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Parental empowerment strategies on stress levels in pediatric intensive care settings: A Literature Review

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Abstract

Background: Having a child admitted to the intensive care unit (ICU) is an extremely distressing experience for parents. This heightened stress can negatively affect their mental health and their capacity to support their child's recovery process. To address this, a range of interventions aimed at empowering parents has been developed. Nonetheless, a comprehensive evaluation of the effectiveness of these interventions in alleviating parental stress is still lacking.
Purpose: To evaluate different parent empowerment strategies used in pediatric critical care settings and examine their effects on reducing stress among parents.
Method: A systematic review was carried out, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for selecting relevant studies. The review began with formulating clinical questions and defining PICOS criteria—P (Population): parents of children in the pediatric intensive care unit (PICU); I (Intervention): empowerment strategies for parents; C (Comparison): routine care without empowerment or parent groups not receiving targeted interventions; O (Outcome): parental stress levels during ICU hospitalization; S (Study design): randomized controlled trials. The literature search used specific keywords, including: “Parent Empowerment,” “Family Centered Care,” “Pediatric Intensive Care,” “PICU,” “NICU,” and “Parental Stress.”
Results: Interventions involving educational support, parental empowerment, and family engagement contribute to better mental health outcomes for parents, particularly enhancing their ability to care for critically ill or premature infants in the NICU.
Conclusion: Empowerment strategies in pediatric intensive care settings are effective in lowering stress among parents. This review underscores the importance of educational initiatives, family involvement, supportive empowerment techniques, and digital tools such as telenursing in promoting parents' psychological resilience and participation in infant care.

Keywords: Family-Centered Care; Intensive Care Unit; Parental Empowerment; Pediatric Critical Care.

INTRODUCTION

The experience of having a child admitted to an intensive care unit (ICU) is widely recognized as a significant source of stress for parents. This situation can adversely affect parents’ psychological well-being and may hinder their ability to effectively support their child's recovery process (Debelić, Mikolčić, Tihomirović, Barić, Lendić, Nikšić, & Lovrić, 2022). In response to these challenges, the model of Family-Centered Care (FCC) has emerged as a foundational framework in pediatric healthcare settings. A central principle of FCC is the empowerment of parents in the care of critically ill children within the ICU environment (Borimnejad, Mehrnoosh, Fatemi, & Haghani, 2013).

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FCC underscores the critical role of parental empowerment and active engagement in the caregiving process, aiming to enhance both the quality of care and the overall well-being of the family. Within the context of pediatric critical care, FCC facilitates parental involvement by encouraging emotional support, active participation in medical decision-making, and collaboration with healthcare professionals. This holistic approach not only addresses the medical needs of the child but also acknowledges and supports the emotional and psychological needs of the parents (Dahav & Sjöström-Strand, 2018).

Evidence from international studies suggests that empowering parents yields positive outcomes, including increased parental satisfaction, improved emotional comfort, higher staff morale, and reduced parental stress. For instance, the COPE (Creating Opportunities for Parent Empowerment) program has been shown to significantly reduce maternal stress among mothers of premature infants, as demonstrated in a quasi-experimental study (Page, McKenzie, Bossuyt, Boutron, Hoffman, Mulrow, & Moher, 2021).

Parental empowerment in childcare is often viewed by families as a vital need. Research exploring parental experiences in intensive care settings consistently indicates the importance of providing parents with the opportunity to be informed, involved, and empowered in their child's care. Despite the recognized benefits of FCC and the role of empowerment, the implementation of these practices within pediatric ICUs remains inconsistent. Several studies have highlighted that the application of parental empowerment strategies is still limited and faces various barriers to full integration in critical care settings (Tufanaru, Munn, Aromataris, Campbell, & Hopp, 2017).

RESEARCH METHOD

A systematic review with article selection guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The systematic review process begins with the formulation of clinical questions relevant to the topic. Before this, the authors establish PICOS criteria, which stand for: P (problem, patient, or population), I (intervention, prognostic factor, or exposure), C (comparison or control), O (outcome), and S (study design). For this article, P: Parents of children admitted to the pediatric intensive care unit (PICU), I: Parental empowerment interventions, C: Standard care without empowerment interventions or parent groups without specialized interventions, O: Parental stress level during the child's ICU hospitalization, S: Randomized controlled trial.

