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ORIGINAL ARTICLE

A Linear Model of Adverse Childhood Experiences (ACEs) as Drivers of Lower Hope Mediated by Lower Attachment Security in an Adult Sample

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Abstract
Research has established a link between Adverse Childhood Experiences (ACEs) and mental health difficulties across the lifespan. This includes recent research that linked ACEs to lower hope in adulthood. To better understand the link between ACEs and lower hope, the current study tested a model, based in both attachment and hope theory, of ACEs as a driver of lower hope via lower attachment security as a mediator. To test the theorized linear relationship between variables, among a sample of U.S. adults ($N' = 293$), the study employed established measures of ACEs, attachment style, and hope. A 3 variable path model with full mediation model was hypothesized, with ACEs driving lower attachment security that is linked to lower hope. The model was tested with structural equation modeling (SEM). The results indicated the theory proposed full mediation model fit the data well ($X^2 = 102.0$, d$f = 52$; $p < .001$; RMSEA = .057 [90% CI: .041, .074]; CFI: .96; SRMR: .053), with the model indicating ACEs drove attachment insecurity ($R^2 = .125$) that generated lower hope ($R^2 = .208$). A subsequent bootstrapping analysis (n = 5,000) validated the full mediation model. Multigroup analyses also indicated the model was stable across demographic groups. The paper concludes with a discussion of the implications of the results, including how the data suggests a need for further research into interventions for ACE survivors to promote attachment security and hope.

Keywords Adverse Childhood Experiences · Hope Theory · Attachment Theory

Adverse childhood experiences (ACEs; Felitti, et al., 1998) are a variety of traumatic experiences of individuals prior to age 18. ACEs include the experience of parental abuse and neglect, mental illness, substance use, and incarceration (Felitti et al., 1998). Research has consistently established a dose–response relationship between ACEs and mental health difficulties across the lifespan (Chapman et al., 2004; Felitti, et al., 1998), including lower hope in adulthood (Baxter et al., 2017; Munoz et al., 2018;). The prevalence of ACEs and their negative effects are such that some have called the impact of ACEs as a public health crisis (Dube, 2018; Zarse, et al., 2019).

Lower hope is concerning for ACE survivors because research has demonstrated a consistent, positive link between a hopeful mindset and an array of other variables of greater well-being (Ong et al., 2018; Snyder et al., 1991). Understanding the mechanisms that link ACEs to lower hope in adulthood may assist in the development of better interventions for adult ACE survivors. An important effort given that the best practices for treating ACE survivors have yet to be established (Finkelhor, 2018). Grounded in hope (Shorey et al., 2018; Snyder, 1994) and attachment theories (Bowlby, 1988), the current study was designed to test lower attachment security to others as a potential mechanism that links ACEs to lower hope among a sample of adult ACE survivors.

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Hope Theory

One of the most well researched theories of hope is that of Snyder et al. (1991), who defined hope as a two-dimensional cognitive set of goal-directed expectations. The two dimensions of hope are *agency* and *pathways* thinking (Snyder et al., 1991).

Hope agency thinking (Snyder et al., 1991) reflects a cognitive assessment of one's capability to initiate and sustain goal-directed action (e.g., "I am capable," "I am ready," "I have got what it takes"). Hope pathways thinking (Snyder et al., 1991) is akin to cognitive mapping (Tolman, 1948), and involves the identification of viable routes to goals (e.g., "I have an opportunity," "I have a solid plan," "I know how to get there"). Collectively, agency and pathways thinking iteratively form an individual's overall hope (Snyder et al., 1991).

Research has consistently shown that hope is positively associated with resilience. For example, among survivors of domestic violence, hope has positively correlated with a greater sense of empowerment (Muñoz et al., 2017). Among individuals experiencing homelessness, hope has positively correlated with health-related quality of life (Muñoz et al., 2016). Among children in foster care, hope has been linked to character strengths such as zest, grit, self-control, optimism, and curiosity (Hellman and Gwinn, 2017). In fact, in a systematic review of 99 hope studies, Ong et al. (2018) found that hope has routinely correlated with a litany of variables associated with resilience.

