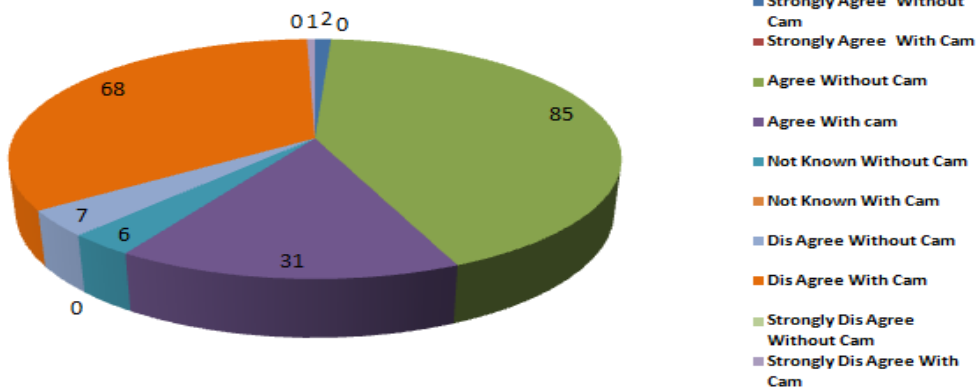
The mean score for mothers who viewed the videos ($M = 1.99$, $SD = 0.362$) was significantly lower than that of mothers who did not view the videos ($M = 2.17$, $SD = 0.620$), $t(198) = 2.505$, $p = 0.013$. This indicates that mothers who watched the treatment videos expressed a greater desire to see their baby's treatment.

Question 6: "I am worried about my baby's treatment."

6. నా బాబు/పాపా యొక్క చికిత్స విధానము గురించి ఆందోళన చెందుతున్నాను.

6. I am worried about my baby's treatment.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
2	0	85	31	6	0	7	68	0	1



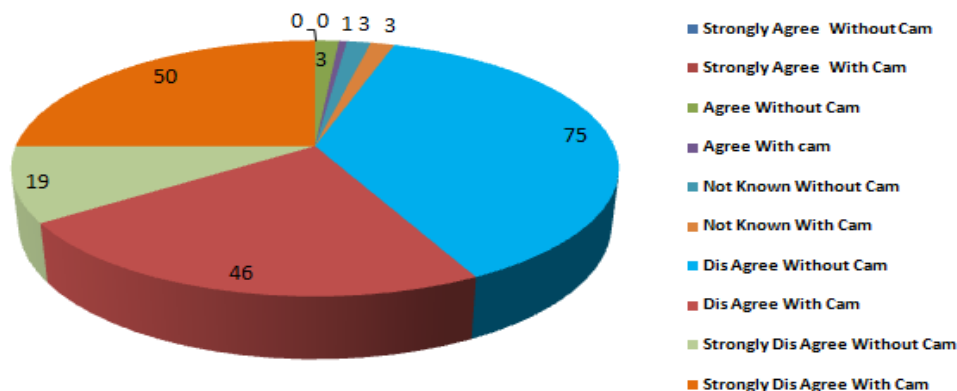
The mean score for mothers who viewed the videos ($M = 3.39$, $SD = 0.942$) was significantly higher than that of mothers who did not view the videos ($M = 2.18$, $SD = 0.575$), $t(198) = -10.965$, $p < 0.001$. This indicates that mothers who watched the treatment videos had more concerns about their baby's treatment.

Question 7: "I feel like I'm at home."

7. నేను ఇంట్లో ఉన్నట్లు గానే ఉన్నాను.

