Child Maltreatment-Related Investigations Involving Infants: Opportunities for Resilience?

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Abstract:

Objective: To examine child welfare cases involving infants (less than 1 year old) and identify factors predicting service provision at the conclusion of a maltreatment-related investigation. **Method(s):** This study involves a secondary analysis of the 2008 Ontario Incidence Study of Reported Child Abuse and Neglect (OIS-2008). Bivariate and multivariate analyses were conducted to identify the profile of investigations involving infants (n=538) and the factors predictive of the decision to transfer a case to ongoing services at the conclusion of the investigation, rather than close the case post-investigation. **Results:** Primary caregiver functioning concerns emerged as the strongest predictor of the decision to transfer a case to ongoing service across different case referral sources. These included: cognitive impairment, victim of intimate partner violence (IPV), few social supports, drug/solvent abuse, mental health issues, and caregivers under the age of 21. Infant functioning (e.g., attachment issues, developmental delay) and investigation type (maltreatment or risk of maltreatment) did not predict ongoing service provision. **Conclusions and Implications:** The functioning of the caregiver is the strongest determinant of ongoing child welfare involvement with infants, with different caregiver vulnerabilities emerging as more salient depending on the type of referral sources (hospital; police; social services; non-professional community). Infant investigations involve mostly young primary caregivers who struggle with poverty, single-parenthood, lack of social supports, mental health issues, and intimate partner violence. Implication: Given the multi-problem experience of caregivers, prevention of maltreatment recurrence need to reflect multi-sector collaboration in order to promote infant health and caregiver resiliency. Infant functioning may be an under-considered domain among workers investigating maltreatment and may, therefore, limit the opportunity for resilience, including developmental recovery and issue-specific interventions.

Keywords:

infant maltreatment; child welfare services; caregiver vulnerabilities; family resilience

Attachment begins to form during the first year of life (Bowlby, 1969, 1973, 1980, 1982), reflecting the innate psychobiological system (the attachment behavioral system) that motivates infants to seek proximity, comfort, and support from protective others in times of need. The attachment behavioral system is gradually shaped and altered by the infant's particular accumulated social experiences, resulting eventually in fairly stable individual differences in attachment style – a systematic pattern guiding future relationships, relationship-related emotions and relationship-relevant behaviors. Maternal sensitivity and responsiveness are important elements to be fostered and supported in the development of infant attachment (Morton & Browne, 1998). Good parental bonding and child attachment are the primary focus in early infancy, and represent building blocks in resiliency (Hill, Stafford, Seaman, Ross, & Daniel, 2007). The definition of resilience is understood as a dynamic state of response to adverse circumstances (Benzies & Mychasiuk, 2008; Rutter, 2011). Children under one year of age are the most vulnerable subset of the child welfare population due to their reliance on a caregiver to meet all of their daily needs, and their inability to protect themselves from any form of physical or emotional harm (Klein & Harden, 2011; Wekerle, 2013; Williams, Tonmyr, Jack, Fallon, & MacMillan, 2011).

Research shows that maltreated infants are more likely to display insecure attachments than infants in control groups (e.g., Crittenden, 1992; Ward, Kessler, & Altman, 1993). Cicchetti, Rogosch, and Sheree (2006) found that the capacity of mothers of infants from maltreating families to form secure attachment relationships with their infants was substantially lower than those of non-maltreating families. Given the potential resilience value of services provided by child welfare, it would seem important that attachment, and the factors related to it, be considered as relationships are recognized as a key conduit of resiliency among maltreatment children and youth (Wekerle, 2013; Wekerle, Waechter, & Chung, 2011). With the exception of permanent removal of the child and termination of parental rights, attachment issues remain salient to consider with any level of child-parent contact. However, the child welfare context is that attachment is not evaluated by caseworkers as it

would be in attachment-focused clinical assessments or in research settings. Yet, the decision to provide relationship-related ongoing services after a child maltreatment investigation has concluded may be important for fostering resiliency in both the parent and infant.

Service provision for at-risk families with young children has typically consisted of parenting programs with many initiatives and few with long-term impact on rates of maltreatment. MacMillan and colleagues (2005), in a randomized controlled trial of a home visiting intervention, failed to find any program effects in terms of re-reported maltreatment among families with the index child having experienced physical abuse and/or neglect. Maher, Marcynyszyn, Corwin, and Hodnett (2011) found a dose-dependent correlation with fewer maltreatment investigations when parents attended the Nurturing Parent Program, such that children whose parents participated in more sessions were less likely to have had a maltreatment investigation at 6-month follow-up. At the two-year follow-up, this dose-response relationship no longer held. The SafeCare Parenting Program was also found to have limited long-term benefit. Silovsky et al. (2011) found that program participants self-reported improved parenting behaviors. However this did not translate into fewer maltreatment investigations with one exception: families whose previous maltreatment investigations involved IPV had fewer re-referrals to child welfare after participation in the program. At 6-month follow-up, there were no differences in the number of maltreatment investigations for children whose parents had participated in the program and those whose parents had not. Given the lack of positive findings with child welfare families with infants, more empirical work describing how these cases are handled within the system is a first step to better tailoring to child needs. Initial efforts in Canada have been made in the Ontario Incidence Study of Reported Child Abuse and Neglect (OIS).

