From Childhood Trauma to Adult Mental Health Difficulties: Exploring the Role of Intimate Partner Violence Among Rural Indian Women

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Ethical Approval

All procedures and questionnaires were approved by The New School Institutional Review Board (2020-116).

Availability of supporting data

Data and code for the present study are available through the Open Science Framework (https://osf.io/xe4g7).

Competing interest

We have no known conflicts of interest to disclose.

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Authors' contributions

ZJ: conceptualization, methodology, formal analysis, investigation, writing—original draft, writing—review and editing. GD: project administration, data curation, investigation, writing—original draft, writing—review and editing. HM: writing—original draft, writing—review and editing. SS: conceptualization, project administration, writing—review and editing. EB: formal analysis, writing—review and editing. SBG: formal analysis, writing—review and editing. ST: project administration, writing—review and editing. KW: conceptualization, supervision, writing—review and editing. MS: conceptualization, investigation, project administration, supervision, writing—review and editing.

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Abstract

Purpose: Mental health burdens are particularly pronounced in low- and middle-income countries, with women experiencing a disproportionately high prevalence compared to men. The present study examined whether adverse childhood experiences (ACEs) are associated with recent mental health symptoms through intimate partner violence (IPV) victimization and IPV perpetration among women in a rural North Indian district. **Method**: Participants ($N = 312$) were recruited via a convenience sampling method and completed self-report measures. To examine indirect effects, we utilized a structural equation model. **Results:** A significant, positive association was found between ACEs and mental health symptoms ($r = .46$, $p < .001$). We also found significant positive associations between ACEs and both IPV victimization ($\beta = .62$, $p < .001$) and perpetration ($\beta = .24$, $p < .001$). Mental health symptoms were significantly associated with IPV victimization ($\beta = .24$, $p = .036$) but not with IPV perpetration ($\beta = .07$, $p = .364$). There was a significant indirect effect of IPV victimization in the relationship between ACEs and mental health symptoms ($\beta = .15$, $p = .035$), while IPV perpetration did not exhibit a significant indirect effect ($\beta = .02$, $p = .355$). Three different sensitivity analyses confirmed these findings. **Conclusions:** The findings highlight a significant association between ACEs and mental health symptoms, with a significant indirect effect through IPV victimization. Interventions should consider addressing ACEs and IPV victimization to improve mental health outcomes for women in rural areas.

Keywords: India, women, IPV, ACEs, global mental health

Introduction

Mental health concerns impose a significant burden on individual wellbeing around the world (Nochaiwong et al., 2021; Steel et al., 2014; World Health Organization, 2017). Systematic reviews have suggested that lifetime prevalence rates for common mental health concerns, such as anxiety and depression, may range from 3.6% to 6.7% globally (Steel et al., 2014; World Health Organization, 2017), with recent studies suggesting significant increases following the COVID-19 pandemic (Nochaiwong et al., 2021). The mental health burden may be worse in some contexts, such as India. In 2017, one in seven Indians (197.3 million) were impacted by a mental health concern of varying severity, which is twice the rate relative to 1990 (Sagar et al., 2020). Depression (45.7 million) and anxiety (44.9 million) were the two most common conditions (Sagar et al., 2020). Women experienced higher prevalence rates for depression and anxiety concerns compared to men (Nochaiwong et al., 2021; Sagar et al., 2020; Steel et al., 2014; World Health Organization, 2017). Thus, from a public health perspective, it is crucial to better understand the factors that may be associated with worse mental health among Indian women to guide efforts in reducing the associated public health burden.

One important factor found to be associated with mental health concerns is adverse childhood experiences (ACEs; Felitti et al., 1998; Hughes et al., 2017). Specifically, greater exposure to ACEs has consistently been associated with poor mental health (Daníelsdóttir et al., 2024; Hughes et al., 2017). Given the Euro-American centric nature of the psychological field, limited research has been conducted or prioritized in India and other low-and-middle-income countries (LMIC; Saha et al., 2014; Trivedi et al., 2021). That said, research that has been done on ACEs and mental health in India suggests that there is a positive association between the two phenomena. Studies with youth and undergraduate populations have found that greater exposure

to ACEs is associated with a higher likelihood of depression, anxiety, and stress (Damodaran & Paul, 2018), as well as higher suicidal ideation (Saha et al., 2014), including in North India (Chaudhary et al., 2023). Additionally, in a recent meta-analysis, which included 51 studies, Choudhry and colleagues (2018) found that childhood sexual abuse was associated with poor physical, behavioral, and mental health and poor social functioning in India. However, the aforementioned studies have predominantly used convenience samples from urban settings (e.g., schools, colleges), with few investigations exploring mechanisms linking ACEs and mental health in rural India and among marginalized populations (Chaudhary et al., 2023; Damodaran & Paul, 2018; Saha et al., 2014). Examining such phenomena in understudied environments is crucial as experiences and risk factors may vary in these communities, potentially leading to different intervention needs.

