

Parental Stress and Coping Strategy in Intensive Care Unit of North India: A Single-Center, Prospective Observational Study

Rahul Jaiswal, Sandhya Chauhan

Department of Pediatrics, Shri Ram Murti Smarak Institute of Medical Sciences and R.C, Bareilly, Uttar Pradesh, India

Abstract

Introduction: Pediatric intensive care unit (PICU) is considered stressful environment and emotionally challenging for parents and care givers. The aim of this study was to identify common parental stressors during their child's stay in PICU and to formulate corrective measures for common parental stressors. **Methods:** This was a prospective, observational, and cross-sectional study. A total of 142 parents fulfilled the study criteria and were interviewed with the help of preformed questionnaire. The preformed questionnaire had in total 27 items which were classified into 3 categories for identification of stressors among parents. **Results:** The parental stressors were found to be as follows :- 1st - How stressful your experience is at the personal level? (Mean score = 3.18521, median score = 3.16600), 2nd -How stressful is the PICU environment for you? (Mean score = 2.22688, median score = 2.28500), 3rd -How stressful is the child's condition for you? (Mean score = 1.49356, median score = 1.35700). According to Kruskal–Wallis test result, all 3 categories were significantly different (H-score = 241.987, $dF = 2$, $P = 0.000$) with highest mean rank of 331.06 for personal category. **Conclusion:** There is a significant stress among parents of children admitted to intensive care unit (ICU). These parental stress factors should be regularly addressed and remedial steps must be taken for making the ICU environment cohesive for both parents and health-care staff and for ensuring optimum functioning of ICU.

Keywords: Coping skills, parental stress, pediatric intensive care unit

INTRODUCTION

Pediatric intensive care unit (PICU) is considered stressful environment and emotionally challenging for parents and care givers.^[1] Technological gadgetries, unfamiliar circumstances, fear of adverse outcomes, and monetary issues lead to their stress. The seriousness of the child's illness, the criticality of the intensive care unit (ICU) environment, the changed parental relationship with the child, and the possible suddenness of the onset of the child's illness may contribute to parental stress.^[2]

There are limited tools to quantify the parental stress in PICU viz Parental stress scale (PSS), PICU and critical care family needs inventory (CCFNI).^[1]

Addressing this issue among the parents whose children are admitted in PICU is a vital component determining the cohesive environment between the parents and health-care staff and thereby influencing the treatment of the patients.

This study was conducted in Rohilkhand Region to assess the predictors of stress among the parents of patients admitted in PICU with the help of a preformed questionnaire.

METHODS

The study was conducted in the PICU of a tertiary care hospital of Rohilkhand region from January 2019 to December 2019. The aim of this study was to identify common parental stressors during their child's stay in PICU and to formulate corrective measures for common parental stressors. Ethical Committee Approval from the Institutional Ethics Committee was taken prior to initiation of study (Ref. No. SRMSIMS/ECC/2018-19/201).

Address for correspondence: Dr. Sandhya Chauhan,
Department of Pediatrics, Shri Ram Murti Smarak Institute of
Medical Sciences and R.C, Bareilly - 243 202, Uttar Pradesh, India.
E-mail: drsandhyapedia@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Jaiswal R, Chauhan S. Parental stress and coping strategy in intensive care unit of North India: A single-center, prospective observational study. Matrix Sci Pharma 2022;6:86-92.

Received: 26-06-2022,

Accepted: 19-08-2022,

Published: 04-05-2023

Access this article online

Quick Response Code:



Website:
www.matrixscipharma.org

DOI:
10.4103/mtsp.mtsp_12_22_1

Inclusion criteria

1. Parents (either mother or father aged >18 years) of children admitted to PICU for ≥48 h duration were enrolled in this study
2. Parents whose primary spoken language was Hindi or who were able to understand Hindi were enrolled.

Exclusion criteria

1. Patients who died/discharged/LAMA within 1st 12 h of admission
2. Trauma patients and patients admitted for surgical intervention
3. Parents with preexisting psychiatric illness (as per history) or children whose parents stay away from them and were under the care of another guardian were excluded from the study.

