

**CHILD WELFARE PROCESS AND OUTCOMES
FOR CHILDREN OF PARENTS WITH
COGNITIVE IMPAIRMENT [II]**

Findings from the CIS_2008

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EXECUTIVE SUMMARY

- Utilizing data from the third Canadian Incidence Study of Reported Child Abuse and Neglect (CIS_2008), this study investigated prevalence and outcomes for children of caregivers with cognitive impairments (CI) subject to child maltreatment investigations.
- The CIS_2008 includes data on a total of 15,980 children 15 years of age or younger subject to a child maltreatment investigation. This dataset includes information on child, case, caregiver and household characteristics, and investigation outcomes.

Selected findings

- Caregiver CI (primary and secondary) was noted in 7.8% of all cases: Children of parents/ caregivers with CI are four to five times more likely than children of parents/ caregivers without CI to be the subject of a child maltreatment investigation.
- The prevalence of caregiver CI varies with child age. Primary caregiver CI was noted in 14.3% of child maltreatment investigations involving infants (< 1 year), and 4.7% of investigations involving teens (13-15 years).
- Three out of four investigations in which primary caregiver CI was noted were opened due to concerns related to neglect or 'risk of future maltreatment'. Allegations of physical and or sexual abuse are rare in cases featuring primary caregiver CI compared with all other cases.
- While primary caregiver CI was noted in 6.3% of all child maltreatment investigations, it was noted in 18.4% of investigations resulting in child apprehension, and 20.0% of those resulting in child welfare court application.
- The odds of substantiation, child apprehension, the case remaining open for ongoing services and child welfare court application are two to five times higher when primary caregiver CI is noted, compared to when it is not.
- The 'effect' of primary caregiver CI on child maltreatment investigation outcomes diminishes as child age increases. For instance, infants and teens of primary caregivers with CI are, respectively, 3.4 times and 2.0 times more likely to be apprehended than their age peers.
- Primary caregiver CI is strongly associated with household material hardship, caregiver social isolation and physical and mental health issues. Between-group differences in such household and caregiver 'risk and vulnerability' factors partly (but not fully) explains disparities in investigation outcomes. In other words, parents/caregivers with CI and their children are more likely to be exposed to environmental adversity, and this

partly explains why cases featuring primary caregiver CI are more likely to result in substantiation, child apprehension, the case remaining open for ongoing services, and child welfare court application.

- In cases that were kept open for ongoing services, no large between-group differences were found in rates of referral, which were low overall. One or more family members were referred for parenting education more often than they were referred for material assistance. The pattern of referrals may reflect variation in the availability of services, and or a predisposition to attribute perceived family problems to individual deficiencies rather than environmental pressures.
- Primary caregiver CI moderates the effect of case characteristics (e.g., maltreatment exposure, evidence of harm) on child maltreatment investigation outcomes. When primary caregiver CI is noted, many but not all ‘facts of the case’ have little or less bearing on the outcome. The findings suggest that primary caregiver CI may overshadow other considerations, including the child’s experience, in child maltreatment investigations.

Main conclusions

- Overall, the findings suggest that environmental adversity and potentially, inadequate worker training and supervision leading to negative biases, contribute to the high rates of state intervention into families headed by a parent/caregiver with CI, including high rates of child apprehension and child welfare court application.
- To meet Canada’s obligations under the United Nations Convention on the Rights of Persons with Disabilities, a national strategy is needed to uncover and eliminate possible discrimination and build systems capacity to render “appropriate assistance” to persons with disabilities in the performance of their child-rearing responsibilities.

CHILD WELFARE PROCESS AND OUTCOMES FOR CHILDREN OF PARENTS WITH COGNITIVE IMPAIRMENT [II]

Findings from the CIS_2008

The children of parents with cognitive impairments (CI) are many times more likely than their peers to be the subject of a child maltreatment investigation, and parental CI is associated with more intrusive state intervention, including child apprehension (Booth, Booth & McConnell, 2005; Llewellyn, McConnell & Ferronato, 2003; McConnell, Feldman, Aunos & Prasad, 2011). The high rate of child apprehension is assumed by many policy and decision makers to be a sad but unsurprising corollary of parental CI (Booth, Booth and McConnell, 2004). This assumption may explain why few studies to date have investigated the decision-making of child welfare authorities in cases featuring parents or caregivers with CI. Utilizing data from the third Canadian Incidence Study of Reported Child Abuse and Neglect (CIS_2008), this study investigated process and outcomes for children of parents with CI subject to child maltreatment investigations. One objective was to determine whether the observed association between parental CI and investigation outcomes could be explained by a conglomeration of caregiver and household risk and vulnerability factors. Another objective was to determine whether outcomes may be driven, at least in part, by systemic bias against parents with CI, resulting in the child's experience and other relevant 'facts of the case' having less, little or no bearing on the outcome.

BACKGROUND

In the 20th century, many young men and women with cognitive impairments (CI), including those with intellectual disability or borderline intellectual functioning (BIF), were institutionalized and forcibly sterilized, thus preventing them from having children (IASSIDD Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008). In high income countries these practices are no longer routine. Now, with greater opportunity for young men and women with CI to lead more ordinary lives in the community the number entering into relationships and starting a family of their own is thought to be increasing (McConnell, Matthews, Llewellyn, Mildon & Hindmarsh, 2008). Exactly how many children are born each year to men and women with CI in Canada and in other parts of the world is not known. As 2.1% of Canadian adults of child-bearing age (18-49 years) have significant cognitive impairments, as measured by the Health Utilities Index (Statistics Canada, 2011), we extrapolate that approximately 1 to 2% of Canadian children have mothers and or fathers with cognitive impairments characterized by difficulties with learning, remembering and problem-solving.

Although men and women with CI may have greater opportunity today to form relationships and have children, many who do so will not be permitted to raise them. While estimates vary by country, definition of CI and sampling frame (i.e., clinical or community-based), researchers have consistently reported rates of child apprehension in the range of 30% to 50% (Cleaver & Nicholson, 2007; Gillberg & Geijer-Karlsson, 2001; Morch, Jens & Andersgard, 1997; Pixa-Kettner, 1998). Over-representation of parents with CI in child welfare court proceedings has also been observed (Llewellyn, et al. 2003; Booth, et al. 2005). In New South Wales, Australia, for instance, Llewellyn, et al. (2003) reviewed child welfare court records and found that parental intellectual disability or BIF was documented in 8.8% of 285 consecutive cases (involving 469 children) instigated by the child welfare authority. Employing similar methods, Booth, et al. (2005) reviewed child welfare court files in the north of England and found that parental intellectual disability or BIF was reported in 19.9% of 437 care matters (involving 828 children). Both studies found that cases featuring parents with intellectual disability or BIF were more likely to result in permanent out-of-home placement.

There is a dearth of data on prevalence and outcomes for children of parents with CI in Canadian child and youth protection systems. In the only Canadian study to have investigated these statistics, McConnell, et al. (2011) analyzed core data from the second Canadian Incidence Study of Reported Child Abuse and Neglect (CIS_2003). The analysis revealed that parent/caregiver cognitive impairment was noted in 10.1% of all child maltreatment investigations. The prevalence of parent/caregiver CI was particularly high in cases involving infants and young children. Further, compared to cases where the parents/caregivers did not have CI, the study found that cases featuring parent/caregivers with CI were more likely to result in substantiation of maltreatment or maltreatment risk (61% vs. 46% of all other cases); child apprehension (17% vs. 6%); the case remaining open for ongoing services (55% vs. 25%), and to remain open even when maltreatment was not substantiated (30% vs. 12%); and, child welfare court application (10% vs. 3%).

The increased risk associated with parental CI of child welfare intervention is hard to reconcile with evidence showing that (a) the association between parental cognitive functioning, as measured by standardized intelligence tests, and parenting adequacy is weak (Feldman, 2002; IASSIDD Special Interest Research Group on Parents and Parenting with Intellectual Disabilities, 2008); and, (b) that, with appropriate training and support, many parents with CI can acquire parenting skills (Feldman, Case, & Sparks, 1992; Feldman, Sparks & Case, 1993; Wade, Llewellyn, & Matthews, 2008). Feldman (1994), Wade, Llewellyn and Matthews (2008), and Coren, Thomae and Hutchfield (2011) have critically reviewed parenting training research in the field, which now includes over 30 controlled trials. These reviews, and the results of several trials hence (e.g., Gaskin, Lutzker Crimmins & Robinson, 2012; Glazemakers & Deboutte, 2013; Monsen, Sanders, Yu, Radosevich, & Geppert, 2011; Rao, 2013) support the conclusion that interventions matched to the parent's individual learning needs, and home-based behavioural parenting

training in particular, are effective in equipping parents with CI with parenting skills, with concomitant benefits to their children.

Plausible explanations for the high level of child welfare intervention into families headed by parents with CI, and the association between parental CI and more intrusive child maltreatment investigation outcomes include:

- between-group differences (i.e., differences between cases featuring parents/caregivers with CI vs. cases featuring parents/caregivers without CI) in child and case characteristics, including but not limited to child age, sex, aboriginal status, functioning issues and maltreatment exposure (e.g. type, duration);
- the clustering of caregiver and household ‘risk and vulnerability’ factors together with parental CI, including but not limited to caregiver social isolation, physical and mental health issues, substance abuse, and household material hardship; and,
- systemic bias against parents with CI based on an erroneous assumption of inherent parental incapacity, including assumed incapacity to learn parenting skills, keep their children safe from harm, and provide a level of care that is acceptable by community standards even if they are given intensive supports.

Child and Case Characteristics

A higher prevalence of disability and/or behaviour problems among children of parents with CI and/or between-group differences in child age may explain why child maltreatment investigations involving children of parents with CI tend to result in more intrusive outcomes. McConnell et al. (2011) found children of parents/caregivers with CI tend to be younger on average. Further they found that 63.8% of children who had a parent/caregiver with CI, compared with 41.7% of all other children subject to a child maltreatment investigations in Canada, had one or more functioning issues such as emotional-behaviour, learning-developmental, physical disability or health conditions. Child disability and behaviour problems are associated with heightened parental stress and depressive symptoms, and risk of maltreatment (Bolourian & Blacher, 2016; Feldman Hancock, Rielly, Minnes, & Cairns, 2000; Feldman et al., 2007; Sullivan & Knutson, 2000). These children might therefore be perceived to be more vulnerable, especially if they are younger, thus warranting differential treatment. Alternatively, or in addition, child functioning issues may be improperly treated as *prima facie* evidence of maltreatment (McConnell, Llewellyn & Ferronato, 2002, 2006).

Between-group differences in child protection concerns or maltreatment exposure may also explain or contribute to differential outcomes. Previous studies have found that allegations of child neglect are more frequently documented, and allegations of physical or sexual

abuse are less frequently documented in cases featuring parents/caregivers with CI (Llewellyn, et al., 2003; McConnell, Feldman, Aunos & Prasad, 2010, 2011). For example, McConnell et al. (2011) found that neglect, or the perceived risk thereof, was alleged in 56% and 38.6% of investigations featuring parents/caregivers with and without CI, respectively. In addition, McConnell et al. (2011) found that prior substantiated maltreatment reports were more often noted in investigations featuring parents with CI. If a relationship exists between child protection concerns and child maltreatment investigation outcomes then such between-group differences may explain why children of parents/caregivers with CI are subject to differential outcomes.

Utilizing the CIS_2003, McConnell et al. (2011) tested the hypothesis that parent/caregiver CI predicts child maltreatment investigation outcomes with the effects of child and case characteristics (e.g. child age, functioning issues, maltreatment exposure, evidence of harm) held constant. Although the hypothesis was supported, controlling for between-group differences in child and case characteristics substantially reduced the strength of the association between parent/caregiver CI and child maltreatment investigation outcomes. Specifically, between-group differences in child and case characteristics accounted for 40% of the increased 'risk' of substantiation, 53% of the increased 'risk' of the case remaining open, and 74% of the increased 'risk' of court application associated with parent-caregiver CI.

The Clustering of Perceived Risk and Vulnerability Factors Together with Parental CI

Questions: All else being equal (e.g. child, case, caregiver and household characteristics), does parental CI predict child maltreatment investigation outcomes? Can the association between parental CI and investigation outcomes be explained by a 'third variable' (or cluster of variables)?

In community and child welfare samples, previous research has found that parents with CI are more likely than parents without CI to have experienced trauma in their own childhoods; to be single parents, unemployed, living in poor housing and in deprived neighborhoods; to have few social supports; and, to suffer from often unmanaged chronic health conditions and psychopathology (Aunos, Feldman & Goupil, 2008; Emerson & Brigham, 2013; Feldman, McConnell & Aunos, 2012; Llewellyn, McConnell & Mayes, 2003; McGaw, Shaw & Beckley, 2007; McGaw, Scully & Pritchard, 2010). Such adverse life conditions may influence worker perceptions of future maltreatment risk and consequently, child maltreatment investigation outcomes. Poverty, isolation and other deprivations may

be conceptualised, by child maltreatment investigators, as ‘proof’ of parent dysfunction or incompetence and/or as risk factors with predictive potential, i.e., rather than as explanatory factors or potential targets for intervention (Clarke, 1993; Farmer & Owen, 1998; McConnell & Llewellyn, 2005; Walsh & Douglas, 2009).

Systemic bias toward parents with CI

Questions: Is the child’s experience (e.g. type and duration of maltreatment exposure) weighted differently in cases featuring parents with and without CI? Does parental CI moderate the effect of ‘the child’s experience’ on child maltreatment investigation outcomes?

Another plausible explanation is systemic bias against parents with CI, resulting in the child’s experience (e.g. maltreatment exposure) having less, little or no bearing on the outcome. Scholars have long voiced concerns about the differential treatment of parents with CI in the child welfare system. Hayman (1990, p.1227), for instance, observes that “... *the state treats mentally retarded [sic] parents quite differently from non-retarded parents. A discrete sense of difference pervades the process: discrimination begins with the initial decision to intervene, ends in the decision to terminate the relationship, and is manifest in nearly every significant decision along the way.*” Later, Levesque (1996, p. 15) argued that the “*rights of mentally disabled [sic] parents are, in practice, being terminated when states present evidence which, if used against non-disabled parents, would not be enough to sever the parental relationship*”. Similarly, in Australia, Swain and Cameron (2003, p.175) suggested that parents with intellectual disability are likely to “*suffer considerable disadvantage in dealing with the child protection and Children’s Court systems*” and to “*have their capacity to care more harshly judged*” than their non-disabled counterparts.

Concerns about the differential treatment of parents with CI have also been raised by empirical studies of decision-making processes and outcomes in child maltreatment investigations. In Australia and England, for example, McConnell and colleagues found that ‘reasonable efforts’ are not always made to support parents with CI and avert the need for child apprehension and court action (Booth, McConnell & Booth, 2006; McConnell, Llewellyn & Ferronato, 2006). One reason for this is a pervasive and prejudicial assumption of inherent and intractable parental incompetence. Another reason is the paucity of evidence-based parenting support/ family preservation options, i.e., services equipped with the knowledge, skills and mandate required to render appropriate assistance to parents with CI (McConnell, et al. 2008; Wade, et al., 2008). Parents with CI may then be referred for parenting training and family support services that are a poor fit for their needs, and blamed when these services fail to elicit the desired changes: Decision-makers are prone to

make the fundamental attribution error, attributing the failure of parents with CI to learn and make the desired changes to intrinsic deficiencies (i.e., to see the parent as the problem) rather than to the failure of services to make the requisite accommodations (McConnell & Llewellyn, 2000, 2002, 2005).