Intimate partner violence (IPV) may be one potential mechanism linking ACEs and mental health symptoms (Chan et al., 2021). A recent estimate suggests that 32% of married women in India report lifetime IPV exposure, which appears to be higher than the global average (27%, Sardinha et al., 2022). ACEs have been linked to IPV victimization (Abramsky et al., 2011; Ehrensaft et al., 2003; Walker & Wamser-Nanney, 2023) and perpetration (Capaldi et al., 2012; Lee et al., 2022; Widom et al., 2008), including perpetration by women (McGrath et al., 2024), in several studies around the world. While common narratives suggest that men perpetrate IPV and women experience IPV victimization, research has shown that the picture is more complex, with some studies suggesting that IPV can be more bidirectional (Shen, 2014; Straus, 2008). In India, National Family Health Survey (NFHS-5) data from 2019-21 show 8.8% of women report perpetrating physical violence against spouses, predominantly in bidirectional contexts (IIPS & ICF, 2021). Additionally, IPV exposure has been associated with poor mental

health (Bacchus et al., 2018; Ellsberg et al., 2008; Spencer et al., 2019). Research in India has also indicated that there may be a link between IPV and ACEs (Dutta et al., 2016; Jeyaseelan et al., 2007), and between IPV and poor mental health (Kumar et al., 2005; Sharma et al., 2019), but to our knowledge, no study has connected ACEs, IPV, and mental health in India. Clarifying the link between these constructs can have both theoretical and policy-related implications and may be particularly relevant in contexts such as the North Indian state of Uttar Pradesh, which has high ACE exposure (Khan et al., 2023) and one of the highest rates of IPV according to the NFHS-5 (IIPS & ICF, 2021).

Prior theoretical work may help explain the potential pathways through which ACEs may lead to mental health symptoms via IPV. Social learning theory (Bandura, 1980; Widom, 1989) suggests that exposure to abuse in childhood may lead to IPV victimization and perpetration later in life through observational learning and modeling. Repeated exposure to violence may lead to the normalization and expectation of violence in intimate relationships and thereby diminish the recognition of potential harms associated with IPV victimization or perpetration (Kaufman-Parks et al., 2023; Nikulina et al., 2021). The challenge may be particularly acute in rural India, where social norms dictate that IPV is a private family matter and often force the spouse to adjust to the abusive partner (Campbell & Sabri, 2015). Thus, a combination of living in a state of fear of violence or the distress and guilt associated with using violence as a coping strategy may link IPV victimization and perpetration with mental health symptoms (Spencer et al., 2019). Furthermore, the link between ACEs, IPV, and mental health may be understood through disruptions in social-cognitive processing whereby ACEs lead to enhanced threat processing and information processing bias, which may reinforce IPV while causing mental health distress (Kaufman-Parks et al., 2023; McLaughlin & Lambert, 2017). However, IPV and mental health

may also interact bidirectionally, such that IPV not only serves as a pathway linking ACEs to mental health outcomes but is also shaped by preexisting psychological distress (Devries et al., 2013). Taken together, these perspectives highlight how early adversity can shape a cycle of violence and distress, where ACEs fuel IPV dynamics that, in turn, deepen mental health struggles, creating a potentially reinforcing cycle.

The Current Study

While prior research has demonstrated that ACEs and IPV may be associated with mental health concerns, there has been little to no research on the aforementioned associations in a rural Indian setting, specifically. Understanding these dynamics in a rural context is critical, as relative to urban areas, rural communities tend to be smaller, economically marginalized, with less access to healthcare and further away from established resources for survivors (Baru et al., 2010; Kundu & Pandey, 2020). Furthermore, while IPV is generally conceptualized as a unidirectional phenomenon, with women as victims and men as perpetrators, bidirectional IPV is quite common, with self-defense cited as a frequent motive (Langhinrichsen-Rohling, McCullars, et al., 2012; Langhinrichsen-Rohling, Misra, et al., 2012; Pu et al., 2022). A better understanding of how ACEs, IPV victimization, IPV perpetration, and mental health concerns relate to each other may inform a prevention-focused policy to reduce violence exposure and the associated mental health burden in India (Trivedi et al., 2021). The present study examined the relationships between ACEs, IPV victimization, IPV perpetration, and mental health symptoms using structural equation modeling. Specifically, we assessed whether lifetime IPV victimization and IPV perpetration experiences serve as indirect effects in the path between ACEs exposure and recent mental health symptoms amongst a sample of rural Indian women**.** See Supplemental Figure 1 for the hypothesized indirect effects model.

