



The lifetime economic and social costs of child maltreatment in Australia



Molly M. McCarthy^{a,b,*}, Penny Taylor^c, Rosana E. Norman^d, Lynne Pezzullo^{c,e}, Joe Tucci^f, Chris Goddard^g

^a Griffith Criminology Institute, Griffith University, Level 4 Social Sciences Building (M10), Mt. Gravatt, QLD 4122, Australia

^b School of Population Health, University of Melbourne, Level 4, 207 Bouverie St, VIC 3010, Australia

^c Deloitte Access Economics Pty Ltd, Level 2, 8 Brindabella Circuit, Brindabella, ACT 2600, Australia

^d School of Public Health and Social Work, Queensland University of Technology, Faculty of Health, Victoria Park Road, Kelvin Grove, QLD 4059, Australia

^e Australian Centre for Economic Research in Health, Australian National University, ACT 2601, Australia

^f The Australian Childhood Foundation, PO Box 525, Ringwood, VIC 3134, Australia

^g Kindred Consultancies, Melbourne, Australia

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ABSTRACT

A cost of illness (COI) study was undertaken to estimate the magnitude and range of lifetime effects associated with child maltreatment in Australia, using an incidence-based approach. Costs were primarily estimated through calculation of population attributable fractions (PAFs) to determine the marginal effects of child maltreatment on a range of outcomes. PAFs were then applied to estimates of expenditure, inflated to 2014–15 Australian dollars, projected over the life course, according to a baseline age of incident cases for child maltreatment in 2012–13, and discounted at 7% per annum. Sensitivity analysis was conducted using a best and lower bound estimate of incidence of child abuse. The best estimate of the total estimated lifetime financial costs for incident cases of child maltreatment in 2012–13 was \$9.3 billion (a cost per child maltreated of \$176,437), with a lower bound of \$5.8 billion. The best estimate of lifetime costs associated with reduced quality of life and premature mortality (non-financial costs) for all incident cases of child maltreatment in 2012–13 was \$17.4 billion, or \$328,757 per child maltreated. The considerable lifetime costs associated with child maltreatment warrants an expansion of existing investment in primary and secondary prevention and targeted support services for children and families at risk.

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1. Introduction

The experience of child maltreatment has been found to have considerable deleterious effects on both mental and physical health over an individual's life course (Norman et al., 2012; Maniglio, 2009; Gilbert et al., 2009; Jonson-Reid, Kohl, & Drake, 2012; Widom, Czaja, Bentley, & Johnson, 2012; Cutajar et al., 2010; Afifi et al., 2008). Individuals who have experienced child maltreatment have also been found to have a diminished capability to productively engage in education and employment over the long term (Smithgall, Gladden, Howard, George, & Courtney, 2004; Lee & Jonson-Reid, 2009; Scherr, 2007), and are at greater risk of committing criminal offences either as juveniles or adults (Gilbert et al., 2009; Bright & Jonson-Reid, 2008; Maschi, Hatcher, Schwalbe, & Rosato, 2008; Mersky & Reynolds, 2007). While previous research has examined the association between child maltreatment and singular outcomes or clusters of outcomes, the magnitude and

broad range of harmful effects of childhood maltreatment is challenging to capture from examining outcomes in isolation. Notably, attribution of outcomes is difficult as much of the available research does not account for confounding factors such as socioeconomic disadvantage or disability, which may be associated with child maltreatment and may also contribute to relatively poor health, work and mortality outcomes.

Cost of illness (COI) studies are a means by which the impact of a risk factor or condition on a wide range of health and social outcomes may be captured, using a common metric - monetary values. This methodology can help identify the hidden costs associated with a particular risk factor or condition, and can highlight the relative benefits of investment in prevention by capturing the range and magnitude of costs which could be avoided with earlier intervention (Larg & Moss, 2011; Corso & Fertig, 2010). The economic burden associated with child maltreatment has been the subject of a number of recent studies in the US (Fang, Brown, Florence, & Mercy, 2012; Brown, Fang, & Florence, 2011; Wang & Holton, 2007) and in East Asia (Fang et al., 2015a), China (Fang et al., 2015b) and Japan (Wada & Igarashi, 2014).

Conversely, in Australia, few studies have attempted to quantify the economic and social costs associated with child maltreatment, and a search of the peer-reviewed literature revealed no studies on this issue. The current study aims to build on the recent international

* Corresponding author: Griffith Criminology Institute, Level 4 Social Sciences Building (M10), Mt. Gravatt, QLD 4122, Australia.

E-mail addresses: molly.mccarthy@griffithuni.edu.au (M.M. McCarthy), rosana.norman@qut.edu.au (R.E. Norman), lynne.pezzullo@anu.edu.au (L. Pezzullo), jtucci@childhood.org.au (J. Tucci), chris.goddard@med.monash.edu.au (C. Goddard).

peer-reviewed research examining the cost of child maltreatment, and historical estimates published in the non-peer reviewed literature in Australia (Taylor et al., 2008), to estimate the economic burden associated with child maltreatment in Australia.

2. Methods

COI studies can adopt either a prevalence or incidence approach to estimating the economic burden associated with a condition or risk factor (Corso & Fertig, 2010). A prevalence approach estimates the costs attributable to a particular condition or risk factor for all existing cases within a given year, whereas an incidence approach attempts to estimate the lifetime costs associated with new cases in a given year (Larg & Moss, 2011; Fang et al., 2012). This study adopts an incidence-based approach and estimates the net present value of lifetime costs for children and young people who experienced maltreatment for the first time in 2012–13. An incidence-based approach is challenging as it relies on research that can demonstrate the impact of child maltreatment on outcomes over the life-course (Fang et al., 2012), and thus involves assumptions about the future. However, it is better suited to understanding costs that could be avoided in future from prevention of new cases of child maltreatment, and the relative cost effectiveness of different interventions, and thus is more useful than a prevalence-based approach from a policy perspective.

