

Psychological Trauma: Theory, Research, Practice, and Policy

Exploring the Relationship Between Alienation Appraisals, Trauma, Posttraumatic Stress, and Depression

Rachel McIlveen, Ryan Mitchell, David Curran, Kevin Dyer, Mary Corry, Anne DePrince, Martin Dorahy, and Donncha Hanna

Online First Publication, November 18, 2019. <http://dx.doi.org/10.1037/tra0000523>

CITATION

McIlveen, R., Mitchell, R., Curran, D., Dyer, K., Corry, M., DePrince, A., Dorahy, M., & Hanna, D. (2019, November 18). Exploring the Relationship Between Alienation Appraisals, Trauma, Posttraumatic Stress, and Depression. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. <http://dx.doi.org/10.1037/tra0000523>

Exploring the Relationship Between Alienation Appraisals, Trauma, Posttraumatic Stress, and Depression

Rachel McIlveen
Queen's University Belfast

Ryan Mitchell
Southern Health and Social Care Trust, Portadown,
Northern Ireland

David Curran
Queen's University Belfast

Kevin Dyer
Northern Health and Social Care Trust, Antrim,
Northern Ireland

Mary Corry
Belfast Health and Social Care Trust, Belfast, Northern Ireland

Anne DePrince
University of Denver

Martin Dorahy
University of Canterbury

Donncha Hanna
Queen's University Belfast

Objective: Cognitive models posit negative trauma appraisals as maintaining symptoms of posttraumatic stress disorder. Recent research has demonstrated that alienation appraisals (feeling disconnected from the self and others) are salient in trauma-related distress. Studies show that alienation appraisals fully mediated the relationship between trauma exposure and symptoms of posttraumatic stress disorder (PTSD) in trauma-exposed adults. This study explored alienation appraisals in student and clinical samples, assessing whether alienation significantly mediated the relationship between cumulative trauma and trauma-related distress. It also explored whether alexithymia, social support, and loneliness also mediated the relationship between cumulative trauma and markers of trauma-related distress, clarifying the role of alienation. **Method:** Mediation and hierarchical regression models were tested with questionnaire data from a student sample ($N = 100$) and clinical sample of trauma-exposed treatment-seeking adults ($N = 93$). **Results:** In the student sample, alienation ($B = 1.27$) fully mediated the relationship between cumulative trauma and posttraumatic stress, but not depression. When alexithymia, social support, and loneliness were entered as parallel mediators, only alienation appraisals ($B = 1.03$) significantly mediated the relationship between cumulative trauma and posttraumatic stress. For the clinical sample, alienation appraisals ($\beta = .53$) were the only significant predictor of posttraumatic stress, while alienation appraisals ($\beta = .75$) and, to a lesser extent, social support ($\beta = .19$) and loneliness ($\beta = .30$) significantly predicted depression. **Conclusions:** Alienation was a salient predictor of posttraumatic distress. Clinical assessment of alienation appraisals is recommended to inform psychological interventions for trauma survivors.

Clinical Impact Statement

Alienation appraisals are an important predictor of posttraumatic distress in student and clinical samples. Alexithymia, social support, and loneliness do not appear to better explain the role of alienation in posttraumatic stress. However, alienation appraisals, alongside the weaker predictors of social support and loneliness, are important factors to consider in trauma survivors with depression. Alienation makes an independent contribution to the prediction of posttraumatic distress, unique from loneliness, social support, and alexithymia. Recommended clinical treatments include sensitive cognitive restructuring of alienation appraisals and fostering a strong therapeutic alliance.

Keywords: alienation appraisals, loneliness, social support, PTSD, depression

Supplemental materials: <http://dx.doi.org/10.1037/tra0000523.supp>

Rachel McIlveen, School of Psychology, Queen's University Belfast; Ryan Mitchell, Support & Recovery Psychology, Southern Health and Social Care Trust, Portadown, Northern Ireland; David Curran, School of Psychology, Queen's University Belfast; Kevin Dyer, Psychological Therapies Service, Northern Health and Social Care Trust, Antrim, Northern Ireland; Mary Corry, Trauma Resource Centre, Belfast Health and Social Care Trust, Belfast, Northern Ireland; Anne DePrince, Department of

Psychology, University of Denver; Martin Dorahy, Department of Psychology, University of Canterbury; Donncha Hanna, School of Psychology and Centre for Evidence and Social Innovation, Queen's University Belfast.

Correspondence concerning this article should be addressed to Donncha Hanna, School of Psychology, Queen's University Belfast, David Keir Building, 18-30 Malone Road, Belfast BT9 5BN, Northern Ireland. E-mail: donncha.hanna@qub.ac.uk

Ehlers and Clark's (2000) cognitive model of posttraumatic stress disorder (PTSD) emphasizes the significance that negative appraisals often make following exposure to trauma. Appraisals have been defined as "people's assessments of their thoughts, feelings and behaviors" (DePrince, Zurbriggen, Chu, & Smart, 2010, p. 276). Meta-analytic evidence has showed a large effect size between negative appraisals and posttraumatic stress in trauma-exposed children and adolescents (Mitchell, Brennan, Curran, Hanna, & Dyer, 2017) and trauma-exposed adults (Gómez de La Cuesta, Schweizer, Diehle, Young, & Meiser-Stedman, 2019). Negative appraisals can maintain posttraumatic stress symptoms in trauma-exposed adults (Halligan, Michael, Clark, & Ehlers, 2003). Studies show that cumulative trauma predicts symptoms of depression and posttraumatic stress, but appraisals predict symptoms over and above cumulative trauma (Martin, Cromer, DePrince, & Freyd, 2013).