The Ontario Incidence Study of Reported Child Abuse and Neglect (OIS) The Ontario Incidence Study of Reported Child Abuse and Neglect (OIS-2008) identified that the rate of maltreatment-related investigations more than doubled from 21.32 to 54.05 investigations per 1,000 children between the 1993

and 2008 data cycles (Fallon et al., 2010). In the last three cycles of the OIS (1998, 2003 & 2008), infants were consistently more likely to be the subject of a maltreatment-related investigation than any other age group (Fallon et al., 2010). In 1998, the rate of investigation per 1,000 infants was 43.31, while in 2003 that rate increased to 65.71 investigations per 1,000 infants (Fallon et al., 2010). In the 2008 cycle of the OIS, as reflective in Ontario law, a risk category was added to the case categorization in order to differentiate between investigations in which no specific concern of past maltreatment existed but where there was a substantial risk of future maltreatment ("risk"), and investigations involving a substantiated allegation of past maltreatment ("substantiated"). In this cycle, the rate of investigation was 70.25 investigations per 1,000 infants, a non-significant increase in incidence rate from 2003 (Fallon et al., 2010). Most of the available data point to changes in detection, reporting, and investigation practices rather than an increase in the number of infants being abused or neglected.

There are four key reasons for the increase in reported maltreatment: (1) an increase in reports made by professionals; (2) an increase in reports of emotional maltreatment and IPV exposure; (3) a larger number of children investigated in each family, and (4) an increase in substantiation rates. These changes are consistent with changes in legislation and investigation standards in Ontario where statutes and regulations have been broadened to include more forms of maltreatment and investigation standards require that siblings of reported children be systematically investigated (Fallon et al., 2010). The majority of the increase in maltreatment-related investigations occurred between the 1998 and 2003 cycles of the OIS that may be partly attributed to amendments to The Child and Family Services Act (CFSA) enacted into legislation in 2000. These changes included lowering the threshold of "risk of harm" to the child to permit investigations in instances where an incident of maltreatment had not yet occurred, or was not substantiated, but where the child was deemed at risk of future maltreatment (Fallon et al., 2010). It is likely that these changes have led to the increased identification of vulnerable infants to the child welfare system. Infants are

most often referred to a child welfare agency by professionals, with health professionals being the most common referral source followed by police (Palusci, 2011;Williams et al., 2011). There is clear evidence that caregiver functioning concerns including substance use, lack of social support, parental mental health issues, young parenthood and IPV are risk factors for infant maltreatment (Harden & Klein, 2011; Putnam-Hornstein & Needell, 2011; Wu et al., 2004; Zhou & Chilvers, 2010). Palusci (2011) found that caregivers of infants are more likely to have a drug, alcohol, learning or medical problem than caregivers of older children, as well as to be experiencing IPV. Indeed, in a study by Williams et al. (2011), the second most common source of infant referral was the police, a likely indication that there is a concern for infant safety when police attend an intimate partner violence dispute.

The introduction of federally-mandated developmental screening for children under three at first contact with the child welfare system in the United States has revealed that children who become involved with the child welfare system in infancy present developmental delays more often than infants within the general population (Casaneuva, Cross, & Ringeisen, 2008). However, in 93% of Canadian child welfare investigations involving infants, workers did not endorse the presence of a developmental delay, positive toxicology at birth, or substance abuse birth defects (Tonmyr, Williams, Jack, & MacMillan, 2011). It is unclear whether this information is systematically sought in all child cases or whether workers are well positioned to note concerns in these areas. Several studies have shown that there is an under-diagnosis of mental health issues for children in care of the child welfare system (Administration for Children and Families, 2007; Casanueva, Cross, & Ringeisen, 2008; McCrae, Cahalane, & Fusco, 2011). This study involves a secondary analysis of the 2008 Ontario Incidence Study of Reported Child Abuse and Neglect (OIS-2008) with the goal of describing the profile of investigations involving infants and to identify the factors predictive of the decision to transfer a case to ongoing services at the conclusion of the investigation, rather than close the case post-investigation.

Methods

A secondary analysis of the Ontario Incidence Study of Reported Child Abuse and Neglect (Fallon et al., 2010; OIS-2008) dataset was conducted. This dataset contains information about key clinical factors collected during a child maltreatment investigation (Fallon et al., 2010). The OIS-2008 is the fourth provincial study examining the provincial estimate of the incidence of reported child maltreatment in Ontario in 2008. A multi-stage sampling design was used to select a representative sample of 23 child welfare agencies from a list of 53 child welfare agencies in Ontario and then a sample of cases was selected from within these agencies (Fallon et al., 2010). Agencies were stratified by size, region, and Aboriginal status (Fallon et al., 2010). Cases opened for service at the randomly selected sites during a three-month sampling period in 2008 were eligible for inclusion (Fallon et al., 2010). Children not reported to child welfare services, screened-out reports, or new allegations on cases open at the time of case selection were not included in the OIS-2008. Three months was considered to be the optimal period for participation and compliance with study procedures. The last sample selection stage included identifying children who had been investigated due to concerns related to possible maltreatment. Maltreatment-related investigations included in the OIS-2008 include reports of concerns that a child may have already been abused or neglected as well as situations where there is no specific concern about past maltreatment but where the risk of future maltreatment is being assessed.

