

Adverse Childhood Experiences and Posttraumatic Stress as an Antecedent of Anxiety and Lower Hope

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It is well established in literature that hope is an important psychological strength associated with resilience and overall psychological well-being. Early research also indicates that both posttraumatic stress disorder (PTSD) and anxiety have a negative relationship with hope. To better understand the potential mechanisms of the relationship between childhood trauma, PTSD, anxiety, and hope, we conducted a cross-sectional study of homeless individuals residing in the south central United States ($N = 180$). The study measured individual differences in the experience of childhood trauma, PTSD symptoms, anxiety, and hope. Based on the hope theory by C.R. Snyder, we hypothesized that PTSD has a negative relationship with hope because trauma memories can be “attention robbers” that take one’s focus off developing pathways toward future goals. The result is greater anxiety and lower hope. To test this theory, covariance-based structural equation modeling was used to evaluate a model of the variables in the sequential order as follows: (a) adverse childhood experiences, (b) PTSD symptoms, (c) increased anxiety, and (d) lower hope. The results indicated that the observed data produced a “good fit” to a model based on Snyder’s theory ($\chi^2 = 419.38$; $df = 247$; $p \leq .001$; root mean square error of approximation = .06 [90% confidence interval: .05, .07]; comparative fit index = .93; standardized root mean square residual = .06). Such a result suggests that future research is needed with survivors of childhood trauma to further explore mechanisms, such as “attention robbing,” that may link PTSD to greater anxiety and less hope.

Keywords: adverse childhood experiences, PTSD, anxiety, hope

Although research on the relationship between posttraumatic stress disorder (PTSD) and hope is in its nascent stages, existing literature supports that PTSD symptoms and hope have a robust negative relationship (Gilman, Schumm, & Chard, 2012; Levi, Liechentrirt, & Savaya, 2012; Weinberg, Besser, Zeigler-Hill, &

Neria, 2016). In fact, due to reported negative correlations between the two psychological states, some have even suggested that increasing hope is an effective target outcome of intervention efforts to reduce PTSD symptoms (Gilman et al., 2012; Hassija, Luterek, Naragon-Gainey, Moore, & Simpson, 2012; Levi et al., 2012; Weinberg et al., 2016). However, despite the recent research establishing a negative relationship between hope and PTSD, less is known about the mechanisms of the link between PTSD, hope, and a common dysphoric state linked to PTSD, anxiety. Consequently, the goal of this study was to test a theoretical model of the relationships between childhood trauma, PTSD symptoms, increased anxiety, and lower hope.

The study involved a sample of homeless individuals, a subpopulation known to have experienced higher rates of childhood trauma (Mallett, Rosenthal, & Keys, 2005; Martijn & Sharpe, 2006; Tyler & Cauce, 2002; van den Bree et al., 2009). The theoretical model was based on an existing theory that PTSD, anxious arousal, and lower hope are linked by attention deployment, with PTSD consisting in part of attentional focus on memories of past trauma. Because PTSD involves deploying attention toward memories of past trauma, the result is increased anxiety. This ultimately interferes with one’s ability to deploy attention on identifying cognitive maps toward desired goals, resulting in lower hope (Snyder, 1994).

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Literature Review

Information Processing Theory

Since the early days of psychology, attention control has played a central role in explaining global functioning and psychological well-being. For instance, William James (1952) noted that “My experience is what I agree to attend to” (p. 260). James (1952) also noted that the objects that fill attention include not only real-world objects, but also ideals or represented objects such as memories. According to James, controlling the nature of the objects that fill our attention is vital, noting the “effort of attention is the essential phenomenon of will” (James, 1952, p. 816) and that attention control is at the very root of judgment and character (p. 275).

Contemporary understandings of the importance of attention control are described under the umbrella of information processing theory (IPT). IPT holds that all internal psychological responses begin with an outside input (e.g., a visual or auditory stimulus, including memories of events) that impacts one or more of our senses (Atkinson & Shiffrin, 1968, 1971). Once an input is received, the appropriate sensory register holds the stimuli in working memory (WM), which roughly corresponds to what we are consciously aware of at a given moment. Once the input is in WM, an individual then decides to disregard the input, maintain it in WM, or transfer it to long-term memory (Schunk, 2012). The transfer to long-term memory involves assigning meaning to the given input to categorize it into a cognitive *schema* (Matlin, 2009).

A key issue for IPT is understanding how this entire process is regulated. Atkinson and Shiffrin (1968, 1971) suggested that *executive control* regulates the flow of information through the system (Matlin, 2009). A key component of executive functioning is attention control, which describes our willful ability to focus our attention on the objects of our choosing.

Because of its role in regulating information, executive control of attention is thought to be central to global functioning. For example, attention control is thought to govern our efforts to reach goals (James, 1952; Morgan & Lilienfeld, 2000; Suri, Sheppes, & Gross, 2013). Moreover, research supports that various psychopathologies are associated with difficulties in turning attention away from threatening stimuli (De Lissnyder et al., 2012; Drost, van der Does, van Hemert, Penninx, & Spinhoven, 2014; Ingram, Atchley, & Segal, 2011; Iqbal & Dar, 2015; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008; Santa Maria, Reichert, Hummel, & Ehrling, 2012; Watkins, 2008). Logan (2002) argued that attention deployment is so important that it governs all aspects of cognition, including object selection, categorization, memory retrieval, and automaticity.

PTSD and Attention Control

Definitions of PTSD suggest that attention deployment plays a significant role in driving PTSD. For instance, the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*, describes PTSD as involving WM being regularly flooded with negative stimuli, such as “recurrent” and “distressing memories,” “flashbacks,” or “intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event” (American Psychiatric Association, 2013; p. 271). For PTSD sufferers, persistent intrusive memories can en-

courage elaboration on these memories, which can maintain PTSD symptoms (Santa Maria et al., 2012). When PTSD symptoms rise to a clinical disorder, these interruptions are frequent enough to create “significant distress” that impairs healthy functioning (American Psychiatric Association, 2013). Such distress is also associated with increased anxiety, which can inhibit PTSD sufferers in their daily activities (Price & van Stolk-Cooke, 2015; Symptom, 2000).

Research provides empirical support to the theory that attention deployment plays an important role in driving the mechanics of PTSD. For example, Ehrling, Frank, and Ehlers (2008) discovered in research among traffic accident survivors that a repetitive attentional focus on memories of the accident both immediately after and at 6 months postaccident were linked to increases in clinical diagnoses of PTSD. Similarly, another study found that a repeated attentional focus on deleterious stimuli associated with memories of past traumas was linked to the experience of PTSD (Spinhoven, Penninx, Krempein, van Hemert, & Elzinga, 2015). Moreover, research supports that an increased attentional focus on memories of past traumas is also associated with heightened states of anxiety (Norr, Albanese, Boffa, Short, & Schmidt, 2016). As noted, anxiety is an affective state closely linked to PTSD (Price & van Stolk-Cooke, 2015; Symptom, 2000).

