ARTICLE

# Resolution of Intimate Partner Violence and Child Behavior Problems After Investigation for Suspected Child Maltreatment

*Kristine A. Campbell, MD, MSc; Andrea M. Thomas, MS; Lawrence J. Cook, PhD; Heather T. Keenan, MDCM, PhD*

**Objective:** To describe longitudinal change in child behavior problems associated with resolution of intimate partner violence (IPV) after an investigation for suspected child maltreatment.

**Design:** Retrospective cohort study.

**Setting:** The National Survey of Child and Adolescent Well-Being, a nationally representative longitudinal sample of US households investigated for suspected child maltreatment.

**Participants:** The study included 320 school-aged subjects with caregiver-reported IPV in the year prior to baseline interview. Caregivers were interviewed an average of 3, 20, 36, and 81 months following investigation.

**Main Exposure:** Resolution vs persistence of baseline IPV. Persistence was defined by report of IPV during any follow-up interview.

**Main Outcome Measures:** Clinically significant internalizing or externalizing child behavior problems.

**Results:** In total, 44.6% of caregivers who reported IPV at the baseline interview reported persistent IPV. After adjusting for significant covariates, IPV resolution was associated with an 11.9% reduction in internalizing problems by 81 months ($P=.03$); IPV persistence was associated with persistence in baseline problems. Resolution of IPV was associated with an 18.5% reduction in externalizing problems by 20 months that was sustained at 36 and 81 months (all $P<.05$). Intimate partner violence persistence was associated with a steady but nonsignificant increase in externalizing behavior problems during 81 months (10.1%, $P=.07$). The adjusted relative risks for internalizing and externalizing behavior problems 81 months following a child protective services investigation for children exposed to persistent vs resolved IPV were 1.79 (95% CI, 0.91-3.52) and 1.88 (95% CI, 1.12-3.18), respectively.

**Conclusions:** Resolution of IPV after a child protective services investigation for suspected child maltreatment is associated with meaningful, sustained reductions in clinically significant child behavior problems.

*JAMA Pediatr. 2013;167(3):236-242.*
*Published online January 14, 2013.*
*doi:10.1001/2013.jamapediatrics.324*

INTIMATE PARTNER VIOLENCE (IPV) is a common reality for many families in the United States. More than 1 in 20 women experience some form of IPV annually, and more than 1 in 20 children witness IPV in their homes every year.[1,2] The prevalence of IPV in households involved with child protective services (CPS) may be 6-fold higher, with a third of these households reporting IPV in the 12 months preceding CPS investigation.[3,4]

As with children who experience maltreatment, children who witness IPV have a high risk for behavioral and mental health problems.[5-8] Prior authors have described a so-called "double-whammy effect" for children who experience maltreatment and witness IPV, with outcomes significantly worse than those described in children living with maltreatment or IPV alone.[9,10] However, it is unknown whether resolution of IPV in a home can change the negative outcomes commonly described for children living with family violence. Evidence that resolution of IPV could result in meaningful improvements in child outcomes would strengthen and support the efforts of CPS caseworkers, mental health providers, and pediatricians to identify and address this issue.[11-14]

*For editorial comment see page 299*

The goal of this study is to examine the association between resolution of IPV and child behavior problems in a nationally representative sample of households investigated by CPS for suspected maltreatment. Our hypotheses are that resolution

**Author Affiliations:** Intermountain Injury Control and Research Center (Dr Campbell) and Department of Pediatrics (Drs Cook and Keenan and Ms Thomas), University of Utah, Salt Lake City.



©2013 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

of IPV after a CPS investigation is associated with reduction of child behavior problems over time and that persistence of IPV is associated with persistence of child behavior problems over time.

## METHODS

### DESIGN AND DATA SOURCE

This retrospective cohort study included children with a recent CPS investigation for suspected maltreatment and a primary caregiver with a report of IPV in the preceding 12 months.

We drew our study population from the CPS component of the National Survey of Child and Adolescent Well-Being (NSCAW). The CPS component of the NSCAW is a longitudinal sample of 5501 children aged 0 to 14 years followed up prospectively after a CPS investigation for suspected abuse or neglect between October 1999 and December 2000. The National Survey of Child and Adolescent Well-Being selected 8961 subjects from 92 social service agencies in 36 US states, using a sampling strategy to provide national estimates of characteristics of the children and families involved with CPS.[15] Of this sample, 1151 (13%) could not be contacted, 1014 were ineligible (11%), and 1028 (11%) refused to participate.[16] The National Survey of Child and Adolescent Well-Being conducted face-to-face interviews with consenting participants in 4 waves between 1999 and 2007. Audio computer-assisted self interview was used to collect sensitive data regarding IPV, mental health, substance abuse, and corporal punishment. Study-developed probabilistic weights allowed national estimates to be generated for selected subpopulations within and across survey waves.[17]

Data from NSCAW were made available by the National Data Archive on Child Abuse and Neglect, Cornell University, Ithaca, New York, and are used with Archive permission. The University of Utah institutional review board granted approval for analysis of NSCAW data.