Further research is needed to advance understanding of child maltreatment risk, and maltreatment investigation processes and outcomes for children of parents with CI. A sound understanding of risk and vulnerability, and other factors influencing outcomes for children of parents with CI is vital to developing policy and practice that is at once non-discriminatory and effective in protecting children from harm. Utilizing the most recent national data on child maltreatment investigations in Canada, the Canadian Incidence Study of Reported Child Abuse and Neglect (CIS_2008), this study replicates and extends the earlier work undertaken by McConnell et al. (2011). This study extends the earlier work by not only isolating the ‘main effect’ of primary caregiver CI on child maltreatment investigation outcomes (i.e. by controlling for potentially confounding factors), but also by investigating the moderating effect of primary caregiver CI. That is, this study investigated whether the child’s experience (i.e., maltreatment exposure) and other ‘facts of the case’ are weighted differently by decision-makers when caregiver cognitive impairment is noted.

Study Hypotheses

1. The odds of substantiation [of maltreatment or risk of future maltreatment], child apprehension, the case remaining open for ongoing protective services, and child welfare court application are higher when primary caregiver CI is noted by child welfare workers.
2. The heightened risk, associated with primary caregiver CI, of substantiation, child apprehension, the case remaining open for ongoing services and child welfare court application can be explained, in part, by between-group differences in caregiver and household characteristics, controlling for the influence of child and case characteristics.
3. When primary caregiver CI is noted, the experience of the child (e.g. maltreatment type & duration, evidence of physical and mental harm) and other ‘facts of the case’ have a smaller effect on child maltreatment investigation outcomes compared to when primary caregiver CI is not noted.

METHODS

The study method was secondary data analysis utilising the 2008 Canadian Incidence Study of Reported Child Abuse and Neglect (CIS_2008) dataset. This dataset includes process and outcome data from a national sample of child maltreatment investigations (Public Health Agency of Canada, 2010). A stratified random sample of 112 agencies responsible for child maltreatment investigations took part in the study, ensuring adequate representation of provinces, regions and sub-populations. All cases involving children < 16 years that were opened for maltreatment or 'risk of future maltreatment' by these agencies between October 1 and December 31, 2008, were eligible for inclusion in the study. From large organizations/sites data were collected on a random sample of cases. The sampling strategy yielded a final sample of 15,980 children 15 years of age or younger investigated because of child maltreatment related concerns.

The CIS_2008 survey instruments were designed to capture standard information from child welfare workers conducting investigations. The main data collection instrument was the Maltreatment Assessment Form, consisting of an intake face sheet, household information sheet and child information sheet. This form was completed by the primary case worker, usually within six weeks of the case being opened. This instrument was used to gather data on child, caregiver and household characteristics, as well as detailed information on case history, the nature of the case (e.g. type of investigation, forms of maltreatment, physical and emotional harm attributable to maltreatment), and the outcomes of the investigation, including disposition of the case (i.e. open or closed) at the time the form was completed.

Reliability

To maximize reliability, child welfare workers were equipped with a codebook and were trained to complete the Maltreatment Assessment Form. Further, researchers visited the sites regularly to collect the forms, respond to any questions and monitor progress. All data collection forms were verified twice for completeness and consistency in responses. A reliability study involving a sample of 100 children (from 68 families) found that the vast majority of items on the Maltreatment Assessment Form showed good to excellent test re-test reliability.

Outcome variables

- Substantiated maltreatment incident or risk of future maltreatment (1=yes, 0=no): In cases involving the investigation of maltreatment incidents, substantiated maltreatment was defined as “the balance of evidence indicates that abuse or neglect had occurred”. Substantiated risk of future maltreatment was determined by asking the investigating worker if, in his/her clinical judgement, the child was at risk of future maltreatment.
- Child apprehended (1=child apprehended, 0=no apprehension): The placement of the child during the investigation was ascertained by asking the investigating worker to indicate whether placement is still considered or not required; or, whether the child was placed (in informal kinship care, kinship foster care, family foster care, or group home/residential treatment facility).
- Case disposition (1=yes, remains open, 0=no, case closed): The disposition of the case at the time of the survey was determined by an item asking the investigating worker whether or not the case was expected to remain open for ongoing services.
- Child welfare court application (1=application made/considered, 0=application has not been made/considered): Workers were asked to report whether, at the time of the survey, an application to the child welfare court had been made, being considered or was not being considered.

Independent variables

- Child characteristics: Child age, sex (1=male, 0=female) and aboriginal status (1=aboriginal, 0=not aboriginal) were used in the analysis. Aboriginal status includes First Nations status, First Nations non-status, Metis, Inuit, or other aboriginal status. In addition, three dichotomous child functioning variables were derived¹ for use in the analysis: intellectual/developmental disabilities, psychological distress and behaviour problems (where 1 = concerns confirmed, “disclosed by caregiver, diagnosed or observed”, or suspected, “the condition may be present but not confirmed”, and 0 = no concern noted, “the child welfare worker believes there is no problem”) (see Box 1).

¹ Workers could note up to 18 concerns about the child’s functioning, indicating whether the concern was confirmed, suspected, not present or unknown. We conducted Categorical Principal Components Analysis with optimal scaling that revealed three robust, internally consistent components, after six items were removed from the model. These were labeled intellectual/ developmental disabilities (IDD), psychological distress and behaviour problems. Items with the highest loading on each component were then used to create dichotomous child functioning variables, as described in Box 1.

Box 1

- *Intellectual/developmental disability was coded as 'noted' if the worker indicated that any one or more of the following were confirmed or suspected:* (Q29_10) the child shows delayed intellectual development, e.g., speech and language, motor skills, Down syndrome, autism; (Q29_11) the child is not meeting developmental milestones because of non-organic reasons; (Q29_13) Fetal alcohol syndrome or fetal alcohol effects; (Q29_4) the child has an attention deficit/attention deficit and hyperactivity disorder.
- *Psychological distress was coded as 'noted' if the worker indicated that any one or more of the following were confirmed or suspected:* In the past six months, (Q29_1) the child has had feelings of depression/anxiety that persisted for most of every day for 2 or more weeks and interfered with the child's ability to manage at home and at school; (Q29_2) the child has expressed thoughts of suicide; (Q29_3) the child has demonstrated high-risk/life-threatening behaviour, suicide attempts and/or physical mutilation/cutting.
- *Behaviour problems was coded as 'noted' if the worker indicated that any one or more of the following were confirmed or suspected:* In the past six months, (Q29_6) the child has displayed problematic behaviour directed at others that includes hitting, bullying, violence to property, etc; (Q29_7) running away from home more than once for at least one night; &/or (Q29_16) problematic consumption of alcohol; (Q29_17) use of prescription or illegal drugs and solvents; (Q29_9) has been charged, incarcerated or been subject to alternative measures with the Youth Justice system.

- Case characteristics: Workers indicated if a case had previously been opened for any family member, and if so how many times (measured on an ordinal scale). For the purposes of this study this variable was dichotomized (1-one or more times, 0-never). Similarly, workers indicated if the subject child had previously been reported to child welfare for suspected maltreatment (1-previously reported, 0-no prior reports). Each investigation was coded as either an alleged maltreatment or 'risk of future maltreatment' (i.e., no alleged maltreatment incident) investigation (1-alleged maltreatment, 0-risk only). When alleged maltreatment was investigated, workers indicated the nature of that maltreatment: Physical abuse, Sexual abuse, Neglect, Emotional maltreatment and/or Exposure to intimate partner violence (See Box 2). For each form of maltreatment, two dichotomous variables were used: investigated (1-yes, 0-no), and substantiated (1-yes, 0-no). The duration of child exposure to maltreatment was also recorded: An ordinal duration variable was created for use in this study (2-multiple incidents of any form of maltreatment, 1-single incident, 0-no incident).

Finally, workers indicated whether there was any sign of physical harm (1=yes, harm, 0=no harm) or mental/emotional harm (1=yes, 0=no) as a result of maltreatment.

Box 2

- Physical abuse: shake, push, grab, throw; hit with hand; punch, kick, bite; hit with object; other physical abuse.
- Sexual abuse: penetration; attempted penetration; oral sex; fondling; sex talk or images; voyeurism; exhibitionism; exploitation; other sexual abuse.
- Neglect: failure to supervise-physical harm; failure to supervise-sexual abuse; permit criminal behaviour; physical neglect; medical/dental neglect; failure to provide psychological treatment; abandonment; educational neglect.
- Emotional maltreatment: terrorizing or threats of violence; verbal abuse, belittling; isolation, confinement; inadequate nurturing or affection; exploitative, corrupting behaviour; exposure to non-partner physical violence;
- Exposure to intimate partner violence: Direct witness to violence; indirect exposure to violence; exposure to emotional violence.

For detailed definitions of each maltreatment category see Public Health Agency of Canada. *Canadian Incidence Study of Reported Child Abuse and Neglect – 2008: Major Findings. Ottawa, 2010*

- Caregiver characteristics: Primary caregiver age and sex (1-male, 0-female) were used in the analysis. In addition, workers noted ‘caregiver risk factors’, indicating whether these were confirmed (“disclosed by caregiver, diagnosed or observed”), suspected (“enough suspicions to do a written assessment/transfer summary”), not present (“the child welfare worker believes there is no problem”) or unknown. For the purposes of this study, ‘confirmed or suspected’ was coded as ‘1- noted’, and ‘not present or unknown’ were coded as ‘0-not noted’. Caregiver risk factors included: (primary caregiver cognitive impairment) “has cognitive impairment”; (secondary caregiver cognitive impairment) “has cognitive impairment”; (primary caregiver mental health problem) “has any mental health problem”; (primary caregiver physical disability) “has a chronic illness, frequent hospitalizations or physical disability”; (primary caregiver substance abuse) “abuses alcohol” or “abuses prescription or illicit drugs, or solvents”; (primary caregiver social isolation) “social isolation or lack of social support”; (primary caregiver placement as a child) “was placed in out-of-home care as a child”. In addition,

the child welfare worker's description of the primary caregiver's overall cooperation with the investigation was used in the analysis (1- non-cooperative, 0-cooperative).

- Household characteristics: With the exception of (total number of children) "total number of children in the home," all variables were either derived or dummy-coded for the purposes of this study. Variables used in this analysis included lone-parent household (1-yes, 0-no); (home overcrowded) "home is made up of multiple families and/or overcrowded" (1-yes, 0-no); (public housing) the family resides in public housing, band housing or in a hotel/shelter (1-yes, 0-no); (welfare dependent) the primary source of household income is social assistance or other benefits, i.e., no employment related income (1-yes, 0-no); (financial hardship) "the household regularly runs out of money for basic necessities, food, clothing, etc." (1-yes, 0-no); and (quality of living environment poses health risks) "the quality of living environment poses a health risk to the child, e.g., no heating" (1-yes, 0-no).

Data Analysis

The analysis was conducted using IBM SPSS Statistics v.24. After recoding (e.g. dummy-coding) and creating/deriving study variables (as outlined above), a missing values analysis was undertaken. For most CIS_2008 variables used in this analysis the dataset is either complete or there are few missing data. Total missing data on variables used in this study ranged from 0% to 17.5% ("the household regularly runs out of money for basic necessities, food, clothing, etc."). Rather than exclude cases with missing data, multiple imputation (regression method) was employed to generate five complete versions of the dataset reflecting uncertainty about the true values to be imputed (Rubin, 1987). The pooled statistics from the analysis of these complete, imputed datasets are reported.

A descriptive profile (child, case, caregiver and household characteristics) of child maltreatment investigations involving primary caregivers with and without cognitive impairment was generated. Relative risk was computed for some bivariate comparisons. Binary logistic regression was then employed to investigate the relationship between primary caregiver CI and child maltreatment investigation outcomes: substantiation, child apprehended, case kept open for ongoing services, and court application. To obtain unadjusted and adjusted odds ratios, independent variables were entered sequentially in blocks, with primary caregiver CI entered first (Step 1), followed by child and case characteristics (Step 2), and then caregiver and household characteristics (Step 3).

To estimate the impact of introducing caregiver and household characteristics (in Step 3) on the strength of the association between primary caregiver CI and child maltreatment investigation outcomes, *controlling for child and case characteristics*, the percentage of change in the adjusted Odds Ratio (OR) of the association between primary caregiver CI and child maltreatment investigation outcomes between Steps 2 (OR2) and 3 (OR3) was

calculated. Given that an OR of 1 denotes no association (i.e. perfect independence), the percentage of change is given by $100 \times (OR2 - OR3)/(OR2 - 1)$.

Binary logistic regression analysis was also employed to investigate whether primary caregiver CI moderated the effect of case characteristics (e.g., maltreatment exposure) on child apprehension and court application. In other words, binary logistic regression analysis was used to determine whether case (and selected other) characteristics were weighted differently in decision-making under each condition, i.e., with and without primary caregiver CI. Each interaction effect was examined separately. Child age, sex and aboriginal status were entered as covariates in each analysis. To aid with interpretation, the association (OR) between each case characteristic and each of these child maltreatment investigation outcomes, under each condition, was then computed.

