



CHILD WELFARE PROCESS AND OUTCOMES

Caregiver Cognitive Impairment

Secondary Analysis of the
*Canadian Incidence Study of Reported
Child Abuse and Neglect (CIS-2003)*

2009/10



FAMILY AND DISABILITY STUDIES
UNIVERSITY OF ALBERTA

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With a special report on
Child welfare involvement of mothers with mental health issues

By Callie Westad & David McConnell

This research was supported by a grant from the Alberta Centre for Child, Family and Community Research

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RÉSUMÉ

Dans la première partie du 20^{ème} siècle, les personnes présentant des limitations cognitives étaient des perçues comme des parias. La perception de l'époque était que les personnes « retardées » étaient des « dégénérés » et la cause première des désordres vécus dans nos sociétés. Leur « permettre » de se reproduire était alors perçu par plusieurs impensable. La stérilisation eugénique était légale et vigoureusement appliquée dans plusieurs juridictions et cela, pour « la protection et la santé de l'État » (voir *Buck v Bell*, 274 US 200). En Alberta, par exemple, un total de 2832 enfants et adultes ont été stérilisés sous l'Acte de Stérilisation Sexuelle (« Sexual Sterilization Act »), ce qui a été révoqué en 1972 (Wahlston, 1997).

Le discours a beaucoup changé depuis les quatre dernières décennies. Aujourd'hui, le droit des personnes présentant une déficience, incluant ceux ayant une déficience intellectuelle, de se marier et fonder une famille est reconnu par La Convention relative aux droits des personnes handicapées des Nations Unies (2006). De plus, sous l'article 23, les États doivent prendre action pour éliminer la discrimination et rendre le soutien approprié accessible aux personnes présentant un handicap, incluant les personnes présentant une déficience intellectuelle, dans l'application de leurs responsabilités parentales.

Le défi reste dans l'application de ces droits en réalité pour les parents présentant des limitations cognitive, et, en partie de promouvoir un développement adéquat pour leurs enfants. Notre analyse des données provenant de l'Étude canadienne sur l'incidence des signalements de cas de violence et de négligence envers les enfants (ECI-2003), documentée dans ce rapport, révèle que plus de une investigation de maltraitance sur dix, et plus de un cas sur quatre qui se retrouve en cour et placement probable, impliquent des enfants de parents présentant des limitations cognitives.

Les résultats de cette étude soulignent le besoin de planifier et coordonner une stratégie nationale pour outiller et augmenter la capacité de nos systèmes à soutenir les parents qui présentent une déficience intellectuelle et leurs enfants. Une approche systémique globale est nécessaire. Outiller les organisations avec des connaissances, des habiletés et le mandat d'offrir des services de type « meilleure pratique » et donc validés par la recherche est crucial. Cependant, des stratégies aidant à réduire le phénomène de discrimination, réduire l'impact de la pauvreté sur ces familles, et favoriser les relations sociales des parents présentant une déficience intellectuelle sont essentielles à mettre en place. Ces stratégies pourront alors aider à améliorer le soutien offert aux enfants.

United Nations. (2006). Convention on the rights of persons with disabilities. <http://www.un.org/esa/socdev/enable/rights/convtexte.htm#convtext>

Wahlsten, D. (1997). Leilani Muir versus the Philosopher King: Eugenics on trial in Alberta. *Genetica*, 99, 185-198.

FORWARD

In the early part of the 20th century, persons with cognitive impairments were social pariahs. By some accounts, the ‘feeble-minded’ were ‘moral degenerates’ and the root cause of society’s ills. ‘Allowing’ them to reproduce was for many, at that time, unthinkable. Eugenic sterilization was legislated and vigorously implemented in many jurisdictions “for the protection and health of the State” (see *Buck v Bell*, 274 US 200). In Alberta, for instance, a total of 2832 children and adults were sterilized under the Sexual Sterilization Act, which was repealed in 1972 (Wahlston, 1997).

The discourse has changed radically over the past four decades. Today, the right of persons with disabilities, including persons with cognitive impairments, to “marry and found a family” is affirmed in the United Nations Convention on the Rights of Persons with Disabilities (2006). Furthermore, under Article 23, States Parties are required to take “effective action” to eliminate discrimination, and to render “appropriate assistance” to persons with disabilities, including parents with cognitive impairments, in the performance of their child-rearing responsibilities.

The challenge at hand is turning rights and rhetoric into reality for parents with cognitive impairments and, in turn, promoting a healthy start to life for their children. Our analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data, documented in this report, reveals that more than one in ten child maltreatment investigations, and more than one in four cases that result in child welfare court action and probable placement, involve children of parents with cognitive impairments.

The findings from this study underscore the need for a planned and coordinated national strategy to build systems capacity to support parents with cognitive impairments and their children. A ‘broad-spectrum’ approach is needed. Equipping services with the knowledge, skills and mandate they need to deliver evidence-based parent training is crucial. However strategies are also needed to tackle discrimination, alleviate family poverty, strengthen the social ties of parents with cognitive impairments and, in turn, improve the life chances of their children.

United Nations. (2006). Convention on the rights of persons with disabilities. <http://www.un.org/esa/socdev/enable/rights/convtexte.htm#convtext>

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CONTENTS

- Executive Summary** 2
- 1. Introduction & overview** 6
- 2. Parental cognitive impairment and child maltreatment in Canada** 20
- 3. Decision-making in child maltreatment investigations involving parents with cognitive impairments** 40

- Appendix 1**
 - Child welfare involvement of mothers with mental health issues* 55
 - Callie Westad, MSc (OT), David McConnell, PhD

- Appendix 2**
 - Parental cognitive impairment and child maltreatment: Preliminary analysis 66

- Appendix 3**
 - Decision-making in child maltreatment investigations: Preliminary analysis 69

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EXECUTIVE SUMMARY

The number of children referred for protective services, and of these, the proportion living with a parent or other caregiver with cognitive impairment, is increasing. *Building systems capacity to support parents with cognitive impairments and promote the health and wellbeing of their children is therefore essential to the goal of containing the escalating human and economic costs of child maltreatment and out-of-home care in Canada.*

Prevalence

More than one in ten child maltreatment investigations opened in Canada in 2003 involved children of parents with cognitive impairments. This equates to 22,000 child investigations. The prevalence of parental cognitive impairment was particularly high (>17%) in cases involving children less than one year of age. *It is recommended that child protection authorities across Canada review investigation processes and procedures, and staff professional development needs, to ensure ethically responsible practice and just and timely solutions for parents with cognitive impairments and their children.*

Child, parent and case characteristics

The most common sources of referral of children of parents with cognitive impairments for protective services were schools, police and health professionals. The most common reason for referral was neglect, particularly physical neglect and lack of supervision resulting in physical harm. Allegations of physical and sexual abuse were particularly rare in cases involving children of parents with cognitive impairments.

Parents with cognitive impairments and by extension, their children, are often multiply disadvantaged. Low educational attainment, unemployment, low income and social housing were all more frequently noted in cases involving children of parents with cognitive impairments. Economic disadvantage was frequently accompanied by psychosocial disadvantage. The majority of parents with cognitive impairments had been maltreated during their own upbringing, had few social supports, and suffered some mental health

issue/s. *Attention must be paid to supporting families of children with cognitive impairments and to enriching these children's lives with positive learning opportunities. Young people with cognitive impairments must further have the opportunity to learn about sexuality, healthy relationships and parenting. This is because many children with cognitive impairments will grow up and start a family of their own.*

One or more child functioning issues were noted in almost two-thirds of the cases involving children of parents with cognitive impairments in the CIS-2003 sample. Positive toxicology at birth was noted in 2.1%, and alcohol related birth defects were noted in 8.5% of these cases. More than one in four children of parents with cognitive impairments were thought to be developmentally delayed, and almost one-half had demonstrated problem behavior/s. The most common behavioral issues were ADD/ADHD and negative peer involvement. *Further research is required to understand the two-way interaction between parenting and child behaviors over time, and to address the existing gap in knowledge about how these parents and children can be supported as they negotiate middle childhood and the teen years.*

Outcomes

All else being equal (i.e., after controlling for many potentially confounding variables) child maltreatment investigation outcomes were found to be different for children of parents with cognitive impairments. Overall, child maltreatment reports were more frequently substantiated. Whether there was evidence of maltreatment or not, these cases were more frequently kept open for ongoing protective services. Court applications were also more common in cases involving children of parents with cognitive impairments. Parental cognitive impairment was noted in more than 25% of all cases that resulted in court application, and almost 40% of those involving children 0 to 5 years of age. *It is recommended that the Attorney General's Department in each province, as a matter of urgency, and in consultation with appropriate court personnel, review court processes and procedures to ensure appropriate accessibility for parents with cognitive impairments.*

The effect of parental cognitive impairment on child maltreatment investigation outcomes, including but

not limited to child welfare court application, is partially mediated by poverty (i.e., social and economic deprivation) and co-morbidity (i.e., childhood abuse and mental health issues). In other words, cognitive impairment increases risk of exposure to poverty and co-morbidity, and these in turn, increase the likelihood of more intrusive protective services interventions. *The challenges faced by many parents with cognitive impairments are deeply rooted in long-standing social inequalities. Action is needed to alleviate poverty, strengthen the social relationships and promote the psychological wellbeing of parents with cognitive impairments and, in turn, improve the life chances of their children.*

Perceived parent non-cooperation is the most potent predictor of whether or not child protection professionals take court action in cases involving children of parents with cognitive impairments. Yet child protection professionals are, for unknown reasons, rarely accessing mediation (i.e., alternative dispute resolution). *Further research is needed to understand why mediation services are not being utilized, and to determine whether and if so how mediation (including, for example, family-group conferencing) could be used to resolve conflicts, identify suitable alternatives to child placement, and if necessary, determine the most appropriate placement options.*

The most common referral made by child protection professionals in cases involving parents with cognitive impairments was for group-based and/or in-home parenting education and support. When such a referral was made, the odds of court action, at least in the short-term, were substantially reduced. The literature on parenting education for parents with cognitive impairments indicates that in-home, individualized, behaviorally-based skill training strategies are efficacious, with concomitant benefits for the children. *Further research is required to (1) identify services delivering supports to families headed by parents with cognitive impairments in Canada, (2) determine whether these existing parent training and support services are delivering best practice, and (3) to determine outcomes (e.g., whether the case is subsequently closed or a court application made) for those families headed by parents with cognitive impairments who are referred for such services.*

Characteristics of the child protection professional, including caseload and years spent working in child

protection, were strong predictors of investigation outcomes for children of parents with cognitive impairments. Child protection professionals with heavier caseloads were less likely to ‘substantiate’ maltreatment reports and more experienced child protection professionals were less likely to keep cases open for ongoing protective services. *Child protection professionals need information and training to appropriately and consistently assess risk and work effectively with parents with cognitive impairments to prevent maltreatment and promote child wellbeing.*

Determinants of parenting and child maltreatment

The extant literature shows, on the one hand, that no clear or systematic relationship exists between parental cognitive impairment and child maltreatment. Many parents with cognitive impairments succeed in raising their children well, especially if they receive appropriate supports and services. On the other hand, many parents with cognitive impairments will not be permitted to raise their children. Research finds that in any given sample of parents with cognitive impairments around 40% to 50% of their children will have been permanently placed. *The question is how can these research findings be reconciled?*

It is likely that parental cognitive impairment is just one of many intrinsic and extrinsic factors that interact to affect risk of poor child and family outcomes. Parental cognitive impairment may only become a salient risk factor for child maltreatment under certain risk conditions. The extant literature, and findings from the present study suggest that abuse or neglect in the parent’s own upbringing, social and economic deprivation, and mental health issues are conditions that heighten risk. Of course, these are unequivocal risk factors for child maltreatment in any given parent population. For many parents with cognitive impairments who may already be “operating on the edge of competence” (Booth & Booth, 1998, p. 22), such risk conditions may over-tax their adaptive resources.

It is important to draw a distinction between risk for child maltreatment and risk of protective services involvement. The two are related, but as research in several countries has shown, they are not synonymous. The fact remains that many parents with cognitive

impairments will be ‘investigated’ and many will have children removed from their care even when there is no evidence of maltreatment and even under relatively advantageous circumstances: personal, social and economic. Risk factors for protective services involvement include pervasive myths and pejorative stereotypes about parents with cognitive impairments leading to a generalized and prejudicial assumption of inherent and intractable incompetence.

Economic and cultural injustice

Conditions that heighten risk of child maltreatment and protective services involvement in families headed by parents with cognitive impairment can be traced back to *oppression*. Applying Iris Young’s (1990) definition, *persons with cognitive impairments are oppressed because they are inhibited from developing and exercising their capacities in socially valued roles, including but not limited to the role of parenting*. This oppression stems from two distinct but interrelated kinds of injustice: economic and cultural. Each is briefly discussed.

Persons with cognitive impairments experience economic injustice because they have limited access to income generating employment, and in many places they are denied an adequate material standard of living (Emerson, 2007). Access to employment may be limited for persons with cognitive impairments, for example, because their labor is surplus in the new ‘knowledge-based’ economies of high income countries, and employment opportunities for low-skilled workers in the manufacturing sector are decreasing. Employment is important not only because it (a) generates financial resources, but also because it (b) creates opportunities for positive social interactions and meaningful social relationships and (c) can promote positive psychological states, including for example, sense of identity, purpose and self-worth. The remedy for economic injustice is redistribution. Fraser (1997) differentiates between affirmative and transformative remedies. For persons with cognitive impairments, affirmative remedies might include the development and/or expansion of on-the-job training and placement initiatives, the provision of appropriate social housing in non-toxic communities, and adequate income support. Transformative remedies on the other hand might begin with a re-imagining (imagining, for instance,

that ‘participation’ is as important as ‘profit and loss’) and culminate in a re-structuring of ‘the economy’. *An inquiry into the workforce participation and economic wellbeing of persons with cognitive impairments and their families is urgently needed. Government (cross-ministry) and private sector participation is needed to determine an effective and sustainable solution.*

The other kind of injustice underlying conditions that increase risk for child maltreatment and protective services involvement is cultural or symbolic. Fraser (1997, p. 14) explains that this kind of injustice is “rooted in social patterns of representation, interpretation and communication”. For parents with cognitive impairments this cultural injustice has at least two faces. One expression of cultural injustice is ‘disrespect’. Historically, persons with cognitive impairments have been ‘disrespected’ as lesser or less than human, and even today, pejorative stereotypes are pervasive. Cognitive impairment/intellectual disability may be regarded as a pitiable condition, and persons with cognitive impairments thought of as eternal children. The stereotype “does not suggest much hope for successful parenting” (Hayman, 1990, p.1247): When people are thought to remain permanently immature it is unlikely that they will be thought capable of rearing a dependent child.

Another expression of the cultural injustice affecting parents with cognitive impairments, and by extension their children, is ‘non-recognition’. Non-recognition, firstly of the parenting potential of persons with cognitive impairments, and secondly, of their unique support and learning needs increases risk of child maltreatment and protective services involvement. There is a plethora of learning opportunities available to most parents in the community. Most parents can access information through books, periodicals and the internet, but such information is usually inaccessible to persons with cognitive impairments and/or low literacy. Most parents can turn to family members and friends for information and parenting advice, but many parents with cognitive impairments are socially isolated or do not have access to good role models. And if need be, most parents can access professional supports and services, but these are typically ill-equipped to accommodate the support needs of parents with cognitive impairments. In some places, non-recognition has resulted in discriminatory policies. For example, many parents with cognitive

impairments will succeed with intermittent support over the long term, but services may only be offered on a short-term basis. Another example is that human service agencies are often not funded to provide in-home parenting training, but parents with cognitive impairments learn parenting skills best when these are taught in the environment where they will be practiced.

The remedy for cultural injustice is 'recognition'. For parents with cognitive impairments, this means, on the one hand, recognizing just how 'ordinary' or non-unique they are. They, like all parents, do not raise their children in isolation; we all rely on advice and support from others. Yet, often their parenting competence is judged based on the assumption that they will parent totally on their own and can make no mistakes. Julie Strike (2002), a mother with cognitive impairment and a self-advocate, points out that parents with cognitive impairment (a) generally want what everybody else wants (e.g., opportunity to experience a loving relationship and to raise a family of their own), and like most other parents find that (b) raising a child is no 'walk in the park'; (c) 'they have stuff to learn' (i.e., no one is born with parenting know-how); and (d) sometimes falter along the way. On the other hand, addressing cultural injustice means recognizing that parents with cognitive impairments have some unique support and learning needs, and in turn, taking the necessary steps to ensure that human service agencies are accessible and able to accommodate these differences. As Julie Strike (2002) summed up, "parents with cognitive impairments (intellectual disabilities) are just the same, only different". Recognition may be achieved, in part, through policy and funding mechanisms, but the education of policy makers and practitioners is essential.

Chapter 1 provides an introduction and descriptive analysis of prevalence and outcomes and profile of parents with cognitive impairments and their children. The substantive findings of this study are presented in chapters two and three. In Chapter 2 we investigate whether parental cognitive impairment predicts child maltreatment investigation outcomes after controlling for many potentially confounding variables including but not limited to indicators of child maltreatment type, severity and chronicity, and indicators of poverty and co morbidity. In Chapter

3, variation in maltreatment investigation outcomes for children of parents with cognitive impairments is examined. Appendix 1, prepared by graduate student Ms Callie Westad, examines the child welfare involvement of mothers with mental health issues.

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Introduction & Overview

The number of children referred for protective services who have a parent with cognitive impairment is thought to be increasing (Booth, McConnell & Booth, 2006; English, 2000; Genders, 1998). There is however a dearth of information about these parents and children and their involvement in the child protection system. In this study we investigate prevalence and outcomes for children of parents (biological and other parents) with perceived cognitive impairments in cases opened for child maltreatment investigation in Canada. One aim is to identify factors that heighten risk and predict outcomes in these challenging cases. This information is sorely needed to inform prevention and early intervention policy and practice and in turn, improve the life chances of this growing population of children.

Who are parents with cognitive impairments?

Most parents with cognitive impairments fall into one of three groups (IASSID SIRG on Parents and Parenting, 2008). Firstly, there is a relatively small group of people who were previously institutionalized but now live in the community and have children. Second, there are parents who were never institutionalized but have received lifelong services and supports for people who have IQs < 70 and significant deficits in areas of adaptive functioning. Third, there are the hidden majority who were usually identified as 'borderline', slow at learning or developmentally delayed while at school, but on leaving school, they live in the community and receive little if any specialized assistance. The cognitive ability and adaptive skills of these parents may only be called into question if their children are referred for protective services. This 'borderline' group share many challenges and socioeconomic vulnerabilities in common with parents in the first two groups, and their vulnerability may be exacerbated by strict service eligibility criteria that exclude them from receiving supports, for example on the basis of having an IQ > 70 (Tymchuk, Lakin & Luckasson, 2001; Fujiura, 2003).

Parenting by people with cognitive impairment

Research about parents with cognitive impairments¹ dates back to the 1940's. The findings from this body of research are remarkably consistent. One consistent finding is that performance on a standardized intelligence test (i.e., IQ) is a poor indicator of parenting ability. In other words, while some parents with cognitive impairments struggle, many others succeed. Researchers have employed a variety of research methods to assess parenting adequacy. Early research employed review of welfare records and professional (third-party) observation (e.g. Ainsworth, Wagner & Strauss, 1945; Berry & Shapiro, 1975; Floor, Baxter, Rosen & Zisfein, 1975; Mattinson, 1970; Mickelson, 1947; Scally, 1973). Subsequent research used more systematic methods including standardized measures and behavior checklists (e.g. Feldman, Case, Towns & Betel, 1985; Feldman et al., 1986; Feldman & Walton-Allen, 1997/2002; Keltner, 1992; Keltner, 1994; McConnell, Llewellyn, Mayes, Russo & Honey, 2003; Tymchuk, Yakota & Rahbar, 1990; Unger & Howes, 1986). Whatever method is used, the findings show that few generalizations can be made about the abilities of parents with cognitive impairments (Budd & Greenspan, 1984; Taylor, 1995).

Further research is needed to identify risk and advantage factors for parents with cognitive impairments (Feldman, 2002). Notwithstanding, several factors are believed to offer some parents with cognitive impairment a general advantage. One factor is social support (e.g. Aunos, Goupil & Feldman, 2003; Feldman, Varghese, Ramsay & Rajaska, 2002; Tucker & Johnson, 1989; Tymchuk, 1992). Several studies have found significant associations between the social network characteristics and support satisfaction of parents with cognitive impairments and the quality of the home environment (e.g., parent-child interactions), child maltreatment, and loss of custody (Aunos et al., 2003; Aunos, Feldman & Goupil, 2008; Feldman et al., 2002; Tymchuk & Andron, 1990). Other factors that are believed to offer parents with cognitive impairment a general advantage include the absence of co-morbidity, including mental health issues and drug and/or alcohol abuse; a positive

¹Analogous terms used in the literature include but are not limited to mental handicap, mental retardation, developmental disability, intellectual disability, intellectual limitations, learning disability and learning difficulties.

upbringing free of abuse; a supportive and healthy partner; an intelligence quotient above 60; having fewer children; and, having children without special needs (Feldman, 2002; McGaw, Shaw & Beckley, 2007; Mickelson, 1947; Tymchuk, 1992).

Developmental outcomes for children of parents with cognitive impairments

Another consistent message from research is that developmental outcomes for children of parents with cognitive impairment are diverse. Pre 1980s, research discredited the eugenic fear that if people with cognitive impairment were allowed to 'breed' they would sully the human gene pool. Most children of parents with cognitive impairments have significantly higher IQs than their parents, and most have IQs above 70 and within one standard deviation of the mean (Brandon, 1957; Mickelson, 1947; Penrose, 1938; Reed & Reed, 1965; Scally, 1973). From the 1980s onwards, researchers have looked at a range of other child development outcomes. The studies are few in number and are almost exclusively based on small clinical samples. This sampling bias could inflate prevalence estimates of developmental problems in this population. Notwithstanding, the findings suggest that approximately 40% demonstrate clinically significant delay (*and more than half do not*) in one or more areas of child development (Feldman & Walton-Allen, 1997/2002; Keltner, Wise & Taylor, 1999; McConnell et al., 2003).

Research is needed to determine which children fare well and under what circumstances. However, a number of factors are believed to influence the developmental trajectories of children of parents with cognitive impairments (Aunos & Feldman, 2007; Feldman, 2004). These include proximal factors, such as genetic and epigenetic inheritance and parent-child interactions, and more distal factors such as poverty and social exclusion. Recent research suggests that many children of parents with cognitive impairments may be disadvantaged from the start. A prospective cohort study in Australia found that the odds of preeclampsia was 2.85 times higher for pregnant women with cognitive impairments, and the odds of low birth weight and admission to neonatal intensive care were, respectively, 3.09 and 2.51 times higher for their children (McConnell, Mayes & Llewellyn, 2008).

Child and parent-level intervention studies

A third consistent research finding is that the risk of poor outcomes for children of parents with cognitive impairments can be reduced with appropriate child-level and parent-level interventions (Feldman, 1994; Feldman, Garrick & Case, 1997; Wade, Llewellyn & Matthews, 2008). One of the best known child-level intervention studies is the Abecedarian project (Ramey & Ramey, 1992). In this study children were randomly assigned to one of two treatment conditions: a comprehensive educational day care intervention from birth through to age 5 years or a no-treatment control. The children were selected for the study using a high-risk index that included items such as low IQ in the mother and/or father, low income, and history of social service contacts. At the end of the first year there was no difference between the two groups. At 24, 26 and 48 months, a significant difference in general cognitive ability was observed, with an average treatment related difference of 11 IQ points and a standardized effect size of 1.75 (Martin, Ramey & Ramey, 1990). Children of parents with low IQs were found to have made the most gains (Ramey & Ramey, 1992). Follow-up of children at age 21 years found lasting intervention effects including an increase in reading and math achievement and increased participation in secondary and post-secondary education (Campbell, Pungello, Miller-Johnson, Burchinal & Ramey, 2001).

