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Adverse Childhood Experiences and Mental Health among Women Experiencing Intimate Partner Violence

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Abstract

This study described the frequency of different adverse childhood experience (ACE) types described by women with recent IPV and examined the effects of each ACE type on women's mental health. Over 70% of women reported parental separation or divorce, over 40% reported childhood sexual assault, and around 40% had a mother who was treated violently. Childhood physical abuse and sexual assault were associated with more severe posttraumatic stress disorder or depressive symptoms. Comprehensive interventions that address not only the effects of IPV but also the enduring effects of ACEs are needed to promote mental health for survivors of IPV.

Introduction

Adverse childhood experiences (ACEs) such as childhood abuse and neglect and household dysfunction, are an important public health concern. According to the Centers for Disease Control and Prevention's (CDC) Behavioral Risk Factor Surveillance System (BRFSS) data, approximately two-thirds of US adults report at least one ACE and more than 20% reported three or more (Centers for Disease Control and Prevention (CDC), 2015). In the foundational ACE study, four or more ACEs were associated with 4 to 12-fold greater risks for alcoholism, drug abuse, depression, and suicide attempt; a 2 to 4-fold increase in smoking, poor self-rated health, and sexually transmitted disease; and a 1.4 to 1.6-fold increase in physical inactivity and severe obesity (Felitti et al., 1998), demonstrating the profound, cumulative impact of ACEs on lifetime health and development (Brown et al., 2010; Dong et al., 2004; Felitti et al., 1998; Strine et al., 2012).

Similarly, intimate partner violence (IPV; physical, psychological, or sexual abuse by an intimate partner or expartner) is a common, serious public health issue. In 2015 National Intimate Partner and Sexual Violence Survey (NISVS) data, one in three US women have

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Disclosure of interest

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experienced lifetime sexual or physical violence, and/or stalking by an intimate partner (Smith et al., 2018). It is well-established that women exposed to IPV are at risk for physical and mental health problems, e.g., chronic pain, depression, and posttraumatic stress disorder (PTSD) (Bacchus, Ranganathan, Watts, & Devries, 2018; Campbell, 2002).

ACEs and IPV may intersect; for example, women in one study who experienced childhood physical and/or sexual abuse or had a mother treated violently by a partner were at a two-fold risk for IPV (Whitfield, Anda, Dube, & Felitti, 2003). Both ACEs and IPV are associated with an elevated risk for a woman having mental health problems such as depression and PTSD (Chapman et al., 2004; Herzog & Schmahl, 2018; Lagdon, Armour, & Stringer, 2014). These exposures also have additive or exponential effects on mental health. For example, previous studies found women exposed to both childhood abuse and IPV were at greater risk for developing depression and PTSD than those exposed to only one or none (Fogarty, Fredman, Heeren, & Liebschutz, 2008; Sanchez et al., 2017). It is clear that a comprehensive view of women's trauma exposures, including both childhood and adult experiences, are important to understand their risk for adverse health outcomes such as depressive or PTSD symptoms.

Prior studies that examined associations of ACEs with IPV have primarily focused on limited types of ACEs, specifically child physical, emotional, and sexual abuse, child neglect, and witnessing interparental violence (Aakvaag, Thoresen, Wentzel-Larsen, & Dyb, 2017; Barrios et al., 2015; Bensley, Van Eenwyk, & Wynkoop Simmons, 2003; Jung et al., 2018; Li, Zhao, & Yu, 2019; McKinney, Caetano, Ramisetty-Mikler, & Nelson, 2009; Pournaghash-Tehrani & Feizabadi, 2009; Whitfield et al., 2003). However, these studies did not address other type of ACEs, e.g., household substance use, household mental illness, parental separation or divorce, and incarcerated household member. Few studies have measured a wide range of ACEs among IPV survivors, reported the frequency and different types of ACEs that women with a known history of IPV have experienced, or how those ACEs have impacted their current mental health status. Therefore, the purpose of this exploratory study was to begin to address this gap, among a group of vulnerable, high-risk pregnant women.

Using both quantitative and qualitative data from the Domestic Violence Enhanced Home Visitation Program (DOVE) study, we analyzed in-depth interviews with pregnant women currently experiencing IPV to identify statements made indicative of one of the 10 ACE types as described on the ACE checklist. Furthermore, associations between these ACE types and mental health outcomes defined as depressive and PTSD symptoms collected with quantitative measures were also examined.