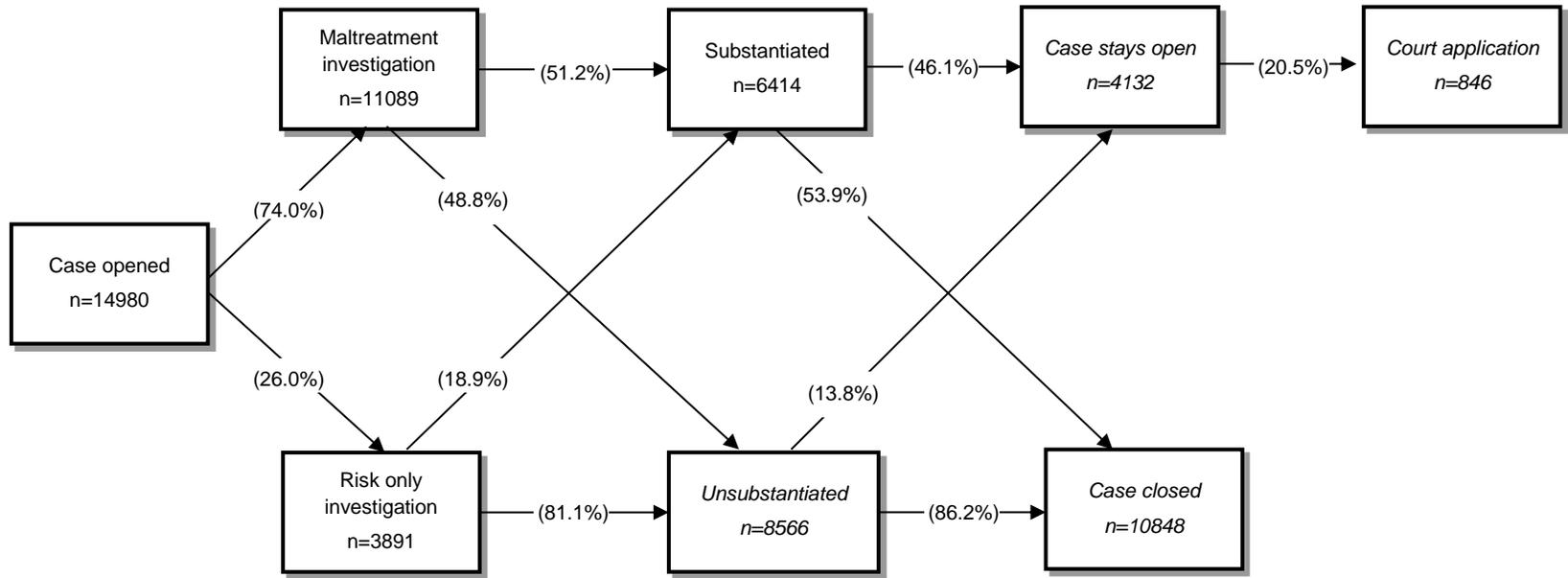


Figure 1. Flow of cases: no primary caregiver CI

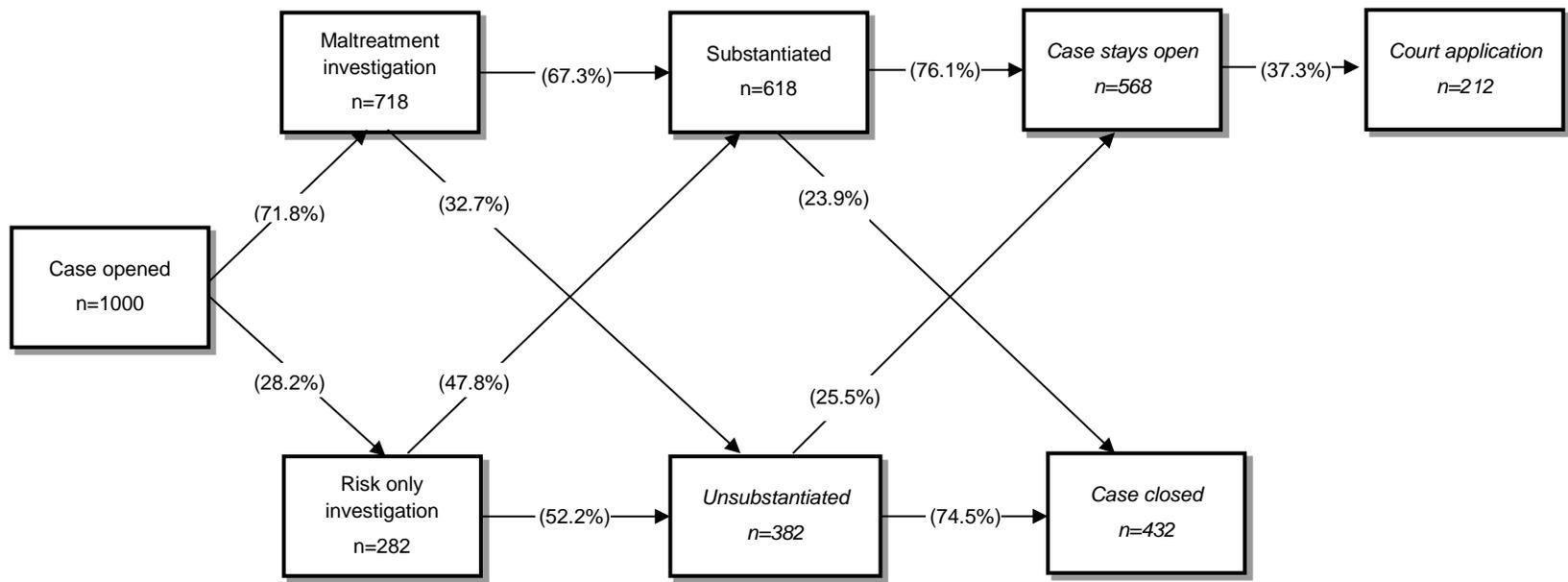


Figure 2. Flow of cases: Primary caregiver CI

RESULTS: PREVALENCE AND OUTCOMES

- Primary and/or secondary caregiver CI was noted in 7.8% of all cases. Primary caregiver CI was noted in 1000 (6.3%) child maltreatment investigations
- The prevalence of primary caregiver CI was particularly high in cases concerning infants (< 1 year): Primary caregiver CI was noted in 14.3% of cases featuring infants.
- The odds of substantiation, apprehension, the case remaining open for ongoing services and child welfare court application are 2 to 5 times higher when primary caregiver CI is noted, compared to when it is not noted.
- The ‘effect’ of primary caregiver cognitive impairment on maltreatment investigation outcomes diminishes as the age of the subject child increases.

Primary and or secondary caregiver CI was noted in 7.8% of all child maltreatment investigations. A total of 1000 (6.3%) investigations featured a primary caregiver with noted CI, who in most instances (87.6%) was the child’s biological mother. The prevalence of primary caregiver CI varied across child age groups. Primary caregiver CI was noted in 14.3% of all cases concerning infants (< 1 year of age), 6.7% of cases concerning pre-school age children (1 – 5 years), 5.2% of cases concerning elementary school age children (6-12 years), and 4.7% of those involving teens (13-15 years). Based on a population prevalence estimate of 1 - 2% of adults (18—49 years) with CI, these data suggest that infants of mothers (or other primary caregivers) with CI are 7 to 14 times more likely than infants of mothers (or other primary caregivers) without CI to be the subject of a child maltreatment investigation.

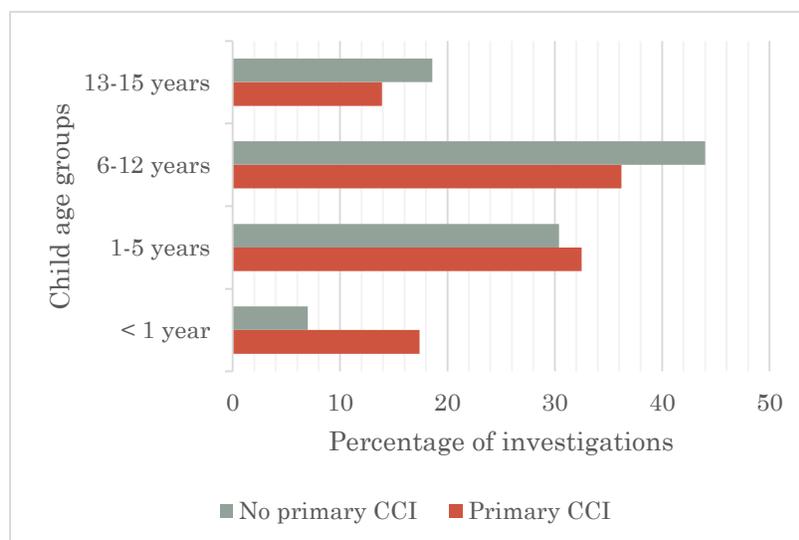


Figure 3 displays the child age-group distributions for investigations featuring primary caregivers with and without CI. The figure shows that the vast majority of investigations featuring primary caregivers with and without CI involved preschool and elementary school age children (i.e. not infants).

Figure 3. Child age group distributions

While primary caregiver CI was noted in 6.3% of all child maltreatment investigations, it was noted in 18.4% of those resulting in child apprehension and 20.0% of those resulting in application to the child welfare court. The flow of cases featuring primary caregivers with and without CI, from case opening through to court application, are shown in Figures 1 and 2. Bivariate comparisons are shown in See Table 1, and show higher relative risk (RR) for all investigation outcomes for primary caregiver CI. Notably, whether primary caregiver CI is confirmed or suspected appears to have little bearing on the outcome (see Table 2).

Table 1. *Investigation outcomes: summary statistics*

	All cases (n=15980)	1 ^o CCI (n=1000)	No 1 ^o CCI (n=14980)	RR* (95%CI)
Substantiation of (any) maltreatment or substantiation of risk	44.0%	61.8%	42.8%	1.44 (1.37, 1.52)
Child apprehended/ placed out-of-home during investigation	9.5%	28.1%	8.3%	3.39 (3.02, 3.79)
Case will stay open for ongoing child welfare services	29.4%	56.8%	27.6%	2.06 (1.94, 2.19)
Child welfare court application made	6.6%	21.2%	5.6%	3.75 (3.28, 4.30)

*relative risk of outcome when primary caregiver CI is noted (compared to when it is not noted) by the child welfare worker

Table 2. *Case outcomes by suspected and confirmed primary caregiver CI (original data)*

	No CCI (n=13926)	Suspected Primary CCI (n=616)	Confirmed Primary CCI (n=200)	Chi square*
Child protection concerns substantiated	42.6%	61.1%	56.5%	1.33 (p = 0.25)
Child apprehended/placed out-of-home	7.5%	23.6%	26.5%	0.682 (p = 0.41)
Case will stay open...	26.9%	54.1%	55.8%	0.162 (p = 0.69)
Child welfare court application made	5.4%	17.5%	22.0%	1.988 (p = 0.16)

* Chi square for the association between primary caregiver CI 'status' (i.e. confirmed or suspected) and outcomes

Table 3. Odds ratios for primary caregiver CI by investigation outcome and child age group*

Child Age	< 1 year		1 – 5 years		6-12 years		13-15 years	
	B (S.E)	OR (95%CI)						
Substantiated	0.90 (0.19)	2.46 (1.70 – 3.55)	0.77 (0.12)	2.15 (1.70 – 2.74)	0.68 (0.12)	1.98 (1.58 – 2.48)	0.57 (0.18)	1.77 (1.23 – 2.53)
Child apprehended	1.71 (0.20)	5.51 (3.68 – 8.25)	1.57 (0.14)	4.82 (3.65 – 6.37)	1.04 (0.15)	2.81 (2.09 – 3.79)	0.81 (0.23)	2.24 (1.41 – 3.56)
Case kept open	1.39 (0.21)	4.02 (2.64 – 6.10)	1.23 (0.13)	3.43 (2.68 – 4.38)	1.04 (0.12)	2.84 (2.22 – 3.63)	0.86 (0.18)	2.35 (1.65 – 3.35)
Court application	1.69 (0.20)	5.39 (3.64 – 7.99)	1.45 (0.18)	4.25 (2.95 – 6.13)	1.09 (0.18)	2.97 (2.06 – 4.28)	0.99 (0.29)	2.68 (1.51 – 4.76)

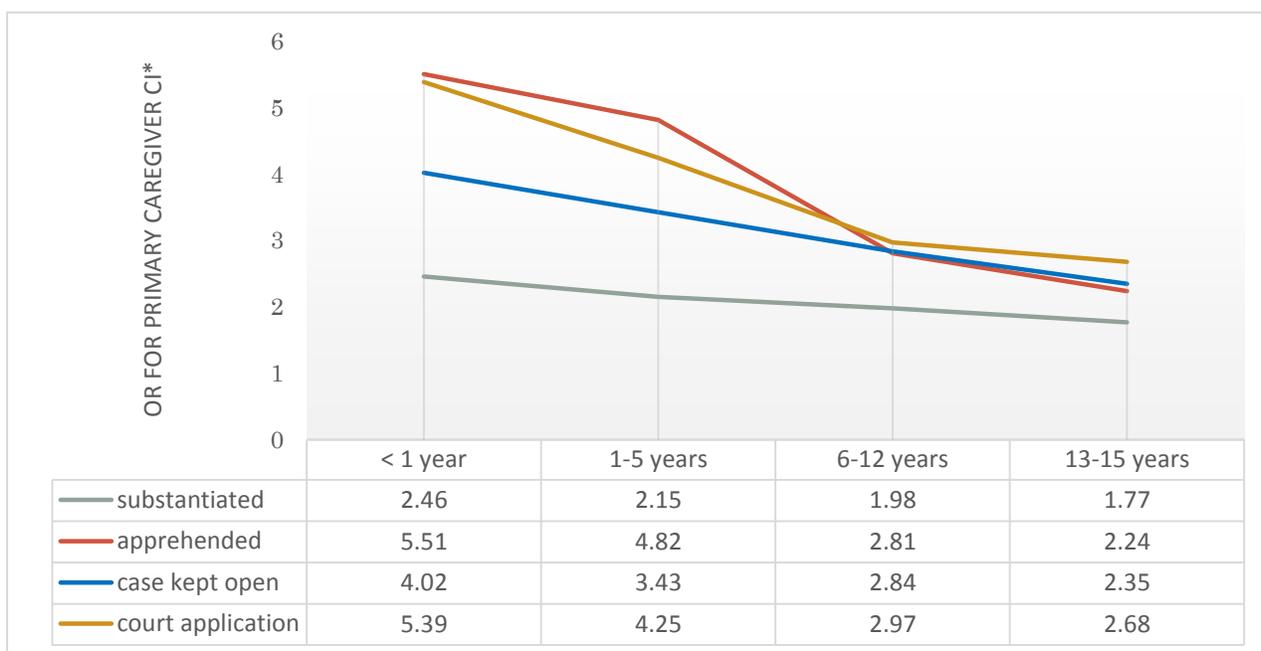
*Controlling for child sex and aboriginal status

Table 4. Primary caregiver CI by child age: interaction effects*

	Substantiation		Child apprehended		Case kept open		Court application made	
	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)
Child age	-0.01 (0.00)	0.99 (0.99 – 1.00)	-0.00 (0.01)	1.00 (0.99 – 1.01)	-0.02 (0.00)	0.98 (0.97 – 0.99)	-0.04 (0.01)	0.96 (0.95– 0.98)
10 Caregiver Cognitive Impairment	0.90 (0.12)	2.46 (1.96 – 3.09)	1.97 (0.12)	7.17 (5.63 – 9.11)	1.51 (0.12)	4.51 (3.56 – 5.71)	1.83 (0.15)	6.21 (4.65 – 8.30)
Child age* Primary CCI	-0.02 (0.01)	0.98 (0.95 – 1.01)	-0.09 (0.02)	0.91 (0.88 – 0.94)	-0.04 (0.01)	0.96 (0.93 – 0.99)	-0.07 (0.02)	0.93 (0.89 – 0.97)

*Controlling for child sex and aboriginal status

The size of the ‘effect’ of primary caregiver CI on child maltreatment investigation outcomes varied depending on child age (See Table 3 and Figure 4). Logistic regression analyses revealed statistically significant interaction effects (primary caregiver CI x child age) with respect to child apprehension, case disposition (case remains open) and child welfare court application (See Table 4). Specifically, the results indicate that the effect of primary caregiver CI on these child maltreatment investigation outcomes diminishes as child age increases. For instance, when primary caregiver CI is noted (vs. not noted), the odds of child apprehension are 5.5 [95%CI 3.68 – 8.25] times higher in child maltreatment investigations involving infants and 2.2 [95%CI 1.41 – 3.56] times higher in those involving teens.



*ORs adjusted for between-group differences in child sex and aboriginal status

Figure 4. Association between primary caregiver CI and outcomes by child age group

Table 5 details child maltreatment investigation outcomes by household type and caregiver CI. Focusing on two-parent households, the results suggest that there is a ‘dose-response’ relationship between caregiver CI and child maltreatment investigation outcomes. For example, in two-parent households, secondary caregiver CI alone appears to increase the probability of child apprehension almost two-fold; primary caregiver CI (with no secondary caregiver CI) increases the probability three-fold, and primary and secondary caregiver CI together increases the probability of apprehension five-fold, by comparison with cases in which no caregiver CI is noted. The results of a logistic regression analysis (presented in Table 6), with child age, sex and aboriginal status included in the model as covariates, further demonstrates this ‘dose-response’ effect. Notably, the odds of child welfare court application are more than six times higher when primary and secondary caregiver CI is noted, compared to when no caregiver CI is noted in two parent/caregiver households.

