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#### **Research** report

# Close Collaboration with Parents<sup>TM</sup> intervention to improve parents' psychological well-being and child development: Description of the intervention and study protocol

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#### HIGHLIGHTS

- Systematic interventions are needed to integrate parenting in neonatal hospital care.
- To change hospital care culture, the whole staff of a unit needs to be trained.
- The key skills are to learn to observe infant's cues and to listen to the parents.
- Supporting intuitive parenting and bonding is a preventive and salutogenic strategy.

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#### ABSTRACT

Parents of preterm infants commonly experience separation from their infant or exclusion from their role as primary caregivers during the hospital care of their infant, which may impair parent-infant bonding and parents' psychological well-being. Therefore, we developed the Close Collaboration with Parents<sup>™</sup> intervention to improve staff skills in communicating and collaborating with parents in neonatal intensive care units (NICU), to increase parents' psychological well-being and participation into infant care, and to improve parent-infant bonding and, thereby, parents' psychological well-being and later child development.

The Close Collaboration with Parents<sup>™</sup> intervention was developed and carried out at Turku University Hospital. The intervention was based on developmental theories about early parenthood and parent-infant attachment. The training was targeted at both doctors and nurses. The goals of the training included understanding individual behaviors and responses of infants and the uniqueness of families, using receptive listening skills in communication with parents and making decisions collaboratively with them. By increasing the sensitivity of the staff to the individual needs of infants and parents and by increasing staff-parent collaboration in daily care, the intervention supported parents' presence and parents' participation in the care of their infant.

The effectiveness of the intervention is being evaluated in a prospective study comparing the postintervention cohort (n = 113) to the baseline cohort (n = 232). The outcomes include bonding, long-term psychological well-being of both mothers and fathers and child development up to 5 years of age.

The Close Collaboration with Parents<sup>TM</sup> intervention potentially offers a preventive and salutogenic model to integrate parents and parenting in neonatal hospital care.

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*Abbreviations:* NICU, neonatal intensive care unit; NBAS, neonatal behavioral assessment scale; APIB, assessment of preterm infants' behavior; NNNS, NICU network neurobehavioral scale; CLIP, clinical interview for parents of high-risk infants; IDC-10, international classification of diseases; CBCL, child behavior checklist; PSS, NICU, parental stressor scale neonatal intensive care unit; PSI, parenting stress index; EPDS, Edinburgh postnatal depression scale; BDI, Beck depression index. \* Corresponding author.

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#### 1. Introduction

Preterm infants are at risk of later developmental problems, especially in the area of behavioral outcomes [1,2]. It may even be that some of these consequences of prematurity are caused by early parent-infant separation and lack of parents' participation in the care of the infant during traditional neonatal intensive care. In addition, prolonged early separation with potential risk of loss may lead to parental depression, which impairs parents' capacity for parenting [3]. It has, indeed, been shown that parents' later depression and stress are closely associated with the behavioral problems of preterm infants [4,5].

Parent-infant closeness during the newborn period in full-term infants and during the neonatal period in preterm infants has an important role in the development of parental bonding, as shown already by Kennell and Klaus [6]. Research has identified several hormonal and physiological mechanisms mediating the effects of physical closeness on bonding and attachment [7]. Parental bonding starts already during pregnancy with increasing feelings of emotional connection with the infant toward the end of pregnancy [8,9]. Early postnatal parental bonding develops from the experiences of physical parent-infant closeness, social reciprocity, and the possibility of parenting behaviors, such as repeated affectionate touching, gazing at, and expression of positive affect and high-pitched vocalization [10,3]. The parents of preterm infants have emphasized these same experiences as important for establishing emotional bond with their infant. [11]. However, preterm birth threatens the parental bonding process by several potential mechanisms because it interrupts the pregnancy and affects the experience of delivery, decreases early parent-infant closeness and parenting behavior, and may cause a fear of losing the infant [3].

