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Review

Developmental and mental health disorders: Two sides of the same coin☆

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ABSTRACT

Children with developmental disorders (DD) are at substantially greater risk of developing mental health problems compared to typically developing children. However, the mental health co-morbidity is often missed or hidden in the context of DD leading to reduced quality of life and increased burden of care. Mental health problems in the context of DD also result in less optimal school and post-school outcomes with reduced opportunities for employment and community participation. There is also considerable overlap in the risk factors for both conditions, and these follow a cumulative risk model. Although awareness among clinicians and the public is improving, there is paucity of theoretical models, early identification frameworks as well as care pathways for interventions. This paper presents a framework for evaluating developmental vulnerability that highlights common risk factors for developmental and mental health disorders.

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1. Introduction

1.1. Disorders of development and mental health

The interactions between developmental disorders (DD) and mental health (MH) problems are complex and not unidirectional. Around 10% of children experience DD which are evident in early childhood (Eapen et al., 2006) and these rates are higher in children from vulnerable populations (Bouras, 2011). Disorders of development include those occurring in cognitive (e.g. intellectual delay), physical (e.g. cerebral palsy), self-help, language, social (e.g. autism), emotional or behavioural spheres. Individuals with DD are at fivefold risk for future mental health (MH) problems compared to controls (Bouras, 2011; Cooper and Smiley, 2007; Einfeld et al., 2006; Matson and Shoemaker, 2011; Morgan et al., 2008; Whitehouse et al., 2009a,b) with 40–50% experiencing such problems (Einfeld et al., 2006) including depression, anxiety, substance abuse, disruptive behaviours and psychosis. This added complexity compounds the psychosocial trajectory and can lead to family distress, poor community participation, unemployment and forensic involvement. It is often the MH co-morbidity that

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adversely affects the overall outcomes and quality of life in individuals with DD and their families. The long term support of those with DD places a considerable burden on families/carers (Bourke et al., 2008; Laurvick et al., 2006; Miodrag and Hodapp, 2010; Seltzer et al., 2011) and mothers, in particular, are at increased risk of MH problems (Abbeduto et al., 2004; Gray et al., 2011; Herring et al., 2006; Petalas et al., 2009; Rao and Beidel, 2009).

The key short- and long-term outcomes of DD for sufferers and carers are mediated, at least in part via MH. For example, it has been shown that the MH of parents of children with DD is more dependent on the child's MH than on the child's developmental level (Herring et al., 2006). MH problems associated with DD are also a major cause of failure in transition to school programmes and in the post-school period, with reduced opportunities for work, recreation and independent living (Einfeld et al., 2006). Robust evidence indicates that a lack of early detection and intervention has significant implications for the future academic, behavioural and social functioning of children with DD (Bouras, 2011). For example, children receiving early intervention for Autism have been shown to have an increase in their mean IQ score of 10 points over 12 months in a community setting (Eapen et al., 2013) and 18 points over two years in a clinic setting (Dawson et al., 2010). It is also known that families experiencing additional life stress prior to having children are more likely to have children with DD (Eapen et al., 1998). This is particularly the case with respect to Indigenous families, those from culturally and linguistically diverse (CALD) backgrounds, and those with a parent who has DD or a mental illness (Leonard et al., 2005, 2011; To et al., 2004). Hence, a vicious cycle of the development of DD and MH problems can be seen at an individual level or in population groups experiencing adversity (Whitehouse et al., 2009a,b). This confluence of factors generates a significant health burden for individuals, families, and communities, as well as inequity in child health resulting in significant health and economic impacts on the nation (Woolfenden et al., 2013). Also these factors present opportunities for prevention and early intervention frameworks (Eapen and Jairam, 2009). However, studying these frameworks will require longitudinal study designs that follow up children and their environments over time with careful evaluation from pregnancy through to adolescence, and involving measures of biological and environmental risk factors (Golding, 2009a,b).