The article search was conducted systematically using the keywords: “Parent Empowerment” AND “Family Centered Care” AND “Pediatric Intensive Care” AND “PICU” AND “NICU” AND “Parental Stress”. The inclusion criteria for the literature search consisted of journal articles involving samples of parents, both fathers and mothers, with children aged 0–18 years who were treated in intensive care units. Articles were required to be published in English, within the publication range of 2014 to 2023, and report outcomes specifically related to parental stress. The exclusion criteria included articles that were not accessible in full-text, studies with outcomes focusing solely on children or nurses, and research that addressed parental satisfaction without discussing parental stress.

The initial search resulted in 337 article from EBSCO, 112 from Sage Journal, 300 from Science Direct, and 17 from Pubmed, and 47 ProQuest. After screening and filtering based on the predefined criteria, 10 articles met the inclusion criteria and were selected for further analysis.

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RESEARCH RESULTS

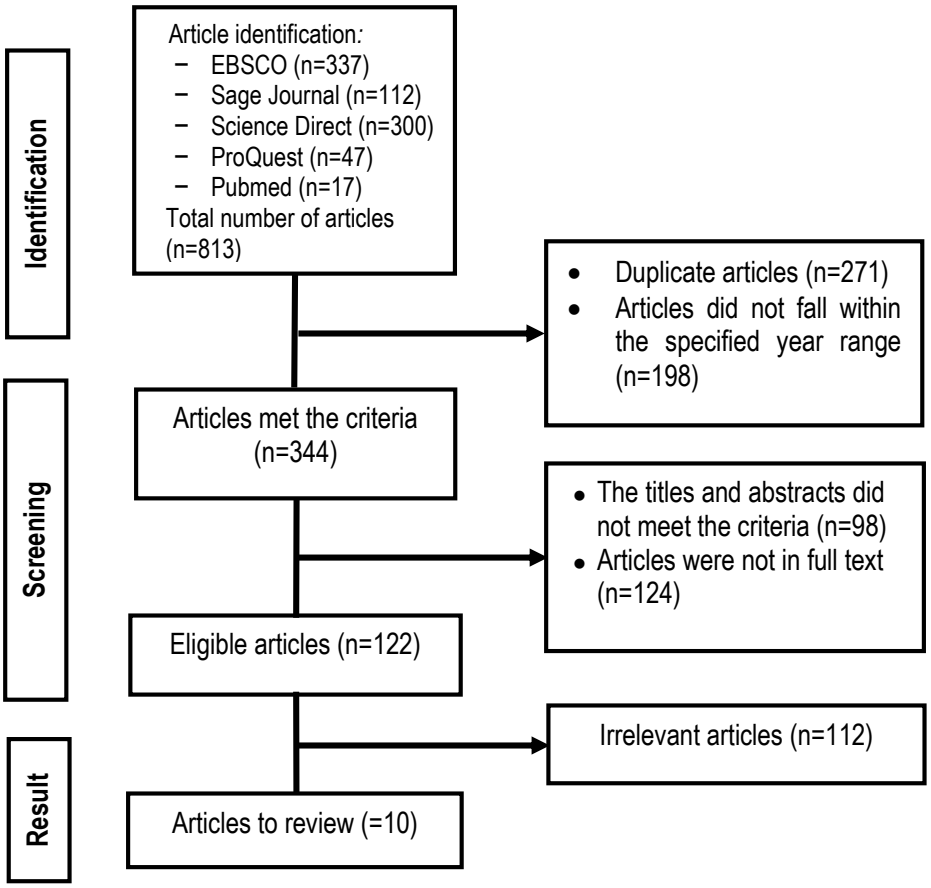


Figure 1. PRISMA Flow Diagram

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Table 1. The Main Characteristics of Included Studies

