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Does Attachment Mediate PTSD and Suicidality in a Sample of Global War on Terrorism (GWOT) Combat Veterans?

RESEARCH

JOSE CARBAJAL
WARREN N. PONDER
*Author affiliations can be found in the back matter of this article

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ABSTRACT

Posttraumatic stress disorder (PTSD) and suicidality is a growing concern in the US due to the consistent rise in attempted and completed suicides in the veteran community. Consequently, continued scholarship to delve into the relationship between these two variables is imperative. This study used a sample of 65 treatment-seeking combat veterans who deployed in support of the Global War on Terrorism (GWOT). We conducted 12 PROCESS simple mediation models and analyzed suicidality, generalized anxiety, and depression's relationship indirectly through attachment avoidance and attachment anxiety to PTSD. Next, we repeated the model, making suicidality the dependent variable, with PTSD, generalized anxiety, and depression indirectly through attachment avoidance and attachment anxiety. Lastly, in an attempt to understand the relationship between suicidality and PTSD, we conducted two parallel mediation models. The results indicate attachment dimensions and PTSD may be reciprocal, that is, working as a feedback loop, which have clinical implications.

CORRESPONDING AUTHOR:
Warren Ponder
One Tribe Foundation, US
warren@1tribefoundation.org

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Attachment theory; mediation; combat veteran; suicide; PTSD

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US military personnel and veterans are especially vulnerable to trauma because of exposure to war-zone experiences (Armistead-Jehle et al., 2011; Beliveau et al., 2019; Gilbertson et al., 2010; Hassija et al., 2012). Combat exposure can occur directly and indirectly. Direct combat exposure is actively engaging the enemy. These encounters do not necessarily have to be physical, but psychological and biological as well (i.e., chemical/biological warfare). Indirect combat exposure occurs through learning about other units being attacked or hearing about their comrades dying in the line of fire (Gade & Wenger, 2011; Pietrzak et al., 2011). Thus, combat exposure in Iraq and Afghanistan is expected and imminent. Consequently, when military members are in a combat zone and in a stressful environment, as the nature of combat is unexpected and life threatening, it can have a deleterious impact on long-term mental health (Krauss et al., 2019). Therefore, all US military personnel and veterans who have been in active combat with the enemy are at risk for psychiatric reactions, including traumatic symptoms, because of exposure to war (Greene et al., 2020; Lazarov et al., 2019; MacGregor et al., 2012; US Census, 2010; US Department of Defense [DoD], 2010).

The post 9/11, US Global War on Terrorism (GWOT) has raised many concerns regarding the mental health of current and former military service members and their families (Boscarino et al., 2018; Monson et al., 2010; Taft et al., 2011). There are concerns about rates of suicide and posttraumatic stress disorder (PTSD) for current and former military members as well. (Boscarino et al., 2018; Dursa et al., 2014; Hoge & Castro, 2012; Jakupcak et al., 2009; Jakupcak et al., 2011). The suicide rate varies for each component, for example, the National Guard is 30.6%, Active Duty is 24.8%, and the Reserve is 22.9% per 100,000 (DoD, 2018). Depending on military component, 90.1% to 93.5% of suicides were by males. Hoge et al. (2004) was one of the first to investigate PTSD among GWOT veterans and found 19.9% of veterans deployed to Operation Iraqi Freedom (OIF) and 11.5% of veterans who deployed to Operation Enduring Freedom (OEF) reported symptoms of PTSD. Overall, the PTSD rate for veterans is approximately 20% (Seal et al., 2008), and even as high as 37.8% (Ponder & Aguirre, 2012). However, other scholars uncovered that after controlling for demographic variables, branch of service, deployed US military members had a lower risk of suicide than those who did not deploy to OIF or OEF (Kang et al., 2015). Thus, suicidality and PTSD are two critical factors that influence current and former US military members' wellbeing and how they relate to others. Understanding how attachment styles mediate suicide and PTSD are crucial to clinically treat this population.

ATTACHMENT THEORY

Adult attachment styles can be conceptualized categorically as secure, preoccupied, dismissing, or fearful (Bartholomew & Horowitz, 1991). These styles have their own internal working model, the schema from which they operate. A person with a secure attachment style has a positive view of self and others. On the other hand, a person with a preoccupied style has a negative view of self and a positive view of others; whereas a person with a dismissive style has a positive view of self and negative view of others, and lastly, a person with a fearful style has a negative view of self and a negative view of others. Mikulincer and Shaver (2016) further expanded how attachment system functions by noting that (a) the primary strategy, proximity seeking, aims to effectively attain the support of a security-providing attachment figure (secure attachment); and (b) secondary strategies, anxious hyper-activation (anxiety dimension), and avoidant deactivation (avoidance dimension), are in response to an attachment figure that is unavailable or unresponsive. Consequently, attachment can be measured in several ways: secure-insecure, dimensionally (avoidance or anxiety), or into one of the four nominal categories (secure, preoccupied, dismissing, and fearful). Brennan et al. (1998) developed the dimensional approach in their study and produced the Experiences in Close Relationships (ECR) scale, which is one of the most widely used assessments in attachment research. A person with a dismissive style uses the second strategy of avoidance, whereas a person with a preoccupied style uses the secondary strategy of anxiety (Mikulincer & Shaver, 2016).