Methods

Study design

This study was a secondary analysis of data from the Domestic Violence Enhanced Home Visitation Program (DOVE) study (NIH/NR009093; Sharps et al., 2013; Sharps et al., 2016). DOVE was a mixed-methods randomized controlled trial with pregnant women who had recent IPV exposure, to test the effectiveness of a structured IPV intervention

integrated within a perinatal nurse home visitation program to reduce IPV and improve health outcomes, with quantitative surveys collected at multiple time points. ACEs were not systematically measured, but questions related to past trauma history were asked during qualitative interviews conducted at baseline. Thus, this present study capitalizes on these data to describe ACE frequency and types in a sample of pregnant women experiencing IPV. The DOVE study received Institutional Review Board approval.

Participants

A total of 239 women met eligibility criteria (English-speaking, pregnant at <32 weeks gestation, reported IPV within the last 12 months, and enrolled in a perinatal home visiting program) and were enrolled in DOVE. All 239 participants were asked if they were willing to also participate in qualitative interviews; among those who expressed their willingness, almost one-third of the total sample ($n = 87$) were selected in chronological order by their study enrollment dates and completed at least the baseline qualitative interview. In this secondary analysis, we included all 87 women who completed both the baseline quantitative survey and qualitative interview.

Measures

Sociodemographic characteristics—Measured sociodemographic variables included age, race, education level, marital status, employment status, and geographic location.

The Severity of Violence against Women Scales (SVAWS)—The 46-item SVAWS measures the frequency and severity of violence against women (Marshall, 1992), with three subscales (threats of violence, physical violence, and sexual violence). Respondents were asked to indicate how frequently a described behavior occurs on a 4-point scale (1 = Never, 2 = Once, 3 = A few times, 4 = Many times); the total score is the sum of all item scores (range 46–184). The SVAWS has demonstrated good reliability (Marshall, 1992).

The Edinburgh Postnatal Depression Scale (EPDS)—The 10-item EPDS assesses the frequency of past-week depressive symptoms on a 4-point scale from 0 to 3, yielding a total score of 0–30. Higher scores indicate more severe symptoms. A conservative cutoff score of 16 was used to identify depression risk (Murray & Cox, 1990). The EPDS has shown good reliability and validity for measuring prenatal and postnatal depression (Bunevicius, Kusminskas, Pop, Pedersen, & Bunevicius, 2009; Cox, Holden, & Sagovsky, 1987).

The Davidson Trauma Scale (DTS)—The 17-item DTS asks respondents to report the most disturbing trauma they have ever experienced and rate the past-week frequency and severity of symptoms experienced in response to this event (Davidson et al., 1997) on 5-point frequency (0 = not at all, 1 = once only, 2 = 2–3 times a day, 3 = 4–6 times a day, 4 = every day) and severity scales (0 = not at all distressing, 1 = minimally distressing, 2 = moderately distressing, 3 = markedly distressing, 4 = extremely distressing), resulting in a total score ranging from 0–136. We used a cutoff score of 40 to indicate PTSD risk. The DTS demonstrates good reliability and validity (Davidson et al., 1997).

Qualitative interviews

In DOVE, the purpose of qualitative interviews was to understand IPV patterns, women's responses to IPV, and the influence of setting (urban vs. rural) on women's support-seeking and coping. Semi-structured in-depth interviews addressed family and household characteristics, IPV experiences, pregnancy-related IPV, family context of abuse, formal and informal support, coping with abuse, resources and barriers to support. All questions were open-ended and broad, with probes used to elicit further information. Interviews lasted approximately 1–2 hours and were audio recorded and transcribed in text form with accompanying field notes. Although questions specifically inquiring about ACEs were not included, participants disclosed relevant information about childhood experiences when inquired about their family relationships, family support, family conflicts, and any abuse history. Hence, to address the purpose of the present study, we explored the baseline qualitative data thoroughly to identify ACEs that IPV survivors described that they experienced in their childhood and combined it with their baseline quantitative data.

Data analyses

Qualitative data analyses—The ACE checklist (Felitti et al., 1998b) was used to guide ACE information extraction from qualitative interviews. The checklist assesses for ten types of childhood traumatic events including physical abuse, emotional abuse, physical neglect, emotional neglect, sexual assault, mother treated violently, household substance use, household mental illness, parental separation or divorce, and incarcerated household member. Based on the description of each ACE type from the checklist, the data were thoroughly examined to identify statements participants made that were indicative of one of the ten ACEs.