Table 5. *Case outcomes by household type and caregiver CI*

	Single parent household			Two parent/caregiver household				
	No CCI (n=5893)	CCI (n=423)	Relative risk	No CCI (n=8843)	Only secondary CCI (n=244)	Only primary CCI (n=311)	Primary and secondary CCI (n=266)	Relative risk*
Child protection concerns substantiated	42.2%	62.1%	1.47 (1.36 – 1.60)	42.9%	53.0%	53.1%	71.6%	1.67 (1.54 – 1.80)
Case will stay open...	29.2%	56.5%	2.89 (2.40 – 3.47)	25.9%	47.3%	54.0%	60.5%	2.33 (2.10 – 2.59)
Child apprehended/placed out-of-home	10.3%	29.6%	2.86 (2.42 – 3.37)	6.8%	12.1%	21.4%	33.5%	4.99 (4.14 – 6.01)
Child welfare court application made	6.2%	18.6%	3.01 (2.41 – 3.76)	5.1%	13.0%	16.1%	31.3%	6.14 (5.03 – 7.50)

*Relative risk of outcome in cases featuring primary and secondary CCI by comparison with no CCI in two parent households

Table 6. *Investigation outcomes* regressed on caregiver CI, controlling for child age, sex and aboriginal status*

	Substantiation OR (95%CI)	Child apprehension OR (95%CI)	Case remains open OR (95%CI)	Court application OR (95%CI)
Secondary caregiver CI only	1.49 (1.14 – 1.94)	1.43 (0.95 – 2.15)	2.26 (1.71 – 2.98)	2.31 (1.56 – 3.42)
No caregiver CI	1.00	1.00	1.00	1.00
Primary caregiver CI only	1.83 (1.56 – 2.15)	3.63 (2.98 – 4.42)	3.13 (2.68 – 3.65)	3.30 (2.66 – 4.09)
No caregiver CI	1.00	1.00	1.00	1.00
Primary & secondary caregiver CI	3.24 (2.43 – 4.32)	4.87 (3.54 – 6.70)	3.60 (2.66 – 4.87)	6.45 (4.67 – 8.91)
No caregiver CI	1.00	1.00	1.00	1.00

*Two parent/caregiver households only

RESULTS: CHILD, CASE, CAREGIVER AND HOUSEHOLD CHARACTERISTICS

- The children of primary caregivers (mostly biological mothers) with CI are younger on average, more likely to be aboriginal and have one or more child functioning issues
- Primary caregivers with CI are more likely to have been placed out-of-home in their own childhoods, to have few social supports, and physical and or mental health issues.
- Material hardship (e.g., low income, unsafe housing) is more frequently noted in cases featuring primary caregivers with CI.
- The most common maltreatment related concerns in cases featuring primary caregivers with CI are child neglect and ‘risk of future maltreatment: no maltreatment incident’.
- Household material hardship partially accounts for the relationship between primary caregiver CI, child maltreatment concerns and child functioning issues.

Child and case characteristics

The 15980 children in the sample were 7.4 years of age, on average. The distribution of the sexes was approximately equal: 50.8% of the children were male. Across the full sample, a disproportionately large number of the children were aboriginal (23.1%). In addition, based on child welfare worker report, around one in five children (21.2%) had intellectual and or other developmental disabilities. Psychological distress (e.g., depression, anxiety and withdrawal) and or behaviour problems were noted in 17.7% and 15.9% of all the children, respectively. Figure 5 shows a comparison between children of primary caregivers with and without CI.

The children of primary caregivers with CI were not only younger on average (6.2 years vs. 7.5 years), they were also more likely to be aboriginal, and to have one or more suspected and or confirmed functioning issues. Specifically, the children of primary caregivers with CI were 2.58 times more likely to have a noted intellectual or developmental disability (RR = 2.58, 95%CI 2.40 – 2.77); 1.46 times (or 46%) more likely to show signs of psychological distress (RR = 1.46, 95%CI 1.30 – 1.63); and, 1.56 times (or 56%) more likely to display behaviour problems (RR = 1.56, 95%CI 1.39 – 1.75), that is, by comparison with children of primary caregivers without CI.

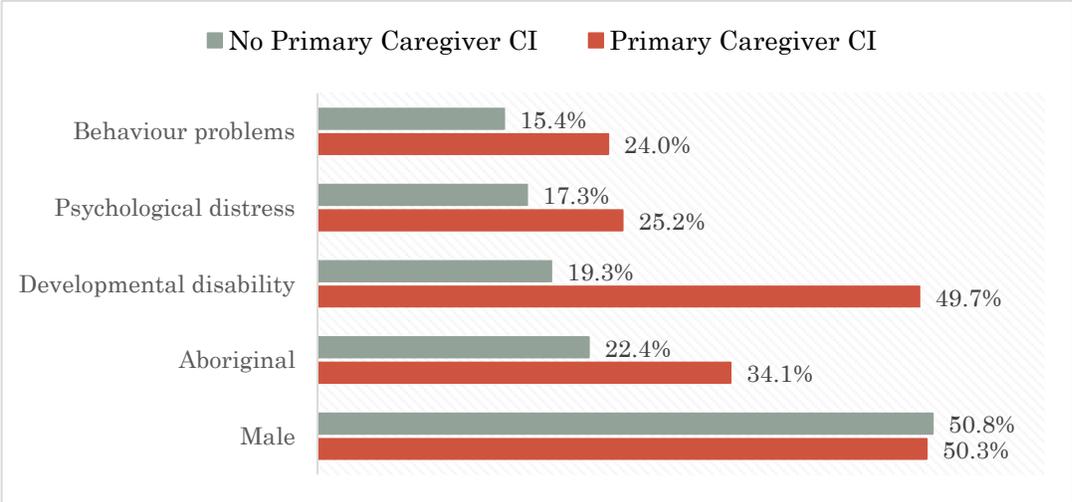


Figure 5. Child characteristics

The majority of the children and their families were known to child and youth protection authorities before the investigation was opened: In 78.6% and 61.0% of cases featuring primary caregivers with and without CI, respectively, a case had previously been opened for a family member (i.e., the subject child or any other family member). Previous reports of suspected maltreatment pertaining to the subject child were noted in 65.8% of cases in which primary caregiver CI was noted, and 47.9% of all other cases.

Figure 6 shows the distribution of primary child maltreatment related concerns, including the category of ‘risk of future maltreatment’: no alleged maltreatment incident’. The most common primary concerns in cases featuring primary caregivers with CI, were neglect and ‘risk of future maltreatment.’ Alleged neglect was more frequently noted, while alleged physical and sexual abuse were less frequently noted in cases featuring primary caregiver CI, by comparison with all other cases. Summary statistics are presented in Table 7.

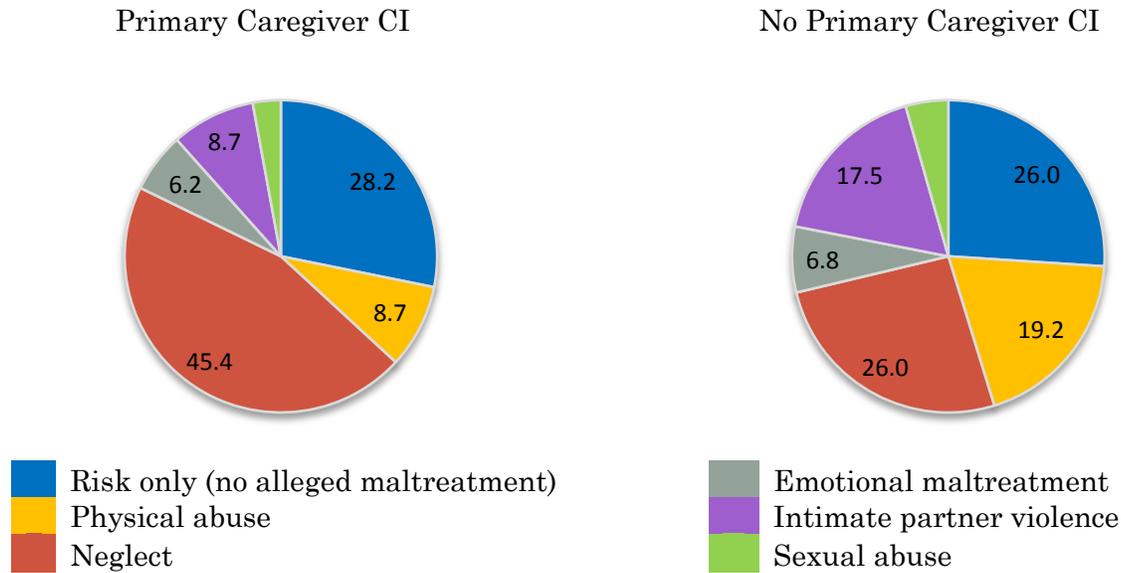


Figure 6. Primary child protection concerns

Table 7. Case characteristics

	All cases (n=15980)	1 ^o CCI (n=1000)	No 1 ^o CCI (n=14980)
Case previously opened for any family member (1 + times)	62.1%	78.6%	61.0%
Prior report/s of suspected maltreatment (case child)	49.1%	65.8%	47.9%
Child protection concerns: investigated (substantiated*)			
Risk only: no alleged maltreatment	26.1% (20.8%)	28.2% (47.8%)	26.0% (18.9%)
Neglect	32.2% (48.3%)	52.3% (66.7%)	30.8% (46.2%)
Physical abuse	21.6% (38.6%)	12.5% (44.9%)	22.2% (38.4%)
Intimate partner violence	21.3% (70.8%)	14.9% (81.1%)	21.7% (70.3%)
Emotional maltreatment	13.0% (49.1%)	15.0% (68.3%)	12.9% (47.6%)
Sexual abuse	5.3% (27.4%)	4.4% (49.3%)	5.3% (26.2%)
Multiple incidents of substantiated maltreatment (duration)	28.8%	44.0%	27.7%
Mental/emotional harm is evident (% of all cases)	12.8%	21.6%	12.2%
Physical harm is evident (% of all cases)	4.9%	7.7%	4.7%

*percent of cases investigated that were substantiated

Caregiver and household characteristics

Caregiver and household characteristics are summarised in Table 8 and figures 7 and 8. The data show that caregiver and household ‘risk and vulnerability’ factors tend to cluster together with primary caregiver CI. Primary caregivers with CI are, for example, three to four times more likely than primary caregivers without CI to have spent time in out-of-home care themselves as children, and to have physical and or mental health issues. Further, the data show that households headed by a primary caregiver with CI are more likely to be exposed to low income and inadequate and unsafe housing. Based on the reports of child welfare workers, the households of primary caregivers with CI are more than three times more likely to run out of money for basic necessities each month, and their homes are nearly five times more likely to pose health risks to the child due, for example, to inadequate heating.

Table 8. *Caregiver and household characteristics: summary statistics*

	All cases (n=15980)	1 ^o CCI (n=1000)	No 1 ^o CCI (n=14980)	RR (95%CI)*
Family characteristics/home environment				
Lone-parent household	39.5%	42.3%	39.3%	1.07 (1.00 – 1.16)
<i>Total number of children in home - mean (std)</i>	2.5 (1.3)	2.4 (1.5)	2.5 (1.3)	
Home overcrowded	8.5%	18.3%	7.9%	2.32 (2.01 – 2.68)
Household income: social assistance/other benefits	34.9%	62.6%	33.0%	1.89 (1.80 – 2.00)
Household regularly runs out of money for basic necessities	16.4%	45.6%	14.5%	3.15 (2.91 – 3.40)
Social housing (public housing, band housing, hotel/shelter)	20.3%	30.9 %	19.5%	1.58 (1.43 – 1.74)
Home environment poses health risks (e.g., no heating)	4.6%	17.6%	3.8%	4.67 (4.00 – 5.47)
Primary caregiver characteristics				
Caregiver sex (female)	89.15%	91.6%	89.0%	1.03 (1.01 – 1.05)
Caregiver age < 19	1.2%	3.9%	1.0%	3.90 (2.75 – 5.51)
Caregiver history of placement	10.4%	32.4%	8.9%	3.63 (3.27 – 4.02)
Caregiver physical health issues (illness, physical disability)	9.3%	29.9%	7.9%	3.79 (3.40 – 4.23)
Caregiver substance abuse (alcohol &/or drug/solvent)	25.8%	43.4%	24.6%	1.76 (1.63 – 1.90)
Caregiver mental health issues/any mental health problem	25.4%	70.8%	22.4%	3.16 (3.01 – 3.32)
Caregiver has few social supports	35.3%	64.6%	33.3%	1.94 (1.84 – 2.04)
Caregiver perceived as non-cooperative	7.6%	16.8%	6.9%	2.42 (2.08 – 2.81)