Marshall and Frazier (2019) purport attachment dimensions and PTSD may be reciprocal. They asserted that a traumatic event can activate the attachment system, which propels the individual pursue proximity seeking to achieve felt security with an attachment figure. This in turn influences event recall/appraisals, post trauma reactions (PTSD or post traumatic growth), which can impact the models of self and other, and the individual's attachment orientation. Marshall and Frazier (2019) concluded that "the body of research suggests that attachment orientations predict later PTSD symptoms, which may lead to increases in attachment insecurity [avoidance or anxiety] that may in turn sustain or even exacerbate existing symptoms over time" (p. 169). Therefore, understanding how attachment dimensions mediate suicide and PTSD are crucial to effectively intervening with this population.

When military personnel are in a combat zone, their attachment system can be continually activated due to the potential loss of life, and these dynamics might influence suicide and PTSD propensity (Riggs & Riggs, 2011). Ferrajão et al. (2017) found in a sample of Portuguese

military veterans, attachment avoidance was significantly correlated with attachment anxiety. Additionally, they found that attachment anxiety was significantly correlated with participants who no longer met clinical criteria for PTSD and greater disorganization of adaptive mental health strategies. Furthermore, Grady et al. (2018) in a sample of US military veterans found that attachment avoidance and attachment anxiety had a large positive correlation with the Generalized Anxiety Disorder-7 (GAD-7) and the Patient Health Questionnaire-9 (PHQ-9) assessments. Their analyses investigated the mean differences between the four nominal attachment styles, however, their analyses did not conceptualize the attachment system as put forth by Marshall and Frazier (2019). Consequently, the authors of the present study will conceptualize the attachment system via its secondary strategies, attachment avoidance and attachment anxiety.

HYPOTHESES WITH RATIONALE

The purpose of this study was to use attachment dimensions (avoidance and anxiety) as mediators to analyze the relationship between generalized anxiety, depression, suicide and PTSD in a clinical sample of 65 post-9/11 U.S. GWOT combat veterans. We endorse the following hypotheses:

1. When controlling for attachment anxiety: attachment avoidance will significantly mediate (generalized anxiety, depression, PTSD) to the dependent variable, PTSD.
2. When controlling for attachment avoidance: attachment anxiety will not significantly mediate (generalized anxiety, depression, PTSD) to the dependent variable, PTSD.
3. When controlling for attachment anxiety: attachment avoidance will significantly mediate (generalized anxiety, depression, PTSD) to the dependent variable, suicidality.
4. When controlling for attachment avoidance: attachment anxiety will not significantly mediate (generalized anxiety, depression, PTSD) to the dependent variable, suicidality.

MATERIALS AND METHODS

PARTICIPANTS

Participants for this study included 65 US veterans who had each deployed to a combat zone in support of the GWOT. This was a convenience sample that was selected because Ferrajão et al. (2017) used a small sample of Portuguese war veterans (N = 60), and it was unknown if a sample of US war veterans would have similar or divergent findings. Men comprised most of the sample (80%) with a mean age of 37.34 years (SD = 8.73). The majority of the sample identified as white (73.8%), served in the Army (52.3%), and were discharged (69.2%). See Table 1 for demographic data of the sample.

CHARACTERISTIC	SAMPLE
Age (Years)	
Mean	37.34
Median	35.50
SD	8.73
Range	42
Time in Service (Years)	
Mean	8.68
Median	6.25
SD	6.39
Range	35–58
Branch of Military N (%)	
Air Force	9 (13.8%)
Army	34 (52.3%)
Navy	6 (9.2%)
Marine Corps	14 (21.5%)
Coast Guard	1 (1.5%)
Two or more	1 (1.5%)
Component of Military	
Active	7 (10.8%)
Discharged	45 (69.2%)
Reserve	3 (4.6%)
Retired	10 (15.4%)
Number of Deployments	
One	35 (53.8%)
Two	18 (27.7%)
Three	5 (7.7%)
Four	3 (4.6%)
Five or more	4 (6.2%)
Gender N (%)	
Female	13 (20.0%)
Male	52 (80.0%)
Ethnicity (%)	
African American/Black	5 (7.7%)
Latino(a)/Hispanic	8 (12.3%)
Multiple Ethnicities	4 (6.2%)
White	48 (73.8%)

Table 1 Sample Demographics.

DATA COLLECTION

We used archival data collected at intake from US veterans who sought counseling services between 2015–2020 at the nonprofit organization where the second author is the program evaluator. The nonprofit organization serves military service members, first responders, frontline healthcare workers, and their families. Stay The Course (STC) is the clinical program of the nonprofit organization, One Tribe Foundation. STC was created as a response to fill the gap of no culturally competent mental health agencies in the Dallas/Fort Worth area to treat this target population.

As part of the intake process, clinical assessment data were collected for ongoing program evaluation purposes. These data were completed in the first appointment with the intake manager, before the client was assigned a treating clinician. Also, the demographic data and standardized assessments were completed by the client as they are self-report scales. Inclusion criteria were being forwardly deployed to a theatre of war (Iraq or Afghanistan) in support of the GWOT, and be over the age of 18. Any case that had over 10% missing data was excluded from analyses (Dong & Peng, 2013). There was no other formal or informal exclusion criteria. At each clinical intake visit, the client is given and signs a consent document before their first counseling session with their clinician. This secondary data analysis was approved by the University of Texas Health Science Center Institutional Review Board (HSC-SPH-20-1264).