In the present study, the first author thoroughly read all research nurse field notes and 87 baseline interview transcripts, with specific attention to a participant's answers to interview questions related to the family relationship, family support, family conflicts, and abuse history. Examples of such questions were: "Can you tell me a little bit about yourself and your family?", "Have you been hurt by some-one other than your partner?", "Has anyone else in your family been abused?", "How do you and your other family members deal with the anger and hostility?", and "What are some of the problems your family has dealt with?". If any described experience was relevant to one of the ten ACE types, the statement was coded as the participant having a specified type of ACE. Additional information about possible ACE types was obtained from the research nurses' field notes. All descriptive ACE information and relevant ACE types were recorded in an Excel spreadsheet. Next, descriptions recorded during the review were reexamined to correct any miscoding of ACE types.

Quantitative data analyses—Descriptive statistics, including frequency, percentage, median, range, mean, and standard deviation, were used to describe sociodemographic factors, ACE types, IPV severity (SVAWS score), depressive and PTSD symptoms (EPDS and DTS scores). Independent t-tests and chi-square analyses were used to compare study sample sociodemographic variables with the entire DOVE sample. The multivariable linear regression models were used to examine the associations between ACE types, IPV

severity, and depressive and PTSD symptoms, with EPDS and DTS total scores included as dependent variables. All ACE types were included as independent variables in the first model with SVAWS scores added into the second model. Age, race, education level, and geographic location were covariates. All analyses were conducted using SPSS version 25.0 (IBM Corp, 2017).

Results

Sample characteristics

The average participant was 23 years old ($SD = 5.2$, Median = 22, Range = 14–34, Table 1). Over half were African American, nearly half had less than high school education, 69% were single, divorced, separated or widowed, 78% were unemployed, and over 55% were rural. There were no significant differences between this sample ($N = 87$) and the entire DOVE sample ($N = 239$) in terms of age, race, educational level, marital status, and employment status ($p > .05$).

ACEs, IPV severity, and mental health

Overall, participants experienced several types of ACEs with varying frequencies (Table 2). Among the 10 ACE types, more than 70% of women reported parental separation or divorce, over 40% reported childhood sexual assault, 40% said their mothers were treated violently, one-fourth had childhood physical abuse, one-fifth reported household substance use, 16% experienced childhood emotional abuse, 10% had an incarcerated household member, and nearly 7% reported childhood physical neglect, emotional neglect, and household mental illness. Over half had 3 or more ACE types and over one third had 1 or 2 ACE types. Approximately half or more had depression and/or PTSD scores at or greater than the cut scores for significant symptoms (Table 3).

The multivariable linear regression models showed women who reported childhood sexual assault had higher total EPDS scores ($\beta = 0.24$, $p = .038$, Table 4), but sexual assault was not significantly associated with total EPDS scores when the SVAWS total score was added in the model ($\beta = 0.19$, $p = .119$). Unexpectedly, childhood emotional neglect and parental separation or divorce were significantly associated with lower total EPDS scores ($\beta = -0.31$, $p = .012$; $\beta = -0.25$, $p = .035$) and the associations remained significant when the SVAWS total score was added ($\beta = -0.33$, $p = .008$; $\beta = -0.28$, $p = .021$). Other ACE types and the SVAWS total score were not significantly associated with the EPDS total score ($p > .05$).

Women with childhood physical abuse and sexual assault experienced higher DTS total scores ($\beta = 0.24$, $p = .048$; $\beta = 0.28$, $p = .008$). The associations between physical abuse and sexual assault with the DTS total scores remained significant when the SVAWS total score was added ($\beta = 0.29$, $p = .020$; $\beta = 0.23$, $p = .039$). Surprisingly, childhood emotional neglect and an incarcerated household member were significantly associated with lower total DTS scores ($\beta = -0.31$, $p = .005$; $\beta = -0.20$, $p = .047$). The associations between emotional neglect and the total DTS scores remained significant when the SVAWS total score was added ($\beta = -0.33$, $p = .003$). Other ACE types and the SVAWS total score were not significantly correlated with DTS total scores ($p > .05$).