Study design

This was a prospective, observational, cross-sectional study. All the parents of children fulfilling the study criteria were enrolled in the study. A predesigned pro forma was used for each enrolled patient to collect the demographic details of the patient (age at admission, gender, underlying disease, and socioeconomic status). The parents who gave the consent for participating in the study were interviewed in Hindi with the help of preformed questionnaire. Written informed consent was obtained from the parents. The preformed questionnaire had in total 27 items which were classified into three categories for the identification of stressors among parents.

Sample size

142 parents of patients admitted in PICU during the study period fulfilling the study criteria.

Statistics

The parents were interviewed using the preformed questionnaire. The response of parents regarding each item of the questionnaire was recorded on a 6-point Likert scale: 0, 1, 2, 3, 4, and 5, where score of 0 (not experienced), 1 (not stressful), 2 (minimally stressful), 3 (moderately stressful), 4 (very stressful), and 5 (extremely stressful). The mean stress score (total score per item divided by total number of parents) was calculated using Microsoft Excel sheet. To check the distribution of data, normality assessment was done. The data were analyzed using Kruskal–Wallis test and Chi- square test. IBM SPSS Statistics version 20, United States (English) was used.

RESULTS

During the study period, total 241 cases were admitted in PICU, after applying the exclusion criteria, 142 parents were interviewed using the preformed questionnaire. This questionnaire consisted of 27 questions pertaining to 3 different

categories coexisting together during the PICU stay of the child.

Majority (82%) of parents were of ≥30 years age group [Table 1]. The age distribution of patients whose parents were enrolled were as follows: 15 infants (1 mo - ≤12 mo), 97 children (>12 mo - ≤12 yrs), and 30 adolescents (12-18 yrs). Most of the enrolled parents (42.2%) were of lower socioeconomic status (grade V). Parental Stress Score [Table 1] was correlated with various demographic factors but it was statistically insignificant.

Parental Stress Score was calculated with the help of 27 items categorized into 3 groups which were:

1. How stressful is the child’s condition for you? (situational - 14 items)
2. How stressful your experience is at the personal level? (personal - 6 items)
3. How stressful is the PICU environment for you? (environmental - 7 items).

The categories found to be stressful [Table 2] for parents (in descending order):

1st - How stressful your experience is at the personal level? (Mean score = 3.18521, median score = 3.16600, Standard deviation = 0.691721, interquartile range [IQR] = 1.000, mean Rank = 331.06).

2nd - How stressful is the PICU environment for you? (Mean score = 2.22688, median score = 2.28500, Standard deviation = 0.509652, IQR = 0.571, mean Rank = 204.87)

Table 1: Parental Stress Score correlation with various demographic factors

Factor	Total (n=142)	Mean stress score		P
		<3, n (%)	≥3, n (%)	
Age of child				
Infant	15	15 (100)	0	0.5728
Child	97	96 (98.9)	1 (1)	
Adolescent	30	29 (96.6)	1 (3.3)	
Gender of the child				
Male	93	92 (98.9)	1 (1)	0.6425
Female	49	48 (97.9)	1 (2)	
Number of children				
1	38	37 (97.3)	1 (2.6)	0.6295
2	36	36 (100)	0	
3-6	68	67 (98.5)	1 (1.4)	
Age of parents (years)				
<30	26	26 (100)	0	0.5001
≥30	116	114 (98.2)	2 (1.7)	
Socioeconomic status (grades)				0.6115
I	7	7 (100)	0	
II	9	9 (100)	0	
III	24	23 (95.8)	1 (4.1)	
IV	42	41 (97.6)	1 (2.4)	
V	60	60 (100)	0	