MEASURES

This study used a demographic questionnaire and five standardized assessment instruments. The self-report measures were the PTSD Checklist-5 (PCL-5), Suicide Behavior Questionnaire-Revised (SBQ-R), Experiences in Close Relationships (ECR), PHQ-9, and the GAD-7. These assessments were utilized because they are key clinical constructs recommended for treating GWOT combat veterans (Gamarra et al., 2015; Grady, et al., 2018; Hoge et al., 2004). The acceptable range for Cronbach's alpha is between 0.7 to 0.8, good is 0.8 to 0.9, and excellent is 0.9 or greater.

PCL-5

The PCL-5 was developed to assess for the presence of PTSD and is consistent with the *Diagnostic and Statistical Manual of Mental Disorder-5* (DSM-5; Blevins et al., 2015). The PCL-5 is comprised of 20-questions that are on a Likert scale from 0 (*not at all*) to 4 (*extremely*), which are summed, producing an aggregated score ranging from 0 to 80. Higher scores indicate the more severe the presence of PTSD symptomatology. The Cronbach's alpha in this study was $\alpha = .94$.

SBQ-R

Osman et al. (2001) developed the SBQ-R to assess for suicidality. It probes four different dimensions of suicidality: lifetime suicide ideation and/or suicide attempt, frequency of suicidal ideation over the past 12 months, threat of suicide attempt, and self-reported likelihood of suicidal behavioral in the future (Osman et al., 2001). SBQ-R scores range from 3 to 18, with higher scores indicating the higher the risk of suicide. The Cronbach's alpha in this study was $\alpha = .81$.

ECR

Brennan et al. (1998) developed the Experiences in Close Relationships (ECR) scale. The ECR scale assesses adult attachment on two factors: anxiety and avoidance. The ECR includes 36-questions which are on a 7-point Likert scale with responses ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The ECR produces two means, one for each factor, anxiety and avoidance, with mean scores ranging from 1 to 7, respectfully. Higher scores on each factor indicate greater presence of each construct. The Cronbach's alpha in this study was $\alpha = .91$.

PHQ-9

Kroenke et al. (2001) PHQ-9 to assess the presence of depression. The PHQ-9 responses range from 0 (*not at all*) to 3 (*nearly every day*) and scores are summed ranging from 0–27. Higher scores represent the greater severity of depression. The Cronbach's alpha in this study was $\alpha = .89$.

GAD-7

The GAD-7 was developed to screen for Generalized Anxiety Disorder (GAD) (Spitzer et al., 2006). The GAD-7 responses range from 0 (*not at all*) to 3 (*nearly every day*) and aggregated scores ranging from 0 to 21. Higher scores indicate the greater severity of generalized anxiety. The Cronbach's alpha in this study was $\alpha = .91$.

PROCEDURE

DATA ANALYSIS

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 26.0. We examined the dataset for missing values, replacing 3.29% of data with series means. First, we confirmed normal distributions for all assessments. Next, we established the relationship between variables via correlation analyses. Demographic variables such as age, gender, and socioeconomic status were analyzed with the standardized assessments via correlational analyses, none of which were statistically significant at the .05 level

of significance. Hayes' (2018) PROCESS macro version 3.5 was used to test for mediation; in total there were 12 simple mediation models conducted for this study. The PROCESS macro allows researchers, using an Ordinarily Least Squares (OLS) regression-based approach, to test direct and indirect effects. Path coefficients for direct and total effects for the relationship between independent variables (GAD-7, PHQ-9, PCL-5, or SBQ-R), attachment anxiety or attachment avoidance (as mediators), and suicidality or PTSD severity (as dependent variable) were estimated by the macro command as suggested by Hayes (2018). This macro command uses the bootstrap test, which is used to evaluate the indirect effects (5,000 samples) with a confidence interval (CI) set at 95%. All coefficients for the mediation models are unstandardized. Multicollinearity and Variance Inflation Factors (VIF) were assessed and were within acceptable ranges (Hair et al., 2010).

Initially, we examined the role of attachment avoidance and attachment anxiety as mediators to the dependent variable, PTSD. With attachment avoidance as the mediating variable to PTSD, the three simple mediation models included only one independent variable at a time (SBQ-R, GAD-7, or PHQ-9) while controlling for attachment anxiety. Next, attachment anxiety was the mediating variable to PTSD, and the three simple mediation models included only one independent variable at a time (SBQ-R, GAD-7, or PHQ-9) while controlling for attachment avoidance. With attachment avoidance as the mediating variable to suicidality, the three simple mediation models included only one independent variable at a time (PCL-5, GAD-7, or PHQ-9) while controlling for attachment anxiety. Then, attachment anxiety was entered as the mediating variable to suicidality, and the three simple models included only one independent variable at a time (PCL-5, GAD-7, or PHQ-9) while controlling for attachment avoidance.

Because every simple mediation model was not significant and based on theory, we conducted two parallel mediation models to assess if the independent variables in the simple mediation models were instead mediators. Consequently, we made PTSD and suicidality dependent variables in separate models. The first is PTSD as the independent variable with generalized anxiety, depression, attachment avoidance, attachment anxiety as the mediators and suicidality as the dependent variable. The second model is suicidality as the independent variable with generalized anxiety, depression, attachment avoidance, attachment anxiety as the mediators and PTSD as the dependent variable.

