# Predictors of placement for children who initially remained in their homes after an investigation for abuse or neglect

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## Abstract

**Objective**—To examine the frequency and predictors of out-of-home placement in a 30 month follow-up for a nationally representative sample of children investigated for a report of maltreatment who remained in their homes following the index child welfare report.

**Methods**—Data came from the National Survey of Child and Adolescent Well-being (NSCAW), a 3-year longitudinal study of 5,501 youth 0-14 years old referred to child welfare agencies for potential maltreatment between 10/1999 and 12/2000. These analyses focused on the children who had not been placed out-of-home at the baseline interview and examined child, family and case characteristics as predictors of subsequent out-of-home placement. Weighted logistic regression models were used to determine which baseline characteristics were related to out-of-home placement in the follow-up.

**Results**—For the total study sample, predictors of placement in the 30 month follow-up period included elevated Conflict Tactics Scale scores, prior history of child welfare involvement, high family risk scores and caseworkers' assessment of likelihood of re-report without receipt of services. Higher family income was protective. For children without any prior child welfare history (incident cases), younger children, low family income and a high family risk score were strongly related to subsequent placement but receipt of services and case workers' assessments were not.

**Conclusions/Practice implications**—Family risk variables are strongly related to out-of-home placement in a 30 month follow-up, but receipt of child welfare services is not related to further placements. Considering family risk factors and income, 25% of the children who lived in poor families, with high family risk scores, were subsequently placed out-of-home, even among children in families who received child welfare services. Given that relevant evidence-based

interventions are available for these families, more widespread tests of their use should be explored to understand whether their use could make a substantial difference in the lives of vulnerable children.

## Background

An estimated 3.2 million allegations of child maltreatment involving 5.8 million children occurred in 2007 in the United States. Almost two thirds of these allegations were investigated by child welfare agencies resulting in substantiation for 25.2% or an estimated 794,000 children (http://www.acf.hhs.gov/programs/cb/pubs/cm07/summary.htm). Although the bulk of the public policy and research attention has been focused on children removed from their homes due to maltreatment, in reality the majority of children with substantiated or highly likely maltreatment remain in their homes. Results from the National Survey of Child and Adolescent Well-being (NSCAW), a nationally representative sample of children and families with a child welfare contact, document that approximately 82.3% (N=3,593) of the sample of children remained in their homes following the initial investigation for maltreatment (Horwitz, Hurlburt, & Zhang, 2010). Similarly, federal data also show that the majority (79.3%) of child victims remain in their home following an investigation (http://www.acf.hhs.gov/programs/cb/pubs/cm07/summary.htm).Regardless of placement disposition, most children who come to the attention of child welfare live in families with multiple challenges. Sidebotham and Heron (2006) found that children who were part of the Avon Longitudinal Study of Parents and Children and were investigated by social services for suspected maltreatment, had young parents with low education, past psychiatric problems or a history of childhood maltreatment. Additionally, these children often lived in families that were poor, socially isolated, large, and headed by a single mother with considerable domestic violence. Low birth weight, parental perception of a child as having few positive attributes, and unintended pregnancy with the child were child specific risk factors for contact with social services (Sidebotham & Heron, 2006).

Although children who remain in their homes after a child welfare investigation are both prevalent and at high risk for future developmental, behavioral, social and emotional problems, there are scant data on this population. Zuravin and DePanfilis (1997) examined a random sample of 1,035 families in a Mid-Atlantic city child protection program who were referred to the program from January 1, 1988 to December 31, 1988. Referrals in that study were substantiated and child(ren) initially remained at home. They found that families who experienced the placement of at least one child during the follow-up period were more likely to: (1) have had a prior history of maltreatment; (2) be poor; and (3) be those where mothers were younger, had substance abuse problems, mental health issues, developmental limitations, and experienced domestic violence (Zuravin & DePanfilis, 1997).

The literature on recidivism, likewise, sheds some light on these families. English and colleagues (1999) examined recidivism within an 18 month period for 12,329 referrals with completed paperwork by September 30, 1995. In addition to the characteristics identified by Zuravin and DePanfilis (1997), English and colleagues found that chronicity of abuse, child's age, risk levels, and social support were also important features in families with re-referrals. A more recent study by Dorsey and colleagues (2008) examined caseworkers' assessment of risk as a predictor of subsequent maltreatment reports and found that, while associated with subsequent reports, both the sensitivity of the caseworkers' assessment and its positive predictive value were low (Dorsey, Mustillo, Farmer, & Elbogen, 2008). Other studies of recidivism find similar characteristics related to recurrence with the bulk of the attention in this body of research focusing on the issue of substantiation as a predictor of recidivism rather than on characteristics of the child or family as important predictors

(Drake, Jonson-Reid, Way, & Chung, 2003; Inkelas & Halfon, 1997; Kohl, Jonson-Reid, & Drake, 2009; Way, Chung, Jonson-Reid, & Drake, 2001).

Interestingly, while the importance of substantiation as a driver of recidivism has historically received considerable attention and there has been research on specific service programs, the impact of routine child welfare agency services to families involved with child protective services has not (Horwitz et al., 2010). DePanfilis and Zuravin (2002), using a subset of the families originally researched in 1988 (those followed over 5 years with available data), found that most families received services for 1 year or less (64%) or 2 years or less (85%), with an average of 14 face-to-face case work contacts. In addition to the variables previously shown to be related to recurrence, participation in services decreased the likelihood of recurrence (Drake, Jonson-Reid, & Sapokaite, 2006). Drake et al. (2006) examined whether multi-sector service involvement was related to recurrence and found that non child welfare services were strongly linked to re-report but that there was a lower risk of re-report for cases receiving less intensive in-home services versus no services.