Hope Theory

One of the more well-known and researched theories of hope was developed by Snyder et al. (1991). Based on the assumption that all purposeful human action is goal directed, Snyder et al. (1991) defined hope as a positive expectation that one’s goals are attainable. More specifically, hope is a two-dimensional cognitive set of goal-directed expectations consisting of *hope agency* and *hope pathways* (Snyder et al., 1991).

Hope agency reflects a cognitive assessment of one’s capability and determination to achieve goals (i.e., “I can do it,” “I’m ready,” and “I’ve got what it takes”). Snyder also described hope agency as *willpower* (Snyder, 1994), with hope agency reflecting the extent that a person is able to devote mental energy to initiate and continue a strategy toward attaining a goal. Although agency cognitions are important to all goal-directed thought, Snyder considered hope agency to take on special significance when people encounter impediments (Snyder, 1994). During hardships, agency thinking is crucial to help people to maintain the requisite motivation to continue to pursue goals (Snyder, 1994).

Regarding hope pathways thinking, also referenced as *waypower*, Snyder posited that our daily life consists of constant appraisals of how to navigate from Point A to Point B to reach desired goals (Snyder, 1994). Hope pathways thinking (Snyder, 1994) represents a cognitive set involving the assessment of the viability of available pathways (i.e., “I have a solid plan to achieve my goal”). Individuals that experience higher hope appraise multiple pathways toward their goals (Snyder et al., 1991).

Research using psychometric scales based on Snyder’s theory of hope have shown hope plays an important role in driving resilience. For example, hope has been positively associated with a greater sense of empowerment (Munoz, Brady, & Brown, 2017) and life satisfaction (Munoz, Hellman, & Brunk, 2016) among survivors of domestic violence. Among homeless individuals, hope has been associated with less pain (Munoz et al., 2017) and

among children in foster care, hope has been positively associated with multiple other character strengths (Hellman & Gwinn, 2017). Further research among diverse samples has also shown that hope is positively associated with a sense of self-worth (Curry, Snyder, Cook, Ruby, & Rehm, 1997) and a sense of meaning to life (Feldman & Snyder, 2005), and negatively associated with dysphoria (Snyder et al., 1991).

Hope and attention robbers. According to his conception of hope, Snyder (1994) stressed that the higher hope individual must be able to regularly focus his or her attention on identifying goals and the pathways to those goals. Consequently, attentional focus on objects not associated with goal attainment can be detrimental to overall hope. Objects that can lead a person to spend less time contemplating future goal attainment are referred to by Snyder (1994) as “attention robbers.” In describing attention robbers, Snyder (1994) noted,

If you are spending considerable time responding to surrounding people and events, you probably are not concentrating on your important goals. The next step in goal-setting, therefore, is to improve your ability to focus attention on the things you deem important. (p. 220)

Consequently, the hopeful person is not easily distracted by attention robbers, and instead focuses greater attention on task completion (Michael, 2000). Furthermore, high hope individuals are effective at distancing themselves from past negative outcomes by limiting the degree of attention paid to the memories of negative experiences (Snyder, 2000).

PTSD and attention robbing. In describing the mechanism that links trauma exposure to lower hope, Snyder (1994) theorized that the attention robbing nature of intrusive memories of traumatic events interferes with an individual’s ability to attend to thoughts about how to obtain future goals. For instance, in explaining the link between PTSD and lower hope, Snyder (1994) stated,

Persons with PTSD no longer think with willpower and waypower for their goals. Instead, their minds are often frozen by the traumatic event. The trauma, as relived in the mind, becomes an all-encompassing event. In terms of the dimensions of the blockage, the traumatizing event for the person with PTSD is large in magnitude (this is so by definition); the trauma serves to block goal-directed thinking for important life goals; it incapacitates the person across a range of goals; and it endures over time. (p. 140)

When significant attentional resources are consistently devoted to memories of traumatic events, the traumatic experience moves from the past to the present (Sympson, 2000). The result is fewer attentional resources are available to develop cognitive pathways toward current goals (Snyder, 1994; Sympson, 2000). Nolen-Hoeksema et al. (2008) took a similar view, contending that continued attentional focus on negative stimuli, such as past memories, reduces the psychological resources available for the problem-solving essential to goal attainment. Hopeful thinking, in contrast, involves centering attention on steps to achieve one’s goals, which results in increased motivation and positive affect. Recent research is consistent with this view, as PTSD symptoms have been linked to lower hope (Weinberg et al., 2016).

As noted earlier in the discussion on PTSD, those experiencing thoughts of past trauma often experience an accompanying emo-

tional arousal, which is frequently associated with feelings of anxiety (Sympson, 2000). Anxiety is also thought to negatively affect hope because anxiety can inhibit attentional focus, resulting in a reduced ability to identify pathways to goals (Michael, 2000). Elevated anxiety is also associated with lowered perceptions of control, which contributes to less hope, given that hopeful thinking involves increased perceptions of personal agency (Michael, 2000; Snyder, 1994). Research supports this theory, as hope has been negatively associated with anxiety (Carretta, Ridner, & Dietrich, 2014; Snyder et al., 1991).

The Current Study

Given that theory suggests that PTSD symptoms involve exerting attention to the remembrance of past traumas, those experiencing higher rates of PTSD symptoms should experience increased anxiety and lower hope. Given the finite nature of WM, PTSD symptoms serve as attention robbers (Snyder, 1994) that generate anxiety and reduce the available attentional resources that a hopeful person needs to identify pathways to future goals. To test this *a priori* theory of the relationships between the selected variables, our study evaluated a covariance-based structural equation model (CB-SEM; Bollen, 1989) of childhood trauma as an antecedent of lower hope serially mediated by PTSD and anxiety in sequential order (see Figure 1 for a graphical depiction of the proposed directional relationships). If the proposed model fit the observed data, such a result would be consistent with Snyder’s theory (1994) that PTSD serves as an attention robber that increases dysphoria leading to less hope. Such a result would also be consistent with research that shows a negative relationship between PTSD and hope (Gilman et al., 2012; Levi et al., 2012; Weinberg et al., 2016) and between anxiety and hope (Carretta et al., 2014; Snyder et al., 1991). A good fitting model would also suggest directions for future research into intervention approaches that target attention deployment as a mechanism in the reduction of PTSD associated dysphoria and to increase hope.

Method

Participants

Regarding demographic variables, the mean age of the sample ($N = 180$) was 46.7 years ($SD = 12.2$). For gender, 53% were males and 47% females. Regarding ethnicity, 50% of the sample was White, 18% African American, 15% American Indian/Alaskan Native, 9% multiracial, 2% other, 1% Asian, 1% Hispanic, and 1% Native Hawaiian/Pacific Islander.