RESULTS

DESCRIPTIVE STATISTICS AND CORRELATIONS

The mean for the PCL-5 was 45.68 (*SD* = 19.17) with a range of 75. The mean score is above the recommended cutoff of 31–33 for probable PTSD (National Center for PTSD, 2021). The mean for the SBQ-R was 5.76 (*SD* = 3.70) with a range of 15 and the mean score is below the cutoff of 8 in a clinical population (Osman, et al., 2001). The mean for the GAD-7 was 13.90 (*SD* = 5.43) with a range of 19, indicating "moderate" generalized anxiety (Spitzer et al., 2006). The mean for the PHQ-9 was 15.00 (*SD* = 6.24) with a range of 24 and a mean score of 15 indicates "moderately severe" depression (Kroenke et al., 2001). The mean for the ECR avoidance dimension was 3.55 (*SD* = 1.22) with a range of 5 and the mean for the ECR anxiety dimension was 3.63 (*SD* = 1.05) with a range of 5. Attachment avoidance had a nearly moderate or moderate positive relationship with three assessments: GAD-7; $r = .29$, $p < .05$; PHQ-9; $r = .28$, $p < .05$; PCL-5; $r = .38$, $p < .01$); whereas attachment anxiety had a moderate positive relationship with one assessment: PCL-5; $r = .31$, $p < .05$. See Table 2 for the correlation matrix.

	ECR-AVOID	ECR-ANX	PCL-5	SBQ-R	GAD-7	PHQ-9
ECR-AVOID	1	.15	38**	.07	.29*	.28*
ECR- ANX		1	.31*	.12	.20	.17
PCL-5			1	.40**	.70***	.78***
SBQ-R				1	.34**	.39**
GAD-7					1	.84***
PHQ-9						1

Table 2 Mental Health Assessment Correlations.

Note: ECR-AVOID= Experiences in Close Relationships avoidant secondary strategy. ECR-ANX= Experiences in Close Relationships anxiety secondary strategy. PHQ-9 = Patient Health Questionnaire-9. PCL-5 = PTSD Checklist-5. GAD-7 = Generalized Anxiety Disorder-7. SBQ-R = Suicidal Behaviors Questionnaire-Revised. *** p < .001 (two tailed) ** p < .01 (two tailed), *p < .05 (two tailed).

SIMPLE MEDIATION MODELS

To assess the indirect (mediation) effect of suicidality, generalized anxiety, and depression through attachment avoidance to PTSD, we conducted three separate simple mediation models while controlling for attachment anxiety. All three simple mediation models' indirect effects examining suicidality *ab* = .08, 95% CI [*–.35, .50*], generalized anxiety *ab* = .17, 95% CI [*–.03, .43*], and depression *ab* = .13, 95% CI [*–.01, .35*] were not significant, thus rejecting the first hypothesis. See Table 3 for the full model and each specific pathway.

Next, to assess the indirect (mediation) effect of suicidality, generalized anxiety, and depression through attachment anxiety to PTSD, we conducted three separate simple mediation models. The only covariate that was controlled for in each model was attachment avoidance. All three simple mediation models' indirect effects examining suicidality *ab* = .13, 95% CI [*–.16, .44*], generalized anxiety *ab* = .10, 95% CI [*–.07, .29*], and depression *ab* = .07, 95% CI [*–.06, .22*] were not significant, thus rejecting the second hypothesis. See Table 4 for the full model and each specific pathway.

To assess the indirect (mediation) effect of PTSD, generalized anxiety, and depression through attachment avoidance to suicidality (SBQ-R), we conducted three separate simple mediation models while controlling for

MODEL	Coef.	*SE*	*t*	*p*	R^2	*Adj.* R^2	*F*	*df1*	*df2*
Model 1: attachment anxiety as a covariate									
IV (SBQ-R) to mediator (a path)	.02	.04	.40	.70					
Direct effect of mediator on DV (b path)	5.06	1.67	3.03	.004					
Total effect of IV on DV (c path)	1.88	.58	3.24	.002					
Direct effect of IV on DV (c' path)	1.80	.55	3.29	.002					
Partial effect of control variable on DV									
Attachment anxiety	4.08	1.94	2.10	.04					
Model Summary				.001	.23	.20	9.13	2	62
Model 2: attachment anxiety as a covariate									
IV (GAD-7) to mediator (a path)	.06	.03	2.20	.03					
Direct effect of mediator on DV (b path)	2.76	1.42	1.94	.06					
Total effect of IV on DV (c path)	2.34	.32	7.36	.001					
Direct effect of IV on DV (c' path)	2.17	.32	6.72	.001					
Partial effect of control variable on DV									
Attachment anxiety	3.24	1.64	1.97	.05					
Model Summary				.001	.52	.50	33.31	2	62
Model 3: attachment anxiety as a covariate									
IV (PHQ-9) to mediator (a path)	.05	.02	2.11	.04					
Direct effect of mediator on DV (b path)	2.49	1.23	2.02	.05					
Total effect of IV on DV (c path)	2.28	.24	9.53	.001					
Direct effect of IV on DV (c' path)	2.16	.24	8.91	.001					
Partial effect of control variable on DV									
Attachment anxiety	3.38	1.42	2.38	.02					
Model Summary				.001	.63	.62	53.66	2	62

Table 3 Attachment Avoidance as the Mediating Variable to PTSD.