(Author, Year) (Country)	Purpose	Method	Results
(Pouyan et al., 2019) (Iran)	To assess the effects of interpersonal therapy (IPT)-based childbirth education on maternal role adaptation and stress in mothers with premature infants hospitalized in the neonatal intensive care unit (NICU).	Randomized clinical trial, 92 primiparous mothers with premature infants treated in the NICU of Kamali Hospital, Iran. The sample was randomly divided into intervention (44 mothers) and control (43 mothers) groups.	Interpersonal psychotherapy oriented childbirth education proved effective in helping mothers reduce stress and improve adaptation to the role of mother of a premature baby.
(Ahmed et al., 2023) (Egypt)	To evaluate the effect of a maternal empowerment program on the level of psychological distress and self-confidence in parenting in mothers with premature babies who are treated in the Neonatal Intensive Care Unit (NICU).	Quasi-experimental with one group pre-test – post-test design. The research sample was 60 mothers with premature babies (gestational age 28–36 weeks) who were treated in the NICU. The sampling technique was convenience sampling.	The maternal empowerment program was effective in reducing stress, anxiety, and depression and increasing the self-confidence of mothers with premature babies in the NICU. Before the intervention, the majority of mothers experienced high psychological distress and low self-confidence. After the program, there was a significant decrease in stress and anxiety and an increase in self-confidence in parenting.

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(Author, Year) (Country)	Purpose	Method	Results
(Mianaei et al., 2014) (Iran)	To evaluate the effectiveness of the Creating Opportunities for Parent Empowerment (COPE) program on stress, anxiety, and participation of mothers with premature infants in the NICU in Iran.	A randomized clinical trial (RCT) with a computer-based randomization method involving 90 mothers of premature babies who met the inclusion criteria and did not experience exclusion conditions, with random division into intervention (COPE) and control groups. The COPE program is delivered in two phases, with a 2–4 day interval between each phase. Phase 1: Providing Information and Education. Phase 2: Behavioral Activities and Maternal Involvement.	The COPE program has a significant effect in reducing maternal stress and anxiety, as well as increasing their participation in caring for premature infants in the NICU.
(Månsson et al., 2019) (Sweden)	To evaluate the impact of a personalized neonatal parental support program on stress levels of parents of preterm infants.	A quasi-experimental research method in which samples are determined sequentially without randomization involving a sample of 231 parents of premature babies treated in Level II NICU. Intervention group participated in a person-centred communication-based support program, which consisted of four individual dialogue sessions between nurses and parents during the baby's stay in the NICU.	The communication-based support program helped reduce stress in certain aspects that focused on several specific aspects of stress felt by parents, especially physical interaction with the baby, the baby's medical condition, and changes in the parenting role for the mother, especially related to interactions with the baby and the NICU environment.
(Jafarzadeh et al., 2022) (Iran)	To see whether nursing support via telephone and counseling centers can improve maternal attachment to their babies and reduce stress levels experienced during and after care in the NICU.	A clinical trial design with a quantitative approach involving 50 mothers with premature babies who were treated in the NICU of Shahid Beheshti Hospital, Isfahan, with a gestational age of more than 33 weeks. Sample selection method: convenience sampling (selection based on availability). Group division: Randomization into intervention group (n=25) and control group (n=25).	An emotional support training program significantly reduces symptoms of acute stress disorder in mothers of premature infants in the NICU.

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(Author, Year) (Country)	Purpose	Method	Results
(Dua'a et al., 2020) (Jordan)	To assess the impact of an emotional support training program on levels of acute stress disorder (ASD) in mothers with premature infants hospitalized in the NICU.	A pretest-post-test experimental randomized controlled trial (RCT) involving a number of samples of 48 mothers with premature babies in NICU. The sample selection method was convenience sampling at level III NICU in the largest hospital in Amman, Jordan. Inclusion criteria: Arabic-speaking mothers, willing to participate, without a history of psychological disorders, and having babies with a gestational age of 30–35 weeks. The intervention process was carried out in two stages: Informational Stage: Providing information about the NICU environment, medical equipment, medical terminology, and how to care for premature babies. Support Stage: Psychological sessions to help mothers manage stress, share experiences, and express their emotions.	An emotional support training program significantly reduces symptoms of acute stress disorder in mothers of premature infants in the NICU. The intervention group experienced a significant reduction in ASD symptoms., including dissociation, re-experiencing trauma, avoidance, anxiety, and hyperactivity.
(Rajabzadeh et al., 2020) (Iran)	To determine the effect of family-based educational and supportive interventions on stress levels of parents of premature infants treated in the NICU.	A quasi-experimental design with two groups (pretest-posttest design) involving samples of 80 parents of premature babies (40 mothers and 40 fathers in each group). Selection method: Convenience sampling, then randomly divided into intervention and control groups. Intervention group: Received 5 sessions of family-based education and support programs for 5 days, each session lasted for 60 minutes.	Family-Centered Educational Supportive Intervention proven effective in reducing stress in parents of premature babies.Parental stress in the intervention group was significantly reduced compared to the control group after the family-based education program. This program not only provides knowledge and skills, but also psychological support, especially for fathers who are often less involved in caring for babies in the NICU.