Alienation Appraisals and Trauma-Related Distress

Several appraisal types have been related to distress in trauma survivors; however, there is a growing evidence base that supports alienation appraisals as particularly salient. *Alienation* has been defined as appraising that one is disconnected from oneself and others (DePrince, Chu, & Pineda, 2011). Alienation appraisals have been significantly related to posttraumatic stress symptoms in veterans (Bonfils et al., 2018), trauma-exposed student and community samples (DePrince et al., 2011), child abuse survivors (Babcock Fenerci & DePrince, 2018; Srinivas, DePrince, & Chu, 2015), and domestic abuse survivors (Hebenstreit, Maguen, Koo, & DePrince, 2015). Alienation has been related to depression symptoms in trauma-exposed student and community samples (DePrince et al., 2011), child abuse and neglect survivors (Srinivas et al., 2015), and medical examiner employees (Brondolo, Eftkharzadeh, Clifton, Schwartz, & Delahanty, 2018). In trauma-exposed adults, alienation appraisals have distinguished between those diagnosed with PTSD and dissociative identity disorder, suggesting that alienation is important in how trauma-related distress presents itself in trauma survivors (DePrince, Huntjens, & Dorahy, 2015). Recent evidence has showed that appraisals have fully mediated the relationship between traumatic events and symptoms of posttraumatic stress and depression in trauma-exposed treatment-seeking adults (Mitchell et al., 2018). Alienation was the only significant mediator when fear, anger, shame, self-blame, and betrayal appraisals were considered concurrently (Mitchell et al., 2018).

Although the link between alienation and trauma-related distress is a growing evidence base, research is required to test alternative explanations for alienation–distress links. For example, people who endorse alienation appraisals may also have reduced opportunities for social support, or may socially withdraw from others, maintaining their feelings of disconnection from others. Alternatively, those who feel alienated may also report being lonely. Finally, those who feel alienated may label themselves as such because of a deficit in naming and expressing emotion (alexithymia); this separation from emotion may maintain feelings of disconnection from the self and others. Alienation, alexithymia, loneliness, and lack of social support are theoretically similar concepts, which all involve some sense of disconnection. They all contribute to trauma-related distress; therefore, an important next step in

understanding alienation–distress links is to evaluate the role that these variables play.

Social Support and Trauma-Related Distress

Social support involves "the degree to which a person's basic social needs are gratified through interaction with others" (Thoits, 1982, p. 147). Research has suggested that social support reduces posttraumatic stress severity via reducing negative appraisals following a trauma, indicating a buffer effect (Woodward et al., 2015; Zang et al., 2017). Research has posited poor social support as a risk factor for depression in trauma survivors (Jacobson, Norman, Nguyen, & Brackbill, 2018). These studies support the theory that trauma-exposed individuals who have limited social support are at greater risk of PTSD. However, trauma-exposed individuals may feel alienated from others despite having good social support; if so, alienation should continue to explain variance in distress even when social support is included. This explanation is supported by cognitive models that have posited that common appraisals following trauma include "I cannot rely on other people" (Ehlers & Clark, 2000). Such appraisals may be explained by the beliefs that other people do not understand what the person is going through following a trauma, leading to social withdrawal, which may maintain distress (Ehlers & Clark, 2000). Only one study has controlled for the potential confound of social support and found that alienation still predicted symptoms of posttraumatic stress, depression, and dissociation in trauma-exposed adults, suggesting that alienation is not merely a proxy for social support (DePrince et al., 2011).

Loneliness and Trauma-Related Distress

None of the existing alienation studies controlled for the potential confound of loneliness, which may help to clarify the mediating role of alienation in trauma-related distress, as those who feel alienated may also be lonely. *Loneliness* is defined as "an enduring condition of emotional distress that arises when a person feels estranged from, misunderstood, or rejected by others and/or lacks appropriate social partners for desired activities" (Rook, 1984, p. 1391). Loneliness has been found significantly mediated the relationship between child abuse and adult PTSD and depression (Shevlin, McElroy, & Murphy, 2015). Thus, loneliness may play a role in maintaining feelings of alienation and disconnection from others, which may help to clarify the mediating role of alienation in trauma-related distress. One item on the Alienation subscale of the Trauma Appraisal Questionnaire (TAQ) is "Even though I have friends, I'm still lonely" (DePrince et al., 2010). Thus, the current study assessed whether alienation appraisals were merely a proxy for loneliness.

Alexithymia and Trauma-Related Distress

None of the existing alienation studies have controlled for the effects of alexithymia, which may also clarify the mediating role of alienation in trauma-related distress. Alexithymia involves deficits in naming and expressing emotions, distinguishing emotions from bodily sensations, and a preference for external rather than internal thinking patterns (Taylor, Bagby, & Parker, 1999). Alexithymia may help to clarify the mediating role of alienation in trauma-

related distress, as a difficulty identifying and expressing emotions may also lead to feelings of alienation and disconnection from the self and others. Previous evidence has suggested that alexithymia fully mediated the relationship between past traumatic experiences and anxiety and depression (Chen & Chung, 2016).

Rationale

This study builds on previous research to understand why alienation appraisals may mediate the relationship between traumatic events and markers of trauma-related distress (Mitchell et al., 2018). The outcomes variables were posttraumatic stress and depression symptoms. It is important to study posttraumatic stress, as most people who experience trauma do not develop PTSD (Rosen & Lilienfeld, 2008), and depression is the most common comorbidity associated with trauma (Brady, Killeen, Brewerton, & Lucerini, 2000). The aim of the current study was first to explore the role of alienation appraisals in student and clinical samples, assessing whether alienation appraisals significantly mediated the relationship between cumulative trauma and markers of trauma-related distress. Second, this study sought to explore whether other factors, including alexithymia, social support, and loneliness, also mediated the relationship between cumulative trauma and markers of trauma-related distress, clarifying the mediating role of alienation. Alienation has been shown to act as a mediating pathway in a trauma-exposed clinical sample (Mitchell et al., 2018) and as a significant predictor of posttraumatic stress and depression in nonclinical samples (DePrince et al., 2011). Thus, these models were tested in both a general student and a clinical sample, as different constructs could potentially be related to alienation appraisals in different samples.