### STUDY POPULATION

We restricted the NSCAW sample to subjects with interview data from each NSCAW wave (n=3802, unweighted). We excluded children younger than 2 years of age at the baseline interview or older than 18 years of age at the final interview as the child behavior measure used for this analysis was not collected for these children (n=1763). Within this eligible sample, we identified a cohort of children with a permanent primary caregiver who reported IPV in the 12 months prior to the baseline interview (n=389). Finally, we excluded children in out-of-home placements at any interview, as NSCAW collected IPV data only from permanent caregivers (n=320). On average, NSCAW interviewed these caregivers at 3, 20, 36, and 81 months following CPS investigation. This subsample represented approximately 12.6% (approximately 295 051) of all CPS-involved children during the study.

### EXPOSURE

The exposure of interest was persistent IPV after a CPS investigation for suspected child maltreatment. Children with caregivers who reported IPV at any of the following NSCAW interviews were defined as having persistent IPV (exposed). Children with caregivers with no report of IPV at any of the following NSCAW interviews were defined as having resolved IPV (unexposed).

The NSCAW used the Conflict Tactics Scale 1 to measure caregiver-reported IPV in households with a CPS investigation for suspected child maltreatment. The Conflict Tactics Scale 1 captures 12-month prevalence of physical violence between partners, including minor (pushing, shoving, or slapping) and severe (choking, beating, or threatening with weapons) forms of violence.[16] At each point, we defined the presence of IPV as any positive response on the Conflict Tactics Scale 1 physical violence subscale.

### OUTCOMES

We defined the outcome as the presence of a clinically significant behavioral problem at each interview. We modeled internalizing (shy, depressive, or withdrawn) and externalizing (aggressive or oppositional) behavior problems controlling for IPV exposure.

The National Survey of Child and Adolescent Well-Being administered the Child Behavioral Checklist (CBCL) to caregivers of children between 2 years and 18 years of age at each interview. The CBCL is a measure of behavioral problems in children with both research and clinical applications. Raw CBCL scores are normed on age and sex to provide a standardized T score. T scores greater than 63 are observed in less than 10% of a normative sample and reflect clinically significant behavior problems.[18,19]

### COVARIATES

Intimate partner violence and child maltreatment are associated with a range of characteristics that may modify or explain any observed associations between IPV persistence and child behavior problems over time. For our analysis, we defined covariates as demographics, risk factors, and CPS case information potentially associated with our primary exposure (IPV) or outcomes (child behavior problems) (eTable, http://www.jamapeds.com).

### MISSING DATA

There are 3 levels of missing data in the NSCAW data set: wave-based nonresponse (missing owing to subject drop-out), design-based nonresponse (missing owing to a priori study design), and item-based nonresponse (missing owing to subject choice or study error). We selected probability weights developed by NSCAW investigators for subjects interviewed across all waves to adjust for wave-based nonresponse.[17] We identified our study sample to address possible limitations associated with NSCAW's design-based nonresponse.

Item-based nonresponse was rare in our sample. Exposure data (persistent vs resolved IPV over all surveys) were missing in 6 of 320 study subjects (1.9%). Outcome data (internalizing and externalizing behavior problems) were missing in none of the 320 subjects at the 3-month, 20-month, and 36-month surveys and in 1 subject (0.3%) at the 81-month survey.

### ANALYSIS

We compared baseline demographics, risk factors, and CPS case information for our study population to the full NSCAW population to identify differences between our study population and other CPS-involved families. We conducted bivariate analyses of demographics, risk factors, and CPS case information for children in our study population based on the IPV persistence after CPS involvement. Finally, we examined bivariate associations between these same variables and baseline internalizing and externalizing behavior problems in our study population.

Covariates associated with IPV persistence after CPS involvement or with baseline child behavior problems were



©2013 American Medical Association. All rights reserved.

Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

included in both multivariable models ($P < .10$ in bivariate comparisons). In addition, each model included our exposure variable (resolved vs persistent IPV), a categorical time variable (3, 20, 36, or 81 months since CPS investigation), and an interaction between IPV persistence and time since CPS investigation. With each model, we determined the adjusted probabilities for internalizing or externalizing behavior problems at each point and compared changes in these probabilities over time.[20] At each of these points, we calculated adjusted risk ratios (ARRs) to compare the relative risk for clinically significant behavior problems in children living in households with persistent IPV with children in households with resolved IPV.[21]

Finally, we conducted exploratory bivariate analyses of IPV and mental health referrals and resources provided by investigative CPS caseworkers and the services used by caregivers to examine factors associated with resolution of IPV following CPS investigation.