Table 2: Descriptive statistics for individual categories

Descriptive statistics	Situational	Personal	Environmental
Mean (SE)	1.49356 (0.052683)	3.18521 (0.058048)	2.22688 (0.042769)
95% CI for mean			
Lower bound	1.38941	3.07045	2.14233
Upper bound	1.59771	3.29997	2.31143
5% trimmed mean	1.48491	3.23346	2.23518
Median	1.35700	3.16600	2.28500
Variance	0.394	0.478	0.260
SD	0.627795	0.691721	0.509652
Minimum	0.214	1.166	0.857
Maximum	3.000	4.000	3.428
Range	2.786	2.834	2.571
IQR	0.857	1.000	0.571
Skewness (SE)	0.375 (0.203)	-0.717 (0.203)	-0.220 (0.203)
Kurtosis (SE)	-0.432 (0.404)	0.287 (0.404)	0.346 (0.404)
Kruskal-Wallis test ($n=426$)	$n=142$	$n=142$	$n=142$
Mean rank	104.57	331.06	204.87
Kruskal-Wallis H score		241.987	
df (P)		2 (0.000)	

CI: Confidence interval, SE: Standard error, SD: Standard deviation, IQR: Interquartile range

3rd - How stressful is the child's condition for you? (Mean score = 1.49356, median score = 1.35700, Standard deviation = 0.627795, IQR = 0.857, mean Rank = 104.57).

The items for which mean stress score ≥ 3 as per different categories were as below [Table 3]:

1. How stressful is the child's condition for you?: - receiving injections frequently, getting pierced for procedures, tests
2. How stressful your experience is at the personal level?:- I am not able to take care of my child myself, I am not able to visit my child whenever I want, I am not able to see my child when I want, I am not being able to hold my child, In total, my general experience has been very stressful
3. How stressful is the PICU environment for you?: - I am afraid of monitors, the sounds of monitors make me restless, and the sounds of the alarms make me uncomfortable.

Normality test was done as shown in Figure 1. Normality test was done as shown in Figure 1. Data in the present study was not following normality. According to Kruskal-Wallis test result presented in Table 2, all 3 categories were significantly different (H-score = 241.987, dF = 2, P = 0.000).

DISCUSSION

PICU admission in itself is a significant stressor for the stability of the family.^[3] In the strange environment of critical care unit, the family might experience fear, mistrust, helplessness or hopelessness.^[3] When combined with worry about any ongoing procedures and medical treatment, parental stress is common and understandable.^[4]

There are multiple studies done by different investigators, who have highlighted the need of addressing parental stress and concerns in PICU apart from the routine care of patients.

In the present study, parents were most stressed at personal level with mean stress score of 3.18521 [Table 2]. This stress at personal level was related primarily to the ability to take care of the child personally. In the Indian culture, it is primarily the parents who are involved in childcare, especially the mothers. Inability to take care of the child personally amounts to a sense of failure in performing one's duties. Nizam and Norzila^[3] in a cross-sectional study have reported that alteration in parental roles was the most stressful source of stress for parents with a mean stress score of 3.4. This was followed by other source of stress viz child's behaviour and emotional response, and sight and sounds of ICU equipment, sight of other sick children, and stress due to child's appearance, etc.^[3]

In the present study, the stress of parents at personal level was followed by stress due to PICU environment with mean stress score of 2.2 [Table 1]. The intensive care setting is a busy and scary place dominated by sick children, medical personnel, advanced medical equipment, bright lights, and high-pitched monitors.^[5]

Kumar and Avabratha^[6] in their prospective study have reported extreme parental stress in all three categories with maximum stress due to the environment of PICU including sudden sounds of monitors, equipment, and other sick patients in the room, with mean stress score of 3.76.

In the present study, parents were least stressed due to child's condition, with mean stress score of 1.5. Parents were most stressed due to procedures, tests, frequent injections, and different staff telling different things about their child.

This was in contrast to the prospective study done by Pooni *et al.*^[7] who have reported that parents were most stressed due to child's condition with maximum mean stress score of 3.83.

