



## Gender differences in delinquency at 21 years following childhood maltreatment: A birth cohort study



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### ABSTRACT

Childhood maltreatment and youth delinquency are major public health problems. The present study examines the association between exposure to agency substantiated childhood maltreatment from 0 to 14 years of age and delinquency at 21 years in males and females separately. The study uses data from the Mater Hospital-University of Queensland Study of Pregnancy, an Australian pre-birth longitudinal cohort of mothers and their children. Pregnant women were recruited consecutively at their first antenatal clinic visit at Brisbane's Mater Hospital from 1981 to 1983. We linked substantiated cases of childhood maltreatment, reported to the appropriate child protection services between birth and 14 years of age, to the 21-year survey follow-up. The study sample comprises 1810 males and 2008 females, who had complete data on delinquency at the 21-year follow-up. The odds of delinquency at the 21-year follow-up were 4–6 times higher for maltreated children in the unadjusted models. In the adjusted models, physical abuse, emotional abuse and neglect, as well as emotional abuse with or without neglect were associated with over 3 times a greater risk of delinquency in males. More frequent maltreatment was associated with double the risk of later delinquency in males. However, none of the maltreatment subtypes, nor was the frequency of maltreatment substantiations associated with an increased risk of delinquency in females. Exposure to any childhood maltreatment increased the likelihood of delinquency for males but there was no difference for females. Childhood maltreatment is associated with an increased risk of later delinquency for young adult males, but not females.

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### 1. Introduction

Childhood maltreatment has been associated with a wide range of adverse childhood developmental outcomes including antisocial behavior and substance misuse (Banducci, Hoffman, Lejuez, & Koenen, 2014; Widom & Maxfield, 2001). However, very little of this research has specifically addressed gender differences, either in the type of childhood maltreatment (e.g., sexual, physical, emotional abuse or neglect) and subsequent outcomes (World Health Organization, 1999).

Antisocial behavior including delinquency is a major public health challenge in Australia (Cunneen & White, 2011). It is estimated that up to 18.9% of boys and 17.7% of girls of school age manifest a range of delinquent behaviors (Richards, 2011). Similarly, childhood

maltreatment is also a major public health problem costing \$3.3 billion in Australia in 2013–14 alone (Australian Government: Australian Institute of Family Studies, 2015). About 1 in 10 children are reported to experience childhood maltreatment in Queensland alone, and 1 in 20 of these maltreated children experience a court recorded juvenile offense by the age of 17 (Stewart, Waterson, & Dennison, 2002). Despite this high public health burden, there is limited research on the association between childhood maltreatment and delinquency, particularly using a prospective cohort study design.

Retrospective studies using self-reported measures have suggested that exposure to multiple forms of childhood maltreatment (Cudmore, Cuevas, & Sabina, 2015) including sexual (Cudmore et al., 2015), physical and emotional (Brezina, 1998; Gao, Wong, & Yu, 2016) abuse may lead to delinquency (Cudmore et al., 2015; Gao et al., 2016). For example, studies of high school youth aged from 13 to 18 years (Arata, Langhinrichsen-Rohling, Bowers, & O'Brien, 2007), and youth aged 20 years (Arata, Langhinrichsen-Rohling, Bowers, & O'Farrill-Swails,

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2005) found childhood maltreatment (Arata et al., 2005; Arata et al., 2007), in general, and neglect (Arata et al., 2005) in particular, was associated with delinquent behavior (Arata et al., 2005; Arata et al., 2007). However, in other studies, neither childhood maltreatment that involved sexual, physical and emotional (Arata et al., 2005) abuse in isolation, nor multiple forms of childhood maltreatment (Mallett, Stoddard Dare, & Seck, 2009), were associated with increased delinquency (Arata et al., 2005; Mallett et al., 2009). Few, if any previous studies have specifically linked different types of childhood maltreatment to subsequent delinquency (Arata et al., 2007; Cudmore et al., 2015; Gao et al., 2016), and few previous studies adequately controlled for potential confounders (Arata et al., 2005; Arata et al., 2007; Mallett et al., 2009). Previous studies also tend to use official records of delinquency (Widom & Maxfield, 2001), although these may underestimate the actual population-level magnitude of delinquent behavior (Maxfield, Weiler, & Widom, 2000).

In one prospective study of 908 individuals, substantiated childhood maltreatment increased the risk of delinquency leading to juvenile arrest, adult arrest and violent crime by 59%, 28% and 30%, respectively, by the age of 25 years (Widom & Maxfield, 2001). In another, substantiated maltreatment in childhood or adolescence predicted general delinquency that was 39% and 41% higher than the level experienced by non-maltreated counterparts (Ireland, Smith, & Thornberry, 2002). Similarly, chronic sexual abuse (Logan-Greene & Semanchin Jones, 2015), physical abuse (Salzinger, Rosario, & Feldman, 2007) and neglect (Logan-Greene & Semanchin Jones, 2015) have been found to predict delinquency in adolescence, after controlling for other forms of maltreatment (Logan-Greene & Semanchin Jones, 2015). All these studies suggest that persistent maltreatment in adolescence may have more consistent negative consequences than maltreatment restricted to the childhood period (Thornberry, Ireland, & Smith, 2001), even although childhood-only maltreatment may also predict subsequent delinquency. For instance, maternal reports of physical abuse before the age of 5 years predicted twice the rates of violent and nonviolent delinquency at the age of 18 years in a sample of 574 youths (Lansford et al., 2007). Similarly, the Add Health Survey of 3472 young adults, found that retrospective recall of sexual abuse and neglect were associated with delinquency in the previous year (Yun, Ball, & Lim, 2011). The one exception is emotional abuse where studies have failed to find an association with subsequent delinquency (Logan-Greene & Semanchin Jones, 2015). Unfortunately, few previous studies include details of multiple forms of childhood maltreatment (Salzinger et al., 2007), nor they do specify each form of maltreatment. Few previous studies control for early and concurrent individual, family and environmental level potential confounders (Ireland et al., 2002).

