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The Conditional Indirect Effects of Suicide Attempt History and Psychiatric Symptoms on the Association Between Intimate Partner Violence and Suicide Ideation

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Abstract

Background—Women seeking shelter from intimate partner violence (IPV) experience heightened risk for suicide ideation and attempts compared to abused and non-abused women in the general population. However, few theory-guided studies have examined what cognitive-emotional symptoms might underlie this increased risk.

Methods—Guided by fluid vulnerability theory, this cross-sectional, survey study tested whether depressive symptoms, PTSD symptoms, and hopelessness mediate the association between IPV (coercive control and physical violence) and suicide ideation and whether suicide attempt history facilitated these mediated relations in 134 women seeking shelter from IPV.

Results—Depressive symptoms, but not PTSD symptoms or hopelessness, mediated the relation between coercive control and suicide ideation, and suicide attempt history facilitated this association. No variables mediated the association between physical violence and suicide ideation.

Limitations—The small sample size may have limited statistical power. The cross-sectional design precludes temporal conclusions from being drawn.

Conclusions—Shelter-seeking women subjected to coercive control who experience associated depressive symptoms may be at risk of suicide ideation, with history of a suicide attempt increasing this risk. Fluid vulnerability theory may help guide suicide risk assessment and intervention efforts among women seeking shelter from IPV.

Keywords

domestic violence shelter; psychological aggression; partner abuse; suicide risk; mental health

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1. Introduction

Intimate partner violence (IPV), defined as physical, psychological, and/or sexual violence committed by a partner (Saltzman et al., 2000), is a major social problem that confers risk of psychiatric symptoms including depression, posttraumatic stress disorder (PTSD), and suicide ideation and attempts (Coker et al., 2000; Golding, 1999). Suicide ideation and attempts are of particular concern, as they are precursors to suicide, which is a leading and preventable cause of death in the United States (CDC, 2013). Women seeking shelter from IPV experience heightened risk in particular, as they have higher rates of suicide ideation and attempts (34%) than IPV victims who do not seek such help (6.6%) as well as women in the general population (4.2%; Golding, 1999; Mo cicki et al., 1988). This amplified risk may be due to shelter-seeking women's greater victimization by coercive control compared to abused women who do not seek shelter (Johnson, 1995; Johnson & Leone, 2005). Coercive control is defined as the assertion of power through the use of demands contingent on implicit or explicit, credible threats (Dutton & Goodman, 2005a) and has been shown to have a greater emotional impact than physical violence (O'Leary, 1999). The emotional consequences of coercive control victimization may affect suicide risk.

Indeed, many studies have supported that coercive control associates with suicide-related thoughts and behaviors (e.g., Golding, 1999; Leiner et al., 2008; Leone, 2011; Pico-Alfonso et al., 2006) and perhaps more strongly than physical violence (Leone, 2011; Wolford-Clevenger et al., 2016). Furthermore, intimate partner homicide risk—which is often signified by coercive control—has been linked to suicide attempts and threats (Cavanaugh et al., 2011; Frye et al., 2006). Studies examining coercive control more precisely have corroborated these findings, demonstrating that coercive control relates to suicide attempts more strongly than physical violence (Frye et al., 2006; Leone, 2011). Thus, the literature highlights coercive control as a chief form of IPV that associates with suicide risk among women seeking help from violent relationships.

Beyond showing the association between coercive control and suicide risk, studies have examined factors that explain this relation. Studies of women experiencing IPV have supported psychiatric symptoms (i.e., symptoms of depression, hopelessness, and PTSD) to mediate the relation between psychological abuse and suicide ideation and attempts (Kaslow et al., 1998; Leiner et al., 2008). However, researchers have examined suicide ideation and attempts as separate outcomes, rather than assessing how the latter may influence the former. Examining how past suicide attempts impact current suicide ideation, a pivotal point in the trajectory to suicide, is critical given that past suicide attempt history is one of the strongest predictors of death by suicide (Christiansen & Jensen, 2007). A theory of suicide that specifies how the experience of coercive control, related psychiatric symptoms, and suicide attempt history impact suicide ideation will refine the understanding and prevention of suicide risk among women seeking shelter from IPV.