At the parent-level, controlled studies have demonstrated the efficacy of behavior-based parent training for parents with cognitive impairments. In a review of first generation parent training studies, Feldman (1994, p. 301) noted that "prior to 1983 there were no studies focusing on the training of parents with cognitive disabilities that provided sufficient outcome data to judge the effectiveness of the intervention". By 1993, there were 20 suitable studies. These demonstrated positive gains across a range of parenting skills. Since 1994, we are aware of a further seven published trials of parent training interventions. This second generation research has confirmed the utility and efficacy of behavior-based interventions, and extended their application to self-instruction (Feldman, 2004; Wade et al., 2008). In total, 27 parent training studies have demonstrated efficacy in areas such as basic childcare (e.g. Feldman et al., 1992); home safety and emergencies (e.g.

Tymchuk, 1990; Tymchuk, Hamada, Andron & Anderson, 1990a/b; Tymchuk, Andron & Hagelestein, 1992); recognizing and responding in a timely and appropriate way to symptoms of childhood illness (e.g. Llewellyn, McConnell & Ferronato, 2003); parent-child interaction and play (e.g. Feldman et al., 1986; Feldman, Case, Rincover, Towns & Betel, 1989; Feldman, Sparks & Case, 1993/2004; Keltner, Finn & Shearer, 1995); decision-making (e.g. Tymchuk, Andron & Rahbar, 1988); and, responding to common problematic parenting and social situations (e.g. Fantuzzo, Wray, Hall, Goins & Azar, 1986).

Over the last decade, parent-level interventions have been extended to tackle other risk conditions including the social isolation of parents and, by proxy, isolation for their children. In a British study, Booth and Booth (2003) prospectively evaluated the Supported Learning Program (SLP), a group-based intervention designed to enhance the support networks of mothers with 'learning difficulties' and foster their self-advocacy skills. Qualitative outcomes for the 31 mothers included greater personal and practical skills, greater sense of control over their lives, a better self-image and more confidence in their own abilities, greater assertiveness, more awareness of their own needs and how to get help, and a larger support network. More recently, McConnell et al. (2008) adapted the SLP and piloted the program in Australia with 32 mothers with cognitive impairments across six sites. The measured effect-size on perceived social support and psychological wellbeing was found to be substantially greater than established benchmarks for parent-training and family support programs in general (Barlow, Kirkpatrick, Wood, Ball & Stewart-Brown, 2007; Layzer, Goodson, Bernstein & Price, 2001). The SLP is now ready for randomized controlled trial.

Over-representation of children of parents with cognitive impairments in out-of-home care

Despite research demonstrating the potential benefits of prevention and early intervention services (i.e. service alternatives to child removal) many parents with cognitive impairments will not be permitted to raise their children. In the United States, analysis of the 1994/5 National Health Interview Survey-Disability Supplement data determined that 49% of parents with cognitive impairments (intellectual

or developmental disabilities) were not living with their children (Larson, Lakin, Anderson & Kwak, 2001). In the UK, the first national survey of adults with cognitive impairments (learning difficulties) found that 48% of the parents interviewed did not have custody of their children (Emerson, Malam, Davies & Spencer, 2005). Studies in other countries, including Denmark, Sweden, Norway, Germany and Belgium, Australia and New Zealand report figures ranging from 30% to 45% of children permanently placed (Bowden, 1994; Faureholm, 1996; Gillberg & Geijer-Karlsson, 1983; Mirfin-Veitch, Bray, Williams, Clarkson & Belton, 1999; Mørch, Jens & Andersgard, 1997; Pixa-Kettner, 1998; Van Hove & en Wellens, 1995).

Court record audits have confirmed that based on their population prevalence (estimates range from < 1% to 3%), children of parents with cognitive impairments are significantly over-represented in child welfare court proceedings. In the USA, Taylor et al. (1991) found that in approximately 15% of 206 consecutive cases before the Boston Juvenile Court either one or both parents were identified as 'intellectually impaired' (IQ < 79). In Sydney, Australia, Llewellyn, McConnell and Ferronato (2003) reviewed 285 consecutive child welfare court cases and found that 9% involved parents with cognitive impairment (intellectual disability or borderline intellectual functioning). And in the UK, Booth, Booth and McConnell (2004) found that parental cognitive impairment (learning difficulties) was documented in 22% of 437 consecutive child welfare court cases.

Differential outcomes for children of parents with cognitive impairments

The extant evidence suggests that parents with cognitive impairments and their children are not only over-represented, but are also subject to differential treatment in the child protection process. In the UK, Cleaver & Nicholson (2007) audited social work files in a sample of local authorities and found that cases involving parents with cognitive impairments were more likely to (a) have an initial or core assessment carried out, (b) be open after 2 years, and (c) have the child(ren) placed on the child protection register and (d) placed out-of-home. Court record audits found that children of parents with cognitive impairment were more likely to be placed out-of-home than

children of non-diagnosed parents (Booth et al., 2004; Llewellyn et al., 2003; Taylor et al., 1991). For example, Booth et al. (2005) found that parental cognitive impairment (learning difficulties) increased the odds of permanent out-of-home placement by a factor of 3.8.

Legal scholars and social researchers have long expressed concern about the differential treatment of parents with cognitive impairments and their children. In Canada, Czukar (1983) observed that parents with cognitive impairments (mental retardation) were especially vulnerable to losing custody of their children because of prejudicial attitudes, unfounded assumptions about inadequate parenting, and inadequate support services. Legal scholars in the USA have consistently reached the same conclusion (Hayman, 1990; Gillhool & Gran, 1985; Haavik & Meninger, 1981; Hertz, 1979; Levesque, 1996; Watkins, 1995). Watkins (1995, p.1438) argued that “(p)arents labeled as developmentally disabled face multiple layers of discrimination throughout...”. Levesque (1996, p. 15) observed that “(t)he rights of mentally disabled parents are, in practice, being terminated when states present evidence which, if used against nondisabled parents, would not be enough to sever the parental relationship”. And in the UK, Booth & Booth (2003, p.206) cautioned that “[s]ystems abuse, more than child abuse, is a crucial precipitating factor behind the high rates of child removal”.

Summary²

In summary, an increasing number of children of parents with cognitive impairments are being referred for protective services. Exactly how many is not known. Once referred, it appears that they are more likely than other children to be removed and permanently placed. Such outcomes cannot be explained by parental cognitive impairment *per se*. A small number of studies have investigated factors associated with child maltreatment and out-of-home of placement, and more broadly, with parenting success

²For a recent and authoritative review of the literature see: IASSID Special Interest Research Group on Parents and Parenting with Intellectual Disabilities (2008). Parents labelled with intellectual disability: position of the IASSID SIRG on Parents and Parenting with Intellectual Disabilities. *Journal of Applied Research in Intellectual Disability*, 21, 296-307.

in samples of parents with cognitive impairments. These studies suggest that the relationship between parental cognitive impairment, child maltreatment and protective services intervention is confounded by numerous contextual factors including poverty (social and economic), co-morbidity (e.g., mental health issues), systemic discrimination, prejudicial beliefs and non-recognition of the unique support and learning needs of parents with cognitive impairments. Further research is needed to identify factors that heighten risk, and opportunities for prevention and early intervention.

THE STUDY

We investigated prevalence and outcomes for children of parents (biological and other) with perceived cognitive impairments involved in child maltreatment investigations in Canada. Our method was analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data. Findings from this national study have been extensively reported elsewhere (Black, Trocme, Fallon & MacLaurin, 2008; Trocme, et al., 2005). However, this rich database is yet to be mined for information about parental cognitive impairment, child maltreatment and investigation outcomes. *Our research questions were:*

1. What is the prevalence of parental cognitive impairment in maltreatment investigations?
2. Is there a relationship between parental cognitive impairment and maltreatment type?
3. *All else being equal*, does parental cognitive impairment predict investigation outcomes?
4. What factors explain the observed variation in child maltreatment investigation outcomes for children of parents with cognitive impairments?

Method

The CIS-2003 core-data is derived from a multi-stage, stratified cluster sample of child maltreatment investigations across Canada, excluding Quebec. The primary sampling unit was a study-defined child welfare service area (CWSA), which is a distinct geographic area served by one or more child welfare authorities. From a total of 382 CWSAs, 55 were

randomly selected, ensuring adequate representation of each province and region. Within each of the selected CSWAs, one child welfare agency was then selected at random. Aboriginal agencies were sampled separately. Child maltreatment investigations opened between October 1, 2003 and December 31, 2003 were selected for inclusion in the study. At each agency site, cases were reviewed and those that did not meet the CIS-2003 definitions of investigated maltreatment (see Trocme et al., 2005), and those involving children who were older than fifteen years were excluded. The final sample included a total of 11,562 child investigations.

The CIS-2003 survey instruments were designed to capture standardized information from the investigating child protection professionals. Copies of the survey instruments are included in Trocme et al. (2005). These were typically completed by the investigating child protection professional around thirty days after the case was opened (Black, Trocme, Fallon & MacLaurin, 2008). The data therefore reflects the investigators level of knowledge, however partial, at that time. Another limitation is that the accuracy of the data could not be verified. However all data collection forms were verified twice for completeness and consistency in responses, once by a member of the research team on-site, and once when the data was entered into the database.

Dependent and independent variables

Four dichotomous outcomes were examined in this study. The first outcome variable is the substantiation of child maltreatment. That is, where the investigator concluded on the balance of evidence that maltreatment of any type had occurred. The second outcome is case disposition. That is, the decision to either close the case or keep it open for ongoing service/supervision. The third outcome is whether or not an application to the child welfare court was at least considered; the fourth outcome is whether an application to the child welfare court was actually made.

The independent variables (predictors) were also dichotomous with the exception of child age, worker caseload and worker years spent in child protection. Perceived parental cognitive impairment was coded '0' for not present and '1' when the investigating worker was prepared to include this information in a written

assessment of the household. Other dichotomous independent variables included characteristics of the child (e.g., aboriginal status), caregiver (e.g., comorbidity) and household (e.g., low income); and, case characteristics including maltreatment type, severity/sequelae and chronicity (e.g., previous substantiated reports). The list of independent variables is presented in Table 1.

Data analysis

The analysis was conducted using SPSS v. 18. Rescaled sample weights were used in all of the analyses. By using the rescaled sample weights, the influence of the final CIS weight (annualization by regionalization) is maintained while reducing the actual number of observations to the original sample size. This rescaled weight is used to avoid inflating the significance of statistics as a result of the high number of cases (Black et al., 2008).

For most CIS-2003 variables the data is either complete or there are few missing data. However there is substantial (> 5%) missing data for indicators of socioeconomic status: caregiver educational attainment, household employment and income. Rather than excluding cases with missing data listwise from the analysis, multiple imputations were computed, using a logistic regression model (i.e. pattern matching based on household structure, housing status, educational attainment, household employment and income), producing five alternative and complete datasets. Where necessary we report the pooled statistics.

Our primary analytic tool for the study was binary logistic regression analysis. Using this procedure we examined the association between parental cognitive impairment and child maltreatment investigation outcomes while controlling for other potentially confounding variables (See Chapter 2), and we investigated predictors of outcomes for children of parents with cognitive impairments (See Chapter 3). The statistical procedures are described in full in chapters 2 and 3. In this introductory chapter we briefly profile child maltreatment investigations involving children of parents with cognitive impairments, including child, caregiver, household, child maltreatment characteristics and outcomes.

Results

Prevalence of parental cognitive impairment

The prevalence of perceived parental cognitive impairment, maternal or paternal, in cases opened for child maltreatment investigation in Canada (excluding Quebec) in 2003 was 10.1%. Most of these cases (72.4%) involved a biological mother with cognitive impairment. The prevalence of perceived parental cognitive impairment was higher in younger children. Parental cognitive impairment was noted in 17.34% of cases involving children less than one year of age. Figure 1 presents prevalence of parental cognitive impairment by child age group.

Child, caregiver and household characteristics

Parents with cognitive impairments and by extension, their children, are often multiply disadvantaged (See Table 1). Low educational attainment, unemployment, low income and public housing are all more frequently noted in cases involving children of parents with cognitive impairments. Notably, 79% of households headed by a parent with cognitive impairment had incomes of less than \$25,000 pa. This economic disadvantage was frequently accompanied by psychosocial disadvantage. The majority of parents with cognitive impairments had been maltreated

Table 1. Child, case, caregiver and household characteristics

	% All cases (n=11,562)	% CCI cases (n=1170)
Child		
child age [mean (standard deviation)]	7.65 (4.49)	6.94 (4.61)
child sex = male	52.0%	54.0%*
aboriginal child	13.4%	26.8%
primary language is <u>not</u> English/French	9.5%	4.4%
child functioning issue/s (physical, emotional, cognitive &/or behavioral)	43.9%	63.8%
Case		
prior substantiated maltreatment report/s	23.3%	37.9%
signs: mental or emotional harm	13.2%	21.8%
signs: physical harm (e.g. bruises, failure to thrive)	7.4%	9.5%
alleged neglect	40.4%	56.0%
alleged emotional maltreatment	24.2%	26.5%
alleged physical abuse	32.2%	22.5%
alleged sexual abuse	6.8%	4.3%
alleged domestic violence	21.7%	23.1%
Parent & household		
parent (A &/or B) non-cooperation with investigation	11.9%	23.1%
parent (A &/or B) mental health issues	26.1%	65.6%
parent (A &/or B) maltreated as a child	24.3%	59.6%
parent (A &/or B) few social supports	36.7%	68.2%
parent (A &/or B) drug and/or alcohol abuse	33.9%	51.5%
parent (A & B) did not complete secondary	37.6%	68.6%
no household employment	25.9%	49.6%
household income < \$25,000	51.0%	79.1%
public housing or shelter	17.1%	27.3%
sole-parent (non-cohabiting)	42.6%	47.0%

* interpretation: 54% of the children of parents with cognitive impairments were male.

during their own upbringing; had few social supports; and, were suffering mental health issues.

One or more child functioning issues were noted in almost two-thirds of the cases involving children of parents with cognitive impairments. Positive toxicology at birth was noted in 25 cases (2.1%) and alcohol related birth defects were noted in 99 cases (8.5%). A total of 304 (26%) children of parents with cognitive impairments were thought to be developmentally delayed, and 577 (49.3%) had behavior problems. Of these 577 cases, the most common behavioral issues were ADD/ADHD, which was noted in 209 (36.2% of 577) cases; negative peer involvement, which was noted in 193 (33.4% of 577) cases; and, violence towards others, which was noted in 157 (27.2% of 577) cases. Figures 2-3

present the percentage of cases, with and without parental cognitive impairment, in which various child functioning issues were noted.

Child protection concerns

‘Neglect’ was the most common child protection concern in child maltreatment investigations involving children of parents with cognitive impairments. Child neglect was the primary maltreatment concern in 48% of these cases, and a secondary or tertiary child maltreatment concern in a further 8%. The most frequently reported categories of neglect in cases involving children of parents with cognitive impairments were ‘physical neglect’ (21.3% of neglect cases) and ‘failure to supervise resulting in physical harm’ (15.1% of neglect cases).

Figure 1. Prevalence of parental cognitive impairment across child age groups

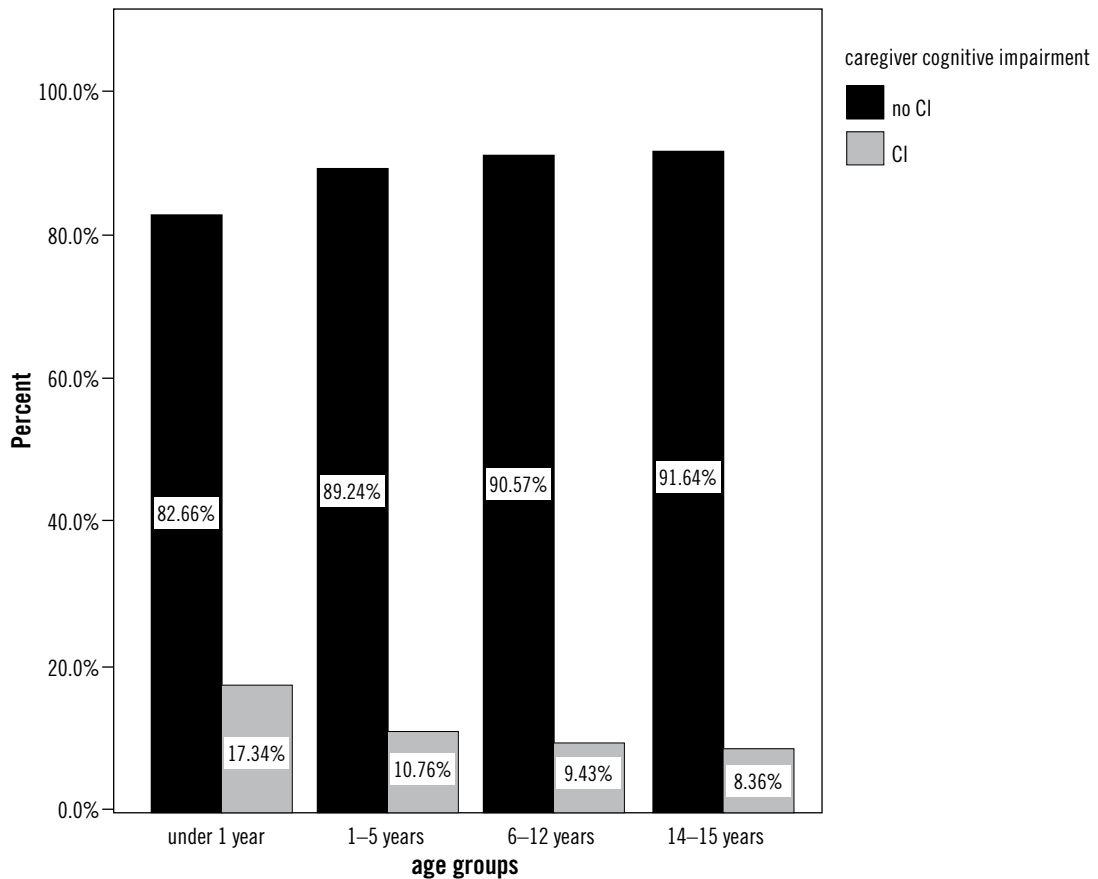


Figure 2. Child functioning issues

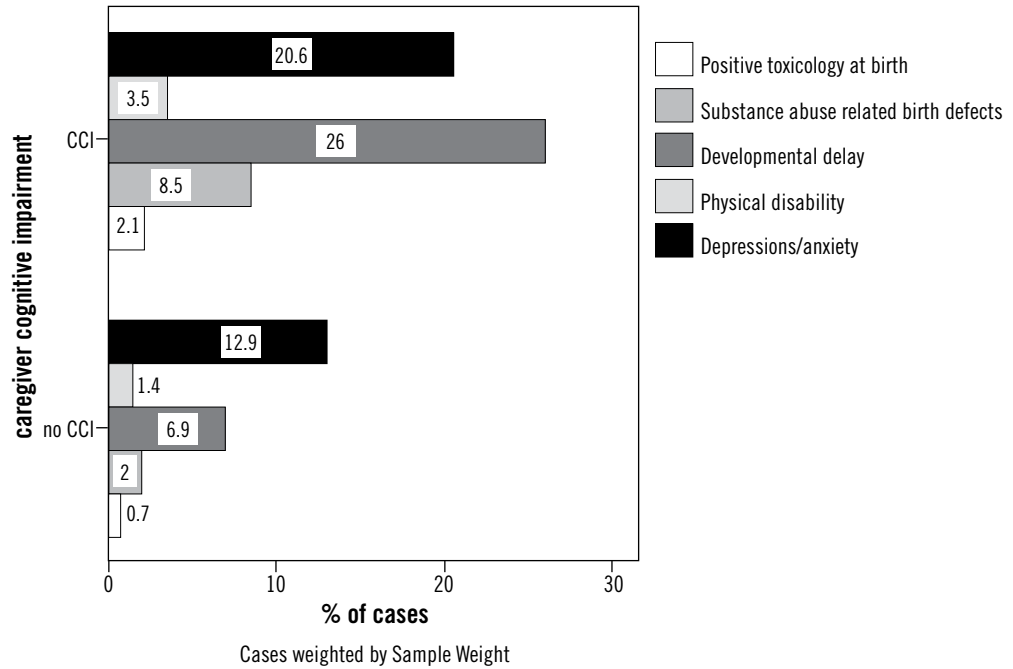


Figure 3. Child behaviour problems

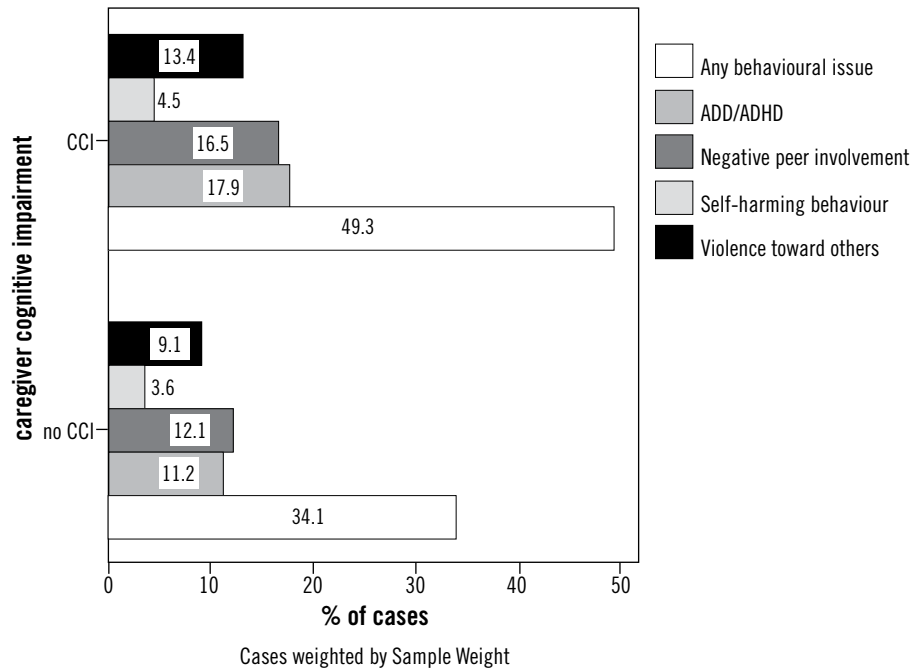


Figure 4 shows that the rates of physical and sexual abuse were lower in cases involving children of parents with cognitive impairments. Further, when allegations of physical or sexual abuse were made, these were rarely substantiated. Figure 5

shows the levels of substantiation for each primary maltreatment type in cases involving children of parents with cognitive impairments. The data show that ‘exposure to domestic violence’ and ‘neglect’ were