Given the needs of families referred to child welfare, the lack of information about the relationship of routine case work services to recurrence of maltreatment is surprising. Child welfare agencies are mandated to deliver services designed to insure children's safety, prevent declines in children's well being, and prevent further maltreatment. Assuming such services are effective, ideally agencies should also be able to reduce costly and disruptive out-of-home placements. This absence of information about services, focus on substantiation rather than child and family characteristics related to recidivism, coupled with what are well known methodological challenges in child welfare studies—use of administrative data with limited, missing and/or inaccurate data, small local data sets often with limited power, first time cases reported to child welfare (incident cases in the epidemiologic terminology) compared to cases with considerable past histories of maltreatment, and subject retention for longitudinal work-----argue for a careful examination of the experience of children who remain with their families following a child welfare investigation (DePanfilis & Zuravin, 2002; Dorsey et al., 2008; Drake et at., 2003; Drake et al., 2006; English, Marshal, Brummel, & Orme, 1999; Gershater-Molko, Lutzker, & Wesch, 2002; Inkelas & Halfon, 1997; Kinard, 1994; Kohl et al., 2009; Leventhal, 1982; McMaiton & Trichopoulus, 1996; Schuerman, Rzepnicki, & Littell, 1994; Understanding child abuse and neglect; 1993; Way et al., 2001). Therefore, using a unique national probability sample of children referred and investigated by child welfare agencies, these analyses were designed to: (1) document the frequency of out-of-home placements in a 30 month follow-up period for children with a child welfare investigation who initially remained in their homes after the index investigation; (2) determine the characteristics of the child, family and social environment related to placement, including initial disposition by the child welfare agency (unsubstantiated or substantiated, with and without child welfare services); and (3) examine characteristics related to out-of-home placements for children and families with and without prior reports of maltreatment.

## Methods

### Design and analytic sample

These analyses were conducted using the sampling framework developed by the National Survey of Child and Adolescent Well-being (NSCAW), a 3-year longitudinal study of 5,501 youth ages 0-14 referred to child welfare and for whom an investigation of potential maltreatment was completed during the sampling period, October 1999 to December 2000. Initial interviews (Wave I) were conducted within approximately 6 months of completed child welfare investigations. The NSCAW employed a national probability sampling strategy to select primary sampling units (PSUs), typically counties, from which the sample

of children would be drawn. In total, 100 counties were selected from a national sampling frame, with probability of county selection proportional to its size as defined by a composite measure of the annual number of investigations for child abuse and neglect in the PSU. The NSCAW ultimately collected child-level data in 92 PSUs in 36 states (Biemer, Dowd, & Webb, 2010).

The NSCAW sample design involved a stratified 2-stage sample. In the first stage, county child welfare agencies were sampled as described above. In the second stage, children identified as subjects of a child welfare investigation were selected from lists of closed investigations or assessments in the sampled child welfare agencies. At the child level, only 1 child was sampled from each home. The sample was subdivided into 9 strata, 1 each for 8 key states and a 9th stratum for 28 other states. The 9 strata are combined in analyses to produce national estimates (NSCAW Research Group, 2002).

Interviews were conducted with children, caregivers and child welfare workers. The timing of interviews followed a set schedule relative to the index child welfare investigation: Wave I (6 months), Wave II (12 months), Wave III (18 months), and Wave IV (36 months). Interviews were attempted with caregivers at each interview Wave. Interviews with child welfare workers were attempted if there was evidence that the family had received child welfare services since the last interview. When interviews were missed at 1 point in time, subsequent interviews sought to obtain information about services and placement patterns since the time of the last interview conducted.

Analyses in this report focus on children and families in which the referred child remained at home following the index child welfare report. Specifically, cases were included in the analysis if the child did not experience an out-of-home placement from the index child welfare report to the time of the Wave I interview. Excluded were cases that were in out-of-home placement at Wave I or had experienced out-of-home placement prior to Wave I but were in their biological home at Wave I. This restriction was applied because many of the predictors of out-of-home placement were gathered at the time of the Wave I interview, which occurred an average of 6 months after the initial child welfare contact date. All procedures for NSCAW were approved by the Research Triangle Institute's IRB and all analytic work on the NSCAW deidentified data has been approved by the Rady Children's Hospital IRB.

## Survey design and assessment procedures

### Analysis weights

Analysis weights were constructed in stages corresponding to the stages of the sample design, accounting for the probability of county selection and the probability of each child's selection within a county, given the youth's county of residence. Weights were further adjusted to account for small deviations from the original plan that occurred during sampling, and for non-response patterns. All analyses presented, unless otherwise noted, utilize weighting in analyses. Non-weighted cell sizes are presented for some analyses to provide detail about the amount of data upon which analyses are based. All parameters (i.e., means, percentages, etc.) were generated using the weights and therefore can be inferred to the U.S. child welfare population.

## Measures

### Classification of cases at baseline

**Substantiation**—Each case was classified with regard to whether the index child welfare report had been substantiated or not. In NSCAW, child welfare workers provided

information about report substantiation. However, not all child welfare agencies used the same classification system. While some agencies classified reports as substantiated or unsubstantiated, others classified cases as indicated or not indicated, while still others used neither substantiation nor indication, but rather case classification as high, medium, or low risk. For this report, we defined substantiation as including reports that were identified as substantiated, indicated, or high risk. Cases identified as medium and low risk were grouped with unsubstantiated and non-indicated cases. If child welfare agencies used multiple systems for classification such as substantiation <u>and</u> indication, substantiation was the classification used. The risk classification was used for child welfare agencies that used neither substantiation nor indication, allowing for those agencies to have non-missing data on this critical dimension. No attempt was made by the research organization to apply a standard definition across agencies for the levels of risk.

*Maltreatment* type was based on caseworker abstracted information from the case file. Caseworkers' reports also were based on their own knowledge of a case if they had been the original case worker. Ten categories of maltreatment were coded as having been reported or not. Caseworkers were also asked to identify the most severe type of maltreatment reported. The most severe maltreatment type was reduced to five categories: (1) physical abuse, (2) sexual abuse, (3) physical neglect (failure to provide for the child), (4) supervisory neglect (failure to supervise the child), and (5) other types of maltreatment (abandonment, educational maltreatment, moral or legal maltreatment, exploitation, etc.). For the analyses reported here, the most severe maltreatment type categories were further collapsed into three general types of maltreatment to generate stable parameter estimates, namely, (1) physical and sexual abuse, (2) emotional abuse, and (3) neglect and all other types of abuse.

### Child welfare services

Cases also were classified with respect to whether child welfare services of any kind had been provided or arranged by child welfare through the time of the Wave I interview. This distinction was made based on caseworker interviews and the original case file review that resulted in identification of cases eligible for NSCAW. Child welfare services in this definition include many different kinds of child welfare initiated services such as parenting training, income assistance, housing, and services for health and mental health services, to name but a few. The distinction between cases with and without child welfare services was made as an alternative to making a distinction between cases open and not open. The NSCAW did not distinguish between cases open and not open due to differences between states and counties in their definitions of when a child welfare case is officially opened.