Rudd's (2000) *fluid vulnerability theory* may shed light on the undefined relations among coercive control, psychiatric symptoms, and suicide-related thoughts and behaviors. The theory proposes that stressors activate the acute vulnerability for suicide via a "suicidal mode," which involves distinct, suicide-risk promoting responses from cognitive, affective,

physiological, and behavioral/motivational systems. Cognitive responses entail one or more negative core beliefs, such as worthlessness and hopelessness. The affect system is characterized by dysphoria, involving various negative mood states such as sadness, anger, and anxiety. Physiological components of the mode involve heightened arousal. Behavioral/motivational aspects of the suicidal mode involve a clear desire for death or intent to kill oneself (Rudd, 2000). "Facilitating modes," particularly prior suicide attempts, create an enduring chronic vulnerability by predisposing individuals to the activation of the suicidal mode (Rudd, 2000). For example, active suicide ideation is more easily triggered among people with multiple suicide attempts than single and non-attempters, presumably due to their chronic vulnerability toward the suicidal mode (Joiner & Rudd, 2000). Fluid vulnerability theory has been supported in studies testing various static and dynamic factors (e.g., Bryan et al., 2013). This theory's specification of cognitive, affective, physiological, and behavioral/motivational factors that mediate the relation between a stressor and suicide ideation, as well as the facilitating influence of suicide attempt history, may be particularly applicable to women seeking shelter from IPV.

Women seeking shelter from violent relationships have doubtlessly experienced a recent and significant stressor. Women coercively controlled in their relationship may be more vulnerable to entering the suicidal mode, as they likely experience consequential severe dysphoria involving depressive and posttraumatic stress disorder (PTSD) symptomology (e.g., sad mood and anxiety; Golding, 1999; Mechanic et al., 2008). Cognitively, women in controlling relationships may be vulnerable to self-oriented thoughts colored with helplessness and worthlessness and a hopeless outlook. Indeed, research on women seeking help for IPV has shown them to have substantial negative affect (e.g., depressive and PTSD symptoms; Bargai et al., 2007) and cognition (e.g., hopelessness; Clements et al., 2004). According to fluid vulnerability theory, such negative affect and cognition would increase suicide ideation (Rudd, 2000). This transition from negative affect and cognition to suicide ideation would be even more likely for women with suicide attempt histories, as research suggests that such history predisposes individuals to suicidal mode activation. However, no studies have tested what cognitive-emotional experiences might underlie the influence of coercive control on suicide ideation and whether suicide attempt histories facilitate these associations (Joiner & Rudd, 2000).

In summary, although the literature suggests that coercive control may be a critical factor that promotes suicide risk among IPV victims, few studies have specifically examined this construct but rather have focused on global IPV or psychological violence. Furthermore, researchers have not heavily relied on theory that suggests mediators of this relation and tend to examine suicide ideation and attempts as separate outcomes, rather than assessing how the latter may influence the former. Thus, the purpose of the current study was to replicate that coercive control has a stronger association with suicide ideation and attempts than physical violence (e.g., Leone, 2011), to identify what cognitive-emotional experiences mediate the relation between coercive control and suicide ideation, and to examine whether suicide attempt history facilitates these associations. Such theory-guided work that measures coercive control more precisely will help specify targetable points for intervention among shelter-seeking women experiencing suicide ideation.

We relied on Rudd's (2000) fluid vulnerability theory to guide our hypotheses. First, we hypothesized that coercive control will more strongly associate with suicide ideation and attempts than physical violence. Second, as a preliminary test of the fluid vulnerability theory, we hypothesized that affect states of depressive and PTSD symptoms and the cognitive state of hopelessness would mediate the relation between coercive control and suicide ideation. We expected that suicide attempt history would moderate these associations, such that the relations between these symptoms and suicide ideation would be stronger among women with histories of suicide attempts than those without attempts. Finally, given data show coercive control as a stronger correlate of suicide ideation than physical violence (e.g., Leone, 2011), we hypothesized that this moderated mediation model would not emerge for the relation between physical violence and suicide ideation.