Table 3: Mean scores in various stressors among parents

Item	Mean score (total score per item/total number of parents)	Number of parents (n=142)			
		0	1-2	3	4-5
A. How stressful is the child's condition for you?	1.5				
Swelling all over the body/face	0.83	104	8	18	12
My child is pale/bluish	0.44	121	3	15	3
My child's hands and feet are cold	1.2	84	10	33	15
Receiving injections frequently	3.2	2	9	74	57
My child is having tubes	1.47	84	0	23	35
Repeated suctioning of the mouth/nose/tube	1.84	69	0	30	43
Getting pierced for procedures, tests	3.18	0	18	68	56
My child is being made to cough/breathe deeply	1.14	99	0	10	33
My child is getting incisions, cuts, bruises	0.51	121	1	9	11
Things are explained too fast. I am not able to register all the facts	0.74	95	22	18	7
Things are explained in a way that I find difficult to understand the words used	1.94	40	27	53	22
Different staff tell me different things about my child	2.35	44	8	36	54
I am not able to understand what is actually wrong with my child	0.95	101	5	15	21
Doctors are not giving enough time to talk to me	0.99	79	35	11	17
B. How stressful your experience is at the personal level?	3.1				
I am not able to take care of my child myself	3.1	0	11	82	43
I am not able to visit my child whenever I want	3.1	0	14	81	47
I am not able to see my child when I want	3.2	0	11	84	47
I am not able to console my crying child	2.9	18	5	73	46
I am not being able to hold my child	3.0	4	16	77	45
In total, my general experience has been very stressful	3.5	0	10	42	90
C. How stressful is the PICU environment for you?	2.2				
The ICU personnel are joking, laughing, or talking loudly	1.59	13	98	23	8
The ICU personnel are not talking to me enough	1.55	8	106	19	9
Too many different people are giving different versions of my child's condition	1.75	18	72	43	9
I do not know the names of people talking to me	0.85	39	98	5	0
I am afraid of the monitors	3.0	16	10	48	68
The sounds of the monitors makes me restless	3.3	2	14	55	71
The sound of the alarms makes me uncomfortable	3.43	2	10	54	76

ICU: Intensive care unit, PICU: Pediatric ICU

Inamdar *et al.*^[8] in their cross-sectional study have reported that the main cause of parental stress (median stress score 31.5) was to witness the child's sufferings, i.e., unresponsiveness, pain, procedures, tubes, and monitors around child.

Understanding the unique stressors experienced by parents during such an illness crisis is crucial in planning adequate and effective intervention.^[9] For reducing the stress arising from altered parental role, possible intervention could be in the form of: Educating and preparing parents for the alterations in their parental role, identifying ways in which the parents can continue to fulfil ordinary parental roles, and determining new child care role for the parents. In addition, helping parents to understand the normal expected behavioral and emotional changes in the sick child and providing the necessary intervention to minimize the child's responses may reduce stress arising from the parent-child relationship.^[9]

In the present study, parents were stressed due to child's diseased condition. This might be due to the anxious personality of parents OR it may be due to the first time ICU admission of any of their child OR natural response of a parent to the

diseased condition of their child. Inability of the health-care personnel to perceive these situations which might seem trivial shall definitely contribute to increasing the stress of parents. Similarly, counseling of parents by different health-care personnel since health-care personnel tend to work in shifts in PICU may again contribute to increasing the stress level of parents.

As our tertiary care center is NABH accredited, strict protocol regarding patients' rights is being practiced at our center. Parents are regularly informed for proposed care, progress, risk, benefit, alternative treatment, expected results, possible complications, and change in patients condition by single authorized person. Parents were counseled about the need and benefits of routine procedures being done on their child and written informed consent was taken regarding the same in the language understood to attendants. We have well-curtailed individual ICU beds to respect patients' privacy during examination, procedure and treatment.