### Likelihood of subsequent abuse

Case workers were asked to rate at the time of the Wave 1 interview, on a 4 point scale, how likely the child was to experience abuse within the next 12 months assuming the family received no child welfare services. For these analyses responses were grouped into 2 categories: low or very low versus high or very high.

**Demographics—**Demographic information was collected from the caregiver at the Wave I interview and included age, gender, and race/ethnicity for the child, and age, gender, and employment status for the caregiver, as well as relationship of the caregiver to the child, family structure, and family income.

### Risk variables

Child welfare workers reported on family risks at the time of the Wave 1 interview. Items for the analyses were selected to represent caseworker perception of risk based on prior investigation or child welfare services. A cumulative risk factor score was developed based

on the sum of risk assessment items (scored 1 if present, 0 otherwise) drawn from frequently used risk assessment tools. Risk indicators related to prior child welfare involvement included: (1) any prior reports of maltreatment (49.1%), (2) prior investigation for maltreatment (45.2%), (3) prior incident of substantiated abuse/neglect (21.2%), and (4) prior child welfare service history (24.9%). Family/child risk variables included: (1) major special needs/behavior problems (18.8%), (2) active alcohol abuse by primary or secondary caregiver (11.2%), (3) active drug abuse by primary or secondary caregiver (8.7%), (4) primary caregiver had recent history of arrests/detention (9.5%), (5) primary caregiver had intellectual or cognitive impairment (6.1%), (6) primary caregiver had physical impairments (5.0%), (7) primary caregiver had poor parenting skills (27.0%), (8) primary caregiver had unrealistic expectations of child (13.5%), (9) primary or secondary caregiver used excessive/inappropriate discipline (15.1%), (10) history of abuse/neglect of primary or secondary caregiver (23.5%), (11) lack of reasonable cooperation by caregiver (6.9%), (12) lack of a supportive caregiver present in the home (53.1%), (13) high stress on the family (49.2%), (14) low social support (28.0%), and (15) caregiver involvement in non-CPS services (29.6%). These items were part of the NSCAW developed risk assessment measure that included items from risk assessment forms and checklists used in Michigan, New York, Washington, Illinois, and Colorado.

### Standardized measures

For more detail on the standardized measures available in NSCAW, see the separate document "Description of Instruments Used to Measure Child and Family Well-Being in the NSCAW," Appendix II-A, Data File Users Manual (DFUM) (Dowd et al., 2004).

**Trauma Symptom Checklist for Children (Trauma)—**A 54-item self-report scale for children aged 8-16 evaluating trauma symptoms. It is composed of 6 clinical scales (Anxiety, Depression, Posttraumatic Stress, Sexual Concerns, Dissociation, and Anger). The child is given a list of thoughts, feelings, and behaviors and indicates how often each thing happens to her/him. Only the Posttraumatic Stress scale, which is highly correlated with the overall Trauma index, was included in NSCAW *(α=.82).*

**Violence Exposure Scale for Children (VEX-R)—**A 25-item self-report measure of community violence exposure for children aged 4-10 that includes drawings to accompany questions and a thermometer-type rating scale. Questions cover minor and severe violence victimization and witnessing violence in the home, school, and neighborhood. In the NSCAW, questions were asked only about violence exposure in the home environment. (In NSCAW, α =.96 for Total; α ranged from .86 to .92 for subscales.)

**Kaufman Brief Intelligence Test (KBIT)—**A brief intelligence test for children aged 4 and older that measures both verbal and nonverbal intelligence. The Verbal portion consists of a Vocabulary subtest that measures knowledge of words and their meanings. The Matrices subtest assesses fluid thinking---the ability to solve new problems by perceiving relationships and completing analogies. (In NSCAW, α=.84 [Composite], α =.76 [Verba]), α =.79 [Matrices].)

**Preschool Language Scale 3 (Language)—**An evaluation of language development in children from 2 weeks through 6 years of age. It also assesses behaviors considered to be language precursors. The PLS-3 contains 2 standardized subscales: Auditory Comprehension (focusing on attention abilities) and Expressive Communication (focusing on social communication and vocal development). (α = .87 for the PLS total; α ranges from .74 to .94 for subscales.)

**Vineland Adaptive Behavior Scale Screener—**A measure of personal and social skills, 4 age-specific versions are available for children ages 0 to 2, 3 to 6, 6 to 12, and 12 to 18. Each version consists of 15 items in each of the following 3 domains: Communication (how well the child speaks and understands others), Daily Living Skills (practical skills needed to take care of oneself), and Socialization (skills needed to get along with others). Only the Daily Living Skills domain was included in NSCAW. (In NSCAW, α = .91 for 0-2year olds, .77 for 3-5 year olds, and .78 for 6-10 year olds.)

**Mini-Battery of Achievement (School Achievement)—**An academic achievement screener administered to children ages 6 and older, consisting of 4 tests: Reading, Writing, Mathematics, and Factual Knowledge. *(In NSCAW, α =.74 for Reading and .61 for Math.)*

**Child Behavior Checklist (CBCL) 2-3 and 4-18—**Provides reports from caregivers regarding a child's competencies and behavioral/emotional problems. Items describe specific behavioral and emotional problems, and parents rate their child for how true each item is now or within the past 6 months using the following scale: 0 = not true (as far as you know); 1 = somewhat or sometimes true; 2 = very true or often true. (In NSCAW, α =.95 for 2-3 year-olds and .96 for 4-15 year-olds.)

**Home Observation for Measurement of the Environment (HOME)—**Measures the quality and extent of stimulation available to a child in the home environment. The HOME has separate inventories for infants and toddlers (birth to 3 years old), early childhood (ages 3 to 6), and middle childhood (ages 6 to 10). (In NSCAW, α for each subscale was less than .45 for children 2 years and younger, .41 [Emotional Support] to .71 [Physical Environment] for 3-5 year-olds, and .48 [Cognitive Stimulation] to .74 [Physical Environment] for 6- to 10-year olds.)