Note: DV = Dependent Variable. SBQ-R = Suicidal Behaviors Questionnaire-Revised. GAD-7 = Generalized Anxiety Disorder-7. PHQ-9 = Patient Health Questionnaire-9.

MODEL	Coef.	*SE*	*t*	*p*	R^2	*Adj.* R^2	*F*	*df1*	*df2*
Model 1: attachment avoidance as a covariate									
IV (SBQ-R) to mediator (a path)	.03	.04	.86	.39					
Direct effect of mediator on DV (b path)	4.08	1.94	2.10	.04					
Total effect of IV on DV (c path)	1.93	.56	3.44	.001					
Direct effect of IV on DV (c' path)	1.80	.55	3.29	.002					
Partial effect of control variable on DV									
Attachment avoidance	5.55	1.70	3.27	.002					
Model Summary				.001	.28	.25	9.95	2	62
Model 2: attachment avoidance as a covariate									
IV (GAD-7) to mediator (a path)	.03	.03	1.35	.18					
Direct effect of mediator on DV (b path)	2.95	1.61	1.83	.07					
Total effect of IV on DV (c path)	2.27	.32	7.00	.001					
Direct effect of IV on DV (c' path)	2.17	.32	6.72	.001					
Partial effect of control variable on DV									
Attachment avoidance	3.01	1.45	2.08	.04					
Model Summary				.001	.52	.51	33.73	2	62
Model 3: attachment avoidance as a covariate									
IV (PHQ-9) to mediator (a path)	.02	.02	1.08	.28					
Direct effect of mediator on DV (b path)	3.08	1.40	2.21	.03					
Total effect of IV on DV (c path)	2.23	.25	9.02	.001					
Direct effect of IV on DV (c' path)	2.16	.24	8.91	.001					
Partial effect of control variable on DV									
Attachment avoidance	2.78	1.27	2.19	.03					
Model Summary				.001	.63	.62	52.63	2	62

Table 4 Attachment Anxiety as the Mediating Variable to PTSD.

Note: DV = Dependent Variable. SBQ-R = Suicidal Behaviors Questionnaire-Revised. GAD-7 = Generalized Anxiety Disorder-7. PHQ-9 = Patient Health Questionnaire-9.

attachment anxiety. All three simple mediation models' indirect effects examining PTSD *ab* = –.01, 95% CI [*–.03, .01*], generalized anxiety *ab* = –.01, 95% CI [*–.07, .04*], and depression *ab* = –.01, 95% CI [*–.05, .03*] were not significant, thus rejecting the third hypothesis. See Table 5 for the full model and each specific pathway.

To assess the indirect (mediation) effect of PTSD, generalized anxiety, and depression through attachment anxiety to suicidality (SBQ-R), we conducted three separate simple mediation models while controlling for attachment avoidance. All three simple mediation models' indirect effects examining PTSD *ab* = –.0002, 95% CI [*–.02, .02*], generalized anxiety *ab* = .01, 95% CI [*–.04, .04*], and depression *ab* = .01, 95% CI [*–.02, .04*] were not significant, rejecting the fourth and final hypothesis. See Table 6 for the full model and each specific pathway.

PARALLEL MEDIATION MODELS

To investigate the relationship between PTSD and suicidality, a parallel mediation model was performed using PROCESS to assess if the independent variables (GAD-7, PHQ-9) were mediators. The outcome variable was suicidality (SBQ-R) and the predictor variable was PTSD (PCL-5). The four mediator variables were generalized anxiety (GAD-

MODEL	Coef.	SE	t	p	R^2	Adj. R^2	F	df1	df2
Model 1: attachment anxiety as a covariate									
IV (PCL5) to mediator (a path)	.02	.01	2.97	.004					
Direct effect of mediator on DV (b path)	–.29	.38	–.76	.45					
Total effect of IV on DV (c path)	.08	.02	3.24	.002					
Direct effect of IV on DV (c' path)	.08	.03	3.29	.002					
Partial effect of control variable on DV									
Attachment anxiety	–.02	.43	–.05	.96					
Model Summary				.01	.16	.13	5.74	2	62
Model 2: attachment anxiety as a covariate									
IV (GAD-7) to mediator (a path)	.06	.03	2.20	.03					
Direct effect of mediator on DV (b path)	–.13	.38	–.33	.74					
Total effect of IV on DV (c path)	.23	.08	2.75	.01					
Direct effect of IV on DV (c' path)	.24	.09	2.71	.01					
Partial effect of control variable on DV									
Attachment anxiety	.18	.43	.41	.68					
Model Summary				.02	.12	.09	4.25	2	62
Model 3: attachment anxiety as a covariate									
IV (PHQ-9) to mediator (a path)	.05	.02	2.11	.04					
Direct effect of mediator on DV (b path)	–.16	.37	–.42	.68					
Total effect of IV on DV (c path)	.23	.07	3.24	.002					
Direct effect of IV on DV (c' path)	.24	.07	3.22	.002					
Partial effect of control variable on DV									
Attachment anxiety	.18	.42	.44	.66					
Model Summary				.01	.16	.13	5.76	2	62

Table 5 Attachment Avoidance as the Mediating Variable to Suicidality.

Note: DV = Dependent Variable. PCL-5 = PTSD Checklist-5. GAD-7 = Generalized Anxiety Disorder-7. PHQ-9 = Patient Health Questionnaire-9.