Gender differences in childhood maltreatment and subsequent delinquency have not been specifically addressed, even though there may be different gender pathways to delinquency. For example, females may show less delinquent behavior because of less exposure to peers with similar behavior, or because they are more likely to report strong social bonds and greater parental supervision than males (Steffensmeier & Allan, 1996). Conversely, males may experience greater risk including exposure to delinquent older siblings (Fagan & Najman, 2003) and less protection (Fagan, Van Horn, Hawkins, & Arthur, 2007). Males and females may also respond differently to negative life events and may engage differently in different types of delinquency manifestations (Mazerolle, 1998). Moreover, there is a possibility of an interface between biological and social risk factors (Brennan, Hall, Bor, Najman, & Williams, 2003), which may operate via their effect either on early or delayed long-term developmental problems (Najman et al., 2009). Despite some evidence that the genders may have converging patterns of delinquency (Steffensmeier & Allan, 1996), and/or that there may be shared underlying psychosocial factors (Fagan et al., 2007) including victimization (Wong, Slotboom, & Bijleveld, 2010), males and females may respond differently to the same forms of childhood maltreatment. For example, sexually abused males and females may manifest differing

patterns of psychopathology (Feiring, Taska, & Lewis, 1999) attributable to differential responses (Walker, Carey, Mohr, Stein, & Seedat, 2004) and adaptations (Feiring et al., 1999) to the effects of abuse (Bergen, Martin, Richardson, Allison, & Roeger, 2004). The effect of childhood maltreatment may also be mediated by internalizing problems (Maschi, Morgen, Bradley, & Hatcher, 2008) and social withdrawal (Waxman, Fenton, Skodol, Grant, & Hasin, 2014) in females but, conversely, lead to externalizing (Maschi et al., 2008) and attention seeking (Waxman et al., 2014) in males. These gender differences in outcomes may explain the varying levels of antisocial behavior. The pattern of offense may also differ depending on the type of childhood maltreatment such that physically abused males may engage in property, felony and violent offenses whereas females may experience more internalizing symptoms (Maschi et al., 2008). Studies to date have not adequately addressed the differential effects of each substantiated childhood maltreatment on delinquency for males and females separately.

Some studies have also identified specific socio-demographic predictors including poor school achievement, racial background, maternal teenage pregnancy, marital instability, family poverty at childhood, familial arrest for offenses and neighborhood social deprivation that may be associated with both childhood maltreatment and later antisocial behavior, including delinquency (Allwood & Widom, 2013; D'Onofrio et al., 2009; Eckenrode et al., 2001; Lee & Goerge, 1999; Maxfield & Widom, 1996; Nikulina, Widom, & Czaja, 2011; Wardle, 2007; Zingraff, Leiter, Myers, & Johnsen, 1993). These factors may be related to both exposure to childhood maltreatment and subsequent delinquency. One study suggested that childhood maltreatment reduces the rate of high school completion while employment and marriage are associated with a decrease in adult arrests (Allwood & Widom, 2013). Race or ethnic background may also be associated with delinquency in maltreated individuals (Maxfield & Widom, 1996; Zingraff et al., 1993), although other researchers do not find such differences (Grogan-Kaylor, 2005; Hatcher, Maschi, Morgen, & Toldson, 2009; Lau, Litrownik, Newton, Black, & Everson, 2006). Moreover, being a teenage mother (Lee & Goerge, 1999), marital instability (Eckenrode et al., 2001) and family poverty in the childhood period (Nikulina et al., 2011) are associated with childhood maltreatment, which are also associated with delinquency (D'Onofrio et al., 2009; Nikulina et al., 2011; Wardle, 2007). Parental criminal offenses and subsequent arrest have also been found to be associated with childhood maltreatment (Phillips, Burns, Wagner, & Barth, 2004). Parenting styles including low parental warmth and supervision, may involve allowing a child to engage in frequent television viewing and physical discipline (Slack, Holl, McDaniel, Yoo, & Bolger, 2004), which are associated with childhood maltreatment including neglect (Slack et al., 2004) and delinquency (Hoeve et al., 2009). There is also some evidence that neighborhood disadvantage has been associated with childhood maltreatment (Coulton, Crampton, Irwin, Spilsbury, & Korbin, 2007) and delinquency (Weijters, Scheepers, & Gerris, 2009) perhaps reflecting social disorganization (Coulton et al., 2007) leading to higher rates of delinquency. Indeed, the ecological/transactional model (Dante Cicchetti & Valentino, 2006) suggests that a range of factors at individual, family and environment levels may affect both childhood maltreatment and delinquency, and account for their association.

There are a number of unresolved issues concerning the associations between childhood maltreatment and adult delinquency. These include methodological limitations such as retrospective designs and unrepresentative samples (Dante Cicchetti & Toth, 1993). For instance, retrospective self-reports of childhood maltreatment may be biased when provided by individuals to account for their antisocial behavior (Dante Cicchetti & Toth, 1993), blurring the temporal sequence and limiting the capacity to make causal inferences (Howing, Wodarski, Kurtz, Gaudin, & Herbst, 1990). Despite the fact that significant victimization to multiple forms of maltreatment may exist (Stewart et al., 2002) and an overlap of victimization may occur between childhood and adolescence (Mills, Kisely, Alati, Strathearn, & Najman, 2016), previous studies

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