**Conflict Tactics Scale 1 (Parent CTS)—**A 19-item self-report measure to evaluate violence within intimate relationships. NSCAW collected the Physical Violence scale, which reports on minor and major physical aggression. (α = .55 [Physical Assault] to .70 [Nonviolent Discipline].)

**Composite International Diagnostic Interview Short Form (CIDI Combined)—**A self-report screener for presence of 8 disorders: major depression, generalized anxiety, specific phobia, social phobia, agoraphobia, panic attack, alcohol dependence, and drug dependence. Developed by the World Health Organization and adapted from the Composite International Diagnostic Interview. Only the subparts related to alcohol dependence, drug dependence, and major depression were included in NSCAW.

## Outcome

**Placement out of home—**Child welfare workers and caregiver interviews provided information about children's placement histories across the three study years. Information from child welfare worker interviews was combined to construct a complete placement history as known by the child welfare worker. The same procedure was utilized to develop a placement and living situation history from the caregiver's perspective. Child welfare workers' reports distinguished between children placed by child welfare in kinship care and children residing with relatives but not placed by child welfare. Caregiver reports did not make this distinction. Thus, information about placement was derived primarily from child welfare workers' interviews, with caregiver interviews utilized only when child welfare worker information was not available (N= 551 cases). In this report, children were identified as having been placed out of home or not between the Wave I interview and Wave IV

interview, approximately 30 months after Wave I and 36 months after the initial contact date.

**Analyses:** Analyses utilize primarily descriptive statistics to summarize key variables of interest, including: demographic characteristics, rates of service use and need among parents and families during the first 6 months after the index child welfare referral, and rates of out-of-home placement over the subsequent 30 months. Models predicting out-of-home placement between the Wave I and Wave IV interviews used logistic regression, both for the full sample as well as for the incident cases—children with no prior history of involvement with the child welfare system.

For models including the entire sample of children remaining at home, and those with no prior history of child welfare involvement, logistic models were tested in stages. Except where noted, significant bivariate predictors were included in multivariate models. Model stages included variables related to child *and maltreatment report* characteristics, parent and family characteristics, and child welfare services, as well as the caseworker's estimate of likelihood of subsequent abuse. Changes in model parameters as additional variables were entered were examined but all variables were retained. All analyses were conducted using SAS-Callable SUDAAN, version 10.0.

## Results

Baseline characteristics for the children at home at Wave I without a placement prior to the Wave I interview (N=3593 82.3% of the entire NSCAW sample) are displayed in Table 1 with the odds of being placed in out-of-home care in the 30 month follow-up by child, family and case report characteristics. Child *and maltreatment report* characteristics were largely unrelated to subsequent placement, with a few exceptions. Children for whom the most severe maltreatment type was identified as physical or sexual abuse were significantly less likely to experience an out-of-home placement compared to children initially reported with neglect as the most severe maltreatment type, while children with moderate or severe scores on the Vineland were more likely to be placed in out of home care. Although race/ethnicity was not a significant overall predictor, Black children were almost twice as likely to be placed in the follow-up period. Of note, substantiation *of the maltreatment report* was unrelated to subsequent out-of-home placement. Unlike child characteristics, several caregiver characteristics were related to out-of-home placements in the 30 months of follow-up. Specifically, lower family income, elevated scores on the Conflict Tactics Scale and any parent mental health or substance abuse problem (as indicated by the CIDI) were associated with an increased likelihood of placement, while higher HOME scores were associated with a lower likelihood of placement.

Baseline features of the case record, largely assessing family risk, were strongly related to whether a child experienced an out-of-home placement during the follow-up period. If there was documentation in the case record of prior maltreatment reports or child welfare services, then children were over 2 to over 3 times as likely to experience an out-of-home placement. Similarly, if there was documentation of considerable family risk factors, children were 2 to over 6 times more likely to experience an out of home placement, with 17.9% of children whose families had 6 or more risk factors at baseline experiencing an out-of-home placement in the follow-up period. Caseworker assessment of likelihood of re-report in the next 12 months if a family did not receive services, likewise, was related to subsequent out-of-home placement. Finally, children who were in homes at Wave I with child welfare services were more than 2 times as likely to be placed in the follow-up period.

Table 2 displays the results from the logistic regression model predicting out-of-home placement for the full sample of children who initially remained in their homes after the child welfare investigation. In Model One, which includes only the child *and maltreatment report* variables, there were no characteristics that were statistically significantly related to out-of-home placement in the 30 month follow-up period. When family factors were added (Model Two) higher income ($40,000 and above: OR=0.22; 95% CI: 0.09, 0.54) was inversely related to the likelihood of subsequent placement. Intimate partner violence (OR=1.02; 95% CI: 1.00, 1.04), and high family risk scores (4-5: OR=4.12; 95% CI; 1.69, 10.07) or very high family risk scores (6+: OR=4.70; 95% CI: 1.97, 11.23) were positively related to subsequent out-of-home placement as was prior history of maltreatment. Model Three adds receipt of child welfare services and caseworkers' estimate of likely abuse in the next 12 months to the model and shows that receipt of services was not related to the outcome nor did it change the pattern of relationships previously observed, but likelihood of subsequent abuse was. When caseworkers believed that there was a high or very high likelihood of subsequent abuse, children were 3.13 times (95% CI: 1.76, 5.57) as likely to experience an out-of-home placement during the follow-up period.

Table 3 shows the logistic regression results for the children with no prior child welfare history—incident or new cases of maltreatment investigation. A somewhat different risk picture emerged for these children. Unlike for the total sample, older children were much less likely to be placed out-of-home between Waves 1 and 4 (Model 1: ages 6-10, OR=.18; 95% CI: 0.07, 0.46; ages 11+, OR=.26; 95%CI: 0.13, 0.53). When family features were added, child's age remained predictive, as was family income. Again, a high family risk score (6+, OR=7.65; 95% CI: 2.41, 24.34) was strongly related to subsequent placement. When child welfare services were added to the model (Model 3) the pattern of risk factors did not change. Interestingly caseworkers' assessment of likelihood of re-abuse was not statistically significantly related to subsequent placement.