Data Collection Instruments

The information was collected using a three-page data collection instrument. Data collected included: referral source; type of investigation (maltreatment or risk only); type of abuse and neglect investigated; level of substantiation; functioning concerns for the children and their caregivers; income source; housing information; and information about short-term service dispositions. Key clinical variables were included in the analysis in order to reflect an ecological model (Ungar, 2011) and to determine the relative contribution of clinical variables to the decision to provide ongoing services.

Study Sample

These procedures yielded a final sample of 7,471 children investigated because of maltreatment-related concerns. This excludes children over the age of 15, siblings who were not investigated, and children who were investigated for non-maltreatment concerns. The current study examines investigations involving children under the age of one year (n=538), and whether or not they were transferred to ongoing services at the conclusion of the investigation. Two sets of weights were applied to derive provincial annual estimates. First, results are annualized to estimate the volume of cases investigated by each agency in 2008. To account for the non-proportional sampling design, regional weights are then applied to reflect the size of each agency relative to the child population in the region from which the site was sampled, resulting in a weighted sample of 128,748. OIS estimates cannot be unduplicated because annualization weights are based on unduplicated service statistics provided by the study sites. Therefore, estimates for the OIS refer to child maltreatment investigations. The final weighted sample for child maltreatment investigations involving children under the age of one was 9,286.

Measures

Outcome variable: Transferred to Ongoing Services. Workers were asked to indicate whether the investigation would be opened for ongoing child welfare services at the conclusion of the investigation. The decision to transfer a case to ongoing services is a dichotomous variable.

Predictor Variables: Key clinical variables representing an ecological model of child maltreatment were included in the model to determine the relative contribution of clinical variables. Clinical variables were chosen based on empirical literature of factors related to child maltreatment or risk of child maltreatment. These included child functioning concerns, caregiver risk factors, and household characteristics. The operational definitions and codes used in the analysis are provided in Table 1.

Analysis Plan

All analyses were conducted using SPSS, version 20.0. Descriptive analyses were conducted to explore

Table 1. Variable Definitions.

Outcome Variable	Measurement	Description
Transfered to Ongoing Service	Dichotomous variables:	Workers were asked to indicate whether the investigation would be opened for ongoing child welfare services at the conclusion of the primary caregiver
Predictor Variables		
	Categorical variable: 18 years and under (1) 19 to 21 years (2) 22 to 30 years (3) 31 to 40 years (4) 41 years and up (5)	Workers were asked to indicate the age category of the primary caregiver
Primary Caregiving Functioning	Nine dichotomous variables: Suspected or confirmed concern (1) No or unknown (0)	Workers could note up to nine functioning concerns for the primary caregiver. Concerns were: alcohol abuse, drug/solvent abuse, cognitive impairment, mental health issues, physical health issues, few social supports, victim of domestic violence, perpetrator of domestic violence, and history of foster care/ group home. Caregiver functioning variables were dichotomous variables with a suspected or confirmed concern coded as 'noted' and no and unknown coded as 'not noted'.
Child Functioning	Six dichotomous variables: Suspected or confirmed concern (1) No or unknown (0)	Workers could note up to eighteen functioning concerns for the investigated child, indicating whether the concern had been confirmed, suspected, was not present or it was unknown to the worker. For this analysis, these functioning concerns included: attachment issues, intellectual/developmental disability, failure to meet developmental milestones, FAS/FAE, positive toxicology at birth, and physical disability.
No Second Caregiver in the Home	Dichotomous variable: No Second caregiver in the home (1) Second caregiver in the home (0)	Workers were asked to describe up to two caregivers in the home. If there was only one caregiver described there was no second caregiver in the home
Primary Income	Categorical variable: Full time employment (1) Part time/seasonal employment (2) Other benefits/ unemployment (3) No income (4)	Workers were asked to indicate the primary source of the primary caregiver's income
Household Hazards	Dichotomous variable: At least one household hazard (1) No household hazards (0)	Workers were asked to note if the following hazards were present in the home at the time of the investigation: accessible weapons, accessible drugs, production/trafficking of drugs, chemicals/solvents used in drug production, other home injury hazards, and other home health hazards
Household Regularly Runs Out of Money	Dichotomous variable Noted (1) Not Noted (0)	Workers were asked to note if the household regularly runs out of money
Number of Moves	Categorical variable No moves (0) One move (1) Two or more moves (2)	Number of moves reflects the number of moves the household had experienced in the past six months.
Referral Source		
Source of Allegation/Referral	Nine dichotomous variables Noted (1) Not Noted (0)	Workers were asked to indicate all sources of referral that were relevant for each investigation. This includes separate and independent contact with the child welfare agency. Workers could note up to nineteen referral sources for the investigation. Referral source variables were collapsed into nine categories: non-professional referral sources (custodial parent, non-custodial parent, relative, neighbour/friend), community or social services (social assistance worker, crisis service/shelter, community/recreation centre, community health nurse, community physician, community mental health professional, community agency), hospital, school, other child welfare service, day care centre, police, anonymous, and other