Figure 4. Primary maltreatment type

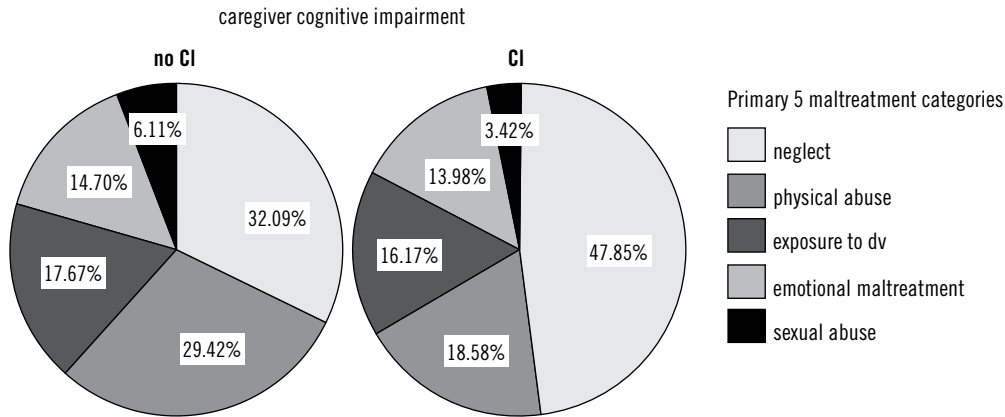
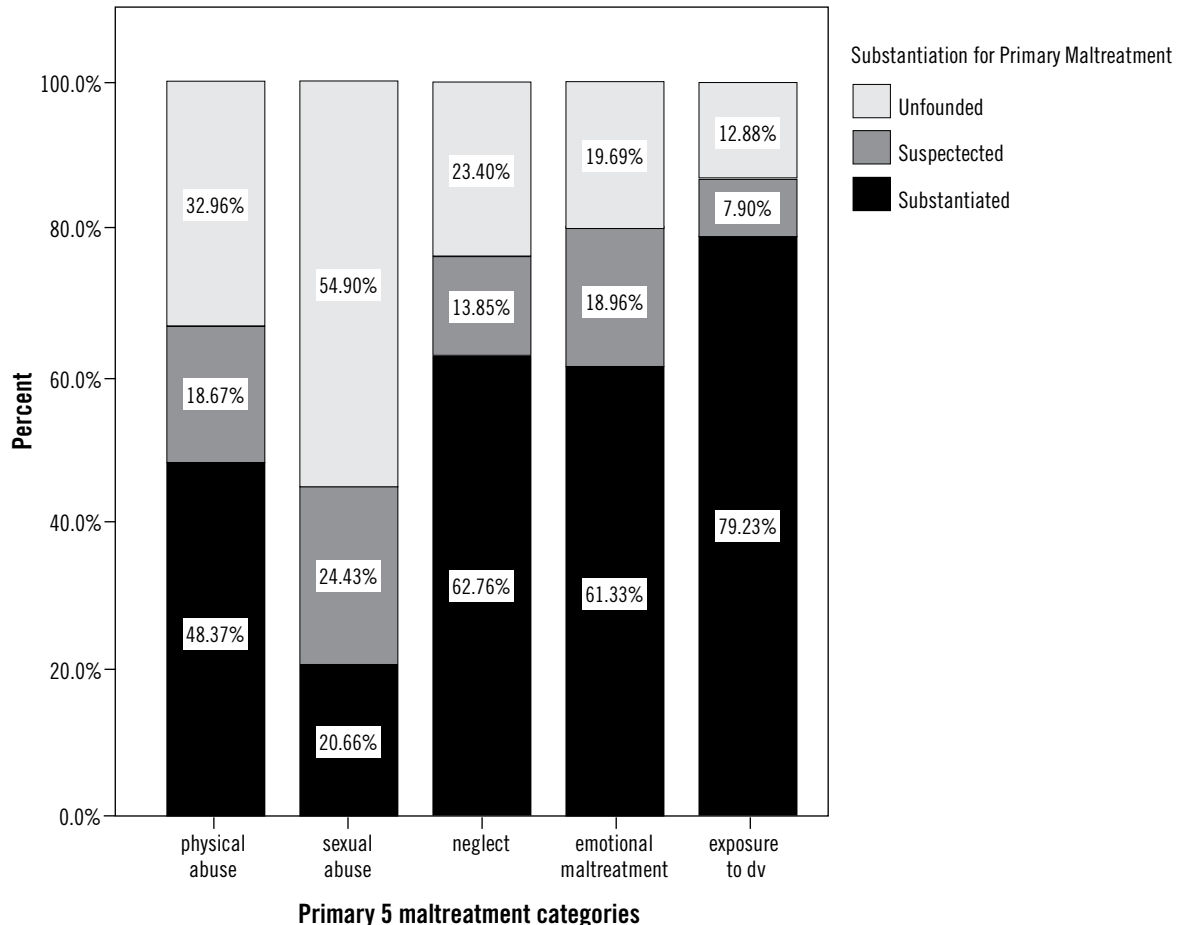


Figure 5. Levels of substantiation for each maltreatment type in cases featuring CCI



the most frequently substantiated categories of child maltreatment.

Investigation outcomes

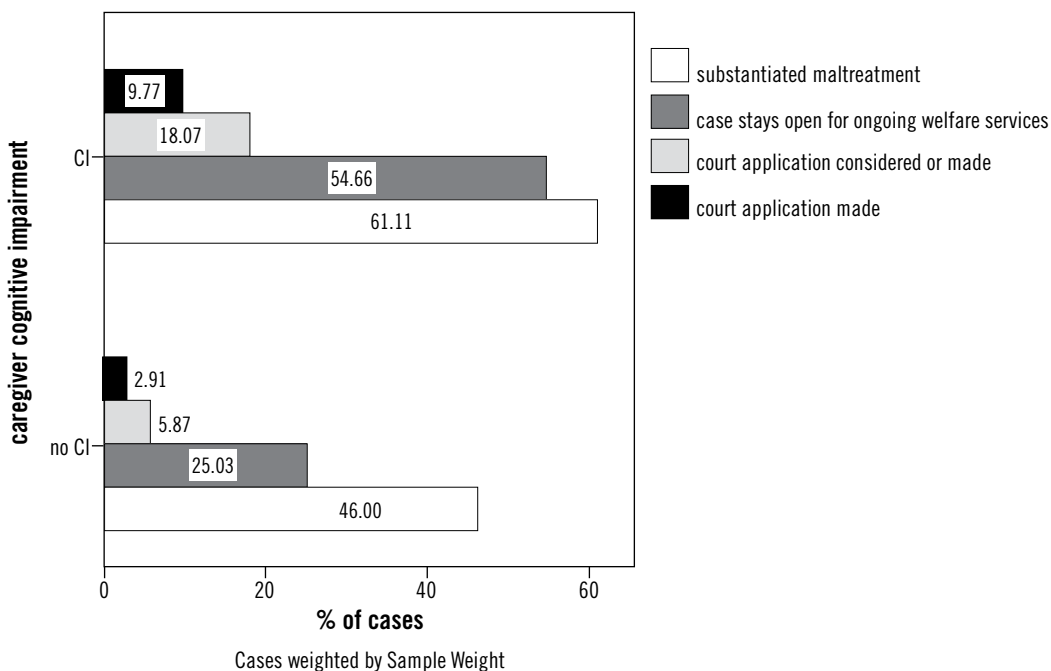
Child maltreatment of any kind was substantiated in 61% of cases involving children of parents with cognitive impairments, and 46% of all other cases. Whether child maltreatment was substantiated or not, 55% of cases involving children of parents with cognitive impairments were kept open for ongoing protective services compared with 25% of all other cases. Application to the child welfare court was also more frequently considered (18% vs 6%), and made (10% vs 3%) when parental cognitive impairment was noted. A total of 417 cases (3.6%) had, at the time of data collection, resulted in application to the child welfare court. Of these, 27.3% involved children of parents with cognitive impairment. However, the prevalence of parental cognitive impairment was higher in applications involving younger children. In the 0-5 years age bracket, 39.5% of court applications involved children of parents with cognitive impairment.

Discussion

Child maltreatment investigations involving children of parents with cognitive impairments are diverse with respect to child, caregiver, household, child maltreatment characteristics and outcomes. The 'most typical' case involves a mother with cognitive impairment and mental health issues, who was maltreated during her own upbringing, has few social supports and limited financial resources, and is raising a child with one or more functioning issues. Child neglect, and more specifically, physical neglect and/or the 'failure to supervise' resulting in physical harm, are the most common child protection concerns. Evidence of physical, mental or emotional harm is rarely reported in these or any other cases. Maltreatment is more frequently substantiated in these cases, but whether maltreatment is substantiated or not, these cases are more likely to be kept open and more likely to result in child welfare court action.

In Chapter 2 we investigate whether parental cognitive impairment predicts child maltreatment investigation outcomes after controlling for many potentially confounding variables including, but not limited to, indicators of child maltreatment type, severity and chronicity, and indicators of poverty and co morbidity.

Figure 6. Child maltreatment investigation outcomes



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Parental Cognitive Impairment and Child Maltreatment in Canada

Objectives: The aim of this study was to determine the prevalence of parental cognitive impairment in cases opened for child maltreatment investigation in Canada, and to examine the relationship between parental cognitive impairment and maltreatment investigation outcomes including substantiation, case disposition and court application.

Methods: The method was secondary analysis of the Canadian Incidence Study of Child Abuse and Neglect (CIS-2003) core-data, which is derived from a multi-stage stratified cluster sample of 11562 child maltreatment investigations.

Results: Parental cognitive impairment is noted in over 10% of cases that are opened for child maltreatment investigation in Canada. Neglect is the most common cause of concern. With child and case characteristics held constant, parental cognitive impairment is a strong predictor of investigation outcomes. The relationship between parental cognitive impairment and investigation outcomes is partially mediated by poverty and co-morbidity.

Conclusions: The number of children referred for protective services, *and of these*, the proportion living with a parent with cognitive impairment, appears to be increasing. Building systems capacity to support parents with cognitive impairments and promote child wellbeing is therefore essential to containing the human and economic costs of child maltreatment and out-of-home care.

Practice Implications: A broad-spectrum approach is needed to support parents with cognitive impairments and their children. Equipping services with the knowledge, skills and mandate they need to deliver evidence-based parent training is vital. However, strategies are also needed to tackle discrimination, alleviate family poverty, strengthen

the social ties of parents with cognitive impairments and in turn, improve the life chances of their children.

Parental Cognitive Impairment and Child Maltreatment in Canada

The number of children who are living with a parent with cognitive impairment and are referred for protective services is thought to be increasing (English, 2000; Genders, 1998; Guinea, 2001; Stevenson, 1998). However there is a scarcity of data on prevalence and outcomes for these children. We conducted a secondary analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS 2003) core-data to determine the prevalence of parental cognitive impairment in cases opened for investigation, and to profile child protection concerns and investigation outcomes. Based on research from other countries, we hypothesised differential outcomes for children of parents with cognitive impairment, including a higher rate of court application.

Background

The relationship between parental cognitive impairment, child maltreatment and protective services' intervention is not straightforward.³ Many parents with cognitive impairments do not maltreat their children (IASSID Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008). Moreover, considerable evidence demonstrates that with appropriate support and training, parents with cognitive impairments can learn and maintain parenting skills, with concomitant benefits to the children (Feldman, 1994; Wade, Llewellyn & Matthews, 2008). Nonetheless, many parents with cognitive impairments will not be permitted to raise their children. Research from several countries finds that 40% to 50% of their children are permanently placed (Gillberg & Geijer-Karlsson, 1983; Larson, Lakin, Anderson & Kwak, 2001; Mørch, Jens & Andersgard, 1997; Pixa-Kettner, 1998; Van Hove & en Wellens, 1995).

³In this paper cognitive impairment refers to mental retardation (now called intellectual disabilities) that requires IQ < 70 and significant deficits in adaptive functioning (American Psychiatric Association, 2000) as well as borderline intellectual functioning (IQ between 70 and 85; some adaptive behaviour deficits).

Risk factors

Parental cognitive impairment is but one of numerous intrinsic and extrinsic factors that interact to affect risk of adverse child and family outcomes (Aunos & Feldman, 2007; Feldman, 2002). Poverty likely mediates and/or moderates the relationship between parental cognitive impairment and child maltreatment. As referred to here, poverty includes not only economic hardship, but also social deprivation (a dearth of supportive and meaningful social relationships). Poverty is an unequivocal risk factor for child maltreatment (Connell, Bergeron, Katz, Saunders & Tebes, 2007; Stith et al., 2009; Wolock, Sherman, Feldman & Metzger, 2001) and people with cognitive impairments are more likely to be exposed to it (Emerson, 2007). Two North American studies found negative relationships between child removal, family income, social support, community involvement and satisfaction with services in parents with cognitive impairments (Aunos, Goupil & Feldman, 2004; Tymchuk & Andron, 1990).

Parental history of childhood abuse and mental health issues are also associated with child maltreatment (Stith et al., 2009). Parents with cognitive impairment are more likely to report maltreatment in their own upbringing, and experience increased stress, and poorer physical and mental health compared to population norms (Aunos, Feldman & Goupil, 2008; Gillberg & Geijer-Karlsson, 1983; Llewellyn, McConnell & Mayes, 2003; Feldman, Léger, & Walton-Allen 1997; Feldman, Varghese, Ramsay, & Rajska, 2002). Childhood abuse and mental health issues are particularly prevalent in child welfare court samples of parents with cognitive impairments (Booth, Booth & McConnell, 2005; Glaun & Brown, 1999; Llewellyn, McConnell & Ferronato, 2003; Taylor et al., 1991). Glaun and Brown (1999), for example, found that 75% of parents with cognitive impairments in their court sample had childhoods marked by deprivation and/or abuse, and two-thirds had physical or mental health issues. These multiple risk factors might therefore explain, at least in part, the over-representation of children of parents with cognitive impairments in out-of-home care.

The relationship between parental cognitive impairment and protective services involvement is confounded by a third factor: societal stigma and discrimination (Booth, 2000; Feldman, 2002;

McConnell & Llewellyn, 2002). Ongoing and pervasive myths, misconceptions and pejorative stereotypes about parents with cognitive impairment may lead to assumptions of inherent and intractable parental incompetence that justifies child removal even in the absence of evidence of child maltreatment (Czucar, 1983; Hayman, 1990; Gillhool & Gran, 1985; Haavik & Meninger, 1981; Hertz, 1979; Levesque, 1996; McConnell, Llewellyn & Ferronato, 2002; Tymchuk & Feldman, 1991; Watkins, 1995). In the USA, Watkins (1995) argued that “(p)arents labelled as developmentally disabled face multiple layers of discrimination throughout...”, p.1438), and Levesque (1996) observed that “(t)he rights of mentally disabled parents are, in practice, being terminated when states present evidence which, if used against nondisabled parents, would not be enough to sever the parental relationship” (p. 15).

Child maltreatment investigations

Poverty and discrimination emerged as central themes in an Australian study of decision-making in child maltreatment investigations and court proceedings. McConnell, Llewellyn and Ferronato (2002, 2006) interviewed child protection professionals, lawyers and children’s court magistrates in the state of New South Wales and concluded that poverty and parental cognitive impairment were often treated as *prima facie* evidence of parental deficiency. Further, McConnell et al. (2002, 2006) found that child protection professionals and court magistrates tended to have little confidence about improving the home situation of children of parents with cognitive impairments and were, in turn, more likely to regard out-of-home placement as the only viable option to protect the child from harm. Factors undermining the confidence of these decision-makers included false and prejudicial assumptions about the learning potential of parents with cognitive impairments (e.g., “*the parent won’t learn because they can’t*”); perceived parent non-cooperation or resistance to protective services; and, a lack of suitable services that are equipped, in terms of knowledge, skills and mandate to support these families.

Several studies have produced evidence of differential treatment and more intrusive outcomes for children of parents with cognitive impairments referred for protective services. In the UK, Cleaver and Nicholson (2007) compared 76 social work files involving

children of parents with cognitive limitations to 152 matched cases of children of parents without cognitive impairments. Cases involving parents with cognitive impairments were more likely to result in: (a) an initial or core assessment, (b) being open after 2 years, (c) the child(ren) being put on the child protection register and (d) the children being placed out-of-home.

Court record audits have also found that children of parents with cognitive impairment are more likely to be placed out-of-home than children of non-labelled parents (Booth, Booth & McConnell, 2005; Llewellyn, McConnell & Ferronato, 2003; Taylor et al., 1991). In the USA, Taylor et al. (1991) found that parents with cognitive impairments (IQ < 79), who featured in 15% of 206 child welfare court cases reviewed, had less prior court involvement and greater acceptance of court-ordered services, but still had their children permanently removed more often than parents without cognitive impairments. In Australia, Llewellyn, McConnell and Ferronato (2003) reviewed 275 child welfare court cases, of which 9% involved parents with cognitive impairments, and found a strong association between parental cognitive impairment and placement of the child out-of-home with non-kin. Booth et al. (2005) reviewed 437 consecutive child welfare court cases in the UK and found that parental cognitive impairment (learning difficulties), present in 22% of cases, increased the odds of permanent out-of-home placement by a factor of 3.8. The extent to which these results may be attributed to factors other than parental cognitive limitations (e.g., poverty, and co-morbidity and discrimination) has not been analytically examined.

Purpose of study and research questions

In this study we examined outcomes for children of parents with cognitive impairments (including but not limited to biological parents) in child maltreatment cases opened for investigation. Our general hypothesis was that outcomes would be different for children of parents with cognitive impairments compared with all other cases. Our method was secondary analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data. Findings from this national study have been extensively reported elsewhere (e.g. Black, Trocme, Fallon & MacLaurin, 2008; Trocme et al., 2005). However this rich database is yet to be mined

for information about parental cognitive impairment, child maltreatment and investigation outcomes. This information is sorely needed to properly inform prevention and early intervention policy and practice and in turn, improve the life chances of this growing population of potentially vulnerable children. Our specific hypotheses were:

Parental cognitive impairment predicts investigation outcomes with the effect of child and case characteristics (e.g., maltreatment type, severity and chronicity) held constant.

The effect of parental cognitive impairment on investigation outcomes is mediated by poverty (i.e., economic and social deprivation) and co-morbidity (i.e., childhood abuse and mental health issues).

Method

CIS-2003

The CIS-2003 core-data is derived from a multi-stage stratified cluster sample of child maltreatment investigations from each Canadian province and territory, except Quebec. The primary sampling unit was a study-defined "child welfare service area" (CWSA), which is a distinct geographic area served by one or more child welfare agencies. From a total of 382 CWSAs, 55 were randomly selected, ensuring adequate representation of each province and region. Within each of the selected CSWAs, one child welfare agency was then selected at random. Aboriginal agencies were sampled separately. Child maltreatment investigations opened between October 1, 2003 and December 31, 2003 were selected for inclusion in the study. At each agency site, cases were reviewed and those that did not meet the CIS-2003 definitions of investigated maltreatment (see Trocme et al., 2005), and those involving children who were older than 15 years were excluded. The final sample included a total of 11,562 child investigations.

The CIS-2003 survey instruments were designed to capture standardized information from the investigating child protection professionals. Copies of the survey instruments are found in Trocme et al. (2005). The survey was typically completed about 30 days after the case was opened (Black et al., 2008). The responses therefore reflect the child welfare investigators' level of knowledge at that time, and no independent interrater agreement checks

Table 1. child, parent and household characteristics

	% All cases (n=11,562)	% CCIⁱ (n=1170)	% No CCI (n=10,391)	Unadjusted odds ratio for CCI
Child & case				
child age [mean (standard deviation)]	7.65 (4.49)	6.94 (4.61)	7.73 (4.46)	
child sex = male	52.0%	54%	51.8%	ns
aboriginal child	13.4%	26.8%	11.9%	2.717**
primary language is not English/French	9.5%	4.4%	10.1%	0.405**
child functioning issue/s (physical, emotional, cognitive or behavioural)	43.9%	63.8%	41.7%	2.472**
prior substantiated maltreatment report/s	23.3%	37.9%	21.6%	2.219**
Signs: mental or emotional harm	13.2%	21.8%	12.2%	1.998**
Signs: physical harm (e.g. bruises, failure to thrive)	7.4%	9.5%	7.2%	1.351*
parent non-cooperation with investigation	11.9%	23.1%	10.6%	2.519**
Poverty & parent co-morbidity				
parent (A &/or B) mental health issues	26.1%	65.6%	21.7%	6.887**
parent (A &/or B) maltreated as a child	24.3%	59.6%	20.3%	5.774**
parent (A &/or B) few social supports	36.7%	68.2%	33.2%	4.326**
parent (A &/or B) drug and/or alcohol abuse	33.9%	51.5%	31.9%	2.274**
parent (A & B) did not complete secondary	37.6%	68.6%	34.1%	3.809**ii
no household employment	25.9%	49.6%	23.2%	3.233**ii
household income < \$25,000	51.0%	79.1%	47.9%	3.927**ii
public housing or shelter	17.1%	27.3%	16.0%	1.937**
sole-parent (non-cohabiting)	42.6%	47.0%	42.1%	1.218*
Reported maltreatment type				
Neglect	40.4%	56%	38.6%	2.026**
Emotional maltreatment	24.2%	26.5%	23.9%	ns
Physical abuse	32.2%	22.5%	33.3%	0.581**
Sexual abuse	6.8%	4.3%	7.1%	0.583**
Domestic violence	21.7%	23.1%	21.6%	ns
Outcomes				
Substantiated maltreatment	47.5%	61.1%	46.0%	1.844**
Case to remain open	28.0%	54.7%	25.0%	3.609**
Court application considered or made	7.1%	18.1%	5.9%	3.526**
Court application made	3.6%	9.7%	2.9%	3.595**

i. abbreviation for parent or other caregiver cognitive impairment

ii. lowest odds ratio from multiple imputations

*p<.05; ** p<.001

were conducted of the investigators' recordings . However, all data collection forms were verified for completeness and consistency in responses.

Outcome variables

1. *substantiation of child maltreatment* - the investigator concluded on the balance of evidence that maltreatment of any type had occurred.
2. *case disposition* - the decision to either close the case or keep it open for ongoing protective services.
3. *consideration of child welfare court action* – whether application to the child welfare court was at least considered
4. *application to the child welfare court* - whether application to the child welfare court was actually made.

Independent variables

Table 1 lists the independent variables examined in this study. These included parental cognitive impairment, child and case characteristics (e.g., maltreatment type, severity/sequalae and chronicity), and indicators of poverty and co-morbidity. Parental (biological parent or other with full-time parental responsibility) cognitive impairment was coded '0' for not present and '1' for present, when the investigating worker was confident enough to include this information in a written assessment of the household, whether or not a formal diagnosis had been made.

Data analysis

The analysis was conducted using SPSS v. 18. Rescaled sample weights were used in all of the analyses reported here so that statistical inferences could be made about the entire population. By using the rescaled sample weights, the influence of the final CIS weight (annualization by regionalization) was maintained while reducing the actual number of observations to the original sample size. This rescaled weight is used to avoid inflating the significance of statistics as a result of the high number of cases (Black et al., 2008).

For most CIS-2003 variables, the dataset is either complete or there are few missing data. However, there is > 5% missing data for indicators of socioeconomic status: parental educational attainment, household (any caregiver) employment and income. Rather than

excluding cases with missing data listwise from the analysis, multiple imputations were computed, using a logistic regression model (i.e. pattern matching based on household structure, housing status, educational attainment, household employment and income), producing five alternative and complete datasets. We report the pooled statistics.

The first step in our analysis was to determine the prevalence of parental cognitive impairment, maternal or paternal, in cases opened for investigation. Our next step involved cross-tabulation and computation of unadjusted odds ratios (i.e. risk estimates) for parental cognitive impairment with respect to each outcome and independent variable (reported in Table 1). At this point no further analysis of Outcome 4, “application to the child welfare court (actually made)”, was undertaken because of low cell counts. The data was then screened for potential interaction effects. On ‘substantiation’, ‘case disposition’ and ‘court application (at least considered)’ we found a strong interaction between parental cognitive impairment and reported child neglect. In other words, parental cognitive impairment had differential effects depending on the nature of the maltreatment reported. On ‘substantiation’ and ‘case disposition’ we also found an interaction between parental cognitive impairment and child age, but only in neglect cases. These interaction effects are presented in Table 2.

Due to these observed interaction effects, we stratified the sample for our analyses of ‘substantiation’ and ‘case disposition’, running separate analyses for each of the following groups: (1) all cases in which neglect was *not* reported; (2) cases in which the neglect of a child 0 to 5 years was reported; (3) cases in which the neglect of a child 6 to 12 years was reported; and, (4) cases in which the neglect of a child 13 to 15 years was reported. In our analyses of ‘court application (at least considered)’, we ran separate analyses for Group 1 and Groups 2, 3 and 4 combined because no interaction was found between parental cognitive impairment and child age for this outcome variable. The number of observations (observed events) by stratification and outcome is presented in Table 3.