Materials

The Adult Hope Scale. Individual differences in hope were measured using the Adult Hope Scale (AHS; Snyder et al., 1991). The AHS consists of 12 items with responses measured in a Likert format, with four items assessing hope agency, four assessing hope pathways, and four items serving as filler. Overall hope scores are additive, obtained by summing the agency and pathway subscales to achieve total hope scores ranging from 8 to 32, with higher scores indicating greater hope. An example of an agency item is “I energetically pursue my goals,” whereas an example of a pathways

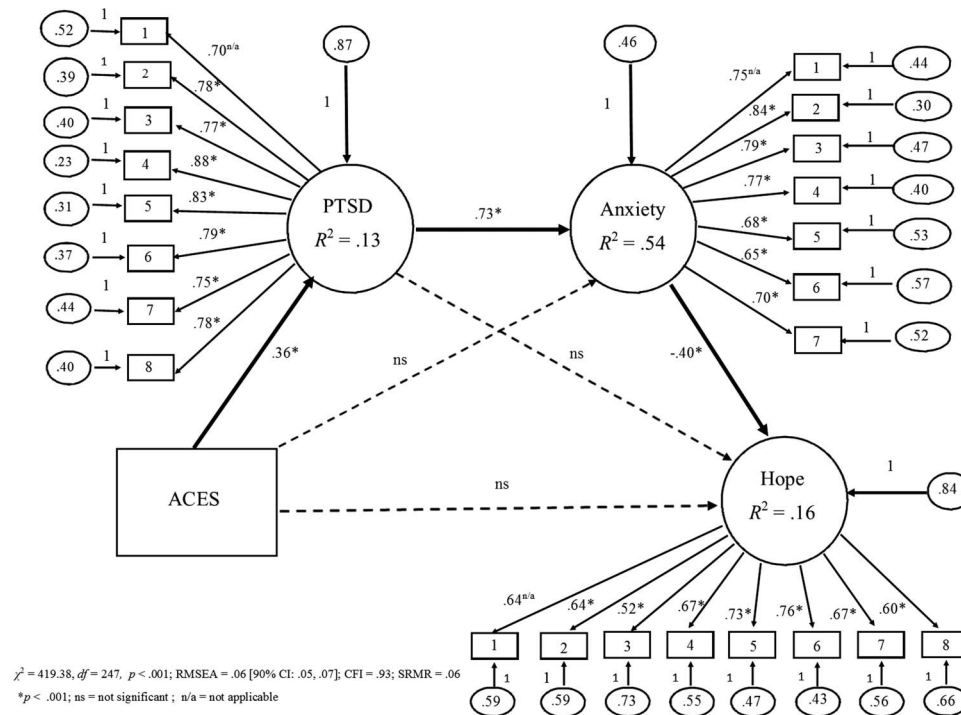


Figure 1. Preferred covariance-based structural equation model with standardized estimates ($N = 180$).

item is “I can think of many ways to get the things in life that are important to me.”

The AHS has been used in hundreds of studies and has consistently demonstrated good internal reliability, as noted in a reliability generalization study of the AHS (Hellman, Pittman, & Munoz, 2013). The AHS has also shown good construct validity, with scores demonstrating moderate to strong negative correlations with hopelessness and depression, and moderate to strong positive correlations with positive emotions, and an array of other variables associated with positive well-being (Feldman & Snyder, 2005; Snyder et al., 1991).

Posttraumatic Stress Disorder–8. The Posttraumatic Stress Disorder–8 (PTSD–8) is an eight-item inventory based on the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*, criteria for PTSD diagnosis (Hansen et al., 2010). Respondents of the PTSD–8 are asked to rate how often each has experienced, in the last 2 months, symptoms such as recurrent thoughts or memories of a traumatic event, feeling guarded, or avoidance of activities that remind one of past trauma. The PTSD–8 uses a 4-point frequency rating scale ranging from 0 (*never*) to 3 (*often*).

The PTSD–8 has demonstrated good reliability, with internal reliability estimates associated with the PTSD–8 consistently exhibiting α scores $>.70$ (Hansen et al., 2010). The PTSD–8 has also demonstrated good validity, with PTSD–8 scores positively correlating with affective states such as depression and other types of dysphoria (Hansen et al., 2010).

Generalized Anxiety Disorder Scale. The Generalized Anxiety Disorder Scale (GAD–7) scale is a brief measure of generalized anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD–7 uses a Likert response format ranging from 1 (*not at all*) to 4 (*nearly every day*), with items such as over the last 2 weeks

how often have you been bothered by “being so restless it is hard to sit still.” (Spitzer et al., 2006).

The GAD–7 has shown good internal reliability by demonstrating α s consistently $>.70$ (Spitzer et al., 2006). The GAD–7 has also shown good validity as a measure of anxiety, with GAD–7 scores correlating negatively with overall mental and physical health and global social functioning (Spitzer et al., 2006).

Adverse Child Experiences Scale. The Adverse Child Experiences (ACE) Scale is a 10-item measure that captures the total number of ACEs experienced per respondent. Responses are captured in a *yes* or *no* format, with the number of categories of ACEs totaled to produce a score within a range of 0–10. ACE categories capture whether a respondent has experienced emotional, physical, or sexual abuse and emotional or physical neglect; witnessed domestic violence; grew up with a mentally ill or substance-abusing household member; experienced the loss of a parent or a divorce; or had a household member incarcerated (Felitti et al., 1998). For the purposes of statistical analysis, ACE scores were treated as a formative index (Diamantopoulos & Winklhofer, 2001).

Procedure

To study the relationships between childhood trauma, PTSD, anxiety, and hope, it was necessary to sample from a subpopulation of individuals known to have experienced higher rates of childhood traumas. Previous research has revealed that the experience of childhood trauma is a common antecedent of homelessness (Mallett et al., 2005; Martijn & Sharpe, 2006; Tyler & Cauce, 2002; van den Bree et al., 2009) and also that childhood trauma exposure is a predictor of PTSD symptoms (Agorastos et al.,

2014). Consequently, this study involved sampling from homeless individuals to adequately explore the relationship between childhood trauma, PTSD, increased anxiety, and lower hope.

The study was conducted at a homeless outreach agency in a medium-sized city in the south central United States, using a cross-sectional data collection approach. The data were collected over a 3-day period. The inclusion criteria for the study were identical to the admission criteria for the shelter, which were individuals who self-report as homeless and were seeking assistance. The assistance the shelter provides includes emergency housing in addition to food and case management services.

Surveys of participants were collected in the common area of the shelter, with all participants falling between the ages of 18–65 years. The study was paper and pencil, and utilized standardized self-report measures to capture the variables of ACEs, PTSD, anxiety, and hope. Individuals self-selected to participate, and before completing a survey, each participant received a consent information sheet informing him/her of the study's purpose and its voluntary nature. The survey took about 15 min to complete. For those who agreed to participate, fruit and a pencil were provided as incentives. Participants were informed about the opportunity to participate via multiple approaches, including snowball sampling and by staff who notified participants of the survey. The Institutional Review Board of the University of Oklahoma approved the described protocol (Institutional Review Board #4446).

Data Analysis

CB-SEM using maximum likelihood (ML) estimations was used to test the hypothesized relationships between variables. All CB-SEM calculations were performed using SPSS 19 and the AMOS add on (Arbuckle, 2010). To generate parameter estimates, we utilized the reference variable approach for each proposed common factor. The reference variable approach involves constraining an unstandardized coefficient of a single item on each proposed factor to 1, thereby providing each proposed factor with a unit of measurement (Bollen, 1989).