All analyses were conducted with the survey analysis package in STATA version 12.0 (Statacorp), using subpopulation commands and NSCAW-developed probability weights to assure appropriate probability weighting for our study population. This provides robust standard errors to account for stratification, clustering, and weighting in the NSCAW sampling design. Using this approach, our results provide a national estimate of the experiences of CPS-involved children with caregiver-reported IPV present in the home in the year preceding CPS investigation.[17]

## RESULTS

### SUBJECTS

Children in the study population were younger than the excluded NSCAW population (6.2 vs 7.6 years, $P < .01$) but were similar in sex, race, ethnicity, and baseline behavioral problems. Similarly, caregivers in the study population were younger than caregivers in the excluded population (30.3 vs 34.3 years, $P < .01$). All primary caregivers in our study population were female (maternal) caregivers compared with 10.1% of male caregivers in the excluded population ($P < .01$). These women were more likely to have baseline depression (41.5% vs 25.2%, $P < .01$), acknowledge drug and/or alcohol abuse (8.8% vs 3.4%, $P = .01$), or use corporal punishment (84.3% vs 66.2%, $P < .01$) compared with caregivers in the excluded population. There were no significant differences in CPS case characteristics between the study and excluded populations.

### PERSISTENCE OF IPV EXPOSURE AFTER A CPS INVESTIGATION

Almost half of caregivers (44.6%) who identified recent IPV at the baseline interview reported persistent IPV during at least 1 follow-up interview. Although 55.7% of caregivers with persistent IPV reported IPV at only 1 other interview, 31.1% reported IPV at 2 interviews and 13.2% reported IPV at every interview.

### BASELINE DEMOGRAPHICS, RISK FACTORS, AND CPS INVOLVEMENT

Children with persistent IPV exposure were younger (65.8% vs 39.6% were < 6 years of age, $P < .01$) and less likely to be Hispanic (9.0% vs 22.1%, $P = .04$) compared with those with resolution of baseline IPV. Persistence of IPV was more common for partnered caregivers (62.3% vs 44.5%, $P = .09$) and caregivers with drug or alcohol dependence (80.4% vs 42.6%, $P < .01$) (**Table 1**).

Internalizing child behavior problems were present in 18.9% of the study population. They were more common in boys than girls (29.0% vs 13.9%, $P = .05$) and in children of non-Hispanic ethnicity (24.5% vs 5.8%, $P < .01$). Caregiver report of more severe IPV at baseline (eg, being choked, beaten, or threatened with a knife or gun) was associated with increased prevalence of internalizing child behavior problems (26.9% vs 14.0%, $P = .08$).

Externalizing child behavior problems were present in 32.3% of the population. They were more common in white children (39.4% vs 25.1%, $P = .09$) and children with depressed caregivers at baseline (46.4% vs 23.2%, $P = .02$). Children with caregivers aged 30 years to 39 years had more externalizing behavior problems than those with either younger or older caregivers (46.6% vs 15.0% and 27.7%, respectively; $P = .07$). Finally, children with prior CPS investigations were more likely to have baseline externalizing behavior problems than those with no prior investigation (69.6% vs 43.3%, $P = .02$).

Baseline internalizing or externalizing behavior problems were similar for children with resolved vs persistent IPV (20.0% vs 26.3%, $P = .47$; and 37.9% vs 32.5%, $P = .64$, respectively). The presence of internalizing or externalizing behavior problems at baseline significantly predicted the same behavior problem at each subsequent wave ($P < .01$ for all comparisons).

### MULTIVARIABLE MODELS

We developed 2 multivariable logistic regression models to describe the pattern of internalizing or externalizing behavior problems at each survey point based on the pattern of IPV exposure after CPS investigation. Baseline covariates associated with IPV persistence (child age and race/ethnicity; caregiver partner status and substance abuse) or child behavior problems (child sex, caregiver age, caregiver depression status, IPV severity, and baseline behavior problems) were included in each model. Adjusted probabilities and ARRs were calculated for each outcome over time (**Table 2**).

Eighty-one months after CPS involvement, children living with caregivers who reported IPV resolution had a significant reduction in the adjusted probability of internalizing child behavior problems (−11.9%; $P = .03$; **Figure 1**). In contrast, children living with caregivers reporting persistence of IPV had persistence in internalizing behavior problems (+2.8%, $P = .60$). At 81 months, the ARR for internalizing behavior problems of children with persistent vs resolved IPV was 1.79 (95% CI, 0.91-3.52).

