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Competing Strength-Based Models of Trauma and Suicidality in a High-Risk Primary Care  
Sample

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science  
in Clinical Psychology at Virginia Commonwealth University.

by

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B.S., Virginia Commonwealth University, 2017

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Virginia Commonwealth University  
Richmond, Virginia  
April, 2019

## Acknowledgement

It has been said that we stand on the shoulders of giants. I am beyond proud to say that I stand in the arms of friends. I am immensely and eternally grateful to my mother, Cathie Tiernan, my partner, Justin Haselhorst, Dr. Michael Keaveny, my beloved friends, and the powerful village of women that have helped to make me who I am today. It is no exaggeration to say that I would not be here were it not for their constant companionship and support. I am also very fortunate to have been guided, assisted, and encouraged in this endeavor by my thesis committee members: my advisor and committee chair, Dr. Bruce Rybarczyk, my statistics whiz, Dr. Paul Perrin, and my newly found and appreciated mentor, Dr. Christina Sheerin. Particular thanks are also due to the original creators of this project, Drs. Rybarczyk and Perrin, Dr. Michael Trujillo, Erin Smith, Allison Baylor Williams, and Sarah Griffin.

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## Abstract

### COMPETING STRENGTH-BASED MODELS OF TRAUMA AND SUICIDALITY IN A HIGH-RISK PRIMARY CARE SAMPLE

By Samantha Nicole Mladen, B.S.

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Clinical Psychology at Virginia Commonwealth University.

Virginia Commonwealth University, 2019.  
Director: Bruce Rybarczyk, Ph.D.

There is limited research on the relationship between trauma exposure, depression, and suicidality, particularly in high-risk primary care samples. The present study aims to: 1) characterize the prevalence and nature of suicidality, depression, and trauma exposure in this sample; 2) develop and test models of the relationships between suicidality, depression, and trauma exposure in this population in search of a well-fitting model of these relationships for future replication; 3) augment the selected model of relationships between the main variables with key protective factors, including social support and religiosity; and 4) further elaborate the nature of religiosity as a potential protective factor using the subscales of the Attitudes toward God scale, Anger toward God and Comfort with God.

Patients ( $n=207$ ) in a safety net primary care clinic waiting room completed measures assessing childhood and adult trauma, depression, and suicidal ideation. Approximately half of patients in this sample report having experienced at least four traumatic events, 82.13% of individuals were in the clinical range for depression, and nearly half of the sample endorsed some level of suicidality.

First, trauma exposure was found to be a significant moderator of the relationship between depression and suicidality. Then, a mediational effect of depression on the relationship between trauma exposure and suicidality was also found to be significant. Finally, both models were independently augmented with two protective factors as moderators, social support and religiosity, as well as the moderators of Anger toward God and Comfort with God. All moderated moderational and moderated mediational models were nonsignificant, though certain paths were found to be significant. Social support moderated the link between trauma exposure and suicidality in the moderated mediational model, Anger toward God moderated the link between trauma exposure and depression in the moderated mediational model, and both religiosity and Comfort with God moderated the link between depression and suicidality in both the moderated moderation and moderated mediation. However, all three aspects of religiosity were found to exacerbate the relationships in this model, unlike social support, which had a protective effect. This suggests that social support and aspects of religiosity may serve as differentially effective protective and risk factors against the mediational impact of depression on the relationship between trauma exposure and suicidality and on the moderational impact of trauma exposure on the relationship between depression and suicidality in this sample.

## Competing Strength-Based Models of Trauma and Suicidality in a High-Risk Primary Care Sample

### **Overview**

Due to the expense of mental health care in the United States and its limited availability, many individuals, especially those with limited means to choose their provider and setting of care, receive their mental health care in a primary care setting (U.S. Department of Health and Human Services, 2001). Living in poverty is also strongly correlated with higher distress, poorer health outcomes, and higher rates of mental disorder (Gillespie et al., 2009; U.S. Department of Health and Human Services, 2001). African American patients, specifically, are far more likely to seek mental health care from a primary care physician than their white counterparts (U.S. Department of Health and Human Services, 2001). For these reasons and others, safety net clinics that provide mental health services at low- or no-cost are a crucial piece of the puzzle that provides care to those who could not otherwise afford or access it.

The recent focus on integrated behavioral medicine has also played into the evolving role of safety net clinics as a setting for mental and physical health care. Embedding psychologists within primary care settings, as well as teaching primary care physicians more skills to address the psychological needs of their patients has been demonstrated to improve patient outcomes (Druss et al., 2017). However, much of the research into integrated care has focused on insured, affluent, white populations, leaving out many of those most likely to utilize integrated care in safety net settings (U.S. Department of Health and Human Services, 2001). Understanding the protective and risk factors for members of this safety net population is crucial in order to provide the most effective care.

The current study aims to characterize the relationships between depression, suicidality, and trauma exposure in a vulnerable population, as well as to augment the model with certain strengths, including religiosity and social support. By comparing two models of the primary relationship, and then adding the strength-based approach to the better fitting model, this project seeks to inform clinical practice by calling attention to key factors that should be explored by primary care providers in order to prevent suicide in a highly vulnerable population.

## **Literature Review**

### ***Trauma Exposure***

Trauma exposure afflicts 50-75% of the general population and is linked to numerous maladaptive health outcomes, including depression (Green et al., 2015). A previous study of trauma exposure in a similar sample to the current study found that 87.8% of the participants reported trauma and that there was a 46.4% lifetime prevalence of PTSD (Gillespie et al., 2009). With such a high prevalence of trauma exposure, clinicians in primary care settings interact with many trauma-exposed individuals and often report insecurity about their ability to work with them in a trauma-informed manner (Green et al., 2015). Trauma exposure can predispose patients to mistrust of authority and power, which can disrupt the therapeutic relationship (Green et al., 2012), and make trauma-informed care especially important for patient outcomes.

Researchers generally separate childhood from adult trauma exposure, as they are believed to affect a person's development and risk for adverse outcomes differently. Exposure to adult trauma has primarily been studied in veteran populations, but more recent research has demonstrated the serious impacts that civilian trauma can have on an individual's health and functional outcomes (Alim et al., 2006; Gillespie et al., 2009). Traumatic events experienced in adulthood frequently involve accidents, natural and technological disasters, and interpersonal

violence, including sexual assault (Kilpatrick et al., 2013). Certain populations, including economically disadvantaged, urban, African American, and Latinx populations are at increased risk for trauma exposure (Gillespie et al., 2009).

Childhood trauma is also pervasive and is typically referred to as Adverse Childhood Experience (ACE). Categories of childhood trauma include psychological, physical, or sexual abuse, witnessing violence against a parent, and living with mentally ill individuals, substance using individuals, or individuals who were ever imprisoned. The first longitudinal ACE study demonstrated that 52% of children have experienced at least one traumatic event and 6.2% had experienced more than four. Individuals who had experienced multiple traumatic exposures, especially when from different categories, were at the highest risk for adverse outcomes, and exposure to one traumatic event increased the risk for exposure to further traumatic events (Felitti et al., 1998). However, the original ACE study had an overwhelmingly white, insured, affluent sample, which likely underestimates the trauma exposure rates in the general population, and specifically in the communities receiving care in safety net clinics.

### ***Depression and Suicidality***

One of the strongest predictors of suicidality is depression, in addition to previous suicidal ideation and attempt (Ashrafioun, Pigeon, Conner, Leong, & Oslin, 2016; Dobscha et al., 2014; Angst, Angst & Stassen, 1999). There is also a heightened risk of suicide in ethnic minority groups, including American Indians and Alaska Natives, Native Hawaiians, and Latinx individuals (U.S. Department of Health and Human Services, 2001). The rates of suicide for white and African American individuals are approximately equal, but many African American individuals also belong to groups at elevated risk for suicide, including those experiencing homelessness, those who are incarcerated, those in the Foster and Child Welfare system, those

exposed to violence, and those who served in Vietnam (U.S. Department of Health and Human Services, 2001). Given the reality that many individuals who receive safety net care are members of multiple at-risk groups, it is absolutely crucial that a model be developed of the risk and protective factors, as well as the pathways that predict the development of suicidality, especially in individuals who have been exposed to interpersonal and assaultive trauma. Depression has also been demonstrated to co-occur at high rates with trauma exposure (Kessler, Davis, & Kendler, 1997), which necessitates an understanding of the relationship between these experiences, as well as their relationship with suicidality.

### ***Suicidality and Trauma Exposure***

Many researchers and public health advocates are wont to say that suicide affects everyone, but there has been some research delineating groups more and less likely to attempt suicide or complete suicide. For instance, women are more likely to attempt suicide, but men are more likely to complete suicide, mostly due to their selection of more lethal means (Mann et al., 2005). Trauma-exposed individuals are also more likely to attempt suicide than the general population, especially if that trauma was assaultive, such as rape or abuse (Seedat, Stein & Forde, 2005; Stein et al., 2010). This relationship has been replicated transnationally in 21 countries with over 100,000 participants, indicating that the relationship between assaultive trauma and suicide is rather stable across cultures (Stein et al., 2010). This type of assaultive trauma is most frequently experienced by women, with a 1998 estimate of prevalence of 35% in the United States (Plitchka & Falik, 2001). The experience of child abuse has also been found to be a predictor of suicidal ideation, though this relationship is not well understood (Maniglio, 2011). Beristianos, Maguen, Neylan and Byers (2016) replicated this result in an ethnically diverse, nationally-representative study. In a sample of 14,866, 81% reported trauma exposure

and of those 12.1% endorsed suicidality. This relationship was strongest with exposure to traumas of childhood maltreatment and assaultive/interpersonal violence. Specific forms of trauma exposure have also been found to be associated with suicidality, including domestic abuse, in primary care samples (Chang, Kahle, Yu, & Hirsch, 2014). Specifically, one study found that 23% of women in a community sample who had been abused by a partner had attempted suicide, compared to 3% of non-abused women (Seedat, Stein, & Forde, 2005).

This study proposes that trauma exposure may act as a moderator in the relationship between depression and suicidality. In other words, individuals who are exposed to potentially traumatic events may be more likely to experience suicidality as part of their depressive symptoms. Alternately, the relationship could be mediational, with individuals who experience trauma exposure more likely to develop depression, which in turn makes them more likely to experience suicidal ideation.

### ***Suicide Assessment and Treatment in Primary Care***

Suicide is a very real and very frightening potentiality for healthcare providers, especially when they are seeing patients who do not or are unable to receive adequate mental health care. The Center for Disease Control and Prevention estimates that 37,000 individuals are lost to suicide annually, and the number has not improved, despite more public awareness and academic interest (Heron, 2012). There has been much research over the decades about suicide risk and protective factors, screening, and prevention. However, many individuals are still falling through the cracks. Ahmedani et al. (2013) found in a major longitudinal study that 83% of suicide completers had seen a healthcare provider in the year before their death, but only half had a mental health diagnosis. In fact, a review of similar studies found that approximately 75% of suicide completers had visited their primary care provider within a year of their death, including

45% within one month, whereas only approximately a third had accessed mental health care within the year prior to completion, including 20% within one month of their death (Luoma, Martin, & Pearson, 2002). Individuals with fewer resources were even less likely to have a mental health diagnosis (Ahmedani et al., 2013). This reality, for many individuals, can be traced to the difficulty and expense of attaining mental health care and its related diagnoses. Instead, many individuals may visit their primary care provider for services, but never disclose their substantial distress. Many primary care providers are uncertain how to screen for suicide, or even whether they should, but research has shown that even a very brief screen for depression and suicide, such as the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001), which has one item on suicidality, can help to target resources and begin further screening and referral (Bauer et al., 2012).