Given the importance of family income and family risk factors for out-of-home placement in the logistic regression results, we further explored percentages of children with out-of-home placements with different combinations of these characteristics. For children who live in families with higher incomes, low family risk scores and without child welfare services 3.4% experienced a placement in the following 30 months. This percentage increased to 6.6% for those with low income, low family risk, 4.8% for high income, high family risk scores and 17.4% for low income/high risk. For children whose families were receiving child welfare services, those who lived in high income/low risk families 4.4% experienced a placement, this increased to 8.1% for those in low income/low risk families and to 12.5% for those in high income/high risk families Among children in the highest risk category, low income/high family risk,, even with child welfare services in place 25.2% of children had a subsequent out-of-home placement. Looking just at the relationship of family risk factor scores and placement, similar relationships were seen for children whose families were and were not receiving services. Compared to children in the lowest risk families (0-1 risk) without and with child welfare services the relative risks for placements for the next risk category were 2.3 vs 2.4. The risk of being placed increased to 5.1 versus 4.8 for higher risk families (4-5 risks).

In order to further understand the lack of relationship between case worker assessments of risk and subsequent out-of-home placements among incident cases, we examined the relationship between the caseworker's assessment of likelihood of being placed and the cumulative family risk variable. The two were highly related, suggesting that caseworker assessments of risk rely heavily on their perceptions of risk factors present. For children with 0 or 1 family risk factors, caseworkers rated only 7.3% as highly or very highly likely

to experience a placement compared to 72.1% of children in families with 6 or more risk factors ($x^2=18.51$; $p<.0001$).

## Discussion

The overall rate of out-of-home placement in the 30 month follow-up was 9.4%, but with a considerable range of the percentage of children placed when children were classified by family income, number of risks indicated on the Family Risk Assessment Score and receipt of child welfare services. For children whose families were not poor, had fewer than 4 risks, and whose families were not initially thought to need services from child welfare, only 3% experienced a subsequent out-of-home placement. In contrast, 25% of children whose families were poor, with more than 3 risks and initially receiving child welfare services, experienced a placement in the follow-up period suggesting that identification of a high risk group is possible at the time of investigation. In the bivariate (unadjusted) analysis, type of maltreatment (physical and sexual abuse) was associated with lower rates of placement while substantiation was not related to placement. The higher rate of recurrence for victims of neglect is consistent with other findings from administrative data (Drake, Johnson-Reid, Way, & Chung, 2003). The lack of importance for substantiation as a marker for future placement is consistent with much of the literature on substantiation and suggests that attention needs to be focused on other features to best target services to prevent future placements (Drake, Johnson-Reid, Way, & Chung, 2003; English et al., 1999).

Family variables were strongly related to subsequent placement including income, home scores, intimate partner violence, mental health issues, prior history of maltreatment and the Family Risk Score, suggesting that families with numerous challenges need intensive, evidence-based interventions shown to be effective with multi problem families if future costly and often traumatic out-of-home placements are to be prevented (Barth et al., 2005; Chaffin & Friedrich, 2004). The fact that families receiving child welfare services more often have children who are placed (14.7% vs 7.5% for no services; $p< 001$) may be due to child welfare services being appropriately targeted to families with the greatest need, to families receiving services also having additional surveillance, or both. To determine if detection bias was a likely explanation for the relationship of child welfare services and increased likelihood of out-of-home placements, we examined the risk of placement across the levels of the family risk score for families who did and did not receive services (McMaiton & Trichopoulus, 1996). The relative risks for placement for each level of the family risk score as compared to the lowest level were similar for families who were and were not receiving services. If surveillance were making a major contribution, one might expect a stronger relationship between family risk and placement among families receiving services. The similarities in increases related to family risk suggest that subsequent placements were not due to surveillance but rather to risks in the family environment. The fact that receipt of services dropped out as a predictor when included with family risks also suggests that services are being targeted to families with higher levels of risk and that risks are a primary driver of subsequent placements.

The multivariate results (Table 2) reinforce the findings from the unadjusted (bivariate) analysis. Child variables were not related to subsequent out-of-home placement while multiple family variables were related to subsequent placement. Interestingly, although higher family income appeared to be protective, family stressors, controlling for income, were clearly related to an increased likelihood of subsequent placement. This argues against the notion that poverty alone is responsible for subsequent placement and for the need to intervene on the considerable challenges experienced by many of these families. Effective services are available to reduce the risks these families face, yet these data (only 52% of families with scores of 6 or more on the Family Risk Score received any services) document

that many families receive no services. Further, the extant literature suggests that a significant percentage of families who do receive services do not receive effective services (Barth et al., 2005;Chaffin & Friedrich, 2004;Hurlburt, Barth, Leslie, Landsverk, & McCrae, 2007). Interestingly, controlling for prior history of child welfare involvement, caseworkers' assessments of the likelihood of subsequent abuse remains predictive of subsequent placements.

The model examining first time clients to the child welfare system was somewhat different than the model for the total sample. Here child's age was predictive and confirms what has been found in previous work, that caseworkers intervene more often in younger children. As in the model including all families, income and the Family Risk Score both predicted subsequent placements while receipt of child welfare services was not related to placement controlling for both income and family stressors. Without prior history of child welfare involvement, caseworkers' assessments of the likelihood of subsequent abuse are no longer predictive of subsequent placement above and beyond other variables in the model. This finding is consistent with the Dorsey et al. (2008) results looking at subsequent report. These authors found that both the sensitivity and positive predictive power of caseworkers' assessments are low. When we examined the association between caseworkers' assessments and family risk factors among incident cases, we found that they were highly *related,* suggesting that caseworkers' assessments are, as one would expect, influenced by the information they have about risk factors present.

Thus, when case workers' assessments are utilized to make decisions about services, it would seem helpful to consider the unique added weight to give such assessments in light of whether information is already available about a systematic collection of family risks, and whether or not the family has any prior history of child welfare involvement. In some circumstances, case worker evaluations of risk are likely not to add additional information above and beyond systematic documentation of family risks, especially among families without a prior history of child welfare involvement.

## Limitations

Like all data, these have limitations. All data were derived from self reports, caseworker interviews and case records. Separate measures to triangulate on constructs were not available. Administrative records and case workers' knowledge of a family may be incomplete, leading to significant under reporting of important variables such as family risk factors. Similarly, limited time in substitute care could limit data from foster parents and social response bias could impact reports from biological parents. Ideally future studies would develop a complete profile of family risk factors using multiple sources.