The Origins of Hope Given hope's position as an important variable of resilience (Ong et al., 2018), understanding hope's origins may guide the development of better interventions for ACE survivors. Hope theorists have proposed a developmental model of hope, wherein hope is formed by the quality of relationships an individual has with childhood caregivers (Shorey et al., 2018; Snyder, 1994, 2000). In fact, Snyder (2000) speculated that hope levels originate from as early as infancy and are influenced by the quality of caregiver relationships. Moreover, hope theory posits that the quality of a person's relationship with early caregivers has far reaching effects on interpersonal relationships across the lifespan (Shorey et al., 2018; Snyder, 1994).

Attachment Style The impact of the quality of early caregiving relationships has long been an object of interest to researchers. Attachment theory is a comprehensive attempt to explain the influence of early childhood caregiving relationships across the lifespan. Attachment theory posits that the quality of our early caregiving relationships forms within us a stable attachment style that can carry into adulthood (Bowlby, 1988; Collins & Feeney, 2000; Simpson & Rholes, 2017). Attachment styles range from secure, characterized by the perception that others are dependable and trustworthy, to insecure, marked by the perception that others cannot be trusted (Bowlby, 1988). Individuals with supportive caregivers are more likely to have a secure attachment style, contrasted by children who experience maltreatment from early caregivers who are more likely to development insecure attachments (Bowlby, 1988; Snyder, 1994). An insecure attachment style is conducive to lower hope in adulthood because secure relationships are important to goal attainment throughout life (Snyder, 1994).

A growing research base supports Snyder's understanding of the influence of early childhood relationships on hope, and that the mechanism that links the two is attachment style. For example, individual differences in hope in adulthood have been linked to a person's attachment style (Blake & Norton, 2014; Blake et al., 2018). Hope is also a demonstrated mediator between secure relationships with caregivers during childhood and positive adult mental health (Shorey et al., 2003). Among adolescents, research has shown hope is associated with a secure attachment to parents (Jiang et al., 2013) and has been linked to responsive parenting styles (Heaven & Ciarrochi, 2008). Finally, research supports that children who perceive their parents/caregivers as engaged in promoting their children's goals are more likely to have higher hope (Muñoz et al., 2019).

The Current Study

Grounded in both attachment theory (Bowlby, 1988) and hope theory (Shorey et al., 2018; Snyder, 1994), the current study tested, among a sample of US adults, a model of ACEs as a driver of lower hope in adulthood via the mechanism of lower attachment security. The hypothesis was that such a model would provide good fit to the data. Should the hypothesis be supported, the result may provide insight into the development of better interventions to assist ACE survivors of parental/caregiver abuse.

Method

Procedure

The inclusion criterion for the study was adulthood between the ages of 18–64. Participants were enrolled in the study via an online survey created with Qualtrics (2005) software. Participants' email addresses for survey delivery were obtained from a roster of attendees of a child abuse

prevention conference held in the United States. Individuals where from across the US and performed a variety of professions.

Before completing the survey, each participant was presented with a consent information screen informing participants of the purpose of the study and its voluntary nature. An incentive was provided for those that agreed to participate. The incentive was entrance into a drawing for a registration for a future conference. The institutional review board of the researcher's institution approved the study.

Participants

The mean age of the sample ($N' = 293$) was 43 years ($SD = 12$). The gender identification of the sample consisted of 84% female and 16% male. For race, the sample consisted of 72% white and 28% minority. For ACE score, 19.1% reported 0 ACEs, 17.4% reported 1 ACE, 18.1% reported 2 ACEs, 15.8% reported 3 ACEs, and 19.6% reported 4 or more ACEs (See Table 1 for comparisons of the current sample to a national sample). Participants reported a variety of professions, with 36% reporting working as a child welfare advocate, 11% working in law enforcement, 5% as therapists, 7% as attorneys, 4% as nurses, 2% as doctors, and 1% as a parole/probation officer. Thirty three percent reported a profession that was not listed.