7), depression (PHQ-9), attachment avoidance (ECR avoidance dimension), and attachment anxiety (ECR anxiety dimension). The direct effect of PTSD to suicidality was not statistically significant (path c' = .05, 95% CI [*–.03, .13*]). All four indirect effects of generalized anxiety *ab* = .003, 95% CI [*–.05, .05*], depression *ab* = .03, 95% CI [*–.02, .09*], attachment avoidance *ab* = –.01, 95% CI [*–.03, .01*], and attachment anxiety *ab* = .0007, 95% CI [*–.02, .02*] were not statistically significant when predicting suicidality. See Figure 1.

To investigate the relationship between suicidality and PTSD symptoms, a parallel mediation model was performed using PROCESS. The outcome variable was PTSD (PCL-5) and the predictor was suicidality (SBQ-R). The four mediator variables were generalized anxiety (GAD-7), depression (PHQ-9), attachment avoidance (ECR avoidance dimension), and attachment anxiety (ECR anxiety dimension). The direct effect of suicidality to the dependent variable PTSD was not statistically significant (path c' = .54, 95% CI [*–.31, 1.39*]. The indirect effects of generalized anxiety *ab* = .18, 95% CI [*–.44, .91*], attachment avoidance *ab* = .05, 95% CI [*–.19, .32*], and attachment anxiety *ab* = .10, 95% CI [*–.11, .37*] were not statistically significant when predicting suicidality. However, the only significant indirect effect was through depression *ab* = 1.18, 95% CI [*.36, 2.28*]. See Figure 2.

MODEL	Coef.	SE	t	p	R^2	Adj. R^2	F	df1	df2
Model 1: attachment avoidance as a covariate									
IV (PCL5) to mediator (a path)	.02	.01	2.30	.03					
Direct effect of mediator on DV (b path)	–.01	.43	–.03	.98					
Total effect of IV on DV (c path)	.08	.02	3.44	.001					
Direct effect of IV on DV (c' path)	.08	.03	3.29	.002					
Partial effect of control variable on DV									
Attachment avoidance	–.29	.38	–.77	.44					
Model Summary (try to put this in the text)				.01	.16	.14	6.09	2	62
Model 2: attachment avoidance as a covariate									
IV (GAD-7) to mediator (a path)	.03	.03	1.35	.18					
Direct effect of mediator on DV (b path)	.19	.43	.44	.66					
Total effect of IV on DV (c path)	.24	.08	2.85	.01					
Direct effect of IV on DV (c' path)	.24	.09	2.71	.01					
Partial effect of control variable on DV									
Attachment avoidance	–.11	.38	–.29	.77					
Model Summary (try to put this in the text)				.02	.12	.09	4.21	2	62
Model 3: attachment avoidance as a covariate									
IV (PHQ-9) to mediator (a path)	.02	.02	1.08	.28					
Direct effect of mediator on DV (b path)	.20	.42	.48	.63					
Total effect of IV on DV (c path)	.24	.07	3.34	.001					
Direct effect of IV on DV (c' path)	.24	.07	3.22	.002					
Partial effect of control variable on DV									
Attachment avoidance	–.14	.37	–.38	.71					
Model Summary (try to put this in the text)				.01	.16	.13	5.73	2	62

Table 6 Attachment Anxiety as the Mediating Variable to Suicidality.

Note: DV = Dependent Variable. PCL-5 = PTSD Checklist-5. GAD-7 = Generalized Anxiety Disorder-7. PHQ-9 = Patient Health Questionnaire-9.

DISCUSSION

We analyzed the relationship between generalized anxiety, depression, suicidality, through attachment avoidance and attachment anxiety to PTSD. We also investigated the relationship between generalized anxiety, depression, and PTSD indirectly through attachment avoidance and attachment anxiety to suicidality. All twelve simple mediation models had no significant indirect effects. Consequently, in this study, attachment dimensions did not mediate suicidality, PTSD, generalized anxiety, and depression within participants at their intake appointment before they were assigned their treating clinician.

After we conducted the simple mediation models, we sought to identify if any of the independent variables were mediators to suicidality and PTSD, respectively. The parallel mediation models were based on theory to test if there were reciprocal relationships. In the first parallel mediation model, PTSD was the predictor variable and suicidality was the dependent variable, which had four mediators: generalized anxiety, depression, attachment avoidance, and attachment anxiety. PTSD was a significant predictor to all four mediators, however, there were no statistically significant predictors of suicidality. In the second parallel mediation model, suicidality was the predictor variable and PTSD was the dependent variable, which had the same four