As a preliminary step in the analysis of mediation effects we first investigated the association between parental cognitive impairment and indicators of co-morbidity and poverty to identify any that were superfluous. A series of multiple (binary) logistic

Table 2. Interaction of parental cognitive impairment, reported maltreatment type and child age

		β	SE β	p-value	Odds ratio
All cases Substantiation	parental cognitive impairment	.256	.092	.006	1.292
	alleged neglect	-.454	.041	.000	0.635
	CCI*alleged neglect	.786	.127	.000	2.196
	constant	.013	.025	.614	
Neglect cases only Substantiation	parental cognitive impairment	.748	.151	.000	2.113
	child age	.017	.007	.013	1.018
	CCI*child age	.049	.019	.011	1.050
	constant	-.573	.062	.000	
All cases Case disposition	parental cognitive impairment	.878	.094	.000	2.405
	alleged neglect	.137	.046	.003	1.146
	CCI*alleged neglect	.697	.129	.000	2.008
	constant	-1.151	.029	.000	
Neglect cases only Case disposition	parental cognitive impairment	1.883	.161	.000	6.576
	child age	-.001	.008	.904	ns
	CCI*child age	-.046	.019	.017	0.955
	constant	-1.007	.068	.000	0.365
All cases Court application (considered or made)	parental cognitive impairment	1.145	.138	.000	4.241
	alleged neglect	.836	.084	.000	2.308
	CCI*alleged neglect	-.478	.178	.007	0.620
	constant	-3.167	.064	.000	
Neglect cases only Case disposition	parental cognitive impairment	1.079	.195	.000	2.943
	child age	-.001	.012	.923	ns
	CCI*child age	-.017	.024	.466	ns
	constant	-2.322	.106	.000	0.098

Table 3. Number of cases by stratification and outcome

	Total (n=11562)			
	Group 1 Non-neglect (n=6895)	Neglect cases (n=4667)		
		Group 2 0-5 years (n=1779)	Group 3 6-12 years (n=2031)	Group 4 13-15 years (n=858)
substantiated	N=3502	N=729	N=866	N=399
case kept open	N=1755	N=628	N=558	N=299
court application (considered or made)	N=366	N=489 (groups 2-4)		
court application made*	N=152	N=105	N=94	N=67

*Too few observations to permit robust regression analysis with 15 independent variables

regression procedures were performed, one for each of the above four groups, with parental cognitive impairment treated as the dependent variable, and all indicators of co-morbidity and poverty entered in one block. Indicators of co-morbidity and poverty that were not associated with caregiver cognitive impairment (small logistic coefficient and $p > .05$) were excluded from further analyses (preliminary analyses are presented in Appendix 2).

Multiple (binary) logistic regression was then employed, with direct entry of variables in three blocks: Block 1 - to obtain unadjusted odds ratios for parental cognitive impairment; Block 2 - to test the hypothesis that parental cognitive impairment predicts substantiation, case disposition and court application (at least considered) with child and case characteristics held constant; and, Block 3 - to test the hypothesis that the effect of parental cognitive impairment on substantiation, case disposition and court application (at least considered) is mediated by co-morbidity and poverty. The ratio of observed events to independent variables was greater than 20:1 in all regression analyses.

When multiple comparisons are made the Bonferroni adjustment (i.e., divide the probability $\alpha = .05$ by the total number of tests to obtain an adjusted α) is often used to reduce risk of a Type 1 error. This convention has been criticised on many grounds, including for example, that it is overly conservative resulting in a dramatic increase in the Type 2 error rate, that it is impracticable in most situations, and even deleterious to sound statistical inference (e.g., Garamszegi, 2006; Nakagawa & Foster, 2004; Perneger, 1998; Rothman, 1990). In this study we employ a rationalist approach, treating p -values as important pieces of information, but also taking into consideration the magnitude of effect (e.g., size of the logistic coefficient), the internal logic of the test results (i.e., considering each test in the context of all the data) and the extant evidence before reaching any (albeit) tentative conclusions (Feise, 2002; Perneger, 1999; Rothman, 1990).

Results

The prevalence of parental cognitive impairment, maternal or paternal, in cases opened for child maltreatment investigation in Canada (excluding Quebec) in 2003 was 10.1%, which translates to an estimated 21,998 children. Most cases (72.1%)

involved a biological mother with cognitive impairment. However, prevalence of parental cognitive impairment was higher in the younger child age-groups. Parental cognitive impairment was present in 17.34% and 10.76% of cases involving children less than 1 year of age and children aged 1 to 5 years respectively.

At each point on the decision-making pathway (i.e., substantiation, case kept open, court application), our general hypothesis was confirmed: outcomes for children of parents with cognitive impairment were found to be substantially different from outcomes in all other cases (see unadjusted odds ratios reported in Table 1). Parental cognitive impairment was noted in 13% of all 5496 substantiated maltreatment cases; 19.8% of all 3239 cases that remained open for ongoing protective services; and 18.1% of all 825 cases in which application to the child welfare court was considered or made.

A total of 417 of 11562 cases (3.6%) had, at the time of data collection, resulted in application to the child welfare court (i.e., application made). Of these, 27.3% involved children of parents with cognitive impairment. However, the prevalence of parental cognitive impairment was higher in applications involving younger children. In the 0-5 years age bracket, 39.5% of court applications involved children of parents with cognitive impairment. In this age bracket parental cognitive impairment increased the odds (unadjusted) of court application by a factor of 5.373 ($\chi^2 = 121.185, p < .001$). In the 6-12 years age bracket, parental cognitive impairment increased the odds (unadjusted) of court application by a factor of 3.231 ($\chi^2 = 41.24, p < .001$). No association between caregiver cognitive impairment and court application was found in the 13-15 years age bracket ($\chi^2 = 1.71, p = .073$).

Parental Cognitive Impairment and Child Maltreatment Type

Neglect was by far the most common reported child protection concern in cases involving children of parents with cognitive impairment. In most (65%) neglect cases, the concern was either physical neglect (38%) or a failure to supervise resulting in physical harm to the child (27%). Medical and educational neglect were documented in a further 7.6% of cases. A strong association was found between parental cognitive impairment and reported child

Table 4. Logistic regression analyses: reported neglect and substantiation*

	Group 2: 0-5 years					Group 3: 6-12 years					Group 4: 13- 15 years				
	β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio	
Block 1															
Constant	-.516	.054	.000			-.470	.049	.000			-.233	.073	.001		
parental CI (1)	.901	.131	.000	2.463		1.301	.141	.000	3.675		.878	.229	.000	2.406	
	Block 1 $\chi^2 = 48.296$, df = 1, p<.000					Block 1 $\chi^2 = 93.520$, df = 1, p<.000					Block 1 $\chi^2 = 15.528$, df = 1, p<.000				
Block 2															
Constant	-.981	.100	.000			-.713	.231	.002			-3.589	1.347	.008		
parental CI (1)	.508	.144	.000	1.662		.999	.152	.000	2.715		.395	.263	.133	ns	
child age	-.002	.030	.940	ns		-.031	.025	.218	ns		.155	.096	.107	ns	
past substantiated reports (1)	.684	.126	.000	1.981		.573	.104	.000	1.774		.550	.174	.002	1.733	
signs: mental/emotional harm (1)	1.672	.315	.000	5.325		1.276	.161	.000	3.581		1.407	.194	.000	4.082	
signs: physical harm (1)	.737	.199	.000	2.090		1.345	.288	.000	3.839		2.297	.419	.000	9.949	
parent non-cooperation (1)	.591	.147	.000	1.805		.023	.151	.881	ns		.597	.247	.016	1.817	
any child functioning issue (1)	.443	.125	.000	1.557		.106	.105	.315	ns		.495	.197	.012	1.640	
aboriginal (1)	.208	.125	.095	ns		.608	.128	.000	1.836		.786	.215	.000	2.195	
	Block 2 $\chi^2 = 161.704$, df = 7, p<.000					Block 2 $\chi^2 = 180.882$, df = 7, p<.000					Block 2 $\chi^2 = 193.708$, df = 7, p<.000				
Constant	-1.270	.130	.000			-1.016	.243	.000			-3.940	1.380	.004		
parental CI (1)	.085	.161	.600	ns		.573	.169	.001	1.775		.239	.289	.409	ns	
child age	.017	.031	.594	ns		-.030	.026	.246	ns		.167	.098	.089	ns	
past substantiated reports (1)	.590	.130	.000	1.804		.457	.108	.000	1.580		.448	.178	.012	1.565	
signs: mental/emotional harm (1)	1.524	.320	.000	4.592		1.137	.165	.000	3.119		1.318	.199	.000	3.736	
signs: physical harm (1)	.786	.204	.000	2.195		1.455	.293	.000	4.285		2.411	.422	.000	11.148	
parent non-cooperation (1)	.452	.153	.003	1.571		-.052	.155	.737	ns		.526	.252	.037	1.693	
any child functioning issue (1)	.380	.128	.003	1.463		.048	.107	.656	ns		.522	.202	.010	1.686	
aboriginal (1)	.278	.131	.034	1.320		.533	.138	.000	1.704		.570	.229	.013	1.768	

(continued on next page)

Table 4. Logistic regression analyses: reported neglect and substantiation* (cont'd)

Block 3	Group 2: 0-5 years					Group 3: 6-12 years					Group 4: 13- 15 years									
	β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio						
	.126	.150	.412	ns		.255	.154	.118	ns											
did not complete secondary (1)	-.150	.129	.250	ns		.006	.121	.962	ns											
no household employment (1)						-.028	.132	.830	ns											
public housing or shelter (1)	.411	.119	.001	1.509		.399	.127	.002	1.490		.492	.221	.026	1.635						
parent maltreated as a child (1)	.696	.126	.000	2.005		.314	.122	.010	1.369		.205	.202	.309	ns						
parent mental health issues (1)						.374	.108	.001	1.453		-.143	.180	.427	ns						
few social supports (1)											.600	.186	.001	1.823						
drug &/or alcohol issues (1)																				
						Block 3 $\chi^2 = 53.637-59.668$, df = 4, p<.000					Block 3 $\chi^2 = 21.411$, df = 4, p<.000									
Full model						Model $\chi^2 = 263.637 - 269.668$, df = 12, p<.000; Cox & Snell $R^2 = .138 - .141$, Nagelkerke $R^2 = .186 - .190$					Model $\chi^2 = 323.338 - 331.859$, df = 14, p<.000; Cox & Snell $R^2 = .147 - .151$, Nagelkerke $R^2 = .198 - .203$					Model $\chi^2 = 230.647$, df = 12, p<.000; Cox & Snell $R^2 = .236$, Nagelkerke $R^2 = .315$				

* Reference category is 'unsubstantiated' (0).

maltreatment type (See Table 1). Neglect is more likely, and physical and sexual abuse are less likely, to be the driving child protection concerns (i.e., the reasons for referral) in cases involving children of parents with cognitive impairment.

Parental Cognitive Impairment and Substantiation

As seen in Table 4, in cases involving allegations of child neglect, the odds of substantiation in the 0 to 5 years (Group 2) and 6 to 12 years (Group 3) age brackets are higher when parental cognitive impairment is noted, and with child and case characteristics held constant. We also found that the relationship between parental cognitive impairment and substantiation in cases of alleged child neglect (groups 2-4) is partially mediated by poverty and co-morbidity (e.g., parent was maltreated as child and parent has current mental health issues). With indicators of poverty and co-morbidity included in the model, the logistic coefficient (β) is reduced and parental cognitive impairment ceases to be a strong predictor of child maltreatment in Group 2 (children newborn to 5 years of age). However, parental cognitive impairment remains a strong predictor of substantiation in neglect cases in Group 3 (children 6 to 12 years of age) with child and case characteristics and indicators of poverty and co-morbidity held constant.

Table 5 presents results for Group 1, when investigations are driven by allegations of physical and/or sexual abuse, emotional maltreatment and/or exposure to domestic violence (but not neglect). In these circumstances, parental cognitive impairment increases the odds (unadjusted) of substantiation by a factor of 1.292. However, when child and case characteristics, and indicators of poverty and co-morbidity are taken into account, parental cognitive impairment actually decreases the odds of substantiation in Group 1 by a factor of 0.710. This finding suggests that allegations of physical and/or sexual abuse are not only less likely to instigate child maltreatment investigations — all else being equal — they are also less likely to be substantiated in cases involving children of parents with cognitive impairments.

Parental Cognitive Impairment and Case Disposition

In cases of alleged neglect (Groups 2, 3 and 4), parental cognitive impairment substantially increases the odds

that a case will be kept open for ongoing protective services. The unadjusted odds ratio for parental cognitive impairment decreases with child age from 5.938 in the 0 to 5 years age bracket (Group 2) to 3.132 in the 13 to 15 years age bracket (Group 4). The data presented in Table 5 also show that parental cognitive impairment is a strong predictor of case disposition, across all age groups, when child and case characteristics are held constant. Further, the results indicate that although the logistic coefficient (β) value for parental cognitive impairment is reduced when poverty and co-morbidity (block 3) are included in the model, it remains a strong predictor of case disposition in the 0 to 5 year (Group 2) age bracket. The logistic regression results presented in Table 5 show that parental cognitive impairment is also a strong predictor of case disposition in non-neglect cases (Group 1) when child and case characteristics are held constant. However, when indicators of poverty and co-morbidity (block 3) are added to the model, parental cognitive impairment is no longer a strong predictor of case disposition in these cases.

Parental Cognitive Impairment and Court Application (Considered or Made)

Whether neglect is the driving child protection concern (Groups 2, 3 and 4) or not (Group 1), parental cognitive impairment was found to be a strong predictor of court application (considered or made) when child and case characteristics, including but not limited to the substantiation, severity and chronicity of maltreatment, are held constant. As seen in Table 7, the odds ratio was found to be higher in non-neglect cases: 2.820 compared with 1.325. Furthermore, parental cognitive impairment was found to be a strong predictor of court application ($\text{Exp}\beta = 1.921$) in non-neglect cases (Group 1), even when all independent variables, including poverty and co-morbidity, were included in the model. In other words — all else being equal — parental cognitive impairment increases the odds of court application (considered or made) in non-neglect cases by more than 92%. By contrast, in cases of alleged neglect (Groups 2, 3 and 4), parental cognitive impairment is not a strong predictor of court application when indicators of poverty and co-morbidity are included in the model.

Table 5. Logistic regression analyses: neglect not reported, substantiation and case disposition

		Group 1: Substantiation*				Group 1: Case remains open**			
		β	SE β	p-value	Odds ratio	β	SE β	p-value	Odds ratio
Block 1	Constant	.013	.025	.614		-1.151	.029	.000	
	parental CI (1)	.256	.092	.006	1.292	.878	.094	.000	2.405
		Block 1 $\chi^2 = 7.729$, df = 1, p = .005				Block 1 $\chi^2 = 83.243$, df = 1, p < .000			
Block 2	Constant	-.116	.054	.031		-2.061	.077	.000	
	parental CI (1)	.084	.097	.386	ns	.569	.105	.000	1.767
	child age	-.021	.006	.000	0.979	-.049	.007	.000	0.952
	maltreatment substantiated (1)					1.247	.065	.000	3.479
	past substantiated reports (1)	.492	.064	.000	1.635	.518	.070	.000	1.679
	signs: mental/emotional harm (1)	.950	.084	.000	2.587	.815	.085	.000	2.260
	signs: physical harm (1)	.879	.096	.000	2.409	.147	.100	.142	ns
	parent non-cooperation (1)	.524	.083	.000	1.689	.395	.088	.000	1.485
	any child functioning issue (1)	-.019	.057	.741	ns	.421	.070	.000	1.524
aboriginal (1)	-.304	.086	.000	0.738	.608	.095	.000	1.836	
		Block 2 $\chi^2 = 399.114$, df = 7, p < .000				Block 2 $\chi^2 = 922.414$, df = 8, p < .000			
Block 3	Constant	-.421	.067	.000		-2.779	.097	.000	
	parental CI (1)	-.342	.107	.001	0.710	-.139	.117	.236	ns
	child age	-.010	.006	.117	ns	-.022	.008	.006	0.978
	maltreatment substantiated (1)					1.112	.067	.000	3.040
	past substantiated reports (1)	.409	.066	.000	1.505	.390	.075	.000	1.478
	signs: mental/emotional harm (1)	.832	.086	.000	2.298	.687	.091	.000	1.988
	signs: physical harm (1)	.940	.098	.000	2.561	.249	.106	.018	1.283
	parent non-cooperation (1)	.430	.084	.000	1.536	.233	.093	.012	1.262
	any child functioning issue (1)	-.090	.059	.128	ns	.231	.074	.002	1.260
aboriginal (1)	-.335	.091	.000	0.715	.497	.102	.000	1.644	
Block 3	did not complete secondary (1)	.143	.086	.116	ns	.147	.099	.155	ns
	no household employment (1)	.146	.078	.064	ns	-.049	.087	.573	ns
	household income < \$25,000 (1)	-.108	.067	.107	ns	.209	.093	.032	1.232
	parent maltreated as a child (1)	.193	.068	.004	1.213	.417	.074	.000	1.518
	parent mental health issues (1)	.605	.065	.000	1.830	.687	.091	.000	1.735
	few social supports (1)	.320	.060	.000	1.377	.998	.067	.000	2.714
		Block 3 $\chi^2 = 195.187-203.494$, df = 6, p < .000				Block 3 $\chi^2 = 488.600-497.160$, df = 6, p < .000			
Full model		Model $\chi^2 = 602.030 - 610.337$, df = 14, p < .000; Cox & Snell R ² = .084 - .085, Nagelkerke R ² = .111 - .113				Model $\chi^2 = 1494.255 - 1502.815$, df = 15, p < .000; Cox & Snell R ² = .195 - .196, Nagelkerke R ² = .287 - .289			

* Reference category is 'unsubstantiated' (0), ** Reference category is 'case closed' (0).

Table 6. Logistic regression analyses: reported neglect and case disposition

	Group 2: 0-5 years					Group 3: 6-12 years					Group 4: 13- 15 years				
	β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio		β	SE β	p-value	Odds ratio	
Block 1															
Constant	-.918	.057	.000			-1.222	.057	.000			-.764	.078	.000		
parental CI (1)	1.781	.141	.000	5.938		1.547	.135	.000	4.696		1.142	.224	.000	3.132	
	Block 1 $\chi^2 = 177.580$, df = 1, p<.000					Block 1 $\chi^2 = 131.540$, df = 1, p<.000					Block 1 $\chi^2 = 26.615$, df = 1, p<.000				
Block 2															
Constant	-2.128	.137	.000			-2.647	.299	.000			-1.907	1.547	.218		
parental CI (1)	1.260	.170	.000	3.524		.851	.161	.000	2.341		.758	.289	.009	2.134	
child age	-.200	.038	.000	0.819		-.025	.031	.424	ns		-.078	.111	.482	ns	
substantiated maltreatment (1)	1.934	.129	.000	6.916		1.835	.125	.000	6.267		2.281	.197	.000	9.784	
past substantiated reports (1)	.850	.150	.000	2.340		.306	.124	.013	1.358		-.389	.201	.053	ns	
signs: mental/emotional harm (1)	1.638	.379	.000	5.143		.890	.170	.000	2.435		.943	.203	.000	2.567	
signs: physical harm (1)	.215	.232	.354	ns		.359	.287	.212	ns		-.233	.297	.433	ns	
parent non-cooperation (1)	.875	.179	.000	2.399		.605	.171	.000	1.832		.347	.274	.206	ns	
any child functioning issue (1)	.810	.150	.000	2.247		.580	.132	.000	1.786		.928	.262	.000	2.530	
aboriginal (1)	.728	.148	.000	2.070		.465	.146	.002	1.591		.481	.238	.044	1.617	
	Block 2 $\chi^2 = 567.632$, df = 8, p<.000					Block 2 $\chi^2 = 459.810$, df = 8, p<.000					Block 2 $\chi^2 = 296.940$, df = 8, p<.000				
Constant	-2.888	.213	.000			-3.126	.323	.000			-2.028	1.568	.196		
parental CI (1)	.585	.194	.003	1.795		.248	.188	.186	ns		.544	.309	.079	ns	
child age	-.164	.040	.000	0.849		-.018	.032	.574	ns		-.080	.112	.478	ns	
substantiated maltreatment (1)	1.842	.136	.000	6.309		1.778	.130	.000	5.916		2.275	.201	.000	9.730	
past substantiated reports (1)	.732	.157	.000	2.084		.194	.131	.138	ns		-.444	.205	.031	0.641	
signs: mental/emotional harm (1)	1.450	.395	.000	4.265		.766	.179	.000	2.152		.877	.207	.000	2.403	
signs: physical harm (1)	.250	.252	.322	ns		.551	.300	.067	ns		-.227	.305	.457	ns	
parent non-cooperation (1)	.764	.190	.000	2.147		.526	.179	.003	1.693		.367	.278	.186	ns	
any child functioning issue (1)	.799	.158	.000	2.224		.540	.137	.000	1.716		.895	.265	.001	2.448	
aboriginal (1)	.783	.163	.000	2.188		.498	.164	.002	1.645		.391	.251	.119	ns	

(continued on next page)

Table 7. Logistic regression analyses: court application (considered or made)*

		Group 1: Non-neglect cases				Groups 2-4: Neglect cases			
		β	SE β	p-value	Odds ratio	β	SE β	p-value	Odds ratio
	Constant	-3.167	.064	.000		-2.331	.056	.000	
Block 1	parental CI (1)	1.445	.138	.000	4.241	.967	.112	.000	2.629
		Block 1 $\chi^2 = 87.243$, df = 1, p = .000				Block 1 $\chi^2 = 66.884$, df = 1, p < .000			
	Constant	-4.802	.195	.000		-4.254	.186	.000	
	parental CI (1)	1.037	.158	.000	2.820	.281	.130	.030	1.325
Block 2	child age	-.059	.015	.000	0.942	-.047	.013	.000	0.954
	maltreatment substantiated (1)	1.515	.168	.000	4.548	2.639	.173	.000	13.994
	past substantiated reports (1)	.396	.132	.003	1.485	.342	.114	.003	1.407
	signs: mental/emotional harm (1)	1.338	.146	.000	3.813	1.104	.141	.000	3.017
	signs: physical harm (1)	1.145	.153	.000	3.141	.758	.167	.000	2.134
	parent non-cooperation (1)	1.228	.134	.000	3.415	1.156	.126	.000	3.177
	any child functioning issue (1)	.288	.153	.059	ns	-.154	.134	.249	ns
	aboriginal (1)	.384	.171	.025	1.467	-.069	.128	.590	ns
		Block 2 $\chi^2 = 495.814$, df = 8, p < .000				Block 2 $\chi^2 = 743.076$, df = 8, p < .000			
	Constant	-5054	.223	.000		-4.897	.219	.000	
	parental CI (1)	.653	.182	.000	1.921	-.275	.146	.060	ns
	child age	-.052	.016	.001	0.950	-.030	.014	.027	.970
	maltreatment substantiated (1)	1.392	.171	.000	4.021	2.496	.175	.000	12.137
	past substantiated reports (1)	.317	.135	.019	1.373	.227	.119	.057	ns
	signs: mental/emotional harm (1)	1.225	.149	.000	3.403	.950	.146	.000	2.586
	signs: physical harm (1)	1.225	.156	.000	3.404	.849	.173	.000	2.336
	parent non-cooperation (1)	1.187	.136	.000	3.279	1.158	.131	.000	3.184
	any child functioning issue (1)	.213	.156	.171	ns	-.227	.138	.101	ns
	aboriginal (1)	.419	.179	.019	1.521	.006	.142	.968	ns
Block 3	did not complete secondary (1)	-.004	.269	.990	ns	-.041	.178	.819	ns
	no household employment (1)	-.058	.170	.732	ns	-.024	.141	.865	ns
	household income < \$25,000 (1)	-.092	.195	.641	ns				
	parent maltreated as a child (1)	.102	.139	.466	ns	.605	.124	.000	1.832
	parent mental health issues (1)	.725	.136	.000	2.064	.819	.122	.000	2.268
	few social supports (1)	.340	.135	.012	1.405	.454	.124	.000	1.575
		Block 3 $\chi^2 = 43.951-48.943$, df = 6, p < .000				Block 3 $\chi^2 = 130.460-131.593$, df = 5, p < .000			
	Full model	Model $\chi^2 = 627.008 - 632.001$, df = 15, p < .000; Cox & Snell R ² = .087 - .088, Nagelkerke R ² = .269 - .271				Model $\chi^2 = 940.323 - 941.553$, df = 14, p < .000; Cox & Snell R ² = .182 - .183, Nagelkerke R ² = .373 - .374			

* Reference category is 'court action not considered' (0).