Given the high prevalence of individuals who receive their mental health care through their primary care providers, primary care has been identified as a key component of suicide prevention. Some preliminary studies have demonstrated success decreasing suicidality among primary care patients by integrating mental health providers (Deweke, Rojas, Anastasia, & Bridges, 2017; Sadock, Perrin, Grinnell, Rybarczyk, & Auerbach, 2017). Some studies have shown, however, that patients, especially older adults, deny suicidality when asked about it in primary care, even if they are actively suicidal or complete suicide soon after the assessment (Cukrowicz, Jahn, Graham, Poindexter, & Williams, 2013; Denneson et al., 2010). This fact, as well as the broader reality that many individuals who complete suicide are in fact seen in primary care close to the time of their suicide completion, argues for the necessity of further information about the correlates of suicidality in primary care populations, as well as protective factors that can be bolstered by primary care providers in order to support and protect their patients.



### ***Protective Factors***

In contrast to the deficit-based understanding of suicidality presented above, there is also a burgeoning field of strength-based research surrounding protective factors for suicide, particularly in certain cultural groups. Suicide rates have been found to vary significantly by cultural group (Choo, Harris, Chew & Ho, 2017); in particular, protective factors seem to vary culturally in their impacts on suicidality.

**Social Support.** One of the most strongly supported protective factors against suicidal ideation and completion is social support. This buffer has been demonstrated in various populations, including African American women (Marion & Range, 2003), low-income African-Americans (Compton, Thompson, & Kaslow, 2005), individuals with Autism Spectrum Disorder (Hedley, Uljarevic, Wilmot, Richdale, & Dissanayake, 2017), individuals with PTSD (Panagioti, Gooding, Taylor, & Tarrrier, 2014), and nationally-representative samples from Japan (Poudel-Tandukar et al., 2011) and from the United States and England (Kleiman & Liu, 2013). This relationship varies slightly across populations in its strength and specific characteristics, but the broad base of evidence for this relationship clearly justifies its evaluation as a factor in this sample.

**Religiosity.** There are mixed results about the impact of religiosity as a protective factor for individuals considering suicide. In some populations, especially actively religious African Americans and practicing Jewish individuals, religiosity has been found to be a protective factor (Burshtein, Dohrenwend, Levav, Werbeloff, Davidson, & Weiser, 2016; Sisak et al., 2010; Marion & Range, 2003). However, in other populations religiosity can be a non-factor, or even a detrimental influence on suicidality (Wang, Lightsey, Tran & Bonaparte, 2013; Wingate et al., 2005;). One meta-analysis, however, did find a pattern of religiosity as a significant protective

factor (Wu, Wang, & Jia, 2015). As a result, this study seeks to examine the potential for religiosity as a protective factor, but also recognizes the complexity of the relationship between religiosity and suicidality.

**Attitudes toward God.** Some of the nuance in religiosity can be captured using the constructs of attitudes toward God, whether positive or negative. The main measure of these views, the Attitudes toward God Scale, labels these contrasting views as Anger toward God and Comfort with God (Wood et al., 2010). Spiritual struggle and negative religious coping, both of which feature endorsed negative views of God as a main component, have been linked to many negative psychosocial outcomes, including suicidality in various samples (Ano & Vasconcelles, 2005). Thus, the inclusion of these nuanced measures of religious belief in this complex model enriches the conclusion that can be drawn about the impact of religiosity on suicidality and its predictors.

As this study aims to characterize the relationships between trauma exposure, depression, and suicidality in this sample, developing a more complex model that includes hypothesized and previously demonstrated protective factors provides a more complete characterization. It is proposed that religiosity and social support will function as buffers in the relationships between trauma, depression, and suicidality. In other words, individuals who are higher in social support and religiosity will have less of a link from trauma and depression to suicidality. It is further hypothesized that Comfort with God will buffer the relationships between trauma, depression, and suicidality and Anger toward God will exacerbate them.

### **Statement of the Problem**

Trauma-informed care is a complex and nuanced goal for the medical field. Instead of merely calling for universal trauma exposure screening, trauma-informed care means developing

a more thorough understanding of the impacts of trauma on individuals and how a medical provider can offer a healing and empathic response when conversations about trauma arise (Green et al., 2015). Crucial to this undertaking is an understanding the populations that providers serve and how trauma history impacts members of that population. It is also important to identify protective factors that may be targeted and strengthened in an individual and a community in order to prevent the conversion of trauma exposure into PTSD, depression, and suicidality. This exploratory study of the ways that trauma exposure, depression, and suicidality interact in a high-risk, low-income population aims to begin gathering such tools.

### **Specific Aims**

**Aim One.** Characterize the prevalence and nature of suicidality, depression, and trauma exposure in this population.

**Aim Two.** Develop and test models of the relationships between suicidality, depression, and trauma exposure in this population in search of a well-fitting model of these relationships for future replication.

**Aim Three.** Augment the selected model of relationships between main variables with key protective factors, including social support and religiosity.

**Aim Four.** Further elaborate the nature of religiosity as a potential protective factor using the subscales of the Attitudes toward God scale, Anger toward God and Comfort with God.

### **Current Study**

These research aims will be approached using two competing analytic models. First, given the established relationship between trauma exposure and suicidality, a moderation model will assess trauma as a moderator between depression and suicide (Beristianos, Maguen, Neylan,

& Byers, 2016; Chang, Kahle, Yu, & Hirsch, 2014; Maniglio, 2011; Stein et al., 2010; Seedat, Stein & Forde, 2005). Next, an alternative model for this relationship will be assessed.

Depression is hypothesized to be a significant mediator of the relationship between trauma exposure and suicidality (Kessler, Davis, & Kendler, 1997). In other words, while the first model suggests that depression is more likely to co-occur with suicidality in individuals exposed to trauma, the second model proposes that trauma relates to suicidality via the experience of depression. The better fitting model will then be re-analyzed as a moderated analysis with the addition of the previously demonstrated protective factors of social support and religiosity. An extension of previous findings, this project aims to better characterize the established relationship between trauma, depression, and suicidality, and to introduce hope via relevant protective factors. For visual depictions of these models, please see Figures 1 through 4.

## **Method**

### ***Data Set***

These data were collected in 2015 and 2016 at the Daily Planet safety net clinic in Richmond, Virginia. The full data set includes measures of food and housing security, experiences with racism and discrimination, sleep disturbance, physical activity, medication adherence, sexual experience, smoking, alcohol use, anxiety, PTSD, grit, coping style, and hostility. This project specifically includes measures of depression, trauma exposure, religiosity, and social support.

### ***Eligibility and Sampling***

Participants were recruited from the waiting room at a safety net primary care clinic in Virginia, which predominantly serves individuals experiencing housing insecurity. This facility offers both mental and physical health care, as well as access to social workers on site. Two

hundred and ten participants completed a series of questionnaires concerning health status, trauma history, personal characteristics, and other factors of interest.

***Procedure***

Participants were recruited between October 2015 and July 2016 while waiting for appointments in the waiting area of the clinic. They were first approached by a staff member of the clinic, who asked if they were interested in participating in a study aiming to improve patient care by understanding the experiences of clinic patients. If interested, patients completed the questionnaires while waiting for their appointments, but were asked to stop working if called for their appointment, so as not to interrupt their medical care. These participants were then able to complete the survey following their appointment. All participants consented to participate and received \$10 upon the completion of the questionnaires.

***Participants***

Participants ranged in age from 21 to 67 ( $M = 44.75$ ,  $SD = 11.62$ ) and were 60.39% male (125 men, 82 women). They were mostly Black/African American and White/European-American, with smaller numbers of Multiracial/Multiethnic, Latino/Hispanic, American-Indian/Native-American, Asian/Asian-American/Pacific Islander, and other-identifying participants. Most participants identified as heterosexual, with smaller numbers of participants identifying as bisexual, homosexual, and queer. Please see Table 1 for further demographic information. Please also note that due to rounding not all percentages total 100%.

Table 1. Participant Characteristics

Variable	n	Percentage
Gender		
Man	125	60.39
Woman	82	39.61

Race		
Black/African-American	132	63.77
White/European-American	56	27.05
Multiracial/Multiethnic	9	4.35
Latino/Hispanic	4	1.93
American-Indian/Native-American	3	1.45
Asian/Asian-American/Pacific Islander	1	0.48
Other	2	0.97
Sexuality		
Heterosexual	176	85.02
Bisexual	11	5.31
Gay/Lesbian	11	5.31
Queer	2	0.97
Missing	7	3.40
Age		
21-34	49	23.67
35-49	64	30.92
50+	92	44.44
Missing	2	0.97
Highest Education Level		
Elementary School	1	0.48
Middle School/Junior High	18	8.70
High School	109	52.66
Some community college (no degree)	51	24.64
Two-year/Technical degree	7	3.38
Four-year College degree	17	8.21
Master's Degree	3	1.45
Missing	1	0.48
Income (Including Public Assistance)		
\$0-\$4,999	143	69.08
\$5,000-\$9,999	29	14.01
\$10,000-\$14,999	13	6.28

\$15,000-\$19,999	9	4.35
\$20,000-\$24,999	4	1.93
\$25,000-\$29,999	4	1.93
More than \$30,000	4	1.93
Missing	1	0.48

### *Measures*

Participants were instructed by a researcher to complete a series of questionnaires, which included measures of mental and physical health, trauma history, and protective factors. Please see Table 2 for a summary of measures included in this project. All measures can be found in the Appendices.

Table 2. Measures Included

Measure	Construct Measured	Number of Items
Brief Trauma Questionnaire (BTQ)	Adult trauma exposure	Ten, yes or no
Adverse Childhood Experiences Questionnaire (ACE)	Childhood trauma exposure	Ten, yes or no
Patient Health Questionnaire - (PHQ-9)	Depression and Suicidality	Nine, 4-point Likert
Interpersonal Support Evaluation List-12 (ISEL-12)	Social Support	Twelve, 4-point Likert
Religion	Religiosity	One, 7-point Likert
Attitudes Toward God	Comfort with God and Anger toward God	Nine, 11-point Likert

**Brief Trauma Questionnaire.** The Brief Trauma Questionnaire was used to assess trauma exposure (BTQ; Schnurr, Vielhauer, & Findler, unpublished instrument, 1998).