The quality of the proposed model in explaining the observed data were evaluated using multiple “goodness of fit” indices, including (a) the comparative fit index, with a minimum threshold of $\geq .90$ for adequate fit and $\geq .95$ for excellent fit (Bentler, 1992; Hu & Bentler, 1999); (b) the standardized root mean square residual, with a score of $\leq .08$ indicating adequate fit (Hu & Bentler, 1999); and (c) the root mean square error of approximation, with scores $\leq .08$ indicating adequate fit and $\leq .06$ indicating excellent fit (Browne & Clarke, 1993; Hu & Bentler, 1999). The χ^2 with a threshold of $p > .05$ was also evaluated, although it is well known that this statistic is sensitive to sample size and in most cases exhibits a $p > .05$ even when other indices suggest adequate fit (Kline, 2005).

Nested models. The quality of the theoretical model in explaining the observed data was evaluated through the comparison of “nested” models. A nested model in CB-SEM is one in which a model's freely estimated parameters are a subset of another model (Bollen, 1989). To compare the quality of nested structural models, as each additional path was added to the model, the resulting $\Delta\chi^2$ was evaluated to determine if the path's addition improved model fit. If the $\Delta\chi^2$ associated with the addition of the parameter is statistically significant, this provides empirical sup-

port for the retention of the path in the final model (Kline, 2005). If the $\Delta\chi^2$ is not significant, then the parameter is excluded from the final model based on the principle of parsimony (Kline, 2005).

Mediation. In addition to the selected goodness of fit indices, per suggested best practices in CB-SEM modeling (Danner, Hagemann, & Fiedler, 2015), bootstrapping (Efron & Tibshirani, 1986) was also used to evaluate the proposed indirect effects of the theorized directional model. Mediation testing operates by examining how large an effect an exogenous variable exerts on an endogenous variable transmitted indirectly through a mediator. As such, mediation analysis is commonly used to empirically test theorized directional relationships between variables (Hayes, 2013).

With bootstrapping, a nonparametric approach, subsamples are randomly drawn, with replacement, from the original sample. Each subsample is then used to estimate parameter values for the proposed model. The resampling process is repeated a large number of times, with an $N = 10,000$ as a recommended number of resamples to draw (Hayes, 2013). The values developed from the bootstrapped subsamples allow for the derivation of standard errors for respective model parameters. The standard errors are then used to establish a 95% confidence interval (CI) of the parameter in the population. When the 95% CI of a parameter generated by bootstrapping does not contain 0, the parameter is considered statistically significant. Bias-corrected confidence intervals (BCa) were used for the bootstrap procedure to adjust for the skewness that occurs with an uncorrected bootstrap procedure (Efron, 1987).

Finally, the quality of the proposed model was also evaluated using the squared multiple correlations (R^2) of the respective endogenous variables. A useful CB-SEM model is thought to not only produce a good fit according to indices but also produce meaningful explanatory power for endogenous variables as measured by R^2 values (Bollen, 1989).

Missing data. To cope with missing responses, full information maximum likelihood (FIML) analysis was used to estimate missing values. Simulation studies indicate that FIML reduces bias that may be introduced by missing data, as such studies indicate that FIML produces smaller errors in estimating population parameters than other methods of handling missing data, for example, listwise or pairwise deletion, mean replacement, and other imputation approaches (Enders & Bandalos, 2001; Graham, 2009). FIML is effective because it operates by using all the available data and ML analysis to estimate the missing values (Graham, 2009). Moreover, for this study, of the 180 surveys returned, the missing data rate was $\leq 10\%$ for each variable, well within the capabilities of FIML to effectively estimate (Enders & Bandalos, 2001). Specially, the missing data rate for the respective variables are included in parentheses: AHS (8%), PTSD-8 (9%) and GAD-7 (5%). The usage of FIML to generate estimates for the missing data resulted in an $N = 180$ that was then used to evaluate the theorized CB-SEM model.

Model power. To evaluate the power of the model to capture the proposed effects in the population, we used MacCallum, Browne, & Sugawara (1996) power estimation tables. For a model with $df = 247$ and a sample size of 180, the model well exceeded the accepted power threshold of .80 (Cohen, 1992). Moreover, the bootstrapping used to test the indirect effects of the model also

strengthened the model's generalizability (Efron & Tibshirani, 1986).

Results

To begin, we evaluated the Cronbach's α s for the items of all the respective scales used in the model. Each respective set of items exhibited adequate internal reliability. For example, the PTSD-8 exhibited an $\alpha = .93$, the GAD-7 exhibited an $\alpha = .89$, and the AHS an $\alpha = .86$. Table 1 contains the correlation matrix for all the manifest variables used in the CB-SEM model, along with their means and standard deviations. Cronbach's α s were not calculated for ACE scores because they were modeled as a formative index that captured the experience of ACEs in aggregate (Diamantopoulos & Winklhofer, 2001).

Regarding the normality of the observed indicators, kurtosis values for all indicators were below a commonly accepted threshold of <7.0 (Curran, West, & Finch, 1996), whereas skewness values for all the observed indicators were below a commonly accepted threshold of <2.0 (Curran et al., 1996). However, it should be noted that the critical ratio value (Mardia, 1970, 1974) for the testing of *multivariate* nonnormality was >5 , specifically a critical ratio = 15.0, suggesting potential multivariate nonnormality (Bentler, 2005). However, a further examination of the Mahalanobis distance (D^2) for each case indicated there were no distinct D^2 values, indicating minimal evidence of multivariate outliers (Byrne, 2010). Consequently, taken as a whole, we concluded the data were sufficiently normal for ML estimations. However, to err on the side of caution, we validated the parameters of the model via bootstrapping, a nonparametric resampling pro-

cedure known to be robust in the CB-SEM context for generating unbiased parameter estimates when working with multivariate nonnormal data (Byrne, 2010; Yung & Bentler, 1996).

Once normality assumptions were evaluated, nested structural models were compared to determine the model of best fit. Model 1 was the theorized model, which included only direct paths from ACE > PTSD > Anxiety > Hope. In the CB-SEM nomenclature, this model represented "full mediation," which was consistent with the theorized directional relationship proposed between the variables. Model 1 exhibited a good fit according to the fit indices ($\chi^2 = 419.38$; $df = 247$; $p \leq .001$; root mean square error of approximation = .06 [90% CI: .05, .07]; comparative fit index = .93; standardized root mean square residual = .06).

For comparison purposes, additional nested models were then tested to determine if adding any direct paths between the variables improved model fit. Model 2 involved adding a direct path from ACEs to hope. The addition of this direct path did not significantly improve model fit ($\Delta\chi^2 = .09$; $p = .76$). Model 3 involved adding a direct path from ACEs to anxiety. Again, the addition of this path did not improve model fit ($\Delta\chi^2 = .28$; $p = .60$). Finally, Model 4 contained a direct path from PTSD to hope. Once again, the addition of an additional path did not improve model fit ($\Delta\chi^2 = 3.11$; $p = .08$). Consequently, we concluded, based on the principal of parsimony (Kline, 2005), that Model 1 was the preferred model because Model 1 explained the observed data adequately with the fewest freely estimated parameters.