7. I feel like I'm at home

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
0	0	3	1	3	3	75	46	19	50



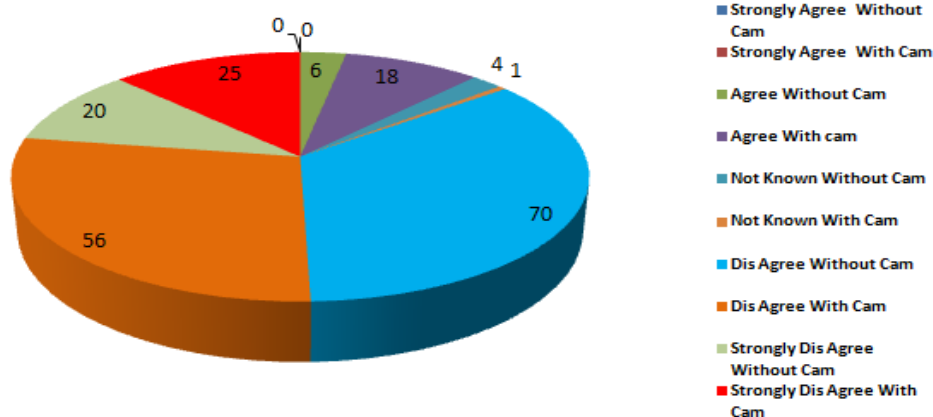
The mean score for mothers who viewed the videos ($M = 4.45$, $SD = 0.609$) was significantly higher than that of mothers who did not view the videos ($M = 4.10$, $SD = 0.577$), $t(198) = -4.170$, $p < 0.001$. This indicates that mothers who watched the treatment videos felt a greater sense of being at home.

Question 8: "I am happy."

8. నేను ఆనందంగా ఉన్నాను.

8. I am happy.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
0	0	6	18	4	1	70	56	20	25



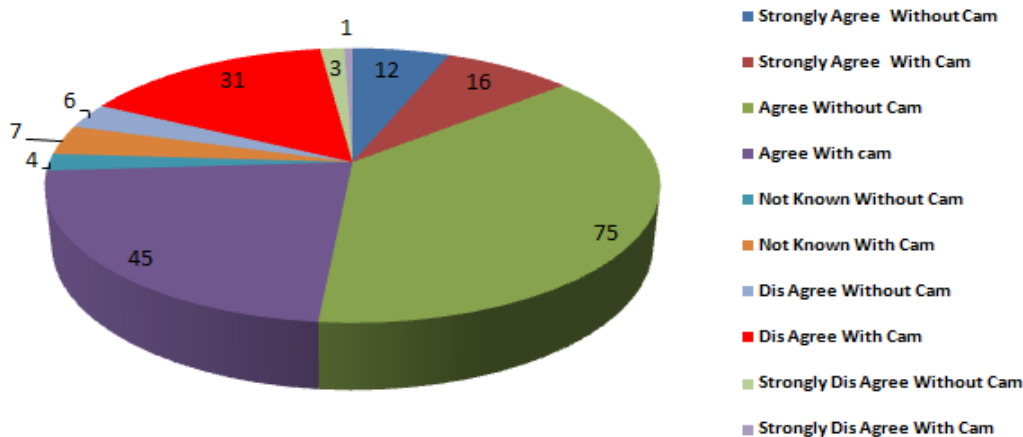
The mean score for mothers who viewed the videos ($M = 3.88, SD = 0.988$) was slightly lower than that for mothers who did not view the videos ($M = 4.04, SD = 0.695$), $t(198) = 1.325, p = 0.187$. This indicates that there was no significant difference in happiness between the two groups.

Question 9: "I am very depressed."

9. నేను బాగా కృంగి పోతున్నాను.

9. I am very depressed.

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
12	16	75	45	4	7	6	31	3	1



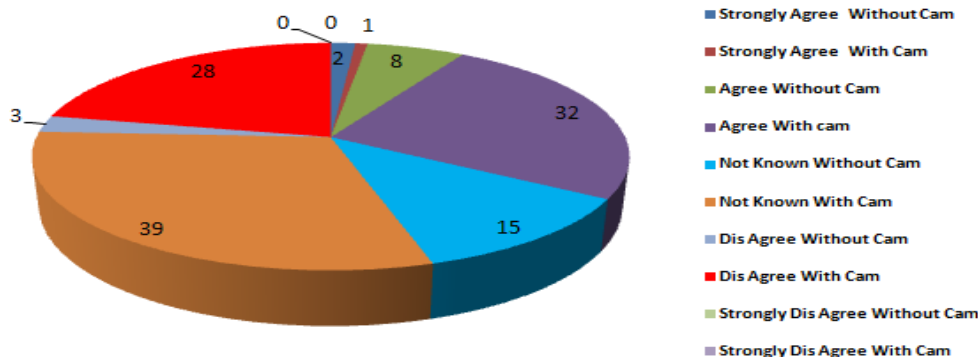
The mean score for mothers who viewed the videos ($M = 2.56, SD = 1.122$) was significantly higher than that for mothers who did not view the videos ($M = 2.13, SD = 0.812$), $t(198) = -3.104, p = 0.002$. This indicates that mothers who watched the treatment videos experienced greater levels of depression.