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(Author, Year) (Country)	Purpose	Method	Results
(Ong et al., 2019) (Malaysia)	To investigate the effectiveness of a structured nursing intervention program in reducing maternal stress and improving their ability to care for premature infants admitted to the NICU.	Quasi-experimental method. Pretest-Posttest with two groups (intervention & control). Number of samples were 216 mothers of premature babies. Selection method: Consecutive sampling (mothers were selected sequentially based on inclusion criteria).Intervention group: Received Structured Nursing Intervention (SNI) for 10 days.Control group only get standard NICU care.	Structured Nursing Intervention (SNI) significantly reduced maternal stress and improved their ability to care for premature infants in the NICU. Maternal stress in the intervention group was significantly reduced compared to the control group ($p = 0.04$).
(Shirazi et al., 2022) (Iran)	To determine whether training for fathers in supporting their wives can reduce stress and increase self-efficacy of mothers of premature infants treated in the NICU.	Quasi-experimental with a before-after design with two groups (intervention & control). Number of samples 75 pairs of parents of premature babies. In the intervention group received the training focuses on emotional support for mothers and fathers' involvement in premature baby care such as kangaroo care, giving expressed breast milk, and understanding the condition of babies in the NICU.	Training fathers in supporting their wives was very effective in reducing maternal stress and increasing their confidence in caring for premature infants in the NICU. Maternal stress in the intervention group was significantly reduced compared to the control group ($p < 0.001$).
(BV et al., 2022) (India)	To assess the effectiveness of the modified COPE program in reducing stress and anxiety and improving the coping abilities of mothers of premature infants treated in the NICU.	A quasi-experimental with a non-randomized control group. Number of samples: 54 mothers of premature babies. The sample selection method was convenience sampling (selected based on availability). The intervention group received the Modified COPE program. The control group did not receive any intervention, only received standard care in the NICU.	The modified COPE program significantly reduced stress and anxiety and improved the coping ability of mothers of premature babies in the NICU. Maternal stress in the intervention group was significantly reduced compared to the control group ($t = 15.010$, $p = 0.05$).

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DISCUSSION

Based on the findings of the reviewed literature, a range of psychosocial and educational interventions have demonstrated significant efficacy in mitigating parental stress within the intensive care unit (ICU) context. Most studies consistently report that educational support, parental empowerment, and active family involvement contribute to enhanced psychological well-being among mothers and fathers, ultimately resulting in improved care for critically ill neonates, particularly premature infants in the NICU.

These outcomes underscore the critical need to incorporate psychological support into childbirth education, especially for mothers at risk of preterm delivery. Educational programs grounded in Interpersonal Psychotherapy (IPT) provide mothers with essential coping mechanisms, emotional regulation strategies, and communication skills—resources that are vital during the transition to motherhood under stressful conditions. IPT-based interventions are particularly effective in addressing anxiety, guilt, and social isolation, common emotional challenges experienced by mothers of premature infants. Unlike conventional prenatal education, IPT fosters emotional preparedness and psychological resilience (Ghomi, Vasli, Hosseini, & Ahmadi, 2019).

Mothers who receive IPT-oriented education are better equipped to develop strong emotional bonds with their infants and actively engage in neonatal care. This facilitates enhanced maternal-infant attachment, increases maternal confidence, and has the potential to positively influence infant developmental outcomes. Moreover, the interactive and supportive nature of IPT contributes to the formation of social support systems, which are essential for maintaining maternal mental health over time. These findings highlight the value of integrating IPT elements into prenatal education curricula, particularly in perinatal and neonatal care settings (Jang & Ju, 2020).

The Family-Centered Educational Supportive Intervention (FCESI) model extends both emotional and informational assistance while actively involving both parents in the care of their premature infant. This intervention enhances parents' perceived competence and control, particularly for fathers who may initially feel peripheral in the NICU environment. Through structured educational sessions, transparent communication with healthcare staff, and opportunities for hands-on caregiving, fathers become more knowledgeable about their infant's condition and more confident in their caregiving role. As a result, this approach has been associated with reductions in paternal anxiety, helplessness, and stress (Shiab, Mourad, & El-Fatah, 2020).