Participants are asked to indicate whether they had experienced certain types of trauma, including natural disaster, combat, unwanted sexual contact, serious illness, or the sudden death

of a loved one. Participants then also indicated whether they were seriously injured as a result and whether they feared for their life as a result of the trauma. A total score is then calculated with higher numbers indicating more trauma exposure. The BTQ has demonstrated good convergent validity with participant interviews and has a kappa coefficient from .60 to 1.00 (Schnurr, Spiro, Vielhauer, Findler, & Hamblen, 2002). For the purpose of this analysis, item 5 (“before age 18, were you ever physically punished or beaten by a parent, caretaker, or teacher so that: you were very frightened; or you thought you would be injured; or you received bruises, cuts, welts, lumps or other injuries?”) will be removed from the total score due to its duplication of questions in the measure of child trauma used in this study, the ACE Questionnaire.

**Adverse Childhood Experiences (ACE) Questionnaire.** Childhood trauma exposure was assessed with the ACE Calculator (Anda, unpublished instrument, 2007). This ten-item questionnaire measures categories of childhood trauma, including personal and family trauma. Items on the ACE Calculator include personal items such as “Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?” and family items including “Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?” All questions are answered either yes or no. The total summed “ACE score” ranges from 0 to 10 with higher numbers indicating more exposure to trauma during childhood. Reliability for the ACE Questionnaire has been assessed with Cronbach alphas, which range from .61 to .80 (Ford et al., 2014).

**Patient Health Questionnaire-9.** Depression symptomatology and suicidality was assessed with the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). There are ten items on the scale, nine of which ask respondents to indicate how much they were distressed by depressive symptoms over the last two weeks. Items include “feeling down, depressed or



hopeless” and “little interest or pleasure in doing things” and are measured on a 4-point Likert-type scale ranging from 0 (*Not at all*) to 3 (*Nearly Every Day*). Responses to each item are summed to a total ranging from 0 to 27 with higher numbers indicating more significant depression symptomatology. The tenth item asks how much the symptomatology has interfered with functioning. For the purposes of this study, particular emphasis was placed on item 9, which asks about suicidality in the past two weeks. The scale has been validated in various clinical samples and has demonstrated good internal consistency (Kroenke et al., 2001). In this analysis, item 9 of the PHQ-9 will be removed from the PHQ-9 total, since it is the outcome variable of the analysis.

**Interpersonal Support Evaluation List.** Social support was measured with the 12 item Interpersonal Support Evaluation List (ISEL-12). The ISEL-12 uses a 4-point Likert-type scale, which ranges from a (*Definitely True*) to d (*Definitely False*). Sample items include “there is someone I can turn to for advice about handling problems with my family” and “if I were sick, I could easily find someone to help me with my daily chores.” A total score can be computed, as well as subscales of tangible support, belonging, and appraisal, with higher numbers indicating more social support. Reliability of the ISEL has been measured to be high, with a Cronbach’s alpha of .95 (Ghesquiere et al., 2017).

**Religion.** Religiosity was assessed with a one item, 7-point Likert-style question, which asks participants “how important is religion to you?” with scores ranging from 1 (*Not Important*) to 7 (*Very Important*).

**Attitudes Toward God.** Perceived relationships with God or other spiritual constructs were assessed using the nine, 11-point Likert-style questions on the Attitudes Toward God Scale – 9 (ATG-9; Wood et al., 2010). Sample items include, “To what extent do you currently view

God as unkind” and “To what extent do you currently feel supported by God.” Items are measured on an 11-point Likert-type scale ranging from 0 (*Not at all*) to 10 (*Extremely*). Five of the nine items comprise the Comfort with God subscale, whereas the other four items comprise the Anger toward God subscale. Each subscale score is calculated by finding the average of its component items. The ATGS-9 was originally validated in six studies, comprising nearly 3,000 participants and demonstrated good to excellent reliability (Wood et al., 2010).

### ***Statistical Analyses***

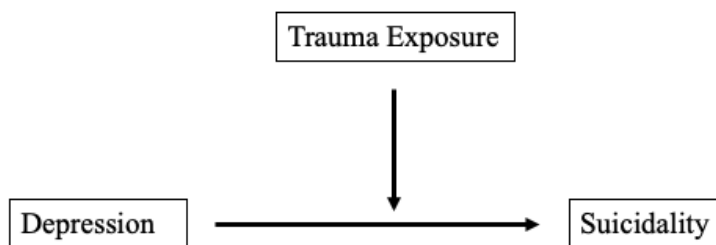
Means, standard deviations, measures of normality, and bivariate correlations were computed for each of the measured variables, including religiosity, social support, adult trauma, childhood trauma, gender, and depression, as well as the suicidality item on the measure of depression. Next, Little’s MCAR test was used to assess for missingness of data and Expectation Maximization was used at the subscale level to impute missing data if a participant had data for at least 50% of the items on a given subscale or scale. Demographic variables were not imputed. Next, univariate and multivariate outliers and normality were assessed and corrected, and a sensitivity power analysis was completed to assess for the power of the sample as collected and analyzed. After assessing and correcting the necessary assumptions, two competing analyses were completed, with additional follow-up analyses. Correlations among variables, including subscales of included variables, can be found in Table 3.

Table 3. Correlation Table

	Depression	Suicidality	Trauma Total	Adult Trauma	Child Trauma	Anger Toward God	Comfort with God	Social Support Total	Social Support: Belonging	Social Support: Appraisal	Social Support: Tangible	
Depression	1	.537**	-.417**	.393**	.340**	0.123	-0.132	-.484**	-.433**	-.375**	-.416**	
Sig. (2-tailed)		0	0	0	0	0.077	0.058	0	0	0	0	
N	207	207	207	207	207	207	207	207	207	207	207	
Suicidality		1	.386**	.285**	.369**	.228**	-0.031	-.388**	-.346**	-.351**	-.280**	
Sig. (2-tailed)			0	0	0	0.001	0.66	0	0	0	0	
N	207	207	207	207	207	207	207	207	207	207	207	
Trauma Total			1	.803**	.911**	.214**	-.162*	-.309**	-.258**	-.259**	-.262**	
Sig. (2-tailed)				0	0	0.002	0.02	0	0	0	0	
N	207	207	207	207	207	207	207	207	207	207	207	
Adult Trauma				1	.487**	.174*	-.140*	-.227**	-.181**	-.179*	-.216**	
Sig. (2-tailed)					0	0.012	0.044	0.001	0.009	0.01	0.002	
N	207	207	207	207	207	207	207	207	207	207	207	
Child Trauma					1	.193**	-.141*	-.295**	-.254**	-.257**	-.235**	
Sig. (2-tailed)						0.005	0.043	0	0	0	0.001	
N	207	207	207	207	207	207	207	207	207	207	207	
Anger Toward God						1	-.265**	-0.104	-0.128	-0.054	-0.081	
Sig. (2-tailed)							0	0.135	0.066	0.439	0.246	
N	207	207	207	207	207	207	207	207	207	207	207	
Comfort with God							1	0.105	0.047	0.098	0.122	
Sig. (2-tailed)								0.132	0.505	0.16	0.081	
N	207	207	207	207	207	207	207	207	207	207	207	
Social Support Total								1	.833**	.850**	.843**	
Sig. (2-tailed)									0	0	0	
N	207	207	207	207	207	207	207	207	207	207	207	
Social Support: Belonging									1	.548**	.552**	
Sig. (2-tailed)										0	0	
N	207	207	207	207	207	207	207	207	207	207	207	
Social Support: Appraisal										1	.591**	
Sig. (2-tailed)											0	
N	207	207	207	207	207	207	207	207	207	207	207	
Social Support: Tangible											1	
Sig. (2-tailed)												0
N	207	207	207	207	207	207	207	207	207	207	207	207

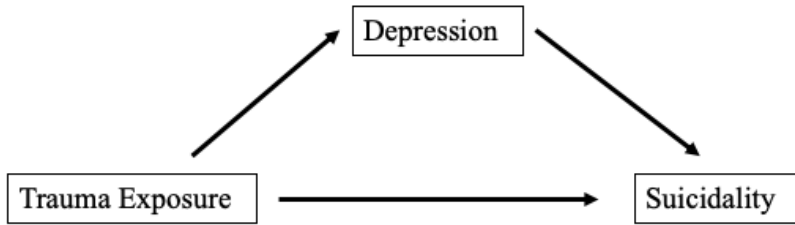
**Moderation Analysis.** The first analysis was a moderation, with depression as the predictor variable, count of trauma exposure (adult and child combined) as the moderating variable, and suicidality as the outcome variable. The predictor and moderating variables were centered to avoid multicollinearity. The analysis was completed with SPSS version 25. Given previously established relationships, it was hypothesized that the relationship between depression and suicidality will be significantly exacerbated in trauma-exposed individuals. In other words, the relationship between depression and suicidality, already strong, will be strengthened among more heavily trauma-exposed individuals. This relationship was modeled using the Hayes PROCESS Macro, Model One with 5,000 bootstraps (Hayes, 2017) and is visually depicted in Figure 1.

Figure 1. Moderation Model



**Mediation Analysis.** The second analysis was a mediation, with trauma as the predictor variable, depression as the mediating variable, and suicidality as the outcome variable. All analysis was completed with SPSS version 25, using the Hayes PROCESS Macro Model Four and 5,000 bootstraps (Hayes, 2017). Given previously established relationships, it is hypothesized that the relationship between trauma and suicidality will be significantly mediated by depression. In other words, trauma exposure will be found to co-occur with suicidality via the mechanism of depression. This model is depicted in Figure 2.

Figure 2. Mediation Model



**Comparing Models and the Moderated Analyses.** If neither model is significant, no further analysis will be completed. In the event that one or both models are found to be significant, the analyses will be re-run with the addition of the protective factors of social support, religiosity, and attitudes toward God as moderating buffer variables, in order to model a strength-based, multivariate explanation of the relationship. Each moderating variable will be analyzed separately, given the hypothesized strong relationship between religiosity and social support. This step of the analysis will also use the Hayes PROCESS Macro (Hayes, 2017). The moderated moderation, if completed, would utilize Hayes PROCESS Model Three with 5,000 bootstraps. On the other hand, the moderated mediation, if completed, will use Hayes PROCESS Model Fifty-Nine with 5,000 bootstraps. The strongest model will then be interpreted based on its theoretical underpinnings and fit to this sample. These models are depicted in Figures 3 and 4.

