

Mini Review

When Parenthood Comes Early: Enhancing Parent-Child Bonding in the NICU

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Background: Pregnancy is the period nature has provided future parents so they adapt and process the big event of becoming a mother and father. When a pregnancy ends sooner than expected, parents feel unsure and unprepared for their new role and responsibilities. Moreover, the complex feelings they experience when the premature neonate is admitted in the NICU, become enlarged by the disruption of bonding with their child.

Aim: The aim of this paper is firstly to understand the importance of bonding for both the neonate and the parents and secondly to propose ways of enhancing parent-child bonding, when the latter is admitted in the NICU.

Conclusion: Parent-child bonding is essential for the parental role, the parents' mental health as well as the infant's development. NICU environment is possible to become friendlier in a way that enables parents to participate in their child's care and early experiences. Family-centered care enhances parent-child bonding, with the main contributor being skin-to-skin contact and Kangaroo care.

Keywords: NICU; Parent-child bonding; Pregnancy

Background

The majority of all neonatal deaths (75%) occurs during the first week of life, and about one million newborns die within the first 24 hours. Preterm birth, intrapartum-related complications (birth asphyxia or lack of breathing at birth), infections and birth defects cause most neonatal deaths in 2017. Prematurity is defined as a birth that occurs before 37 completed weeks (less than 259 days) of gestation. It is associated with approximately one-third of all infant deaths in the United States. Infants born at or before 25 weeks gestation have the highest mortality rate (approximately 50 percent) and if they survive, are at the greatest risk for severe impairment. According to World Health Organization (WHO) about 15 million neonates more than 1 in 10 neonates are born preterm, namely before 37 weeks of gestation been completed [1] and those that survive, can often acquire difficulties like learning, hearing or vision difficulties [2].

Prematurity can be frustrating and overwhelming for parents. In view of pregnancy being the period where parents can reconcile with their new role and all the changes that are about to happen, giving birth prematurely seems fierce and abrupt. Moreover, besides the fear pertaining to the health of the newborn admitted in the Neonatal Intensive Care Unit (NICU), parent-child bonding is disturbed and parents can feel quite timid getting close to their baby, when he/she seems vulnerable.

Parent-Child Bonding Importance

Parental attachment to their child commences and is enhanced throughout pregnancy. Post-birth physical contact is crucial for developing parent-child bonding. Newborns are able to engage in complex social relationships with their parents and since they are

sensory aware, they are capable of expressing emotions and share their feelings [3]. Neuropsychology and psychobiology suggest that bonding is a process of co-regulation. That is an individual using his/her capacity to regulate their internal environment as well as others'. This is accomplished by sensing the reflected cues of others' internal environment - e.g. facial expression, voice, heart rate, temperature, skin color, and scent - and responding to them. All organisms have the proper sensitivities to send and perceive cues, although, and due to prematurity, cues of preterm neonates are scarce and vague [4]. That being said, it stands, to reason that preterm infants cannot bond as effectively with their parents as if they were of term.

Importance of bonding for premature neonates

Human beings achieve attachment through a developmental process. It is fundamental for children to bond with the primary caregiver which affects growth and development [5]. Early experience and stimulation may influence long-term outcomes and that can be partly related to the rapid development of the brain during infancy and more pronounced in infants born preterm [6].

Hindered parent-neonate bonding due to the NICU environment stimuli, tubes, patches, noise, bright lights, painful procedures, and separation from the parents itself affects hormonal, epigenetic, and neuronal development [4].

What's more, a variety of problems may occur as a result of insufficiently established parent-child bonding, such as higher risk of physiological issues, difficulties in emotional regulation, and attention deficits in preterm children [7].

The parent is a component making children feel secure, through whom they explore the external environment after birth [8]. Parent talk in the NICU is a stronger predictor of preterm infant vocalization

than any other adult's talk and this kind of intervention could restore the parent-child relationship that gets left behind, after their separation [3].

Parenting and bonding in the NICU

Neonates being admitted to the NICU, in combination with all the unusual and technologically advanced environment, results in parents being stressful, losing their self-confidence, feeling impotent in their role and alienated from their babies, fact that can lead to parent-child detachment and the disruption of the natural parental process [2,8].

Despite the fear of their child's susceptibility, parents have expressed the need to bond with their baby. Results of research conducted in France [9] showed, that being able to interact with their baby, parents felt more like the parent of the child and helped them feel like having a bond with him/her.

Bonding in the NICU Environment

Physical closeness in the NICU, varies from skin-to-skin contact to mere physical presence in the unit. Emotional closeness, in a similar manner, ranges from strong and consistent, to more distant feelings of love, care affection, and/or connection with the neonate. Most times, physical closeness can promote emotional closeness and vice versa. However, it is possible that parents who are physically close to their children, feel emotionally detached from them, or physically remote parents, feel emotionally connected with their children [10].