Discussion

This exploratory analysis of a rich, mixed-methods dataset was designed to describe the different types and frequency of ACE exposure among a highly-vulnerable population of pregnant IPV survivors, as well as the associations between these ACE exposures and their depressive and PTSD symptoms. It is perhaps unsurprising that ACE exposure was extremely common among the sample; 85% described at least one type of ACE exposure and over half had three or more, with parental separation or divorce, childhood sexual assault, and having mother treated violently being the most common. Childhood sexual assault was associated with both severe depressive and PTSD symptoms, whereas childhood physical abuse was only associated with severe PTSD symptoms. Interestingly, we found that childhood emotional neglect was associated with less severe depressive and less PTSD symptoms. Similarly, parental separation or divorce were associated with less severe depressive symptoms, and having an incarcerated family member was associated with less PTSD symptoms.

ACE exposures in this study were elicited with qualitative prompts, not a checklist as what is used in the national BRFSS ($N = 32,539$ female respondents; Centers for Disease Control and Prevention (CDC), 2015). Specifically, DOVE study participants were asked about family relationships, family support, family conflicts, and any abuse history, but not specifically asked about traumatic or stressful events that happened prior to age 18 or administered the ACE checklist. It is likely that this difference in methodology would generally result in an overall underestimation of ACE exposures among DOVE study participants. Therefore, it is perhaps even more striking that the majority of women in the sample described ACE exposures substantially greater than reported in BRFSS data. Specifically, compared to the prevalence of eight different ACE types estimated in the BRFSS, women in our study had substantially higher exposures to childhood physical abuse, sexual assault, mother treated violently, parental separation or divorce, and family incarceration. It is also important to note that BRFSS survey participants were not asked about childhood physical or emotional neglect exposures, which were high in our study (25% and 7%, respectively). This finding suggests the women in our study—who were already contending with an abusive partner or ex-partner—are more likely than the general population to have also experienced more severe ACE types (i.e., sexual assault and physical abuse) and more likely to live in a household with a single parent, an abused mother, or an incarcerated family member compared to the general female population.

Conversely, the prevalence of emotional abuse, household substance abuse, and household mental illness in our sample is less than that reported in BRFSS data. We can only speculate why these patterns of difference exist; this may be because interview questions and probes did not directly address such exposures; the relative perceived importance of the more severe ACE exposures DOVE study participants experienced may have influenced their disclosures as well. More research to describe the intersections of childhood and adult trauma exposures, as well as to understand women's perspectives on these traumas, is needed. However, the overall patterns of our findings suggest ACE exposures were very high in this sample and the percentage of women having at least three types of ACEs was twice

as high as that in BRFSS data, lending support to the notion that women with IPV are more likely to have multiple, significant ACE exposures.

Importantly, we found pregnant IPV survivors who also experienced childhood sexual assault and/or physical abuse exhibited more severe depressive and/or PTSD symptoms. This finding is consistent with previous studies (Fogarty et al., 2008; Sanchez et al., 2017). For example, a study with approximately 3,000 pregnant women reported 20-fold odds of PTSD among women with both childhood abuse (physical or sexual abuse) and IPV compared with those who were not exposed to either (Sanchez et al., 2017). Similarly, in the 1995 National Violence Against Women Survey (NVAWS), women reporting both childhood abuse and IPV had over twice the depression risk compared to those without abuse history (Fogarty et al., 2008). Mental health symptoms have significant impact on maternal-child wellbeing (Goodman et al., 2011), yet it is well-established that screening rates for ACE exposures, IPV, or mental health symptoms in clinical settings tend to be very low (Boinville, 2013). Our findings underscore the importance of understanding how these issues intersect with each other and addressing them in clinical settings, in order to connect women with safety and mental health resources.

Unexpectedly, we found less depressive and PTSD symptoms in women who had experienced childhood emotional neglect, and/or parental separation/divorce and/or having an incarcerated household member. This merits exploration in future research, however, we note the majority of participants had multiple and severe adverse experiences in their childhood. For those women, childhood emotional neglect, parental separation or divorce, and having an incarcerated household member may be perceived to be a less severe trauma compared to childhood physical abuse and sexual assault. These particular types of ACEs (perhaps specifically the removal of a violent parent/household member or ending of conflict by separation, divorce, or incarceration) may even serve as a protective role that promotes resiliency. Finkelhor, Shattuck, Turner, and Hamby (2015) have suggested that some ACEs such as parental separation or divorce might not have a negative impact on an individual's health (Finkelhor et al., 2015). The second possible explanation for these unexpected findings is that childhood emotional neglect exposure may be greatly underestimated (7% in this sample). As noted earlier, information regarding potential ACEs was extracted from the qualitative interviews. In the absence of specific probes or questions to assess neglect, our participants may not have recognized it as a negative childhood experience and thus may not have initially reported being neglected emotionally in childhood. This may have influenced the estimated associations between childhood emotional neglect with depressive and PTSD symptoms.