A societal perspective and welfarism framework was taken for this study, capturing a range of costs borne both by government and the individual, aligning to and building on those sources of costs outlined by Corso and Fertig (2010) in their review of COI studies on child maltreatment.

2.1. Prevalence and incidence

There is no universally accepted definition of child maltreatment. Efforts to synthesise the many studies on the prevalence of child abuse and neglect are hampered by differences in scope, definitional variation, population characteristics and counting methods (Norman et al., 2012; Moore et al., 2015). For the purposes of this study we define child maltreatment as exposure of a child to physical abuse, sexual abuse, emotional abuse (including witnessing family violence) or neglect. To date, there are no Australia-wide studies of prevalence of child maltreatment. A recent study undertaken by Moore et al. (2015) estimated the pooled prevalence of physical, sexual and emotional abuse and neglect in Australia, drawing on a broad range of published research, and found considerable co-occurrence in the types of child maltreatment, with nearly half (44% of females and 47% of males) of children subject to child maltreatment having experienced more than just one type. Moore et al. (2015) adjusted for the co-occurrence of multiple types of maltreatment and estimated a pooled lifetime prevalence for all types of child maltreatment of 21.9% for females and 12.9% for males that, when weighted by the gender distribution in the Australian population aged 0 to 17 in 2013 (Australian Bureau of Statistics [ABS], 2015a) the base year for incidence in this study, provide the best estimate of lifetime prevalence of child maltreatment for this study (17.3%). This pooled prevalence estimate is based on some of the most extensive analysis of child maltreatment prevalence studies in Australia, and hence should provide relatively high levels of precision in estimating population prevalence in the absence of a national prevalence study. As the next step toward estimating annual incidence, lifetime prevalence was converted to annual prevalence, using a ratio of annual to lifetime prevalence estimated from a study by Finkelhor, Turner, Shattuck and Hamby (2013) which established past year and lifetime prevalence rates for different types of child maltreatment in a random, representative U.S. survey sample. This method has been used by the United Nations Office on Drugs and Crime (UNODC) to estimate the annual prevalence of drug use in countries where only lifetime prevalence estimates are available (UNODC, 2016). A ratio of annual to lifetime

prevalence was determined for each type of maltreatment, and then a weighted ratio established by multiplying the ratio for each type of maltreatment by its proportionate distribution in the Australian population based on cases of substantiated maltreatment (Australian Institute of Health and Welfare (AIHW), 2014). Applying the weighted ratio (0.27) to the best estimate of lifetime prevalence (17.3%) leads to a best estimate of annual prevalence of child maltreatment of 4.6%.

It has been acknowledged that the numbers of children in cases of abuse substantiated by child protection agencies represent only the most serious cases that agencies have the capacity to investigate and respond to (Fang et al., 2012; Moore et al., 2015). For this reason data on substantiated child maltreatment cases from Australian child protection authorities in 2012–13 constitutes the lower bound estimate for child maltreatment prevalence used in this study (AIHW, 2014). This estimate includes children who experienced physical abuse, sexual abuse, emotional abuse (including witnessing domestic violence), and/or neglect (AIHW, 2014). Substantiations refer to child protection notifications made to relevant authorities which were investigated and it was concluded that there was reasonable cause to believe that the child had been, or was being, or was likely to be, abused, neglected or otherwise harmed (AIHW, 2014). In 2012–13, a total of 40,571 children were the subject of substantiations (AIHW, 2014). This number was factored up by approximately 10% to account for both investigations that were in progress and for the proportion of unsubstantiated cases likely to become substantiated on a subsequent investigation, estimated based on publicly available data (AIHW, 2014; Steering Committee for Review of Government Service Provision [SCRGSP], 2014). This led to a lower bound estimate of 0.85% for the annual prevalence of child maltreatment, equivalent to 44,661 children. An upper bound estimate of child maltreatment prevalence was not calculated as no credible alternative sources of Australian prevalence data were identified.

To arrive at the best estimates for maltreatment occurring for the first time in 2012–13 (incident cases), evidence on the average length of time a child experienced maltreatment was sourced from the literature, drawing on studies which have estimated the average duration of child maltreatment summarised by Taylor et al. (2008, p. 48). A weighted average for child maltreatment duration (4.6 years) was established from estimates of the average duration of child physical abuse (5.6 years) and of child sexual abuse (2.9 years), taking into account the differences in the distribution of these two types of maltreatment in the population. The annual prevalence estimate was converted to annual incidence, assuming a steady state population, using the following formula (Rothman, 2012):

$$I = PA/D$$

where I = annual incidence, PA = annual prevalence, and D = average duration

The method resulted in a best estimate of 52,802 children experiencing maltreatment for the first time in 2012–13, which equates to 1.01% of 0–17 year olds. For the lower bound annual incidence estimate the proportion of children receiving child protection services in 2012–13 who had never been the subject of a previous investigation for abuse (32.7%) was applied to the lower bound prevalence estimate, resulting in a lower bound estimate of 14,604 children (0.28%) experiencing maltreatment for the first time in 2012–13. Table 1 shows the annual prevalence and incidence rates and the estimated number of incident cases for the lower bound and best estimates.

2.2. Estimation of attributable effects of child abuse

Population attributable fractions (PAFs) were used to determine how a range of outcomes and their associated costs may be attributed to child maltreatment. The use of PAFs is common in COI studies (Larg & Moss, 2011), where there is a need to quantify the amount of variation

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