Question 10: "I am anxious."

10. నాకు ఆత్మతగా ఉంది.

10. I am anxious

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
2	1	8	32	15	39	3	28	0	0

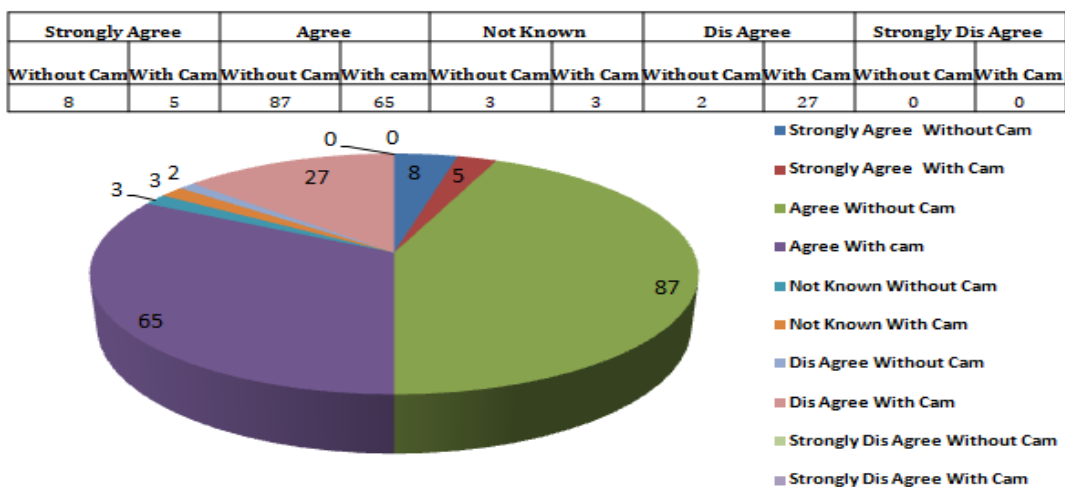


The mean score for mothers who viewed the videos ($M = 2.94, SD = 0.802$) was significantly higher than that for mothers who did not view the videos ($M = 2.19, SD = 0.506$), $t(198) = -7.909, p < 0.001$. This indicates that mothers who watched the treatment videos experienced higher levels of anxiety.

Question 11: "I don't even think about how I am."

11. నేను ఎలా ఉన్నానో కూడా ఆలోచించట్లేదు.