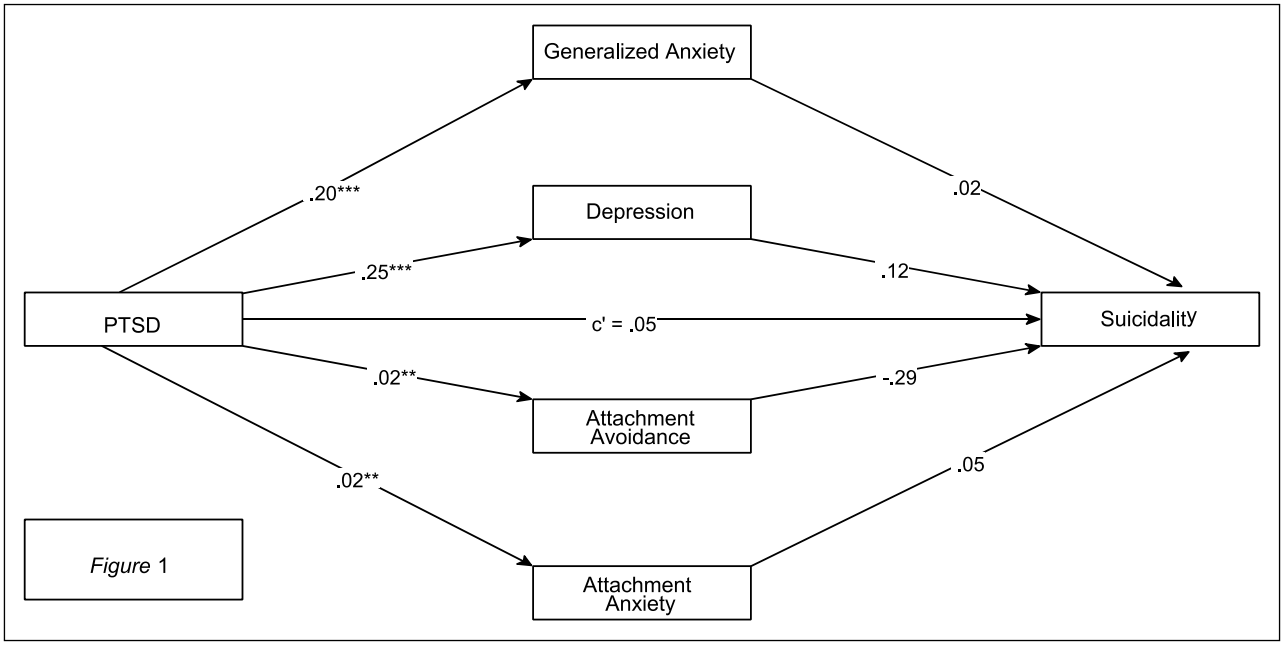

Figure 1 Suicidality Parallel Mediation Model.

Note: (*N* = 65) Attachment Avoidance = Experiences in Close Relationships avoidant secondary strategy. Attachment Anxiety = Experiences in Close Relationships anxiety secondary strategy. GAD-7 = Generalized Anxiety Disorder-7. Depression = Patient Health Questionnaire-9. PTSD = PTSD Checklist-5. Suicidality = Suicidal Behaviors Questionnaire-Revised. Path c' = direct effect. All coefficients are unstandardized. *p < .05, **p < .01, ***p < .001.

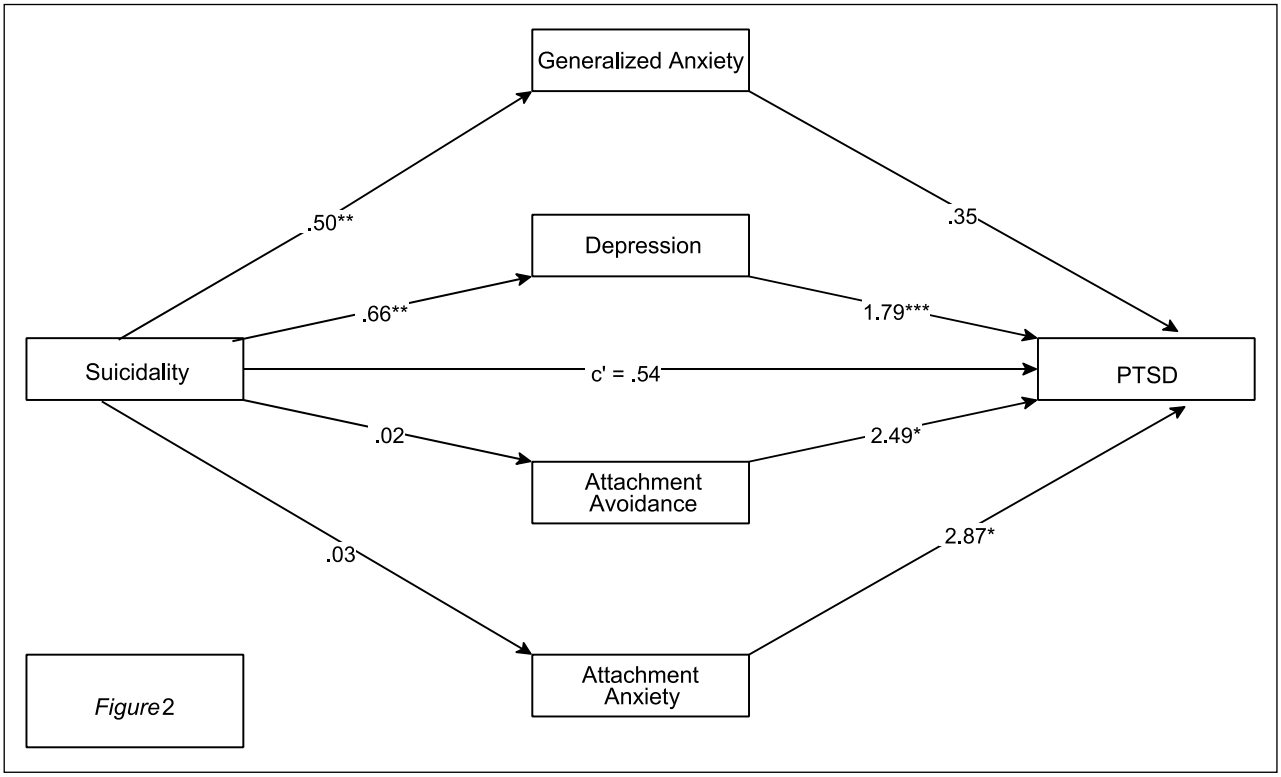

Figure 2 PTSD Parallel Mediation Model.