Parents are allowed to participate in end of life care decision making and educate parents to understand complex medical

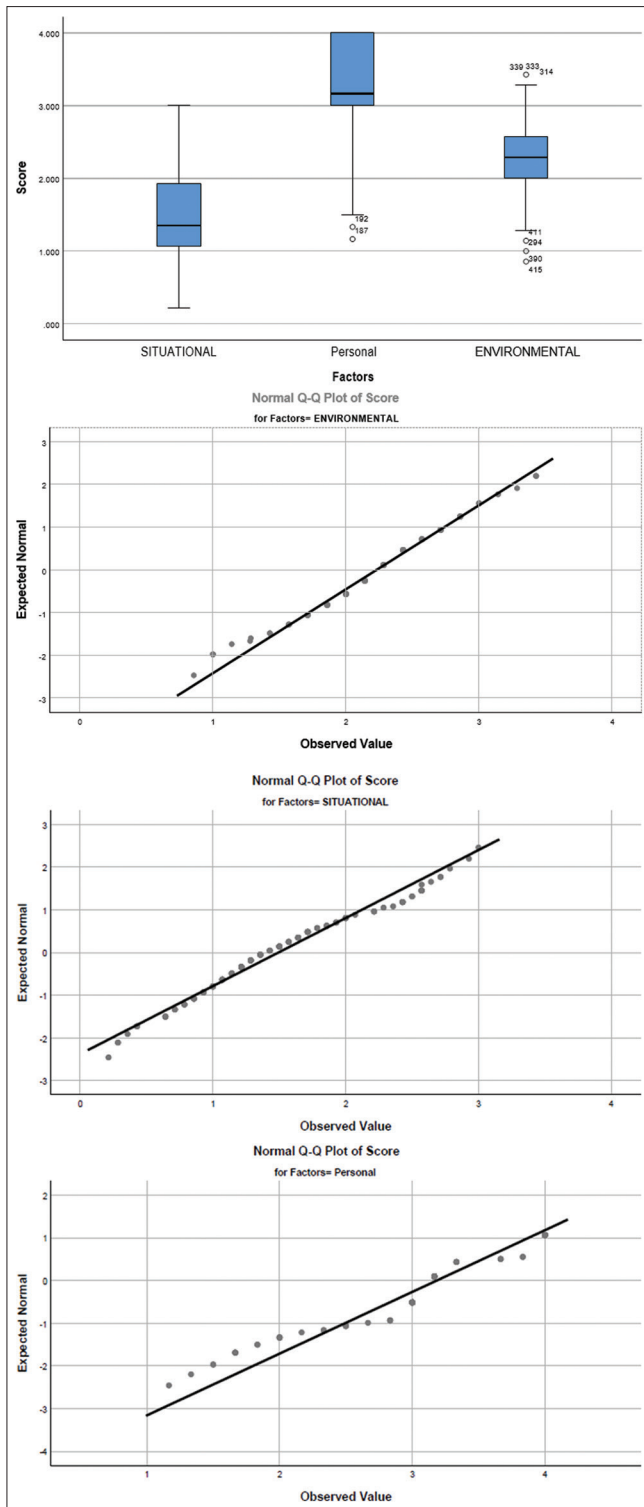


Figure 1: Graph showing normality tests

conditions, to accept prognostic uncertainty, think about various complex treatment options, and then take sole responsibility for end-of-life decision-making and withdrawal of life support.

In the guidelines formulated by Davidson *et al.* (American College of Critical Care Task Force 2004–2005)^[10] have

recommended that parents should receive regular updates in language they can understand, but the number of health professionals who provide information is kept to a minimum. Routine communication from the ICU physician, both with parents and with the health-care team, is indicated to clarify treatment goals and duties of various team members. Educating families on how the ICU works with respect to visiting hours, when rounds occur, and when and how the physician can be reached can reduce conflict.

Penticuff and Arheart^[11] in their newborn intensive care unit study found that meetings between health-care professionals and parents using the shared decision-making model produced less decision-making conflicts and fewer unrealistic parental concerns. The model also helped parents gain a more accurate understanding of their child’s medical condition.

In the present study, parents stress at personal level [Table 4] might be due to unexpected PICU admission of the child, first time intensive care facility admission, not being able to take part in child’s routine care, care by a substitute caregiver, new surroundings or due to severely ill other children in PICU.