Method

Participants

Student sample. Undergraduate psychology students ($N = 100$) were recruited from a university in Northern Ireland. Participants met inclusion criteria if they were over 18 years of age and were excluded if they were experiencing suicidal ideation. The researcher attended classes and invited all students to participate in an online survey during scheduled class time. Students did not need to be trauma exposed to participate, and this was stated by the researcher. Participants had an average age of 20.55 years ($SD = 4.81$), ranging from 18 to 41 years of age. Eighty-three percent of participants were female; 17% identified as male. Seventy-two percent of participants were exposed to at least one trauma, sufficient for meeting Criterion A in *DSM* (American Psychiatric Association, 2013) diagnostic criteria for PTSD. For cumulative trauma, as assessed by the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995), the average number of traumatic experiences endorsed was one ($SD = 1.54$), ranging from none to a maximum of 12 diverse trauma types. Based on PDS responses, 33% of the student sample reported posttraumatic stress symptoms in the moderate range or above. Based on Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) responses, 44% of the student sample reported depression symptoms in the moderate range or above.

Clinical sample. Trauma-exposed treatment-seeking adults ($N = 93$) were recruited from three National Health Service sites in Northern Ireland: a specialist trauma service, an addictions service, and a recovery service. Participants were included if they were over 18 years of age and had been exposed to a traumatic event sufficient to meet Criterion A in *Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2013)* diagnostic criteria for PTSD. Participants were excluded if they were experiencing active suicidal ideation. Participants had an average age of 49.20 years ($SD = 20.46$), ranging from 21 to 67 years of age. Thirty-two percent of the participants were female; 68% were male. For cumulative trauma, the average number of traumatic experiences endorsed was four ($SD = 2.33$), ranging from one to a maximum of 12 diverse trauma types. Based on PDS responses, 87% of the clinical sample reported posttraumatic stress symptoms in the moderate range or above. Based on PHQ-9 responses, 83% of the clinical sample reported depression symptoms in the moderate range or above.

Procedure

In the student sample, participants completed questionnaires online via Qualtrics. They read the computerized information sheet and provided informed written consent. The questionnaires were administered in the following order: the demographic questionnaire, the PDS, the Alienation subscale of the TAQ, the MOS Social Support Survey (MOS-SS; Moser, Stuck, Silliman, Ganz, & Clough-Gorr, 2012), the UCLA Loneliness Scale (D. Russell, Peplau, & Ferguson, 1978), the Toronto Alexithymia Scale (TAS-20; Bagby, Taylor, & Parker, 1994), and the PHQ-9. Participants identified their worst trauma on the PDS and completed the alienation subscale of the TAQ while holding this traumatic event in mind. The questionnaires took approximately 35 to 45 min to complete, after which participants were debriefed. Participation was voluntary and student participants received course credit.

In the clinical sample, the staff at each site was provided with participant information sheets and information on inclusion–exclusion criteria. The staff passed on the participant information sheet to any suitable candidates. Service users who were willing to participate provided informed written consent and completed the questionnaires at a single appointment at their usual therapy location. Questionnaires were administered in a pen-and-paper format in the same order as the student sample. The questionnaires took approximately 35 to 45 min to complete; participants were then debriefed. Ethical approval was granted by the university ethics board and Office for Research Ethics Committees Northern Ireland. American Psychological Association ethical standards (American Psychological Association, 2002) were complied with.

Measures

Posttraumatic Stress Diagnostic Scale (Foa, 1995). The PDS can be used as a screen for posttraumatic stress and to rate the severity of symptoms and subsequent impact on functioning (McCarthy, 2008). Cumulative trauma was measured via a checklist of 12 different trauma types (e.g., “sexual assault by a stranger,” “torture”). This 49-item measure rates symptoms experienced in the past month on a 4-point scale from *not at all* (0) to *almost*

always (3); higher scores indicate increased symptom severity. A sample item is “Reliving the traumatic event, acting or feeling as if it was happening again.” Research has demonstrated excellent internal consistency for this measure ($\alpha = .92$; Orsillo, 2002). In the current study, internal consistency was acceptable for the student sample ($\alpha = .76$) and good for the clinical sample ($\alpha = .89$).

Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 assesses depression severity over nine items. Participants rate how often they were bothered by each symptom in the past 2 weeks on a 4-point scale from *not at all* (0) to *nearly every day* (3). Scores range from 0 to 27; higher scores indicate increased severity of depressive symptoms. A sample item is “Little interest or pleasure in doing things.” The scale has excellent psychometric properties ($\alpha = .88$; Erbe, Eichert, Rietz, & Ebert, 2016; Kroenke et al., 2001). In the current study, internal consistency was good for both the student sample ($\alpha = .88$) and clinical sample ($\alpha = .87$).

Trauma Appraisal Questionnaire–Alienation subscale (DePrince et al., 2010). The 10-item Alienation subscale from the TAQ was used in the current study. Items are rated on a 5-point scale from *strongly disagree* (1) to *strongly agree* (5); higher scores indicate increased alienation appraisals. Sample items include “There is a huge void inside me” and “My friends don’t understand my reactions.” Research shows excellent concurrent, convergent, and discriminant validity as well as good test–retest reliability and excellent internal consistency (α s ranging from .84–.93; DePrince et al., 2010). Internal consistency in the current study was excellent for both the student sample ($\alpha = .93$) and clinical sample ($\alpha = .93$).

Toronto Alexithymia Scale (Bagby, Taylor, & Parker, 1994). The TAS-20 measures alexithymia over 20 items rated on a 5-point Likert scale from *strongly disagree* (1) to *strongly agree* (5), with higher scores indicating increased alexithymia. A sample item is “I am often confused about what emotion I am feeling.” Research has indicated good concurrent, discriminant, and convergent validity (Bagby et al., 1994), and good internal reliability ($\alpha = .86$; Taylor, Bagby, & Parker, 2003). Internal consistency in the current study was good for both the student ($\alpha = .81$) and clinical ($\alpha = .82$) samples.