Instruments

Adverse Childhood Experiences Scale Individual differences in the experience of abuse from a parent/guardian were measured using the Adverse Childhood Experiences Scale (ACE; Felitti et al., 1998). The 10 item ACE scale captures individual experiences in adverse childhood experiences that occurred prior to age 18, including parental/caregiver abuse or neglect (Felitti et al., 1998). Responses to ACE items are captured in a yes or no format, with the number of yes responses summated for a total ACE score from 0 to 10. Higher ACE scores reflect a greater experience of childhood trauma. ACEs have been positively linked to dysphoric variables such as depression (Chapman et al, 2004) and less secure attachments to others (Thomson & Jaque, 2017).

While the ACE scale consists of 10 items, three of the items capture individual differences in adverse experiences that do not necessarily involve parental/caregiver abuse or neglect. An example of one such item is the measure of whether a household member spent time in prison (Felitti, et al, 1998). While endorsing such an item could mean a parent/caregiver spent time in prison, it is not necessary to endorse the item. Thus, to reduce noise in the model, for the current study, because attachment theory posits maltreatment from a parent/caregiver is the largest driver of lower attachment security across the life span, only the ACE items that closely reference parental/caregiver neglect or abuse were used for the path model. This decision resulted in a total of seven ACE items used to total an ACE score for the path model. Using only seven items had no effect on the properties of the ACE scale as the tool is a formative index (see below). However, for the descriptive statistics in the study reporting in the participants section, all 10 ACE items were used.

Formative Scale For the purposes of the statistical analysis, ACE scores were modeled as a formative index. The defining characteristic of a formative index is that no assumptions are made about correlations between items (Blunch, 2008; Diamantopoulos & Winklhofer, 2001) For example, for the ACE scale, we did not assume that parental/caregiver neglect necessarily correlates with parental/caregiver abuse. Thus, internal consistency evaluations were inapplicable for the ACE scale.

Revised Adult Attachment Scale For the purposes of this study, individual differences in attachment styles were measured by using the Revised Adult Attachment Scale (R-AS; Collins, 1996). The R-AS is composed of 18-items, with six items that measure anxiety toward others, six that measure comfort with depending on others, and six that measure comfort being close to others. The R-AS employs a Likert response format for each item, with responses ranging from 1 = not at all characteristic of me to 6 = very characteristic of me. Higher scores on the depend and close subscales mean greater attachment security, while lower scores on the anxiety subscale mean greater attachment security. The R-AS has produced good internal consistency, and R-AS have correlated negatively with anxiety and depression over relationships (Collins, 1996).

Table 1 ACE Score Prevalence for Current Study and CDC-Kaiser ACE Study Participants

ACE Score	Current Sample (N = 293)	National Sample (N = 17,337)
0	19.1%	36.1%
1	17.4%	26.0%
2	18.1%	15.9%
3	15.8%	9.5%
4 or more	19.6%	12.5%

Notes.—Source: Centers for Disease Control and Prevention, Kaiser Permanente. The ACE Study Survey Data [Unpublished Data]. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Available at: https://www.cdc.gov/violenceprevention/aces/about.html

Dispositional Hope Scale Individual differences in hope were measured using the Dispositional Hope Scale (DHS; Snyder et al., 1991). The DHS is a 12-item item scale that consists of four items that assess hope agency, four that assess hope pathways, and four filler items. Responses for each item are captured with an 8-point Likert response format, with scores ranging from 1 = definitely false to 8 = definitely true. Higher scores indicate greater agency and pathways thinking.

The DHS has been used in many studies, with a reliability generalization study indicating the DHS consistently demonstrates good internal consistency (Hellman et al., 2013). The DHS has also shown good validity, with DHS scores demonstrating robust negative correlations with hopelessness and depression (Feldman & Snyder, 2005). The DHS has also demonstrated positive correlations with positive emotions and life satisfaction (Munoz et al., 2017; Snyder et al., 1991).

Data Analysis

Covariance based structural equation modeling (CB-SEM) was used to test a latent variable path model of the study variables. As noted above, the model specification was guided by both attachment theory (Bowlby, 1988) and hope theory (Shorey et al., 2018; Snyder, 1994), with the path model consisting of a linear relationship (a) ACEs as an antecedent of (b) less secure attachments, which culminate in (c) lower hope.

All calculations were performed using maximum likelihood estimations and the SPSS Amos 19 add on (Arbuckle, 2010). Per standard CB-SEM practice, the reference variable approach was used to estimate the model's latent variables. The reference variable approach involves setting an unstandardized coefficient on the respective latent variables to one, thereby giving each latent variable a unit of measurement (Bollen, 1989).