11. I don't even think about how I am.

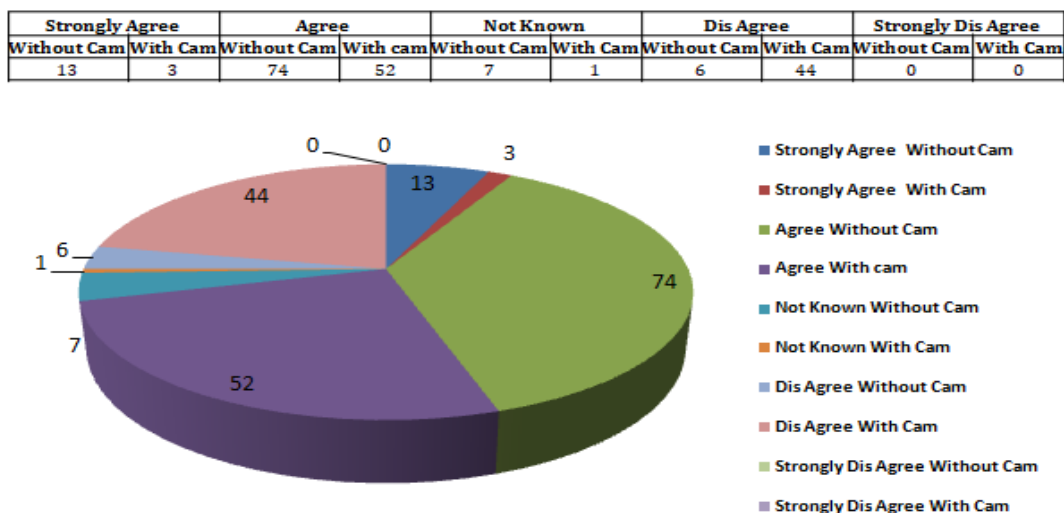


The mean score for mothers who viewed the videos ($M = 2.52, SD = 0.948$) was significantly higher than that for mothers who did not view the videos ($M = 1.99, SD = 0.438$), $t(198) = -5.076, p < 0.001$. This indicates that mothers who watched the treatment videos were more likely to neglect their own well-being and self-reflection.

Question 12: "I can't even sleep."

12. నాకు నిద్రకూడా రావట్లేదు.

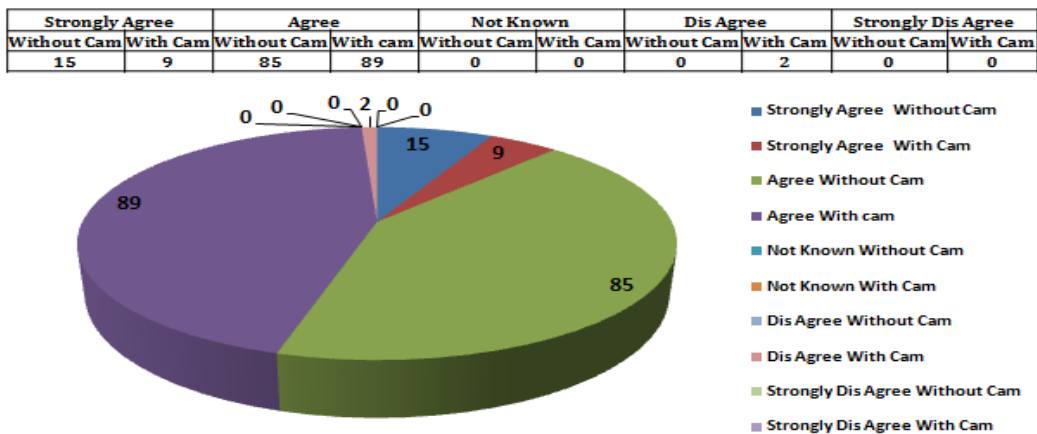
12. I can't even sleep.



The mean score for mothers who viewed the videos (M = 2.86, SD = 1.035) was significantly higher than that for mothers who did not view the videos (M = 2.06, SD = 0.664), $t(198) = -6.506, p < 0.001$. This indicates that mothers who watched the treatment videos experienced more difficulty sleeping.

Question 13: "I wonder why this happened to my baby."