Mediation Effects of Poverty and Co-morbidity

The results of the logistic regression analyses reported in Tables 4-7 suggest that the relationship between parental cognitive impairment and investigation outcomes is partially mediated by poverty and co-morbidity. In both neglect and non-neglect cases, and for each outcome variable, there is a substantial decrease in the value of the logistic coefficients (β) for parental cognitive impairment when block 3 (poverty and co-morbidity) is added to the model. For instance, with respect to substantiation, and in cases of alleged neglect involving children in the 0 to 5 years age bracket (Group 2), the logistic coefficient for parental cognitive impairment decreases from .508 in Block 2 to a negligible .085 in Block 3.

Discussion

We found that parental cognitive impairment is noted in over 10% of cases that are opened for child maltreatment investigation in Canada. As persons with cognitive impairments represent only 1 to 3% of the population (IASSID SIRG on Parents and Parenting with Intellectual Disabilities, 2008), this study substantiates the over-representation of parents with cognitive impairments in Canada. Parental cognitive impairment is particularly prevalent in cases involving infants < 1 year. Across all age groups, neglect is the most common reason for referral in these families. We also found that children of parents with cognitive impairment feature in over 27% of child welfare court applications. In the 0 to 5 years age bracket, fully two out of every five child welfare court applications concerned children of parents with cognitive impairments. The prevalence rate of 27% is higher than those reported in the USA (Taylor et al., 1991) and Australia (Llewellyn, McConnell & Ferronato, 2003), but is commensurate with the more recent findings in the UK (Booth et al., 2005).

We also found that parental cognitive impairment has differential effects depending on the nature of maltreatment reported and on the age of the child. Notwithstanding, with child and case characteristics held constant, the results show that (a) parental cognitive impairment is a strong predictor of substantiation when neglect is reported and when the child is not yet 13 years of age; and, (b) parental cognitive impairment is a strong predictor of case disposition and court application, irrespective of child

age and reported maltreatment type. These findings add to the growing body of evidence of differential outcomes for children of parents with cognitive impairment referred for protective services (Cleaver & Nicholson, 2005; Booth, McConnell & Booth, 2006).

The results of this study provide some empirical support for the interaction model proposed by Feldman (2002) and suggest that poverty and co-morbidity mediate the relationship between parental cognitive impairment and child maltreatment investigation outcomes. We found that parents with cognitive impairment are more likely than other parents involved in child maltreatment investigations to have been maltreated in their own upbringing, to be exposed to economic and social deprivation, and to suffer mental health issues. We also found that these indicators were strong predictors of child maltreatment investigation outcomes overall. In all but one analysis, the addition of poverty and co-morbidity (block 3) substantially improved the model, and resulted in substantial reduction in the logistic coefficient for parental cognitive impairment.

Nonetheless, poverty and co-morbidity do not fully explain differential outcomes for children of parents with cognitive impairment. *All else being equal*, the alleged neglect of 6 to 12 year old children of parents with cognitive impairments is more likely to be substantiated. *All else being equal*, neglect cases involving 0 to 5 year old children of parents with cognitive impairments are more likely to be kept open for ongoing protective services. Finally, *all else being equal*, non-neglect cases involving children of parents with cognitive impairments are more likely to result in court application.

The potential influence of discrimination could not be examined in this study. This includes the influence of prejudicial assumptions stemming from pejorative stereotypes about parents with cognitive impairments, and the lack of recognition and subsequent accommodation by human service agencies of their unique support and learning needs. Qualitative studies of decision-making in child maltreatment investigations and court proceedings have concluded that such discrimination is a key determining factor (Booth, McConnell & Booth, 2006; McConnell, Llewellyn & Ferronato, 2006). Discrimination might therefore account for at least some of the unexplained

variance in outcomes between cases involving children with and without parents with cognitive impairments documented in this study.

The findings are disconcerting given evidence that many parents with cognitive impairments already are, or could learn to be, competent parents (Feldman, 1994; Wade et al., 2008). Empirically supported parent education interventions utilizing behavioral instructional methods have been shown to increase a range of parenting skills such as basic infant care - e.g., diapering, feeding, bathing (Feldman et al., 1992); child health and safety (Feldman, Case & Sparks, 1992; Feldman, Garrick & Case, 1997; Llewellyn, McConnell, Honey, Mayes & Russo, 2003); problem-solving and decision-making (Tymchuk et al., 1988) and parent-child interactions (Feldman, Sparks & Case, 1993; Slater, 1986). In fact, many parents with cognitive impairments can learn parenting skills through self-instruction (Feldman, 2004), and improvement in parenting skills is linked to better child health and development (Feldman, Garrick & Case, 1997; Feldman et al., 1993; Slater, 1986).

Limitations

One important limitation of this study was that we do not know to what extent parental cognitive impairment (and the level of impairment) was confirmed through psychometric testing. In some cases a confirmed diagnosis or the test results may have been available to the investigator, but in other cases the designation of cognitive impairment was based on observations made by the investigating child protection professional and/or other information that was available to them at the time. It is our experience that many parents labelled as having cognitive impairments were diagnosed when they were in school and received special education services; these facts often are noted in child protection reports. This limitation notwithstanding, as this and other studies show, whether a parent has substantiated cognitive impairment or not, investigation outcomes tend to be different and more intrusive if a parent is perceived to have cognitive impairment.

Another important limitation of this study was that the CIS-2003 data only capture case characteristics and outcomes at a single point in time, which on average was 30 days after the investigation was opened. Longer term outcomes, including but not limited to

outcomes in cases that were kept open for ongoing protective services, and cases in which child welfare court action was taken, are not known. Longitudinal or semi-longitudinal studies incorporating validated measures and qualitative methods are needed to obtain more robust data, and produce a deeper and more nuanced understanding of the decision-making process and outcomes for children of parents with cognitive impairments referred for protective services.

Implications

Parental cognitive impairment is the proverbial 'elephant in the room'. Children of these parents are over-represented in child maltreatment investigations and out-of-home care in Canada, the USA, Australia, UK and elsewhere. To date, there has been little talk, and even less action addressing the matter. Some networks have been established, involving agencies, professionals, advocates, self-advocates and researchers dedicated to improving outcomes for these families (e.g., The Association for Successful Parenting; International Association for the Scientific Study of Intellectual Disabilities Special Research Interest Group in Parenting). And some government and non-government agencies have developed special services and initiatives targeting parents with cognitive impairments and their children (e.g., the Centres du Readaptation in Quebec, Canada; Parent Enhancement Program at Surrey Place Centre, Toronto, Canada; Through the Looking Glass in California, USA; and the Special Parenting Service in Cornwall, UK). However, only one country that we are aware of, Australia, has a government funded, planned and systematic national strategy, known as Healthy Start (www.healthystart.net.au), to build systems capacity to support parents with cognitive impairments (learning difficulties) in the parenting role, and to promote health and wellbeing for their children (McConnell, Matthews, Llewellyn, Mildon & Hindmarsh, 2008). The development and implementation of a planned and systematic national strategy, such as Healthy Start, to mobilise knowledge from research to achieve best practices is vital, and should be promoted in many countries.

Conclusion

There is exponential growth in the number of child maltreatment reports and investigations undertaken in high income countries worldwide (Theodore

& Runyan, 1999; Trocme, Fallon, MacLaurin & Neves, 2005). A significant proportion of these investigations, as the findings of this study attest, and an even larger proportion of children placed out-of-home, have a parent with cognitive impairment. The numbers are such that the task of building systems capacity to support parents with cognitive impairment and their children, and the task of preventing child maltreatment and containing growth in the protective services sector, seem inextricably linked.

Building systems capacity to support these families is also vital to meeting responsibilities and obligations as state parties to the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006). In July 2009, the USA followed Canada and many other countries in formally endorsing this convention, which affirms the right of persons with disabilities to marry and found a family, and in Article 23, requires state parties to take effective action and appropriate measures to eliminate discrimination, and to render appropriate assistance to persons with disabilities, including parents with cognitive impairments, in the performance of their child-rearing responsibilities. As noted, there now is considerable evidence that empirically-supported interventions and other relevant services may serve as more humane alternatives to child removal, and that these services can be provided on a national level to allow as many children as possible to stay with their natural families in safe and nurturing environments.

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Chapter 3

Decision-making in child maltreatment investigations involving parents with cognitive impairments

We examined decision-making and service referral in child maltreatment investigations involving children of parents with cognitive impairments using the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data. The CIS-2003 includes process and outcome data on a total of 1243 child investigations ($n = 1170$ *weighted*) in which parental cognitive impairment was noted. Binary logistic regression analyses revealed that perceived parent non-cooperation was the most potent predictor of court application, and less experienced child protection professionals were more likely to keep these cases open for ongoing protective services. Alternative dispute resolution was rarely utilized. The findings from this study highlight the need for development and utilization of alternative dispute resolution strategies, worker training, dissemination of evidence-based parent training programs, and implementation of strategies to alleviate poverty and strengthen the social relationships of parents with cognitive impairments.

Decision making in child maltreatment investigations involving parents with cognitive impairments

Child protection professionals are rarely presented with an easy decision. Extreme cases of child maltreatment are unusual. Typically, evidence of maltreatment is vague and outcomes are uncertain (Lindsey, 1994; Morton, 1999; Parton, 1998; Pelton, 1989; Thorpe, 1994). Most cases involve families pressed to the fringes of society; parents “operating on the edge of competence” (Booth & Booth, 1998, p. 22); and, children who have been short-changed with respect to life chances. By conducting analyses of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data, we investigated child, case, parent, household and worker correlates of child maltreatment investigation outcomes in cases involving one group of ‘fringe families’, namely those headed by parents with cognitive impairments.⁴

Every year, child protection professionals in high income countries make decisions affecting the lives of tens of thousands of children living with parents with cognitive impairments. These parents are over-represented in child welfare cases based on their population prevalence, and up to 50% of their children are removed and placed out-of-home (Gillberg & Geijer-Karlsson, 1983; Larson, Lakin, Anderson & Kwak, 2001; Mørch, Jens & Andersgard, 1997; Pixa-Kettner, 1998; Van Hove & en Wellens, 1995). A recent analysis of the CIS-2003 core-data found that children of parents with cognitive impairments featured in more than 10% of all cases opened for child maltreatment investigation in Canada, which translates to 22,000 plus children each year (McConnell, Feldman & Aunos, 2008). Further, the analysis found that these investigations were substantially more likely to result in child welfare court action: More than 27% of all cases that resulted in child welfare court application (and 40% of those involving children 0-5 years) involved children of parents with cognitive impairments.

⁴Cognitive impairment refers to having an $IQ < 70$ and significant deficits in adaptive functioning (American Psychiatric Association, 2000). As used in this study, cognitive impairment is synonymous with the now outdated term “mental retardation” (now called intellectual disabilities) as well as borderline intellectual functioning (IQ between 70 and 85; some adaptive behaviour deficits).

Similar findings been reported in other high income countries (Booth, Booth & McConnell, 2005; Cleaver & Nicholson, 2007; Llewellyn, McConnell & Ferronato, 2003; Taylor et al., 1991; Zuravin & DePanfilis, 1997). For instance, in England, Cleaver and Nicholson (2007) audited social work files in a sample of local authorities and found that cases involving parents with cognitive impairments were more likely to be opened for investigation, more likely to be open after two years, and more likely to result in the child(ren) being placed out-of-home. In Australia, the USA and England, child welfare court record audits determined that parents with cognitive impairments featured in 9%, 15% and 22% of cases respectively (Booth, Booth & McConnell, 2005; Llewellyn, McConnell & Ferronato, 2003; Taylor et al., 1991). Further, these court studies report differential outcomes, with children of parents with cognitive impairments up to 3.8 times more likely than children of non-labelled parents to be permanently placed out-of-home (Booth et al., 2005).

Differential outcomes have been linked to systemic bias against parents with cognitive impairments. These parents may be falsely presumed incompetent and incapable of learning and overcoming perceived parenting difficulties (Czukur, 1983; Feldman, 2002; Gillhool & Gran, 1985; Haavik & Meninger, 1981; Hayman, 1990; Hertz, 1979; Levesque, 1996; McConnell et al., 2002, 2006; Tymchuk & Feldman, 1991; Watkins, 1995). In some jurisdictions, parental intellectual disability, in and of itself, still stands as sufficient grounds for child removal (Lightfoot & Laliberte, 2006). In addition, parenting capacity assessments may not take into account the special characteristics and circumstances of parents with cognitive impairments (Aunos & Feldman, 2007; Tymchuk & Feldman, 1991), and services are often ill-equipped to accommodate their particular support needs (IASSID Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008). For instance, many parents with cognitive impairments will likely succeed with intermittent support over the long term, but in many jurisdictions support is only offered on a short term basis (Booth, McConnell & Booth, 2006).

Less research attention has focused on factors that influence decision-making and explain variation in outcomes within cases involving parents with

cognitive limitations. It is not clear why, for example, some cases involving parents with cognitive impairments are closed and others kept open, and why some cases but not others result in court action. This information could inform the development of targeted prevention and early intervention strategies to strengthen these potentially vulnerable families, and avert the need for child placement.

The extant literature suggests that the decisions made by child protection professionals in cases opened for child maltreatment investigation (whether or not these involve parents with cognitive impairments) may be influenced by a myriad of factors (Drury-Hudson, 1999; Davidson-Arad, Englechin-Segal, Wozner & Arieli, 2005; English & Graham, 2000; Gold, Benbenishty & Osmo, 2001; Jones, 1996; McConnell, Llewellyn & Ferronato, 2006; McDonald, Poertner & Harris, 2002; Shuerman, Rossi & Budde, 1999; Spratt, 2000; Yamatani, Engel & Spjeldnes, 2009; Zuravin & DePanfilis, 1997). These include agency, system and legislative context, including but not limited to system constraints (e.g., availability of alternative services, supply of foster care placements); attributes of the decision maker/s (e.g., experience, caseload, training, attitudes, beliefs, values, knowledge); child characteristics (e.g., child age and functioning); case characteristics (e.g., maltreatment type, severity, chronicity); and, parent and household characteristics (e.g., perceived parent non-cooperation, mental health issues, substance abuse, parenting skills, social support, economic resources).

The extent to which these factors predict decisions in child maltreatment investigations involving children of parents with cognitive impairments is not known. Notwithstanding, two North American studies identified child functioning (special needs); low levels of social support, income and community involvement; and service dissatisfaction as possible risk factors for child maltreatment and out-of-home placement in this group (Aunos, Goupil & Feldman, 2003; Tymchuk & Andron, 1990). Further, qualitative studies of child protection decision-making in Australia and England have further flagged parental (non)cooperation and worker characteristics as potentially key determinants of child maltreatment investigation outcomes in cases involving parents with cognitive impairments (Booth, McConnell & Booth, 2006; McConnell, Llewellyn & Ferronato, 2006).

Study Aim and Hypotheses

In this study, we conducted a secondary analysis of the CIS-2003 core data to investigate the relationship between child maltreatment investigation outcomes (i.e., substantiation of maltreatment, case kept open, child welfare court application) for children of parents with perceived cognitive impairment and child, case, parent, household and worker variables. Based on the existing literature, our specific hypotheses were that child maltreatment investigation outcomes would be predicted by (a) child functioning (physical, cognitive, emotional, behavioral problems); (b) perceived parental non-cooperation; (c) parent social isolation/few social supports; (d) household economic factors (low income); and, (e) worker experience and caseload size. In a secondary analysis, we explored referrals made by child protection professionals for services such as in-home parenting support and mediation, and the relationship between referrals and court action in those cases that were kept open for ongoing protective services.

Method

CIS-2003

The CIS-2003 core-data is derived from a multi-stage stratified cluster sample of child maltreatment investigations across Canada, excluding Quebec. From 382 study-defined child welfare service areas (CWSAs), each served by one or more agencies, 55 were randomly selected. Within each of the selected CSWAs, one child welfare agency was then selected at random. Child maltreatment investigations opened between October 1, 2003 and December 31, 2003 were selected for inclusion in the study. Cases that did not meet the CIS-2003 definitions of investigated maltreatment, and those involving children > 15 years of age were excluded. The final sample included a total of 11,562 child investigations, of which 1243 (n=1170 *weighted*) involved children of parents with perceived cognitive impairments. Parental cognitive impairment was indicated if the investigating worker was prepared to include this information in a written assessment of the household, whether or not psychometric test results were available.

The CIS-2003 survey instruments captured standardized information from child welfare professionals conducting investigations. Copies of

the survey instruments are included in Trocme et al. (2005). On average, the surveys were completed approximately 30 days after the initial referral (Black, Trocme, Fallon & MacLaurin, 2008). Data were checked twice for completeness and consistency, once by a member of the research team on-site, and once when the data was entered into the database.

Dependent/Outcomes

All outcomes examined in the study were dichotomous. The outcome variables were:

1. *substantiation* - the investigator concluded on the balance of evidence that maltreatment of any type had occurred.
2. *case disposition* - the case was kept open for ongoing protective services.
3. *court action* - an application to the child welfare court was made.

Independent/Predictors

Independent variables were dichotomous, with the exception of child age and characteristics of the investigating child protection professional. Independent variables comprised:

1. child characteristics - age, sex, functioning issues (i.e., physical, cognitive, emotional, behaviour problems), aboriginal status and primary language.
2. case characteristics - maltreatment type, severity (i.e., signs of harm) and chronicity (i.e., prior substantiated maltreatment reports)
3. parent characteristics - maltreatment in their own upbringing, mental health issues, drug and/or alcohol abuse and non-cooperation
4. household social and economic characteristics - household structure; parent social isolation and social supports; parent educational attainment, employment, income and housing.
5. characteristics of the investigating child protection professional - years of experience in child protection field and current caseload.

The dependent and independent variables included in the analysis are presented in Table 1.

Data analysis

The analysis was conducted using SPSS v.18. Rescaled sample weights were used in all of the analyses reported here. By using the rescaled sample weights, the influence of the final CIS weight (annualization by regionalization) was maintained while reducing the actual number of observations to the original sample size. This rescaled weight is used to avoid inflating the significance of statistics as a result of the high number of cases (Black et al., 2008).

For most CIS-2003 variables the data is either complete or there are few missing data. However there is substantial (> 5%) missing data for indicators of socioeconomic status: parent educational attainment, household employment and income. Multiple imputations were computed, using a logistic regression model (i.e. pattern matching based on household structure, housing status, educational attainment, household employment and income), producing five alternative and complete datasets. We report the pooled statistics when necessary.

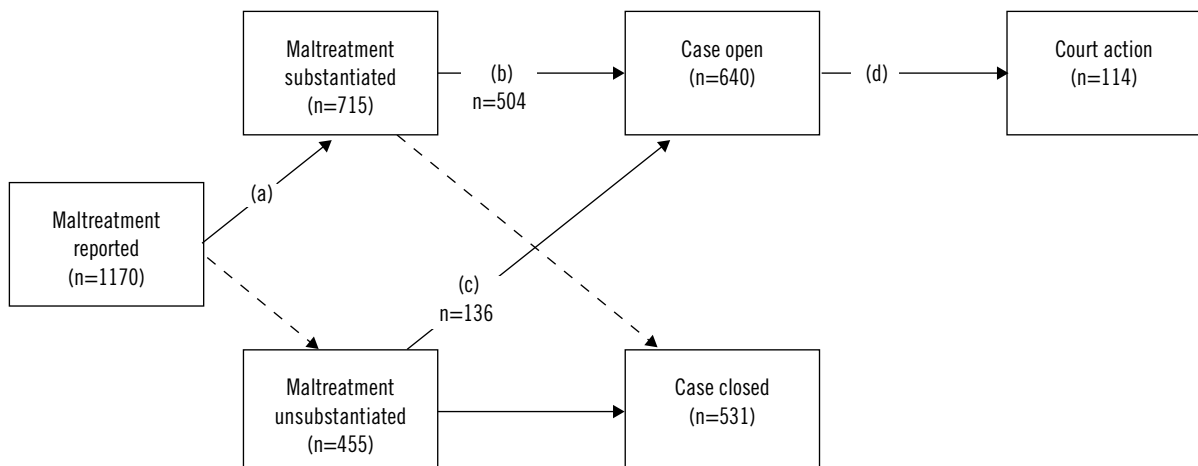
Our first step was to examine the distribution of cases on each variable and in each of the following sub-samples: all cases opened for investigation ($n = 1170$ *weighted*), substantiated cases ($n = 715$ *weighted*), cases kept open for ongoing protective services ($n = 640$ *weighted*), and cases that resulted in application to the child welfare court ($n = 114$ *weighted*). We then employed sequential binary logistic regression with direct entry to investigate the relationship between independent (predictors) and dependent (outcome)

variables. Following the pathway presented in Figure 1, we first looked at the substantiation of child maltreatment (Path a). We then ran separate regression analyses for substantiated (Path b) and unsubstantiated cases (Path c) to identify predictors of case disposition. Next, logistic regression was employed to investigate potential predictors of court action (Path d).

To arrive at the final models presented in Tables 2-4 and Table 6, we applied a two step process of elimination, that is, to identify and then exclude superfluous independent variables. First, and for each outcome, we ran separate regression analyses for each set of variables, as these are grouped together in Table 1: child, case, parent and household, and worker. Variables that were poor predictors (small logistic coefficients and p-values >.05) were excluded from further analysis. Then, for each outcome, independent variables from all variable sets that had not been eliminated were entered directly into a logistic regression analysis. Independent variables that became poor predictors once variables from other sets were included in the model were eliminated and then the final model was tested. Tables 2-4 and Table 6 include the parameters for each predictor included in the final model, as well as model fit and classification data. The ratio of observed events (i.e., cases) to independent variables was greater than 16:1 in all procedures.

When multiple comparisons are made there is increased risk of a Type 1 error. One convention to deal with this is to divide the probability $\alpha = .05$ by

Figure 1. Decision-making pathway



the total number of tests to obtain an adjusted α (i.e., the Bonferroni adjustment). This convention has been criticized on many grounds (see for example, Feise, 2002; Garamszegi, 2006; Nakagawa, 2004; Perneger, 1999; Rothman, 1990). One criticism is that the Bonferroni adjustment is overly conservative resulting in a dramatic increase in the Type 2 error rate. Another criticism is that the decision of how many tests to include is somewhat arbitrary. For example, tests that are performed but not published, and tests that may be performed in the future, are rarely included in calculations. This problem comes to the fore in the secondary analysis of large accessible databases, such as the CIS-2003, where adjustments cannot be made for all tests, published and unpublished, conducted by all research teams that have used or will use the data. Several commentators argue that adjusting for multiple tests in any single study usually creates more problems than it solves, and that there is no plausible alternative to the use of careful reasoning (Feise, 2002; Perneger, 1999). In this study we employ a rationalist approach by (a) balancing statistical significance (p-values) with the magnitude of effect (e.g. size of the logistic coefficient), (b) considering each test in the context of all the data, and (c) considering the extant evidence before reaching any tentative conclusions.

Results

The most common sources of referral in cases featuring parents with cognitive impairments were the children's schools ($n = 259, 22.2\%$), police ($n = 188, 16.1\%$) and health professionals ($n = 120, 10.1\%$). In total, 795 (67.9%) referrals of children living with parents with cognitive impairments were made by professionals of one kind or another. Relatives, neighbours or friends accounted for a further 11.3% of referrals. The custodial parent was the source of referral in 107 cases (9.1%), and in nine cases (0.8%), the child self-referred.