Mothers have reported feelings of separation from their infant when the infant is admitted to a NICU even for a short time [12]. Separation makes a mother feel insufficient, not needed, and not belonging to the care team of the infant [13]. During separation, a mother is likely to experience complicated feelings of guilt, loss, grief, despair, and disappointment [12]. Feldman et al. [3] found that the longer the separation lasted, the more negative impact there was on bonding. In particular, bonding was at risk when a very preterm-born infant was separated from his/her mother and the mother was anxious or depressed. In addition, both parents have reported that the source of the biggest stress during the NICU stay is the alteration in the parental role and relationship with the infant [14]. When parents feel they are not seen as a part of infant care in the NICU, their feelings of exclusion are strengthened. When the communication between staff members and parents is regular and supports parents' participation in infant daily care, parents' feelings of participation and bonding are strengthened [13,15,16]. Thus, decreasing separation and increasing parents' participation may, by itself, improve parenting and bonding and, thereby, the psychosocial wellbeing of parents, the parent-child relationship, and the long-term outcome of preterm infants [17].

A meta-analysis [18,19] about early developmental interventions in preterm infants showed that the impact of interventions increased when the support for the parent–infant relationship was included. It has also been shown that if an intervention had an effect on parental wellbeing, it was more likely to be associated with improved child outcomes [20]. One study [21] showed that individualized family support in neonatal intensive care units decreased later maternal stress, anxiety, and depression; decreased feeding problems; and improved mother-infant interaction. An intervention [22,23], which aimed to improve the parents' ability to read their infant's cues, decreased maternal stress, anxiety, and depression; improved parent–infant interaction; and decreased the length of stay in the hospital. A mother-infant transaction program [24,25] aiming to increase sensitivity in mother-infant interaction—an essential element of bonding [10]—decreased parenting stress at six months and at one and two years of the child's age. This intervention was shown to improve cognitive and behavioral outcomes of the preterm-born children at five years of age [26,27]. Lester et al. [28] showed that higher maternal involvement in infant care during neonatal hospitalization, especially in a single-family room unit was associated with better child outcomes in all Bayley test subscales at 18 months of age. In summary, the interventions or environment supporting parents' presence and/or participation during neonatal hospital care have been shown to be beneficial to parents' psychological well-being and child development. Therefore, there is a justification to implement interventions and environmental support for parents' presence and participation in the standard neonatal care.

The challenge remains how to implement individual support for parents' presence and participation in the everyday practice of neonatal intensive care. Traditionally, parenting has not been integrated in neonatal intensive care, which has been separated from mothers' perinatal care in most hospitals, and parents have had a limited access and involvement in infant care during hospitalization. There have been interventions aiming to increase parents' support, but many interventions have included only a part of the NICU staff, or they have had a problem-focused or didactic approach. Many studies have reported the same key factors that facilitate parental bonding during hospitalization, identified by the parents: 1) closeness and interaction with the infant, 2) good communication with staff members, 3) information, and 4) individualized emotional support [15,16]. Therefore, there is a need to develop unit-wide interventions that facilitate staff's communication and collaboration skills to support the presence and participation of the parents and thereby parent-infant bonding in neonatal intensive care units.

Successful interventions facilitating unit-wide changes in care culture include several elements. First, the intervention should be a systematic training program for the staff with a clear goal [29]. Second, the intervention needs to be based on evidence. Third, the staff members need to be willing to reflect on their attitudes and beliefs. Fourth, there needs to be the commitment of the leadership and the organization [30]. Fifth, it is beneficial if the intervention uses facilitators to support attitude changes in the staff members and their skills to establish collaborative relationships with families [30–33]. To ensure the sustainability of the new care culture, the intervention should aim to change the attitudes and beliefs of each professional in the unit rather than aiming to change single care practices of the unit.

This paper describes the Close Collaboration with Parents<sup>TM</sup> training program, which is a goal-oriented intervention to change the neonatal care culture, which is targeted to the entire health care team, and which uses experiential learning methods including bedside mentoring and reflective discussions. In addition, this paper describes the study protocol to evaluate the effectiveness of the intervention. We discuss the features of the intervention that facilitate bonding during hospital care.

#### 2. Material and methods

The study protocol aims to evaluate the effectiveness of the Close Collaboration with Parents<sup>TM</sup> intervention. The intervention was developed and carried out at the Turku University Hospital (Table 1) between 2009 and 2012. The evaluation of the effectiveness of the intervention began in March 2011 immediately after the initial two-year intensive training period. The study protocol is a prospective follow up of the post-intervention cohort comparing it with the baseline cohort. The outcome measures include parent and child outcomes. The study protocol was approved by the Joint

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