2. Methods

2.1 Participants

Women ($n = 134$) were recruited from a domestic violence shelter in a Gulf Coast city. All shelter residents were eligible to participate except those younger than 19 years of age (the age of majority in Alabama) and those who could not read or understand English. Participants' ages ranged from 19 to 67 ($M = 32.50$, $SD = 8.21$). A majority of the women identified as African American/Black (53%) or Caucasian/White (41%). Most women reported completing some college (40%), completing some high school (23%), graduating high school (16%), or receiving a GED (13%). Fifty-three percent of the women endorsed practicing a religion. A majority reported that prior to shelter entry they were living with their partner (72%), and 53% of the women had children with their partner. The average relationship length with their most recent partner was 5.29 years ($SD = 4.80$). The average number of days women reported having been in shelter at the time of data collection was 9.64 ($SD = 14.21$). The average number of times women reported seeking help for IPV from hospitals, police, and shelters in their most recent relationship were 1.03 ($SD = 2.19$), 3.17 ($SD = 3.71$), and 1.20 ($SD = 0.91$), respectively.

2.2 Procedure

The university's Institutional Review Board approved these procedures. The first author contacted the shelter twice each week to assess whether new potential participants had arrived. If new residents had arrived, two graduate research assistants (all White/Caucasian women) visited the shelter within 24 hours to inform the new residents about the study and the opportunity to participate. After securing written informed consent, research assistants met with each participant privately and administered self-report questionnaires and semi-structured interviews. All participants were given a referral sheet of local mental health resources and compensated with a \$10 gift card.

2.3 Measures

2.3.1 Coercive control—The 32-item Coercive Tactics subscale from the Coercion in Intimate Partner Relationships scale assessed coercive control the participants experienced from their partners in the past year (Dutton et al., 2007). The Coercive Tactics subscale asks respondents to indicate (no = 0, yes = 1) whether they experienced various controlling

threats by their partner. The last item is an open-ended item for the participant to report any other coercive tactics not covered previously and was excluded for the purposes of this study. The total score is the sum of items answered “yes,” with possible scores ranging between 0 and 31. The scale has been found to have good internal consistency ($\alpha = .90$) in large sample of men and women recruited from various sites, including shelters (Dutton et al., 2007) and in the current sample ($\alpha = .88$).

2.3.2 Physical violence—A modified version of the 12-item physical assault victimization subscale of the Revised Conflict Tactics Scale (Straus et al., 1996) assessed physical violence experienced by partners in the past year. The original scale responses range from 0 (never) to 6 (more than 20 times) for each item; however, the scale was revised to a nominal scale ranging from 0 (No) to 1 (Yes) because of potential literacy problems in this population (J. Langhinrichsen-Rohling, personal communication, July 18, 2012). The original scale has shown test-retest reliability in arrested men (Vega & O’Leary, 2007) and construct validity in student samples (Straus et al., 1996). The physical violence scale has shown good internal consistency of the physical violence in prior research ($\alpha = .86$; Straus et al., 1996) and in the present study ($\alpha = .85$).

2.3.3 PTSD symptoms—The total symptom severity score of the 17-item Post-Traumatic Stress Disorder Checklist – Civilian Version (Weathers et al., 1993) assessed past month PTSD symptoms. The scale assesses symptoms associated with “stressful life experiences” that are based on the Diagnostic Statistical Manual-4th Edition (DSM-IV) PTSD criteria. Symptoms are rated on a 5-point Likert scale (1 = “Not at all” to 5 = “Extremely”), with total scores ranging from 17–85. The total scale was used rather than individual subscales (e.g., avoidance/numbing) to reduce the number of mediators in the model. The validity of the PCL-C has been supported, and the internal consistency of the total scale has been found to be good in samples of trauma victims ($\alpha = .94$; Blanchard et al., 1996) and in the present sample ($\alpha = .93$).

2.3.4 Depressive symptoms—The 7-item depression subscale of the Depression Anxiety Stress Scale-21 assessed depressive symptoms experienced over the past week on a 4-point Likert scale (0 = did not apply to me to 3 = applied to me very much; Antony et al., 1998). The total score is multiplied by 2 and thus ranges from 0–42. Notably, the scale consists of cognitive and affective symptoms (e.g., feelings of worthlessness and sad mood, respectively), rather than physiological symptoms of depression (e.g., fatigue). This subscale has shown good validity and excellent internal consistency in a community sample ($\alpha = .97$; Antony et al., 1998) and in the current sample ($\alpha = .90$).

2.3.5 Hopelessness—Hopelessness experienced over the past two weeks was measured using the 20-item Beck Hopelessness Scale (BHS; A. Beck et al., 1974). The items are on a true (1)-false (0) scale, with a total score ranging from 0 to 20. The BHS has been shown to have good validity (A. Beck et al., 1974) and internal consistency in prior help-seeking IPV victims ($\alpha = .94$; Kaslow et al., 1998) and in this sample ($\alpha = .87$).