the characteristics of investigations involving children under the age of one year (infants). Multivariate analyses were conducted to understand the profile of investigations involving infants (n=538) and which predictors were significant in the decision to transfer a case to ongoing services at the conclusion of the investigation. Classification and Regression Trees (CART) were conducted to examine the relationship between the outcome and predictors. Unweighted data were used in all multivariate models. For the Classification and Regression Trees (CART) analysis, the objective was to understand which predictors (caregiver, child, household, and case characteristics) determine the decision to transfer a case to ongoing services. Through recursive partitioning, the CART methodology develops hierarchical binary classification trees (Steinberg & Colla, 1997). All variables were included in the CART analysis given the possibility that a predictor variable may be significantly related to the outcome variable for a subset of the sample regardless of that predictor's relationship with the outcome variable for the whole sample (Steinberg & Colla, 1997). To attain a more comprehensive understanding of the predictors of transfers to ongoing services among investigations involving infants, four models were developed based on the four main sources of referrals for infants. The sample was further divided into four categories of referral sources: hospital referrals; police referrals; non-professional referrals (reports from custodial and non-custodial parents, relatives, and/or neighbours/ friends); and community or social services referrals (reports from social assistance worker, crisis service/ shelter, community/recreation centre, community health nurse, community physician, community mental health professional, community agency). As such, the first model examined infant investigations referred to the child welfare system from hospitals, the second model examined investigations referred by the police, the third model examined investigations referred by non-professional referral, and the fourth model examined investigations referred by community or social services. All of the models included caregiver characteristics (age and caregiver functioning), child characteristics (child functioning), household characteristics (no second caregiver, income, household hazards, household regularly

runs out of money, and number of moves), and case characteristics (type of investigation). All models were developed to determine how caregiver, child, household, and case characteristics interact to predict transfers to ongoing services. The minimum size for parent node (n=50) and child node (n=20) were specified prior to analyses in order to decrease the likelihood of over-fitting the data. Furthermore, cross-validation was completed to assess the generalizability and stability of the final tree models (Steinberg & Colla, 1997). A ten-fold cross-validation procedure was conducted, in which the sample was randomly divided into ten subsamples and ten models were produced which alternately excluded one of the subsamples. The cross-validation process determines an average risk estimate across models. A comparison risk estimate of the final model against the average risk estimate indicates how close the final model is to other potential models and determines whether the final model is a good representation of the available data (Steinberg & Colla, 1997).

Results

Almost a quarter of investigations involving infants were referred by hospital personnel (2,099 investigations, 22.6%). Similarly, 21.6% of these investigations were referred by the police (2,004 investigations). Non-professional referral sources comprised 20.7% of investigations involving infants. Approximately 16.5% of the infant investigations were referred by community or social services (1,534 investigations). A small number of investigations

Table 2. Referral Sources of Maltreatment-Related Investigations Involving Infants in Ontario in 2008 (n = 9,286)

	Frequency	%
Non-Professional	1,924	20.7%
Community or Social Services	1,534	16.5%
Hospital (any personnel)	2,099	22.6%
School	481	5.2%
Other Child Welfare Service	607	6.5%
Day Care Centre	20	0.2%
Police	2.004	21.6%
Anonymous	718	7.7%
Other	144	1.5%

were referred by schools (481, 5.2%), other child welfare services (607, 6.5%), and day care centres (20, 0.2%). The referral sources of maltreatment-related investigations involving infants are presented in Table 2.

Most primary caregivers were under the age of 30 years. Approximately 15% (1,380) of the caregivers were 18 years old and under and 19.7% (1,829) were between the ages of 19 and 21 years old. Almost half (3,839, 41.4%) of the caregivers were 22 to 30 years old. About 20% (1,918) of the caregivers were 31 to 40 years old. A minority (305, 3.3%) of the caregivers were 41 years old or older. At least one caregiver functioning concern was noted in 72.6% (6,739) of infant investigations. The most common caregiver functioning concern identified was victim of domestic violence, with 3,174 (34.2%) primary caregivers experiencing domestic violence. The next most common caregiver functioning concern identified was few social supports (3,044, 32.8%) followed by mental health issues (2,577, 27.8%). Drug/solvent abuse (1,871, 20.1%) and alcohol abuse (1,299, 14.0%) were noted concerns for some of the caregivers. Investigating workers also identified history of foster care/group home (1,004, 10.8%), cognitive impairment (961, 10.3%), and physical health issues (681, 7.3%) as concerns. Of the relevant child functioning concerns noted for infants the most common concern was positive toxicology at birth (521 investigations, 5.6%). Investigating workers identified failure to meet developmental milestones as a child functioning issue in 217 investigations (2.3%), and attachment issues as a concern in 196 investigations (2.1%). Physical disability was identified as a concern in 153 investigations (1.7%). Intellectual or developmental disability was a child functioning concern in 125 investigations (1.3%). FAS/FAE was identified in 104 investigations (1.1%). Table 3 presents the characteristics of children involved in infant investigations. Approximately a third of investigations involved families with a lone caregiver (2,758 investigations, 29.7%). Over half of the primary caregivers involved in infant investigations relied on other benefits or unemployment as their primary source of income (5,715 investigations or 61.5%). About 25% (2,212 investigations) had no income source reported. Some of the primary caregivers had full-time employment, (864 investigations,