FCESI also strengthens parent-infant bonding by promoting early involvement and skin-to-skin contact when medically feasible. Including both parents fosters family cohesion and shared caregiving responsibilities, which are key for adaptive coping and long-term emotional stability. Research indicates that when fathers are actively included and educated about their infant's condition, their psychological well-being improves, and they are better positioned to support mothers throughout the NICU experience. This comprehensive involvement reduces overall familial stress and fosters a nurturing environment conducive to the infant's recovery and development (Polizzi, Perricone, Morales, & Burgio, 2021).

Furthermore, equipping fathers with knowledge and practical skills not only supports maternal mental health but also cultivates a collaborative and emotionally supportive family dynamic during the critical neonatal period. Trained fathers are more likely to actively engage in caregiving, share parenting responsibilities, and offer emotional support, thereby alleviating maternal stress and promoting stronger parent-infant attachment. This empowerment enables fathers to become confident caregivers and contributes to improved family resilience and infant outcomes (Mohammaddoost, Mosayebi, Peyrovi, Chehrzad, & Mehran, 2016).

Telenursing, which provides remote access to healthcare professionals through virtual communication, has emerged as another effective modality for supporting maternal psychological well-being. It offers mothers continuous education, emotional reinforcement, and real-time updates on their infant's condition, which fosters a deeper sense of involvement in the caregiving process. This ongoing engagement strengthens maternal-infant bonding and reduces common stressors such as anxiety and helplessness associated with NICU admissions. By maintaining a virtual presence and offering timely reassurance, telenursing plays a

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pivotal role in enhancing maternal confidence and emotional stability (Asghari, Farahani, Nourian, Bonakchi, & Gholami, 2021).

Personalized, communication-based support further enhances parents' understanding of their child's medical status through empathetic, consistent, and clear communication from healthcare providers. Such support reduces uncertainty and fear, empowering parents to actively participate in care-related decisions and activities. Tailored communication strengthens trust in the medical team, addresses emotional needs, and facilitates parental adaptation to ICU responsibilities. This approach significantly lowers stress by fostering emotional resilience, boosting self-efficacy, and enhancing the caregiving experience (Bostanabad, Areshtanab, Balila, Jafarabadi, & Ravanbakhsh, 2017).

The Modified COPE (Creating Opportunities for Parent Empowerment) Program represents a structured intervention emphasizing parental education, emotional support, and active engagement during the child's hospitalization. The program provides mothers with cognitive-behavioral strategies and informative resources, helping them reframe stressful experiences and manage emotional responses more effectively. Participants report lower stress and anxiety levels, which supports more confident participation in their child's care. The sense of control and competence gained through this empowerment is especially crucial in high-stress ICU settings (Carvajal, Porras, & Corzo 2018).

Improved maternal coping not only enhances the mother's psychological state but also has a positive influence on the child's treatment journey. Empowered mothers tend to communicate more effectively with healthcare professionals and participate more consistently in caregiving tasks. These behaviors have been linked to improved child outcomes, including emotional security and better adherence to care protocols. Therefore, integrating the Modified COPE Program into standard PICU practices offers a promising, family-centered approach with dual benefits for both parents and children (Kuo, Lin, & Tsai, 2014).

Finally, the Emotional Support Training Program has shown significant potential in helping mothers cope with the psychological toll of having a premature infant in the NICU. This program incorporates structured emotional support mechanisms, such as stress reduction techniques, guided emotional expression, and active listening. It enables mothers to process traumatic experiences, manage anxiety, and regain a sense of emotional control. Studies show that such interventions can effectively reduce symptoms of acute stress disorder, foster maternal well-being, and strengthen the mother-infant bond—particularly critical during the vulnerable postpartum phase (Pourkhani, Chehrzad, Masouleh, & Leyli, 2018).

CONCLUSION

Various parent empowerment interventions in pediatric intensive care effectively reduce parental stress. This review highlights that education programs, family support, empowerment strategies, and technology like telenursing significantly enhance parents' psychological well-being and involvement in infant care.

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