A significant reduction in the adjusted probability of externalizing behavior problems associated with IPV reso-



©2013 American Medical Association. All rights reserved.

Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

**Table 1. Estimates of Baseline Demographics, Risk Factors, and CPS Case Characteristics in Children With And Without Persistent IPV Exposure After CPS Involvement**

| | % (95% CI) | |
|---|---|---|
| | Resolved IPV (n = 131)[a,b] | Persistent IPV (n = 183)[a,b] |
| Estimated population | | |
| Sample size | 154 458 | 124 554 |
| Proportion | 55.7 (46.1-64.6) | 44.6 (35.4-53.9) |
| Child | | |
| Female[c] | 52.1 (34.7-69.4) | 51.4 (37.5-65.2) |
| Age, 2-5 y[c] | 39.6 (45.8-74.8)[d] | 65.8 (54.6-77.0)[d] |
| Minority race[c] | 40.2 (24.0-56.4) | 38.7 (25.0-52.4) |
| Hispanic[c] | 22.1 (6.8-37.3)[d] | 9.0 (2.8-15.1)[d] |
| Internalizing behavior problem[e] | 20.0 (8.2-31.8) | 26.2 (13.1-39.2) |
| Externalizing behavior problem[f] | 37.9 (19.8-56.1) | 32.5 (17.8-47.2) |
| Caregiver | | |
| Female | 100 | 100 |
| Age, y | | |
| <30[c] | 51.8 (35.8-67.9) | 58.4 (45.9-70.9) |
| 30-39[c] | 37.3 (23.1-51.5) | 35.1 (22.0-48.3) |
| ≥40[c] | 10.8 (1.5-20.2) | 6.4 (1.5-11.2) |
| No high school diploma | 22.4 (10.1-34.8) | 25.8 (14.5-37.1) |
| Partnered[c] | 44.5 (26.7-62.2) | 62.3 (50.0-74.6) |
| Living in poverty | 54.0 (38.2-69.7) | 55.7 (41.5-69.8) |
| Low social support | 33.2 (17.5-49.1) | 33.2 (17.5-49.1) |
| Depression[c] | 44.4 (26.3-62.5) | 40.7 (26.6-54.8) |
| Drug or alcohol dependence[c] | 3.4 (0-7.2)[d] | 16.2 (5.3-27.1)[d] |
| Corporal punishment | 83.6 (72.0-95.1) | 88.0 (80.1-95.9) |
| Severe IPV (eg, being choked, beaten, threatened with a knife or gun)[c] | 62.8 (48.8-76.8) | 60.8 (48.3-73.2) |
| CPS case characteristic | | |
| Prior CPS investigation[c] | 53.2 (36.5-69.8) | 48.3 (36.3-60.3) |
| Maltreatment type | | |
| Physical abuse | 23.9 (10.7-37.1) | 23.8 (9.9-37.7) |
| Sexual abuse | 16.1 (4.9-27.3) | 7.9 (2.2-13.7) |
| Neglect | 37.9 (20.1-55.6) | 48.4 (35.7-61.0) |
| Substantiated | 39.9 (23.3-56.6) | 35.0 (23.4-46.6) |
| Postinvestigation services[g] | 53.1 (37.9-68.3) | 38.9 (28.1-49.7) |

Abbreviations: CPS, child protective services; IPV, intimate partner violence.

[a] All subjects had report of recent IPV at baseline interview (3 months after CPS investigation). Resolved IPV indicates no caregiver-reported IPV at 20-month, 36-month, and 81-month interviews; persistent IPV reflects caregiver-reported IPV during at least 1 of these interviews.

[b] Raw sample numbers are provided only for reference. The estimated proportion is the weighted proportion of all US children with caregiver-reported IPV around the time of CPS investigation and is calculated using National Survey of Child and Adolescent Well-Being–developed probability weights to account for oversampling and nonresponse.

[c] Included in all multivariable models based on association ($P < .10$) with IPV resolution (child age and ethnicity; caregiver substance abuse and partner status), internalizing behavior problems (child sex), or externalizing behavior problems (use of corporal punishment).

[d] Significant difference ($P < .05$) based on persistence of IPV.

[e] Baseline internalizing behavior problems included in multivariable model for internalizing behavior problems.

[f] Baseline externalizing behavior problems included in multivariable model for externalizing behavior problems.