Child neglect was the most common reported child maltreatment concern, representing 56% of cases involving children of parents with cognitive impairments. Allegations of emotional maltreatment, physical abuse and exposure to domestic violence were investigated in 26.5%, 23.1% and 22.5% of cases, respectively. Sexual abuse allegations were rare, investigated in just 4.3% of cases. Notably, just over

one-third (37.9%) of the children of parents with cognitive impairments had previously been referred for protective services and child maltreatment had, at that time, been substantiated.

Substantiation (Path a)

Table 2 presents the results of the sequential logistic regression analysis for substantiation. Parent characteristics such as co-morbidity (e.g., mental health issues) and social isolation (i.e., few social supports), and indicators of economic disadvantage were eliminated early from the model. Child maltreatment type and severity were found to be the most potent predictors of whether a case would be substantiated. The odds of substantiation increased almost three fold ($\exp\beta = 3.71$) when exposure to domestic violence was investigated. Similarly, if the investigating child protection professional observed signs of mental or emotional harm, the odds of substantiation increased by a factor of 3.48. An inverse relationship was found between size of the investigating child protection professional's caseload and the likelihood of substantiation. In other words, as caseload increases the odds of substantiation decrease. Overall, the full (six predictors) model fit the data well, as indicated by the large p -value for the Hosmer and Lemeshow (H & L) goodness-of-fit χ^2 test (i.e., a test of whether the predicted probabilities match the observed probabilities).

Maltreatment substantiated and case kept open (Path b)

As seen in Table 3, when maltreatment is substantiated, case characteristics, including maltreatment type and severity (i.e., signs of mental, emotional, physical harm), were found to be strong predictors of a case being kept open for ongoing protective services. Parent characteristics are also strong predictors. For instance, if a parent was maltreated in their own upbringing the odds that a case (in which maltreatment was substantiated) will be kept open for ongoing services increase by a factor of 4.74 (374%). The results also show that years of experience of child protection professionals predicts case disposition. For each year of experience, the odds that a substantiated case will be kept open decreases by a factor of 0.93 (7%). The likelihood ratio test ($\chi^2 = 222.02, df = 12$) result for the full model is significant at the $p < .001$ level; however,

the small p -value for the H & L goodness-of-fit χ^2 test suggests that the overall model fit is questionable.

Maltreatment unsubstantiated but case kept open (Path c)

Almost one in three cases involving children of parents with cognitive impairment were kept open for ongoing protective services even though child

maltreatment was not substantiated. Table 4 presents the results of the sequential logistic regression for case disposition in unsubstantiated cases. Pooled statistics without Wald's χ^2 are reported because multiple imputations were made for one variable - no household employment - in the final model. With the exception of reported emotional maltreatment, case characteristics were weak predictors of case

Table 1. Child, case, parent, household and worker characteristics

	%All cases (n=1170)	%substantiated (n=715)	%Case open (n=640)	%Court action (n=114)
Child				
child age [mean (standard deviation)]	6.94 (4.61)	7.33 (4.57)	6.65 (4.71)	5.59 (4.77)
child sex = male	54.0%*	53.6%	55.6%	56.3%
aboriginal child	26.8%	29.6%	36.9%	33.8%
primary language is not English/French	4.4%	4.3%	4.2%	1.6%
child functioning issue/s (physical, emotional, cognitive &/or behavioural)	63.8%	67.6%	72.1%	68.9%
Case				
prior substantiated maltreatment report/s	37.9%	41.1%	41.7%	48.5%
signs: mental or emotional harm	21.8%	29.8%	30.2%	48.2%
signs: physical harm (e.g. bruises, failure to thrive)	9.5%	11.3%	13.3%	25.5%
alleged neglect	56%	59.2%	65.2%	65.0%
alleged emotional maltreatment	26.5%	27.4%	32.3%	38.9%
alleged physical abuse	22.5%	20.1%	13.3%	16.7%
alleged sexual abuse	4.3%	2.1%	1.2%	0%
alleged domestic violence	23.1%	28.9%	24.3%	23.8%
Parent & household				
parent non-cooperation with investigation	23.1%	25.4%	27.4%	55.1%
parent (A &/or B) mental health issues	65.6%	70.6%	74.4%	82.3%
parent (A &/or B) maltreated as a child	59.6%	63.5%	71.1%	66.3%
parent (A &/or B) few social supports	68.2%	73.9%	77.9%	74.1%
parent (A &/or B) drug and/or alcohol abuse	51.5%	57.4%	60.6%	62.3%
parent (A & B) did not complete secondary	68.6%	71.1%	72.8%	72.3%
no household employment	49.6%	46.9%	52.6%	52.6%
household income < \$25,000	79.1%	81.1%	81.1%	88.0%
public housing or shelter	27.3%	30.2%	31.0%	35.9%
sole-parent (non-cohabiting)	47.0%	46.3%	47.4%	56.7%
No. of children [mean (standard deviation)]	2.57 (1.40)	2.60 (1.49)	2.63 (1.54)	2.12 (1.27)
Worker				
Current caseload [mean (standard deviation)]	14.67 (10.88)	13.05 (8.46)	14.67 (10.88)	13.46 (8.17)
Years working in child protection [mean (standard deviation)]	6.83 (7.22)	6.90 (6.80)	6.83 (7.22)	5.90 (6.12)

*interpretation: 54% of 1170 children were male

Table 2. Logistic regression analysis: Path (a) substantiation*

Predictor	β	SE β	Wald's χ^2	df	p	Odds ratio	95% CI
child age	.047	.016	9.031	1	.003	1.048	1.016 – 1.080
signs: mental or emotional harm	1.246	.196	40.283	1	.000	3.475	2.365 – 5.105
signs: physical harm	.787	.242	10.596	1	.001	2.196	1.368 – 3.527
alleged neglect	.748	.151	24.637	1	.000	2.113	1.573 – 2.840
alleged domestic violence	1.312	.189	48.034	1	.000	3.714	2.563 – 5.383
worker's current caseload	-.024	.007	13.121	1	.000	0.976	0.964 – 0.989
Constant	-.497	.219	5.173	1	.023		
Model $\chi^2 = 159.356$, df = 6, p<.000; Hosmer & Lemeshow $\chi^2 = 9.797$, df = 8, p=.280; Cox & Snell $R^2 = .137$; Nagelkerke $R^2 = .186$				Correct classification (full model) = 68.6%; sensitivity = 85%; specificity = 43%.			

* reference category is unsubstantiated (0)

Table 3. Logistic regression analysis: Path (b) substantiated, case kept open*

Predictor	β	SE β	Wald's χ^2	df	p	Odds ratio	95% CI
aboriginal child	.858	.264	10.563	1	.001	2.359	1.406 – 3.959
signs: mental or emotional harm	1.425	.277	26.447	1	.000	4.156	2.415 – 7.154
signs: physical harm	1.684	.414	16.564	1	.000	5.385	2.394 – 12.113
alleged neglect	1.217	.252	23.366	1	.000	3.376	2.061 – 5.529
alleged physical abuse	-.885	.280	9.976	1	.002	0.413	0.238 – 0.715
alleged sexual abuse	-2.081	.694	9.000	1	.003	0.125	0.032 – 0.486
alleged emotional maltreatment	.723	.268	7.275	1	.007	2.061	1.219 – 3.486
parent non-cooperation	1.079	.292	13.677	1	.000	2.941	1.660 – 5.210
parent mental health issues	.753	.244	9.546	1	.002	2.124	1.317 – 3.426
parent maltreated as a child	1.556	.228	46.568	1	.000	4.741	3.032 – 7.412
parent few social supports	.481	.235	4.167	1	.041	1.617	1.019 – 2.566
worker years in child protection	-.070	.016	18.446	1	.000	0.933	0.903 – 0.963
Constant	-1.930	.354	29.671	1	.000		
Model $\chi^2 = 222.022$, df = 12, p<.000; Hosmer & Lemeshow $\chi^2 = 23.221$, df = 8, p=.003; Cox & Snell $R^2 = .285$; Nagelkerke $R^2 = .407$				Correct classification (full model) = 81.0%; sensitivity = 92.2%; specificity = 53.7%.			

*reference category is case closed (0)

disposition in unsubstantiated cases of child maltreatment involving children of parents with cognitive impairment. The data in Table 4 show that unsubstantiated cases are far more likely to be kept open if the child is younger, aboriginal and/or has functioning issues (physical, emotional, cognitive, behavioural problems), and when the parent is

socially isolated with few social supports, is using alcohol and/or drugs, and/or has no employment. As we found for Path (b), more experienced child protection professionals were less likely to keep these cases open.

Referrals to other services (cases kept open)

At least one referral for service was made in 83.7% of cases involving children of parents with cognitive impairment that were kept open for ongoing protective services. Table 5 shows the per cent of cases (% of cases kept open, % cases that did not result in court application, and % cases that did so) referred for each service type. The unadjusted odds of court application when each referral is made compared to when it is not are also shown. The most common referrals were for parenting education and support, family and/or couple counselling, domestic violence services, specialized psychiatric/psychological services and drug and/or alcohol counselling for the parent or child, food bank services and welfare/social assistance. One notable finding is that referral for in-home parenting support reduced the odds of court application by 88%. Referral for food bank services reduced the odds of court application by 1075%. However, in the latter analysis cell numbers were small so the result should be treated with extra caution.

Court Application

A court application was made in 114 cases, representing 9.8% of all cases involving children of parents with cognitive impairment that were opened for investigation, and 17.8% of those that

were subsequently kept open for ongoing protective services. Table 6 presents the results of the sequential logistic regression analysis examining predictors of court application. The results indicate that the single most potent predictor of court action in cases involving children of parents with cognitive impairments is 'perceived parent non-cooperation' ($\exp\beta = 4.78$). Indicators of the severity of child maltreatment (i.e., signs of mental, emotional or physical harm) were also strong predictors of court action. Child age is inversely related to court application: the odds of court action decrease by a factor of 0.90 (12%) for each year of age. Overall model evaluation (likelihood ratio test $\chi^2 = 108.76$, $df = 5$, $p < .001$) and goodness-of-fit statistics (H & L $\chi^2 = 13.38$, $df = 8$, $p = .10$) suggest that the model is sound.

Mediation

As reported above, perceived parent non-cooperation is a strong predictor of court action: it discriminates between cases that remain open pending court proceedings, and cases that remain open for other kinds of intervention (Table 6). It is therefore remarkable that referrals for mediation were so rarely made: mediation was attempted in just 2 out of 114 cases that resulted in court application. Overall, referrals for mediation were made in just 32 (2.7%) of 1170 cases involving children of parents with cognitive impairments.

Table 4. Logistic regression analysis: Path (c) unsubstantiated, case kept open*

Predictor	β	SE β	df	p	Odds ratio	95% CI
child age	-.225	.036	1	.000	0.799	0.744 – 0.857
aboriginal child	.849	.313	1	.007	2.338	1.265 – 4.319
child functioning issue/s	1.227	.313	1	.000	3.410	1.846 – 6.300
alleged emotional maltreatment	1.240	.313	1	.000	3.455	1.870 – 6.384
parent few social supports	.972	.299	1	.001	2.643	1.471 – 4.748
parent drug/alcohol abuse	.574	.285	1	.044	1.776	1.016 – 3.104
no household employment	.592	.289	1	.040	1.808	1.026 – 3.184
worker years in child protection	-.075	.031	1	.014	0.928	0.874 – 0.985
Constant	-1.630	.406	1	.000		
Model $\chi^2 = 150.055 - 151.550$, $df = 8$, $p < .000$; Hosmer & Lemeshow $\chi^2 = 12.849 - 17.377$, $df = 8$, $p = .026 - .117$; Cox & Snell $R^2 = .313 - .315$; Nagelkerke $R^2 = .438 - .441$			Correct classification (full model) = 80.4 – 80.9%; sensitivity=58.2–59.5%; specificity=90.7–91.0%.			

*reference category is case closed (0)

Table 5. Cases kept open: referrals for (child, parent, family) services

	% Total (n=640)	% No court application (n=526)	% Court application (n=114)	Odds ratio*
In-home parenting support	46.3%	49.0%	33.9%	0.533 (p<.004)
Group based parent education/support	31.0%	31.2%	29.8%	ns
Family/couples counselling	32.5%	32.1%	34.2%	ns
Domestic violence services	21.9%	19.2%	34.2%	2.188 (p<.001)
Psychiatric/psychological services	23.3%	21.1%	33.3%	1.869 (p<.006)
Drug &/or alcohol counselling	25.7%	21.0%	47.4%	3.395 (p<.001)
Victim support program	9.3%	10.1%	5.3%	ns
Welfare/social assistance (financial)	11.5%	12.6%	6.1%	ns
Food bank	19.0%	22.5%	2.6%	0.093 (p<.001)
Shelter services	8.7%	9.7%	4.3%	ns
Medical/dental services	8.1%	6.9%	13.9%	2.195 (p<.02)
Special education referral	3.4%	3.8%	0.9%	ns
Recreation programs	4.9%	5.9%	0.9%	ns
Child/Day Care	10.6%	11.6%	5.3%	ns
Cultural services	11.1%	10.6%	13.9%	ns
Other service	12.0%	13.1%	7.0%	ns

*Odds of court application when referral is made compared to when it is not.

Table 6. Logistic regression analysis: Path (d) case open, court action*

Predictor	β	SE β	Wald's χ^2	df	p	Odds ratio	95% CI
child age	-.111	.029	14.849	1	.000	.895	.846 - 947
signs: mental or emotional harm	1.474	.268	30.325	1	.000	4.365	2.584 – 7.379
signs: physical harm	1.128	.297	14.400	1	.000	3.089	1.725 – 5.530
parent non-cooperation	1.563	.234	44.582	1	.000	4.775	3.018 – 7.557
sole-parent (non-cohabiting)	.663	.233	8.080	1	.004	1.941	1.229 – 3.065
Constant	-2.496	.271	85.040	1	.000		
Model $\chi^2 = 108.762$, df = 5, p<.000; Hosmer & Lemeshow $\chi^2 = 13.379$, df = 8, p=.099; Cox & Snell $R^2 = .156$; Nagelkerke $R^2 = .257$				Correct classification (full model) = 84.2%; sensitivity=24.8%; specificity=97.2%.			

*reference category is 'no court action' (0)

Discussion

One main finding, and one that confirms our initial hypothesis, is that perceived parent non-cooperation is a potent predictor of whether or not child protection professionals take court action in cases involving children of parents with cognitive impairments. One reason why parents with cognitive impairments may be perceived to be non-cooperative is that they may be unreliable timekeepers, double-book appointments

and make spur-of-the moment decisions (e.g., go shopping with a friend) without contemplating the consequences, and missed appointments are often interpreted as non-cooperation (Booth et al., 2006). Another reason is that child protection professionals may not have the time or skill required to deal with parents' fear of 'the welfare' and to develop the necessary rapport to work effectively with them (Booth et al., 2006). A third reason is that the parents

may seem to acquiesce with what they are being told or asked to do without fully comprehending what they are being told, and when they do not follow through, this may be interpreted as non-cooperation (McConnell & Sigurjónsdóttir, in press). A fourth reason is that the parent may have depression or a physical illness that produces apathy, fatigue and disorganization. Whatever the reason may be for perceived parental non-cooperation, mediation (i.e., alternative dispute resolution) is one appropriate first course of action (Edwards, 2009; Pennell & Burford, 2000). Yet the CIS-2003 data indicates that child protection professionals are rarely using mediation services. Workers may feel that the parent would not benefit from mediation because of their cognitive limitations. Alternatively, as McConnell et al. (2006) found in Australia, child protection professionals may be using court action to coerce parents into compliance rather than using mediation to resolve disputes.

Another main finding confirming our hypothesis is that parent social isolation/having few social supports is a strong predictor of the decision to keep a case open for ongoing services. Parent social isolation/few social supports is a particularly strong predictor of the decision to keep a case open for ongoing protective services when there is no evidence of maltreatment. Clearly child protection professionals are reluctant to close a case, even when there is no evidence of maltreatment, if they believe that the parent has few informal supports or, alternatively, if they believe that there are few or no adults *without* cognitive impairments watching out for the child. Parent social isolation did not emerge as a strong predictor of court application, although sole parent status did, and this may be treated as an indicator of social vulnerability by child protection professionals. Although these findings are correlational, perhaps evidence-based interventions designed to strengthen the social relationships of parents with cognitive impairments could help avert the need for costly, ongoing protective services involvement, court action and out-of-home placement. In the field of parents and parenting with intellectual disabilities/cognitive impairments, the topic of social relationships is receiving increased research attention (IASSID Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008). Two recent studies have demonstrated the promise of group-based,

adult learning interventions in empowering mothers, strengthening their social relationships, and in turn, improving their psychological wellbeing (Booth & Booth, 2003; McConnell, Dalziel, Llewellyn, Laidlaw & Hindmarsh, 2008). Further research is required to confirm the efficacy of these programs and to determine whether they result in a reduction in protective services involvement.

A third main finding is that child neglect is by far the most common child protection concern in cases involving children of parents with cognitive impairments. This is consistent with the findings from court sample studies (Booth et al., 2005; Llewellyn et al., 2003), and the experience and expectations of researchers and practitioners in the field at large (IASSID Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008). There is also a logical fit between the high incidence of child neglect and the high rate of referral for group-based and/or in-home parenting education and support. And one of the most intriguing findings is that when a referral for in-home parenting education/support is made, the odds of court action are substantially reduced. One possible interpretation is that child protection professionals will opt for referral to in-home parenting support services over court action, that is, when such services are available. The literature on parenting education for parents with intellectual disabilities indicates that in-home, individualized, behaviorally-based skill training strategies are efficacious (Feldman, 1994; Wade, Llewellyn & Matthews, 2008), and successful completion of evidence-based parent education programs substantially reduces the rate of child removal (Feldman, Case & Sparks, 1992; Feldman, Sparks & Case, 1993). Further research is required to determine outcomes for families with parents who have cognitive impairments referred for in-home parenting support services (e.g., whether the case is subsequently closed or a court application made), and the extent to which existing in-home parenting support services incorporate best practices.

Despite the high levels of poverty in this group and the unequivocal relationship that exists between poverty and increased risk of child neglect (Connell et al., 2007; Stith et al., 2009; Wolock, Sherman, Feldman & Metzger, 2001), referrals for services related to poverty alleviation were much less common

than referrals for parenting education and support (see Table 5). The lack of referrals may reflect a child protection practice driven more by a parent-as-problem framework rather than ecological framework for understanding parent, child and family needs and outcomes (Aunos & Feldman, 2007; Feldman, 2002; McConnell & Llewellyn, 2005). Also of concern is the observation that the number of referrals for poverty alleviation services in cases that resulted in court action was negligible (see Table 5). This finding could mean that court action is more likely in areas where poverty alleviation services are not as accessible or are infrequently used. Alternatively, it could mean that child protection professionals are less concerned with alleviating family poverty if they have already decided that the child should be permanently placed out-of-home. The latter would seem to be short-sighted when reunification may be a consideration in the future, and when such conditions may increase the vulnerability of other children (perhaps not yet born).

We hypothesized that child functioning issues (i.e. physical, cognitive, emotional, behavior problems) and low household income would predict child maltreatment investigation outcomes in cases featuring parents with cognitive impairment. Low household income was not a strong predictor, although as mentioned, a highly correlated variable, no household employment predicted court application. Child functioning was found to be a strong predictor, but only of case disposition, and only in those cases where maltreatment was not substantiated. In other words, child functioning issues, whether physical, cognitive, emotional and/or behavioral, appear to give child protection workers a reason to keep a case open in the absence of any evidence of maltreatment, perhaps so that the family could receive some additional supports.

Another major finding is that characteristics of the child protection professional, including caseload and years spent working in child protection, were strong predictors of investigation outcomes. Child protection professionals with heavier caseloads are less likely to substantiate maltreatment reports in cases involving children of parents with cognitive impairments. More experienced child protection professionals were less likely to keep a case open for ongoing protective services or supervision. There

may be demographic differences that explain these findings. More experienced workers may, for instance, be concentrated in geographical areas or regions where keeping a case open is less viable and/or less worthwhile. It could also be that less experienced workers are overestimating risk (Cash, 2001; Munro, 1999), are less confident in dealing with parents with cognitive impairments, or are less comfortable with the inevitable uncertainty with respect to outcomes. Regardless, this finding calls to attention that child protection decisions regarding parents with cognitive impairments may be influenced by circumstances that are not under the parent's control. More training in working with parents with cognitive limitations for new child protection professionals may make them more comfortable in working with this population and reduce any pre-existing biases and misconceptions.

Limitations

One limitation of this study was that level of cognitive impairment was not ascertained. Although no monotonic relationship exists between parental IQ and parenting capacity, it is generally believed that the relationship is stronger when parental IQ is < 60 (IASSID Special Interest Research group on Parents and Parenting with Intellectual Disabilities, 2008). Level of impairment (IQ < 60) is therefore one variable not included in this study that may have a bearing on (perceived) risk and/or worker confidence in reducing risk and in turn, decision-making. Further, the CIS-2003 does not contain information on potentially relevant system constraints, such as the availability of foster carers, the suitability of services for parents with cognitive impairments in different areas or regions, and the dispersion of prejudicial beliefs (Booth et al., 2006; McConnell et al., 2006).

Another important limitation of this study was that the CIS-2003 data only capture case characteristics and outcomes at a single point in time, which on average was just 30 days after the investigation was opened. Longer term outcomes, including, but not limited to, outcomes in cases that were kept open for ongoing protective services, and cases in which child welfare court action was taken are not known. Longitudinal or semi-longitudinal studies incorporating validated measures and qualitative methods would be helpful to develop a deeper and more sophisticated understanding of the decision-

making process and outcomes for children of parents with cognitive impairments.

Conclusion

Parental cognitive impairment is a strong predictor of court action after adjusting for the effects of child, case (maltreatment type, severity, chronicity), parent (co-morbidity) and household social and economic characteristics (McConnell et al., 2008). More than one in four court applications in Canada involve children of parents with cognitive impairment, which is substantially (5 to 25 times) higher than what would be predicted by their population prevalence. Booth et al. (2005) report a similar prevalence rate from their analysis of child welfare court records in the UK. Booth et al. also found that approximately 9 out of 10 of those cases resulted in the child being placed out-of-home. If this rate of out-of-home placement applies across Canada, then more than 2000 children of parents with cognitive impairment are being placed out-of-home each year in this country alone. Analysis of child welfare court records in Canada is needed to determine the true placement rate for these children.

The findings from this study point to some possible interventions to prevent child maltreatment, increase referrals to needed services and avert court action and subsequent out-of-home placement of children of parents with cognitive impairments. The development and/or utilization of mediation services, used successfully in other populations and situations (Edwards, 2009) as a means of resolving conflicts (e.g., over the interpretation of what the child needs) with parents with cognitive impairments stands out as one. The expansion of evidence-based parenting education programs, and programs to strengthen the social relationships of parents with cognitive impairments would also appear to hold promise. However, the current findings suggest that a more integrated, planned and systematic capacity building approach is needed. A range of strategies are needed to build systems capacity (knowledge, skills, and willingness) to support parents with cognitive impairment and their children so as to alleviate poverty, strengthen social relationships, increase parenting strengths and in turn, promote child wellbeing. The high human and economic costs of child maltreatment, protective services and out-of-home placement make prevention focused initiatives a must. Research into

the cost-effectiveness of prevention initiatives has shown that for every dollar spent on prevention \$17 dollars is saved by the time the child reaches mid-life (Blakester, 2006). To the best of our knowledge, only one country, Australia, has a national strategy – Healthy Start – to build systems capacity to support these families (see www.healthystart.net.au; McConnell, Matthews, Llewellyn, Mildon & Hindmarsh, 2008), and this may provide a useful starting point for planners in other countries.

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APPENDIX 1

Child Welfare Involvement of Mothers with Mental Health Issues

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Background

Many mothers with mental health issues are caught up in the child protection system and face the prospect of having their child/ren removed from their care. The aim of this study was to determine prevalence and outcomes for mothers with mental health issues in child maltreatment cases opened for investigation in Canada.