Method

Participants & Procedure

The cross-sectional data presented in this study were part of a larger study on maternal self-efficacy with women who had children between the ages of zero and two years, with results published elsewhere (masked). Trained interviewers from a locally situated NGO initially recruited participants (N = 312) through convenience sampling at local community centers, schools, and over the phone in Bahraich District in the northern Indian state of Uttar Pradesh. Once potential participants expressed interest, interviewers arranged to conduct the survey at a convenient time. Following orally collected informed consent, structured questionnaires were administered verbally in a quiet and private space, either in the participant's home or in a secluded area of a community center, depending on the participant's preference and safety considerations. Bahraich District was selected due to our established partnership with a local NGO, as well as due to its status as a vulnerable region with significant socioeconomic challenges. For instance, Bahraich District had the highest poverty rate in India in 2021 (Kumar, 2023) as well as one of the lowest rates of literacy amongst women (36%; National Health Mission, 2017) in 2016. Additionally, in Uttar Pradesh, as in rural India broadly, parents typically make marital decisions for women (Allendorf & Pandian, 2016). Surveys were translated and adapted to the local context and administered in Hindi. Adaptation protocols were implemented to preserve item fidelity, whereby independent translators translated items into Hindi and back-translated them into English (Cha et al., 2007). Furthermore, a panel of local NGO staff also suggested changes to items to ensure linguistic accuracy, contextual relevance, and cultural appropriateness. Finally, additional changes were made following a brief pilot with the participants before the commencement of data collection. Interviews were conducted by

interviewers who were trained by two co-authors (masked) who are from the region and led the training in Hindi. The data collection period lasted for approximately three months, starting in September 2020. Given the sensitive nature of the survey topics, participants were provided with contact information for local mental health resources should they experience distress, and interviewers were trained to recognize signs of distress and pause or terminate interviews when necessary. Additionally, participants were informed about the study's purpose and their right to withdraw at any time. All procedures and questionnaires were approved by the (masked) Institutional Review Board.

Measures

Mental Health Symptoms. Mental health symptoms were defined as psychological distress in the past week and were assessed using the 21-item Depression, Anxiety, and Stress Scale (DASS-21, Lovibond et al., 1995) which was translated into Hindi for the present study. The scale has been previously used in India (Kumar et al., 2019; Sharma et al., 2020) to assess mental health symptoms and has been found to be acceptable and has demonstrated good internal consistency in those instances. The measure inquires about mental health symptoms over the past week (e.g., “I felt that I had nothing to look forward to”) and comprises three subscales, including depression, anxiety, and stress. Each subscale had seven items, and the items were rated on a four-point scale (0 “Did not apply to me at all” to 3 “Applied to me very much or most of the time”). Possible scores ranged from 0-21 for each subscale and 0-63 for the entire scale, with higher scores indicating worse mental health. Excellent internal consistency was demonstrated for the entire scale in the present sample ($\omega = .94$). Following recent methodological recommendations (e.g. Hayes & Coutts, 2020; McNeish, 2018), reliability was estimated using McDonald's omega.

Intimate Partner Violence Victimization. IPV victimization was defined as lifetime psychological aggression, physical assault, injury, or sexual coercion experienced within intimate partnerships. Seven items from the Conflict Tactics Scale-2 Short Form (CTS2-SF; Straus & Douglas, 2004) were translated into Hindi with cultural adaptations for rural Uttar Pradesh. CTS items have also been utilized in national surveys in India (IIPS & ICF, 2021), supporting regional relevance. The questionnaire included items assessing physical aggression (e.g., "My partner destroyed something belonging to me or threatened to hit me"), physical assault (e.g., "My partner pushed, shoved, or slapped me"), physical injury (e.g., “I had a sprain, bruise, or small cut, or felt pain the next day because of a fight with my partner”), and sexual coercion (“My partner used force [like hitting, holding down, or using a weapon] to make me have sex”). Participants reported incident frequency from 0 (did not occur) to 6 (more than 20 times). Sum scores (range: 0-42) were calculated, with excellent internal consistency ($\omega = .91$).

Intimate Partner Violence Perpetration. IPV perpetration was defined as lifetime psychological aggression, physical assault, injury, or sexual coercion perpetrated against intimate partners. Seven items from the Conflict Tactics Scale-2 Short Form (CTS2-SF; Straus & Douglas, 2004) were translated into Hindi with cultural adaptations for rural Uttar Pradesh. The questionnaire assessed physical aggression (e.g., "I destroyed something belonging to my partner or threatened to hit my partner"), physical assault (e.g., "I pushed, shoved, or slapped my partner"), injury (e.g., "My partner had a sprain, bruise, or small cut, or felt pain the next day because of a fight with me"), and sexual coercion. Participants reported incident frequency from 0 (did not occur) to 6 (more than 20 times). Sum scores (range: 0-42) were calculated, with internal consistency which appears to be acceptable ($\omega = .72$).

Adverse Childhood Experiences. ACEs were defined as traumatic experiences occurring before age 18, including various forms of abuse, neglect, and household dysfunction. The 10-item ACEs survey (Felitti et al., 1998), which has been utilized in the Indian context (Trivedi et al., 2021, 2023), was translated into Hindi for the present study. Through consultation with local stakeholders, we added an eleventh item assessing childhood experiences of discrimination ("Did you ever feel put down by your parents or other family members because of your gender or caste?") to enhance cultural relevance for rural Uttar Pradesh. The questionnaire also assessed emotional abuse (e.g., "Did you often feel that no one in your family loved you?"), physical abuse (e.g., "Did a parent ever hit you so hard that you had marks?"), sexual abuse, and neglect. Participants responded yes/no to each item, with responses summed to create a cumulative score (range: 0-11). The measure demonstrated good internal consistency in our sample ($\omega = .91$).