As a secondary data analysis, we faced a limitation in how information was extracted from interview data and nurses' field notes as opposed to the data being collected at baseline with the ACE checklist. The interview guide lacked specific questions about traumatic or stressful events occurring prior to age 18. We expect this limitation would most likely lead to an underestimation of ACE exposure. Even with the data collection limitation, the underestimated results still showed that the majority of women with IPV described experiencing multiple and severe adverse events in childhood that are greater than reported in the national BRFSS survey. We suggest future research with specific measures assessing

a broad range of ACEs is needed to examine the prevalence of each type of ACEs as well as the enduring effects each type has on health problems among women experiencing IPV.

This study has additional implications for future research and clinical practice. Although, ACEs are not routinely evaluated in either health settings or domestic violence agencies, the study findings indicate that survivors of IPV may still spontaneously disclose their adverse experiences in childhood when they feel safe to do so. Further, it is clear that these exposures have enduring mental health impact for IPV survivors, above and beyond their current violence exposures. Trauma-focused interventions that address not only the effects of IPV but also the effects of ACEs on women's mental health are needed; it is also critically important that healthcare and advocacy providers be well-prepared to address and support women's needs for trauma-related care, mental health, and safety services. There is some evidence indicating that the efficacy of mental health interventions for IPV survivors could be moderated by ACE exposures (Zlotnick, Capezza, & Parker, 2011). Interventions such as Cognitive Behavioral Therapy, Mindfulness-Based Stress Reduction, and Body-Oriented Therapy have been designed or modified specifically for IPV survivors, with addressing safety as a priority, but these interventions have failed to address the specific needs of survivors who have experienced multiple forms of trauma (Warshaw, Sullivan, & Rivera, 2013). Given the high likelihood of multiple and severe ACEs in women experiencing IPV, trauma-specific service models such as the Trauma Affect Regulation: Guide for Education and Therapy (TARGET) need to be applied for IPV survivors to mitigate the effects of both present violence and adverse experiences in childhood (Ford & Russo, 2006). Research on testing the efficacy of trauma-specific interventions for IPV survivors is also needed.

Conclusion

Our study extends the extant literature by documenting that IPV survivors are more likely to have multiple and severe ACEs, and childhood physical abuse and sexual assault could increase the risk for having future mental health problems including depressive and PTSD symptoms. Hence, on the basis of our findings and existing evidence, there is a clear need for integrating ACEs into mental health/IPV assessments and subsequent interventions. By addressing past ACEs in addition to current violence, women may begin to heal and move forward with improved health and well-being.

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Table 1.

Sample characteristics (N = 87).

Characteristics	The sample (N = 87)
Age, $M \pm SD$ (Median/Range)	23.4 $\pm$ 5.2 (22/14–34)
Race, <i>n</i> (%)	
African American/Black	44 (50.6)
Caucasian/White	32 (36.8)
Others	11 (12.6)
Education level, <i>n</i> (%)	
7–9 grade	11 (12.9)
10–12 grade	29 (34.1)
High school graduate/GED	13 (15.3)
Some college/trade school/community college/college graduate	32 (37.6)
Marital status, <i>n</i> (%)	
Married/partnered	27 (31.0)
Single/divorced/separated/widowed	60 (69.0)
Employment status, <i>n</i> (%)	
Full or part time	19 (21.8)
Not employed/home maker	68 (78.2)
Geographic location, <i>n</i> (%)	
Rural	48 (55.2)
Urban	39 (44.8)

Table 2.

Examples of women's descriptions on their adverse childhood experiences.