Method

The method was secondary analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core data. This CIS-2003 contains process and outcome data on a nationally representative sample of 11,652 child maltreatment investigations.

Results

Maternal mental health issues were noted in 2525 (21.8%) cases opened for investigation. The most common child protection concerns were neglect, emotional maltreatment and exposure to domestic violence. A significant association was found between maternal mental health issues and child maltreatment investigation outcomes. The relationship is however confounded by poverty, social isolation, drug and alcohol abuse and other 'vulnerability' factors.

Conclusion

'Broad spectrum', multi-disciplinary services are needed to support mothers with mental health issues. Effective mental health care is vital but insufficient. Addressing trauma, strengthening social relationships and alleviating poverty are also key. Systemic advocacy

is needed to ensure that mothers with mental health issues can access broad spectrum supports.

Child Welfare Involvement of Mothers with Mental Health Issues

Mental illness affects people in all occupations, education levels, socio-economic conditions, and cultures (Government of Canada, 2006). At some point in their lives, mental illness will affect most Canadians through a family member, friend, or colleague (Government of Canada, 2006). According to the U.S. Surgeon General's Report on Mental Health, in any given year approximately 20% of the adult population suffer a diagnosable mental disorder (U.S. Department of Health and Human Services, 1999). Data from Statistics Canada demonstrates similar findings with respect to women of child-bearing age. In 2002, 19.8% and 13.0% of the total population of Canadian women aged 15 to 24, and 25 to 44 years respectively, experienced a diagnosable disorder in the past twelve months (Government of Canada, 2006).

Many women with mental health issues, including but not limited to those with psychiatric diagnoses, are mothers (Diaz-Caneja & Johnson, 2004). These mothers face a number of challenges that can impact their role as parent. In addition to managing their illness, many face added stressors such as poverty, social isolation and inadequate support. Substance abuse and exposure to domestic violence can further compound the challenges these women face (Velleman, 2004). Despite these challenges, many of these mothers derive great satisfaction and fulfilment from their role as parent and speak of increased self-esteem and positive impacts on their mental health as a result (Diaz-Caneja & Johnson, 2004). Nevertheless, while most mothers with mental health issues succeed, it appears that many others struggle. One consequence is that many mothers with mental health issues are caught up in the child welfare system and face the prospect of having their children removed from their care (Park, Solomon & Mandell, 2006; Trocmé et al., 2005). There is however little research examining how these mothers and their children fare in the child welfare system.

Impact of Mental Health and Environmental Issues on Parenting

The extant literature suggests that a mental health diagnosis is a poor predictor of parenting capacity. Rather, the capacity of mothers with mental health issues to adequately care for their children depends upon a complex interaction of many variables (Kinard, 1996 cited in Lewis & Creighton, 1999; Mowbray, Oyserman, Bybee, & MacFarlane, 2002; Oyserman, Mowbray, Allen-Meares, & Firminger, 2000). These include, for example, type and severity of the illness; the current phase of the illness; individual characteristics, including insight into illness and treatment; available treatment and support; and, various social and environmental factors (Dowling, 2004; Ross, 2004; Seeman & Gópfert, 2004). Mowbray et al. (2002), for example, examined the effects of mental illness on parenting in a large urban-based sample of 379 mothers with serious mental illness. All cared for at least one child between the ages of four and sixteen. Measures of parenting, community functioning, and illness (chronicity, duration, symptomatology) were obtained. Results demonstrated symptomatology and community functioning were much stronger predictors of parenting than diagnosis *per se*.

Many mothers with mental health issues face social barriers such as poverty, social exclusion, and lack of available support which may undermine their parenting capacity (Gópfert, Webster, & Nelki, 2004; Oyserman et al., 2000). Such factors may have direct effects on caregiving. They may also have indirect effects; for example, by contributing to the difficulties these mothers face in knowing where to go for help, and having the financial means to maintain effective treatments. Further, mothers with mental health issues often suffer co-morbidities: domestic violence and substance abuse problems often co-occur in cases where maternal mental illness is evident (Helfrich, Fujiura, & Rutkowski-Kmitta, 2008; U.S. Department of Health and Human Services, 1999). Under these difficult circumstances, many mothers with mental health issues struggle with the challenging task of parenting. One longitudinal study involving 322 mothers with persistent SMI found that the likelihood of child welfare intervention and child custody loss increased when the woman was unmarried, had a household income below the poverty line, a larger number of children, and less social support related to child care (Hollingsworth, 2004).

Children of mothers with a serious mental illness are at a heightened risk of developing psychiatric disorders (Lapalme, Hodgins & Laroche, 1997; Mowbray & Mowbray, 2006; Rutter & Quinton, 1984; Seeman, 2004; VanDeMark et al., 2005). For example, Pilowsky et al. (2006) concluded that the current and lifetime prevalence of psychiatric diagnosis in children of mothers with depression was 34% and 45% respectively. Similarly, Oyserman et al. (2000) reported that 32% to 56% of children of parents with a serious MI will develop a DSM diagnosable disorder in their lifetime. Risk of developing many forms of mental illness is inherited. However, risk may be increased by social and environmental factors such as poverty, social isolation, family discord and domestic violence, which in turn, may be caused or compounded by parental substance abuse and other co-morbidity (Lancaster, 2004; Lapalme et al., 1997; VanDeMark et al., 2005; Velleman, 2004). This research highlighting risk is balanced by other research revealing resilience. Many children of mothers with mental illness appear to be minimally affected (Garmezy, 1974 cited in Lancaster, 2004). These children may be exposed to certain protective factors. Certain child characteristics and the availability of other sources of support (e.g. extended family, strong peer relationships, well-parent) appear to promote resilience (Hall, 2004; Quinton & Rutter, 1984; VanDeMark et al., 2005).

Child Welfare Investigation

Parents with mental health issues are more likely than parents without mental health issues to be investigated by child protection authorities (Falkov, 1996, 1997, Tomison, 1996 cited in Lewis & Creighton, 1999; Joseph et al., 1999, Mowbray et al., 1995 cited in Brunt, 2004; Park et al., 2006). For example, Park et al. (2006) analyzed Medicaid eligibility and claims data that was merged with data from the child welfare system in Philadelphia 1995 to 2000 for a total of 4,827 Medicaid eligible mothers between the ages of 15 and 45. After controlling for a number of potentially confounding variables including ethnicity and age, mothers with a mental health diagnosis were found to be almost three times as likely as mothers without a diagnosis to have had any involvement in the child welfare system.

Parents with mental health issues are also highly prevalent in child welfare court proceedings. In

Australia, for example, McConnell, Llewellyn and Ferronato (2000) investigated 407 cases heard by the New South Wales Children's Court. They found that parents with a diagnosed psychiatric disorder or serious mental illness featured in 18.4% of all cases. In the United States, Taylor et al. (1991) examined the child welfare court records of 206 children and their families and found that in over half the records (n=104) a parent had been diagnosed as having an emotional disorder and/or low IQ. Further, this study determined that four-fifths of cases featuring parents with a psychotic disorder and one-fifth of cases featuring parents with a neurotic disorder resulted in permanent out-of-home placement. Similarly, Sands, Koppelman and Solomon (2004), in their study on custody status of women with severe mental illness, found that fewer than one-third of mothers in their sample had full or partial custody of their children.

The extent to which these research findings may be generalised to Canada is unclear. There is little Canadian data. Further, little is known about these mothers and children, the nature of the alleged maltreatment, or the outcomes of child maltreatment investigations. Most of the data about these mothers comes from small or non-representative samples. Studies have, for example, focused on mental illness either solely within white middle-class samples (Hollingsworth, 2004; Mowbray and Mowbray, 2006), or in marginalized groups who face out-of-the ordinary environmental risk conditions (Hollingsworth, 2004; Park et al., 2006). Further research is needed, ideally using large, rigorously constructed population data-sets, to determine how these mothers and their children fare in the Canadian child welfare system. To address this need a secondary analysis of the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) core-data was undertaken. The aim was threefold:

- (1) to investigate the prevalence of mothers with mental health issues in Canadian child maltreatment investigations;
- (2) to profile cases featuring mothers with mental health issues, including alleged maltreatment type, and child, caregiver and family/ household risk factors; and,
- (3) to determine the outcomes of child protection investigations involving mothers with mental health issues.

Method

The Canadian Incidence Study of Reported Child Abuse and Neglect (CIS-2003) employed a stratified cluster design to sample a total of 14,200 child maltreatment investigations across Canada. The core CIS-2003 sample consists of 11,562 child maltreatment investigations with data from Quebec excluded because of differences in information gathering systems. Notably, the CIS-2003 is limited to reports investigated by child welfare services and does not include cases that were screened out, cases that were investigated only by the police, or cases that were never reported (Black, Trocme, Fallon, & MacLaurin, 2008; Trocme et al., 2005).

The Maltreatment Assessment Form was the main data collection tool. The form consists of an intake face sheet, a household information sheet, and a child sheet. Investigating workers completed the intake face sheet for each new case opened during the study period (October 1, 2003- December 31, 2003). The intake sheet collected basic information about the referral and children involved. The household and child information sheets were only completed when at least one child in the family was investigated for suspected maltreatment (Trocme et al., 2005). These sheets, which were usually completed within 30 days of the initial referral (Black et al., 2008), gathered information about the child, caregiver/s and household, the nature of the alleged maltreatment, and case outcomes including for example, whether the maltreatment was substantiated, whether the child was removed, and whether an application to the child welfare court was made.

The analysis was conducted in several steps using SPSS version 17. For the descriptive purposes of this study univariate statistical procedures were employed. A new dichotomous variable had first to be created: biological mothers with and without suspected or confirmed mental health issues. Identification of suspected and confirmed mental health issues was based on the investigating worker's report. A simple frequency table was then computed to determine the number and percentage of child welfare investigations involving mothers with suspected or confirmed mental health issues. The next step involved computation of a series of cross-tabulations with chi square statistic to examine the association between maternal mental health issues, alleged maltreatment type, and selected

child, caregiver and household characteristics. The same procedure was employed in the final step of the analysis to examine the association between maternal mental health issues and selected investigation outcomes, including out-of-home placement, case disposition (i.e., case kept open), child welfare court consideration, and court application. A total of 50 comparisons were conducted. Therefore a Bonferroni adjustment was made to reduce the likelihood of a Type 1 error. The corrected significance level was set at $\alpha = .001$.

Results

The CIS-2003 core sample consisted of 11,562 cases of investigated maltreatment. Of these, 21.8% (n= 2,525 cases) involved mothers with a confirmed or suspected mental health issue. This prevalence rate is consistent with national and international estimates of the population prevalence of mental health conditions.

Source and Reason for Referral

There was no single major source of referrals to the child protection authorities concerning children of mothers with mental health issues. There were 19 different sources including, but not limited to relatives, friends/neighbours, physicians and mental health professionals. The most common referral sources were the 'police' and 'school'. Specifically, 19.3% and 19.2% of the total referrals to child welfare services involving mothers with mental health issues were from the police and school respectively. In 1.4% of cases the child was the source of referral.

Documented reasons for referral varied. Suspected maltreatment was the first reason for referral in 60% of cases involving mothers with mental health concerns. In these cases, the police and school were the main referral sources. Domestic violence was the first reason

for referral in a further 13.7% of cases. Caregiver drug/alcohol use and caregiver mental health issues were first reasons in 8.3% and 8.0% of cases respectively. Notably, most (55%) of the referred children had prior contact with the child protection authority.

Child Protection Concerns and Substantiation

Upon investigation, maltreatment was 'substantiated' by the child protection authority in 64.1% of cases involving mothers with mental health issues. By contrast, maltreatment was substantiated in 44.7% of all other cases. A case was considered 'substantiated' if, in the view of the investigating worker, the balance of evidence indicated that abuse or neglect had occurred. A cross-tabulation with chi-square analysis showed a significant, positive association between maternal mental health issues and the substantiation of child maltreatment ($\chi^2= 295.770$, $p < .001$).

Categorised by primary maltreatment type, and in descending order of frequency, 38.6% of cases involving mothers with mental health issues concerned Neglect, 21.9% Emotional Maltreatment, 18.6% Exposure to Domestic Violence, 18.0% Physical Abuse, and 2.8% Sexual Abuse. Cross-tabulation with chi-square analysis revealed a significant association between maternal mental health issues and primary maltreatment type ($\chi^2= 258.547$, $p < .001$). Inspection of observed and predicted frequencies indicated that, by comparison with all other cases, 'substantiated' Neglect and Emotional Abuse were more common in cases involving mothers with mental health issues (See Table 1). Physical or other harms to the child were rarely noted in any cases, including but not limited to those involving mothers with mental health issues. In 97.0% (n=2448) of cases involving maternal mental health concerns, no medical treatment for physical harm was required; and, in 73.8% (n=1858) of cases no signs of mental or emotional harm to the child were noted.

Table 1. Substantiated maltreatment

Primary maltreatment type	% Substantiated MMI cases	% Substantiated all other cases	χ^2 value	p-value
Sexual Abuse	25.5% (n= 28)	20.6% (n=142)	18.133	<.001
Physical Abuse	52.7% (n=317)	37.0% (n=1093)	100.506	<.001
Domestic Violence	75.1% (n=531)	67.9% (n=1414)	78.170	<.001
Neglect	57.8% (n=720)	37.1% (n=1357)	242.911	<.001
Emotional Maltreatment	58.3% (n=602)	38.6% (n=783)	140.326	<.001

Household Characteristics

Data was collected on a number of household indicators (See Table 2), although there is substantial missing data. Table 2 presents summaries of the non-missing data for cases involving mothers with mental health issues and all other cases, and the findings of between group contrasts. Well over half (69.7%) of the mothers with mental health issues were surviving on low incomes (< \$24,999), were reliant on social welfare benefits (60.5%), and had not completed secondary education (59.7%). Many of these mothers were living in public housing or shelters (20.9%), and approximately 19.7% reported two or more moves within the last twelve months. In comparison, for all other cases (i.e., mothers without mental health issues), fewer than half (48.9%) reported low incomes (<\$24,999), just over one-third reported social welfare benefits as a source of income (36.6%), and less than half (39.5%) had not completed their

secondary education. Public housing or shelter was furthermore reported in 14.6% of all other cases, and 10.1% reported two or more moves within the last twelve months. As shown in Table 2, on all socioeconomic indicators, differences between cases involving mothers with and without mental health issues were statistically significant.

Caregiver Risk Factors and Perceived Cooperation

Data was collected on the presence/absence of 9 caregiver risk factors, including caregiver mental health issues (See Table 3). On average, a total of 3.2 caregiver risk factors (confirmed or suspected) were documented in cases involving mothers with mental health issues, and 1.6 in all other cases. A T-test revealed that this difference was statistically significant (t-value = - 42.105, p <.001). The most common caregiver risk factors in cases involving mothers with mental health issues, in descending

Table 2. Household characteristics*

Household indicator	% Mothers with mental health issues	% All others cases	χ^2 value	p-value
Education Level (Secondary incomplete)	59.7% (n=716)	39.5% (n=1338)	145.118	<.001
Home Over Crowded	9.3% (n=228)	6.6% (n=574)	20.539	<.001
Housing Status (Public Housing or Shelter)	20.9% (n=498)	14.6% (n=1194)	53.902	<.001
Income (<\$24,999)	69.7% (n=1060)	48.9% (n=2155)	197.714	<.001
Income Source (Benefits)	60.5% (n=1232)	36.6% (n=2588)	372.466	<.001
Moves in the Last 12 Months (2 or More Moves)	19.7% (n=396)	10.1% (n=680)	139.420	<.001
Unsafe Living Conditions	11.6% (n=279)	4.5% (n=379)	167.513	<.001

*Cases with missing data excluded

Table 3. Caregiver risk factors

Caregiver risk factor	% Mothers with mental health issues	% All other cases	χ^2 value	p-value
Alcohol Abuse	42.5% (n=1073)	26.9% (n=2431)	227.233	<.001
Drug/Solvent Abuse	35.4% (n=895)	18.0% (n=1625)	353.132	<.001
Criminal Activity	25.2% (n=637)	15.1% (n=1369)	139.810	<.001
Cognitive Impairment	27.2% (n=687)	6.2% (n=556)	911.881	<.001
Physical Health Issues	25.1% (n=633)	10.3% (n=929)	369.433	<.001
Few Social Supports	64.9% (n=1639)	30.1% (n=2724)	1015.370	<.001
Maltreated as a Child	49.8% (n=1258)	20.1% (n=1813)	896.067	<.001
Domestic Violence	59.4% (n=1501)	34.2% (n=3088)	526.696	<.001

order of frequency were few social supports (64.9%), domestic violence (59.4%), maltreated as a child (49.8%), alcohol abuse (42.5%), and drug/solvent abuse (35.4%). Chi-square analysis revealed significant positive associations between maternal mental health concerns and each of these caregiver risk factors, as shown in Table 3.

Child Characteristics

Table 4 presents data on the children, and the findings from between group comparisons. The data suggests, and between group comparisons confirm, no significant difference between the children with

and without mothers with mental health issues with respect to age and gender. However, significantly more children of mothers with mental health issues were First Nations or Métis (12.1% and 3.8% vs. 10.7% and 1.5% respectively). A significantly larger proportion also had confirmed (e.g., diagnosed, observed, or disclosed by a parent) or suspected (by investigating worker) behavioural and or mental health issues, including for example, ADHD, anxiety and depression. A statistically significant and positive association was also found between maternal mental health issues and child negative peer involvement, self-harming behaviours, violence towards others, learning disabilities, irregular school attendance,

Table 4. Child characteristics and functioning

Child characteristics/ functioning concerns	Mothers with mental health issues	All other cases	χ^2 value	p-value
Child Mean Age in Years	7.28	7.75		t=4.565, p<.001
Child Sex (% of Total)	Male: 50.3% Female: 49.7%	Male: 51.7% Female: 48.3%	1.455	.228
Child Aboriginal Status	First Nation: 12.1% Métis: 3.8%	First Nation: 10.7% Métis: 1.5%	13.814	<.001
Depression/Anxiety	23.9% (n=603)	12.3% (n=1113)	208.855	<.001
ADD/ADHD	17.2% (n=435)	11.0% (n=994)	70.683	<.001
Negative Peer Involvement	16.3% (n=411)	13.1% (n=1186)	16.485	<.001
Alcohol Abuse	4.4% (n=112)	3.3% (n=298)	7.474	<.01
Drug/Solvent Abuse	4.8% (n=122)	3.8% (n=342)	5.619	<.05
Self-Harming Behaviours	5.5% (n=139)	3.2% (n=292)	28.432	<.001
Violence Toward Others	14.2% (n=359)	9.2% (n=833)	53.362	<.001
Running (One Incident)	4.2% (n=105)	3.3% (n=300)	4.107	<.05
Running (Multiple Incidents)	3.8% (n=96)	3.0% (n=274)	3.777	.052
Inappropriate Sexual Behaviour	5.4% (n=137)	4.3% (n=393)	5.233	<.05
Other Behavioural/Emotional	30.1% (n=760)	20.2% (n=1823)	112.085	<.001
Learning Disability	20.8% (n=525)	13.3% (n=1202)	87.168	<.001
Special Education Services	14.1% (n=356)	10.7% (n=963)	23.146	<.001
Irregular School Attendance	16.9% (n=427)	9.9% (n=893)	96.424	<.001
Developmental Delay	14.0% (n=354)	7.8% (n=707)	90.919	<.001
Physical Disability	1.9% (n=47)	1.4% (n=128)	2.622	.105
Substance Abuse Related Birth Defects	5.5% (n=138)	2.6% (n=232)	53.511	<.001
Positive Toxicology at Birth	2.3% (n=59)	1.0% (n=88)	29.203	<.001
Other Health Conditions	6.2% (n=157)	3.6% (n=329)	32.554	<.001
Psychiatric Disorder	5.7% (n=144)	2.7% (n=242)	55.966	<.001
Youth Criminal Justice Act Involvement	2.1% (n=53)	2.2% (n=202)	.170	.680

developmental delay, and substance-abuse related birth defects. In total, one or more child functioning issue was identified in 58.1% and 41.0% of cases involving mothers with and without mental health issues respectively.

Child Welfare Investigation Outcomes

Following initial investigation, child welfare authorities determined if further services were needed for families and their children. Some cases remained open after initial investigation, and others were closed. More than twice as many cases involving mothers with mental health issues remained open after the initial investigation (54.2% vs. 23% of all other cases). Various service options were available for families and children if further action was deemed appropriate. These options included referral for supportive services other than on-going child welfare services and application to child welfare court. A comparison of investigation outcomes in cases involving mothers with and without mental health issues is presented in Table 5. Referrals for one or more services were made in 67.3% of cases involving maternal mental health issues. For all other cases, referrals to at least one type of service were made in 44.9% of cases. The most common referrals in cases involving mothers with mental health issues were for family/parenting counselling (30.0%), in-home parenting support (23.7%), psychiatric/psychological services (20.2%), and domestic violence services (15.7%).

Whether referrals were made or not, 19.3% of children of mothers with mental health issues were removed and placed out-of-home during the investigation period. By contrast just 8.8% of children in all other

cases were placed by child protection authorities in out-of-home care. Cross-tabulation with chi-square statistic revealed a statistically significant and positive association between maternal mental health issues and out-of-home placement ($\chi^2 = 220.969$, $p < .001$). Cases involving mothers with mental health issues also more frequently resulted in court action. The data presented in Table 5 shows that court action was considered in 18.2% and instigated in 10.7% of cases featuring mothers with mental health issues. These represent 47.4% and 51.6% of all cases, respectively, in which court action was considered or instigated. In contrast, for all other cases, court action was considered in 5.6%, and instigated in 2.8% of cases. Cross-tabulation with chi-square statistic confirmed a statistically significant association between maternal mental health issues and court action ($\chi^2 = 283.511$, $p < .001$).

Discussion

Mothers with mental health issues are represented in 21.8% of maltreatment investigations. Outcomes in these cases were found to be significantly different. Mothers with mental health issues accounted for approximately one-half of all cases that resulted in an application to the child welfare court.

Maltreatment was found to be ‘substantiated’ in over 64% of cases where a mother had a mental health concern. Neglect, followed by emotional maltreatment, and exposure to domestic violence were the most frequently ‘substantiated’ forms of maltreatment in cases involving mothers with mental health issues. Social and economic disadvantage likely confounds the observed relationship between

Table 5. Investigation outcomes*

Investigation outcome	% Mothers with mental health issues	% All other cases	χ^2 value	p-value
Cases Remaining Open	54.2% (n=1369)	23.0% (n=2076)	9.203	<.001
Referral to Mediation	3.8% (n=91)	2.8% (n=237)	6.071	<.05
Referral to Supportive Services (other than child welfare services) At Least One Referral	67.3% (n=1699)	44.9% (n=4058)	395.504	<.001
Out-of-Home Placement	19.3% (n=486)	8.8% (n=791)	220.969	<.001
Court Consideration	18.2% (n=458)	5.6% (n=509)	402.472	<.001
Court Application	10.7% (n=269)	2.8% (n=252)	283.511	<.001

*interpretation: 54% of 1170 children were male

maternal mental health issues and substantiation of child maltreatment. Consistent with previous research, significant associations were found between maternal mental health issues, relative socioeconomic disadvantage (lower income, increased reliance on benefits as a source of income, less education, and higher rates of unstable housing arrangements such as shelter living), and other caregiver risk factors, including domestic violence, and fewer social supports (Oyserman et al., 2000; Reiger et al., 1990, cited in Velleman, 2004).

Results from this study further determined that emotional and behavioural problems were more prevalent in children of mothers with mental health issues involved in the child welfare system versus children of mothers without a mental health concern. Other studies have reported similar findings with regards to increased risk of psychological problems in children where a parent has a mental health concern (Lapalme, Hodgins & Laroche, 1997; Mowbray & Mowbray, 2006; Seeman, 2004; VanDeMark et al., 2005). However this relationship too is confounded by other social, economic, and familial hardships.