At our center, parents are allowed to participate in treatment/ care plan/modified treatment plan, along with ICU nurses, parents participate in routine care of their child like changing clothes, diapers, positioning of child, physiotherapy, and mobility of child. The other corrective measures could be appointment of counselors for parent counseling; it may help improving parental health and coping skills.

In a study by Eberly *et al.*,^[12] parents whose children had unplanned admissions were more stressed than were those whose children had planned admissions such as semielective surgery. Huckabay and Tilem-Kessler^[13] have mentioned that the uncertainty of unplanned admissions and the vast number of tests and procedures done in a brief time are key factors in this experience.

In the study done by Powers and Rubenstein^[14], it has been reported that parental anxiety was reduced if parents were allowed to observe and be with their child while their child was undergoing procedures.

In a study done by Miles and Mathes^[15], it has been suggested that parents should be provided with relevant information that assists parents in understanding changes in their own parental role, while emphasizing the importance of their presence in the recovery of their child.

Nurses can provide guidance to parents about the important functions they can perform with their child, such as talking, touching, and soothing. Parents can also gradually be included in helping with selected tasks such as washing, feeding, and turning the child.

Davidson *et al.*^[10] in their study have also recommended on improving patient confidentiality, privacy, and social support by building ICUs with single-bed rooms that include space for family.

Table 4: Score of various stressors among parents

Item
A. How stressful is the child's condition for you?
Score of 3-5 given by 30% parents (n=43)
Swelling all over the body/face
My child is pale/bluish
My child is getting incisions, cuts, bruises
Things are explained too fast. I am not able to register all the facts
I am not able to understand what is actually wrong with my child
Doctors are not giving enough time to talk to me
Score of 3-5 given by 30%-60% parents (n=44-85)
My child 's hands and feet are cold
My child is having tubes
Repeated suctioning of the mouth/nose/tube
My child is being made to cough/breathe deeply
Things are explained in a way that I find difficult to understand the words used
Score of 3-5 given by ≥60% parents (n=>85)
Receiving injections frequently
Getting pierced for procedures, tests
Different Staff tell me different things about my child
B. How stressful your experience is at the personal level?
Score of 3-5 given by ≥60% parents (n=>85)
I am not able to take care of my child myself
I am not able to visit my child whenever I want
I am not able to see my child when I want
I am not able to console my crying child
I am not being able to hold my child
In total, my general experience has been very stressful
C. How stressful is the PICU environment for you?
Score of 3-5 given by 30% parents (n=43)
The ICU personnel are joking, laughing, or talking loudly
The ICU personnel are not talking to me enough
I do not know the names of people talking to me
Score of 3-5 given by 30%-60% parents (n=44-85)
Too many different people are giving different versions of my child's condition
Score of 3-5 given by ≥60% parents (n=>85)
I am afraid of the monitors
The sounds of the monitors makes me restless
The sound of the alarms makes me uncomfortable

ICU: Intensive care unit, PICU: Pediatric ICU

In the present study, parents were stressed due to PICU environment. This might be due to sudden unplanned admission of child to PICU OR different staffs from ICU counseling parents in their own way OR new scary environment of PICU with continuous running monitor alarms OR dedicated round the clock working health-care staffs. At our center, health-care staffs are regularly educated updated to practice effective communication skill and to follow a strict professional behavioral protocol in the ICU premises. Multiple counseling sessions were planned for parents in a day so that the parent gets comfortable in an obvious stressful environment. Parents were educated about the routine functioning of the ICU protocols.

In a study done by Melnyk *et al.*,^[16,17] parents received written and audio taped information about infant and child behavior while in the ICU, parent-child interactions, and therapy. Compared to the control group, study parents had less stress, fewer depressive symptoms, and better bonding and interactions with their child. They have concluded that parent education can be very helpful in minimizing the stress of a PICU admission.

A study done by Ulrich *et al.*^[18] supports the link between the PICU's physical environment and parental stress. Hospital floors, ceilings, and walls are usually hard surfaces that reflect sound and thus contribute significantly to unacceptable levels of background noise. Environmental interventions for example, sound-absorbing ceiling tiles and keeping volume of monitor alarms, ventilator alarms, etc., at minimum levels could reduce significant stress of parents.