ACE types	A sample quote representing an ACE type
Childhood physical abuse	"She'd (adoptive mother) tried pushing me down stairs a couple of times, she had slammed my back into an antique chair that has metal on it."
Childhood emotional abuse	"She (adoptive mother) just, 24 hours, no joke, she was calling me stupid, I was a bitch, I don't do anything, it was terrible."
Childhood physical neglect	"We would come to school with our hair not combed, some of our clothes would be dirty, and my house would be filled with roaches and rats. The house would never stay clean. We also had lice in our hair and there's no food in the house."
Childhood emotional neglect	"She (mother) just really didn't pay attention to it, but since I was the actual child and that happened to me, I know what it feels like, so I make sure that my kid never feels left out or anything like that."
Sexual assault in childhood	"For a long time, my uncle, he ended up molesting all of us except my younger one, my youngest sister."
Mother treated violently	"My mom, I've seen her abused worse than me, she got put in the hospital, she got 5 guys and they used to rape her and she got pulled by her hair ..."
Household substance use	My momma always been on drugs."
Household mental illness	"She was bipolar, and she had her outbursts and things and she would, I mean, just crazy stuff, breaking down doors, shattering glass ..."
Parental separation or divorce	"Like I was 14 they broke up, separated."
Incarcerated household member	"My real dad's in prison. He's a drug dealer."

ACE = adverse childhood experiences.

Table 3.

The descriptive statistics of ACEs, IPV, and mental health (N = 87).

The sample (N = 87)	
ACE types, <i>n</i> (%)	
Childhood physical abuse	22 (25.3)
Childhood emotional abuse	14 (16.1)
Childhood physical neglect	6 (6.9)
Childhood emotional neglect	6 (6.9)
Sexual assault in childhood	36 (41.4)
Mother treated violently	35 (40.2)
Household substance use	18 (20.7)
Household mental illness	6 (6.9)
Parental separation or divorce	62 (71.3)
Incarcerated household member	9 (10.3)
The number of ACE types, <i>n</i> (%)	
No ACE	13 (14.9)
1–2 ACE types	30 (34.5)
3 or more ACE types	44 (50.6)
IPV	
SVAWS total score, <i>M</i> ± <i>SD</i> (Median/Range)	23.4±5.2 (22/14–34)
Mental health	
EPDS total score, <i>M</i> ± <i>SD</i> (Median/Range)	13.6±6.0 (14/1–25)
Depression risk, <i>n</i> (%)	39 (44.8)
No depression risk, <i>n</i> (%)	48 (55.2)
DTS total score, <i>M</i> ± <i>SD</i> (Median/Range)	47.1±32.6 (42/1–121)
PTSD risk, <i>n</i> (%)	44 (51.8)
No PTSD risk, <i>n</i> (%)	41 (48.2)

ACE = adverse childhood experience; IPV = intimate partner violence; SVAWS = the Severity of Violence Against Women Scale; DTS = Davidson Trauma Scale; PTSD = posttraumatic stress disorder; EPDS = Edinburgh Postnatal Depression Scale.

Table 4.

Multivariable-adjusted regression models^a examining ACE types and the severity of IPV in relation to mental health.

	EPDS total score				DTS total score			
	Model 1		Model 2		Model 1		Model 2	
	β	p	β	p	β	p	β	p
ACE types								
Childhood physical abuse	-0.033	.806	0.015	.910	0.24*	.048	0.29*	.020
Childhood emotional abuse	0.066	.568	0.086	.463	0.13	.197	0.15	.137
Childhood physical neglect	.17	.153	0.15	.220	0.15	.139	0.13	.213
Childhood emotional neglect	-0.31*	.012	-0.33**	.008	-0.31**	.005	-0.33**	.003
Sexual assault in childhood	0.24*	.038	0.19	.119	0.28**	.008	0.23**	.039
Mother treated violently	0.087	.461	0.11	.373	-0.19	.068	-0.17	.099
Household substance use	-0.086	.438	-0.095	.391	-0.085	.390	-0.095	.335
Household mental illness	0.026	.814	0.033	.764	-0.022	.822	-0.014	.881
Parental separation or divorce	-0.25*	.035	-0.28*	.021	-0.079	.451	-0.11	.300
Incarcerated household member	-0.11	.310	-0.092	.403	-0.20*	.047	-0.18	.073
SVAWS total score			0.17	.193			0.18	.118

ACE = adverse childhood experience; IPV = intimate partner violence; EPDS = Edinburgh Postnatal Depression Scale; DTS = Davidson Trauma Scale; SVAWS = the Severity of Violence Against Women Scale.

^aIn all regression models, age, race, education level, and geographic location were covariates. ACE types were included as independent variables in model 1 and then SVAWS total score were added in model 2. The EPDS and DTS total scores were dependent variables respectively.

* $p < .05$.

** $p < .01$.