Demographic Variables. Demographic information collected from participants included participant age, caste affiliation, and literacy. Caste was included as it is a vital determinant of social, economic, and psychological inequity in India (Human Rights Watch, 2001; Jiwani et al., 2023). Following the Indian government classification, we grouped participants into three categories: general caste (GC; high caste groups), other backward classes (OBC; historically marginalized communities), and scheduled caste/scheduled tribe (SC/ST). SC refers to Dalit communities who were historically designated as untouchable and face significant discrimination, while ST refers to indigenous tribal populations who typically live in remote areas with limited access to resources (Jiwani et al., 2023). SC/ST categories were combined due to the small number of ST participants (n=8), consistent with prior research (Khubchandani et al., 2018). Additionally, we also calculated a wealth index using the type of house (permanent,

semi-permanent, or impermanent structure) as well as the number of rooms as assessing household income in India is quite difficult. Prior research in rural India has utilized the physical characteristics of a participant's home to assess wealth (Kattula et al., 2016).

Data Analysis

Data and code for the present study are available through the Open Science Framework (https://osf.io/xe4g7). The analyses for the present study were not preregistered. Data were analyzed using the 'lavaan' package (Rosseel, 2012) in R (R Core Team, 2025). Means, standard deviations, and correlations were computed and reported. Missing data at the item level for latent variables (DASS-21) were dealt with using full information maximum likelihood (FIML) feature in 'lavaan'. A small proportion of the ACE (1.23%) and IPV (.38%) items were missing, and we imputed missing data on the predictors using a k-nearest neighbor (KNN) approach, which identifies the observations that are most similar to the missing values (i.e., its "nearest neighbors") and uses the mean value across those cases for imputation (Emmanuel et al., 2021).

Given the translation and adaptation processes taken to improve the appropriateness of the outcome measure to this sample population, the factor structure for DASS-21 was explored before fitting the SEM model to examine measurement error. The main model was subsequently fit to test the indirect effects hypothesis. IPV victimization and IPV perpetration were allowed to covary. We included age, wealth index, literacy, and caste affiliation as covariates in all models. For caste, general caste was used as the reference group. Mardia skewness and kurtosis were both significant (p <.001), suggesting multivariate non-normality. To address non-normality in the data, we used the robust maximum likelihood ('mlr') feature in 'lavaan', which corrects the standard errors and chi-square statistics in the presence of non-normal data. Standardized coefficients for direct and indirect effects are reported. To calculate indirect effects, we utilized

the delta method, which is the default option in 'lavaan' (Rosseel, 2012). We followed guidance from Weston & Gore (2006) to assess model fit using the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Recent studies (e.g., Hu & Bentler, 1999) suggest that cutoffs for acceptable model fit were CFI ≥ .95, RMSEA ≤ .06, and SRMR ≤ .08. However, Weston & Gore (2006) and others (e.g., Marsh et al., 2004) suggest that older criteria for cutoffs (Hu & Bentler, 1995; CFI ≥ .90, RMSEA ≤ .10, and SRMR ≤ .10) may be more appropriate for small sample sizes (n < 500) and less complex models. Guidelines by Cohen (1988) were used to interpret the effect sizes. To test the robustness of our findings, we conducted three sensitivity analyses: (1) re-estimating the model with binary IPV variables to examine an alternative operationalization of IPV victimization and perpetration (2) excluding the top 5% of participants on ACEs, IPV victimization, or perpetration, and (3) removing all control variables to assess whether key paths held without sociodemographic covariates.

Results

Descriptive statistics are reported in Table 1. On average, participants were 26.7 years old (SD = 4.81) and ranged from 18 to 40 years old. A majority reported being able to read and write (*n* = 166; 53.2%). Nearly half the participants (*n* = 152, 48.7%) reported at least one ACE, and on average, participants reported 2.24 (*SD* = 2.95) ACEs. Most participants reported at least one experience of IPV victimization (*n* = 189, 60.6%), and nearly half the participants reported at least one experience of IPV perpetration (*n* = 146, 46.5%). Specifically, 57.7% (*n* = 180) of participants reported psychological aggression victimization, 48.4% (*n* = 151) reported physical assault victimization, 27.2% (n = 85) reported injury victimization, and 23.7% (*n* = 74) reported sexual coercion victimization in their lifetimes. In terms of IPV perpetration, 41.0% (*n* = 128)