9.3%) while a minority had part-time or seasonal employment (495 investigations, 5.3%). In a small proportion of investigations, the worker identified at least one hazard present in the household (807 investigations, 8.7%) or identified that the household regularly ran out of money (1,094 investigations, 11.8%). Most investigations involved families that had not moved in the past six months (3,306 investigations or 35.6%) or moved once in the past six months (2,902 investigations or 31.3%). Of all the investigations involving infants, 5,096 represented a maltreatment investigation (54.9%) and 4,190 represented a risk investigation (45.1%). Of all maltreatment investigations in this sample (n=5,096), neglect (2,233 investigations, 24.0%) and IPV exposure (1,998 investigations, 21.5%) were most commonly identified as the primary concern, In a small proportion of maltreatment investigations, the concern was physical abuse (543 investigations, 5.8%), emotional maltreatment (306 investigations, 3.3%), or sexual abuse (17 investigations, 0.2%). In the minority (3,698 investigations, 39.8%), the case was transferred to ongoing services. The clinical characteristics of infant maltreatment-related investigations are reported in Table 3.

CART analysis was conducted to determine how child welfare workers decided which families received ongoing services at the conclusion of investigations using all characteristics which included: caregiver characteristics (age and caregiver functioning), child characteristics (child functioning), household characteristics (no second caregiver, primary income, household hazards, household regularly runs out of money, and number of moves), and case characteristics (type of investigation). Four models were developed to examine the predictors of transfers to ongoing services among hospital referrals, police referrals, non-professional referrals, and community or social services. Cross-validation was conducted using all characteristics to assess the generalizability and stability of the final CART model. Of the infant investigations referred to by hospital personnel, primary caregiver cognitive impairment is the best predictor of the provision of ongoing services. Of the investigations where caregiver cognitive impairment was not noted, the next best predictor of being transferred to ongoing services was the identification

Table 3. Clinical Concerns of Maltreatment-Related Investigations Involving Infants in Ontario in 2008 (n = 9,286)

	Frequency	%
Primary Caregiver Age		
18 years and under	1,380	14.9%
19 to 21 years	1,829	19.7%
22 to 30 years	3,839	41.4%
31 to 40 years	1,918	20.7%
41 years and up	305	3.3%
Primary Caregiver Risk Factors		
Alcohol Abuse	1,299	14.0%
Drug/Solvent Abuse	1,871	20.1%
Cognitive Impairment	961	10.3%
Mental Health Issues	2,577	27.8%
Physical Health Issues	681	7.3%
Few Social Supports	3,044	32.8%
Victim of Domestic Violence	3,174	34.2%
Perpetrator of Domestic Violence	488	5.3%
History of Foster Care/Group Home	1,004	10.8%
At Least One Functioning Concern	6,739	72.6%
Child Functioning Concerns		
Attachment Issues	196	2.1%
Intellectual/Developmental Disability	125	1.3%
Failure to Meet Developmental Milestones	217	2.3%
FAS/FAE	104	1.1%
Positive Toxicology at Birth	521	5.6%
Physical Disability	153	1.7%
Second Caregiver in the Home		
Yes	6,528	70.3%
No	2,758	29.7%
Primary Income		
Full-time	864	9.3%
Part-time/Seasonal	495	5.3%
Other Benefits/Unemployment	5,715	61.5%
No Income	2,212	23.8%
At Least One Household Hazard	807	8.7%
Household Regularly Runs Out of Money		
Noted	1.094	11.8%
Not Noted	7,103	76.5%
Unknown	1,087	11.7%
Number of Moves		
No Moves	3,306	35.6%
One Move	2,902	31.3%
Two or More Moves	996	10.7%
Unknown	2,082	22.4%
Types of Maltreatment		
Physical Abuse	543	5.8%
Sexual Abuse	17	0.2%
Neglect	2,233	24.0%
Emotional Maltreatment	306	3.3%
Exposure to Intimate Partner Violence (IPV)	1,998	21.5%
Risk	4,190	45.1%

of the primary caregiver as a victim of domestic violence. Among investigations where caregiver cognitive impairment and victim of domestic violence were not noted, primary caregiver few social supports was a predictor of being transferred to ongoing services. While the risk estimate of the cross-validation analysis of .304 indicates that the category

predicted by the model is wrong for 30.4% of the cases, the classification table indicates that the model classifies 77.0% of the investigations correctly. Figure 1 shows the results of the CART analysis of hospital referred infant investigations.