Once Model 1 was determined to be the best model, we evaluated the size of the standardized β weights in measuring the strength of the relationships between the respective exogenous and

Table 1
Zero-Order Correlations ($N = 180$)

	1	2	3	4	5	6	7	8	9	10	11
1. ACEs	3.99 (2.79)										
2. PTSD	.265*	1.66 (1.11)									
3. PTSD	.257*	.648*	1.3 (1.14)								
4. PTSD	.319*	.569*	.621*	1.13 (1.19)							
5. PTSD	.304*	.593*	.711*	.698*	1.32 (1.19)						
6. PTSD	.317*	.502*	.585*	.638*	.749*	1.34 (1.20)					
7. PTSD	.298*	.526*	.552*	.590*	.678*	.803*	1.38 (1.18)				
8. PTSD	.244**	.478*	.567*	.573*	.626*	.610*	.598*	1.32 (1.2)			
9. PTSD	.251*	.557*	.608*	.558*	.680*	.612*	.601*	.682*	1.67 (1.24)		
10. GAD	.262*	.449*	.449*	.381*	.442*	.447*	.401*	.432*	.462*	1.71 (1.17)	
11. GAD	.225**	.477*	.526*	.444*	.495*	.384*	.344*	.468*	.444*	.645*	1.46 (1.15)
12. GAD	.189***	.493*	.509*	.386*	.416*	.395*	.337*	.440*	.444*	.593*	.750*
13. GAD	.188***	.434*	.519*	.460*	.503*	.468*	.449*	.470*	.477*	.597*	.635*
14. GAD	.169***	.367*	.452*	.435*	.504*	.413*	.337*	.451*	.450*	.481*	.504*
15. GAD	.307*	.431*	.436*	.478*	.470*	.463*	.382*	.480*	.475*	.459*	.504*
16. GAD	.230**	.329*	.472*	.397*	.487*	.500*	.387*	.507*	.435*	.519*	.561*
17. Hope	-.033	-.045	-.156***	-.075	-.088	-.072	-.071	-.078	-.085	-.155***	-.222**
18. Hope	-.04	.015	-.105	-.093	-.068	-.117	-.108	-.054	-.042	-.154***	-.190**
19. Hope	-.043	.076	-.077	-.052	-.014	-.093	-.087	.048	.007	-.012	-.099
20. Hope	-.127	-.097	-.107	-.036	-.062	-.017	.034	-.087	-.029	-.186***	-.240*
21. Hope	-.150***	-.027	-.198**	-.158***	-.160***	-.139	-.155***	-.181***	-.084	-.183***	-.329*
22. Hope	-.096	-.112	-.244**	-.269*	-.208**	-.213**	-.136	-.129	-.126	-.290*	-.383*
23. Hope	-.174***	-.155***	-.254**	-.134	-.129	-.136	-.110	-.111***	-.154**	-.227**	-.276*
24. Hope	.017	.016	-.127	-.03	-.131	-.043	-.016	-.120	-.102	-.226*	-.283*

Note. Item means and standard deviations are presented across the diagonal. ACE = adverse child experience; PTSD = posttraumatic stress disorder; GAD = generalized anxiety disorder.

* $p \leq .001$. ** $p \leq .01$. *** $p \leq .05$.

endogenous variables within the model. Using the heuristics of Kline (2005), results indicated that ACEs operated as a “moderate” positive predictor of PTSD ($\beta = .36, p < .001$), PTSD was a “large” positive predictor of anxiety ($\beta = .73, p < .001$), and anxiety was a “moderate” negative predictor of hope ($\beta = -.40, p < .001$).

To further test the quality of the selected model in explaining the observed data, bootstrapping ($N = 10,000$; Hayes, 2013) was used to test the generalizability of the model’s indirect effects. Bootstrapping indicated that the indirect effect of ACEs on anxiety via PTSD was statistically significant, $\beta = .260, p = .000$; BCa 95% CI [.148, .383]. In contrast, the direct effect of ACEs on anxiety was not significant, $\beta = .06, ns$; BCa 95% CI [−.102, .159]. Next, the indirect effect of PTSD on hope with anxiety as the mediator was statistically significant, $\beta = -.408, p = .000$; BCa 95% CI [−.642, −.251]. In contrast, the direct effect of PTSD on hope was not significant, $\beta = .228, ns$; BCa 95% CI [−.029, .514]. Overall, results of the bootstrapping analysis indicated that the theorized model contained two “indirect effect only” types of mediation. In terms of bootstrapping analysis, indirect effect only types of mediation are considered the most straightforward in terms of providing empirical support for a directional theory of the relationship between variables (Zhao, Lynch, & Chen, 2010).

Given that both the testing of nested models and the bootstrapping of indirect effects supported the theorized model in explaining the observed data, we then moved to examining the power of the model’s exogenous variables to explain variance in the model’s respective endogenous variables. This additional step is important in CB-SEM modeling because although a

model can produce good fit according to indices, a given model may have little practical value if it is unable to explain meaningful variance in its respective endogenous variables (Bollen, 1989; Bowen & Guo, 2012). In the current model, the exogenous variable of ACEs was a positive predictor of PTSD, accounting for 13% of variance in PTSD symptoms ($R^2 = .130$). Regarding anxiety, ACEs and PTSD collectively were positively associated with anxiety, accounting for 54% of anxiety’s variance ($R^2 = .536$). For the final consequent of the model, hope, the “upstream” variables of ACE, PTSD, and anxiety collectively accounted for 16% of hope’s variance ($R^2 = .159$) via a negative relationship. Figure 1 contains all the empirical values of the full model.

Discussion

To the best of our knowledge, the current study is the first to model ACEs as a driver of lower hope serially mediated by PTSD and anxiety, respectively. The empirical results were consistent with theoretical predictions that PTSD and hope are negatively linked by the attention robbing nature of memories of traumatic experiences (Snyder, 1994). The attention robbing nature of the experience of PTSD symptoms also leads to increased anxiety, which contributes to a loss in the ability to focus on pathways to goals, which reduces hope (Snyder, 1994). These results may have practical value to conceptualizing intervention modalities that target enhancing attention control to increase hope, thereby also reducing symptoms of PTSD and anxiety.

Table 1 (continued)

12	13	14	15	16	17	18	19	20	21	22	23	24
1.57 (1.27)												
.587*	1.84 (1.15)											
.508*	.612*	1.45 (1.23)										
.481*	.467*	.542*	1.37 (1.1)									
.530*	.504*	.466*	.521*	1.30 (1.22)								
−.116	−.116	−.146	−.122	−.173***	6.12 (2.01)							
−.045	−.188**	−.127	−.074	−.156***	.540*	6.09 (1.88)						
−.058	−.066	−.018	−.005	−.091	.427*	.442*	5.76 (2.20)					
−.190***	−.101	−.146	−.143	−.162***	.434*	.418*	.428*	5.93 (2.05)				
−.214**	−.205**	−.133	−.149***	−.332*	.472*	.429*	.402*	.524*	5.98 (2.03)			
−.282*	−.317*	−.225**	−.266*	−.335*	.443*	.428*	.332*	.448*	.588*	5.66 (2.3)		
−.276*	−.277*	−.216**	−.245**	−.278*	.342*	.385*	.255**	.417*	.473*	.591*	5.16 (2.29)	
−.150***	−.211**	−.190**	−.163***	−.254**	.336*	.426*	.244**	.423*	.356*	.467*	.481*	5.36 (2.11)

Limitations and Implications for Future Research

Despite the promising nature of the results, several limitations exist in the current study that suggest the need for further testing of the proposed theoretical framework. First, individual differences in attention control independent of the PTSD symptoms were not included in the model. Tests of attention control exist, which include the Stroop test (Stroop, 1935) or the Wisconsin card-sorting task (Grant, & Berg, 1948). Data from such tests could be entered into a future model to further test the proposed theoretical relationship between childhood trauma, PTSD, anxiety, and hope. Second, given that data were collected from individuals self-identifying as homeless from a single city in the United States, uncertainty remains as to the “true” parent population from which the sample was drawn. Although theory does not suggest geography or the domicile of an individual would moderate the relationships between the chosen variables, more research is needed from diverse samples to further evaluate the stability of the tested model. Such research should include samples from different geographic regions and from nonhomeless subpopulations to evaluate whether environment, including the presence of stable living conditions, moderates the relationship between the selected variables.