reported psychological aggression perpetration, 7.4% (n = 23) reported physical assault perpetration, 10.3% (n = 32) reported injury perpetration, and 2.6% (n = 8) reported sexual coercion perpetration in their lifetimes. IPV victimization and perpetration were highly correlated (r = .60, p<.001). A deeper examination of the data suggests that only seven participants (2.2%) reported IPV perpetration but not victimization, whereas 51 (16.3%) participants reported victimization but not perpetration. This finding suggests IPV perpetration largely occurs in the presence of victimization for the women in the present study sample. Notably, women reported similar levels of psychological aggression and physical assault victimization (M_{diff} = .12, t(311) = 1.61, p = .109, 95% CI [-0.027, 0.264], Cohen's d = 0.06), but their perpetration patterns differed significantly, with much higher psychological aggression than physical assault (M_{diff} = .69, t(311) = 9.48, p < .001, 95% CI [0.549, 0.836], Cohen's d = 0.62). This suggests women's IPV perpetration typically involves verbal threats or shouting rather than physical violence. Correlations between the primary variables and covariates used in the main model are reported in Table 2. ACEs were positively associated with IPV victimization (r = .63, p < .001), IPV perpetration (r = .25, p < .001), and mental health symptoms (r = .46, p < .001). Mental health symptoms were also associated with IPV victimization (r = .49, p < .001) and IPV perpetration (r = .32, p < .001).

Latent Variable Analysis

Prior to fitting the main model, we explored the factor structure for DASS-21. We first tested the 3-factor structure of DASS-21 as proposed by Lovibond & Lovibond (1995) using confirmatory factor analysis (CFA). The model resulted in a Heywood case whereby an estimated variance of a parameter is greater than 1 or negative, potentially due to poor fit or model misspecification (Dillon et al., 1987). Next, we tested a two-factor structure using

exploratory factor analysis (EFA), which resulted in another Heywood case. Finally, we tested a one-factor structure, which appeared to have an acceptable fit for the data ($\chi^2_{(df=189)} = 317.54$, $p < .001$, *Robust CFI = .93, Robust RMSEA = .059, 90%CI [.047, .071], SRMR = 0.051*). Prior research in India suggests that a one-factor model may be appropriate in the context of India to examine general psychological distress (Sharma et al., 2020). All items loaded well on the factor, all $\lambda s > 0.45$, and were statistically significant.

Structural Equation Model

Next, we fit the main SEM model to examine if IPV victimization and/or IPV perpetration serve as indirect effects in the association between ACEs and mental health symptoms. We calculated variance inflation factors (VIF) for all predictors and confirmed values were below 2.6, indicating no problematic multicollinearity (Hair et al., 2010). The fit statistics for the model ($\chi^2_{(df=349)} = 598.16$, $p < .001$, *Robust CFI = .90, Robust RMSEA = .056, 90%CI [.048, .063], SRMR = 0.052*) suggested an acceptable fit on all metrics. The model explained 34% of the variance for DASS-21 (i.e., $R^2 = .34$; Figure 1 and Supplemental Table 1).

In the final model, we found that there was a positive association between ACEs and IPV victimization ($\beta = .62$, $p < .001$) and perpetration ($\beta = .24$, $p < .001$), though the magnitude of the association between ACEs and IPV victimization is more than twice the size of the magnitude between ACEs and IPV perpetration. The path between IPV victimization and mental health symptoms was also significant ($\beta = .24$, $p = .036$), but the path between IPV perpetration and mental health symptoms was non-significant ($\beta = .07$, $p = .364$). Examining the indirect paths, there was a significant indirect association between ACEs and mental health symptoms via IPV victimization ($\beta = .15$, $p = .035$) but not IPV perpetration ($\beta = .02$, $p = .355$). Results from all sensitivity analyses were consistent with the final model, with one exception: in the binary

IPV model, the path from IPV perpetration to mental health symptoms was significant (β = .38, p = .017), and there was a significant indirect effect from ACEs to mental health symptoms via IPV perpetration (β = .03, p = .024; see Supplemental Tables 2-4).

Given the finding that ACEs and mental health symptoms were associated indirectly via the effect of IPV victimization, we conducted a follow-up analysis to assess which type of IPV victimization served as an indirect effect in the path between ACEs and mental health symptoms. See Supplemental Figure 2 for the model depicting the follow-up analysis. We allowed all victimization types to covary. The model had an acceptable fit to the data ($\chi^2_{[389]}$ = 665.98, p < .001, *Robust CFI = .90, Robust RMSEA = .056, 90%CI [.048, .063], SRMR = 0.052*). We found that the associations between ACEs and psychological aggression (β = .47, p < .001), physical assault (β = .61, p < .001), physical injury (β = .54, p < .001), and sexual coercion (β = .49, p < .001) were all significant. However, none of the associations between the four types of victimization and DASS-21 were statistically significant. Similarly, examining the indirect paths, none of the indirect associations were significant.

Discussion

Mental health concerns impose a significant population-level burden in India, particularly among women (Sagar et al., 2020). Identifying antecedent factors associated with worse mental health is key to a prevention-focused public health approach. The present study examined whether adverse childhood experiences (ACEs) are associated with recent mental health symptoms through intimate partner violence (IPV) victimization and perpetration among rural Indian women. While prior research has found individual associations between these constructs (Daníelsdóttir et al., 2024; Sharma et al., 2019; Dutta et al., 2016), the present study investigated the relationship in a single model within an understudied and vulnerable population.