*Figure 3. Moderated Moderation Models*

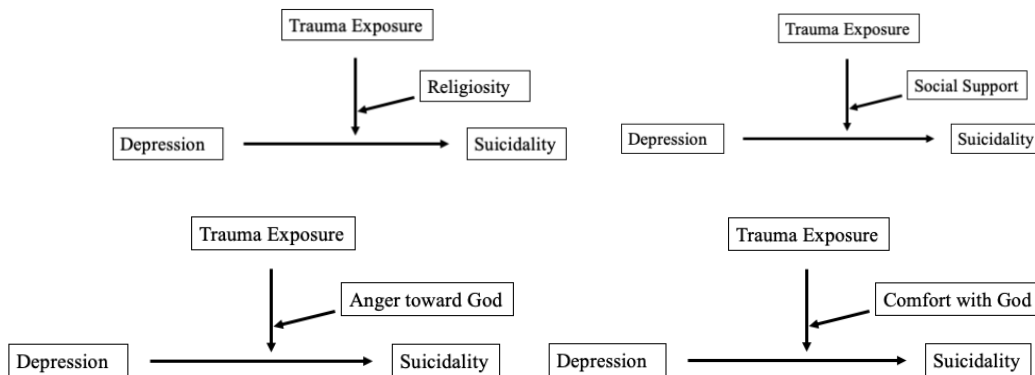
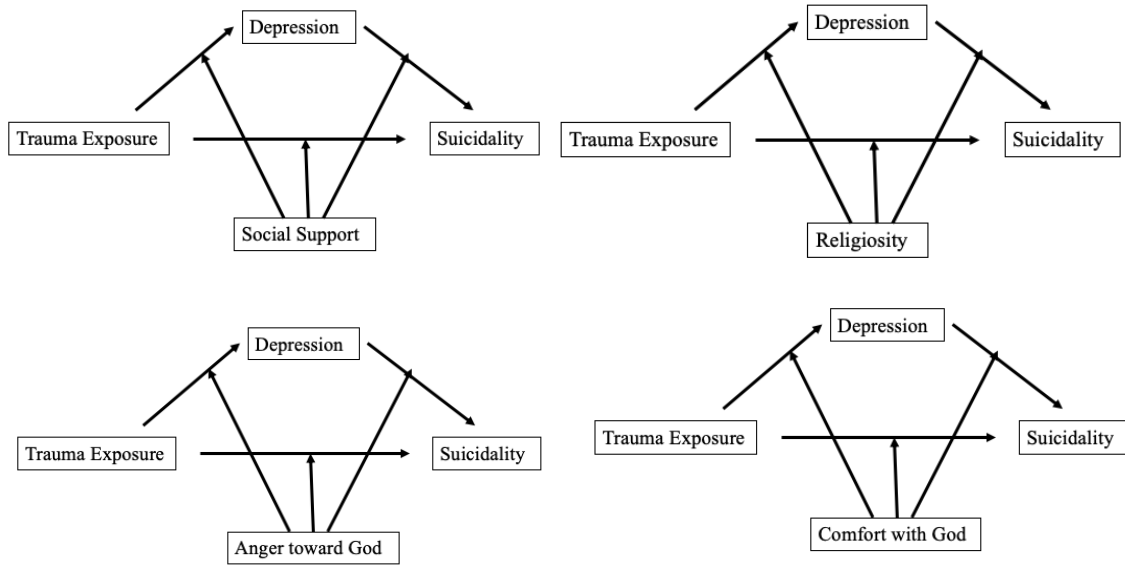


Figure 4. Moderated Mediation Models



## Results

### *Data Preparation*

First, the data were visually inspected for out-of-range values. No such values were located. The main outcome variable, item 9 on the PHQ-9, had two participants (1%) missing. Due to the centrality of this item as the outcome variable, these two participants were removed from analyses, leaving a sample size of 208.

Next, Little's MCAR test for randomness of missing data was conducted at the scale or subscale level for the remaining variables. Moderate proportions of data were missing for childhood trauma (13.5%) and adult trauma (4.3%). The data for childhood trauma were found to be missing at random,  $\chi^2(53) = 62.0, p = .186$ , as were the data for adult trauma, minus the child trauma item,  $\chi^2(43) = 43.52, p = .449$ . Depression, as measured by the PHQ-8, was found to be not missing completely at random,  $\chi^2(7) = 13.85, p = .054$ , with 0.5% missing. Social support was also found to be not missing completely at random,  $\chi^2(72) = 97.65, p = .024$ . However, at the subscale level, data for the Appraisal subscale of social support were found to be missing at

random,  $\chi^2(2) = .278, p = .870$ , with 0.5% missing, and the data for the Tangible subscale were found to be missing at random,  $\chi^2(11) = 9.84, p = .545$ , with 2.4% missing. Data for the Belonging subscale, however, were not found to be missing at random,  $\chi^2(11) = 20.02, p = .045$ , with 1.9% missing. Separately, the Comfort subscale of the Attitudes Toward God subscale had 1.9% missing and was missing at random,  $\chi^2(15) = 10.33, p = .799$ , and the Anger toward God subscale had 3.9% missing and was missing at random,  $\chi^2(9) = 12.90, p = .167$ .

The one-item measure of the importance of religiosity had 8.7% missing, but due to the nature of this single-item scale, Little's MCAR could not be computed. However, this item was imputed using the two other religion scales, Anger toward God and Comfort with God. The remaining scales, Childhood and Adult Trauma, Anger toward God, Comfort with God, Social Support, and Depression were imputed using Expectation Maximization at the subscale level if a participant had data for at least 50% of the items on the given subscale or scale. One participant fell short of this standard on the PHQ-8 and was deleted, leaving a total sample size of 207.

Next, measures of univariate normality were conducted, and all assumptions were met. Since the sample size is larger than eighty, any outliers within 3 standard deviations of the mean were retained (Hair et al., 2010). Four individuals fell beyond 3 *SD* on the Anger toward God and four individuals fell beyond 3 *SD* on the Comfort with God scale, one of whom was also one of the outliers on the Anger toward God scale. However, given this small percentage of the total sample size (3.38%), the fact that all seven outliers were on the subscales of a single scale, and the fact that all fell within 3.4 standard deviations of the mean, these outliers were retained. Finally, sensitivity power analysis was completed to assess for the power of the sample as collected and analyzed. A power analysis was performed using G\*Power 3. With 80% power ( $1 - \beta$ ) and eight predictors (to account for the moderated mediation), the current sample size of 207

participants is enough to detect all large-, and medium-sized effects  $\geq f^2 = .08$ . After assessing for assumptions and imputing the missing data, two competing analyses were completed, with additional follow-up analyses.

***Prevalence***

One of the primary aims of this project was to evaluate the prevalence of trauma exposure, depression, and suicidality in this high-risk safety net primary care sample. Data on trauma exposure can be found in Table 3 and indicate that approximately half of participants report having experienced at least four traumatic events. The mean total for childhood trauma was 3.86 with a standard deviation of 3.01, and the mean total for adult trauma was 2.96 with a standard deviation of 2.09. Next, data about depression are displayed in Table 4. Depression scores were spread across all severities, but 82.13% of individuals were in the clinical range for depression. Finally, responses to the suicidality item of the PHQ-9 are depicted in Table 5. Nearly half of the sample endorsed some level of suicidality.

Table 4. Trauma Counts

	Count	n, %
Childhood Trauma Total	0	39, 18.84
	1	23, 11.11
	2	23, 11.11
	3	19, 9.18
	4	12, 5.80
	5	26, 12.56
	6	21, 10.14
	7	15, 7.25



	8	15, 7.25
	9	7, 3.38
	10	7, 3.38
Adult Trauma Total	0	34, 16.43
	1	28, 13.53
	2	30, 14.50
	3	25, 12.08
	4	40, 19.32
	5	23, 11.11
	6	20, 9.66
	7	5, 2.42
	8	2, 1.00

Table 5. Depression Scores

	Range	n, %
Depression (Total PHQ-9 Score)	Subclinical	37, 17.87
	Mild	54, 26.09
	Moderate	62, 29.95
	Moderately Severe	34, 16.43
	Severe	20, 9.66

Note: These scores include PHQ-9 item number 9.

Table 6. Suicidality Scores

	Score	n, %
Suicidality (In the last two weeks)	Not at all	117, 56.50

Several Days	48, 23.19
More than Half the Days	21, 10.14
Nearly Every Day	21, 10.14

---

### ***Initial Regression Analyses***

First, all non-imputed trauma items were regressed onto the suicidality score using a multiple linear regression. Within this multiple linear regression, only having had a life-threatening illness was a significant predictor of suicidality,  $\beta = .17, p = .04$ . However, when each individual trauma item was regressed directly onto the suicidality item, all childhood trauma items were significant individual predictors, all  $ps < .005$ , of suicidality, except household member in prison,  $p = .28$ . Of the adult trauma items, combat service ( $p = .897$ ), serious accident ( $p = .142$ ), violent injury or death of loved one ( $p = .171$ ), and experiencing a natural or technological disaster ( $p = .173$ ) were not significant individual predictors of suicidality. Next, the unimputed childhood trauma total score was regressed onto suicidality and was found to be significant,  $F(1, 177) = 28.51, p < .001, R^2 = .14$ . Separately, the unimputed adult trauma total score, minus the childhood trauma item on this scale, was found to be a significant predictor of suicidality,  $F(1, 196) = 23.13, p < .001, R^2 = .11$ .

### ***Moderation Analysis***

The first analysis featured a moderation with depression as the predictor variable, count of combined adult and child trauma exposure as the moderating variable, and suicidality as the outcome variable. This analysis was modeled using the Hayes PROCESS Macro, Model One with 5,000 bootstraps (Hayes, 2017). For all participants, depression significantly predicted suicidality ( $B = .08, p < .001$ ). Trauma exposure also predicted suicidality ( $B = .05, p < .001$ ). The relationship between depression and suicidality was significantly moderated by trauma

exposure ( $B = .01, \Delta R^2 = .02, p = .008$ ). In other words, adding trauma exposure to the model explained an additional 2% of the variance in suicidality. This effect was significant at all levels of the moderator. This moderation effect can be seen in Figures 5 and 6 and suggests that higher levels of trauma exposure exacerbate the relationship between depression and suicidality.

Figure 5. Moderating Effect of Trauma Exposure

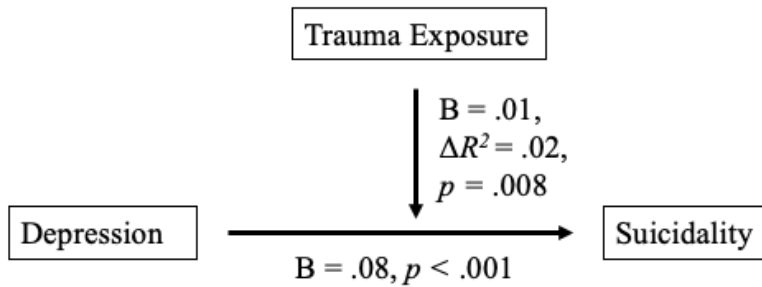
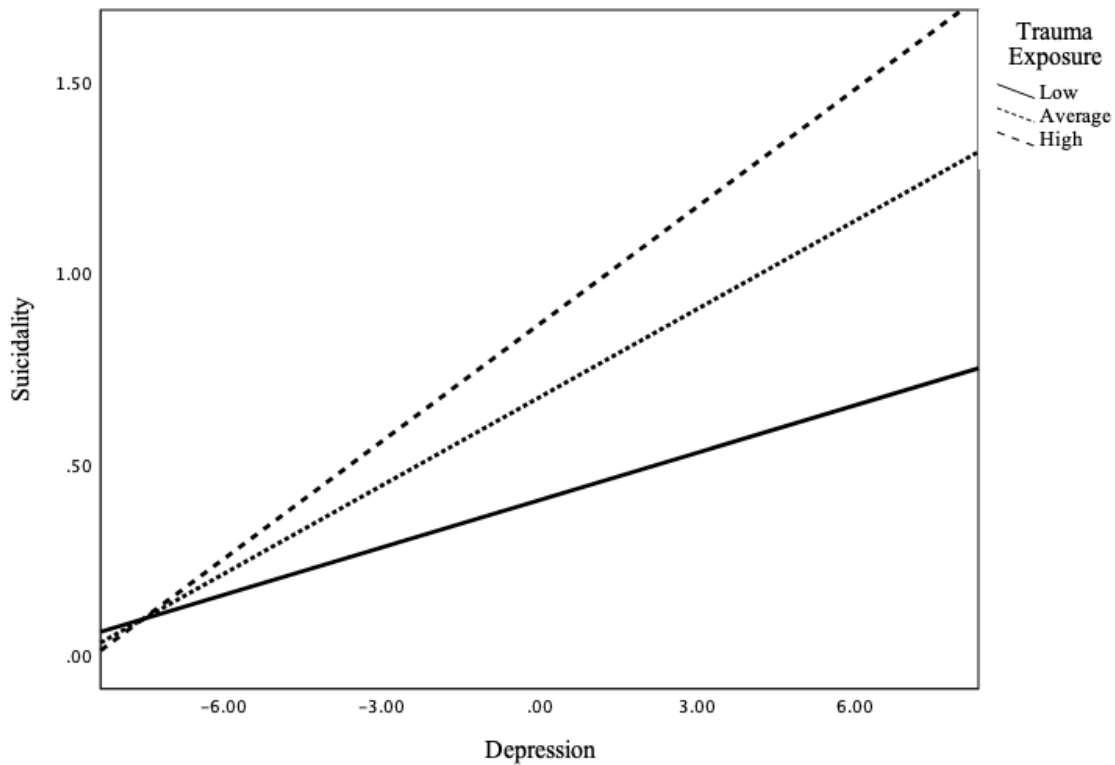