*Relative risk of each characteristic in cases featuring primary caregiver CI

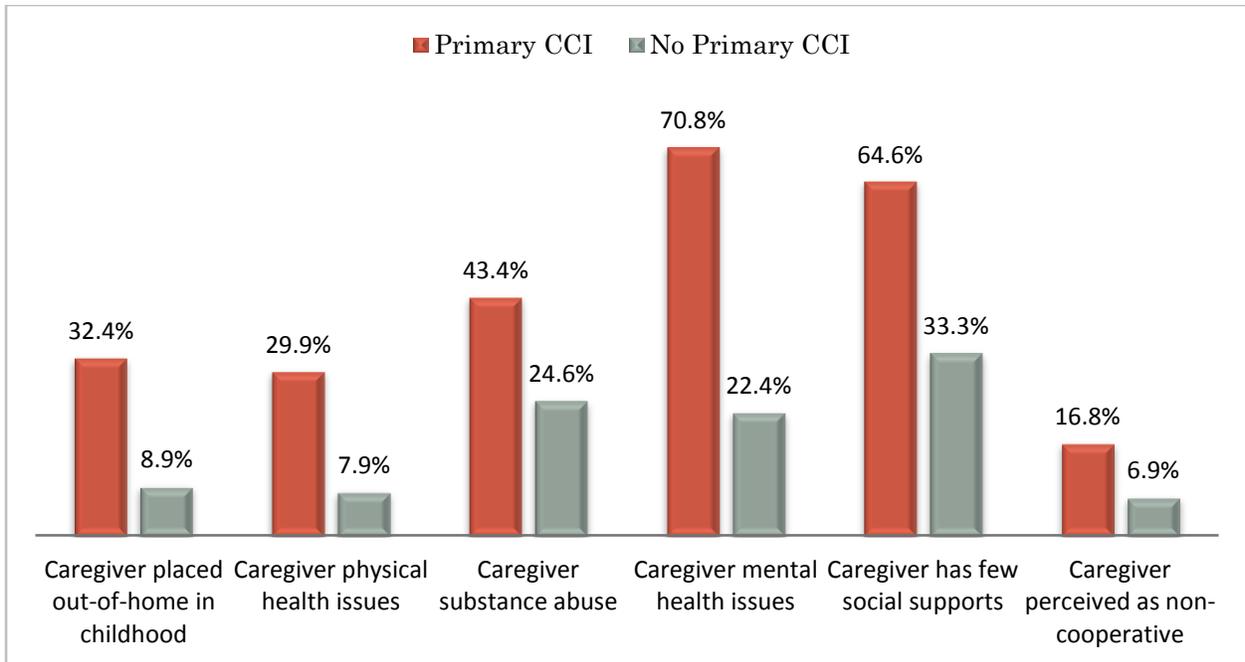


Figure 7. Primary caregiver characteristics

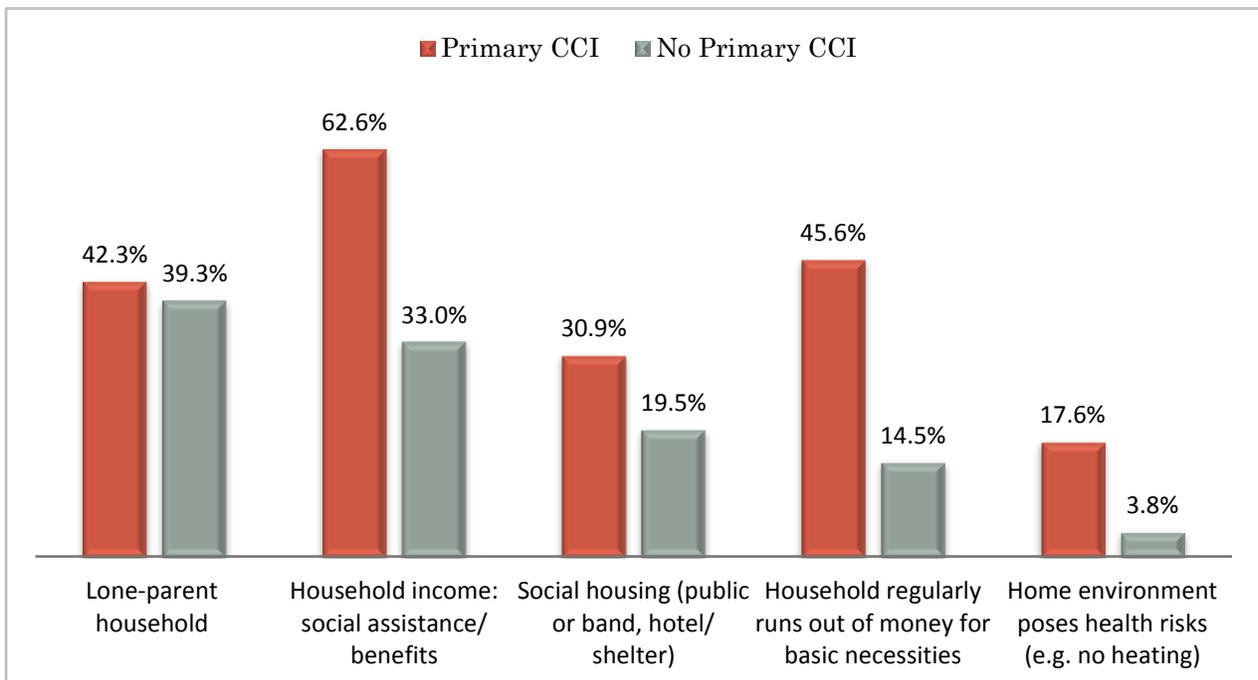
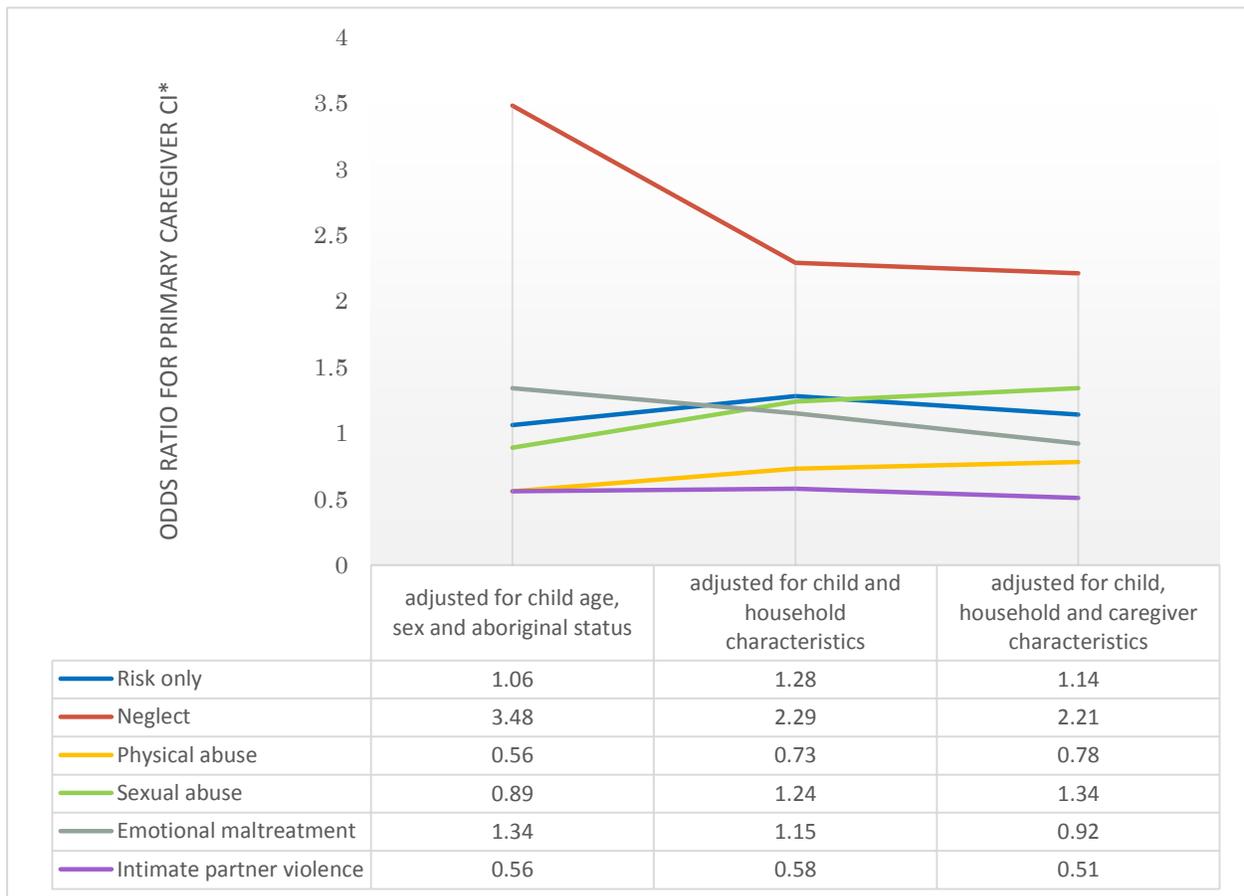


Figure 8. Household characteristics

Relationship between caregiver and household characteristics and maltreatment type

Utilizing binary logistic regression analysis we examined the relationship between caregiver and household characteristics and child maltreatment concerns (investigated not substantiated), controlling for child age, sex and aboriginal status. The results, which are presented in Appendix B, suggest that relationships do exist between household and caregiver characteristics and investigated maltreatment type. The results show, for instance, that various indicators of household material hardship, as well as caregiver CI and substance abuse, are more likely to be noted when child neglect is investigated, compared to when it is not. Furthermore, entering independent variables in blocks (See Figure 9), the analysis found that household material hardship accounts for 54.5% of the increased risk of investigated child neglect (vis a vis other child maltreatment related concerns) associated with primary caregiver CI.



*ORs adjusted for between-group differences in child sex and aboriginal status

Figure 9. Association between primary caregiver CI and investigated maltreatment types/concerns

CHILD FUNCTIONING ISSUES

In a nested study, binary logistic regression analysis was employed to investigate the relationship between primary caregiver CI and child functioning issues. The question addressed was whether the higher prevalence of child functioning issues in children of primary caregivers with CI in a child welfare sample could be explained by between-group differences in child exposure to material hardship, caregiver ‘risk factors’ and maltreatment exposure (i.e. type of maltreatment and number of maltreatment incidents). The results (summarized in Figure 11) reveal that much of the increased risk of functioning issues in children of primary caregivers with CI is attributable to social conditions/ material hardship rather than caregiver CI per se. Specifically, controlling for child characteristics.

- between-group differences in exposure to material hardship (i.e. lone parent, welfare dependent, social housing, home overcrowded, runs out of money for basic necessities, home environment poses health risks) accounted for 24% of the increased ‘risk’ of IDD, 22% of the increased ‘risk’ of psychological distress, and 28% of the increased ‘risk’ of behaviour problems associated with primary caregiver CI.
- between-group differences in exposure to material hardship and caregiver risk factors (i.e. social isolation, physical and mental health issues, substance abuse, placed out-of-home as child) together accounted for 47% of the increased risk of IDD, 72% of the increased risk of psychological distress, and 62% of the increased risk of behaviour problems associated with primary caregiver CI.

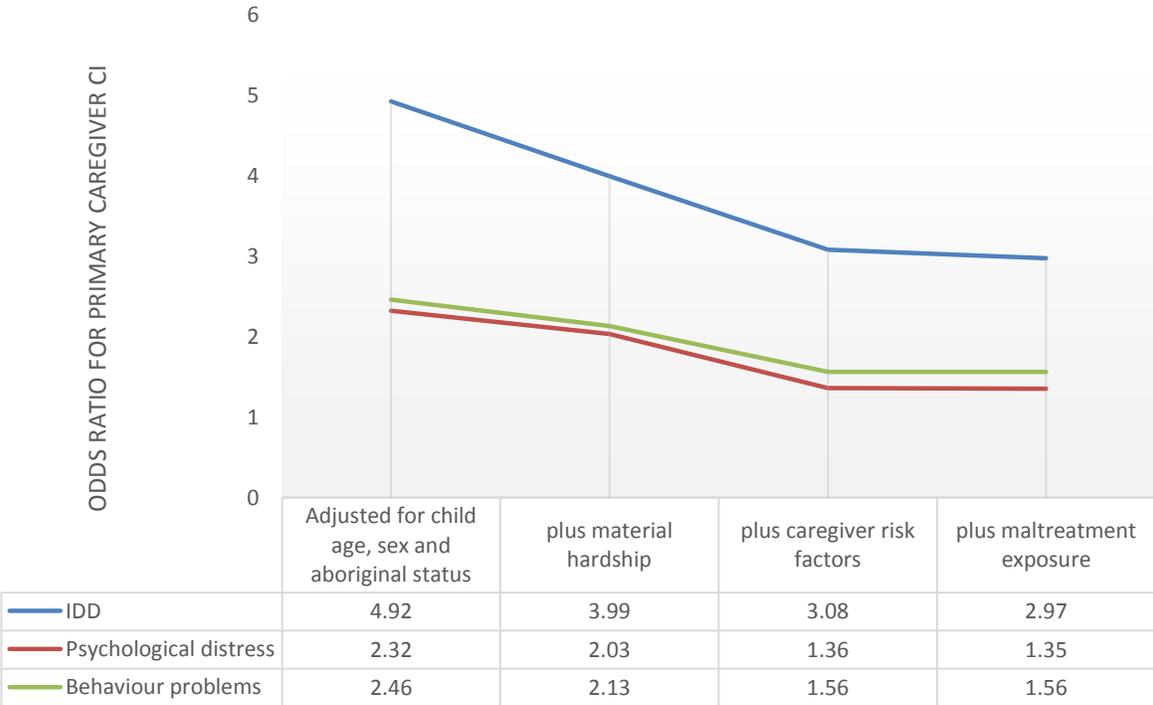


Figure 10. Association between primary caregiver CI and child functioning issues

RESULTS: ISOLATING THE MAIN EFFECT OF PRIMARY CAREGIVER CI

- The relationship between primary caregiver CI and child maltreatment investigation outcomes can be partially explained by a conglomeration of caregiver and household risk and vulnerability factors.
- Notwithstanding, all else being equal, primary caregiver CI is a clinically and statistically significant predictor of child maltreatment investigation outcomes.

Unadjusted, the odds of substantiation (of any maltreatment incident or risk of future maltreatment), child apprehension, the case remaining open for ongoing services and child welfare court application are up to five times higher when primary caregiver CI is noted (see Table 9). The full results of the regression analyses are presented in Appendix A.

- Between group differences in child, case, caregiver and household characteristics accounted for 76% of the increased risk of substantiation, 80% of the increased risk of child apprehension, 91% of the increased risk of the case remaining open for ongoing services, and 78% of the increased risk of court application associated with primary caregiver CI.
- Having removed risk attributable to between-group differences in child and case characteristics, between-group differences in caregiver and household characteristics accounted for 70% of the increased risk of substantiation, 48.5% of the increased risk of child apprehension, 79% of the increased risk of the case remaining open for ongoing services, and 42% of the increased risk of court application associated with primary caregiver CI.

Notwithstanding, the results of the analyses show that, all else being equal (i.e. all that was included in the model), primary caregiver CI is a statistically significant predictor of each child maltreatment investigation outcome. For instance, all else being equal, primary caregiver CI increases the odds of child apprehension and court application by 68% and 76% respectively.

Table 9. *Primary caregiver CI: Unadjusted and adjusted odds ratios (ORs)*

	Substantiation*	Child apprehended	Case kept open	Court application
	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
1 Primary CCI, OR unadjusted	2.16 (1.88 – 2.49)	4.32 (3.70 – 5.03)	3.45 (3.02 – 3.95)	4.49 (3.76 – 5.37)
3 Primary CCI, <i>OR adjusted for child & case characteristics</i>	1.92 (1.63 – 2.27)	2.32 (1.92 – 2.80)	2.08 (1.77 – 2.43)	2.31 (1.87 – 2.86)
4 Primary CCI <i>OR adjusted for child, case, caregiver and household characteristics.</i>	1.27 (1.06 – 1.52)	1.68 (1.36 – 2.07)	1.23 (1.04 – 1.46)	1.76 (1.39 – 2.24)

*Case characteristics included in regression model on substantiation: case previously opened for any family member; previous reports for suspected maltreatment; investigated PA, Ng, EM, SA, IPV; mental/emotional harm; and, physical harm (e.g., burns, bruises, breaks, head trauma). Case characteristics included in regression model on child apprehended, case disposition and court application: case previously opened for any family member; prior reports of suspected maltreatment; substantiated PA, Ng, EM, SA, IPV; duration of maltreatment (i.e., multiple incidents v. no incident); mental/emotional harm; and, physical harm (e.g., burns, bruises, breaks, trauma).

Risk-only investigations

The CIS_2008 discriminates between risk only investigations—where there is no alleged maltreatment—and maltreatment incident investigations. Investigations featuring primary caregivers with CI were no more or less likely to be risk-only investigations. However, the rate of substantiation (i.e., substantiated risk of future maltreatment) was 48% when primary caregiver CI was noted and 18% when primary caregiver CI was not. Adjusted for between-group differences in child age, sex and aboriginal status, the odds of substantiation were 3.62 times higher in risk-only investigations in which primary caregiver CI was noted. Taking between-group differences in child, caregiver and household characteristics into account, primary caregiver CI increased the odds of substantiation in risk-only cases by 83%. Furthermore, in *substantiated* risk-only investigations, the rate of child apprehension (41.7% vs. 16.5%; RR = 2.52, 95%CI 1.94 – 3.26), the case remaining open for ongoing services (83.8% vs. 63.2%; RR = 1.32, 95%CI 1.21 – 1.45), and child welfare court application (36.2% vs. 13.8%; RR = 2.64, 95%CI 1.98 – 3.52) were significantly higher when primary caregiver CI was noted.

Maltreatment incident investigations

The rate of substantiation in maltreatment incident investigations was also higher when primary caregiver CI was noted (67.3% vs. 51.2%). Adjusted for between group differences in child age, sex and aboriginal status, the odds of substantiation were 1.89 times higher in maltreatment incident investigations when primary caregiver CI was noted. Adjusted for

between-group differences in child, caregiver and household characteristics, no association was found between primary caregiver CI and maltreatment substantiation (OR = 1.00). In *substantiated* maltreatment incident investigations, primary caregiver CI was however associated with a higher rate of child apprehension (42.2% vs. 15.9%; RR = 2.65, 95%CI 2.35 – 2.99), the case remaining open for ongoing services (73.9% vs. 43.8%; RR = 1.69, 95%CI 1.59 – 1.79), and child welfare court application (30.0% vs. 11.3%; RR = 2.66, 95%CI 2.28 – 3.10).

Referrals made in cases kept open for ongoing services

Table 10 shows the proportion of cases kept open for ongoing services in which various referrals were made. No large between-group differences were found in rates of referral. What is perhaps surprising is that these cases were ostensibly kept open for ongoing services, yet referrals were only made in minority of cases. One or more family members were referred for centre-based or home-based family/parenting support more often than they were referred for services to address financial-material hardship. Approximately one in twenty families were referred for social assistance to address financial concerns and/or to a food bank, despite the high level of material hardship observed in the sample as a whole, and in cases where primary caregiver CI was noted in particular. This pattern of referrals may reflect variation in the availability of services, and or a predisposition to attribute perceived family problems to individual deficiencies rather than environmental pressures.