Several important findings emerged from the present study. First, we observed a higher prevalence of IPV in our sample relative to the 2019-21 National Family Health Survey for Uttar Pradesh (IIPS & ICF, 2021), with both physical violence (48.4% vs. 34.2%) and sexual violence (23.7% vs. 6.2%). These elevated rates may reflect the particularly vulnerable socioeconomic status of women in Bahraich District, which has one of the highest poverty rates and one of the lowest female literacy rates amongst districts in India (National Health Mission, 2017). In this context, our core finding was that IPV victimization, rather than perpetration, appears to indirectly connect childhood adversity and current mental health symptoms. This finding aligns with developmental trauma theories, suggesting early adversity creates vulnerabilities that increase risk for both revictimization and psychological distress (Walker & Wamser-Nanney, 2023). Interestingly, no single type of IPV victimization accounted for this pathway, suggesting it may be the cumulative burden of multiple forms of victimization that contributes to psychological distress rather than any specific form of violence. Our analyses also showed that ACEs remained significantly associated with mental health symptoms even after accounting for more recent IPV experiences, highlighting that childhood adversity is independently related to current psychological distress. This finding may reflect the profound neurobiological and psychological impact of developmental trauma, which can disrupt stress-response systems and cognitive schemas in ways that persist independently of later interpersonal stressors (McLaughlin & Lambert, 2017; Teicher et al., 2016).

Additionally, there is limited research on the association between ACEs exposure, IPV perpetration, and mental health amongst women globally (McGrath et al., 2024), and this question, to our knowledge, has not been explored in India. Our study adds to this nascent literature, suggesting that there was a positive association between IPV perpetration and ACE

exposure (r = .25) as well as mental health symptoms (r = .32) among women in India, even as perpetration did not serve as an indirect effect in the relationship between ACEs and mental health symptoms. This finding extends social learning theory by suggesting that learned helplessness and victimization experiences, rather than learned perpetration behaviors, may be the primary pathways associated with ACEs and mental health symptoms in the present context, consistent with prior research showing stronger associations for learned victimization than perpetration pathways (Renner & Slack, 2006). Our findings reveal that only a small proportion of women (2.2%) reported IPV perpetration without experiencing victimization, aligning with the 2019-21 NFHS data from Uttar Pradesh, where just 3.8% of women reported similar unidirectional IPV. This finding suggests that the vast majority of perpetration by women may be motivated by self-defense (Langhinrichsen-Rohling, McCullars, et al., 2012), given the gender inequities and power imbalance in India (Siddiqi, 2021). Findings from the present study also highlight the salience of bidirectionality in IPV, which is consistent with prior research in the US (Langhinrichsen-Rohling, Misra, et al., 2012). That said, it should also be noted that the types of victimization and perpetration varied such that IPV perpetration by women was more likely to involve psychological aggression (e.g., threats) rather than physical assault (e.g., hitting).

Potential Strengths

The present study has several strengths. First, we explore the relationship between ACEs, IPV, and mental health concerns in an understudied population. Second, we utilized an SEM approach to ensure that our outcome measure, which was translated and adapted for the present study, has a lower possibility of measurement error (Cole & Preacher, 2014). Third, we utilized rigorous methods to translate and back-translate instruments into Hindi and used appropriate methods to address low levels of literacy in this difficult-to-reach population. Finally, we also

include important contextual covariates such as caste, wealth, and literacy, which help account for critical factors that shape women's experiences of violence and mental health in rural India (Jiwani et al., 2023; Kebede et al., 2022). This strengthens the ecological validity of our findings and provides nuanced understanding of risk pathways.

Limitations

The present study has several important limitations that ought to be considered in interpreting the results. First, the data were collected cross-sectionally and retrospectively, which limits our ability to make any causal inferences. We acknowledge criticisms of examining indirect effects with cross-sectional data (e.g., Maxwell et al., 2011). However, we attempted to rectify this situation by taking several steps. First, we included socioeconomic and demographic covariates that were associated with mental health concerns and could otherwise confound the results. Second, we sequenced our model temporally such that our exogenous variable was measured before 18 years of age, the indirect effects variable reflected lifetime IPV experiences, which may have occurred after the age of 18, and mental health symptoms were measured in the past week. This sequencing does not, however, address key endogeneity concerns: mental health symptoms may have preceded IPV experiences (i.e., reverse causation), unmeasured confounders could lead to concurrently higher IPV exposure and mental health outcomes, and time since trauma exposure remains unaccounted for—all potentially biasing our estimates upward (Devries et al., 2013; McFarlane, 2010). Additionally, collecting measures at the same time from multiple timepoints may introduce additional bias due to priming (Hjortskov, 2017) or availability heuristic (Tversky & Kahneman, 1974). That said, a recent meta-analysis suggests that retrospective accounts of childhood abuse had a stronger association with psychopathology relative to prospective accounts (Baldwin et al., 2024). It is also important to note that our

indirect effects model achieved acceptable but not excellent fit statistics, which may reflect potential model specification concerns. Additionally, IPV perpetration only had acceptable reliability, which may reflect a need to improve measurement in future work.