Among investigations involving infants referred to by police, primary caregiver noted as having few social supports is the only significant predictor of transfers to ongoing services at the conclusion of maltreatment-related investigations. The risk estimate of the cross-validation analysis of .429 indicates that the category predicted by the model is incorrect for 42.9% of the cases. However, the classification table indicates that the model correctly classifies 64.7% of the investigations. The results of the CART analysis of police referred infant investigations are presented in Figure 2.

For infant investigations referred by non-professional referral sources, primary caregiver drug/solvent abuse is the best predictor of transfers to ongoing services at the conclusion of an investigation. Where drug/solvent abuse was not noted, primary caregivers with few social supports was a significant predictor of an investigation being transferred. The risk estimate of the cross-validation analysis of .394 demonstrates that the category predicted by the model is incorrect for 39.4% of the cases while the results of the classification analysis show that the model classifies 68.7% of the investigations correctly. Figure 3 presents the results of the CART analysis for non-professional referral sources.

Of the investigations involving infants referred by social services, primary caregiver mental health issues is the best predictor of transfers to ongoing services. When mental health issues were not noted, primary caregiver age is a significant predictor of ongoing services. Infant investigations involving caregivers under the age of 21 years were more likely to be opened for ongoing services. While the risk estimate of the cross-validation analysis of .274 indicates that the category predicted by the model is wrong for 27.4% of the cases, the classification table indicates that the model classifies 72.6% of the investigations correctly. Figure 4 presents the results of the CART analysis for community or social services referrals.

Overall, several primary caregiver characteristics (dominantly the mother) did not emerge as significant

Figure 1. Transfers to Ongoing Services Among Police Referred Investigations Involving Infants in Ontario in 2008 (Classification Rate = 64.7%)
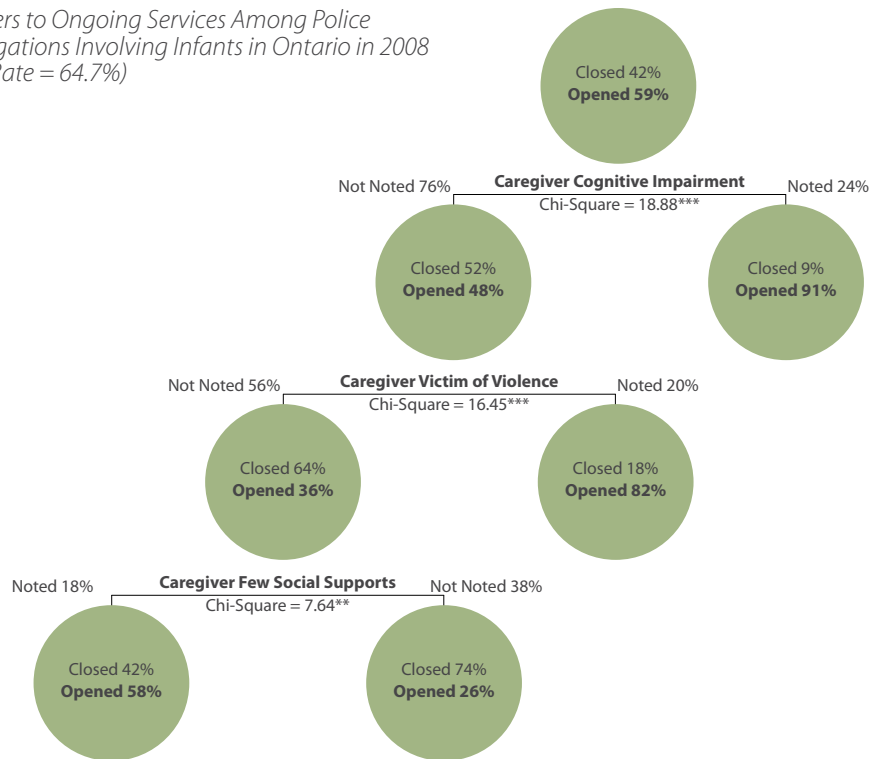
Closed 42%
Opened 59%

Not Noted 76% — **Caregiver Cognitive Impairment** — Noted 24%
Chi-Square = 18.88***

Closed 52%
Opened 48%

Closed 9%
Opened 91%

Not Noted 56% — **Caregiver Victim of Violence** — Noted 20%
Chi-Square = 16.45***

Closed 64%
Opened 36%

Closed 18%
Opened 82%

Noted 18% — **Caregiver Few Social Supports** — Not Noted 38%
Chi-Square = 7.64**

Closed 42%
Opened 58%

Closed 74%
Opened 26%

Figure 2. Transfers to Ongoing Services Among Police Referred Investigations Involving Infants in Ontario in 2008 (Classification Rate = 64.7%.)