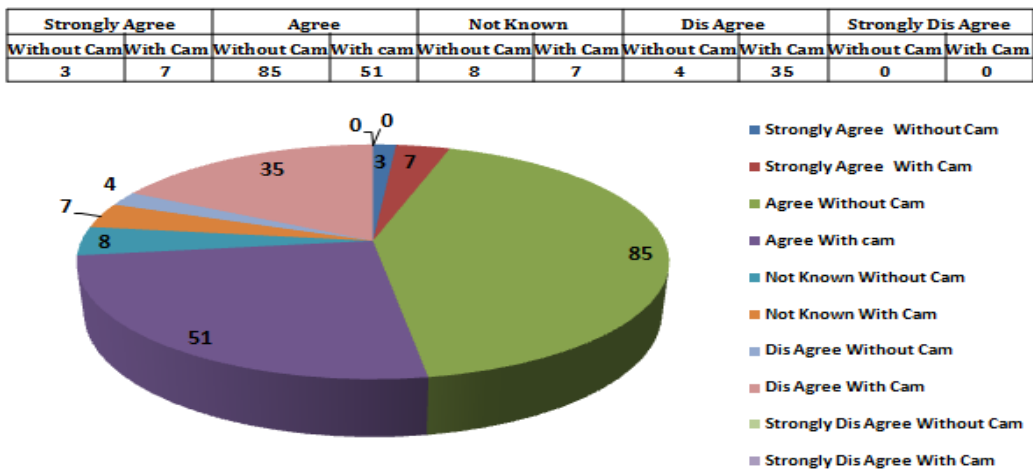
13. నా బాబుకి ఇలా ఎందుకు జరిగింది అనిపిస్తుంది.
 13. I wonder why this happened to my baby.



The mean score for mothers who viewed the videos (M = 1.95, SD = 0.411) was slightly higher than that for mothers who did not view the videos (M = 1.85, SD = 0.359), $t(198) = -1.832, p = 0.068$. This indicates that there was no significant difference in the extent to which mothers wondered why this happened to their baby between the two groups.

Question 14: "I get a sudden feeling of fear."

14. ఆకస్మాత్తుగా భయం వేస్తుంది.
 14. I get a sudden feeling of fear.



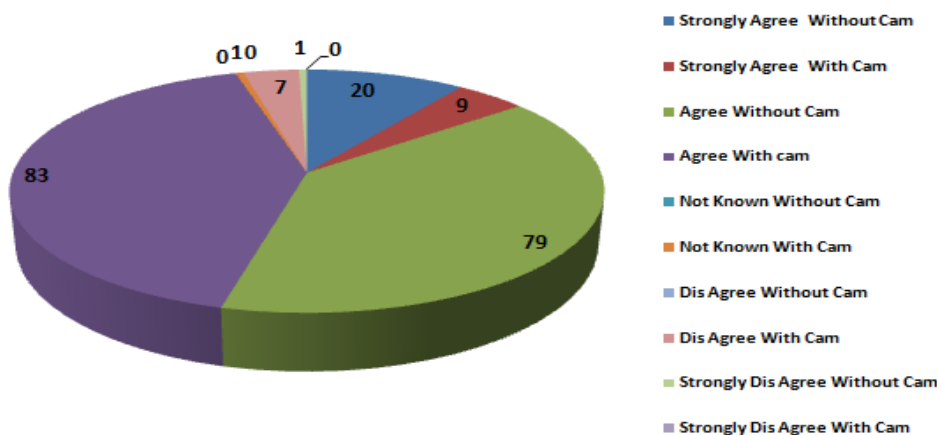
The mean score for mothers who viewed the videos (M = 2.70, SD = 1.030) was significantly higher than that for mothers who did not view the videos (M = 2.13, SD = 0.506), $t(198) = -4.968, p < 0.001$. This indicates that mothers who watched the treatment videos experienced more frequent sudden feelings of fear.

Question 15: "Every minute I am thinking about Baby."

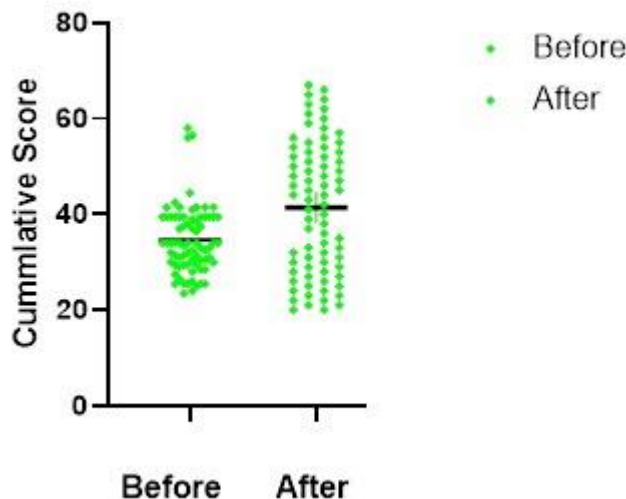
15. ప్రతి క్షణం కూడా బాబు/పాపా గురించి ఆలోచిస్తున్నాను.