1.2. Developmental vulnerability and determinants of mental health problems in DD

Available evidence from the literature suggests that most of the variance in developmental vulnerability is associated with the social determinants of health and their interaction with an individual's innate biological sensitivity to adversity (Guralnick, 1997; King et al., 1992; Patrianakos-Hoobler et al., 2009; Zeanah et al., 1997). Further, the cumulative exposure to risk factors over time without any protective factors particularly during the sensitive periods of neural development can result in changes in the neuronal circuitry with long term consequences. There is also emerging evidence that there is a transactional relationship between genes and the environment (Sameroff, 2009) with differential genetic sensitivity to social environment (GDSE) model positing that individuals with certain genetic makeups are more sensitive to favourable and unfavourable environmental influences than those without these genetic makeups (Mitchell et al., 2013). In this regard, four major mechanisms have been described: genes can influence an individual's response to environmental stress, genes may enhance an individual's sensitivity to both favourable and adverse environments, inherited characteristics may better fit with some environments than with others, and inherited capabilities may only become manifest in challenging or responsive environments (Reiss et al., 2013). It has been suggested that the human genome may have evolved specific "social programs" to adapt molecular physiology to the changing patterns of threat and

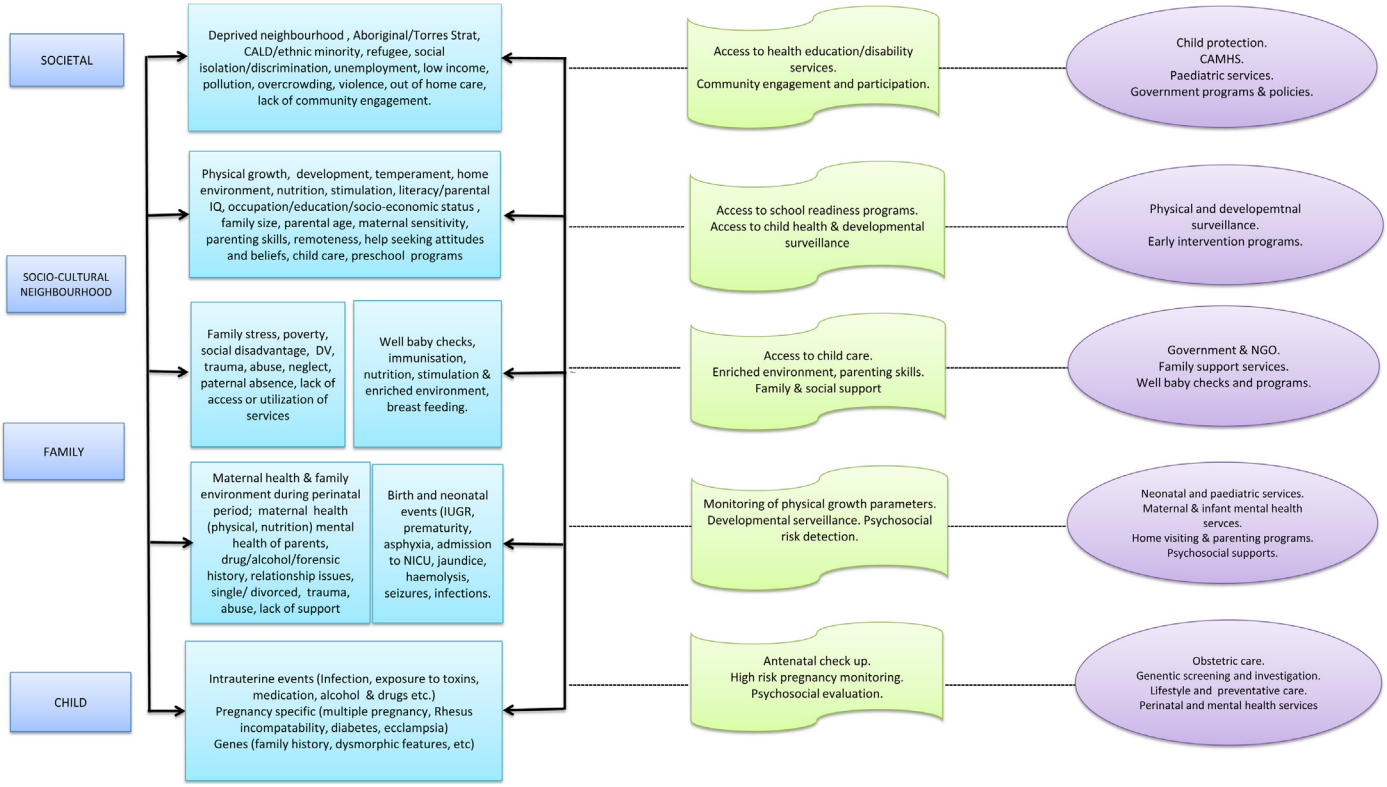

Fig. 1. Developmental vulnerability index.