



# The Influence of Social Disadvantage on Children's Emotional and Behavioral Difficulties at Age 4-7 Years

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**Objective** To examine associations between indicators of social disadvantage and emotional and behavioral difficulties in children aged 4-7 years.

**Study design** This cross-sectional study was based on data collected in a questionnaire completed by parents of children enrolled in their first year of school in Victoria, Australia, in 2010. Just over 57 000 children participated (86% of children enrolled), of whom complete data were available for 38 955 (68% of the dataset); these children formed the analysis sample. The outcome measure was emotional and behavioral difficulties, assessed by the Strengths and Difficulties Questionnaire Total Difficulties score. Logistic regression analyses were undertaken.

**Results** Having a concession card (a government-issued card enabling access to subsidized goods and services, particularly in relation to medical care, primarily for economically vulnerable households) was the strongest predictor of emotional and behavioral difficulties (OR, 2.71; 95% CI, 2.39-3.07), followed by living with 1 parent and the parent's partner or not living with either parent (OR, 1.93; 95% CI, 1.58-2.37) and having a mother who did not complete high school (OR, 1.27; 95% CI, 1.11-1.45).

**Conclusion** These findings may assist schools and early childhood practitioners in identifying young children who are at increased risk of emotional and behavioral difficulties, to provide these children, together with their parents and families, with support from appropriate preventive interventions. (*J Pediatr* 2015;167:442-8).

The mental health of children and young people is an important global concern.<sup>1-3</sup> Unresolved mental health issues in childhood are predictive of poor health and well being at later life stages.<sup>4-6</sup> Understanding the predictors of mental health issues for children is essential for implementing effective strategies for prevention and management. The relationship between low socioeconomic status (SES) and the mental health of young people is well established. A recent systematic review concluded that children and adolescents from socioeconomically disadvantaged backgrounds were 2-3 times more likely to suffer from mental health issues compared with those from more advantaged backgrounds<sup>7</sup>; however, little is known about how SES is related to poor mental health in early childhood (defined by the United Nations as the period from birth to age 8 years).<sup>8</sup> The majority of relevant studies have focused on older children,<sup>9-11</sup> or included children across a broad age range without presenting results separately for younger children.<sup>12,13</sup> Some recent work has highlighted this gap and pointed to the need for evidence focused on the early childhood years.<sup>14-16</sup> This is especially salient in light of evidence across a range of health indicators indicating that the effects of social disadvantage may be stronger at earlier ages.<sup>17,18</sup>

Another gap in the literature lies in the simplistic manner in which SES has been measured in many previous studies, in that it is often operationalized according to income, occupation, and/or education.<sup>10,11,13,19</sup> Little is known about how other SES factors, or indeed other elements thought to be associated with social disadvantage, such as a language background other than English (LBOTE; in instances when English is the main language spoken), influence childhood mental health.

Emotional and behavioral difficulties, as measured by the Strengths and Difficulties Questionnaire (SDQ), have been conceptualized as among the components of children's mental health,<sup>12,20,21</sup> and are considered as such in the present study. Based on the aforementioned systematic review, Davis et al<sup>14</sup> completed the only investigation since 1990 of the impact of a range of SES indicators on emotional and behavioral difficulties in early childhood. The present study builds on the findings of Davis et al, providing an opportunity to confirm and extend those findings using a substantially larger sample and a broader range of measures of social disadvantage.

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ATSI	Aboriginal or Torres Strait Islander
LBOTE	Language background other than English
SDQ	Strengths and Difficulties Questionnaire
SEHQ	School Entrant Health Questionnaire
SES	Socioeconomic status

The aim of this study was to examine associations between indicators of social disadvantage and emotional and behavioral difficulties in early childhood. Emotional and behavioral difficulties were measured using the parent-reported SDQ.<sup>22,23</sup> The study was based on data from a population-level cohort of children aged 4-7 years.

## Methods

The School Entrant Health Questionnaire (SEHQ) is a paper-based survey undertaken annually in the state of Victoria, Australia, by the Victorian Government Department of Education and Training. Parents of all children enrolled in the first year of primary school in Victoria are invited to complete the questionnaire, which includes questions focusing on family demographics and child development. The present analysis is based on responses to the 2010 SEHQ. Ethics approval for this study was granted by the Human Research Ethics Committee at the University of Melbourne. Written informed consent was obtained from parents for data to be used for research purposes.