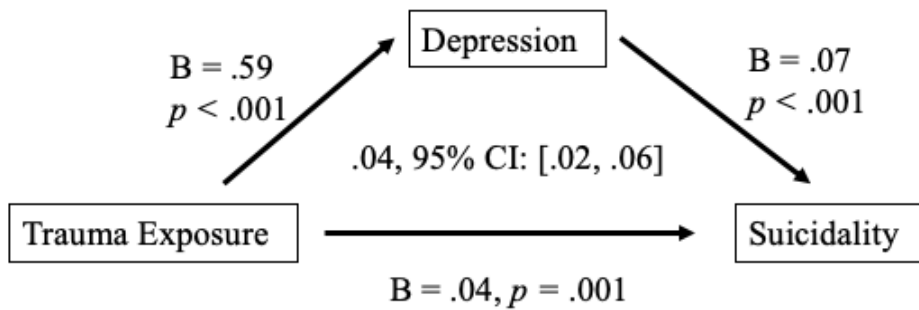
Figure 6. Moderating Effect of Trauma Exposure



### ***Mediation Analysis***

The second analysis was a mediation, with trauma as the predictor variable, depression as the mediating variable, and suicidality as the outcome variable. This relationship was modeled using the Hayes PROCESS Macro Model Four and 5,000 bootstraps (Hayes, 2017). Trauma exposure predicted depression ( $B = .59, p < .001$ ) and also predicted suicidality, controlling for depression ( $B = .04, p = .002$ ). Depression also predicted suicidality ( $B = .07, p < .001$ ). The bootstrap estimate of the indirect effect was .04, 95% CI: [.02, .06]. This result suggests a significant, partial mediational effect of depression on the relationship between trauma exposure and suicidality and is depicted in Figure 7.

*Figure 7. Mediating Effect of Depression*

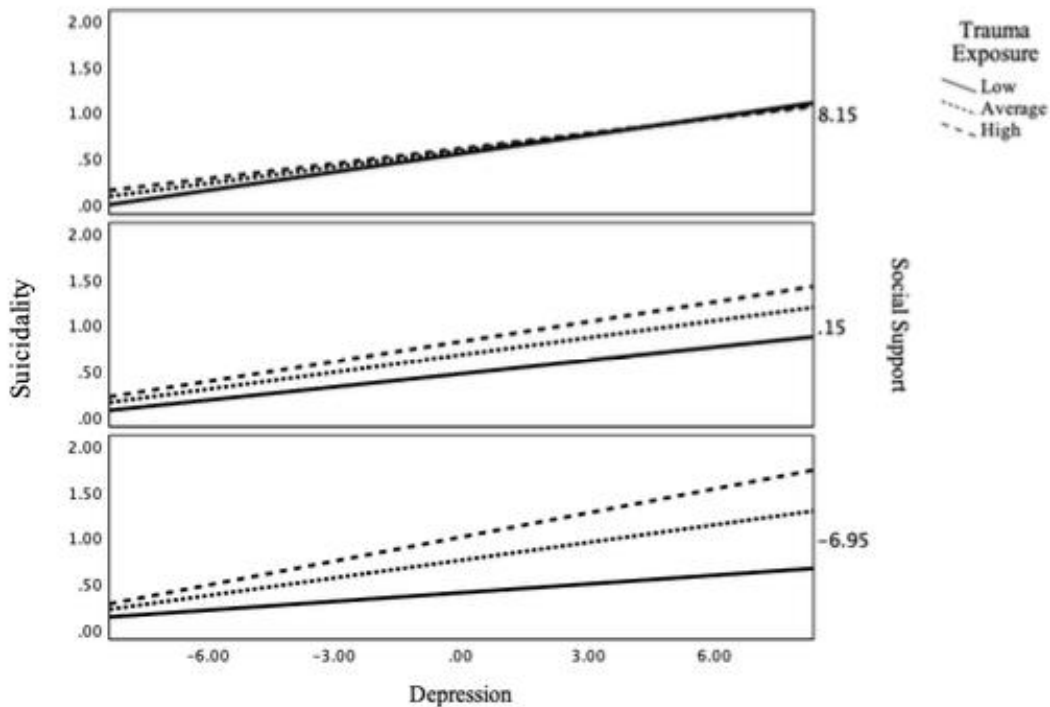


### ***Comparing Models and the Moderated Analysis***

Since both models were significant, both analyses were re-run with the protective factors of social support and religiosity as moderating buffer variables. Each moderating variable was analyzed separately, given the hypothesized strong relationship between religiosity and social support. Additionally, both subscales of the Attitudes toward God scale were run as independent moderators, in order to provide a more nuanced understanding of the impact of religious belief on suicidality.

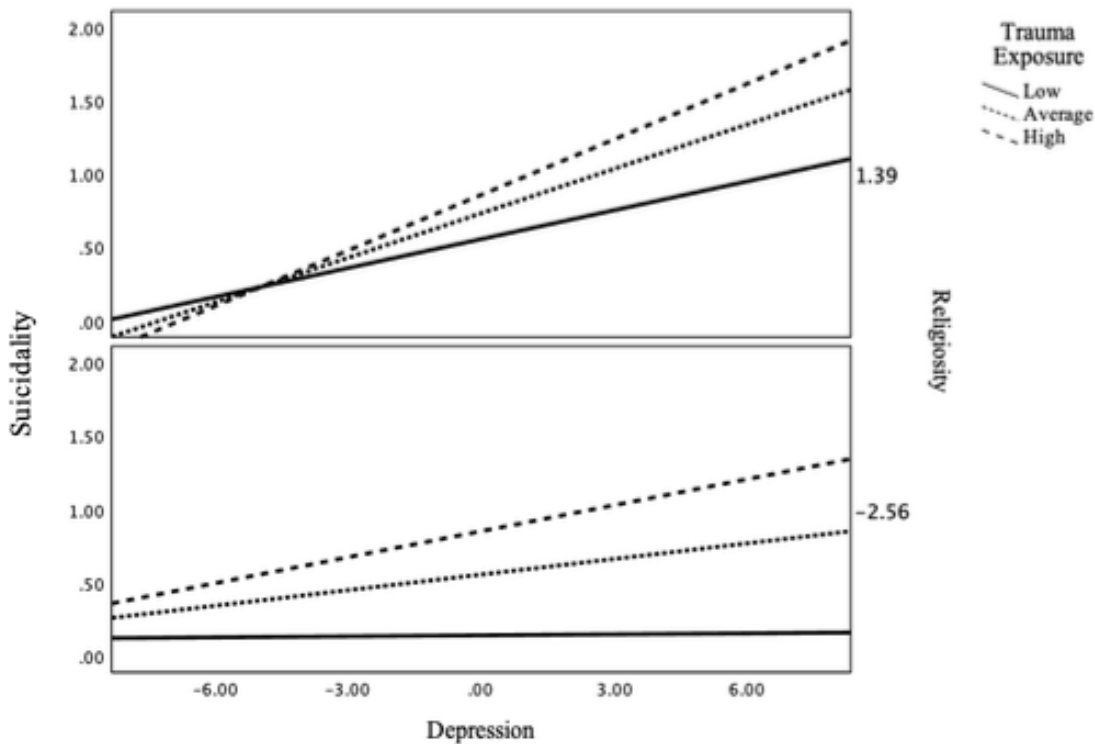
**Moderated Moderations.** The moderated moderations were analyzed using Hayes PROCESS Model Three with 5,000 bootstraps (Hayes, 2017). In the first model, using social support as the newly added moderator to the moderating effect of trauma exposure on the relationship between depression and suicidality, depression significantly predicted suicidality for all participants ( $B = .06, p < .001$ ), as did trauma exposure ( $B = .04, p = .013$ ). With social support added into the model, the relationship between depression and suicidality was no longer significantly moderated by trauma exposure ( $B = .00, p = .357$ ). Social support did not significantly moderate any of the paths in the moderation, all  $ps$  greater than .05. The overall moderated moderation with social support was thus not significant ( $\Delta R^2 = .01, p = .117$ ). Although the model was not significant, its visual depiction can be found in Figure 8, which suggests that higher levels of social support may have some protective effect, even if this effect does not rise to the level of statistical significance.

Figure 8. Overall Moderated Moderating Effect of Social Support



The second moderated moderation, using the one item measure of the importance of religiosity in participant's lives, was also analyzed using Hayes PROCESS Model Three with 5,000 bootstraps (Hayes, 2017). For all participants, depression significantly predicted suicidality ( $B = .08, p < .001$ ), as did trauma exposure ( $B = .05, p = .001$ ). However, religiosity only significantly moderated one path in the moderation, depression to suicidality ( $B = .02, p = .001$ ). The overall moderated moderation with religiosity was not significant,  $\Delta R^2 = .00, p = .932$ . This overall moderated moderation, though not significant, is depicted in Figure 9.