The MOS Social Support Survey—Eight-item modified version (Moser, Stuck, Silliman, Ganz, & Clough-Gorr, 2012). The MOS-SS captures social support via eight items assessed on a 5-point scale from *none of the time* (0) to *all of the time* (4). Higher scores indicate increased social support. A sample item is “How often is someone available to love and make you feel wanted?” Research has demonstrated good reliability ($\alpha > .91$; Sherbourne & Stewart, 1991). Psychometric evaluation showed very good internal consistency, sensitivity, construct validity, and discriminant validity (Moser et al., 2012). In the current study, internal consistency was good for both the student sample ($\alpha = .87$) and clinical sample ($\alpha = .86$).

UCLA Loneliness Scale (D. Russell, Peplau, & Ferguson, 1978). The UCLA Loneliness Scale is a 20-item measure of how lonely a person feels on a 4-point scale from *never* (1) to *often* (4). Higher scores indicate increased loneliness. A sample item is “I feel left out.” Research has demonstrated high reliability including high internal consistency ($\alpha = .96$), test–retest reliability ($r = .73$), and good convergent and construct validity (D. W. Russell, 1996).

Internal consistency in the current study was excellent for the student sample ($\alpha = .92$) and good for the clinical sample ($\alpha = .88$).

Data Analysis

Data was inputted and analyzed using IBM SPSS Statistics 24. Simple and parallel mediation models were conducted via SPSS using bootstrapping with the PROCESS add-on (Hayes, 2017). The indirect effect sample distribution was bootstrapped 5,000 times; percentile bootstrap confidence intervals were selected. Indirect effects at 95% confidence intervals were deemed significant if they did not cross zero (Hayes, 2017). Mediation analysis was conducted if simple linear regressions demonstrated a statistically significant relationship between the predictor (cumulative trauma) and outcome variables (posttraumatic stress and depression); if this criterion was not met, hierarchical regression analyses were conducted. For both the student and clinical samples, assumptions for regression analyses were all met; residuals approximated a normal distribution, linear relationships were observed, and there were no issues with multicollinearity or homoscedasticity. For both samples, there were some missing data for some scales (21 student participants and six clinical sample participants), as participants could choose to skip any question they did not wish to answer. Missing data was not imputed.

Results

Table 1 provides descriptive statistics and Table 2 presents the correlations between the variables of interest.

Mediation and Hierarchical Regression Analyses

Student sample: Posttraumatic stress symptoms. Significant total effects were found between cumulative trauma and posttraumatic stress symptoms. When alienation appraisals were entered as a mediator of this relationship, a significant indirect effect was evident, with the direct effect no longer significant. This suggested full mediation; the relationship between cumulative trauma and posttraumatic stress symptoms was mediated by alienation appraisals. Cumulative trauma was entered as a predictor of posttraumatic stress, with alienation appraisals, alexithymia, social support, and loneliness entered as parallel mediators of this relationship. There was a significant total effect, with the only significant indirect effect being for alienation appraisals. Results indicated that in a student sample, alienation appraisals fully mediated the relationship between cumulative trauma and posttraumatic stress symptoms when alexithymia, social support, and loneliness are controlled (see Figure 1).

Student sample: Depression symptoms. Significant total effects were observed between cumulative trauma and depression symptoms. When alienation appraisals were entered as a mediator of this relationship, no significant indirect effect was evident, suggesting that alienation does not mediate the relationship between cumulative trauma and depression in the student sample. Next, cumulative trauma was entered as a predictor of depression symptoms, with alienation appraisals, alexithymia, social support, and loneliness entered as parallel mediators of this relationship (see Table 3). There was a significant total effect, but no significant indirect effects were observed. Therefore, results indicated that alienation, alexithymia, social sup-

Table 1
Descriptive Statistics for Student and Clinical Samples

Measure	Potential range	Student				Clinical				<i>t</i>
		<i>n</i>	<i>M</i>	<i>SD</i>	Range	<i>n</i>	<i>M</i>	<i>SD</i>	Range	
PDS	0–51	81	10.23	10.20	0–31	92	33.53	10.63	0–51	14.75**
PHQ-9	0–27	100	8.73	6.10	0–26	92	16.56	6.35	0–27	8.75**
TAQ—Alienation subscale	10–50	100	19.52	13.18	0–50	92	40.52	9.71	10–50	12.66**
TAS-20	20–100	100	49.65	11.94	0–70	91	64.70	13.43	33–92	8.18**
MOS-SS	0–32	100	23.71	7.13	0–32	92	19.85	7.70	2–32	–3.61**
UCLA	20–80	100	38.93	11.46	0–64	92	52.10	11.25	20–73	8.10**

Note. PDS = Posttraumatic Stress Diagnostic Scale; PHQ = Patient Health Questionnaire; TAQ = Trauma Appraisal Questionnaire; TAS-20 = Toronto Alexithymia Scale; MOS-SS = Medical Outcomes Study Social Support Survey; UCLA = (University of California, Los Angeles) Loneliness Scale. ** $p < .01$.

port, and loneliness did not mediate the relationship between cumulative trauma and depression.

Clinical sample: Posttraumatic stress symptoms. No model between cumulative trauma and posttraumatic stress was tested via mediation analysis, as this path was nonsignificant; cumulative trauma did not significantly predict posttraumatic stress. As this path was not significant, hierarchical regression analyses were conducted for the clinical data, with alienation appraisals as the predictor of posttraumatic stress in Step 1; with alexithymia, social support and loneliness were added as predictors in Step 2. The first model was statistically significant. Alienation appraisals explained 50% of the variance in posttraumatic stress symptoms ($\beta = .71, p < .001$). When alexithymia, social support, and loneliness were added, the model remained statistically significant ($p < .001$) but only explained an additional 5% of variance in posttraumatic stress. Alienation appraisals remained the strongest and the only significant predictor, explaining 50% of the variance. Alexithymia ($\beta = .10, p = .23$), social support ($\beta = -.10, p = .25$), and loneliness ($\beta = .17, p = .08$) were not significant predictors of posttraumatic symptoms.