Table 10. *Referrals made in cases kept open for ongoing services*

	Risk-only investigations			Maltreatment incident investigations		
	All cases	1° CCI (n=157)	No 1° CCI (n=1029)	All cases	1° CCI (n=411)	No 1° CCI (n=3103)
Referred one or more family members to a group program offering support and education	16.1%	21.7%	15.3%	15.1%	22.6%	14.1%
Referred one or more family members for home based services for support or reunification of children in care with their family	21.6%	23.9%	21.3%	28.3%	36.3%	27.2%
Referred the family to social assistance to address financial concerns	5.0%	5.9%	4.9%	6.1%	9.6%	5.7%
Referred the family to a food bank	3.5%	5.2%	3.2%	5.5%	7.1%	5.3%

RESULTS: THE MODERATING EFFECT OF PRIMARY CAREGIVER CI

- Primary caregiver CI moderates the effect of many (though not all) case characteristics and select other variables on child maltreatment investigation outcomes.
- The child's experience and other 'facts of the case' tend to have less or no bearing on child maltreatment investigation outcomes when primary caregiver CI is noted.

Do child welfare workers weight the child's experience (i.e., maltreatment exposure) and other 'facts of the case' differently when primary caregiver CI is noted? This question was addressed by investigating interaction effects. One possibility is that the child's experience and so forth has a similar effect on outcomes irrespective of caregiver CI. Another possibility is that the child's experience and other 'facts of the case' have a larger effect on outcomes when primary caregiver CI is noted. This would suggest that primary caregiver CI is treated as a vulnerability factor by child welfare workers. A third possibility is that the child's experience and other 'facts of the case' have less, little or no bearing on the outcome when primary caregiver CI is noted. Such a finding would suggest that primary caregiver CI overshadows other considerations.

The results of the analysis of interaction effects are reported in Table 11. To assist with interpretation, the effects of case characteristics (indicative of the child's experience) and selected other variables on child maltreatment investigation outcomes under each condition (i.e., primary caregiver with and without CI) are reported in Table 12. The results of the analysis show that primary caregiver CI moderates the effect of many, though not all, case characteristics and select other variables on decisions to apprehend the child, keep a case open for ongoing services and make a court application. With two notable exceptions (e.g. the effect of signs of physical harm on the decision to keep a case open), the results consistently show that the child's experience and other 'facts of the case' (which have a strong bearing on the outcome of cases in which no primary caregiver CI is noted) have less or no bearing on child maltreatment investigation outcomes (excluding substantiation) when primary caregiver CI is noted.

Table 11. *Interaction effects: Selected predictors by Primary caregiver CI*

Binary logistic regression models (controlling for child age, sex and aboriginal status)		Substantiation OR (95%CI)	Child apprehended OR (95%CI)	Case kept open OR (95%CI)	Court application OR (95%CI)
1	Case previously opened for any family member	1.05 (0.98 – 1.13)	1.56 (1.36 – 1.78)	1.76 (1.63 – 1.91)	1.47 (1.26 – 1.72)
	Primary Caregiver Cognitive Impairment (CCI)	2.35 (1.73 – 3.19)	4.25 (2.94 – 6.15)	3.52 (2.65 – 4.69)	5.29 (3.75 – 7.48)
	Interaction: Case previously opened* Primary CCI	0.86 (0.60 – 1.22)	0.84 (0.56 – 1.26)	0.79 (0.57 – 1.10)	0.65 (0.44 – 0.96)*
2	Prior reports of suspected maltreatment (subject child)	1.30 (1.22 – 1.40)	2.03 (1.78 – 2.32)	1.70 (1.57 – 1.85)	2.15 (1.77– 2.62)
	Primary Caregiver Cognitive Impairment (CCI)	1.99 (1.58 – 2.52)	5.80 (4.40 – 7.64)	4.13 (3.27 – 5.21)	6.39 (4.76 – 8.57)
	Interaction: Prior reports* Primary CCI	1.00 (0.75 – 1.34)	0.49 (0.35 – 0.68)*	0.59 (0.44 – 0.80)*	0.42 (0.29 – 0.61)*
3	Multiple incidents of maltreatment (ref = no incidents)		5.92 (5.09 – 6.89)	5.38 (4.94 – 5.83)	6.92 (5.82 – 8.22)
	Primary Caregiver Cognitive Impairment (CCI)		5.12 (3.76 – 6.98)	3.17 (2.54 – 3.95)	6.50 (4.77 – 8.85)
	Interaction: Multiple incidents* Primary CCI		0.58 (0.38 – 0.88)*	0.76 (0.56 – 1.05)	0.38 (0.26 – 0.56)*
4	Signs of physical harm (PH)	2.97 (2.51 – 3.51)	2.70 (2.16 – 3.38)	1.76 (1.49 – 2.07)	2.73 (2.11 – 3.52)
	Primary Caregiver Cognitive Impairment (CCI)	2.05 (1.76 – 2.38)	3.89 (3.29 - 4.59)	3.00 (2.58 – 3.49)	3.76 (3.11 – 4.54)
	Interaction: Signs of PH* Primary CCI	1.07 (0.51 -2.26)	0.83 (0.46 – 1.51)	2.35 (1.12 – 4.94)*	1.25 (0.66 – 2.34)
5	Signs of mental/emotional harm (M/EH)	14.88 (12.76 – 17.34)	4.93 (4.28 – 5.67)	5.88 (5.28 – 6.55)	5.73 (4.89 – 6.72)
	Primary Caregiver Cognitive Impairment (CCI)	1.85 (1.59 – 2.17)	4.09 (3.32 – 5.04)	3.08 (2.61 – 3.63)	4.26 (3.40 – 5.33)
	Interaction: Signs of M/EH* Primary CCI	0.95 (0.49 – 1.84)	0.54 (0.35– 0.85)*	0.74 (0.47 – 1.16)	0.50 (0.34 – 0.75)*
6	Substantiated physical abuse (PA)		2.46 (2.04 – 2.97)	1.75 (1.55 – 1.99)	3.07 (2.50 – 3.76)
	Primary Caregiver Cognitive Impairment (CCI)		3.93 (3.32 – 4.63)	3.18 (2.74 – 3.69)	4.03 (3.35 – 4.85)
	Interaction: Substantiated PA * Primary CCI		1.30 (0.69 – 2.45)	1.48 (0.65 - 3.40)	1.17 (0.59 – 2.32)
7	Substantiated emotional maltreatment (EM)		4.04 (3.40 – 4.80)	3.74 (3.25 – 4.29)	4.52 (3.73 – 5.47)
	Primary Caregiver Cognitive Impairment (CCI)		3.66 (3.07 – 4.37)	3.10 (2.68 – 3.59)	3.70 (3.02 – 4.56)
	Interaction: Substantiated EM* Primary CCI		1.19 (0.74 – 1.92)	1.06 (0.60 – 1.88)	1.08 (0.67 – 1.74)
8	Substantiated sexual abuse (SA)		1.22 (0.76 – 1.98)	2.24 (1.70 – 2.97)	2.80 (1.83 – 4.27)
	Primary Caregiver Cognitive Impairment (CCI)		3.87 (3.28 – 4.56)	3.16 (2.74 – 3.63)	3.93 (3.27 – 4.73)
	Interaction: Substantiated SA* Primary CCI		1.49 (0.44 – 5.07)	1.33 (0.47 – 3.77)	1.04 (0.35 – 3.10)

9	Substantiated intimate partner violence (IPV)		1.24 (1.06 – 1.47)	2.09 (1.90 – 2.29)	1.92 (1.62 – 2.26)
	Primary Caregiver Cognitive Impairment (CCI)		3.70 (3.07 – 4.45)	3.35 (2.88 – 3.90)	4.10 (3.35 – 5.02)
	Interaction: Substantiated IPV* Primary CCI		1.64 (0.99 – 2.77)	1.02 (0.65 – 1.60)	1.07 (0.64 – 1.77)
10	Substantiated neglect		7.03 (6.19 – 7.99)	4.34 (3.94 – 4.78)	5.16 (4.45 – 5.98)
	Primary Caregiver Cognitive Impairment (CCI)		4.58 (3.64 – 5.76)	2.73 (2.32 – 3.23)	4.25 (3.30 – 5.49)
	Interaction: ‘Substantiated’ neglect* Primary CCI		0.38 (0.27 – 0.54)*	0.85 (0.62 – 1.18)	0.49 (0.34 – 0.70)*
11	Home environment poses health risks	4.34 (3.48 – 5.42)	5.68 (4.58 – 7.04)	4.83 (3.89 – 5.99)	5.00 (3.90 – 6.40)
	Primary Caregiver Cognitive Impairment (CCI)	1.92 (1.65 – 2.23)	3.63 (2.97 – 4.43)	3.04 (2.62 – 3.52)	3.62 (2.92 – 4.49)
	Interaction: Home environment * Primary CCI	0.61 (0.36 – 1.03)	0.48 (0.30 – 0.78)*	0.45 (0.28 – 0.72)*	0.55 (0.36 – 0.84)*
12	Primary caregiver substance abuse (CSA)	1.92 (1.77 – 2.09)	4.41 (3.85 – 5.05)	2.63 (2.41 – 2.85)	3.84 (3.28 – 4.49)
	Primary Caregiver Cognitive Impairment (CCI)	1.70 (1.41 – 2.04)	3.30 (2.47 – 4.42)	2.96 (2.47 – 3.55)	3.98 (3.01 – 5.25)
	Interaction: Primary CSA* Primary CCI	1.43 (1.04 – 1.98)*	1.03 (0.69 – 1.55)	0.96 (0.72 – 1.30)	0.79 (0.52 - 1.18)
13	Perceived non-cooperation	1.98 (1.74 – 2.25)	3.59 (3.05 – 4.24)	2.55 (2.24 – 2.91)	7.77 (6.53 – 9.24)
	Primary Caregiver Cognitive Impairment (CCI)	1.92 (1.65 – 2.23)	3.66 (3.06 – 4.38)	3.04 (2.62 – 3.53)	3.77 (3.02 – 4.69)
	Interaction: Perceived non-cooperation* Primary CCI	1.31 (0.82 – 2.10)	0.80 (0.53 – 1.21)	0.88 (0.58 – 1.36)	0.64 (0.40 – 1.01)
14	Child IDD	1.41 (1.29 – 1.54)	2.34 (2.01 – 2.73)	2.03 (1.85 – 2.23)	2.14 (1.76 – 2.59)
	Primary Caregiver Cognitive Impairment (CCI)	1.69 (1.39 – 2.04)	4.04 (3.21 – 5.08)	2.75 (2.26 – 3.24)	3.23 (2.48 – 4.27)
	Interaction: Child IDD* Primary CCI	1.27 (0.94 – 1.71)	0.59 (0.43 – 0.83)*	0.90 (0.67 – 1.20)	0.94 (0.65 – 1.36)
15	Child psychological distress	2.24 (2.03 – 2.49)	2.88 (2.46 – 3.37)	3.23 (2.91 – 3.58)	3.19 (2.60 – 3.91)
	Primary Caregiver Cognitive Impairment (CCI)	1.96 (1.66 – 2.31)	4.43 (3.63 -5.41)	3.44 (2.90 – 4.07)	4.20 (3.35 -5.25)
	Interaction: Psychological distress* Primary CCI	0.96 (0.65 – 1.39)	0.45 (0.28 – 0.72)*	0.50 (0.33 – 0.74)*	0.56 (0.34 – 0.92)*
16	Child behaviour problems	1.52 (1.38 – 1.68)	2.64 (2.24 – 3.11)	2.32 (2.09 – 2.58)	1.48 (1.21 – 1.82)
	Primary Caregiver Cognitive Impairment (CCI)	2.05 (1.74 – 2.42)	4.38 (3.64 – 5.28)	3.41 (2.90 – 4.02)	4.09 (3.34 – 5.00)
	Interaction: Behaviour problems* Primary CCI	0.90 (0.65 – 1.26)	0.46 (0.31 – 0.68)*	0.54 (0.38 – 0.76)*	0.74 (0.48 – 1.15)

*Statistically significant interaction

Table 12. *Effects* of select variables on outcomes in cases featuring caregivers with and without CI

	Child apprehended		Case kept open		Court application made	
	<u>No primary CCI</u> OR (95%CI)	Primary CCI OR (95%CI)	<u>No primary CCI</u> OR (95%CI)	Primary CCI OR (95%CI)	<u>No primary CCI</u> OR (95%CI)	Primary CCI OR (95%CI)
<i>Controlling for child age, sex & aboriginal status</i>						
Case prev. opened for any family member	1.53 (1.34 – 1.75)	1.77 (1.18 – 2.68)	1.76 (1.62 – 1.91)	1.68 (1.19 – 2.38)	1.45 (1.24 – 1.70)	1.16 (0.78 – 1.71)
Previous reports of suspected maltreatment	1.99 (1.74 – 2.27)	1.35 (0.94 – 1.94)	1.70 (1.57 – 1.84)	1.19 (0.85 – 1.66)	2.12 (1.74 – 2.60)	1.10 (0.76 – 1.58)
Multiple incidents of maltreatment	5.90 (5.07 – 6.87)	3.71 (2.56 – 5.36)	5.36 (4.92 – 5.84)	4.33 (3.19 – 5.88)	6.87 (5.78 – 8.16)	2.78 (1.95 – 3.94)
Physical harm is evident	2.68 (2.14 – 3.35)	2.10 (1.21 – 3.63)	1.75 (1.49 – 2.06)	4.03 (1.95 – 8.32)	2.70 (2.09 – 3.49)	3.39 (1.93 – 5.95)
Mental/emotional harm is evident	4.76 (4.13 – 5.48)	3.72 (2.42 – 5.72)	5.81 (5.22 – 6.46)	5.22 (3.36 – 8.14)	5.54 (4.73 – 6.49)	3.69 (2.46 – 5.53)
‘Substantiated’ neglect	7.05 (6.20 – 8.01)	2.86 (2.06 – 3.97)	4.34 (3.94 – 4.78)	3.96 (2.89 – 5.44)	5.18 (4.46 – 6.00)	2.67 (1.90 – 3.75)
Home environment poses health risks	5.80 (4.68 – 7.17)	2.71 (1.74 – 4.23)	4.85 (3.91 – 6.01)	2.12 (1.40 – 3.19)	5.07 (3.96 – 6.49)	2.76 (1.86 – 4.10)
Child IDD	2.28 (1.95 – 2.66)	1.75 (1.28 – 2.40)	2.01 (1.83 – 2.20)	2.23 (1.63 – 3.05)	2.07 (1.70 – 2.52)	2.53 (1.74 – 3.69)
Child psychological distress	2.71 (2.31 – 3.18)	2.05 (1.20 – 3.51)	3.17 (2.86 – 3.52)	1.99 (1.30 – 3.03)	2.99 (2.42 – 3.70)	2.71 (1.55 – 4.71)
Child behaviour problems	2.48 (2.11 – 2.92)	1.85 (1.21 – 2.83)	2.28 (2.06 – 2.53)	1.57 (1.08 – 2.28)	1.39 (1.12 – 1.72)	1.64 (0.99 – 2.72)

DISCUSSION

Children who have a parent/caregiver with cognitive impairment (CI), including intellectual disability or borderline intellectual functioning, are heavily over-represented in the child welfare system. An earlier analysis of the CIS_2003 found that caregiver CI was noted in just over 10% of all child maltreatment investigations. Analysis of the CIS-2008 generated a prevalence estimate for caregiver CI of 7.8%. This suggests that the prevalence of caregiver CI in child maltreatment investigations may have decreased over the five year period between surveys, although changes in the CIS survey methodology and or inclusion of data from Quebec in 2008 may account for this difference. Assuming that adults with CI are no more or less likely to have children than adults without CI, the results from the analysis of the CIS_2003 and CIS_2008 suggest that, overall, children of parents with CI are five to ten times more likely than children of parents without CI to be the subject of a child maltreatment investigation.