Note: (*N* = 65) Attachment Avoidance = Experiences in Close Relationships avoidant secondary strategy. Attachment Anxiety = Experiences in Close Relationships anxiety secondary strategy. GAD-7 = Generalized Anxiety Disorder-7. Depression = Patient Health Questionnaire-9. PTSD = PTSD Checklist-5. Suicidality = Suicidal Behaviors Questionnaire-Revised. Path c' = direct effect. All coefficients are unstandardized. *p < .05, **p < .01, ***p < .001.

mediators: generalized anxiety, depression, attachment avoidance, and attachment anxiety. Suicidality was a significant predictor to two mediators, generalized anxiety and depression. Also, depression, attachment avoidance and attachment anxiety were significant predictors of PTSD.

An interesting finding emerged from the parallel mediation models regarding the relationship between both attachment dimensions and PTSD, which suggests there is a reciprocal relationship. Recent scholarship has postulated such a relationship. Marshall and Frazier (2019) published a theoretical review and stated, "Although most of the theory and research reviewed has assumed that attachment orientations *predict* PTSD symptoms, these relations may be reciprocal" (p. 169). They further asserted that trauma characteristics can influence potential post-trauma reactions adaptively (posttraumatic growth) or maladaptively (PTSD). This influences a client's internal working model of self and other, which is the individual's blueprint for emotional regulation. Clinicians can use the findings to provide psychoeducation in the client's early stages of treatment and monitor once they begin trauma processing.

LIMITATIONS

This study is not without limitations. The SBQ-R Cronbach's alpha was .81, although it is just above the cutoff between good and acceptable. Additionally, researchers have different options in assessing adult attachment with the ECR scale. In this study, we measured adult attachment via its secondary strategies as recommended by Brennan et al. (1998). Scholars can measure attachment in three different ways. First, they can measure it nominally: secure, dismissive, preoccupied, and fearful. Also, the respondents can be measured secure versus insecure or by their secondary strategies, attachment avoidance and attachment anxiety. Future research should explore whether to measure attachment via secure and insecure or using the four nominal categories (secure, preoccupied, dismissive, or fearful). Finally, this study's sample was collected from a treatment-seeking population similar to that of Ferrajão and colleagues (2017). It is unknown if the results would be different if the participants were from a non-treatment seeking sample. Also, the sample size was small ($N = 65$), and this data was cross-sectional at the clients' intake appointment. Because these data were taken at one time point, causation cannot be established. Future scholarship should track the data longitudinally because that would allow for causal inference.

CONCLUSION

This is the first paper using a sample of post 9/11 American combat veterans of the GWOT to statistically verify the reciprocal nature of PTSD and attachment. Attachment does not mediate trauma (PTSD) unidirectionally; however, the data presented here suggests that it does so bidirectionally. Trauma can disrupt a soldiers' attachment, which can have a cascading impact on other mental health variables (Grady, et al., 2018; Renaud, 2008). This is crucial to intervention, especially because servicemembers are at higher risk than the general population for suicide (Hoge & Castro, 2012).

Previous research has shown that the attachment-system activation model has been empirically useful in studying a committed dyad during a combat deployment (Ponder & Carbajal, 2020). The model asserts that a sign of threat activates the system, which then leads the individual to pursue proximity seeking behaviors. If that does not work, the individual attempts deactivation (attachment avoidance) or activation (attachment anxiety) strategies to extinguish the system. The results of this study have theoretical and clinical implications when working with veterans who have experienced a post 9/11 combat deployment. For example, at the beginning of the counseling phase, the treating clinician can provide psychoeducation to their clients about the reciprocal nature of PTSD and attachment. That is, they can highlight the relationship between attachment avoidance and interpersonal constructs such as relationship satisfaction (Ponder & Carbajal, 2020). This can help build the therapeutic alliance and develop a collaborative trauma-informed treatment plan.

Therefore, using the attachment-system activation model and functioning as a guide for conceptualizing treatment for PTSD and suicidality, can aid clinicians in developing a collaborative treatment plan. In this manner, clinicians might be able to anticipate combat veterans' emotional dysregulation, which might aid in identifying possible interventions. For example, when assessing PTSD in combat veterans, Renaud (2008) found that the standardized regression coefficient for attachment avoidance ($\beta = .58$, $p < .01$) was higher than attachment anxiety ($\beta = .27$, $p < .05$). When treating PTSD among combat veterans, clinicians need to pay special attention to attachment avoidance because that is the veterans' established secondary strategy (Ponder & Carbajal, 2020; Ponder, 2021). Therefore, if treatment planning can be conceptualized through an attachment theoretical framework, clients might be able to have a more regulated and possibly expedited recovery.

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COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Jose Carbajal
Stephen F. Austin State University, US
Warren N. Ponder orcid.org/0000-0002-9316-8974
One Tribe Foundation, US

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