Clinical sample: Depression symptoms. Cumulative trauma did not significantly predict depression in the clinical group; thus, this path was nonsignificant and mediation analysis was not engaged. As this path was not significant, a hierarchical regression analysis was conducted for the clinical data with alienation appraisals as the predictor of depression in Step 1, and alexithymia,

social support, and loneliness added as predictors in Step 2. This model was statistically significant; alienation appraisals explained 57% of the variance in depression symptoms ($\beta = .75, p < .001$). When, alexithymia, social support, and loneliness were added as predictors, the model remained statistically significant ($p < .001$) but only explained an additional 5% of variance in depression; alienation appraisals remained the strongest predictor. Alienation, social support ($\beta = .19, p = .02$), and loneliness ($\beta = .30, p = .001$) were significant predictors of depression, but not alexithymia ($\beta = -.06, p = .47$).

Discussion

Independent of alexithymia, social support, and loneliness, alienation appraisals were found to predict posttraumatic stress symptoms in the student and clinical samples, and depression symptoms in the clinical sample. Seemingly, the impact of alienation on posttrauma symptoms found in previous work is not related to proxy variables like alexithymia, social support, and loneliness.

Student Sample

Alienation appraisals fully mediated the relationship between cumulative trauma and posttraumatic stress symptoms when alex-

Table 2
First-Order Correlations (*r*) Between Cumulative Trauma, Posttraumatic Stress Symptoms (PDS), Depression Symptoms (PHQ-9), Alienation Appraisals (TAQ), Alexithymia (TAS-20), Social Support (MOS-SS), and Loneliness (UCLA) for the Student and Clinical Samples

Psychological construct	Student							Clinical						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Cumulative trauma	—	.31**	.26**	.23**	.20*	-.15	.13	—	.10	.18	.06	-.13	.12	.04
2. PDS		—	.55**	.59**	.40**	-.18	.40**		—	.72**	.70**	.42**	-.41**	.55**
3. PHQ			—	.42**	.45**	-.46**	.60**			—	.75**	.32**	-.22*	.56**
4. TAQ				—	.44**	-.33**	.53**				—	.44**	-.39**	.57**
5. TAS-20					—	-.30**	.58**					—	-.21*	.39**
6. MOS-SS						—	-.61**						—	-.53**
7. UCLA							—							—

Note. PDS = Posttraumatic Stress Diagnostic Scale; PHQ = Patient Health Questionnaire; TAQ = Trauma Appraisal Questionnaire; TAS-20 = Toronto Alexithymia Scale; MOS-SS = Medical Outcomes Study Social Support Survey; UCLA = (University of California, Los Angeles) Loneliness Scale. * $p < .05$. ** $p < .01$.

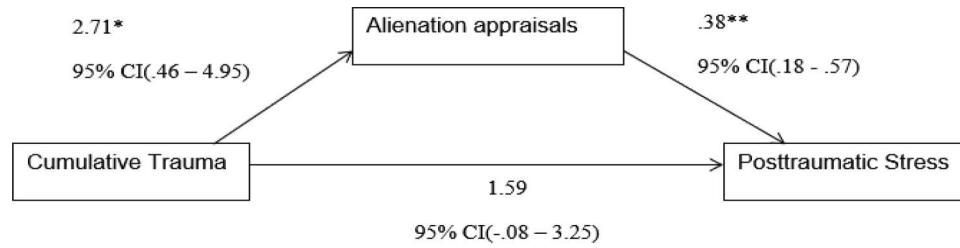


Figure 1. Path diagram for mediation model in student sample predicting posttraumatic stress, indicating full mediation via alienation appraisals. * $p < .05$. ** $p < .01$.

ithymia, social support, and loneliness were considered concurrently. This supports previous research emphasizing alienation in posttraumatic stress (DePrince et al., 2011; Mitchell et al., 2018; Srinivas et al., 2015). Contrary to previous research, alienation appraisals did not significantly mediate the relationship between cumulative trauma and depression symptoms for the student sample (Mitchell et al., 2018). This may be because the student sample endorsed milder symptoms of depression than the clinical sample used in earlier studies (Mitchell et al., 2018). Alexithymia, social support, and loneliness were not salient for posttraumatic stress or depression in this group.

The student sample reported high trauma exposure, posttraumatic stress, and depression symptoms. For example, 72% identified a Criterion A trauma, somewhat higher than in U.S. college students (66%; Read, Ouimette, White, Colder, & Farrow, 2011). The student sample was predominantly female, and it is widely acknowledged that females are at higher risk of Criterion A trauma exposure than males (Read et al., 2011). A further factor that may explain the high rates of trauma exposure, posttraumatic stress, and depression symptoms in the student sample may be transgenerational trauma due to the legacy of the “Troubles” in Northern Ireland. Children and grandchildren of survivors of Troubles-related trauma show comparable symptom severity to those directly exposed (Shevlin & McGuigan, 2003). Furthermore, mental health problems are highly prevalent in Northern Ireland, with PTSD rates elevated on account of Troubles-related conflict and delayed access to treatment (Bunting, Murphy, O’Neill, & Ferry, 2012). Thus, a combination of female gender, direct and transgenerational Troubles trauma exposure, and mental health treatment

delays may explain the high trauma exposure and posttraumatic stress and depression symptom severity in the student sample. Consequently, findings may have limited generalizability but demonstrate the importance of alienation appraisals in this group.

Clinical Sample

In the clinical sample, cumulative trauma did not significantly predict posttraumatic stress or depression, but alienation did, supporting appraisals as key in distress rather than trauma type or the number of traumas experienced (Ehlers & Clark, 2000; Mitchell et al., 2018). Of the variables assessed, only alienation significantly predicted posttraumatic stress, supporting the emerging evidence base for alienation (Bonfils et al., 2018; Brondolo et al., 2018; Hebenstreit et al., 2015). Alienation remained a substantial predictor of posttraumatic stress when alexithymia, social support, and loneliness were considered concurrently. These findings support and extend DePrince et al.’s (2011) work indicating that alienation is not merely a proxy for social support but also not a proxy for loneliness or alexithymia. Alienation appraisals were a significant predictor of depression symptoms, supporting existing research (Babcock Fenerci & DePrince, 2018; Brondolo et al., 2018). The fact that alienation appraisals were salient in the clinical sample, and not the student sample, for depression suggests that alienation appraisals may be more pertinent for depressive symptoms in adults with more debilitating trauma-related distress.