[g] CPS caseworker reported that "[r]egardless of the outcome of the investigation, services have been provided to or arranged for the family."

lution was seen by 20 months (−18.5%, $P < .01$) after CPS involvement in the home (**Figure 2**). This reduction was sustained at 36 and 81 months (−16.2% and −15.2%, respectively; all $P < .05$). Persistence of IPV was associated with persistence of externalizing behavior problems at 20 months (+2.2%, $P = .42$) and 36 months (+4.5%, $P = .24$) after CPS involvement, and with a nonsignificant increase after 81 months (+10.1%, $P = .07$). The ARRs for externalizing behavior problems in children with persistent vs resolved IPV were 1.80 (95% CI, 1.15-2.80), 1.72 (95% CI, 1.10-2.68), and 1.88 (95% CI, 1.12-3.18) at 20, 36, and 81 months following CPS involvement, respectively.

## RESOURCES AND REFERRALS ASSOCIATED WITH IPV RESOLUTION

At baseline, 291 of 320 caseworkers in our study sample were asked about any services that they provided, arranged for, or referred caregivers to as part of CPS involvement in the home. Although all caregivers in the study sample reported recent IPV in the baseline NSCAW survey, only 11.5% were referred to IPV services by caseworkers. One-quarter of caregivers (25.9%) were referred to mental health services by caseworkers. Caregivers with resolved IPV were more likely to have been referred for IPV services (17.4% vs 6.0%, $P = .01$) or men-



©2013 American Medical Association. All rights reserved.

Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

**Table 2. Adjusted Probability and Adjusted Risk Ratio for Clinically Significant Child Behavior Problem Based on Persistence of Caregiver-Reported IPV[a]**

| | Time Since CPS Investigation, mo | | | |
|---|---|---|---|---|
| | 3 | 20 | 36 | 81 |
| | **Internalizing Behavior Problem, % (95% CI)** | | | |
| Persistent IPV | 21.6 (11.4-31.8) | 24.2 (13.9-34.5) | 22.8 (12.3-33.4) | 24.4 (13.4-35.4) |
| Resolved IPV | 25.5 (15.5-35.5) | 20.9 (5.1-36.6) | 17.2 (5.5-28.8) | 13.6 (3.7-23.5)[b] |
| Adjusted risk ratio (95% CI) | 0.84 (0.61-1.18) | 1.16 (0.61-2.19) | 1.33 (0.74-2.39) | 1.79 (0.91-3.52) |
| | **Externalizing Behavior Problem, % (95% CI)** | | | |
| Persistent IPV | 35.1 (22.5-47.7) | 37.3 (25.0-49.6) | 39.6 (25.4-53.8) | 45.2 (31.8-58.7) |
| Resolved IPV | 39.2 (25.3-53.1) | 20.7 (10.0-31.5)[b] | 23.0 (12.0-34.0)[b] | 24.0 (10.3-37.7)[b] |
| Adjusted risk ratio (95% CI) | 0.89 (0.75-1.07) | 1.80 (1.15-2.80)[c] | 1.72 (1.10-2.68)[c] | 1.88 (1.11-3.18)[c] |

Abbreviations: CPS, child protective services; IPV, intimate partner violence.
[a] All results adjusted for baseline measures of child age, sex, minority race and ethnicity; caregiver age, partner status, depression, and substance abuse; prior CPS investigations; IPV severity; and preexisting internalizing or externalizing child behavior problems.
[b] Significant difference from baseline probability ($P < .05$).
[c] Elevated risk for behavior problems in children exposed to persistent IPV (95% CI does not cross 1.0).

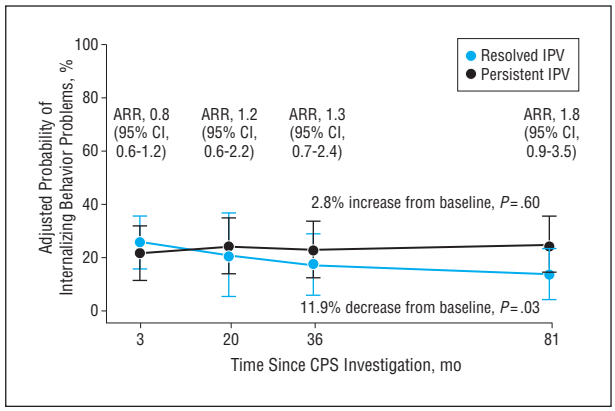


**Figure 1.** Adjusted probability and adjusted risk ratios (ARRs) of clinically significant internalizing child behavior problems after a child protective services (CPS) investigation for suspected child maltreatment among children with and without persistence of caregiver-reported intimate partner violence (IPV). The numbers along the top indicate the ARRs (95% CIs) for persistent vs resolved IPV.