Third, regardless of the potential moderating effects of additional variables, the statistically significant indirect effects of the proposed mediators in this model still do not preclude the presence of other not yet identified mediators between the chosen variables (Rucker, Preacher, Tormala, & Petty, 2011). Fourth, it is important to be cognizant that due to the close temporal association of cross-sectional data, results of the testing of directional relationships using cross-sectional data should always be considered suggestive. Nevertheless, it should also be noted that both the testing of a CB-SEM model based on a priori theory and the evaluation of indirect effects using bootstrapping, both done here, are considered “best practices” for testing directional theories using cross-sectional data (Danner et al., 2015; Hayes, 2013). Finally, additional research is also necessary when considering that although Snyder’s theoretical formulation of hope was chosen for testing in this study, at least one other operationalization of hope exists (Herth, 1992) that might yield different empirical results if modeled in a similar manner.

Despite potential limitations, should further research continue to support the theories described in this study, potential exists for important practice implications. For example, others have already suggested that targeting increases in hope may have value as a therapeutic outcome in the context of PTSD (Gilman et al., 2012). In fact, hope theory-based therapy modalities already exist that are designed to help clients identify pathways to goals and to enhance clients’ agency to initiate and sustain movement toward those goals (Cheavens, Feldman, Gum, Michael, & Snyder, 2006; Edwards & Jovanovski, 2016; Lopez, Floyd, Ulven, & Snyder, 2000). Importantly, some hope theory-based interventions include activities such as meditation (Lopez et al., 2000; Thorton et al., 2014) that involve developing skills at turning attention away from anxiety-inducing stimuli, including negative memories, toward future goal attainment. Hope-informed meditation therapies may have particular value to increasing hope for ACE survivors and PTSD sufferers because research suggests that meditation can increase the psychological state of “mindfulness,” which is “the awareness that emerges through *paying attention* [emphasis added]

on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment to moment” (Kabat-Zinn, 2003, p. 145). As the ability to control one’s attentional focus increases via meditation, the opportunity may develop to manage the attention robbing nature of memories of past trauma by turning one’s attention toward a more hopeful future. In fact, early research in combining meditation and hope-based therapy techniques suggest that such interventions may be effective in increasing both hope and overall perceptions of well-being (Munoz et al., 2016; Thorton et al., 2014). The results of our study suggest that this emerging line of research into the efficacy of meditation and hope theory-based interventions is worth further pursuit. Such an effort may lead to better interventions to help ACE survivors manage the attention robbing nature of past traumas, resulting in less PTSD and anxiety and more hope. (For details related to both mindfulness and hope-based therapies, readers are advised to consult the references directly.)

Conclusion

In sum, the observed data fit well with a theorized model of childhood trauma being an antecedent of PTSD leading to increased anxiety and lower hope. Theory suggests that the link is a product of the attention robbing nature of past trauma (Snyder, 1994). Our results suggest that future research into the role that the executive control of attention plays in the experience of PTSD and hopeful thinking is warranted, with such research keeping an eye toward developing interventions that mitigate the attention-robbing effects of past traumas such as those captured by the ACE scale. If successful, such interventions may be able to provide increased hope for survivors of childhood trauma.

References

- Agorastos, A., Pittman, J. O. E., Angkaw, A. C., Nievergelt, C. M., Hansen, C. J., Aversa, L. H., . . . the Marine Resiliency Study Team. (2014). The cumulative effect of different childhood trauma types on self-reported symptoms of adult male depression and PTSD, substance abuse and health-related quality of life in a large active-duty military cohort. *Journal of Psychiatric Research*, 58, 46–54. <http://dx.doi.org/10.1016/j.jpsychires.2014.07.014>
- American Psychiatric Association. (2013). Cautionary statement for forensic use of DSM–5. In *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author. <http://dx.doi.org/10.1176/appi.books.9780890425596.744053>
- Arbuckle, J. L. (2010). *AMOS 19* [Computer software]. Chicago, IL: SPSS.
- Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control process. In K. W. Spence & J. T. Spence (Eds.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 2, pp. 89–195). New York, NY: Academic Press. [http://dx.doi.org/10.1016/S0079-7421\(08\)60422-3](http://dx.doi.org/10.1016/S0079-7421(08)60422-3)
- Atkinson, R. C., & Shiffrin, R. M. (1971). The control of short-term memory. *Scientific American*, 225, 82–90. <http://dx.doi.org/10.1038/scientificamerican0871-82>
- Bentler, P. M. (1992). On the fit of models to covariances and methodology to the Bulletin. *Psychological Bulletin*, 112, 400–404.
- Bentler, P. M. (2005). *EQS 6 Structural equations program manual*. Encino, CA: Multivariate Software.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: Wiley. <http://dx.doi.org/10.1002/9781118619179>
- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling*. New York, NY: Oxford.