### Exposure Variables

Various socioeconomic and demographic factors were included as exposure variables in this analysis. These factors are considered markers of advantage/disadvantage in the published literature.<sup>24-26</sup> Exposure variables included LBOTE (yes, no), child born overseas (ie, not in Australia; yes, no), mother born overseas (yes, no), mother's highest level of education (completed some high school, completed high school or above), and father's highest level of education (completed some high school, completed high school or above). Family structure was included as a trichotomous variable (lives with both parents, lives with 1 parent, other). The "other" category included children who lived with one parent and the parent's new partner.

Indigenous status was gauged according to the child's status as an Aboriginal or Torres Strait Islander (ATSI; yes, no). An area-based SES variable was derived by applying the 2006 Australian Bureau of Statistics Socioeconomic Index for Areas (an indicator of relative socioeconomic disadvantage by postal area)<sup>27</sup> to the child's residential postal code at the time of data collection. The variable was collapsed into quintiles for this analysis, with quintile 1 representing the most disadvantaged group. The child's concession card status was gauged in the SEHQ by the following question: "Please tell us if your child is listed on a Health Care Card or Pensioner Concession Card" (yes, no, don't know). These concession cards are issued by the Australian Government to allow access to subsidized goods and services, particularly in relation to medical care.<sup>28,29</sup> A "yes" response indicates that the child is listed on his or her own Health Care Card, a parent/guardian's Health Care Card, or a parent/guardian's Pensioner Concession Card. The dataset does not allow disaggregation according to these categories. The Pensioner Concession Card and adult Health Care Card are issued to

selected government benefit recipients who have been deemed economically vulnerable by the Australian Government. There is no standard income eligibility level for these cards; rather, there are at least 18 benefit types, each with a distinct constellation of eligibility criterion, which enable automatic access to a Pensioner Concession Card and/or adult Health Care Card. A child Health Care Card is issued to children aged <16 years who have a condition listed as a recognized disability or achieve a qualifying rating as determined by the Disability Care Load Assessment (Child) Determination, and is likely to suffer from the condition or disability permanently or for an extended period of at least 12 months.<sup>30</sup> It is likely that the majority of children categorized as concession card holders in this analysis are listed on a parent/guardian's Pensioner Concession Card or Health Care Card, rather than his or her own Health Care Card, given that population-level Australian data suggest that less than 4% of Australian children aged 0-14 years have a serious disability.<sup>31</sup>

### Confounders

Information on 4 potentially relevant confounders was included in our analyses, based on existing research on children's mental health. Although children in the study population were all in the first year of schooling and of similar age (4-7 years), the age spectrum was sufficiently broad to warrant adjustment by age (child's age at January 1, 2010, in years). Parental mental illness was included as a confounder. The SEHQ asked: "Is there a history of...mental illness of a parent?," with "no" and "yes" response boxes provided. Information on the child's general health was collected according to a 5-point scale (excellent, very good, good, fair, and poor), which was collapsed into 3 categories based on the distribution of the data (excellent, very good, and good/fair/poor). The child's sex was also included as a confounding variable.

### Outcome Measure

The outcome measure in this study was emotional and behavioral difficulties in children, as assessed by the SDQ Total Difficulties score.<sup>32-34</sup> The SDQ has strong psychometric properties when completed by a parent,<sup>22,23,35</sup> as it was in this study. The SDQ consists of 25 items divided into 5 domains: emotional symptoms, hyperactivity/inattention, peer relationship problems, conduct problems, and prosocial behavior. Within each domain, items were scored as 0-2 and summed to create a domain score of 0-10.<sup>32</sup> An SDQ Total Difficulties score between 0 and 40 was generated by summing all domain scores except the prosocial behavior scale. This score was then categorized as normal/borderline (0-16) or abnormal (17-40), as in the literature.<sup>12,36</sup>

### Statistical Analyses

The analysis sample consisted of children for whom there were no missing data for the variables of interest. Logistic regression was used to investigate associations between indicators of social disadvantage and child emotional and

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