The quality of the proposed theoretical model at explaining the observed data was judged according to multiple fit criteria. First, we used the Root Mean Square Error of Approximation (RMSEA), with scores ≤ 0.08 indicating acceptable fit (Browne & Cudeck, 1993). Second, we employed the Comparative Fit Index (CFI) with a value of ≥ 0.95 indicating acceptable fit (Hu & Bentler, 1999) and the Standardized Root Mean Square Residual (SRMR) with a value > 0.08 (Hu & Bentler, 1999). Finally, we employed a χ^2 analysis with a threshold of $p > 0.05$ indicating acceptable fit. However, it is well known that the χ^2 is sensitive to sample size and frequently exhibits a $p < 0.05$ even in the case of acceptable fit according to tother indices (Kline, 2016).

Missing Data The missing data rate for the ACE scale was 9%, 8% on the close, anxiety, and depend subscales, respectively, and 5% for hope items. Thus, the missing data rate was below commonly referenced thresholds that would raise concerns (Bennet, 2001; Hair et al., 2014). However, to increase the power of the study to detect population effects, full information maximum likelihood analysis (FIML) was used to generate parameter estimates in the presence of missing data. FIML is considered an effective tool for generating non-biased parameter estimates under a variety of missing data mechanisms (Enders & Bandalos, 2001; Graham, 2009, 2012; Han & Guo, 2014).

Power We used the estimation tables of MacCallum et al. (1996) to determine the power of the model to detect relationships in the population. A model with a degree of freedom (*df*) of 51 and a sample size of *N*' = 293 well exceeded the standard threshold (> 0.80) considered to indicate adequate power (Cohen, 1988).

Nested Models The quality of the proposed model was evaluated by comparing "nested" models. A nested model in CB-SEM is a model with freely estimated parameters that are a subset of another model (Bollen, 1989). To evaluate the quality of a given nested model, as additional paths are added, the resulting $\Delta\chi^2$ is assessed for statistical significance. If the $\Delta\chi^2$ produced by the additional path is statistically significant, the path is retained in the final model (Kline, 2016). If the $\Delta\chi^2$ is not significant, the added path is trimmed from the final model based on the principle of parsimony (Kline, 2016).

Mediation Analysis Mediation analysis was also used to evaluate the quality of the proposed structural model at explaining the data. Mediation analysis involves evaluating the size of a respective path model's direct and indirect effects (Hayes, 2013). Mediation is considered present when the indirect effects between variables are statistically significant and robust relative to a model's proposed direct effects. Mediation testing is often used with path models to test linear relationships between variables (Hayes, 2013).

Best practices for CB-SEM modeling suggest (Danner et al., 2015) that the statistical significance of the proposed path model's direct and indirect effects also be evaluated via bias-corrected (BCa) bootstrap resampling (Efron & Tibshirani, 1986; Hayes, 2013). With bootstrapping, repeated subsamples are randomly drawn, with replacement, from the original sample. This process is repeated many times, with a n = 5000 often referenced as an adequate number of subsamples to redraw (Hair et al., 2014). The bootstrap resampling process allows for the generation of confidence intervals (CI) for the model's direct and indirect effects in the population. When the 95% CI's for the

direct and indirect effects generated by bootstrapping do not contain zero, the parameter is considered statistically significant (Hayes, 2013).

Predictive Power In addition to assessing the model's overall fit, we examined the model's predictive power. This was accomplished by examining the squared multiple correlations (R^2) for the model's respective endogenous variables (Bollen, 1989). Higher values for R^2 indicates a model accounts for more variance in the model's respective endogenous variables.

Multigroup Analysis To test the stability of the model across demographic groups, we performed several multiple group invariance tests (Bowen & Guo, 2012). Such analyses compare the global fit measure of χ^2 to determine is the fit of the model of one group is significantly different when compared to another group after fixing parameter estimates to be equal. If no significant difference is found, this supports the conclusions the model invariant across groups. For the current study, three multigroup analyses were performed comparing model fit for: 1.) those self-reporting as white versus those reporting as part of a underrepresented group; 2.) those reporting female to that reporting male; and 3.) those reporting age 40 and under to those reporting age over 40.