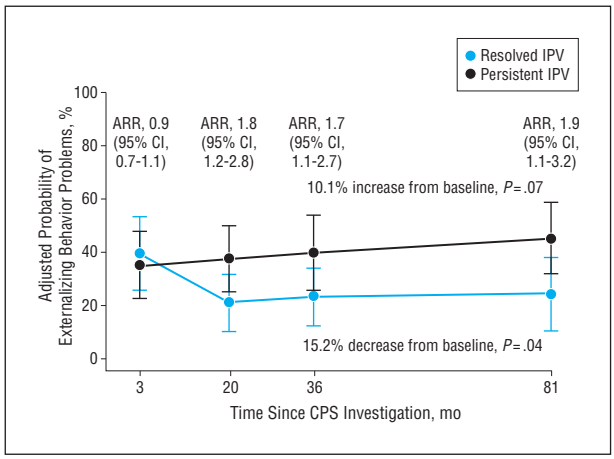


**Figure 2.** Adjusted probability and adjusted risk ratios (ARRs) of clinically significant externalizing child behavior problems after a child protective services (CPS) investigation for suspected child maltreatment among children with and without persistence of caregiver-reported intimate partner violence (IPV). The numbers along the top indicate the ARRs (95% CIs) for persistent vs resolved IPV.

tal health services (39.2% vs 12.7%, $P < .001$) by CPS caseworkers. Although caregiver use of IPV services after CPS involvement was more common among women with IPV resolution, this difference was not statistically significant (23.0% vs 14.3%, $P = .30$). Accessing mental health services was significantly more common among caregivers with IPV resolution (15.0% vs 4.4%, $P = .02$).

## COMMENT

In the past 2 decades, researchers have described negative long-term physical and behavioral outcomes associated with a range of adverse childhood experiences.[22-26] Repeated studies have identified behavioral problems seen in children exposed to both child maltreatment and IPV.[6,7,9,10] This study finds that children with recent exposure to both suspected child maltreatment and IPV have high rates of serious behavioral problems and that resolution of IPV is associated with a clinically and statistically significant reduction in the prevalence of these behavioral problems over time. To our knowledge, this is the first study to examine the reversibility of outcomes associated with adverse experiences in childhood without explicit mental health interventions.

Our results are consistent with prior research suggesting that a CPS investigation does not routinely result in referrals to or engagement with needed services.[27-29] In this nationally representative sample, just 11.5% of women who identified recent IPV in the home were referred for IPV services; only 25.9% were referred for mental health services. However, it is important to note that women who received referrals and women who accessed services were more likely to report resolution of IPV over time.

In contrast with prior research in a general medical setting, our results support broad screening and referral for IPV in households with a history of CPS involvement.[13,30] Pediatricians working with these high-risk families may be able to support long-term improvements for children exposed to violence and abuse by providing caregivers with information and resources that promote vio-



©2013 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

lence-free homes. Collaboration with community mental health providers and IPV resources may strengthen these efforts.

The findings presented must be interpreted in the context of important limitations. As a retrospective analysis of a secondary database, we cannot assume a causal relationship between resolution of IPV and reduction in child behavior problems after CPS involvement in the home. We used multivariable modeling to adjust for recognized covariates significantly associated with our outcome and exposure variables, but we acknowledge the possibility that unmeasured covariates may modify or explain the relationship between IPV resolution and child behavior problems.

Our results cannot be generalized to very young children involved with CPS or children removed from the home during or after CPS involvement. Although prior research has described trauma symptoms in infants exposed to IPV, NSCAW does not have comparable measures of child behavior problems for children younger than 2 years of age at baseline.[31] The NSCAW interviewers did not measure IPV exposure in out-of-home settings, limiting our analysis to those children remaining in the home at all contact points. The experiences of these populations may be different from the population presented in this study.

The timing of the NSCAW interviews introduces limitations. Baseline interviews occurred an average of 3 months following CPS involvement and may not reflect the reality of a household at the time of CPS involvement. As such, our findings may be most relevant for pediatricians and other professionals who continue to work with families after a CPS investigation. At subsequent interviews, caregivers were asked to report IPV for the 12 months prior to each interview, which may have resulted in misclassification of some children. It is likely that this misclassification would lead to an underestimate of the effects of IPV resolution on child behavior problems.

We relied on caregiver-reported child behavior problems for our primary outcome. Although the parent-report CBCL is a common measure of behavior problems, prior research suggests that caregiver perception of behavior problems may be biased in the context of IPV.[32] It is possible that the observed persistence of child behavior problems reflects, to some extent, caregiver distress in the setting of ongoing IPV. Future studies should include both child self-report and outside observations to confirm these findings. Despite this limitation, maternal perception of a child's behavior problems, biased or not, is a meaningful outcome for children living in these households.