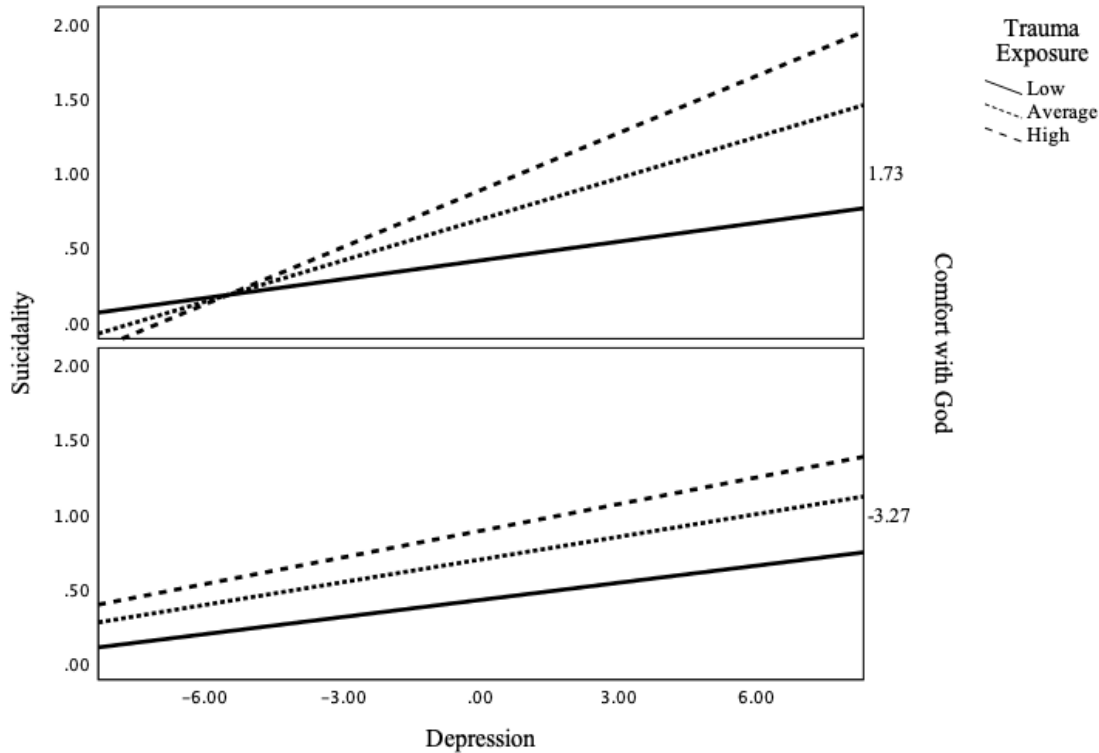
Figure 9. Overall Moderated Moderating Effect of Religiosity



The third moderated moderation, the addition of the Comfort with God measure to the moderating effect of trauma exposure on the relationship between depression and suicidality, was also analyzed using Hayes PROCESS Model Three with 5,000 bootstraps (Hayes, 2017). For all participants, depression continued to predict suicidality ( $B = .08, p < .001$ ), as did trauma

exposure ( $B = .05, p = .001$ ). However, Comfort with God only significantly moderated one path in the moderation, depression to suicidality ( $B = .01, p = .033$ ). The overall moderated moderation with Comfort with God was also not significant,  $\Delta R^2 = .01, p = .094$ . This overall model, though nonsignificant, is depicted in Figure 10.

Figure 10. Overall Moderated Moderating Effect of Comfort with God

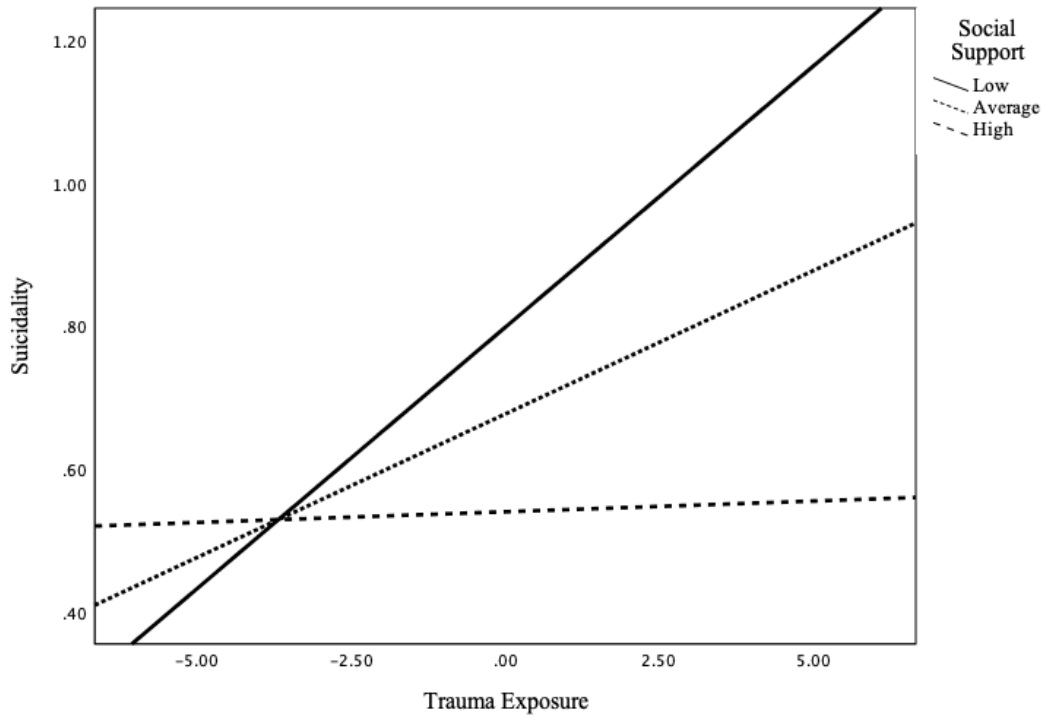


The fourth moderated moderation, the addition of the Anger toward God measure to the moderating effect of trauma exposure on the relationship between depression and suicidality, was also analyzed using Hayes PROCESS Model Three with 5,000 bootstraps (Hayes, 2017). For all participants, depression continued to predict suicidality ( $B = .08, p < .001$ ), as did trauma exposure ( $B = .04, p = .008$ ). However, Anger toward God did not moderate any of the paths in the moderation, all  $p$ s greater than .05. The overall moderated moderation with Anger toward God was also not significant,  $\Delta R^2 = .01, p = .087$ .

**Moderated Mediations.** The moderated mediations were completed using Hayes PROCESS Model Fifty-Nine with 5,000 bootstraps (Hayes, 2017). The first model assessed the addition of social support as a moderator. In this model, trauma exposure predicted depression ( $B = .42, p < .001$ ), and also predicted suicidality, controlling for depression ( $B = .04, p = .005$ ). Depression also predicted suicidality ( $B = .06, p < .001$ ). Social support did not moderate the relationship between trauma exposure and depression ( $B = .01, p = .554$ ) or between depression and suicidality ( $B = -.001, p = .627$ ), but did moderate the relationship between trauma exposure and suicidality ( $B = -.005, p = .034$ ). The bootstrap estimate of the indirect effect was .03, 95% CI: [.01, .05] at low levels of social support, .03, 95% CI: [.01, .04] at medium levels of social support, and .03, 95% CI: [.01, .05] at high levels of social support. This result suggests that the mediational impact of depression on the relationship between trauma exposure and suicidality occurs similarly at all levels of social support. This finding does not support a moderated mediational effect of social support and is not visually depicted. The specific moderational effect of social support on the direct path between trauma exposure and suicidality is depicted in Figure 11.



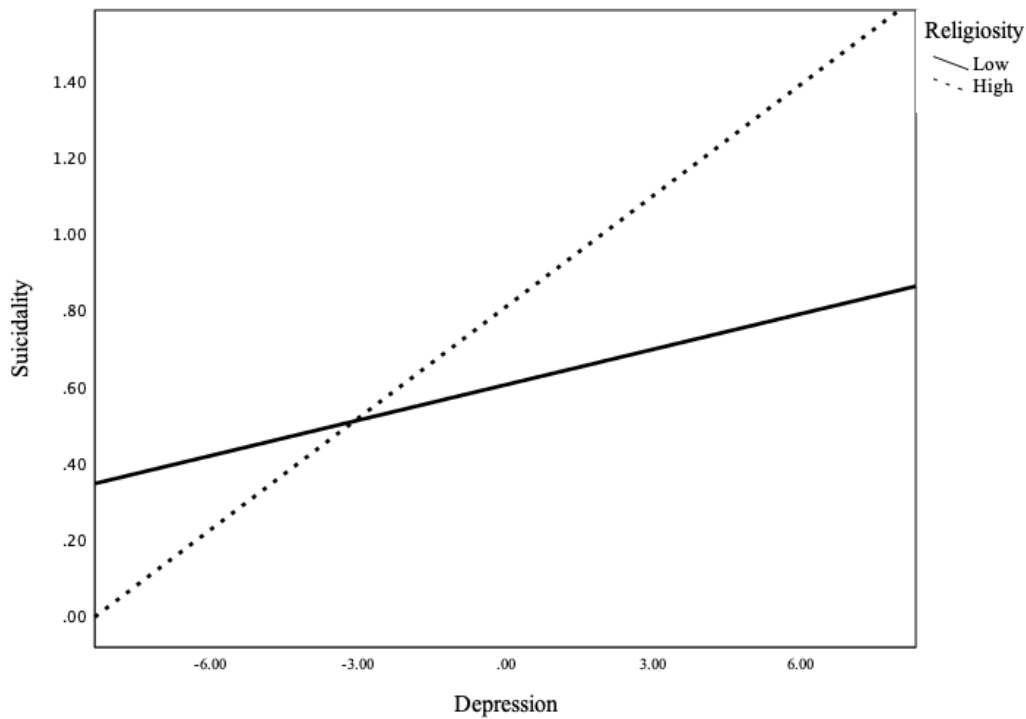
Figure 11. Moderating Effect of Social Support on the Direct Path between Trauma and Suicidality



The second moderated mediation model was also completed using Hayes PROCESS Model Fifty-Nine (Hayes, 2017) and assessed the conditional indirect effect of religiosity using the one-item measure of the importance of religion in the participant's life. In this model, trauma exposure predicted depression ( $B = .59, p < .001$ ) and also predicted suicidality, controlling for depression ( $B = .04, p = .003$ ). Depression also predicted suicidality ( $B = .07, p < .001$ ). Religiosity did not moderate the relationship between trauma exposure and depression ( $B = .05, p = .275$ ) or between trauma exposure and suicidality ( $B = -.01, p = .200$ ), but religiosity did moderate the relationship between depression and suicidality ( $B = .02, p = .001$ ). The bootstrap estimate of the indirect effect was .01, 95% CI: [.00, .03] at low levels of religiosity, .06, 95% CI: [.04, .09] at medium levels of religiosity, and .06, 95% CI: [.04, .10] at high levels of religiosity. This result suggests that the mediational impact of depression on the relationship

between trauma exposure and suicidality occurs similarly at all levels of religiosity. This finding does not support a moderated mediational effect of religiosity and is not depicted visually. The specific moderational effect of religiosity on the direct path between depression and suicidality is depicted in Figure 12.