CONCLUSION

There is a significant stress among parents of children admitted to PICU. These parental stress factors should be regularly addressed and remedial steps must be taken for making the ICU environment cohesive for both parents and health-care staff and for ensuring optimum functioning of ICU.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Aamir M, Mittal K, Kaushik JS, Kashyap H, Kaur G. Predictors of stress among parents in pediatric intensive care unit: A prospective observational study. *Indian J Pediatr* 2014;81:1167-70.
2. Miles MS, Carter MC. Coping strategies used by parents during their child's hospitalization in an intensive care unit. *Child Health Care* 1985;14:14-21.
3. Nizam M, Norzila MZ. Stress among parents with acutely ill children. *Med J Malaysia* 2001;56:428-34.
4. Balluffi A, Kassam-Adams N, Kazak A, Tucker M, Dominguez T, Helfaer M. Traumatic stress in parents of children admitted to the pediatric intensive care unit. *Pediatr Crit Care Med* 2004;5:547-53.
5. Akyildiz B, Zararsiz G. Parental anxiety during PICU admission: A single centre experience from Turkey PICU. *Hong Kong J Pediatr* 2018;23:8-12.
6. Kumar BS, Avabratha KS. Parental stress: A study from a pediatric intensive care unit in Mangalore. *Int J Contemp Pediatr* 2015;2:401-5.
7. Pooni PA, Singh D, Bains HS, Misra BP, Soni RK. Parental stress in a paediatric intensive care unit in Punjab, India. *J Paediatr Child Health* 2013;49:204-9.
8. Inamdar NR, Tamboli AS, Mauskar AV, Tamboli S. Parental stress: A neglected entity. *Int J Contemp Pediatr* 2019;6:2357-63.
9. Miles MS, Carter MC, Spicher C, Hassanein RS. Maternal and paternal stress reactions when a child is hospitalized in a pediatric intensive care unit. *Issues Compr Pediatr Nurs* 1984;7:333-42.
10. Davidson JE, Powers K, Hedayat KM, Tieszen M, Kon AA, Shepard E, *et al.* Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004-2005. *Crit Care Med* 2007;35:605-22.
11. Penticuff JH, Arheart KL. Effectiveness of an intervention to improve parent-professional collaboration in neonatal intensive care. *J Perinat*

- Neonat Nurs 2005;19:187-202.
12. Eberly TW, Miles MS, Carter MC, Hennessey J, Riddle I. Parental stress after the unexpected admission of a child to the intensive care unit. *CCQ* 1985;8:57-65.
 13. Huckabay LM, Tilem-Kessler D. Patterns of parental stress in PICU emergency admission. *Dimens Crit Care Nurs* 1999;18:36-42.
 14. Powers KS, Rubenstein JS. Family presence during invasive procedures in the pediatric intensive care unit: A prospective study. *Arch Pediatr Adolesc Med* 1999;153:955-8.
 15. Miles MS, Mathes M. Preparation of parents for the ICU experience: What are we missing? *Child Health Care* 1991;20:132-7.1
 16. Melnyk BM, Alpert-Gillis L, Feinstein NF, Fairbanks E, Schultz-Czarniak J, Hust D, *et al.* Improving cognitive development of low-birth-weight premature infants with the COPE program: A pilot study of the benefit of early NICU intervention with mothers. *Res Nurs Health* 2001;24:373-89.
 17. Melnyk BM, Alpert-Gillis LJ, Hensel PB, Cable-Beiling RC, Rubenstein JS. Helping mothers cope with a critically ill child: A pilot test of the COPE intervention. *Res Nurs Health* 1997;20:3-14.
 18. Ulrich R, Quan X, Zimring C, Joseph A, Choudhary R. The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity. Report to the Center for Health Design for the Designing the 21st Century Hospital Project. This project is funded by the Robert Wood Johnson Foundation. September 2004. Available from: <https://www.researchgate.net/publication/237520974>. [Last accessed on 2022 May 29].