Closed 64%
Opened 36%

Noted 28% — **Caregiver Few Social Supports** — Not Noted 72%
Chi-Square = 4.68*

Closed 48%
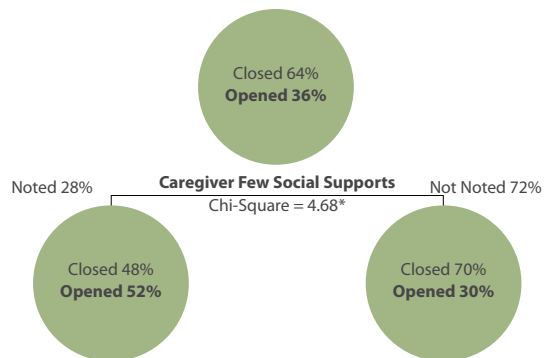**Opened 52%**

Closed 70%
Opened 30%

Figure 3. Transfers to Ongoing Services Among Non-Professional Referred Investigations Involving Infants in Ontario in 2008 (Classification Rate = 68.7%)

Closed 57%
Opened 43%

Not Noted 76% — **Caregiver Drug/Solvent Abuse** — Noted 24%
Chi-Square = 9.68**

Closed 65%
Opened 35%

Closed 29%
Opened 71%

Noted 26% — **Caregiver Few Social Supports** — Not Noted 50%
Chi-Square = 6.46*

Closed 46%
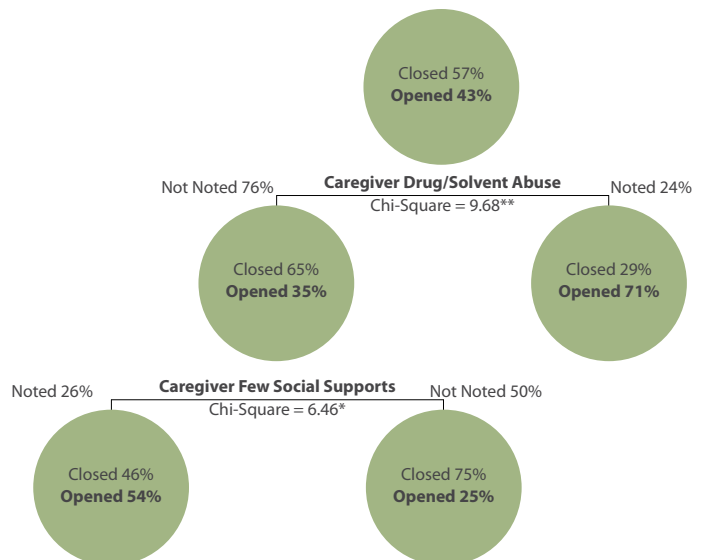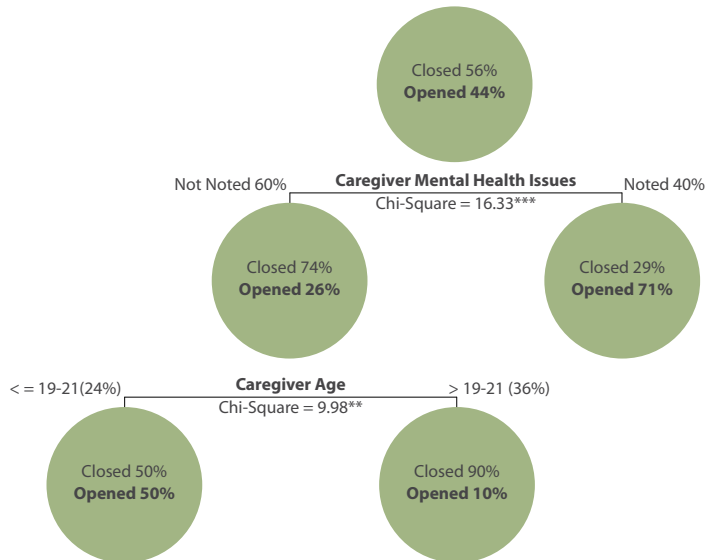**Opened 54%**

Closed 75%
Opened 25%

Figure 4. Transfers to Ongoing Services Among Social Services Referred Investigations Involving Infants in Ontario in 2008 (Classification Rate = 72.6%)

predictors (caregiver physical health issues, caregiver perpetration of IPV, caregiver history of foster care/ group home living), while few social supports emerged in a number of the models. The main predictor varied by the referral source. Child functioning did not predict the decision to keep the case for ongoing services, which could involve referral for in-depth assessment, court petitions for child removal, referrals for caregiver intervention, and casework with the family. It remains unclear from this dataset as to whether infant functioning is well-considered in the context of the investigation of new cases, requiring further empirical attention

Discussion

This study used a Canadian provincial child welfare dataset to examine the profile of infants and their families who are the subject of maltreatment-related investigations in order to identify which factors determine service provision at the conclusion of the investigation. Several findings have significance to the child welfare field. The OIS collects data about up to 19 potential sources of referral. For investigations involving infants, there were four main sources of referral: hospitals, police, non-professionals and social services. In an analysis of the decision to provide