Results

We began assessing the results by evaluating the internal consistency of all the items for the respective scales. Each set of items exceeded minimum alpha thresholds, with the depend subscale = 0.847; the anxiety subscale = 0.909; the close subscale = 0.847; and the hope scale = 0.858. Alphas were not calculated for ACE scores because they were modeled as a formative variable. Formative indices make no assumptions about the correlations of items on the index (Blunch, 2008; Diamantopoulos & Winklhofer, 2001).

Table 2 Zero Order Correlations (N' = 293)

Variables	1	2	3	4	5
1. ACEs	2.6 (2.3)				
2. Anxiety	.264**	12.5 (5.6)			
3. Close	-.215**	-.481**	22.1 (4.4)		
4. Depend	-.287**	-.585**	.582**	19.6 (4.7)	
5. Hope	-.041	-.293**	.283**	.294**	41.2 (4.3)

Notes. – $^{**}p < .05$. Means and standard deviations are across the diagonal

Structural Model

Before testing the structural model, the normality assumptions of ML analysis were evaluated. The results indicated that all items exhibited the normality necessary for the usage of ML estimations (Kline, 2016). An examination of the zero order correlations also indicated the variables correlated in the expected directions (Table 2).

Having established the adequacy of the data for ML estimations, we moved next to examining the proposed structural relationships between the variables. The first model, or Model A, contained a "full" or "indirect effect only" (Zhao et al., 2010) form of mediation. This involved modeling only a direct linear relationship between the ACEs and hope via attachment style as a mediator. A full mediation model was tested first because full mediation models are considered the strongest in support of a linear relationship between variables (Zhao et al., 2010).

Upon running the first ML estimation of model fit, the results indicated that the model produced good fit ($X^2 = 101.3$, d$f = 51$; $p < 0.001$; RMSEA = 0.058 [90% CI: 0.041, 0.075]; CFI: 0.96). However, an examination of the scalars of the model indicated a single negative error variance, on the agency of dimension of hope (-0.038). Such a result, while not uncommon, raises concerns because a negative variance is not theoretically possible, and may indicate a model misspecification. In such cases, to test if the negative variance is cause for concern, Van Driel (1978) suggested examining the 95% confidence interval (CI) around the point estimate of the negative error variance. If the 95% CI contains the value of 0, such a result suggests that the population variance is positive and near zero. This result would also suggest that the negative error variance is due to random sampling fluctuation. In the current case, the negative error variance value was -0.038, with the 95% CI containing a lower bound of -0.088 and an upper bound of 0.012. Thus, per Van Driel (1978), we concluded that the negative error variance in the model was a product of chance rather than model misspecification. We then followed the guidance of Dillon et al. (1987) and Gerbing and Anderson (1987) by fixing the negative error variance to 0. We re-ran the model and found nearly identical good fit statistics sans the negative error variance ($X^2 = 102.0$, d$f = 52$; $p < 0.001$; RMSEA = 0.057 [90% CI: 0.041, 0.074]; CFI: 0.96; SRMR: 0.053).

Having established the reliability of the global fit of Model A, the full mediation model, we turned to examining the model's respective parameters. All factor loadings in the full mediation model were also > 0.50 and statistically significant. Moreover, in alignment with the predictions of attachment theory (Bowlby, 1988), ACEs had a robust negative relationship with secure attachments ($\beta = -0.35$), meaning the greater the ACEs, the less securely attached one

was likely to feel toward others. Moreover, per hope theory (Shorey et al., 2018; Snyder, 1994), secure attachments had a positive relationship with hope ($\beta = 0.46$), meaning as individuals feel more securely attached to others, the more likely the individual is to be hopeful. The full mediation model also accounted for robust variance in both attachment security ($R^2 = 0.125$) and hope ($R^2 = 0.208$).

