



## Risk factors for child maltreatment in an Australian population-based birth cohort



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### ABSTRACT

Child maltreatment and other adverse childhood experiences adversely influence population health and socioeconomic outcomes. Knowledge of the risk factors for child maltreatment can be used to identify children at risk and may represent opportunities for prevention. We examined a range of possible child, parent and family risk factors for child maltreatment in a prospective 27-year population-based birth cohort of 2443 Australians. Physical abuse, sexual abuse, emotional abuse, neglect and witnessing of domestic violence were recorded retrospectively in early adulthood. Potential risk factors were collected prospectively during childhood or reported retrospectively. Associations were estimated using bivariate and multivariate logistic regressions and combined into cumulative risk scores. Higher levels of economic disadvantage, poor parental mental health and substance use, and social instability were strongly associated with increased risk of child maltreatment. Indicators of child health displayed mixed associations and infant temperament was uncorrelated to maltreatment. Some differences were observed across types of maltreatment but risk profiles were generally similar. In multivariate analyses, nine independent risk factors were identified, including some that are potentially modifiable: economic disadvantage and parental substance use problems. Risk of maltreatment increased exponentially with the number of risk factors experienced, with prevalence of maltreatment in the highest risk groups exceeding 80%. A cumulative risk score based on the independent risk factors allowed identification of individuals at very high risk of maltreatment, while a score that incorporated all significant risk and protective factors provided better identification of low-risk individuals.

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## 1. Introduction

Adverse childhood experiences such as child abuse and neglect exert a high toll on population health, making prevention of child maltreatment a priority in both developing and developed countries (Gilbert et al., 2009; United Nations Children's Fund, 2012). Research which identifies the predictors of child maltreatment can inform and enhance prevention initiatives in two ways: by identifying vulnerable 'high-risk' individuals or groups for better targeting of prevention services, and

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by highlighting modifiable mechanisms through which prevention initiatives—or harmful policies—may operate (Gilbert, Woodman, & Logan, 2012).

Child maltreatment has been a topic of increasing public concern and research interest since the mid-twentieth century, following the seminal publication of “The battered-child syndrome” by Kempe, Silverman, Steele, Droegemueller, and Silver (1962). There have been many studies that have identified risk factors for child maltreatment—for example, see Black, Heyman, and Smith Slep (2001) or Stith et al. (2009) for reviews of child, parent and family factors, and Drake and Jonson-Reid (2014) for a review of economic factors. Opportunities for the simultaneous assessment of relationships between the wide range of identified risk factors and many forms of maltreatment are, however, relatively uncommon. They require large collections of data that can usually only be obtained from population-based surveys.

As child maltreatment occurs during childhood and its risk factors necessarily precede it, retrospective surveys of adult populations are of limited use. Not only do they typically collect data long after the events have transpired, but the representativeness of population samples who are recruited after the consequences of child maltreatment have been effected is questionable. Those who have experienced the more severe consequences of child maltreatment (such as homelessness, hospitalization, incarceration, and death) are routinely excluded from sampling frames of adult populations. In contrast, prospective surveys of families through childhood (birth cohorts) provide opportunities for recruitment of representative samples (through near-universal contact with perinatal services in most developed countries), and for information about risk factors to be collected early in the life of participants. This study uses data from a population-based birth cohort, the Australian Temperament Project (ATP), to identify child, parent and family risk factors for child maltreatment, and explore their cumulative implications for risk.

### 1.1. Conceptual models for the risk and etiology of child maltreatment

Just as the study of risk factors for maltreatment can assist in the refinement of causal models, a review of postulated causal models can in turn highlight the domains in which risk factors are likely to be found. Conventional *pathway* models of causation (e.g., Bittner and Newberger (1981) or Conger and Donnellan (2007)) include proximal causes of child maltreatment, such as characteristics of the child, the parents and the parent-child relationship, and more distal contextual factors in the family, social, economic and legislative environments (Lamont & Price-Robertson, 2013). *Ecological* models classify risk factors into different levels, acknowledging that each is implicated in the etiology without necessarily being chained together into sequential pathways. Sidebotham (2001) proposes an example of an ecological model, in which parent-child interaction occurs within the context of parents' ontogenic development (factors in the parents' background that may be related to their current parenting), a microsystem of factors relating primarily to the child, an exosystem of factors relating mostly to the family, and a macrosystem of factors relating to the wider community and culture in which the family exists.

Another way of conceptualizing the determinants of child maltreatment—one that seems especially relevant to analyses of risk (as opposed to causal effects)—is an approach often referred to as ‘cumulative risk’. A cumulative risk approach acknowledges that when there are many separate and interacting effects, a count of risk factors may provide a simple but effective means of identifying risk. This implies a conceptual model in which risk factors can be treated interchangeably, and simplifies the statistical models required for analysis. MacKenzie, Kotch, and Lee (2011) present a cumulative risk analysis of parent and family risk factors for child maltreatment, and the Adverse Childhood Experiences study (Felitti et al., 1998, and many subsequent publications) is an example of a cumulative risk approach to analyzing the consequences of child maltreatment.

In theory, the best factors to include in a cumulative risk score are independent correlates of the outcome, as risk factors that are closely related should provide less additional information. In the analysis below, we explore this hypothesis by comparing two different cumulative risk scores: one that is derived using all identifiable risk factors for child maltreatment, and one using only those which are independent predictors in multivariate analysis. We focus on child, parent and family factors that are likely to be identifiable prior to maltreatment occurring (although some were recorded retrospectively in this study). Factors relating to parent-child interaction (warmth, affection, disciplinary style, etc.) are very closely related to the concept of child maltreatment itself, arguably occurring along a spectrum that includes maltreatment (Gilbert et al., 2012), so were excluded from this analysis. Community-level risk factors for child maltreatment were not available in the data.

### 1.2. Child, parent and family risk factors for child maltreatment

Documented child-level risk factors for maltreatment include age, gender, race/ethnicity, developmental status, behavior and social skills, disability and health, and school enrolment (Lamont & Price-Robertson, 2013; Sedlak et al., 2010; Stith et al., 2009). In their analysis of self-reported and official records of child maltreatment in a New York cohort, Brown, Cohen, Johnson, and Salzinger (1998) identified perinatal complications, disability, low verbal IQ, difficult temperament and anxiety/withdrawal as significant predictors of child maltreatment. Using Australian administrative data, O'Donnell et al. (2010) identified female gender and birth defects as being weakly associated with substantiated child maltreatment, and intellectual disability as being a strong predictor. Most other longitudinal studies of risk factors for child maltreatment have focused on parent and family factors (e.g. Sidebotham and Golding (2001) in the UK Avon Longitudinal Study of Parents and

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