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Interaction of child disability and stressful life events in predicting maternal psychological health. Results of an area-based study of very preterm infants at two years corrected age

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ABSTRACT

This study aimed at exploring the relationship between severe neuromotor and/or sensory disability in very preterm infants assessed at 2 years corrected age and their mothers' psychological health. Data on 581 Italian singletons born at 22–31 weeks of gestation in five Italian regions and their mothers were analyzed. Maternal psychological distress was measured through the General Health Questionnaire short version (GHQ-12). The prevalence of any maternal distress (GHQ scores ≥ 2) and of clinical distress (scores ≥ 5) were 31.3% and 8.1% respectively. At multivariable analysis, we found a statistically significant association between child's disability and mothers' GHQ scoring ≥ 5 (OR 3.45, 95% CI 1.07–11.15). Also lower maternal education appeared to increase the likelihood of psychological distress (OR 1.38, 95% CI 1.14–1.66). The impact of child disability was weaker in women who had experienced additional stressful life events since delivery, pointing to the existence of a "ceiling" effect. Maternal psychological assessment and support should be included in follow-up programs targeting very preterm infants.

1. Introduction

Survival of very preterm infants (VPIs) has increased in the last decades as a result of improvements in perinatal care (Manktelow, Seaton, Field, & Draper, 2013; Saigal & Doyle, 2008). However, 10–20% of survivors are affected by chronic

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sensory and neuromotor disabilities (Brévaut-Malaty et al., 2010; Spinillo et al., 2009; Woodward et al., 2009), and an even larger proportion by cognitive and behavioral problems that become evident at school age.

Both preterm birth per se, and the presence of a chronic disease in offspring have been associated with increased psychological distress in parents, particularly mothers. Anxiety, depression, and symptoms of post-traumatic stress disorder have been repeatedly reported in mothers of very preterm or very low birth weight (VLBW) babies (Davis, Edwards, Mohay, & Wollin, 2003; Garel, Dardennes, & Blondel, 2007; Kersting et al., 2004; Rogers, Kidokoro, Wallendorf, & Inder, 2013; Singer et al., 1999; Vanderbilt, Bushley, Young, & Frank, 2009), and can affect both maternal quality of life (Witt et al., 2012) and the mother-infant relationship (Korja, Latva, & Lehtonen, 2012; Zelkowitz, Papargeorgiou, Bardin, & Wang, 2009).

The additional impact of prematurity-linked disabilities on the health and wellbeing of the mothers has been less frequently researched. A study carried out in mothers of 30 preterm infants at risk of developing cerebral palsy and 35 preterm controls from the same neonatal intensive care unit (NICU), found no difference in prevalence of maternal depression between the two groups (Lambrenos, Weindling, Calam, & Cox, 1996a). However, the follow-up at one year of age only may not have allowed mothers to appreciate the degree and implications of their child disability. Additionally, the extra support offered by the health care professionals to the mothers of infants at risk may also have contributed to prevent depression in this group (Spender, 1996). In the words of the Authors: "The mothers, rather than grieving, were relatively optimistic, and seemed to be denying the news broken to them on the neonatal intensive care unit. Perhaps grieving is a task to be negotiated by the mothers during the second year of their children's lives, when disabilities are evident" (Lambrenos, 1996).

In a cohort of prematurely born very low birth weight (VLBW) infants, Miles, Holditch-Davis, Schwartz, and Scher (2007) found that severity of the infant's health conditions, as measured by rehospitalisation, and being unmarried were associated with maternal depressive symptoms during the first two years after delivery. According to Brummelte, Grunau, Synnes, Whitfield, and Petrie-Thomas (2011), higher parental stress persisting to 18 months corrected age of VPIs can be predicted by lower maternal education and by declining child cognitive levels, partly reflecting realistic concerns about his/her development.

A prospective follow-up study of VLBW infants found that 2 years after birth the severity of maternal psychological distress was related to the child "high-risk" status (defined as presence of chronic lung disease), and to his/her developmental outcome (Singer et al., 1999). In contrast, mothers of unaffected (i.e. "low-risk) VLBW infants after the first semester showed few differences compared to those of term controls, and at three years from birth had the lowest level of distress (Singer et al., 1999). According to the Authors, as low-risk VLBW infants at follow-up performed within normative ranges, their mothers' low levels of distress may be due to relief after the initial period of fear and anxiety following VLBW birth. The opposite process may have occurred with mothers of high-risk infants. Because developmental scores at 2 years of age are related to later outcomes, some of these mothers may have given up hopes for their children "catching up" to term born peers. Interestingly, the follow-up of this cohort was continued up to adolescence (Singer et al., 2010), showing that maternal distress associated with an impaired VLBW child was persistent, and that lower child cognitive level mediated this effect. As before, mothers of low-risk VLBW children reported even lower stress than those of term controls (Singer et al., 2007, 2010). A positive feature of this study was adjustment for intercurrent life stressors; however, possible interactions of these stressors with the child health status in influencing maternal psychological health were not examined.

More recently, Treyvaud et al. (2011) studied the interconnections of child neurodevelopmental disability, family functioning, reported burden and parenting stress 2 years after the birth of a very preterm infant. However, in this study parental mental health was adjusted for in statistical models evaluating the impact of child disability, thus preventing the assessment of their relationship.

Compared to the large amount of published data on the impact of preterm birth and NICU admission on the psychological health of the parents, surprisingly few studies explored the duration of distress, and tried to identify the factors that can ameliorate or prolong it. Taken together, these studies suggest that the presence of a developmental disability in VLBW or preterm infants may delay or prevent maternal psychological recovery from the trauma of preterm birth. However, with the exception of the longitudinal study by Singer et al., all the others were based on small or non representative samples from one or two NICUs only, with inconsistent adjustment for potential confounders. An additional problem is represented by use of eligibility criteria based on birth weight rather than gestational age, as variable frequencies of growth retardation are likely to decrease the homogeneity and comparability of VLBW cohorts.

1.1. Current study

This study is based on a large geographically-defined prospective cohort of VPIs born in in 5 Italian regions and followed up to 2 years corrected age. We aimed to (1) assess the relationship between child severe neuromotor and/or sensory disability and maternal psychological distress, taking into account the region of birth, and adjusting for potential confounders; and (2) evaluate the role of maternal sociodemographic factors and of additional life stressors occurred after delivery on maternal psychological distress, and on the relationship between child disability and psychological distress.