15. Every minute I am thinking about Baby

Strongly Agree		Agree		Not Known		Dis Agree		Strongly Dis Agree	
Without Cam	With Cam	Without Cam	With cam	Without Cam	With Cam	Without Cam	With Cam	Without Cam	With Cam
20	9	79	83	0	1	0	7	1	0



The mean score for mothers who viewed the videos (M = 2.06, SD = 0.617) was slightly higher than that for mothers who did not view the videos (M = 1.83, SD = 0.514), $t(198) = -2.866, p = 0.005$. This indicates that mothers who watched the treatment videos spent more time thinking about their baby compared to those who did not.



Above scattered plot shows there was no a simple linear relation. Here observed the cumulative score of dots plot before and after showing video clips when baby in NICU. Before showing video clips the dots plot showed more gathered/assembled, indicates respondents/parents had more stress and anxiety. The more anxiety of parents was observed with the greater standard deviation. Second, after showing video clips of baby treatment, the dots plot showed was more scattered/dispersed, which indicates the stress and anxiety levels of the parents was reduced. The less anxiety of parents was observed with the minimal standard deviation. There was a wide difference between the standard deviation of the each question before showing video of newborns in NICU (shown in the above tables).

Discussion:

Parents of NICU infants experience stress related to feelings of helplessness, exclusion and aberration and lack sufficient knowledge regarding parenting and medical teaching with tear infants in the NICU [2]. There are a number of

interventions that nurses can do that help reduce the stress of mothers of infants in NICU [3]. Counseling with video clippings of baby in NICU showing treatment being given is one such intervention.

This study sheds light on the feelings of mothers with babies in the NICU, especially regarding their experiences when watching treatment videos. While these videos are meant to provide information and reduce stress, the results show that their effects can be complicated.

Emotional Reactions to Video Viewing

The findings reveal that mothers who watched the treatment videos reported lower stress levels, indicating that seeing their baby's care might help them feel more secure. However, these same mothers also experienced higher levels of anxiety, fear, and depression. This suggests that while some information can be comforting, it can also lead to increased worry about their baby's health.

Understanding and Awareness

The study found that mothers who viewed the videos had more worrying thoughts and feelings of fear. This indicates that while knowing more about their baby's treatment can be helpful, it can also make mothers feel more vulnerable. They might want to be informed but also feel overwhelmed by what they see.

Importance of Support

Interestingly, mothers who watched the videos reported feeling more at home and connected to their babies. This suggests that the videos can foster emotional involvement. It highlights the need for additional support alongside information. Providing emotional guidance and coping strategies can help mothers handle the challenges that come with watching these videos.

Implications for Healthcare

These findings have important lessons for healthcare providers. While treatment videos can be useful, it's essential to balance this information with emotional support. Healthcare professionals should engage in conversations with mothers before and after they watch the videos to address any concerns and prepare them for the emotions that may arise.

Limitations and Future Research

Although this study adds to our understanding of mothers' experiences in the NICU, it has limitations. The sample size, while considerable, may not capture the full range of mothers' experiences. Future research could look at the long-term effects of viewing these videos and explore how different video types impact mothers' feelings. Qualitative studies could also provide deeper insights into how mothers cope emotionally.

Conclusions:

Mothers of NICU-admitted babies are under significant stress and anxiety, which needs to be identified prior, along with care of the sick neonate, so as to give a complete care to the family.[6] Proper and adequate communication between parents and health professionals in NICU increases parental satisfaction.[7]

In summary, this study highlights the complex relationship between information and emotional well-being for mothers in the NICU. While treatment videos can improve understanding, they can also increase anxiety and stress. A balanced approach that combines information sharing with emotional support is crucial for ensuring positive experiences for mothers in the NICU. Future research should explore additional factors influencing maternal perceptions and investigate long-term effects of such interventions.

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