Results showed that social support and loneliness also predicted depression, although alienation remained the strongest predictor.

Table 3

Summary of Regression Models Predicting Posttraumatic Stress and Depression Symptoms in the Clinical Sample

Predictor variables	Outcome: Posttraumatic stress symptoms						Outcome: Depression symptoms					
	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>R</i> ²	ΔR^2	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>R</i> ²	ΔR^2
	<i>F</i> (1, 89) = .91; <i>p</i> = .34; <i>R</i> ² = 1%						<i>F</i> (1, 89) = 2.90; <i>p</i> = .09; <i>R</i> ² = 3%					
Cumulative trauma	.46	.49	.10	.96	.01	-.001	.49	.29	.18	1.70	.03	.02
	Step 1: <i>F</i> (1, 90) = 89.2; <i>p</i> < .001; <i>R</i> ² = 50%						Step 1: <i>F</i> (1, 90) = 117.3; <i>p</i> < .001; <i>R</i> ² = 57%					
Alienation	.79	.08	.71**	.45	.50	.49	.50	.05	.75**	10.83	.57	.56
	Step 2: <i>F</i> (4, 87) = 26.5; <i>p</i> < .001; <i>R</i> ² = 55%						Step 2: <i>F</i> (4, 87) = 35.7; <i>p</i> < .001; <i>R</i> ² = 62%					
Alienation	.59	.10	.53**	5.82	.55	.53	.45	.06	.68**	8.16	.62	.60
Alexithymia	.08	.07	.10	1.21			-.03	.04	-.06	-.73		
Social support	-.14	.12	-.10	-1.15			.16	.07	.19*	2.42		
Loneliness	.16	.09	.17	1.75			.17	.05	.30**	3.36		

* $p < .05$. ** $p < .01$.

This finding is concordant with evidence for loneliness (Shevlin et al., 2015) and social support as salient in trauma survivors (Jacobson et al., 2018). Evidence that social support buffers against distress is nuanced in the current study, with social support seeming to buffer depression, not posttraumatic stress (Woodward et al., 2015). Alexithymia was not a significant predictor of depression or posttraumatic stress. Alienation appraisals predicted both posttraumatic stress and depression when social support, loneliness, and alexithymia were controlled for. This suggests that the internal sense of disconnection from the self and others, defined as alienation, is distinct from the theoretically similar concepts of social support, loneliness, and alexithymia.

Limitations

A limitation of the study is its cross-sectional design. Therefore, the temporal order of alienation, social support, loneliness, alexithymia, posttraumatic stress, and depression symptoms cannot be determined. A further limitation was that stage of therapy was not controlled in the clinical sample. Further research examining changes in alienation appraisals over the course of therapy would help to explain the proposed mechanism of alienation in developing, or maintaining, trauma-related distress. An additional criticism is the reduced generalizability of the student sample, which predominantly comprised young, trauma-exposed, highly educated females in Northern Ireland. A benefit of selecting a student sample was that models could be tested in a sample with high trauma exposure but with less debilitating symptoms than the clinical sample.

Clinical Implications

The findings emphasize alienation appraisals as an important predictor, even when controlling for theoretically related constructs in posttraumatic stress, for both student and clinical samples. Ehlers and Clark's (2000) cognitive model of posttraumatic stress, which proposed that negative trauma appraisals made after a trauma maintain distress, is supported in the current study, with the unique role of alienation appraisals particularly emphasized. Early evidence indicates that cognitive restructuring to target appraisals of disconnection from the self and others, as well as graded exposure, may heighten effectiveness of treatment for individuals with posttraumatic stress symptoms who report high levels of alienation (Ehlers et al., 1998). However, challenging a trauma survivors' negative appraisals may be perceived as invalidating and should be done with great sensitivity (Barlow, Goldsmith Turow, & Gerhart, 2017). As alienation appraisals relate to disconnection, it is likely that the relational context of distress is key, although our data suggest that alienation is distinct from social support or feeling lonely—that is, survivors may feel alienated despite having good social support. Therefore, a proposed means of indirectly targeting alienation is to foster a strong therapeutic relationship in which the trauma survivor feels understood by, and trusts, their therapist (Hembree, Rauch, & Foa, 2003). The therapeutic relationship may be an important first step in assisting the survivor in relating and connecting with others in their personal lives. This study recommends the clinical assessment of alienation appraisals in trauma survivors to help inform the psychological formulation and treatment plan, incorporating both cognitive re-

structuring and forging a strong therapeutic alliance (DePrince et al., 2010). As social support and loneliness also predicted depressive symptoms in the clinical sample, assessment should consider social support networks and loneliness in trauma survivors who experience depression. Assisting the trauma survivor in engaging in meaningful, supportive relationships with others may help to reduce symptoms of depression. Alienation appraisals were salient in the clinical sample, not the student sample, for depression, suggesting that alienation may be more pertinent for depressive symptoms in trauma survivors who endorse more debilitating symptoms. Tentatively, a reciprocal relationship may exist in which alienation appraisals maintain distress, and distressing symptoms strengthen, the trauma survivors' alienation appraisals and sense of disconnection from others.