## Conclusions/Practice implications

This examination of families investigated by child protective services but whose children were not removed during the first 6 months after the investigation demonstrated considerable risk in these families. The high risk for subsequent placement in out-of home care carried by this group suggests the potential for amelioration of suffering and societal cost savings if the factors that are driving these out-of-home placements could be decreased effectively. These data identified a number of factors available at the time of investigation that could be used to develop service plans for families with higher likelihood of a future out-of-home placement. Focusing on these variables rather than substantiation could help to better identify higher risk families. Ideally, the available evidence-based parenting interventions, as well as evidence-based interventions available for prevalent problems such as substance abuse, should be evaluated with families, like those in this sample, with

different levels of risk, to determine if they are effective for families with the highest likelihood of having a child removed. Assuming they are effective, widespread use by child welfare agencies could, potentially, make enormous improvements in the lives of very vulnerable children.

## Acknowledgments

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**Table 1**

Sample Characteristics, Rates of Out-of-Home Placement, and Relative Odds of Out-of-Home Placement [with 95% Confidence Intervals]

| Variable | Sample Characteristics | | Out-of-Home Placement | |
|---|---|---|---|---|
| | n=3593 Column % (se) | Row % (se) | N=3593 OR | 95% CI |
| **Child age** | | **9.4 (1.1)** | | |
| 0-2 | 18.2 (1.1) | 11.6 (1.6) | 1.00 | [1.00, 1.00] |
| 3-5 | 21.5 (1.4) | 12.0 (2.2) | 1.04 | [0.62, 1.74] |
| 6-10 | 35.8 (1.7) | 7.2 (1.8) | 0.59* | [0.34, 1.05] |
| 11+ | 24.5 (1.3) | 8.9 (1.6) | 0.74 | [0.47, 1.19] |
| **Child gender** | | **9.4 (1.1)** | | |
| Male | 50.8 (2.0) | 10.2 (1.3) | 1.20 | [0.84, 1.71] |
| Female | 49.2 (2.0) | 8.7 (1.3) | 1.00 | [1.00, 1.00] |
| **Child Race** | | **9.5 (1.1)** | | |
| Black | 26.9 (2.9) | 14.1 (2.9) | 1.90 | [1.07, 3.35] |
| White | 47.5 (3.6) | 8.0 (1.1) | 1.00 | [1.00, 1.00] |
| Hispanic | 18.5 (2.7) | 6.8 (1.8) | 0.84 | [0.44, 1.61] |
| Other | 7.0 (0.9) | 8.5 (2.9) | 1.08 | [0.50, 2.29] |
| **Maltreatment** | | **9.5 (1.1)** * | | |
| Physical/Sexual abuse | 40.4 (2.0) | 6.9 (1.1) | 0.59* | [0.39, 0.89] |
| Neglect | 49.3 (2.0) | 11.1 (1.6) | 1.00 | [1.00, 1.00] |
| Other | 10.4 (1.4) | 12.3 (4.9) | 1.12 | [0.43, 2.96] |
| **Substantiation** | | **9.5 (1.1)** | | |
| Substantiated | 29.4 (1.8) | 11.2 (1.4) | 1.30 | [[0.91, 1.85] |
| Medium risk/Not | 70.6 (1.8) | 8.8 (1.3) | 1.00 | [1.00, 1.00] |
| **Trauma** | | **9.1 (1.7)** | | |
| >=65 | 11.4 (1.6) | 12.9 (4.0) | 1.58 | [0.67, 3.74] |
| <65 | 88.6 (1.6) | 8.6 (1.8) | | [1.00, 1.00] |
| **Violence Exposure Scale (VEX)** | | | | |
| Mild + severe Witness mean(se) | 6.71 (0.27) | 8.1 (1.3) | 1.01 | [0.98, 1.05] |
| Mild + severe Victim mean(se) | 4.18 (0.17) | 8.2 (1.3) | 1.04 | [0.99, 1.10] |
| **Cognitive scores KBIT** (norm) | | **9.4 (1.3)** | | |
| Severe /Moderate | 26.4 (2.4) | 8.5 (1.9) | 0.87 | [0.50, 1.51] |
| Normal | 73.6 (2.4) | 9.7 (1.5) | 1.00 | [1.00, 1.00] |
| **Language** | | **12.6 (1.5)** | | |
| Severe /Moderate | 41.5 (2.5) | 15.4 (2.8) | 1.53 | [0.81, 2.91] |
| Normal | 58.5 (2.5) | 10.6 (2.0) | 1.00 | [1.00, 1.00] |
| **Vineland** | | **9.6 (1.2)** | | |