Finally, we recognize that the NSCAW data set does not reflect important changes to CPS policies that have occurred in the 12 years since these data were collected. Increased attention to the role of IPV in child and family outcomes has undoubtedly improved CPS identification and response to IPV during investigations for suspected child maltreatment.[12,33] We believe that the primary findings of our study support these efforts.

Despite these limitations, we believe that this study has meaningful implications for professionals working with children and families. Researchers across disciplines must collaborate to evaluate the effectiveness and efficacy of interventions for families living within the intersecting worlds of child maltreatment and IPV. Child protective service caseworkers should continue to be encouraged to identify IPV during CPS investigations and be supported in efforts to provide referrals and services to caregivers reporting a history of IPV.[12] Finally, pediatricians must recognize the potential to improve outcomes for children with a history of CPS involvement and play an active role in providing education and resources to these high-risk families.

**Accepted for Publication:** August 13, 2012.
**Published Online:** January 14, 2013. doi:10.1001/2013.jamapediatrics.324
**Correspondence:** Kristine A. Campbell, MD, MSc, University of Utah, Department of Pediatrics, Intermountain Injury Control and Research Center, PO Box 581289, 295 Chipeta Way, Salt Lake City, UT 84158 (kristine.campbell@hsc.utah.edu).
**Author Contributions:** Dr Campbell had full access to the data and takes responsibility for the accuracy of the data analysis. *Study concept and design:* Campbell, Thomas, Cook, and Keenan. *Acquisition of data:* Campbell. *Analysis and interpretation of data:* Campbell, Thomas, Cook, and Keenan. *Drafting of the manuscript:* Campbell and Thomas. *Critical revision of the manuscript for important intellectual content:* Campbell, Thomas, Cook, and Keenan. *Statistical analysis:* Campbell, Thomas, and Cook. *Obtained funding:* Campbell. *Administrative, technical, and material support:* Thomas. *Study supervision:* Keenan.
**Conflict of Interest Disclosures:** Dr Campbell's work is supported by Mentored Career Development Award 5K23HD59850 from the National Institute of Child Health and Human Development.
**Online-Only Material:** The eTable is available at http://www.jamapeds.com.
**Additional Contributions:** The National Survey of Child and Adolescent Well-Being data were made available by the National Data Archive on Child Abuse and Neglect, Cornell University, Ithaca, New York, and are used with Archive permission.

## REFERENCES

1. Black MC, Basile KC, Breiding MJ, et al. *The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report.* Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2011.
2. Finkelhor D, Turner H, Ormrod R, Hamby SL. Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics.* 2009;124(5):1411-1423.
3. Hazen AL, Connelly CD, Kelleher KJ, Barth RP, Landsverk JA. Female caregivers' experiences with intimate partner violence and behavior problems in children investigated as victims of maltreatment. *Pediatrics.* 2006;117(1):99-109.
4. Hamby S, Finkelhor D, Turner H, Ormrod R. The overlap of witnessing partner violence with child maltreatment and other victimizations in a nationally representative survey of youth. *Child Abuse Negl.* 2010;34(10):734-741.
5. Bair-Merritt MH, Blackstone M, Feudtner C. Physical health outcomes of childhood exposure to intimate partner violence: a systematic review. *Pediatrics.* 2006;117(2):e278-e290.
6. Evans SE, Davies C, DiLillo D. Exposure to domestic violence: a meta-analysis of child and adolescent outcomes. *Aggress Violent Behav.* 2008;13(2):131-140. doi:10.1016/j.avb.2008.02.005.



©2013 American Medical Association. All rights reserved.
Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016