Mothers and fathers, both have expressed the need for communication with the caregivers before birth, during the delivery, and in the NICU environment. Having their baby's health status explained, how NICU and equipment function, and being warned about changes, helped parents feel more relaxed and bond with their child, as anxiety and fear of death made them reluctant to interact with him/her [9].

Ignoring parental emotions and their psychological stress will result in bonding difficulty, in particular when being discharged or transitioning to home, situations rendering parents more fragile [8].

Enhancing bonding in the NICU

As formerly mentioned, preterm infants cannot bond with their parents as effectively as if they were of term, a fact that has adverse effects on their development. Health professionals become all the more aware of this problem and for that reason, caregivers have adopted a family-centered approach, including the whole family to the care plan [4]. Parents contributing to their baby's care, has been proven beneficial in a way that parenting is supported and even neurological and neurobehavioral development of preterm infants is enhanced, as a result of numeral mechanisms [3].

How is family-centered care implemented?

Parents are taught how to understand their baby's behavioral cues and they are trained, so they can position and handle their baby appropriately. In respect of a bonding-enhancing design, several actions have been described: recording the voice or the heartbeat of the parent, having their scent absorbed or other features transferred to their baby. Implementing these kinds of interventions, has a beneficial effect on parents' psychology as well [4].

Skin-to-skin is a way of including both parents to the neonate's care, enhancing bonding, it makes parents feel more needed and comfortable with their baby and it strengthens family role in the care of a vulnerable infant, as well as reducing feeling helpless [11].

Kangaroo care has been well adopted as the most important item of family-centered care. It is described, as a form of skin-to-skin contact which promotes bonding, parent-child co-regulation, soothes the baby's crying or fussiness, reduces mortality and morbidity, increases weight gain of the neonate, and improves breastfeeding and temperature regulation. However, factors like parents' leaves or siblings that need attendance may hinder the chance for Kangaroo-care and bonding in general, therefore complementary approaches are demanded that will benefit parent-child bonding and will positively affect the preterm neonate's development [4].

Additional options for family-centered care

In the case of a parent's inability to be physically present, virtual visitation through camera connection appears useful in supporting parent-child bonding [3]. Some parents seem to like some sort of telecommunication: "It would be nice if you can log on to a system before bedtime to see that she is sleeping peacefully" while others don't want to use communication devices because it would make them obsessed and more stressed: "Even at home everything already revolves around the fact that our baby needs to be in the NICU. We don't need to be reminded of that all the time" [4].

Single patient or single-family room design, allows a family to be with their baby for as long as they need and has been proven helpful regarding medical and psychological benefits of both neonates and parents [6].

Mothers have been in the center of attention, even in the contemporary era, but fathers need equivalent support as mothers do. Additionally, since fathers don't have the chance to experience paternity prior to birth like mothers, small care tasks with their premature child can strengthen their bond. Small care tasks like changing a diaper, cleaning his baby's eyes, or aiding during breastfeeding can fortify the father-child bond as well as reduce maternal and paternal stress [12].

Conclusion

Prematurity can be quite stressful for parents, as they part with their child from the moment he/she is born. The NICU environment can be overwhelming for parents. Admission to the NICU hinders the bonding process and has adverse effects on both parents and neonates. Thus, it is demanded that health-care professionals find solutions to promote parent-child bonding in the NICU environment.

Professional guidance during pregnancy, focused on expanding parents' knowledge and understanding of the changes they can expect to experience personally, as a couple, and as parents; providing coping tools; and enhancing an optimistic and positive worldview, may serve to augment the positive experience of growth in the transition to parenthood.

These tasks should be undertaken by midwives (for example, as a part of antenatal classes) before birth occurs and should continue throughout the period of adjustment to parenthood, with midwives assisting parents in developing a positive perception of their child, the

underlying circumstances and enabling empowerment and growth.

For the very preterm infant, the parent-child relationship begins in the NICU. The relationship is established and developed when the parent is present in the NICU, holds the infant, and learns how to identify and respond to the newborn's needs. Interventions like skin-to-skin contact, parent training, or telecommunication could help bring parents closer to their babies and ameliorate the health and development of premature neonates.

Nevertheless, further research is needed to promote father-child bonding and cover different types of situations or more special circumstances, like when parents are not able to visit their baby. Future research on parent presence, holding, and skin-to-skin care can be improved by identifying not only frequency, but also the quality of interactions. Better methods of capturing parent participation in this population could strengthen future research. Empowering new parents' strengths, especially fathers', is of great importance, in view of more demanding circumstances, through personal intervention or self-help groups, in the belief that higher parental self-efficacy will lead not only to better parental well-being, but also to better developmental outcomes among the infants.

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