Conclusion

This study is the first to explore the relationship between alienation appraisals, alexithymia, social support, and loneliness and posttraumatic-stress/depression symptoms. Alienation significantly predicted posttraumatic stress across student and clinical samples. Alexithymia, social support, and loneliness do not appear to better explain the mediating role of alienation and posttraumatic stress. However, alienation appraisals, alongside the weaker predictors of social support and loneliness, are important factors to consider in trauma survivors with depression. The findings enhance theoretical models of trauma-related distress and are clinically useful for practitioners who work therapeutically with trauma-exposed adults. Alienation makes an independent contribution to the prediction of posttraumatic distress, unique from loneliness, social support, and alexithymia.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)* (5th ed.). Arlington, VA: American Psychiatric Publishing, Inc. <http://dx.doi.org/10.1176/appi.books.9780890425596>
- American Psychological Association. (2002). *Ethical principles of psychologists and code of conduct*. Washington, DC: Author.
- Babcock Fenerci, R. L., & DePrince, A. P. (2018). Shame and alienation related to child maltreatment: Links to symptoms across generations. *Psychological Trauma: Theory, Research, Practice and Policy, 10*, 419–426. <http://dx.doi.org/10.1037/tra0000332>
- Bagby, R. M., Taylor, G. J., & Parker, J. D. (1994). The twenty-item Toronto Alexithymia Scale—II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research, 38*, 33–40. [http://dx.doi.org/10.1016/0022-3999\(94\)90006-X](http://dx.doi.org/10.1016/0022-3999(94)90006-X)
- Barlow, M. R., Goldsmith Turow, R. E., & Gerhart, J. (2017). Trauma appraisals, emotion regulation difficulties, and self-compassion predict posttraumatic stress symptoms following childhood abuse. *Child Abuse & Neglect, 65*, 37–47. <http://dx.doi.org/10.1016/j.chiabu.2017.01.006>
- Bonfils, K. A., Lysaker, P. H., Yanos, P. T., Siegel, A., Leonhardt, B. L., James, A. V., . . . Davis, L. W. (2018). Self-stigma in PTSD: Prevalence and correlates. *Psychiatry Research, 265*, 7–12. <http://dx.doi.org/10.1016/j.psychres.2018.04.004>
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *The Journal of Clinical Psychiatry, 61*(Suppl. 7), 22–32.
- Brondolo, E., Eftekharzadeh, P., Clifton, C., Schwartz, J. E., & Delahanty, D. (2018). Work-related trauma, alienation, and posttraumatic and depressive symptoms in medical examiner employees. *Psychological*