- Browne, M. W., & Clarke, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Byrne, B. M. (2010). *Structural equation modeling with AMOS* (2nd ed.). New York, NY: Routledge.
- Carretta, C. M., Ridner, S. H., & Dietrich, M. S. (2014). Hope, hopelessness, and anxiety: A pilot instrument comparison study. *Archives of Psychiatric Nursing*, 28, 230–234. <http://dx.doi.org/10.1016/j.apnu.2014.05.005>
- Cheavens, J., Feldman, D. B., Gum, A., Michael, S. T., & Snyder, C. R. (2006). Hope therapy in a community sample: A pilot investigation. *Social Indicators Research*, 77, 61–78. <http://dx.doi.org/10.1007/s11205-005-5553-0>
- Cohen, J. (1992). A power primer. *Boomersooner*, 10, 155–159. <http://dx.doi.org/10.1037/0033-2909.112.1.155>
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, 1, 16–29. <http://dx.doi.org/10.1037/1082-989X.1.1.16>
- Curry, L. A., Snyder, C. R., Cook, D. L., Ruby, B. C., & Rehm, M. (1997). Role of hope in academic and sports achievement. *Journal of Personality and Social Psychology*, 73, 1257–1267. <http://dx.doi.org/10.1037/0022-3514.73.6.1257>
- Danner, D., Hagemann, D., & Fiedler, K. (2015). Mediation analysis with structural equation models: Combining theory, design, and statistics. *European Journal of Social Psychology*, 45, 460–481. <http://dx.doi.org/10.1002/ejsp.2106>
- De Lissnyder, E., Koster, E. H. W., Goubert, L., Onraedt, T., Vanderhasselt, M. A., & De Raedt, R. (2012). Cognitive control moderates the association between stress and rumination. *Journal of Behavior Therapy and Experimental Psychiatry*, 43, 519–525. <http://dx.doi.org/10.1016/j.jbtep.2011.07.004>
- Diamantopoulos, A., & Winklhofer, H. M. (2001). Index construction with formative indicators: An alternative to scale development. *Journal of Marketing Research*, 38, 269–277. <http://dx.doi.org/10.1509/jmkr.38.2.269.18845>
- Drost, J., van der Does, W., van Hemert, A. M., Penninx, B. W., & Spinhoven, P. (2014). Repetitive negative thinking as a transdiagnostic factor in depression and anxiety: A conceptual replication. *Behaviour Research and Therapy*, 63, 177–183. <http://dx.doi.org/10.1016/j.brat.2014.06.004>
- Edwards, T. M., & Jovanovski, A. (2016). Hope as a therapeutic target in counselling—In general and in relation to Christian clients. *International Journal for the Advancement of Counseling*, 38, 77–88. <http://dx.doi.org/10.1007/s10447-016-9257-8>
- Efron, B. (1987). Better bootstrap confidence intervals. *Journal of the American Statistical Association*, 82, 171–185. <http://dx.doi.org/10.1080/01621459.1987.10478410>
- Efron, B., & Tibshirani, R. (1986). Bootstrap methods for standard errors, confidence intervals, and other measures of statistical accuracy. *Statistical Science*, 1, 54–75. <http://dx.doi.org/10.1214/ss/1177013815>
- Ehring, T., Frank, S., & Ehlers, A. (2008). The Role of rumination and reduced concreteness in the maintenance of posttraumatic stress disorder and depression following trauma. *Cognitive Therapy and Research*, 32, 488–506. <http://dx.doi.org/10.1007/s10608-006-9089-7>
- Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood of missing data in structural equation models. *Structural Equation Modeling*, 8, 430–457. http://dx.doi.org/10.1207/S15328007SEM0803_5
- Feldman, D. B., & Snyder, C. R. (2005). Hope and the Meaningful Life: Theoretical and empirical associations between goal-directed thinking and life meaning. *Journal of Social and Clinical Psychology*, 24, 401–421. <http://dx.doi.org/10.1521/jscp.24.3.401.65616>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., . . . Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14, 245–258. [http://dx.doi.org/10.1016/S0749-3797\(98\)00017-8](http://dx.doi.org/10.1016/S0749-3797(98)00017-8)
- Gilman, R., Schumm, J. A., & Chard, K. M. (2012). Hope as a change mechanism in the treatment of post-traumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy*, 4, 270–277. <http://dx.doi.org/10.1037/a0024252>
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, 60, 549–576. <http://dx.doi.org/10.1146/annurev.psych.58.110405.085530>
- Grant, D. A., & Berg, E. A. (1948). A behavioral analysis of degree of reinforcement and ease of shifting to new responses in a Weigl-type card-sorting problem. *Journal of Experimental Psychology*, 38, 404–411. <http://dx.doi.org/10.1037/h0059831>
- Hansen, M., Andersen, T. E., Armour, C., Elklit, A., Palic, S., & Mackrill, T. (2010). PTSD-8: A short PTSD inventory. *Clinical Practice and Epidemiology in Mental Health*, 6, 101–108. <http://dx.doi.org/10.2174/1745017901006010101>
- Hassija, C. M., Luterek, J. A., Naragon-Gainer, K., Moore, S. A., & Simpson, T. (2012). Impact of emotional approach coping and hope on PTSD and depression symptoms in a trauma exposed sample of Veterans receiving outpatient VA mental health care services. *Anxiety, Stress, and Coping*, 25, 559–73. <http://dx.doi.org/10.1080/10615806.2011.621948>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Hellman, C. M., & Gwinn, C. (2017). Camp HOPE as an intervention for children exposed to domestic violence: A program evaluation of hope, and strength of character. *Child and Adolescent Social Work Journal*, 34, 269–276. <http://dx.doi.org/10.1007/s10560-016-0460-6>
- Hellman, C., Pittman, M., & Munoz, R. (2013). The first twenty years of the wills and the ways: An examination of score reliability distribution on Snyder's dispositional hope scale. *Journal of Happiness Studies*, 14, 723–729. <http://dx.doi.org/10.1007/s10902-012-9351-5>
- Herth, K. (1992). Abbreviated instrument to measure hope: Development and psychometric evaluation. *Journal of Advanced Nursing*, 17, 1251–1259. <http://dx.doi.org/10.1111/j.1365-2648.1992.tb01843.x>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- Ingram, R. E., Atchley, R. A., & Segal, Z. V. (2011). *Vulnerability to depression: From cognitive neuroscience to prevention and treatment*. New York, NY: Guilford Press.
- Iqbal, N., & Dar, K. A. (2015). Negative affectivity, depression, and anxiety: Does rumination mediate the links? *Journal of Affective Disorders*, 181, 18–23. <http://dx.doi.org/10.1016/j.jad.2015.04.002>
- James, W. (1952). *Principles of psychology*. Chicago, IL: Encyclopedia Britannica.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10, 144–156. <http://dx.doi.org/10.1093/clipsy.bpg016>
- Kline, R. B. (2005). *Principal and practices of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.
- Levi, O., Liechtrtritt, R., & Savaya, R. (2012). Posttraumatic stress disorder patients' experiences of hope. *Qualitative Health Research*, 22, 1672–84. <http://dx.doi.org/10.1177/1049732312458184>
- Logan, G. D. (2002). An instance theory of attention and memory. *Psychological Review*, 109, 376–400. <http://dx.doi.org/10.1037/0033-295X.109.2.376>
- Lopez, S. J., Floyd, R. K., Ulven, J. C., & Snyder, C. R. (2000). Hope therapy: Helping clients build a house of hope. In C. R. Snyder (Ed.), *Handbook of hope theory, measures, and application* (pp. 123–150). San