The prevalence of primary caregiver CI did vary across child age groups: primary caregiver CI was noted in almost one in six cases involving infants, but fewer than one in 20 cases involving teens. The perceived vulnerability of infants and young children vis a vis teens may account for this: Situations deemed 'risky' for infants and young children may not be perceived as such for teens. Alternatively, the higher prevalence of primary caregiver CI in cases concerning infants and young children may be an artifact of the surveillance system. That is, primary caregivers with CI may have more contact with human service systems (e.g., health, social services, education) when their children are younger, and consequently they may be more likely to draw scrutiny. A third possibility is that the population prevalence of CI among primary caregivers of teens may be lower than it is among primary caregivers with infants and young children, due perhaps to the intervention of child welfare authorities, that is in taking children away from parents with CI before they reach their teen years.

A main finding of this study is that the odds of maltreatment substantiation, child apprehension, the case remaining open for ongoing services, and child welfare court application are higher when primary caregiver CI is confirmed or suspected. While primary caregiver CI was noted in 6.3% of all child maltreatment investigations, it was noted in approximately one in five cases resulting in child apprehension and or child welfare court application. The 'effect' of primary caregiver CI on child maltreatment investigation outcomes was greatest when the subject child was an infant, with the effect diminishing as the age of the subject children increased. Again, the perceived vulnerability of infants may account for this finding. Alternatively, parents of older children and teens have had the opportunity to demonstrate a level of parenting capacity (i.e., they seem to have managed up to that point), and thus primary caregiver CI may be less of a concern.

Direct comparison of findings from the CIS_2003 and CIS_2008 show little change in rates of substantiation or proportion of cases kept open for ongoing services. However, overall rates of child apprehension and child welfare court application were substantially higher in

2008. For instance, in 2003, 9.7% and 2.9% of cases involving caregivers with and without CI respectively resulted in child welfare court application. The corresponding figures in 2008 were 19.6% and 5.5%. It is unclear why rates of child apprehension and court application increased. It may be that child welfare authorities have become more risk averse. The inclusion of data from Quebec in the CIS_2008 may also be a contributing factor. Note that in Canada, while commonality exists, each province makes its own child protection laws and regulations. Unfortunately the CIS_2008 dataset does not permit cross provincial comparisons so this potential explanation could not be ruled out.

Household, caregiver, child and case characteristics

Cases in which primary caregiver CI was noted were distinctively different from all other cases with respect to household, caregiver, child and case characteristics. Population-based studies have found that parents with CI typically face profound life history and social disadvantage, relative to their peers (Aunos, et al., 2008; Emerson & Brigham, 2013; Feldman, et al., 2012; Llewellyn, et al., 2003; McGaw, et al., 2007; McGaw, et al., 2010). The results of this study suggest that that this relative disadvantage can also be found in a child welfare population. Primary caregivers with CI were, for example, found to be 3 – 4 times more likely to have been placed out-of-home in their own childhoods. In addition, primary caregivers with CI were more likely than other caregivers to be dealing with significant material hardship and have few social supports. Given such relative disadvantages, it is perhaps unsurprising that primary caregivers with CI were also substantially more likely than primary caregivers without CI to have mental health issues and substance abuse problems, based on the reports of child welfare workers.

Between-group differences in child and primary caregiver exposure to material hardship accounted for over 50% of the increased risk of investigated child neglect (vis a vis other maltreatment categories) and 22-28% of the increased risk of child functioning issues associated with primary caregiver CI in this child welfare sample. Notably, three out of four cases in which primary caregiver CI was noted were opened on the basis of either concerns related to neglect or the perceived risk of future maltreatment. The results suggest that the observed relationship between primary caregiver CI and substantiated neglect, and between primary caregiver CI and child functioning issues is at least partially indirect: Primary caregiver CI heightens the risk of exposure to household material hardship and caregiver risk and vulnerability factors such as social isolation which, in turn, and perhaps in interaction with primary caregiver CI, heightens the (perceived) risk of child neglect and child functioning issues.

Almost two-thirds of primary caregivers with CI relied on social assistance as their primary source of household income, and almost one in two regularly ran out of money for basic necessities. Housing adequacy and safety were also frequently noted in these cases: In almost one in five cases in which primary caregiver CI was noted, child welfare workers

observed that the home environment posed a health risk to the child due, for example to inadequate heating. What is perhaps telling is that primary caregivers with CI were more frequently referred for (centre and home-based) parenting services than they were for assistance to address financial concerns and living conditions. As noted above, the pattern of referrals may reflect variation in the availability of different kinds of services, but also a predisposition on the part of child welfare workers to attribute perceived family problems to individual deficiencies rather than environmental pressures.

The relationship between primary caregiver CI and maltreatment investigation outcomes

In this study we investigated two plausible explanations for the observed association between primary caregiver CI and child maltreatment investigation outcomes. First, we examined whether observed disparities in outcomes could be explained by between-group differences in child, case, caregiver and household characteristics. The results of the analysis show that between-group differences in child, case, caregiver and household characteristics could partly, but not fully, explain the association between primary caregiver CI and child maltreatment investigation outcomes: All else being equal, the odds of substantiation (of future maltreatment risk but not maltreatment incidents), child apprehension, the case remaining open for ongoing services and child welfare court application are higher when primary caregiver CI is noted.

This finding suggests that child welfare workers may be deciding matters on the basis of assumed rather than observed or well-evidenced parenting deficits or risk of harm. In other words, a systematic bias toward parents with CI may influence outcomes: Many child welfare workers may, as several earlier studies have found, erroneously assume that primary caregivers with CI are either unfit and/or incapable of making the changes that are thought to be necessary to protect the child from harm (Booth, et al., 2006; McConnell et al., 2002, 2006). Child welfare decision-making is complex. Notably, child, case, caregiver and household characteristics together explained little more than 30% of the variance in child maltreatment investigation outcomes. Clearly other factors come into play. Child maltreatment investigation outcomes are, for example, influenced by the availability of resources to ameliorate perceived risk and improve a child's situation, including the availability of family support services (Booth, McConnell & Booth, 2006; McConnell, Feldman, Aunos & Prasad, 2011; McConnell, Llewellyn & Ferronato, 2006). It is therefore possible that the observed disparities in outcomes reflect, at least in part, differential access to appropriate parenting and family supports.

The possibility that systemic bias against parents/caregivers with CI could explain the observed association between primary caregiver CI and child maltreatment investigation outcomes was more directly examined in this study. We investigated whether, and if so how, the child's experience and other 'facts of the case' were weighted differently by child

welfare workers when primary caregiver CI was noted. The findings show that certain case characteristics, such as evidence of physical harm (e.g., breaks, bruises, burns, head trauma) and perceived parental non-cooperation are 'weighted' in more or less the same way by decision-makers in cases featuring primary caregivers with and without CI. However, a number of statistically significant interaction effects were observed. Examination of these suggest that the child's experience and other (but not all) facts of the case seem to matter less, with respect to child maltreatment investigation outcomes, when primary caregiver CI is noted. Factors that appear to have a strong influence on decisions in other cases, such as prior reports of maltreatment and evidence (or lack thereof) of mental harm, had less, little or no bearing on the outcome when primary caregiver CI was noted. In other words, primary caregiver CI appears to overshadow most other considerations.

Study Limitations

The study was limited by the available data. Although rich in many respects, the CIS_2008 dataset does not contain information on the level of caregiver CI or potentially relevant system constraints, including the availability, suitability and quality of supports and services, which may impact investigation outcomes. Furthermore, the CIS_2008 relied on child welfare worker report: No standardized measures of child or caregiver characteristics, such as caregiver cognitive functioning or mental health were obtained. Child welfare workers did have access to administrative records and other sources of information about the child and family, and when it comes to decision-making it is the worker's perception (rather than objectively determined facts) that is consequential.

Another significant limitation is that the CIS_2008 only captured child, case, caregiver and household characteristics, and investigation outcomes at a single point in time, which on average, was just six weeks after the case was opened. Longer term outcomes including the outcomes of cases kept open for ongoing services and the outcomes of cases in which court application was made are not known. Longitudinal or semi-longitudinal studies, potentially incorporating the collection of qualitative data and validated measures would be helpful in developing a deeper understanding of child welfare process and outcomes for children of parent/caregivers with CI.

Conclusions

The results of this study must be interpreted against the backdrop of human rights conventions and empirical research on parents and parenting with intellectual disability and more broadly, parent/caregiver CI. The right of persons with disabilities, including persons with intellectual disability, to "marry and found a family" is affirmed in the United

Nations Convention on the Rights of Persons with Disabilities (2006). Having ratified the convention, Canada is obliged, under Article 23, to take “effective action” to “eliminate discrimination”, and to render “appropriate assistance” to persons with disabilities in the performance of their child-rearing responsibilities. The findings of this study suggest that systemic bias against parents with CI, evidenced by differential treatment of ‘the facts of the case’, is a potential contributor to explaining why so many parents with CI have their children taken from them. Further, the findings raise questions about the appropriateness or adequacy of prevention-focused supports and services: It appears that parents with CI may not be receiving the kinds of supports and services, including material assistance and practical support, shown to reduce maltreatment risk and improve children’s life chances. Clearly a systematic, multi-sector, national strategy is needed to build capacity for the provision of research-informed parenting and family support services for these parents and their children.

Appendix A i - **Substantiation** regressed on child, caregiver, household and case characteristics (odds ratios with 95% CI)

		Model 1		Model 2		Model 3	
		B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)
1° CCI	Cognitive impairment	0.77 (0.07)	2.16 (1.88 – 2.49)	0.65 (0.08)	1.92 (1.63 – 2.27)	0.24 (0.09)	1.27 (1.06 – 1.52)
	Child age			-0.03 (0.00)	0.98 (0.97 – 0.98)	-0.01 (0.01)	0.99 (0.98 – 1.00)
	Sex (= male)			-0.05 (0.04)	0.95 (0.89 – 1.02)	-0.03 (0.04)	0.97 (0.90 – 1.05)
	Ethnicity (= aboriginal)			0.19 (0.04)	1.21 (1.11 – 1.32)	-0.00 (0.05)	1.00 (0.90 – 1.10)
	IDD			0.19 (0.05)	1.21 (1.09 – 1.34)	0.09 (0.05)	1.09 (0.98 – 1.21)
	Psychological distress			0.31 (0.07)	1.36 (1.20 – 1.55)	0.23 (0.07)	1.26 (1.10 – 1.45)
	Behaviour problems			0.07 (0.06)	1.07 (0.95 – 1.20)	0.03 (0.06)	1.03 (0.92 – 1.17)
Case characteristics	Case previously opened (any member)			-0.12 (0.05)	0.89 (0.81 – 0.98)	-0.17 (0.05)	0.84 (0.76 – 0.93)
	Previous reports of maltreatment			0.16 (0.05)	1.17 (1.06 – 1.29)	0.07 (0.05)	1.07 (0.96 – 1.19)
	Signs of mental harm			2.22 (0.08)	9.21 (7.86 – 10.79)	2.13 (0.08)	8.38 (7.14 – 9.85)
	Signs of physical harm			1.06 (0.09)	2.89 (2.42 – 3.46)	1.08 (0.09)	2.96 (2.47 – 3.55)
	Investigated PA			0.21 (0.05)	1.23 (1.12 – 1.36)	0.31 (0.05)	1.37 (1.24 – 1.51)
	Investigated Ng			0.61 (0.04)	1.84 (1.69 – 1.99)	0.50 (0.04)	1.64 (1.51 – 1.79)
	Investigated SA			-0.31 (0.09)	0.73 (0.61 – 0.87)	-0.19 (0.09)	0.83 (0.69 – 0.99)
	Investigated EM			0.27 (0.06)	1.31 (1.17 – 1.46)	0.23 (0.06)	1.26 (1.12 – 1.41)
	Investigated IPV			1.76 (0.05)	5.80 (5.27 – 6.39)	1.80 (0.05)	6.03 (5.46 – 6.66)
	1° Caregiver characteristics	Caregiver age					0.04 (0.03)
Caregiver sex (male)						-0.06 (0.06)	0.94 (0.83 – 1.06)
Substance abuse						0.35 (0.05)	1.42 (1.28 – 1.58)
Mental health issues						0.27 (0.05)	1.31 (1.18 – 1.45)
Physical health issues						0.03 (0.07)	1.04 (0.90 – 1.19)
Social isolation						0.33 (0.05)	1.40 (1.28 – 1.53)
Placed out-of-home as child						0.19 (0.10)	1.21 (0.97 – 1.50)
Perceived non-cooperation						0.23 (0.08)	1.26 (1.08 – 1.47)
Household characteristics	Lone caregiver					-0.12 (0.04)	0.89 (0.82 – 0.97)
	Total children in household					-0.05 (0.02)	0.96 (0.93 – 0.99)
	Welfare dependent					0.16 (0.05)	1.17 (1.06 – 1.28)
	Runs out of money					0.40 (0.07)	1.50 (1.31 – 1.71)
	Social housing					-0.07 (0.05)	0.94 (0.85 – 1.03)
	Home overcrowded					-0.06 (0.08)	0.94 (0.80 – 1.10)
	Home environment poses health risks					0.92 (0.11)	2.50 (2.00 – 3.12)
			Nagelkerke R2	0.012		0.301	

Appendix A ii - **Apprehension** regressed on child, caregiver, household and case characteristics (odds ratios with 95% CI)

		Model 1		Model 2		Model 3		
		B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	
1° CCI	Cognitive impairment	1.46 (0.08)	4.32 (3.70 – 5.03)	0.84 (0.10)	2.32 (1.92 – 2.80)	0.52 (0.08)	1.68 (1.36 – 2.07)	
	Child characteristics	Child age			-0.06 (0.01)	0.94 (0.92 – 0.95)	-0.04 (0.01)	0.97 (0.95 – 0.98)
		Sex (= male)			-0.33 (0.06)	0.72 (0.63 – 0.81)	-0.33 (0.07)	0.72 (0.64 – 0.82)
		Ethnicity (= aboriginal)			1.05 (0.06)	2.86 (2.53 – 3.23)	0.76 (0.07)	2.14 (1.85 – 2.48)
		IDD			0.23 (0.09)	1.26 (1.05 – 1.51)	0.16 (0.09)	1.17 (0.98 – 1.41)
		Psychological distress			0.29 (0.09)	1.34 (1.11 – 1.61)	0.17 (0.10)	1.19 (0.96 – 1.46)
		Behaviour problems			0.41 (0.09)	1.51 (1.26 – 1.82)	0.42 (0.10)	1.51 (1.25 – 1.84)
Case characteristics	Case previously opened (any member)			0.12 (0.09)	1.12 (0.94 – 1.34)	0.04 (0.09)	1.04 (0.86 – 1.25)	
	Previous reports of maltreatment			0.30 (0.09)	1.34 (1.12 – 1.61)	0.16 (0.09)	1.17 (0.97 – 1.40)	
	Signs of mental harm			0.53 (0.08)	1.70 (1.45 – 2.00)	0.47 (0.09)	1.61 (1.35 – 1.91)	
	Signs of physical harm			0.40 (0.12)	1.49 (1.19 – 1.88)	0.47 (0.12)	1.60 (1.26 – 2.04)	
	Substantiated PA			0.57 (0.11)	1.76 (1.42 – 2.19)	0.65 (0.12)	1.92 (1.52 – 2.41)	
	Substantiated Ng			1.43 (0.08)	4.19 (3.55– 4.94)	1.16 (0.09)	3.18 (2.67 – 3.78)	
	Substantiated SA			0.06 (0.23)	1.06 (0.67 – 1.66)	0.13 (0.24)	1.14 (0.71 – 1.84)	
	Substantiated EM			0.82 (0.10)	2.26 (1.88 – 2.73)	0.73 (0.10)	2.08 (1.71 – 2.53)	
	Substantiated IPV			0.11 (0.09)	1.11 (0.93 – 1.33)	0.01 (0.09)	1.01 (0.84 – 1.22)	
	Multiple incidents (reference-no incidents)			0.29 (0.11)	1.34 (1.08 – 1.66)	0.21 (0.11)	1.23 (0.99 – 1.53)	
1° Caregiver characteristics	Caregiver age					-0.01 (0.04)	0.99 (0.92 – 1.07)	
	Caregiver sex (male)					0.23 (0.10)	1.26 (1.04– 1.53)	
	Substance abuse					0.96 (0.08)	2.62 (2.21 – 3.10)	
	Mental health issues					0.33 (0.08)	1.40 (1.19 – 1.63)	
	Physical health issues					-0.21 (0.11)	0.81 (0.66 – 1.00)	
	Social isolation					0.21 (0.07)	1.23 (1.07 – 1.42)	
	Placed out-of-home as child					0.45 (0.11)	1.57 (1.26 – 1.95)	
	Perceived non-cooperation					0.57 (0.09)	1.77 (1.49 – 2.11)	
Household characteristics	Lone caregiver					0.02 (0.07)	1.02 (0.89 – 1.17)	
	Total children in household					-0.11 (0.03)	0.89 (0.85 – 0.94)	
	Welfare dependent					0.12 (0.08)	1.12 (0.97 – 1.30)	
	Runs out of money					0.03 (0.10)	1.03 (0.84 – 1.26)	
	Social housing					-0.21 (0.08)	0.81 (0.69 – 0.95)	
	Home overcrowded					-0.13 (0.11)	0.88 (0.71 – 1.08)	
	Home environment poses health risks					0.63 (0.13)	1.88 (1.46 – 2.41)	
		Nagelkerke R2	0.040		0.271		0.332	