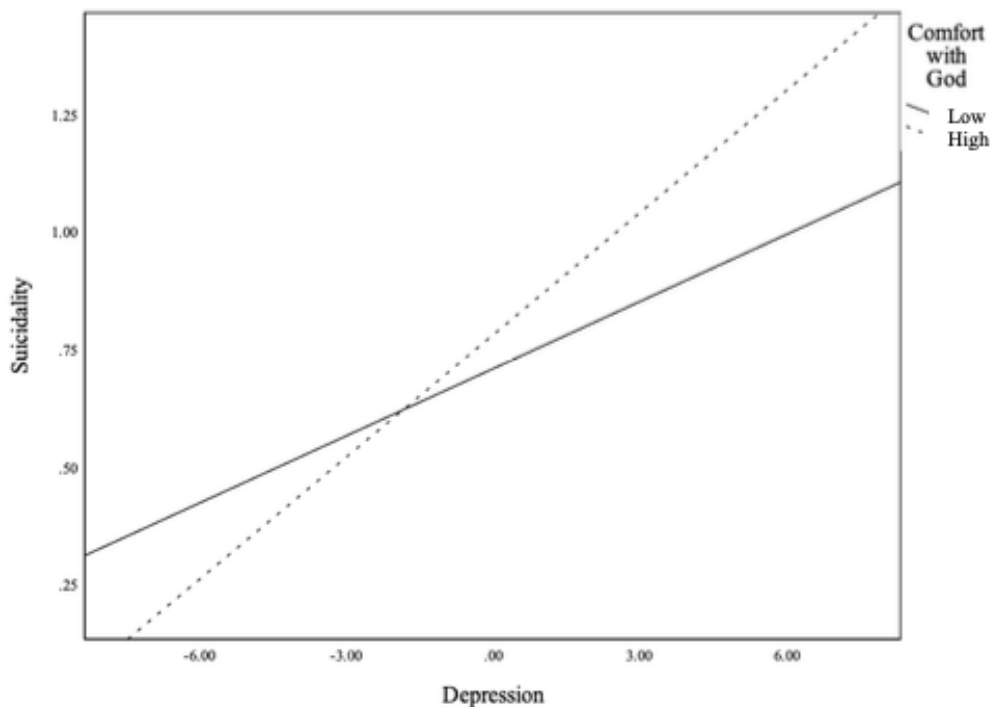
Figure 12. Moderating Effect of Religiosity on the Direct Path between Depression and Suicidality



The third moderated mediation model was also completed using Hayes PROCESS Model Fifty-Nine (Hayes, 2017) and assessed the conditional indirect effect of Comfort with God on the mediational effect of depression on the relationship between trauma exposure and suicidality. In this model, trauma exposure predicted depression ( $B = .58, p < .001$ ) and also predicted suicidality, controlling for depression ( $B = .05, p = .001$ ). Depression also predicted suicidality ( $B = .07, p < .001$ ). Comfort with God did not moderate the relationship between trauma exposure and depression ( $B = .03, p = .349$ ) or between trauma exposure and suicidality ( $B = -$

.00,  $p = .891$ ). However, Comfort with God did moderate the relationship between depression and suicidality ( $B = .01, p = .041$ ). The bootstrap estimate of the indirect effect was .02, 95% CI: [.01, .05] at low levels of Comfort with God, and .06, 95% CI: [.03, .08] at medium and high levels of Comfort with God. This result suggests that the mediational impact of depression on the relationship between trauma exposure and suicidality occurs similarly at all levels of Comfort with God. This finding does not support a moderated mediational effect of Comfort with God and is not depicted visually. The specific moderational effect of Comfort with God on the direct path between depression and suicidality is depicted in Figure 13.

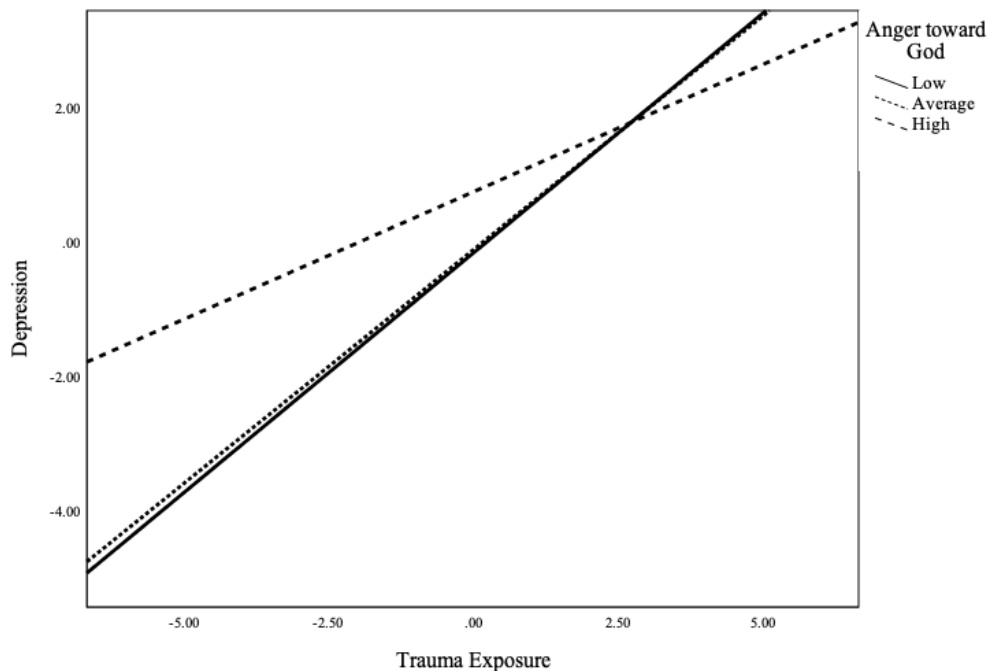
Figure 13. Moderating Effect of Comfort with God on the Direct Path between Depression and Suicidality



The fourth and final moderated mediation model was also completed using Hayes PROCESS Model Fifty-Nine (Hayes, 2017) and assessed the conditional indirect effect of Anger toward God on the mediational effect of depression on the relationship between trauma exposure

and suicidality. In this model, trauma exposure continued to predict depression ( $B = .59, p < .001$ ) and also predicted suicidality, controlling for depression ( $B = .04, p = .012$ ). Depression also predicted suicidality ( $B = .07, p < .001$ ). Anger toward God moderated the relationship between trauma exposure and depression ( $B = -.07, p = .049$ ). However, Anger toward God did not moderate the relationship between trauma exposure and suicidality ( $B = .01, p = .275$ ) or between depression and suicidality ( $B = .00, p = .571$ ). The bootstrap estimate of the indirect effect was .05, 95% CI: [.03, .08] at low levels of Anger toward God, .05, 95% CI: [.03, .08] at medium levels of Anger toward God, and .03, 95% CI: [.01, .06] at high levels of Anger toward God. As a result, it can be concluded that Anger toward God is also not a moderator of the mediational effect of depression on the relationship between trauma exposure and suicidality. The moderational effect of Anger toward God on the direct path between trauma exposure and depression is depicted in Figure 14.

Figure 14. Moderating Effect of Anger toward God on the Direct Path between Trauma Exposure and Depression



## Discussion

The current study represents an attempt at modeling the relationships between depression, suicidality, and trauma exposure in a very high risk, understudied sample. Additionally, it includes social support and religiosity as protective factors in these relationships as sources of hope for the future, as well as to provide an understanding of the impact of attitudes toward God on these relationships. The foundational models included in this study, the moderational effect of trauma exposure on the relationship between depression and suicide and the mediational effect of depression on the relationship between trauma exposure and suicide, both found links between the key variables that are in line with previous research (Ashrafioun, Pigeon, Conner, Leong, & Oslin, 2016; Dobscha et al., 2014; Chang, Kahle, Yu, & Hirsch, 2014; Stein et al., 2010; Seedat, Stein & Forde, 2005; Angst, Angst & Stassen, 1999). In this sample, both depression and trauma exposure are predictors of suicidality, and trauma exposure also predicts depression.

The specific models of these relationships that were tested in this study offer unique findings. Although both the foundational moderation and mediation models were significant, none of the overall moderated mediational or moderated moderation models remained significant following the addition of the protective and risk factors of religiosity, social support, Comfort with God, and Anger toward God. In other words, trauma exposure moderates the relationship between depression and suicidality in this sample, but we cannot make any further inferences about this relationship with the addition of these other factors. Similarly, depression mediates the relationship between trauma exposure and suicidality, but no further inferences about the addition of these additional factors can be made. These overall results are not in line with previous research on the protective effects of social support, Comfort with God, and religiosity or the adverse effects of Anger toward God (Kilpatrick et al., 2013; Kleiman & Liu, 2013; Wu,

Wang, & Jia, 2015), though the data do trend toward these patterns for social support and Anger toward God.

Interestingly, although religiosity, social support, Comfort with God, and Anger toward God were tested as moderators on all paths of the models, they were each only significant moderators on certain paths. In the moderated moderation, social support did not moderate any path, though it moderated the relationship between trauma exposure and suicidality in the moderated mediation. It may be that trauma exposure, as a frequently interpersonal experience (Kilpatrick et al., 2013), can be overcome particularly well when a survivor has access to positive social support. Religiosity and Comfort with God, on the other hand, significantly moderated the path from depression to suicidality in both the moderated moderation and moderated mediation. Religiosity may be less relevant to trauma exposure but seems to serve as a unique factor in the progression from depression to suicidality, a finding that partially replicates existing literature (Wu, Wang, & Jia, 2015). Finally, Anger toward God had no effect on the moderated moderation but did significantly moderate the path from trauma to depression in the moderated mediation, which replicates existing literature (Ano & Vasconcelles, 2005).

However, the hypothesized protective factors of Comfort with God and religiosity were in fact exacerbators of these relationships. These factors, though traditionally found to be protective against suicidality, in actuality reflected a detrimental effect similar to the effect of Anger toward God. Thus, all three measures of religiosity strengthened the relationships in this model, which predict suicidality. This counterintuitive result may be attributable to culturally bound conceptions of religiosity, with different impacts in different ethnic/racial groups or in individuals who identify in the LGBTQIA+ community. Unfortunately, however, the current sample size does not support such subsequent comparisons. As a result, it can only be concluded

that the protective impact of religiosity on suicidality was not replicated in this overall sample, but that its impact is likely more nuanced than is captured by these analyses. It may also be that religiosity is more protective prior to the development of significant distress, and that this sample's high levels of depression, trauma exposure, and suicidality mute the potential protective effect of religiosity.

Although this study is extremely exploratory in nature, it does offer preliminary information about a critical public health need in a sample that has been dramatically understudied to date. Overall, these results call attention to the high prevalence of trauma exposure, depression, and suicidality in a high-risk primary care sample. They also offer hope that further research on these mechanisms may shed light on new clinical opportunities for assessment, intervention, and prevention of suicide, especially in primary care. This project specifically supports the importance of social support as a protective factor, but the importance of religiosity in this relationship, whether protective or detrimental, is an important and counterintuitive finding that demands further exploration.

Despite the overall contradictory findings and the nature of this study as an exploratory examination of relationships between these key variables, the importance of nuanced assessment for suicidality in primary care is strongly supported. Specifically, if individuals are identified as having been exposed to trauma, as a majority of these safety net primary care patients are, any assessment of suicide risk should be informed by their exposure to trauma. The nature of trauma exposure as a risk factor for depression and suicidality, regardless of the specific directional nature of the relationships, necessitates detailed and explicit assessment for risk of suicidality when these factors are identified in a clinical case. Social support is supported in this model as a key protective factor and should be bolstered whenever possible. In individuals at risk for

suicidality, and most especially for those with trauma exposure, assessment of social support should be included in all risk assessments and safety plans as an important protective factor.