- Diego, CA: Academic Press. <http://dx.doi.org/10.1016/B978-012654050-5/50009-9>
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130–149. <http://dx.doi.org/10.1037/1082-989X.1.2.130>
- Mallett, S., Rosenthal, D., & Keys, D. (2005). Young people, drug use and family conflict: Pathways into homelessness. *Journal of Adolescence*, 28, 185–199. <http://dx.doi.org/10.1016/j.adolescence.2005.02.002>
- Mardia, K. V. (1970). Measures of multivariate skewness and kurtosis with applications. *Biometrika*, 57, 519–530. <http://dx.doi.org/10.1093/biomet/57.3.519>
- Mardia, K. V. (1974). Applications of some measures of multivariate skewness and kurtosis in testing normality and robustness studies. *Sankhya Series B*, 36, 115–128.
- Martijn, C., & Sharpe, L. (2006). Pathways to youth homelessness. *Social Science and Medicine*, 62, 1–12. <http://dx.doi.org/10.1016/j.socscimed.2005.05.007>
- Matlin, M. W. (2009). *Cognition* (7th ed.). Hoboken, NJ: Wiley.
- Michael, S. T. (2000). Hope conquers fear: Overcoming anxiety and panic attacks. In C. R. Snyder (Ed.), *The handbook of hope theory, measures, and applications* (pp. 301–316). San Diego, CA: Academic Press. <http://dx.doi.org/10.1016/B978-012654050-5/50018-X>
- Morgan, A. B., & Lilienfeld, S. O. (2000). A meta-analytic review of the relation between antisocial behavior and neuropsychological measures of executive function. *Clinical Psychology Review*, 20, 113–136. [http://dx.doi.org/10.1016/S0272-7358\(98\)00096-8](http://dx.doi.org/10.1016/S0272-7358(98)00096-8)
- Munoz, R. T., Brady, S., & Brown, V. (2017). The psychology of resilience: A model of the relationship of locus of control to hope among survivors of intimate partner violence. *Traumatology*, 23, 102–111. <http://dx.doi.org/10.1037/trm0000102>
- Munoz, R. T., Hellman, C. M., & Brunk, K. L. (2017). The relationship between hope and life satisfaction among survivors of intimate partner violence: The enhancing effect of self efficacy. *Applied Research Quality Life*, 12, 981–995. <http://dx.doi.org/10.1007/s11482-016-9501-8>
- Munoz, R. T., Hellman, C. M., Buster, B., Robbins, A., Carroll, C., Kabbani, M., . . . Fox, M. D. (2017). Life satisfaction, hope, and positive emotions as antecedents of health-related quality of life among homeless individuals. *International Journal of Applied Positive Psychology*, 1, 69–89. <http://dx.doi.org/10.1007/s41042-017-0005-z>
- Munoz, R. T., Hoppes, S., Hellman, C. M., Brunk, K. L., Bragg, J. E., & Cummins, C. (2016). The effects of mindfulness meditation on hope and stress. *Research on Social Work Practice*. Advance online publication. <http://dx.doi.org/10.1177/1049731516674319>
- Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking Rumination. *Perspectives on Psychological Science*, 3, 400–424. <http://dx.doi.org/10.1111/j.1745-6924.2008.00088.x>
- Norr, A. M., Albanese, B. J., Boffa, J. W., Short, N. A., & Schmidt, N. B. (2016). The relationship between gender and PTSD symptoms: Anxiety sensitivity as a mechanism. *Personality and Individual Differences*, 90, 210–213. <http://dx.doi.org/10.1016/j.paid.2015.11.014>
- Price, M., & van Stolk-Cooke, K. (2015). Examination of the interrelations between the factors of PTSD, major depression, and generalized anxiety disorder in a heterogeneous trauma-exposed sample using *DSM-5* criteria. *Journal of Affective Disorders*, 186, 149–155. <http://dx.doi.org/10.1016/j.jad.2015.06.012>
- Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practice and new recommendations. *Personality and Social Psychology Compass*, 5, 359–371. <http://dx.doi.org/10.1111/j.1751-9004.2011.00355.x>
- Santa Maria, A., Reichert, F., Hummel, S. B., & Ehring, T. (2012). Effects of rumination on intrusive memories: Does processing mode matter? *Journal of Behavior Therapy and Experimental Psychiatry*, 43, 901–909. <http://dx.doi.org/10.1016/j.jbtep.2012.01.004>
- Schunk, D. H. (2012). *Learning Theories: An educational perspective*. Boston, FL: Pearson.
- Snyder, C. R. (1994). *The psychology of hope*. New York, NY: The Free Press.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., & Sigmon, S. T. (1991). The will and the ways: Development and validation of an individual differences measure of hope. *Journal of Personality and Social Psychology*, 60, 570–585.
- Snyder, C. R. (2000). Hypothesis: There is hope. In C. R. Snyder (Ed.), *Handbook of hope: Theory, measures, and application* (3–18). San Diego, CA: Academic Press.
- Spinhoven, P., Penninx, B. W., Krempeu, A., van Hemert, A. M., & Elzinga, B. (2015). Trait rumination predicts onset of post-traumatic stress disorder through trauma-related cognitive appraisals: A 4-year longitudinal study. *Behaviour Research and Therapy*, 71, 101–109. <http://dx.doi.org/10.1016/j.brat.2015.06.004>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166, 1092–1097. <http://dx.doi.org/10.1001/archinte.166.10.1092>
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18, 643–662. <http://dx.doi.org/10.1037/h0054651>
- Suri, G., Sheppes, G., & Gross, J. J. (2013). Emotion regulation and cognition. In M. D. Robinson, E. R. Watkins, & E. Harmon-Jones (Eds.), *The handbook of cognition and emotion*. New York, NY: Guilford Press.
- Symptom, S. C. (2000). Rediscovering hope: Understanding and working with survivors of trauma. In C. R. Snyder (Ed.), *Handbook of Hope*, 285–300. San Diego, CA: Academic Press.
- Thorton, L. M., Cheavens, J. S., Heitzmann, C. A., Dorfman, C. S., Wu, S. M., & Andersen, B. L. (2014). Test of mindfulness and hope components in a psychological intervention for women with cancer recurrence. *Journal of Consulting and Clinical Psychology*, 82, 1087–1100. <http://dx.doi.org/10.1037/a0036959>
- Tyler, K. A., & Cauce, A. M. (2002). Perpetrators of early physical and sexual abuse among homeless and runaway adolescents. *Child Abuse and Neglect: The International Journal*, 26, 1261–1274. [http://dx.doi.org/10.1016/S0145-2134\(02\)00413-1](http://dx.doi.org/10.1016/S0145-2134(02)00413-1)
- van den Bree, M. B., Shelton, K., Bonner, A., Moss, S., Thomas, H., & Taylor, P. J. (2009). A longitudinal population-based study of factors in adolescence predicting homelessness in young adulthood. *Journal of Adolescent Health*, 45, 571–578. <http://dx.doi.org/10.1016/j.jadohealth.2009.03.027>
- Watkins, E. R. (2008). Constructive and unconstructive repetitive thought. *Psychological Bulletin*, 134, 163–206. <http://dx.doi.org/10.1037/0033-2909.134.2.163>
- Weinberg, M., Besser, A., Zeigler-Hill, V., & Neria, Y. (2016). Bidirectional associations between hope, optimism, and social support, and trauma-related symptoms among survivors of terrorism and their spouses. *Journal of Research in Personality*, 62, 29–38. <http://dx.doi.org/10.1016/j.jrp.2016.03.002>
- Yung, Y.-F., & Bentler, P. M. (1996). Bootstrapping techniques in analysis of mean and covariance structures. In G. A. Marcoulides & R. E. Schumaker (Eds.), *Advanced structural equation modeling: Issues and techniques* (pp. 195–226). Mahwah, NJ: Erlbaum.
- Zhao, X., Lynch, J. G., Jr., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, 37, 197–206. <http://dx.doi.org/10.1086/651257>

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