Nested Models Although the full mediation model fit the data well, we compared it to a nested model, Model B, to validate the full mediation model as the best at explaining the data. Model B reflected complementary mediation (Zhao et al., 2010), which involved testing the value of adding a direct path from ACEs to hope. This direct path was absent from Model A. The additional path evaluated whether variance was shared directly between ACEs and hope without attachment security as a mediator. The additional direct path did not significantly improve the model's fit ($\Delta\chi^2$ (1) = 3; $p = 0.08$). Thus, based on the principle of parsimony (Kline, 2016), the direct path from ACEs to hope was not included in the final model.

Bootstrapping Per the best practices of CB-SEM (Danner et al., 2015), we used bootstrapping to validate the full mediation model as the model of best fit. Bootstrap resampling (n = 5000) allowed us to further test the statistical significance of the full mediation model's direct and indirect effects. The results indicated the standardized negative indirect effect of ACEs on hope, through less secure attachments as a mediator, exhibited statistical significance ($\beta = -0.184$, $p < 0.001$; BCa 95% CI [-0.283, -0.111]). Conversely, the standardized direct effect of ACEs on hope was not statistically significant ($\beta = 0.110$, $p = 0.114$; BCa 95% CI [-0.021, 0.239]. In sum, the results of bootstrapping aligned with the comparison of nested models, with both tests indicating that the full mediation model was the best at explaining the data.

Multigroup Invariance Finally, to test the stability of the full mediation model across demographic groups, we performed a series of multigroup invariance tests. First, a comparison of the model's fit between those self-identifying as white to those self-identifying as part of an underrepresented group indicated that the fit of the model was not significantly different between the two groups ($\Delta\chi^2$ (11) = 5.3; $p = 0.92$). Likewise, a multigroup invariance test comparing the model's fit between individuals reporting to be female to those reporting to be male indicated there was no significant difference between those groups on model fit ($\Delta\chi^2$ (11) = 15.3; $p = 0.17$). Finally, a multigroup invariance test comparing individuals reporting to be 40 and under to those over 40 again indicated there was no significant difference in fit between those groups ($\Delta\chi^2$ (11) = 14.3; $p = 0.22$). Such results collectively support the stability of the full mediation model across these demographic groups.

Discussion

The purpose of this study was to investigate the relationship between ACEs and lower hope into adulthood. The data shows that the experiences of parental abuse/neglect as captured by the ACE scale negatively influenced attachment styles that lead to lower hope among this sample of adults. The results were consistent with the predictions of hope theory (Shorey et al., 2018; Snyder, 1994) and attachment theory (Bowlby, 1988). In relation to attachment theory, the results align with the view that the quality of early childhood relationships influence adult attachment style across the life span (Bowlby, 1988). This result also aligns with other studies that indicate experiences of childhood trauma negatively affect survivors' expectations of others dependability (Sarason et al., 1990). Moreover, lower attachment security for adult child abuse survivors is problematic because lower attachment security frequently and adversely influences an individuals' help-seeking behavior (Cacciola & Psouni, 2020; Wallace & Vaux, 1993). The significant relationship found in the study between reductions in attachment security and lower hope is also in alignment with Snyder's (1994) contention that obtaining our goals almost always involves working with others, and that childhood trauma such as child abuse/neglect can produce distrust of others that siphons hope (Shorey et al., 2018; Snyder, 1994).

Implications

The results of the current study suggest a direction for future research into best practice intervention modalities for certain ACE survivors. Namely, interventions that target increases in attachment security. While interventions that target increases in attachment security exist in the context of treating attachment disorders, such interventions are often associated with child therapy (Becker-Wiedman, 2006; Shi, 2013). The current study indicates that for certain adult ACE survivors, targeting increases in attachment security may be a helpful mechanism to promote hope within this subpopulation. In fact, such a view is also consistent with Snyder's view of the primary task of therapy, which is to build trust via the therapeutic alliance (Snyder, 1994). Trust in others is a hallmark of attachment security (Bowlby, 1988; Collins, 1996).