A strength of this study is that it is based on a nationally representative sample of child maltreatment investigations. The external validity of previous studies has been limited by the recruitment of non-representative samples or region specific samples (Hollingsworth, 2004; Park et al., 2006). The limitations of the CIS-2003 also have to be considered. For instance, in determining confirmed or suspected cases of maternal mental health issues, the CIS-2003 relied heavily upon investigating worker reports, where 'suspected' cases were determined based solely on the worker's subjective assessment. This approach lends itself to potential bias, and the possibility of inconsistent reporting among investigating workers for suspected cases of maternal mental health concerns.

Another limitation is that cases were not tracked beyond the initial child welfare investigation. There is no data available as to child welfare outcomes beyond application to child welfare court. As such, information on child custody arrangements, and other outcomes associated with those cases are unknown. Further, the data collection forms did not require investigating workers to indicate type of mental health concern for confirmed cases. This information would

be useful when considering child welfare outcomes associated with type of mental health concern. This is significant in that some of the existing literature claims higher rates of child welfare court involvement and custody loss among caregivers with certain psychiatric diagnoses (Miller & Finnerty, 1996, cited in Hollingsworth, 2004; White, Nicholson, Fisher & Geller, 1995, cited in Hollingsworth, 2004).

Conclusion

Overall findings of this study suggest that mothers with mental health issues are involved in a substantial minority of all cases opened for child maltreatment investigation in Canada. Further, the data suggests that these mothers almost always face a list of environmental and personal challenges that may only compound the difficulties they already face in coping with their illness while managing their parenting role. These mothers have needs that are quite often different from the needs of other mothers. Many of these needs stem from environmental, social and personal factors that are quite often unique to this population of mothers. Timely intervention is paramount and should be aimed at supporting these mothers in properly managing their illness and symptoms, and providing necessary resources to alleviate poverty and social isolation.

Future research investigating child welfare outcomes beyond application to child welfare court for those cases that involve maternal mental health issues is needed. Further exploration into child welfare outcomes as they relate to specific parental diagnoses is also warranted. The next wave of national data concerning child maltreatment in Canada is expected to be released by November, 2010. A comparative study considering this new data would be significant in understanding prevalence rates of maternal mental health issues over time, and any changes in frequencies/types of observed risk factors and child welfare outcomes as described in this study.

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APPENDIX 2

Parental cognitive impairment and child maltreatment in Canada

Preliminary analysis

Table I. Logistic regression Group 1: poverty and co-morbidity

- Non-neglect cases (Group 1)
- Dependent = Parental cognitive impairment (0 = no CI, 1 = CI)
- Independent = 9 indicators of poverty and co-morbidity

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Mental health issues(1)	1.229	.107			.000	3.419	2.773	4.214
		Childhood abuse (1)	.994	.109			.000	2.702	2.184	3.344
		Low social support (1)	.660	.110			.000	1.935	1.560	2.401
		Drugs/alcohol abuse(1)	.109	.108			.313	1.116	.902	1.380
		No employment(1)	.610	.122			.000	1.841	1.448	2.341
		Social housing (1)	.274	.164			.110	1.315	.935	1.849
		Low education(1)	.704	.214			.012	2.022	1.226	3.335
		Low income (1)	.548	.185			.009	1.729	1.169	2.559
		Sole parent(1)	-.241	.114			.035	.786	.629	.984
		Constant	-4.551	.135			.000	.011	.008	.014

^aVariable(s) entered on step 1: MHrev, histabrev, socsuprev, drugsalcohol, binemploy, binhousing, bineducate, binincome, householdstructure.

Table II. Logistic regression Groups 2-4 combined: poverty and co-morbidity

- *Neglect cases (Groups 2-4 combined)*
- *Dependent = Parental cognitive impairment (0 = no CI, 1 = CI)*
- *Independent = Indicators of poverty and co-morbidity*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Mental health issues(1)	1.651	.105			.000	5.210	4.239	6.403
		Childhood abuse (1)	.915	.105			.000	2.496	2.032	3.065
		Low social support (1)	.495	.108			.000	1.641	1.328	2.026
		Drugs/alcohol abuse(1)	-.151	.103			.145	.860	.702	1.054
		No employment(1)	.518	.127			.000	1.678	1.299	2.169
		Social housing (1)	.143	.124			.252	1.154	.902	1.477
		Low education(1)	.902	.152			.000	2.465	1.788	3.398
		Low income (1)	.367	.193			.077	1.443	.956	2.178
		Sole parent(1)	-.153	.104			.142	.858	.699	1.053
		Constant	-4.071	.176			.000	.017	.012	.024

^aVariable(s) entered on step 1: MHrev, histabrev, socsuprev, drugsalcohol, binemploy, binhousing, bineducate, binincome, householdstructure.

Table III. Logistic regression Group 2: poverty and co-morbidity

- *Neglect cases – child 0-5 years (Group 2)*
- *Dependent = Parental cognitive impairment (0 = no CI, 1 = CI)*
- *Independent = Indicators of poverty and co-morbidity*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Mental health issues(1)	1.932	.163			.000	6.904	5.018	9.498
		Childhood abuse (1)	.663	.165			.000	1.941	1.405	2.681
		Low social support (1)	.273	.161			.089	1.314	.959	1.801
		Drugs/alcohol abuse(1)	-.012	.160			.941	.988	.721	1.354
		No employment(1)	.470	.200			.024	1.600	1.066	2.401
		Social housing (1)	.061	.204			.765	1.063	.705	1.603
		Low education(1)	.839	.229			.002	2.314	1.432	3.740
		Low income (1)	.429	.254			.099	1.536	.919	2.567
		Sole parent(1)	-.388	.162			.017	.679	.494	.933
		Constant	-3.856	.243			.000	.021	.013	.034

^aVariable(s) entered on step 1: MHrev, histabrev, socsuprev, drugsalcohol, binemploy, binhousing, bineducate, binincome, householdstructure.

Table IV. Logistic regression Group 3: poverty and co-morbidity

- *Neglect cases – child 6-12 years (Group 3)*
- *Dependent = Parental cognitive impairment (0 = no CI, 1 = CI)*
- *Independent = Indicators of poverty and co-morbidity*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Mental health issues(1)	1.509	.170			.000	4.524	3.238	6.320
		Childhood abuse (1)	1.112	.167			.000	3.041	2.191	4.221
		Low social support (1)	.715	.181			.000	2.045	1.431	2.923
		Drugs/alcohol abuse(1)	-.072	.167			.664	.930	.670	1.291
		No employment(1)	.698	.175			.000	2.011	1.426	2.834
		Social housing (1)	.400	.179			.026	1.491	1.050	2.118
		Low education(1)	1.105	.363			.020	3.019	1.267	7.194
		Low income (1)	.276	.288			.347	1.318	.727	2.392
		Sole parent(1)	-.188	.162			.246	.829	.604	1.138
		Constant	-4.434	.298			.000	.012	.006	.022

^aVariable(s) entered on step 1: MHrev, histabrev, socsuprev, drugsalcohol, binemploy, binhousing, bineducate, binincome, householdstructure

Table V. Logistic regression Group 4: poverty and co-morbidity

- *Neglect cases – child 13-15 years (Group 4)*
- *Dependent = Parental cognitive impairment (0 = no CI, 1 = CI)*
- *Independent = Indicators of poverty and co-morbidity*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Mental health issues(1)	1.407	.269			.000	4.082	2.407	6.921
		Childhood abuse (1)	1.173	.284			.000	3.231	1.852	5.635
		Low social support (1)	.953	.320			.003	2.594	1.387	4.852
		Drugs/alcohol abuse(1)	-.824	.286			.004	.439	.250	.768
		No employment(1)	.073	.298			.806	1.076	.599	1.932
		Social housing (1)	-.346	.338			.306	.707	.364	1.373
		Low education(1)	.424	.335			.215	1.527	.773	3.019
		Low income (1)	.377	.401			.353	1.457	.648	3.277
		Sole parent(1)	.728	.269			.007	2.070	1.223	3.505
		Constant	-4.267	.364			.000	.014	.007	.029

^aVariable(s) entered on step 1: MHrev, histabrev, socsuprev, drugsalcohol, binemploy, binhousing, bineducate, binincome, householdstructure

APPENDIX 3

Decision-making in child maltreatment investigations

Preliminary analysis

PATH A – SUBSTANTIATION

Table VI. Logistic regression: child characteristics and substantiation

- *Dependent = Substantiation (0 = unsubstantiated, 1 = substantiated)*
- *Independent = 5 child characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Child age	.040	.015	7.708	1	.005	1.041
	Child sex	-.062	.122	.256	1	.613	.940
	Aboriginality (1)	.403	.142	8.117	1	.004	1.497
	Non English/French (1)	-.113	.296	.145	1	.703	.893
	Any functioning issue (1)	.244	.137	3.176	1	.075	1.277
	Constant	-.044	.138	.101	1	.751	.957

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Child age	1.012	1.071
	Child sex	.740	1.194
	Aboriginality (1)	1.134	1.975
	Non English/French (1)	.500	1.595
	Any functioning issue (1)	.976	1.671
	Constant		

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Table VII. Logistic regression: Case characteristics and substantiation

- *Dependent = Substantiation (0 = unsubstantiated, 1 = substantiated)*
- *Independent = 8 case characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Prior substantiations (1)	.032	.138	.053	1	.818	1.032
	Signs of mental harm(1)	1.478	.191	59.616	1	.000	4.385
	Signs of physical harm(1)	.688	.234	8.611	1	.003	1.989
	Physical abuse (1)	.192	.194	.974	1	.324	1.211
	Sexual abuse (1)	-.674	.365	3.418	1	.064	.510
	Neglect (1)	.880	.192	21.116	1	.000	2.412
	Emotional maltreatment (1)	.342	.174	3.882	1	.049	1.408
	Domestic violence (1)	1.351	.206	43.070	1	.000	3.861
	Constant	-.765	.210	13.297	1	.000	.466

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Prior substantiations (1)	.787	1.354
	Signs of mental harm(1)	3.013	6.382
	Signs of physical harm(1)	1.257	3.149
	Physical abuse (1)	.828	1.773
	Sexual abuse (1)	.249	1.041
	Neglect (1)	1.657	3.511
	Emotional maltreatment (1)	1.002	1.979
	Domestic violence (1)	2.579	5.781
	Constant		

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Table VIII. Logistic regression: Parent & household characteristics and substantiation

- *Dependent = Substantiation (0 = unsubstantiated, 1 = substantiated)*
- *Independent = 11 parent and household characteristics*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Non-cooperation(1)	.016	.163			.919	1.017	.739	1.399
		Mental health issues (1)	.401	.144			.005	1.494	1.126	1.982
		Childhood abuse (1)	.145	.138			.292	1.156	.883	1.513
		Low social support (1)	.498	.144			.001	1.645	1.241	2.181
		Drugs/alcohol abuse (1)	.449	.132			.001	1.567	1.209	2.030
		Low education (1)	.198	.258			.464	1.219	.674	2.206
		No employment (1)	-.558	.165			.001	.573	.412	.797
		Low income (1)	.422	.260			.129	1.524	.869	2.674
		Social housing (1)	.310	.183			.098	1.364	.942	1.975
		Sole parent (1)	-.108	.134			.420	.898	.690	1.168
		Total no. of children	.096	.046			.038	1.101	1.005	1.206
		Constant	-.911	.278			.002	.402	.230	.702

Table IX. Logistic regression: Worker characteristics and substantiation

- *Dependent = Substantiation (0 = unsubstantiated, 1 = substantiated)*
- *Independent = caseload size and worker years in child protection*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Caseload size	-.025	.007	14.287	1	.000	.975
	Experience	.002	.009	.050	1	.823	1.002
	Constant	.850	.132	41.621	1	.000	2.339

^aVariable(s) entered on step 1: w9, w13.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Caseload size	.962	.988
	Experience	.985	1.019
	Constant		

^aVariable(s) entered on step 1: w9, w13.

PATH B – SUBSTANTIATED & CASE KEPT OPEN

Table X. Logistic regression: Child characteristics and case kept open

- *Dependent = Case disposition (0 = closed, 1 = case kept open)*
- *Independent = 5 child characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Child age	-.059	.021	8.140	1	.004	.942
	Child sex	.156	.171	.832	1	.362	1.169
	Aboriginality (1)	.831	.206	16.229	1	.000	2.295
	Non English/French (1)	-.851	.382	4.969	1	.026	.427
	Any functioning issue (1)	.997	.198	25.230	1	.000	2.710
	Constant	.412	.196	4.433	1	.035	1.510

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Child age	.905	.982
	Child sex	.836	1.633
	Aboriginality (1)	1.532	3.437
	Non English/French (1)	.202	.902
	Any functioning issue (1)	1.837	3.998
	Constant		

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Table XI. Logistic regression: Case characteristics and case kept open

- *Dependent = Case disposition (0 = closed, 1 = case kept open)*
- *Independent = 8 case characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Prior substantiations (1)	.179	.187	.915	1	.339	1.196
	Signs of mental harm(1)	1.101	.227	23.580	1	.000	3.008
	Signs of physical harm(1)	1.275	.355	12.865	1	.000	3.579
	Physical abuse (1)	-.621	.252	6.103	1	.013	.537
	Sexual abuse (1)	-1.543	.646	5.708	1	.017	.214
	Neglect (1)	1.180	.262	20.333	1	.000	3.256
	Emotional maltreatment (1)	.803	.246	10.673	1	.001	2.233
	Domestic violence (1)	.095	.255	.139	1	.709	1.100
	Constant	-.300	.298	1.015	1	.314	.741

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Prior substantiations (1)	.829	1.725
	Signs of mental harm(1)	1.929	4.693
	Signs of physical harm(1)	1.783	7.182
	Physical abuse (1)	.328	.880
	Sexual abuse (1)	.060	.758
	Neglect (1)	1.949	5.439
	Emotional maltreatment (1)	1.379	3.615
	Domestic violence (1)	.668	1.812
	Constant		

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany

Table XII. Logistic regression: Parent & household characteristics and case kept open

- *Dependent = Case disposition (0 = closed, 1 = case kept open)*
- *Independent = 11 parent & household characteristics*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Non-cooperation(1)	.620	.234			.008	1.859	1.175	2.942
		Mental health issues (1)	.520	.199			.009	1.681	1.138	2.485
		Childhood abuse (1)	1.047	.189			.000	2.850	1.970	4.124
		Low social support (1)	.463	.210			.028	1.589	1.052	2.401
		Drugs/alcohol abuse (1)	.131	.192			.496	1.140	.782	1.662
		Low education (1)	.386	.397			.362	1.471	.580	3.730
		No employment (1)	.379	.208			.068	1.461	.973	2.194
		Low income (1)	-.295	.361			.425	.744	.346	1.601
		Social housing (1)	.098	.219			.655	1.103	.718	1.695
		Sole parent (1)	-.045	.183			.804	.956	.668	1.367
		Total no. of children	.043	.063			.496	1.044	.922	1.181
		Constant	-.955	.348			.006	.385	.194	.762

Table XIII. Logistic regression: Worker characteristics and case kept open

- *Dependent = Case disposition (0 = closed, 1 = case kept open)*
- *Independent = Worker caseload and years working in child protection*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Caseload size	-.014	.010	1.878	1	.171	.986
	Experience	-.026	.012	4.697	1	.030	.974
	Constant	1.263	.186	45.958	1	.000	3.536

^aVariable(s) entered on step 1: w9, w13.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Caseload size	.967	1.006
	Experience	.951	.998
	Constant		

^aVariable(s) entered on step 1: w9, w13.

PATH C – UNSUBSTANTIATED & CASE KEPT OPEN

Table XIV. Logistic regression: Child characteristics and case kept open

- *Dependent = Unsubstantiated case disposition (0 = closed, 1 = case kept open)*
- *Independent = 5 child characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Child age	-.183	.031	35.585	1	.000	.833
	Child sex	-.091	.238	.147	1	.702	.913
	Aboriginality (1)	1.504	.270	31.104	1	.000	4.501
	Non English/French (1)	.572	.542	1.112	1	.292	1.771
	Any functioning issue (1)	1.431	.273	27.533	1	.000	4.182
	Constant	-1.044	.255	16.812	1	.000	.352

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun..

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Child age	.784	.884
	Child sex	.573	1.455
	Aboriginality (1)	2.653	7.637
	Non English/French (1)	.612	5.125
	Any functioning issue (1)	2.451	7.136
	Constant		

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Table XV. Logistic regression: Case characteristics and case kept open

- *Dependent = Unsubstantiated case disposition (0 = closed, 1 = case kept open)*
- *Independent = 8 case characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Prior substantiations (1)	-.327	.255	1.644	1	.200	.721
	Signs of mental harm(1)	.627	.366	2.936	1	.087	1.871
	Signs of physical harm(1)	1.453	.413	12.377	1	.000	4.277
	Physical abuse (1)	-.122	.360	.114	1	.736	.886
	Sexual abuse (1)	-.394	.656	.360	1	.548	.675
	Neglect (1)	1.145	.334	11.760	1	.001	3.142
	Emotional maltreatment (1)	1.618	.304	28.284	1	.000	5.044
	Domestic violence (1)	1.129	.359	9.870	1	.002	3.093
	Constant	-2.142	.365	34.418	1	.000	.117

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Prior substantiations (1)	.437	1.189
	Signs of mental harm(1)	.914	3.833
	Signs of physical harm(1)	1.903	9.609
	Physical abuse (1)	.437	1.794
	Sexual abuse (1)	.187	2.440
	Neglect (1)	1.633	6.043
	Emotional maltreatment (1)	2.778	9.157
	Domestic violence (1)	1.529	6.257
	Constant		

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Table XVI. Logistic regression: Parent & household characteristics and case kept open

- *Dependent = Unsubstantiated case disposition (0 = closed, 1 = case kept open)*
- *Independent = 11 parent & household characteristics*

Variables in the Equation

Imputation Number		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)		
								Lower	Upper	
Pooled	Step 1 ^a	Non-cooperation(1)	-.569	.312			.069	.566	.307	1.044
		Mental health issues (1)	1.171	.291			.000	3.226	1.824	5.705
		Childhood abuse (1)	.196	.255			.443	1.216	.737	2.007
		Low social support (1)	.774	.269			.004	2.169	1.280	3.676
		Drugs/alcohol abuse (1)	.876	.244			.000	2.401	1.487	3.876
		Low education (1)	-.139	.391			.728	.870	.371	2.042
		No employment (1)	.855	.278			.002	2.351	1.362	4.058
		Low income (1)	-.204	.396			.611	.816	.362	1.838
		Social housing (1)	.816	.300			.007	2.262	1.250	4.092
		Sole parent (1)	.021	.247			.931	1.022	.629	1.658
		Total no. of children	.270	.104			.009	1.310	1.069	1.605
		Constant	-3.663	.656			.000	.026	.007	.096

Table XVII. Logistic regression: Worker characteristics and case kept open

- *Dependent = Unsubstantiated case disposition (0 = closed, 1 = case kept open)*
- *Independent = Worker caseload and years working in child protection*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Caseload size	.010	.010	1.036	1	.309	1.010
	Experience	-.060	.019	10.139	1	.001	.942
	Constant	-.555	.210	7.000	1	.008	.574

^aVariable(s) entered on step 1: w9, w13.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Caseload size	.991	1.029
	Experience	.908	.977
	Constant		

^aVariable(s) entered on step 1: w9, w13.

PATH D – COURT APPLICATION

Table XVIII. Logistic regression: Child characteristics and court application

- *Dependent = Court application (0 = No, 1 = Yes)*
- *Independent = 5 child characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Child age	-.064	.025	6.692	1	.010	.938
	Child sex	.009	.210	.002	1	.966	1.009
	Aboriginality (1)	-.182	.220	.689	1	.407	.833
	Non English/French (1)	-1.156	.784	2.171	1	.141	.315
	Any functioning issue (1)	.055	.247	.050	1	.824	1.056
	Constant	-1.070	.248	18.571	1	.000	.343

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun..

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Child age	.893	.985
	Child sex	.668	1.523
	Aboriginality (1)	.542	1.282
	Non English/French (1)	.068	1.465
	Any functioning issue (1)	.652	1.713
	Constant		

^aVariable(s) entered on step 1: q22, q21, aboriginality, language, q24_anychfun.

Table XIX. Logistic regression: Case characteristics and court application

- *Dependent = Court application (0 = No, 1 = Yes)*
- *Independent = 8 case characteristics*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Prior substantiations (1)	.254	.222	1.301	1	.254	1.289
	Signs of mental harm(1)	1.019	.226	20.374	1	.000	2.770
	Signs of physical harm(1)	1.398	.292	22.888	1	.000	4.049
	Physical abuse (1)	-.218	.357	.372	1	.542	.804
	Sexual abuse (1)	-1.532	1.656	.856	1	.355	.216
	Neglect (1)	.186	.308	.366	1	.545	1.205
	Emotional maltreatment (1)	.490	.269	3.306	1	.069	1.632
	Domestic violence (1)	.208	.297	.489	1	.484	1.231
	Constant	-2.554	.376	46.244	1	.000	.078

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Prior substantiations (1)	.833	1.993
	Signs of mental harm(1)	1.780	4.311
	Signs of physical harm(1)	2.283	7.181
	Physical abuse (1)	.400	1.619
	Sexual abuse (1)	.008	5.547
	Neglect (1)	.658	2.205
	Emotional maltreatment (1)	.963	2.768
	Domestic violence (1)	.688	2.204
	Constant		

^aVariable(s) entered on step 1: prevsubsreports, mentalharm, physicalharm, physany, sexany, neglectany, emotany, dvany.

Table XX. Logistic regression: Parent and household characteristics and court application

- *Dependent = Court application (0 = No, 1 = Yes)*
- *Independent = 11 parent & household characteristics*

Variables in the Equation

Imputation Number			B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
									Lower	Upper
Pooled	Step 1 ^a	Non-cooperation(1)	1.639	.252			.000	5.148	3.142	8.434
		Mental health issues (1)	.192	.299			.520	1.212	.674	2.179
		Childhood abuse (1)	-.458	.255			.073	.632	.383	1.043
		Low social support (1)	-.077	.271			.775	.926	.544	1.574
		Drugs/alcohol abuse (1)	-.341	.247			.168	.711	.438	1.155
		Low education (1)	-.067	.390			.867	.936	.410	2.138
		No employment (1)	.130	.263			.623	1.138	.679	1.910
		Low income (1)	.546	.478			.265	1.726	.641	4.647
		Social housing (1)	-.154	.259			.551	.857	.516	1.424
		Sole parent (1)	.562	.232			.015	1.754	1.114	2.763
		Total no. of children	-.292	.095			.002	.746	.619	.900
		Constant	-1.720	.558			.002	.179	.060	.539

Table XXI. Logistic regression: Worker characteristics and court application

- *Dependent = Court application (0 = No, 1 = Yes)*
- *Independent = Caseload and years working in child protection*

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Caseload size	-.001	.011	.006	1	.939	.999
	Experience	-.011	.020	.313	1	.576	.989
	Constant	-1.428	.219	42.568	1	.000	.240

^aVariable(s) entered on step 1: w9, w13.

Variables in the Equation

		95% C.I. for EXP(B)	
		Lower	Upper
Step 1 ^a	Caseload size	.978	1.021
	Experience	.952	1.028
	Constant		

^aVariable(s) entered on step 1: w9, w13.

The number of children referred for protective services who have a parent with cognitive impairment is thought to be increasing. There is however a dearth of information about these parents and children and their involvement in the child protection system. In this study we investigate prevalence and outcomes for children of parents (biological and other parents) with perceived cognitive impairments in cases opened for child maltreatment investigation in Canada. One aim is to identify factors that heighten risk and predict outcomes in these challenging cases. This information is sorely needed to inform prevention and early intervention policy and practice and in turn, improve the life chances of this growing population of children.



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