Second, our context is limited as we only collected data from one district in India using a convenience sample. While Bahraich district had the highest poverty rate in India in 2021, and one of the lowest literacy rates among women, the diverse socio-cultural landscape of rural India means that women's experiences likely vary significantly across regions (Brahmapurkar, 2017). Additionally, the use of a convenience sample likely introduced a sampling bias, which is an important consideration when interpreting the results. Third, to collect data in a low-literacy context, we administered structured questionnaires verbally rather than using anonymous self-completed surveys. This approach may have introduced social desirability and recall biases, particularly given the stigma of discussing violence outside the family. These biases may have led to underreporting of ACEs and IPV, consistent with research in other developing country contexts (Fowler et al., 2020). Additionally, we did not include validation of our findings through secondary sources (e.g., family reports) due to logistical and ethical considerations. Fourth, the IPV questions about victimization and perpetration were only asked of one partner, and given the documented disagreement between partners when reporting IPV (Armstrong et al., 2002), this approach may not provide a complete picture of IPV within a given household context. Future studies may want to consider dyadic research to get a more complete picture. We also did not examine how specific ACEs exposures were associated with IPV victimization or perpetration and current mental health symptoms. Some work has shown that child maltreatment ACEs may be more strongly associated with adult mental health symptoms compared to household dysfunction ACEs (Negriff, 2020). Future studies could examine whether such a

pattern holds for women in India. Finally, another important limitation is that we employed constructs and measures primarily developed in Euro-American contexts to study phenomena in rural North India. Despite involving local community leaders in adapting scales, our quantitative approach may not fully capture the region's complex socio-cultural dynamics, including local conceptions of well-being and distress that often differ from Euro-American psychiatric categorizations (Kohrt et al., 2020).

Implications & Future Directions

Overall, addressing the interconnected challenges of ACEs, IPV, and mental health requires a comprehensive, multi-level approach that considers the unique context of rural India. Here we provide some initial implications and future directions for consideration. First, the findings highlight the importance of preventative action related to ACE exposure. Specifically, policymakers and researchers may want to consider developing community-based interventions that educate parents and caregivers on the long-term damaging impact of ACEs on children's wellbeing and provide them with the training and skills to adapt their parenting behaviors (Jiwani, 2024; Trivedi et al., 2021). Second, providing specialized training as well as screening tools to local health workers on ACEs and IPV would allow greater integration of mental health services in the preexisting healthcare system (Glowa et al., 2016). Additionally, expansion of a multidimensional empowerment program for adolescent girls (which currently includes nutrition, reproductive health education, and vocational training) to include greater awareness of mental health concerns may also be supportive in reducing future IPV exposure (Chatterjee & Poddar, 2024). Third, while there have been steps taken in India to address the burden of mental health concerns, current policies largely only focus on certain mental health conditions (e.g., schizophrenia) and not nearly enough on mental health concerns such as depression and anxiety

(Malhotra, 2023). Additionally, legal frameworks around IPV largely do not consider the mental health impact of IPV victimization (Ghosh & Choudhuri, 2011). As such, there is a need for an integrated legal and policy framework that focuses on the mental health consequences of ACE and IPV exposure. Finally, the present study began an exploration of IPV perpetration by women in the Indian context. Researchers may consider including these questions in IPV-related research to examine the prevalence and potential impacts of IPV perpetration by women.

Conclusion

This study examined ACEs, IPV victimization, IPV perpetration, and mental health simultaneously in rural Indian women—an approach not previously undertaken in this context. Our inclusion of both victimization and perpetration reveals the complexity of violence experiences among this population. We observed a high prevalence of IPV victimization and ACEs among rural Indian women, with more than half reporting IPV victimization and nearly half reporting at least one ACE. ACEs were associated with increased mental health symptoms through IPV victimization experiences, but not through perpetration. ACEs also remained significantly associated with mental health symptoms after accounting for IPV exposure. Future longitudinal and mixed methods work should clarify the directionality of mental health and IPV experiences and whether there are reciprocal relationships. Findings underscore the importance of preventing exposure to violence, both during childhood and in adult intimate partner relationships, to reduce mental health symptoms among rural Indian women.