Potential Limitations

While the current results hold promise in advancing our understanding of the link between ACEs and lower hope in adulthood, it is important to note potential limitations. First,

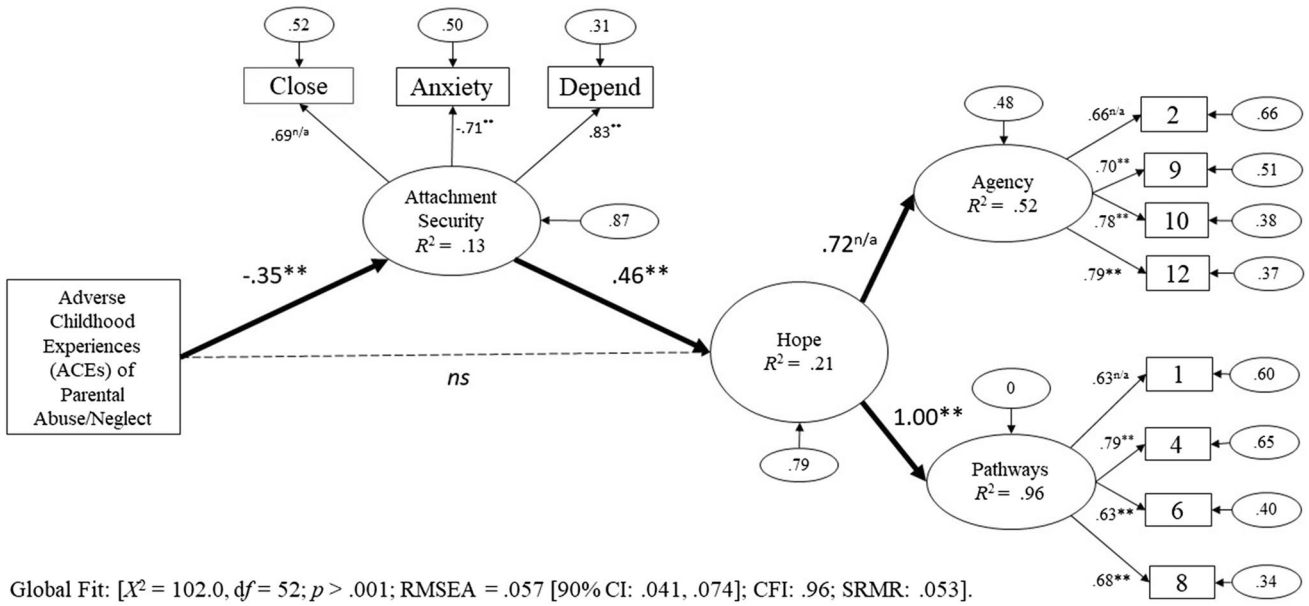

Fig. 1 (*N'* = 293) Linear Path Model with Standardized Values

the theorized CB-SEM model was tested using cross-sectional data. Although testing a model based on a priori theory is considered a best practice for evaluating linear relationships using cross-sectional data (Hayes, 2013), results from such tests should only be considered suggestive. Additional research with longitudinal designs is needed to strengthen support for the proposed linear relationship between the variables. Second, the study was conducted from a single sample drawn from the US. Although we tested multigroup invariance across race, sex, and age, uncertainty remains as to the true parent population from which the sample was drawn. For instance, while the respondents demonstrated a variety of professions, the sample was obtained from participants at a conference focused on domestic violence and child maltreatment. As such, it may be that this sample consisted of individuals with an advanced understanding of childhood trauma that includes the development of coping mechanisms that may aid to buffer the deleterious effects of child abuse. If so, although the findings in our study are robust, they may represent an underestimation of the deleterious long-term effects of child abuse on attachment security and ultimately hope in the broader population. Further research is needed to test this question. Finally, the ACE scale summates the experience of ACEs into a single score (Felitti et al., 1998). However, the items of the ACE scale measure qualitatively different experiences of childhood abuse and neglect. Future research is also needed to determine what experiences of parental/abuse and neglect have the most impact on attachment security and lower hope (Fig. 1).

Conclusion

The purpose of the study was to test the value of attachment theory (Bowlby, 1988) and hope theory (Snyder, 1994; Snyder et al., 1991) at explaining a negative relationship between ACEs and lower hope into adulthood. Consistent with both theories, a CB-SEM model of ACEs as an antecedent of lower hope mediated by lower attachment security provided good fit to the data. As a result, the current study adds to the literature on child abuse trauma by suggesting a future direction for research into the development of better interventions for adult ACE survivors. Targeted outcomes for such intervention research should include increases in attachment security and ultimately hope.

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