| Variable | Sample Characteristics | | Out-of-Home Placement | |
|---|---|---|---|---|
| | n=3593 Column % (se) | Row % (se) | N=3593 OR | 95% CI |
| Severe /Moderate | 28.6 (2.3) | 13.4(2.5) | 1.74[*] | [1.01, 3.03] |
| Normal | 71.4 (2.3) | 8.1(1.3) | | [1.00, 1.00] |
| **School Achievement** | | **8.2(1.4)** | | |
| Severe /Moderate | 39.8 (2.3) | 8.4(1.6) | 1.03 | [0.61, 1.75] |
| Normal | 60.2 (2.3) | 8.1(1.7) | 1.00 | [1.00, 1.00] |
| **CBCL total** | | **9.1(1.2)** | | |
| >=64 Clinical Range | 31.8 (1.7) | 10.9(2.2) | 1.36 | [0.82, 2.26] |
| <64 Non-Clinical Range | 68.2 (1.7) | 8.3(1.2) | 1.00 | [1.00, 1.00] |
| **Caregiver age** | | **9.4(1.0)** | | |
| <=24 | 19.6 (1.2) | 10.0(1.4) | 1.00 | [1.00, 1.00] |
| 25-34 | 44.8 (1.5) | 9.9(1.7) | 0.99 | [0.59, 1.65] |
| 35-44 | 28.4 (1.6) | 8.2(1.5) | 0.80 | [0.48, 1.32] |
| 45-54 | 6.2 (0.9) | 10.6(4.3) | 1.07 | [0.41, 2.78] |
| 55+ | 1.1 (0.3) | 4.6(2.5) | 0.43 | [0.13, 1.41] |
| **Caregiver relationship to Child** | | **9.4(1.1)** | | |
| Bio mother/father | 95.7 (0.5) | 9.3(1.1) | 1.00 | [1.00, 1.00] |
| Other care givers | 4.3 (0.5) | 12.7(4.4) | 1.42 | [0.63, 3.19] |
| **Family structure** | | **9.4(1.0)** | | |
| Two parents | 26.7 (1.4) | 9.0(2.0) | 1.00 | [1.00, 1.00] |
| Single parent | 73.3 (1.4) | 9.6(1.1) | 1.08 | [0.64, 1.80] |
| **Family income** | | **9.6(1.1)** [***] | | |
| <5K-9999 | 27.3 (1.6) | 14.2(2.3) | 1.00 | [1.00, 1.00] |
| 10K-19999 | 32.7 (1.6) | 11.3(2.3) | 0.77 | [0.41, 1.43] |
| 20K-29999 | 16.6 (1.1) | 5.5(1.3) | 0.35[***] | [0.19, 0.65] |
| 30K-39999 | 9.8 (1.1) | 7.8(2.7) | 0.51 | [0.25, 1.04 |
| 40K+ | 13.5 (1.2) | 2.3(0.6) | 0.14[***] | [0.08, 0.26] |
| **HOME score (W1)** Mean(se) | 7.18 (0.06) | 9.4(1.1) | 0.86 | [0.76, 0.98] |
| **Parent CTS** mean(se) (CTS physical assault total) | 7.56 (0.48) | 9.5(1.1) | 1.03[***] | [1.01, 1.04] |
| **Combined CIDI** | | **9.4(1.0)** [**] | | |
| Yes | 23.5 (1.4) | 14.6(2.2) | 2.02[***] | [1.34, 3.03] |
| No | 76.5 (1.4) | 7.8(1.0) | 1.00 | [1.00, 1.00] |
| **Risk assessment** | | | | |
| Prior History | | **9.3(1.0)** | | |
| 0 | 45.7 (1.9) | 5.1(0.9) | 1.00 | [1.00, 1.00] |
| 1-2 | 27.6 (1.7) | 11.1(1.9) | 2.34[**] | [1.40, 3.91] |

| Variable | Sample Characteristics | | Out-of-Home Placement | |
|---|---|---|---|---|
| | n=3593 Column % (se) | Row % (se) | N=3593 OR | 95% CI |
| 3-4 | 26.7 (1.4) | 14.8(2.4) | 3.24*** | [1.93, 5.44] |
| Family Risk Score | | 9.5(1.1) *** | | |
| 0-1 | 33.0 (1.6) | 3.4(1.1) | 1.00 | [1.00, 1.00] |
| 2-3 | 31.0 (1.5) | 7.8(1.9) | 2.39* | [1.07, 5.33] |
| 4-5 | 20.7 (1.5) | 15.8(2.8) | 5.31*** | [2.41, 11.70] |
| 6+ | 15.4 (1.1) | 17.9(2.6) | 6.16*** | [3.18, 11.95] |
| **Services** | | **9.4(1.1)** | | |
| IH No CWS | 73.4 (1.6) | 7.5(1.2) | 1.00 | [1.00, 1.00] |
| IH CWS | 26.6 (1.6) | 14.7(1.6) | 2.12*** | [1.46, 3.09] |
| **Likelihood of abuse in the next 12 months without CW services** | | **9.6(1.1)** | | |
| Low/very low | 67.4 (1.6) | 5.4(1.1) | 1.00 | [1.00, 1.00] |
| High/very high | 32.6 (1.6) | 18.2(2.4) | 3.91*** | [2.39, 6.41] |

*
p<0.05

**
p<0.01

***
p<0.001

[1]Interviews with caregivers of children in out-of-home care asked about the foster or kinship caregiver so information about caregivers is not included for this variable.

**Table 2**

Full Sample Logistic Regression Models Predicting Out-of-Home Placement Between Waves I and IV

| | Model (1) (n=3129) | | Model (2) (n=2840)[a] | | Model (3) (n=2824)[a] | |
|---|---|---|---|---|---|---|
| | OR | (95%CI) | OR | (95%CI) | OR | (95%CI) |
| **Intercept** | 0.09*** | [0.05, 0.15] | 0.03*** | [0.01, 0.09] | 0.03*** | [0.01, 0.09] |
| **Child age** | | | | | | |
| 0-2 | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 3-5 | 1.25 | [0.63, 2.49] | 0.99 | [0.48, 2.03] | 1.09 | [0.51, 2.32] |
| 6-10 | 0.71 | [0.36, 1.39] | 0.53* | [0.28, 0.97] | 0.59 | [0.32, 1.07] |
| 11+ | 0.88 | [0.46, 1.66] | 0.55 | [0.26, 1.14] | 0.58 | [0.29, 1.17] |
| **Child Race** | | | | | | |
| Black | 1.93 | [0.92, 4.04] | 1.74 | [0.79, 3.84] | 1.90 | [0.86, 4.21] |
| White | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| Hispanic | 0.72 | [0.32, 1.66] | 0.90 | [0.36, 2.27] | 0.94 | [0.39, 2.27] |
| Other | 1.07 | [0.42, 2.75] | 0.82 | [0.31, 2.15] | 0.75 | [0.27, 2.03] |
| **Maltreatment** | | | | | | |
| Physical /sexual abuse | 0.65 | [0.41, 1.05] | 0.81 | [0.50, 1.32] | 0.87 | [0.54, 1.40] |
| Neglect | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| Other | 1.30 | [0.42, 4.07] | 1.38 | [0.52, 3.65] | 1.43 | [0.53, 3.85] |
| **Substantiation** | | | | | | |
| Substantiated | 1.36 | [0.84, 2.21] | 0.85 | [0.50, 1.43] | 0.60 | [0.34, 1.05] |
| Medium risk/Not | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| **Family income** | | | | | | |
| <5K-9999 | | | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 10K-19999 | | | 0.88 | [0.47, 1.64] | 0.89 | [0.49, 1.62] |
| 20K-29999 | | | 0.51 | [0.23, 1.12] | 0.49 | [0.23, 1.06] |
| 30K-39999 | | | 0.89 | [0.31, 2.59] | 0.81 | [0.30, 2.19] |
| 40K+ | | | 0.22** | [0.09, 0.54] | 0.24*** | [0.10, 0.54] |