ongoing services by referral source, only caregiver functioning concerns were predictive of service provision. No child functioning concerns, including attachment issues and developmental delay were related to service provision. While the concerns noted for caregivers predict service provision, there are different clinical profiles for infant maltreatment-related investigations that emerge depending on the source of referral. Hospital referrals have a high rate of being opened for ongoing child welfare service (59%), and whether or not the caregiver has a cognitive impairment is the strongest predictor of service provision. For police referrals, which dominantly involve investigations of intimate partner violence, the only predictor of service provision is the level of social support that the primary caregiver has in the community. The strongest predictor of service provision for infant investigations originating from a non-professional referral source is the drug or solvent use of the caregiver, followed by few social supports. Finally, infant investigations referred from community or social services involve an assessment of the mental health of caregiver and their age. The results of the current analysis are consistent with the findings of previous studies which indicate that concerns relating to caregiver functioning such as, substance use, lack of social support, parental mental health issues, young parenthood and domestic abuse are risk factors for infant maltreatment (Belsky, 1980; Cicchetti et al., 2006; Harden & Klein, 2011; Zhou & Chilvers, 2010;) and worker substantiation decisions (Wekerle, Wall, Leung, & Trocmé, 2007). This study extends the knowledge to the type of referral source and potential assessment specialization and capacities (e.g., hospitals – growth measurement and injury assessment).

Implications

Early identification of families with caregiver risk factors provides the opportunity for the child welfare system to identify strengths and challenges within the family system in order to promote caregiver and infant resiliency and prevent maltreatment. Resilience involves the moderation or mitigation of the impact of risk factors through the fostering of protective factors (Benzies & Mychasiuk, 2008; Hill et al., 2007). The ability to effectively and, differentially, address caregiver concerns as early

as possible has important implications for child outcomes specifically for the parent-child attachment relationship. This demonstrates the need for the early identification of vulnerable families and the provision of early intervention services in order to mitigate the impact of caregiver risk factors and promote protective factors to improve the developmental outcomes of the child. Families of infants referred to the child welfare system have differing concerns, many of which will be evident at initial referral, requiring a reliable assessment strategy and, in accordance, a varied service response. Parents facing stressors are able to cope better when they have access to supportive relationships outside the home. In cases where informal supports do not exist, the accessibility to professionals and external programs can also be beneficial to a parent's ability to manage when faced with difficult life circumstances (Benzies & Mychasiuk, 2008). Programs that take into account parental concerns and expertise tend to be viewed more positively by parents (Hill et al, 2007). Interventions that focus on the needs of parents tend to have the most profound impact on the family system, as parents, and primary caregivers in particular, have the greatest influence on family interactions (Hill et al., 2007). While early preventive interventions have been found to be effective in enhancing paternal sensitivity and infant attachment security among maltreating families and families with and without multiple problems (Bakermans-Kranenburg, van IJzendoom, & Juffer, 2003; Cicchetti et al., 2006), the lack of success of broad-based parenting programs in preventing future maltreatment among families with infants indicates the need for interventions that target the family's unique clinical profile with emphasis on particular areas of concern for the caregiver including cognitive issues, substance abuse issues, mental health issues, domestic abuse and limited social supports.

With the introduction of the Child Welfare Transformation Agenda in 2006, the child welfare system in Ontario has begun to shift towards differential response options which take into account the clinical needs of families as early as the point of initial referral (Ontario Ministry of Children and Youth Services, 2007), which can only be as good as the assessment strategy allows for. Given the need

for developmental supports for young children in high risk families and the questionable effectiveness of parenting programs, a focus on providing an intervention that is targeted, focused and tailored to the needs of the family, with an emphasis on bolstering the parent-infant relationship (e.g., Galanter, Self-Brown, Valente, Dorsey, Whitaker, Bertuglia-Haley, & Prieto, 2012; Silovsky et al., 2011;), may be the optimal approach to ensure the protection of young children (Suchman, Pajulo, DeCoste, & Mayes, 2006). There are also a number of measurement issues to consider for this study. Data from the OIS-2008 are collected directly from the investigating worker and are not independently verified. These data only represent the concerns that present during an average 6-week investigation period. Additional concerns for the child and the caregiver could arise after the initial investigation. Weighted estimates do not account for seasonal variation in maltreatment typologies. The OIS collects information for six child functioning concerns relevant to the infant population. It is difficult to determine whether the infrequent documenting of concerns for infants compared to other age groups in the OIS reflects: 1) the early developmental stage of the child; 2) a lack of appropriate measures in the OIS data collection instrument; or 3) a lack of understanding or assessment concerning the needs of infants. In future research, it would be important to establish the assessment process for infants identified to the child welfare system, given the opportunity to prevent negative trajectories.

This study described the decision to provide ongoing child welfare services to infants, focusing on the different clinical profiles that emerge depending on the referral source for the investigation. It found that caregivers of infants are struggling with a number of issues including mental health, violence, cognitive impairment and few social supports. The functioning of the caregiver is the strongest determinant of child welfare involvement. Preventative strategies, implemented early in key areas, such as attachment, the partner relationship, caregiver supports and referrals, could improve the outcomes for infants and their families, potentially enhancing family resiliency. Continued efforts in identifying effective interventions across the stages of infancy (newborn;

mobile infant etc.) are needed. The opportunity to target interventions for the different clinical profiles of the families that emerge for this very vulnerable population is evident. Struggling with the demands of a mental health issue or experiencing violence while becoming a parent requires a multi-faceted approach to intervention including increasing social support, drug and alcohol treatment programs, and housing.

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