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Table 1

Sample Descriptive Statistics

Variables	Mean	SD	n	%	Min	Max	Skew	Kurtosis
Age	26.71	4.81			18	40	0.71	3.24
Wealth Index	7.11	5.09			1	30	1.34	5.07
Adverse Childhood Experiences	2.24	2.95			0	11	1.09	2.94
IPV Victimization	8.06	10.28			0	39	1.17	3.25
IPV Perpetration	2.29	3.93			0	26	2.66	11.89
Mental Health	10.56	9.87			0	57	1.07	4.4
IPV Aggression Victimization	3.25	3.96			0	14	1.07	3.05
IPV Assault Victimization	3.01	4.14			0	14	1.15	3.04
IPV Injury Victimization	1.02	2.07			0	9	2.13	6.62
IPV Sexual Coercion Victimization	0.78	1.75			0	7	2.3	7.18
IPV Aggression Perpetration	1.63	2.74			0	13	1.89	6
IPV Assault Perpetration	0.25	1.02			0	7	4.65	25.19
IPV Injury Perpetration	0.34	1.29			0	10	4.64	25.99
IPV Sexual Coercion Perpetration	0.08	0.59			0	7	9.03	89.65
Literacy			166	53.2				
Caste								
General Caste			122	39.1				
SC/ST			69	22.1				
Other Backward Classes			121	38.8				

Note. IPV = intimate partner violence; IPV Aggression = Psychological Aggression; SC/ST = Scheduled Caste/Scheduled Tribe

Table 2

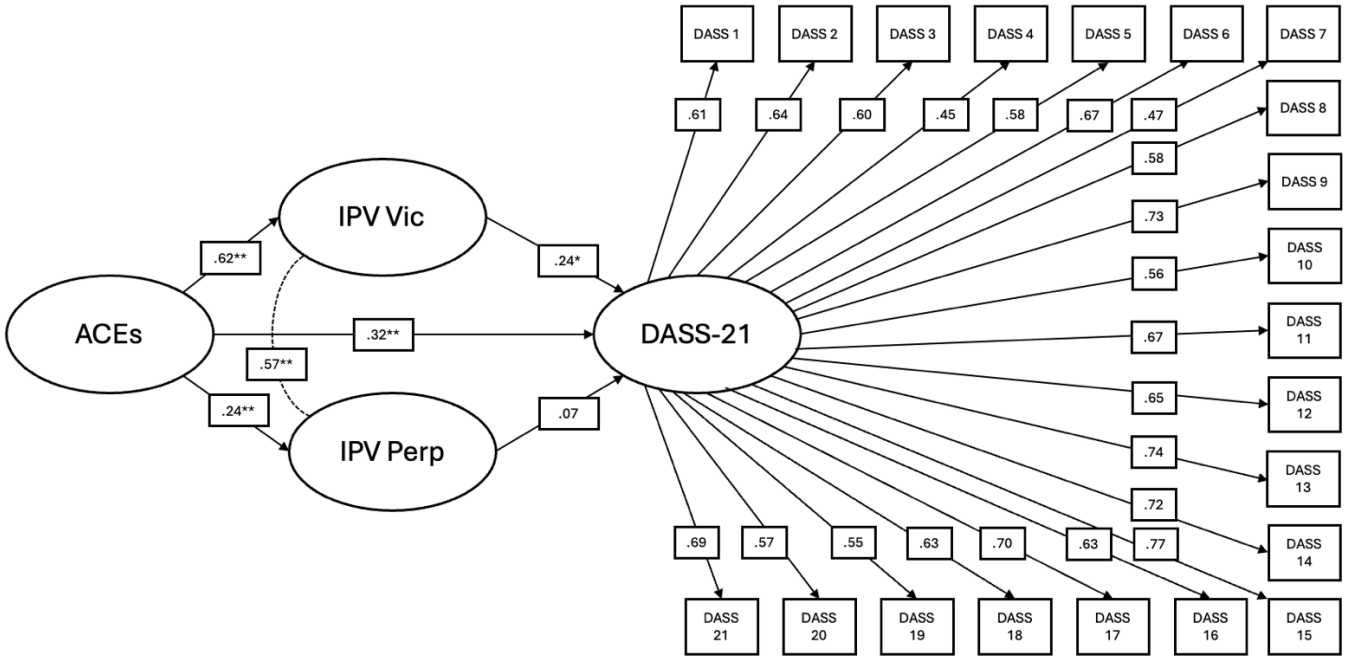
Correlations between the variables in the main model

	2	3	4	5	6	7	8	9
1. ACEs	0.63***	0.25***	0.46***	-0.06	0.07	-0.12*	0.23***	-0.13*
2. IPV Victimization		0.60***	0.49***	0.02	-0.05	-0.07	0.25***	-0.06
3. IPV Perpetration			0.32***	0.08	-0.16**	-0.09	0.19***	-0.03
4. Mental Health				0.01	-0.14*	-0.04	0.18**	0.07
5. Age					-0.03	-0.19***	0.02	-0.07
6. Wealth Index						0.03	-0.16**	-0.16**
7. Literacy							0	0.07
8. OBC								-0.42***
9. SC/ST								

Note. IPV = intimate partner violence; OBC = Other Backward Classes; SC/ST = Scheduled Caste/Scheduled Tribe; *** $p < .001$, ** $p < .01$, * $p < .05$

Figure 1

Final Structural Equation Model with Standardized Effect Sizes



Note. ACEs = adverse childhood experiences; IPV Vic = intimate partner violence victimization; IPV Perp = intimate partner violence perpetration; DASS-21 = Depression, Anxiety and Stress Scale; ** $p < .001$, * $p < .05$