The clinical implications of this study with regard to the moderational impacts of religiosity are less clear. As noted, though the findings of this study support the detrimental impact of Anger toward God (Ano & Vasconcelles, 2005), they contradict previous findings of the protective effects of Comfort with God, or positive religious coping, and religiosity in general (Wu, Wang, & Jia, 2015; Ano & Vasconcelles, 2005). In general, increased distress has been known to be related to increased religiosity and has generally been found to be protective (Crawford, Handal, & Wiener, 1989). As a result, it would be expected that the high level of distress in this sample would predict a high level of religiosity, a level which was found, and also a protective effect of religiosity, which was not found. These results necessitate further study and speak to the nuance of religiosity as a factor in patient's lives. Clinicians should take care to assess religiosity in a patient-centered way and to take time to understand its impact on these risk factors.

Future research should also seek to tease apart the unique impacts of assaultive and non-assaultive forms of trauma, as well as how well these models fit in various samples. Of note, previous research in this area has found significant differences for individuals of different genders, races/ethnicities, and sexual orientations (Choo, Harris, Chew & Ho, 2017; U.S. Department of Health and Human Services, 2001). Such an analysis was not completed in this study due to concerns about limited sample size, but future research should certainly consider the additional information that such demographic factors can provide to models of these relationships. Additionally, religiosity has been shown to be a very culturally specific factor,



which necessitates further research of its unique effect in different groups (Wang, Lightsey, Tran & Bonaparte, 2013; Wingate et al., 2005).

### **Limitations**

Like any cross-sectional, secondary data analysis, certain methodological limitations are inherent to the design. This study relies upon cross-sectional data that were collected in an omnibus manner. As a result, various potential threats to internal validity are introduced, including self-report bias, fatigue due to the quantity of measures, and literacy challenges. Specifically, concerns about underreporting of suicidality are a crucial, but unfortunately somewhat unavoidable challenge to validity (Cukrowicz, Jahn, Graham, Poindexter, & Williams, 2013; Denneson et al., 2010). Additionally, because this project relies on secondary analysis, the possibility of Type I error is increased.

However, in spite of these limitations, this project adds to the literature in a meaningful way. First, it focuses on a sample that has been historically difficult to reach, both clinically and in research. As a result, characterization of the prevalence of these serious concerns, let alone the development of a model of their relationships, is a meaningful addition to the literature in this area. Additionally, the development of a replicable model of the relationship between trauma and suicidality offers promise for continued research in an area that is a major public health concern. Finally, by adding a strength-based component to the model, hope is provided for the development of future clinical interventions and assessments in primary care and other clinical settings that serve safety net populations.

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## Appendices

### Patient Health Questionnaire (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things?

a. Not at all b. Several Days c. More than half the days d. Nearly every day

2. Feeling down, depressed, or hopeless

a. Not at all b. Several Days c. More than half the days d. Nearly every day

3. Trouble falling or staying asleep, or sleeping too much

a. Not at all b. Several Days c. More than half the days d. Nearly every day

4. Feeling tired or having little energy

a. Not at all b. Several Days c. More than half the days d. Nearly every day

5. Poor appetite or overeating

a. Not at all b. Several Days c. More than half the days d. Nearly every day

6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down.

a. Not at all b. Several Days c. More than half the days d. Nearly every day

7. Trouble concentrating on things, such as reading the newspaper or watching television.

a. Not at all b. Several Days c. More than half the days d. Nearly every day

8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.

a. Not at all b. Several Days c. More than half the days d. Nearly every day

9. Thoughts that you would be better off dead, or of hurting yourself.

a. Not at all b. Several Days c. More than half the days d. Nearly every day

10. If you have indicated having been bothered by any of these problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- a. Not at all b. Several Days c. More than half the days d. Nearly every day

## Childhood Trauma

These next questions are about your childhood. Please circle YES or NO.

Before your 18th birthday:

1. Did a parent or other adult in the household often or very often... Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?

a. YES    b. NO

2. Did a parent or other adult in the household often or very often... Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?

a. YES    b. NO

3. Did an adult or person at least 5 years older than you ever... Touch or fondle you or have you touch their body in a sexual way? or Attempt or actually have oral, anal, or vaginal intercourse with you?

a. YES    b. NO

4. Did you often or very often feel that ... No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?

a. YES    b. NO

5. Did you often or very often feel that ... You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?

a. YES    b. NO

6. Was a biological parent ever lost to you through divorce, abandonment, or other reason?

b. a. YES    b. NO

7. Often or very often pushed, grabbed, slapped, or had something thrown at her? or Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?

a. YES    b. NO

8. Did you live with anyone who was a problem drinker or alcoholic, or who used street drugs?

a. YES    b. NO

9. Was a household member depressed or mentally ill, or did a household member attempt suicide?

a. YES    b. NO

10. Did a household member go to prison?

a. YES    b. NO

## Brief Trauma Questionnaire

If you answer "No" for an event, go on to the next event.

Has this ever happen to you?		Answer these questions for each event that has happened to you	
		Did you think your life was in danger or you might be seriously injured?	Were you seriously injured?
1. Have you ever served in a war zone, <u>or</u> have you ever served in a noncombat job that exposed you to war-related casualties (for example, as a medic or on graves registration duty)?	No Yes	No Yes	No Yes
2. Have you ever been in a serious car accident, or a serious accident at work or somewhere else?	No Yes	No Yes	No Yes
3. Have you ever been in a major natural or technological disaster, such as a fire, tornado, hurricane, flood, earthquake, or chemical spill?	No Yes	No Yes	No Yes
4. Have you ever had a life-threatening illness such as cancer, a heart attack, leukemia, AIDS, multiple sclerosis, etc.?	No Yes	No Yes	
5. Before age 18, were you ever physically punished or beaten by a parent, caretaker, or teacher so that: you were very frightened; or you thought you would be injured; or you received bruises, cuts, welts, lumps or other injuries?	No Yes	No Yes	No Yes

Has this ever happen to you?		Answer these questions for each event that has happened to you	
		Did you think your life was in danger or you might be seriously injured?	Were you seriously injured?
6. <u>Not including any punishments or beatings you already reported in Question 5</u> , have you ever been attacked, beaten, or mugged by anyone, including friends, family members, or strangers?	No Yes	No Yes	No Yes
7. Has anyone ever made or pressured you into having some type of unwanted sexual contact?  <u>Note:</u> By sexual contact we mean any contact between someone else and your private parts or between you and someone else's private parts	No Yes	No Yes	No Yes
8. Have you ever been in any other situation in which you were seriously injured, <u>or</u> have you ever been in any other situation in which you feared you might be seriously injured or killed?	No Yes		No Yes
9. Has a close family member or friend died violently, for example, in a serious car crash, mugging, or attack?	No Yes		
10. Have you ever witnessed a situation in which someone was seriously injured or killed, <u>or</u> have you ever witnessed a situation in which you feared someone would be seriously injured or killed?  <u>Note:</u> Do not answer "yes" for any event you already reported in Questions 1-9	No Yes		

**Interpersonal Support Evaluation List-12** (social support, 12 items)

This scale is made up of a list of statement each of which may or may not be true about you. For each statement check “definitely true” if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should check “definitely false” if you are sure the statement is false and “probably false” if you think it is false but are not absolutely certain.

1. If I wanted to go on a trip for a day (e.g., to the mountains, beach, or country), I would have a hard time finding someone to go with me.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

2. I feel that there is no one I can share my most private worries and fears with.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

3. If I were sick, I could easily find someone to help me with my daily chores.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

4. There is someone I can turn to for advice about handling problems with my family.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

5. If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

6. When I need suggestions on how to deal with a personal problem, I know someone I can turn to.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

7. I don't often get invited to do things with others.

- a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

8. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

9. If I wanted to have lunch with someone, I could easily find someone to join me.

a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

10. If I was stranded 10 miles from home, there is someone I could call who would come and get me.

a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

11. If a family crisis arose, it would be difficult to find someone who could give me good advice about how to handle it.

a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

12. If I needed some help in moving to a new house or apartment, I would have a hard time finding someone to help me.

a. Definitely true      b. Probably true      c. Probably false      d. Definitely false

## Religion

Circle a response below:

	Not important			Somewhat important			Very important
How important is religion to you?	1	2	3	4	5	6	7



**Attitudes toward God Scale-9**

On a Rating Scale from 0= “Not at All.” To 10 = “Extremely,” Indicate to What Extent You Currently Do or Feel the Following About God (or Whatever You Call the Sacred)

	<b>Not at all</b>					<b>Extremely</b>					
	0	1	2	3	4	5	6	7	8	9	10
Trust God to protect and care for you	0	1	2	3	4	5	6	7	8	9	10
Feel angry at God	0	1	2	3	4	5	6	7	8	9	10
Feel that God has let you down	0	1	2	3	4	5	6	7	8	9	10
View God as unkind	0	1	2	3	4	5	6	7	8	9	10
View God as all-powerful and all-knowing	0	1	2	3	4	5	6	7	8	9	10
Feel loved by God	0	1	2	3	4	5	6	7	8	9	10
Feel supported by God	0	1	2	3	4	5	6	7	8	9	10
Feel nurtured or cared for by God	0	1	2	3	4	5	6	7	8	9	10
Feel abandoned by God	0	1	2	3	4	5	6	7	8	9	10

**Demographics (general demographic information)**

How old are you? \_\_\_\_\_ years

What gender are you (select one)?

Man

Woman

Transgender

Intersex

Which racial/ethnic label *best* describes you?

Asian/Asian-American/Pacific Islander

Black/African-American (non-Latino)

Latino/Hispanic

American-Indian/Native-American

White/European-American (non-Latino)

Multiracial/Multiethnic

Other \_\_\_\_\_

What is your highest level of completed education?

Grade school

High school/GED

Some college (no degree)

2-year/technical degree

4-year college degree

Master's degree

Doctorate degree

Which sexual orientation *best* describes you?

Heterosexual

Bisexual

Gay/lesbian

Queer

## Vita

Samantha Nicole Mladen was born on January 17, 1995 in Richmond, Virginia. She graduated from Maggie L. Walker Governor's School for Government and International Studies in 2012 and subsequently spent a year living in Herdecke, Germany as a Youth Cultural Ambassador for the United States State Department. She then began a degree in International Politics at the Walsh School of Foreign Service at Georgetown University in August 2013. During this time, she served as a Mortara Undergraduate Research Fellow under the tutelage of Dr. Elizabeth Stephen and spent six months living and conducting research in Alanya, Turkey in 2014. Following two years at Georgetown, Samantha transferred back to her home town university and completed a Bachelor's degree in Applied Psychology at Virginia Commonwealth University in May 2017. In August 2017 she began her graduate studies in Clinical Psychology, with a focus on Behavioral Medicine, under the advisement of Dr. Bruce Rybarczyk, where her research focuses on the integration of psychologists and other mental health providers into medical settings.