Appendix A iii - **Case remains open** regressed on child, caregiver, household and case characteristics (odds ratios with 95% CI)

		Model 1		Model 2		Model 3		
		B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	
1° CCI	Cognitive impairment	1.24 (0.07)	3.45 (3.02 – 3.95)	0.73 (0.08)	2.08 (1.77 – 2.43)	0.21 (0.09)	1.23 (1.04 – 1.46)	
	Child characteristics	Child age			-0.08 (0.01)	0.92 (0.91 – 0.93)	-0.06 (0.01)	0.94 (0.93 – 0.95)
		Sex (= male)			-0.05 (0.04)	0.95 (0.88 – 1.03)	-0.04 (0.04)	0.96 (0.89 – 1.04)
		Ethnicity (= aboriginal)			0.49 (0.05)	1.63 (1.49– 1.79)	0.19 (0.05)	1.21 (1.09 – 1.35)
		IDD			0.28 (0.06)	1.32 (1.18 – 1.48)	0.18 (0.06)	1.19 (1.06 – 1.34)
		Psychological distress			0.58 (0.06)	1.79 (1.58 – 2.03)	0.49 (0.07)	1.64 (1.44 – 1.86)
		Behaviour problems			0.33 (0.07)	1.39 (1.22 – 1.58)	0.31 (0.07)	1.36 (1.18 – 1.56)
Case characteristics	Case previously opened (any member)			0.54 (0.05)	1.71 (1.54 – 1.90)	0.42 (0.06)	1.52 (1.37 – 1.70)	
	Previous reports of maltreatment			-0.02 (0.05)	0.98 (0.88 – 1.08)	-.14 (0.05)	0.87 (0.79 – 0.97)	
	Signs of mental harm			0.71 (0.06)	2.04 (1.80 – 2.31)	0.67 (0.07)	1.95 (1.71 – 2.22)	
	Signs of physical harm			0.28 (0.09)	1.32 (1.10 – 1.58)	0.33 (0.10)	1.40 (1.16 – 1.69)	
	Substantiated PA			0.23 (0.08)	1.26 (1.08 – 1.48)	0.34 (0.09)	1.41 (1.19 – 1.66)	
	Substantiated Ng			1.01 (0.07)	2.76 (2.43– 3.13)	0.79 (0.07)	2.20 (1.92 – 2.52)	
	Substantiated SA			0.61 (0.16)	1.84 (1.35 – 2.51)	0.83 (0.16)	2.29 (1.66 – 3.16)	
	Substantiated EM			0.60 (0.08)	1.83 (1.56 – 2.14)	0.54 (0.08)	1.72 (1.45 – 2.02)	
	Substantiated IPV			0.46 (0.07)	1.59 (1.40 – 1.81)	0.47 (0.07)	1.60 (1.39 – 1.83)	
	Multiple incidents (reference-no incidents)			0.62 (0.07)	1.85 (1.62 – 2.12)	0.50 (0.07)	1.64 (1.42 – 1.89)	
1° Caregiver characteristics	Caregiver age					0.00 (0.03)	1.00 (0.95 – 1.06)	
	Caregiver sex (male)					0.14 (0.07)	1.15 (1.01– 1.32)	
	Substance abuse					0.40 (0.05)	1.49 (1.35 – 1.65)	
	Mental health issues					0.54 (0.05)	1.71 (1.56 – 1.89)	
	Physical health issues					0.20 (0.07)	1.22 (1.06 – 1.41)	
	Social isolation					0.56 (0.05)	1.75 (1.59 – 1.92)	
	Placed out-of-home as child					0.22 (0.11)	1.25 (0.98 – 1.59)	
	Perceived non-cooperation					0.22 (0.08)	1.24 (1.07 – 1.44)	
Household characteristics	Lone caregiver					-0.19 (0.05)	0.83 (0.75 – 0.90)	
	Total children in household					0.05 (0.02)	1.05 (1.02 – 1.08)	
	Welfare dependent					0.27 (0.05)	1.31 (1.19 – 1.45)	
	Runs out of money					0.20 (0.07)	1.22 (1.07 – 1.40)	
	Social housing					0.11 (0.05)	1.11 (1.00 – 1.23)	
	Home overcrowded					0.10 (0.08)	1.10 (0.95 – 1.28)	
	Home environment poses health risks					0.41 (0.10)	1.51 (1.23 – 1.85)	
		Nagelkerke R2	0.031		0.269		0.331	

Appendix A iv - **Court application** regressed on child, caregiver, household and case characteristics (odds ratios with 95% CI)

		Model 1		Model 2		Model 3		
		B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	B (S.E)	OR (95%CI)	
1° CCI	Cognitive impairment	1.50 (0.09)	4.49 (3.76 – 5.37)	0.84 (0.11)	2.31 (1.87 – 2.86)	0.57 (0.12)	1.76 (1.39 – 2.24)	
	Child characteristics	Child age			-0.10 (0.01)	0.90 (0.88 – 0.92)	-0.10 (0.01)	0.91 (0.89 – 0.93)
		Sex (= male)			-0.20 (0.07)	0.82 (0.71 – 0.94)	-0.16 (0.08)	0.85 (0.74 – 0.99)
		Ethnicity (= aboriginal)			0.48 (0.08)	1.62 (1.39– 1.88)	0.24 (0.09)	1.27 (1.06 – 1.52)
		IDD			0.34 (0.11)	1.40 (1.11 – 1.76)	0.22 (0.11)	1.25 (1.00 – 1.56)
		Psychological distress			0.46 (0.11)	1.58 (1.26 – 1.97)	0.33 (0.12)	1.39 (1.08 – 1.78)
		Behaviour problems			-0.32 (0.11)	0.73 (0.59 – 0.90)	-0.27 (0.12)	0.76 (0.61 – 0.96)
Case characteristics	Case previously opened (any member)			-0.02 (0.11)	0.99 (0.80 – 1.21)	-0.12 (0.11)	0.89 (0.72 – 1.11)	
	Previous reports of maltreatment			0.39 (0.12)	1.48 (1.15 – 1.90)	0.27 (0.13)	1.31 (1.02 – 1.70)	
	Signs of mental harm			0.57 (0.10)	1.76 (1.45 – 2.14)	0.50 (0.11)	1.66 (1.34 – 2.05)	
	Signs of physical harm			0.53 (0.13)	1.69 (1.32 – 2.18)	0.52 (0.14)	1.68 (1.28 – 2.20)	
	Substantiated PA			0.94 (0.12)	2.55 (2.02 – 3.23)	1.02 (0.13)	2.78 (2.16 – 3.57)	
	Substantiated Ng			1.26 (0.10)	3.52 (2.91– 4.26)	1.00 (0.11)	2.73 (2.21 – 3.36)	
	Substantiated SA			1.03 (0.22)	2.79 (1.81 – 4.29)	1.20 (0.23)	3.33 (2.11 – 5.26)	
	Substantiated EM			0.82 (0.10)	2.27 (1.85 – 2.78)	0.74 (0.11)	2.10 (1.69 – 2.61)	
	Substantiated IPV			0.59 (0.10)	1.80 (1.48 – 2.18)	0.52 (0.11)	1.67 (1.36 – 2.06)	
	Multiple incidents (reference-no incidents)			0.21 (0.13)	1.24 (0.97 – 1.58)	0.08 (0.13)	1.09 90.84 – 1.40)	
1° Caregiver characteristics	Caregiver age					0.07 (0.05)	1.07 (0.98 – 1.18)	
	Caregiver sex (male)					0.29 (0.12)	1.34 (1.07– 1.69)	
	Substance abuse					0.69 (0.09)	2.00 (1.69 – 2.38)	
	Mental health issues					0.20 (0.09)	1.23 (1.04 – 1.45)	
	Physical health issues					0.07 (0.13)	1.07 (0.83 – 1.38)	
	Social isolation					0.39 (0.08)	1.48 (1.26 – 1.74)	
	Placed out-of-home as child					0.07 (0.14)	1.07 (0.80 – 1.44)	
	Perceived non-cooperation					1.43 (0.09)	4.19 (3.49 – 5.03)	
Household characteristics	Lone caregiver					-0.21 (0.08)	0.81 (0.69 – 0.96)	
	Total children in household					-0.01 (0.03)	0.99 (0.94 – 1.05)	
	Welfare dependent					0.41 (0.09)	1.51 (1.27 – 1.79)	
	Runs out of money					-0.06 (0.10)	0.94 (0.78 – 1.13)	
	Social housing					-0.47 (0.10)	0.63 (0.52 – 0.76)	
	Home overcrowded					-0.16 (0.13)	0.86 (0.66 – 1.11)	
	Home environment poses health risks					0.37 (0.14)	1.44 (1.08 – 1.93)	
		Nagelkerke R2	0.041		0.232		0.312	

Appendix B - Investigated maltreatment types regressed on household and caregiver characteristics

		Risk onlyⁱ (n=15980)	Child neglectⁱⁱ (n=11807)	Physical abuseⁱⁱ (n=11807)	Sexual abuseⁱⁱ (n=11807)	Emotional maltreatmentⁱⁱ (n=11807)	Intimate partner violenceⁱⁱ (n=11807)
		OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)
Household characteristics	1° Caregiver Cognitive impairment	1.14 (0.94 – 1.39)	2.21 (1.80 – 2.72)*	0.78 (0.58 – 1.04)	1.34 (0.90 – 1.97)	0.92 (0.74 – 1.14)	0.51 (0.41 – 0.64)*
	Child age	0.97 (0.96 – 0.98)*	1.00 (0.99 – 1.01)	1.05 (1.04 – 1.06)*	1.04 (1.02 – 1.06)*	1.04 (1.03 – 1.05)*	0.94 (0.93 – 0.95)*
	Sex (= male)	0.97 (0.90 – 1.04)	1.08 (1.00 – 1.17)	1.23 (1.14 – 1.34)*	0.51 (0.44 – 0.59)*	0.96 (0.87 – 1.06)	0.97 (0.89 – 1.05)
	Ethnicity (= aboriginal)	1.10 (1.03 – 1.22)*	1.27 (1.14 – 1.41)*	0.68 (0.60 – 0.75)*	1.48 (1.22 – 1.80)*	0.80 (0.70 – 0.92)*	0.86 (0.77 – 0.97)*
	Lone caregiver	1.09 (1.00 – 1.78)	1.65 (1.51 – 1.81)*	0.75 (0.60 – 0.77)*	1.25 (1.07 – 1.47)*	1.02 (0.92 – 1.14)	0.51 (0.46 – 0.56)*
	Total children in household	1.11 (1.08 – 1.15)*	1.06 (1.02 – 1.09)*	1.01 (0.97 – 1.05)	0.94 (0.88 – 1.00)	1.01 (0.97 – 1.05)	1.03 (0.99 – 1.06)
	Welfare dependent	1.08 (0.98 – 1.18)	1.31(1.17 – 1.46)*	0.74 (0.66 – 0.82)*	0.81 (0.66 – 1.00)	0.87 (0.76 – 0.99)*	1.05 (0.94 – 1.18)
	Runs out of money	0.69 (0.60 – 0.80)*	1.63 (1.40 – 1.91)*	0.95 (0.81 – 1.12)	0.71 (0.48 – 1.04)	1.11 (0.94 – 1.32)	0.96 (0.85 – 1.10)
	Social housing	1.30 (1.18 – 1.42)*	1.13 (1.02 – 1.26)*	0.93 (0.82 – 1.05)	0.75 (0.60 – 0.94)*	1.15 (1.00 – 1.31)*	0.87 (0.77 – 0.98)*
	Home overcrowded	0.71 (0.60 – 0.83)*	1.19 (1.01 – 1.39)*	0.97 (0.82 – 1.15)	1.05 (0.76 – 1.44)	1.42 (1.20 – 1.68)*	0.68 (0.58 – 0.80)*
	Home environment poses health risks	0.37 (0.29 – 0.48)*	4.06 (3.15 – 5.22)*	0.77 (0.61 – 0.98)*	0.56 (0.31 – 1.03)	1.05 (0.85 – 1.30)	0.61 (0.49 – 0.76)*
	Caregiver age	1.04 (0.99 – 1.09)	0.90 (0.85 – 0.95)*	1.16 (1.10 – 1.23)*	1.13 (1.03 – 1.25)*	1.10 (1.03 – 1.17)*	0.85 (0.80 – 0.90)*
	Caregiver sex (male)	1.02 (0.90 – 1.15)	1.12 (0.98 – 1.27)	1.16 (1.02 – 1.32)*	1.19 (0.96 – 1.47)	1.38 (1.19 – 1.59)*	0.66 (0.57 – 0.77)*
	Substance abuse	1.14 (1.03 – 1.27)*	1.90 (1.71 – 2.12)*	0.51 (0.45 – 0.58)*	0.50 (0.40 – 0.66)*	1.15 (1.01 – 1.31)*	1.41 (1.26 – 1.40)*
1° Caregiver characteristics	Mental health issues	1.30 (1.17 – 1.44)*	1.04 (0.94 – 1.15)	0.90 (0.80 – 1.00)	0.99 (0.80 – 1.22)	1.60 (1.42 – 1.81)*	1.17 (1.05 – 1.31)
	Physical health issues	1.13 (0.99 – 1.28)	1.14 (0.97 – 1.33)	1.00 (0.85 – 1.18)	0.94 (0.70 – 1.26)	1.25 (1.06 – 1.47)*	0.94 (0.80 – 1.11)
	Social isolation	0.85 (0.78 – 0.93)*	1.11 (1.01 – 1.21)*	0.91 (0.82 – 1.00)	0.71 (0.58 – 0.85)*	1.10 (0.98 – 1.23)	1.15 (1.05 – 1.27)*
	Placed out-of-home as child	1.14 (1.00 – 1.30)	0.81 (0.68 – 0.96)*	1.12 (0.94 – 1.33)	1.28 (0.85 – 1.93)	1.02 (0.86 – 1.22)	1.13 (0.96 – 1.33)
Nagelkerke R2		0.033	0.177	0.108	0.065	0.040	0.090

i. risk only vs. maltreatment incident (Ng, PA, SA, EM or IPV); ii. Risk only cases excluded from the analysis, and category is not mutually exclusive. * p <.05

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