|  | Model (1) (n= 3129) | | Model (2) (n= 2840)[a] | | Model (3) (n=2824)[a] | |
|---|---|---|---|---|---|---|
|  | OR | (95%CI) | OR | (95%CI) | OR | (95%CI) |
| **CTS Physical Assault Total** |  |  | 1.02* | [1.00, 1.04] | 1.02* | [1.00, 1.04] |
| **Combined CIDI** |  |  |  |  |  |  |
| Yes |  |  | 1.47 | [0.85, 2.54] | 1.36 | [0.80, 2.31] |
| No |  |  | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| Prior History |  |  |  |  |  |  |
| 0 |  |  | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 1-2 |  |  | 2.18* | [1.16, 4.09] | 1.90* | [1.00, 3.60] |
| 3-4 |  |  | 2.52** | [1.31, 4.85] | 1.73 | [0.93, 3.24] |
| **Family Risk Score** |  |  |  |  |  |  |
| 0-1 |  |  | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 2-3 |  |  | 1.73 | [0.68, 4.38] | 1.33 | [0.56, 3.17] |
| 4-5 |  |  | 4.12** | [1.69, 10.07] | 2.45* | [1.07, 5.60] |
| 6+ |  |  | 4.70*** | [1.97, 11.23] | 2.53* | [1.07, 6.01] |
| **Service** |  |  |  |  |  |  |
| IH no CWS |  |  |  |  | 1.00 | [1.00, 1.00] |
| IH CWS |  |  |  |  | 1.24 | [0.71, 2.15] |
| **Likelihood of abuse in the next 12 months without CW services** |  |  |  |  |  |  |
| Low/very low |  |  |  |  | 1.00 | [1.00, 1.00] |
| High/very high |  |  |  |  | 3.13*** | [1.76, 5.57] |

*
p<0.05

**
p<0.01

***
p<0.001

[a]Sample size changes from Model 1 to Model 2 because some of the variables in Model 2 come from parent interviews and some parents were unavailable or refused to be interviewed. All variables in Model 1 come from the case record. The small decrease from Model 2 to Model 3 is due to missing data on the caseworker's estimate of abuse in the subsequent 12 months if the family receives no services.

**Table 3**

Logistic Regression Models Predicting Out-of-Home Placement Between Waves I and IV for children with no prior child welfare history

| | Model (1) (n= 1435) | | Model (2) (n=1299) | | Model (3) (n=1291) | |
|---|---|---|---|---|---|---|
| | OR | (95%CI) | OR | (95%CI) | OR | (95%CI) |
| **Intercept** | 0.08*** | [0.04, 0.17] | 0.07*** | [0.02, 0.30] | 0.06**** | [0.01, 0.28] |
| **Child age** | | | | | | |
| 0-2 | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 3-5 | 0.56 | [0.18, 1.75] | 0.65 | [0.18, 2.42] | 0.67 | [0.17, 2.74] |
| 6-10 | 0.18*** | [0.07, 0.46] | 0.22** | [0.08, 0.62] | 0.27** | [0.10, 0.72] |
| 11+ | 0.26*** | [0.13, 0.53] | 0.30** | [0.12, 0.73] | 0.33* | [0.14, 0.76] |
| **Child Race** | | | | | | |
| Black | 1.16 | [0.54, 2.53] | 1.08 | [0.31, 3.71] | 1.08 | [0.32, 3.64] |
| White | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| Hispanic | 0.72 | [0.28, 1.86] | 0.72 | [0.23, 2.21] | 0.76 | [0.24, 2.42] |
| Other | 2.84 | [0.87, 9.28] | 1.70 | [0.47, 6.14] | 1.29 | [0.39, 4.31] |
| **Maltreatment** | | | | | | |
| Physical /sexual abuse | 0.83 | [0.41, 1.66] | 1.25 | [0.57, 2.72] | 1.20 | [0.55, 2.61] |
| Neglect | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| Other | 2.27 | [1.04, 4.96] | 2.75 | [1.19, 6.40] | 2.45 | [1.02, 5.87] |
| **Substantiation** | | | | | | |
| Substantiated | 1.51 | [0.79, 2.86] | 0.80 | [0.38, 1.69] | 0.49 | [0.19, 1.29] |
| Medium risk/Not | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| **Family income** | | | | | | |
| <5K-9999 | | | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 10K-19999 | | | 0.41* | [0.18, 0.94] | 0.41* | [0.18, 0.94] |
| 20K-29999 | | | 0.18** | [0.07, 0.49] | 0.18*** | [0.07, 0.45] |
| 30K-39999 | | | 0.55 | [0.07, 4.10] | 0.52 | [0.07, 3.84] |
| 40K+ | | | 0.20* | [0.05, 0.75] | 0.21* | [0.06, 0.78] |

|  | Model (1) (n=1435) | | Model (2) (n=1299) | | Model (3) (n=1291) | |
|---|---|---|---|---|---|---|
|  | OR | (95%CI) | OR | (95%CI) | OR | (95%CI) |
| **CTS Physical Assault Total** |  |  | 1.01 | [0.97, 1.05] | 1.01 | [0.97, 1.05] |
| **Combined CIDI** |  |  |  |  |  |  |
| Yes |  |  | 1.29 | [0.54, 3.09] | 1.13 | [0.51, 2.53] |
| No |  |  | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| **Family Risk Score** |  |  |  |  |  |  |
| 0-1 |  |  | 1.00 | [1.00, 1.00] | 1.00 | [1.00, 1.00] |
| 2-3 |  |  | 1.33 | [0.39, 4.55] | 1.29 | [0.37, 4.47] |
| 4-5 |  |  | 3.46 | [1.00, 12.01] | 2.55 | [0.84, 7.72] |
| 6+ |  |  | 7.65*** | [2.41, 24.34] | 4.66** | [1.58, 13.72] |
| **Service** |  |  |  |  |  |  |
| IH no CWS |  |  |  |  | 1.00 | [1.00, 1.00] |
| IH CWS |  |  |  |  | 2.08 | [0.98, 4.44] |
| **Likelihood of abuse in the next 12 months without CW services** |  |  |  |  |  |  |
| Low/very low |  |  |  |  | 1.00 | [1.00, 1.00] |
| High/very high |  |  |  |  | 2.10 | [0.84, 5.27] |

*
p<0.05

**
p<0.01

***
p<0.001

[a]
same as Table 2