- Trauma: Theory, Research, Practice and Policy*, 10, 689–697. <http://dx.doi.org/10.1037/tra0000323>
- Bunting, B. P., Murphy, S. D., O'Neill, S. M., & Ferry, F. R. (2012). Lifetime prevalence of mental health disorders and delay in treatment following initial onset: Evidence from the Northern Ireland Study of Health and Stress. *Psychological Medicine*, 42, 1727–1739. <http://dx.doi.org/10.1017/S0033291711002510>
- Chen, Z. S., & Chung, M. C. (2016). The relationship between gender, posttraumatic stress disorder from past trauma, alexithymia and psychiatric co-morbidity in Chinese adolescents: A moderated mediational analysis. *Psychiatric Quarterly*, 87, 689–701. <http://dx.doi.org/10.1007/s11126-016-9419-1>
- DePrince, A. P., Chu, A. T., & Pineda, A. S. (2011). Links between specific posttrauma appraisals and three forms of trauma-related distress. *Psychological Trauma: Theory, Research, Practice, and Policy*, 3, 430–441. <http://dx.doi.org/10.1037/a0021576>
- DePrince, A. P., Huntjens, R. J., & Dorahy, M. J. (2015). Alienation appraisals distinguish adults diagnosed with DID from PTSD. *Psychological Trauma: Theory, Research, Practice and Policy*, 7, 578–582. <http://dx.doi.org/10.1037/tra0000069>
- DePrince, A. P., Zurbriggen, E. L., Chu, A. T., & Smart, L. (2010). Development of the trauma appraisal questionnaire. *Journal of Aggression, Maltreatment & Trauma*, 19, 275–299. <http://dx.doi.org/10.1080/10926771003705072>
- Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, 38, 319–345. [http://dx.doi.org/10.1016/S0005-7967\(99\)00123-0](http://dx.doi.org/10.1016/S0005-7967(99)00123-0)
- Ehlers, A., Clark, D. M., Dunmore, E., Jaycox, L., Meadows, E., & Foa, E. B. (1998). Predicting response to exposure treatment in PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress*, 11, 457–471. <http://dx.doi.org/10.1023/A:1024448511504>
- Erbe, D., Eichert, H. C., Rietz, C., & Ebert, D. (2016). Interformat reliability of the Patient Health Questionnaire: Validation of the computerized version of the PHQ-9. *Internet Interventions*, 5, 1–4. <http://dx.doi.org/10.1016/j.invent.2016.06.006>
- Foa, E. (1995). *Posttraumatic Stress Diagnostic Scale*. Minneapolis, MN: National Computer Systems.
- Gómez de La Cuesta, G., Schweizer, S., Diehle, J., Young, J., & Meiser-Stedman, R. (2019). The relationship between maladaptive appraisals and posttraumatic stress disorder: A meta-analysis. *European Journal of Psychotraumatology*, 10, 1620084. <http://dx.doi.org/10.1080/20008198.2019.1620084>
- Halligan, S. L., Michael, T., Clark, D. M., & Ehlers, A. (2003). Posttraumatic stress disorder following assault: The role of cognitive processing, trauma memory, and appraisals. *Journal of Consulting and Clinical Psychology*, 71, 419–431. <http://dx.doi.org/10.1037/0022-006X.71.3.419>
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). London, UK: Guilford Press.
- Hebenstreit, C. L., Maguen, S., Koo, K. H., & DePrince, A. P. (2015). Latent profiles of PTSD symptoms in women exposed to intimate partner violence. *Journal of Affective Disorders*, 180, 122–128. <http://dx.doi.org/10.1016/j.jad.2015.03.047>
- Hembree, E. A., Rauch, S. A. M., & Foa, E. B. (2003). Beyond the manual: The insider's guide to prolonged exposure therapy for PTSD. *Cognitive and Behavioral Practice*, 10, 22–30. [http://dx.doi.org/10.1016/S1077-7229\(03\)80005-6](http://dx.doi.org/10.1016/S1077-7229(03)80005-6)
- Jacobson, M. H., Norman, C., Nguyen, A., & Brackbill, R. M. (2018). Longitudinal determinants of depression among World Trade Center Health Registry enrollees, 14–15 years after the 9/11 attacks. *Journal of Affective Disorders*, 229, 483–490. <http://dx.doi.org/10.1016/j.jad.2017.12.105>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16, 606–613. <http://dx.doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Martin, C. G., Cromer, L. D., DePrince, A. P., & Freyd, J. J. (2013). The role of cumulative trauma, betrayal, and appraisals in understanding trauma symptomatology. *Psychological Trauma: Theory, Research, Practice and Policy*, 5, 110–118. <http://dx.doi.org/10.1037/a0025686>
- McCarthy, S. (2008). Post-Traumatic Stress Diagnostic Scale (PDS). *Occupational Medicine*, 58, 379. <http://dx.doi.org/10.1093/occmed/kqn062>
- Mitchell, R., Brennan, K., Curran, D., Hanna, D., & Dyer, K. F. (2017). A meta-analysis of the association between appraisals of trauma and post-traumatic stress in children and adolescents. *Journal of Traumatic Stress*, 30, 88–93. <http://dx.doi.org/10.1002/jts.22157>
- Mitchell, R., Hanna, D., Brennan, K., Curran, D., McDermott, B., Ryan, M., . . . Dyer, K. F. (2018). Alienation appraisals mediate the relationships between childhood trauma and multiple markers of posttraumatic stress. *Journal of Child & Adolescent Trauma*. Advance online publication. <http://dx.doi.org/10.1007/s40653-018-0220-1>
- Moser, A., Stuck, A. E., Silliman, R. A., Ganz, P. A., & Clough-Gorr, K. M. (2012). The eight-item modified Medical Outcomes Study Social Support Survey: Psychometric evaluation showed excellent performance. *Journal of Clinical Epidemiology*, 65, 1107–1116. <http://dx.doi.org/10.1016/j.jclinepi.2012.04.007>
- Orsillo, S. M. (2002). Measures for acute stress disorder and posttraumatic stress disorder. In M. M. Antony, S. M. Orsillo, & L. Roemer (Eds.), *Practitioner's guide to empirically based measures of anxiety* (pp. 255–307). New York, NY: Springer. http://dx.doi.org/10.1007/0-306-47628-2_20
- Read, J. P., Ouimette, P., White, J., Colder, C., & Farrow, S. (2011). Rates of DSM-IV-TR trauma exposure and posttraumatic stress disorder among newly matriculated college students. *Psychological Trauma: Theory, Research, Practice and Policy*, 3, 148–156. <http://dx.doi.org/10.1037/a0021260>
- Rook, K. S. (1984). Promoting social bonding. Strategies for helping the lonely and socially isolated. *American Psychologist*, 39, 1389–1407. <http://dx.doi.org/10.1037/0003-066X.39.12.1389>
- Rosen, G. M., & Lilienfeld, S. O. (2008). Posttraumatic stress disorder: An empirical evaluation of core assumptions. *Clinical Psychology Review*, 28, 837–868. <http://dx.doi.org/10.1016/j.cpr.2007.12.002>
- Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, 42, 290–294. http://dx.doi.org/10.1207/s15327752jpa4203_11
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, 66, 20–40. http://dx.doi.org/10.1207/s15327752jpa6601_2
- Sherbourne, C. D., & Stewart, A. L. (1991). The MOS social support survey. *Social Science & Medicine*, 32, 705–714. [http://dx.doi.org/10.1016/0277-9536\(91\)90150-B](http://dx.doi.org/10.1016/0277-9536(91)90150-B)
- Shevlin, M., McElroy, E., & Murphy, J. (2015). Loneliness mediates the relationship between childhood trauma and adult psychopathology: Evidence from the adult psychiatric morbidity survey. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services*, 50, 591–601. <http://dx.doi.org/10.1007/s00127-014-0951-8>
- Shevlin, M., & McGuigan, K. (2003). The long-term psychological impact of Bloody Sunday on families of the victims as measured by The Revised Impact of Event Scale. *British Journal of Clinical Psychology*, 42, 427–432. <http://dx.doi.org/10.1348/014466503322528955>
- Srinivas, T., DePrince, A. P., & Chu, A. T. (2015). Links between post-trauma appraisals and trauma-related distress in adolescent females from the child welfare system. *Child Abuse & Neglect*, 47, 14–23. <http://dx.doi.org/10.1016/j.chiabu.2015.05.011>

- Taylor, G. J., Bagby, R. M., & Parker, J. D. (1999). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge, UK: Cambridge University Press.
- Taylor, G. J., Bagby, R. M., & Parker, J. D. (2003). The 20-Item Toronto Alexithymia Scale. IV. Reliability and factorial validity in different languages and cultures. *Journal of Psychosomatic Research, 55*, 277–283. [http://dx.doi.org/10.1016/S0022-3999\(02\)00601-3](http://dx.doi.org/10.1016/S0022-3999(02)00601-3)
- Thoits, P. A. (1982). Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. *Journal of Health and Social Behavior, 23*, 145–159. <http://dx.doi.org/10.2307/2136511>
- Woodward, M. J., Eddinger, J., Henschel, A. V., Dodson, T. S., Tran, H. N., & Beck, J. G. (2015). Social support, posttraumatic cognitions, and PTSD: The influence of family, friends, and a close other in an interpersonal and non-interpersonal trauma group. *Journal of Anxiety Disorders, 35*, 60–67. <http://dx.doi.org/10.1016/j.janxdis.2015.09.002>
- Zang, Y., Gallagher, T., McLean, C. P., Tannahill, H. S., Yarvis, J. S., Foa, E. B., & the STRONG STAR Consortium. (2017). The impact of social support, unit cohesion, and trait resilience on PTSD in treatment-seeking military personnel with PTSD: The role of posttraumatic cognitions. *Journal of Psychiatric Research, 86*, 18–25. <http://dx.doi.org/10.1016/j.jpsychires.2016.11.005>

Received May 9, 2019

Revision received July 26, 2019

Accepted September 29, 2019 ■