7. Kitzmann KM, Gaylord NK, Holt AR, Kenny ED. Child witnesses to domestic violence: a meta-analytic review. *J Consult Clin Psychol*. 2003;71(2):339-352.
8. Rivara FP, Anderson ML, Fishman P, et al. Intimate partner violence and health care costs and utilization for children living in the home. *Pediatrics*. 2007;120 (6):1270-1277.
9. Sternberg KJ, Baradaran LP, Abbott CB, Lamb ME, Guterman E. Type of violence, age, and gender differences in the effects of family violence on children's behavior problems: a mega-analysis. *Dev Rev*. 2006;26(1):89-112. doi:10.1016 /j.dr.2005.12.001.
10. Kernic MA, Wolf ME, Holt VL, McKnight B, Huebner CE, Rivara FP. Behavioral problems among children whose mothers are abused by an intimate partner. *Child Abuse Negl*. 2003;27(11):1231-1246.
11. Bair-Merritt MH. Intimate partner violence. *Pediatr Rev*. 2010;31(4):145-150, quiz 150.
12. Banks D, Landsverk J, Wang K. Changing policy and practice in the child welfare system through collaborative efforts to identify and respond effectively to family violence. *J Interpers Violence*. 2008;23(7):903-932.
13. Nygren P, Nelson HD, Klein J. Screening children for family violence: a review of the evidence for the US Preventive Services Task Force. *Ann Fam Med*. 2004; 2(2):161-169.
14. Thackeray JD, Hibbard R, Dowd MD; Committee on Child Abuse and Neglect; Committee on Injury, Violence, and Poison Prevention. Intimate partner violence: the role of the pediatrician. *Pediatrics*. 2010;125(5):1094-1100.
15. Dowd KL, Kinsey S, Wheeless S, et al. *National Survey of Child Abuse and Adolescent Well-Being (Combined Waves 1-5): Data File User's Manual (Restricted Release Version)*. Ithaca, NY: National Data Archive on Child Abuse and Neglect; 2008.
16. Department of Health and Human Services Administration for Children and Families. National Survey of Child and Adolescent Well-Being (NSCAW): CPS sample component wave 1 data analysis report. http://www.acf.hhs.gov/sites/default /files/opre/cps_report_revised_090105.pdf. Accessed November 26, 2012.
17. Biemer P, Christ S, Wheeless S, et al. *National Survey of Child Abuse and Adolescent Well-Being: Statistical Analysis Manual*. Ithaca, NY: National Data Archive on Child Abuse and Neglect; 2005.
18. Achenbach TM. *Manual for the Child Behavior Checklist/4-18 and 1991 Profile*. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
19. Achenbach TM. *Manual for the Child Behavior Checklist/2-3*. Burlington, VT: University of Vermont Department of Psychiatry; 1992.
20. Statacorp. Marginal means, predictive margins, and marginal effects. In: *Stata Quick Reference and Index: Release 12*. College Station, TX: Stata Press; 2011: 1027-1079.
21. Cummings P. Estimating adjusted risk ratios for matched and unmatched data: an update. *Stata J*. 2011;11(2):290-298.
22. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245-258.
23. Flaherty EG, Thompson R, Litrownik AJ, et al. Effect of early childhood adversity on child health. *Arch Pediatr Adolesc Med*. 2006;160(12):1232-1238.
24. Bonomi AE, Anderson ML, Rivara FP, et al. Health care utilization and costs associated with childhood abuse. *J Gen Intern Med*. 2008;23(3):294-299.
25. Chartier MJ, Walker JR, Naimark B. Childhood abuse, adult health, and health care utilization: results from a representative community sample. *Am J Epidemiol*. 2007;165(9):1031-1038.
26. MacMillan HL, Fleming JE, Streiner DL, et al. Childhood abuse and lifetime psychopathology in a community sample. *Am J Psychiatry*. 2001;158(11):1878-1883.
27. Campbell KA, Thomas AM, Cook LJ, Keenan HT. Longitudinal experiences of children remaining at home after a first-time investigation for suspected maltreatment. *J Pediatr*. 2012;161(2):340-347.
28. Hazen AL, Connelly CD, Edleson JL, et al. Assessment of intimate partner violence by child welfare services. *Child Youth Serv Rev*. 2007;29(4):490-500.
29. Hurlburt MS, Leslie LK, Landsverk J, et al. Contextual predictors of mental health service use among children open to child welfare. *Arch Gen Psychiatry*. 2004; 61(12):1217-1224.
30. MacMillan HL, Wathen CN, Jamieson E, et al; McMaster Violence Against Women Research Group. Screening for intimate partner violence in health care settings: a randomized trial. *JAMA*. 2009;302(5):493-501.
31. Bogat GA, DeJonghe E, Levendosky AA, Davidson WS, von Eye A. Trauma symptoms among infants exposed to intimate partner violence. *Child Abuse Negl*. 2006; 30(2):109-125.
32. Clements CM, Oxtoby C, Ogle RL. Methodological issues in assessing psychological adjustment in child witnesses of intimate partner violence. *Trauma Violence Abuse*. 2008;9(2):114-127.
33. Hazen AL, Connelly CD, Kelleher KJ, Landsverk JA, Barth RP. Intimate partner violence in the child welfare system: findings from the National Survey of Child and Adolescent Well-Being. In: Haskins R, Wulczyn F, Webb MB, eds. *Child Protection: Using Research to Improve Policy and Protection*. Washington, DC: The Brookings Institute; 2007:44-61.



©2013 American Medical Association. All rights reserved.

Downloaded From: http://archpedi.jamanetwork.com/ on 07/28/2016