2.3.6 Suicide ideation—Suicide ideation was measured using the 18-item Modified Scale for Suicidal Ideation (Miller et al., 1986). The scale is a semi-structured interview that

assesses suicide ideation severity over the past two days based on duration, frequency, and intensity of the thoughts, reasons for living/dying, feeling competent/capable to make an attempt, planning, preparation, intent, and suicide-related communication. Item scores range from 0 to 3, with a total score ranging from 0 to 54 (Miller et al., 1986). The scale has shown validity and excellent internal consistency in clinical samples ($\alpha = .94$; Miller et al., 1986; Rudd & Rajab, 1995) and good internal consistency in this study ($\alpha = .92$).

2.3.7 Suicide Attempt History—Suicide attempt history was assessed using the Lifetime-Suicide Attempt Self-Injury Count (L-SASI), a semi-structured interview that assesses the frequency of suicide attempts (Linehan et al., 2006). Suicide attempts were considered self-injurious events with which there was some (nonzero level) intent to die. This measure has shown inter-rater reliability and construct validity in clinical samples (Linehan et al., 2006). The present study transformed the continuous item that assessed suicide attempt frequency into a dichotomous suicide attempt variable given the low sample size ($n = 10$) of multiple attempters.

2.4 Data Analytic Strategy

First, we conducted a power analysis, which determined that a sample size of 49 (power = .70) to 75 participants (power = .90) would detect small-to-moderate effect sizes. Thus, the sample size was sufficient to test the hypotheses. Second, we computed descriptives and frequencies of demographic variables and of suicide ideation and attempts by dichotomizing the original continuous variables into 0 = absence and 1 = presence of the respective construct. Third, we examined whether sociodemographic variables related to suicide ideation using nonparametric correlations (Spearman's Rho) for ordinal demographic variables, t-tests for dichotomous variables, and multivariate analysis of variance for nominal variables. Fourth, nonparametric correlations were used to evaluate the bivariate associations among the study variables, as all the variables were on an ordinal scale.

To test the first hypothesis, partial correlations were computed between each form of IPV with suicide ideation and attempt history while controlling for the other form of IPV, and Fisher's r to z transformations tested the differences between these associations. These correlations were computed using bootstrapping, which makes no assumptions about normality. To test the second hypothesis that depressive symptoms, PTSD symptoms, and hopelessness will mediate the relation between coercive control and suicide ideation and that suicide attempt history would facilitate these associations, we used Hayes' (2013) PROCESS macro. This macro also employs bootstrapping procedures and therefore makes no assumptions about multivariate normality. Model 14 was selected as it tests moderated mediation and allows for multiple mediators in parallel. Coercive control was entered as the independent variable, PTSD symptoms, depressive symptoms, and hopelessness as the mediators, dichotomous suicide attempt history as the moderator, and suicide ideation as the criterion variable.

3. Results

See Table 1 for means, standard deviations, and correlations among study variables. Twenty-eight percent of the sample reported ever having made a suicide attempt (20% one attempt

and 8% multiple attempts). Twenty percent reported experiencing suicide ideation. No demographic variables associated with the study variables and therefore were not controlled for in the multivariate analyses.

Regarding the first hypothesis, partial correlations indicated that suicide ideation was marginally, positively associated with coercive control ($r = .15, p = .08$) but not physical violence ($r = -.014, p = .88$), while controlling for the other form of violence. The magnitudes between the coefficients were not different ($z = 1.58, p = .11$). Neither coercive control ($r = .11, p = .22$) nor physical violence ($r = .02, p = .84$) related to suicide attempt history, and the magnitudes of the coefficients were not different ($z = 0.73, p = .47$).

Regarding the second hypothesis, a preliminary regression indicated no problems with multicollinearity among the predictor variables (tolerance statistics $> .10$). The overall model fit testing moderated mediation for the relation between coercive control and suicide ideation was significant ($R^2 = .39, F_{(8,113)} = 8.96, p < .001$). The direct effect of coercive control on suicide ideation trended toward significance ($B = .15, p = .051$). Moderated mediation was significant for depressive symptoms (index = 0.19; 95% $CI[0.02, 0.52]$), demonstrating that the mediating effect of depressive symptoms on the association between coercive control and suicide ideation was stronger for attempters ($B = 0.21, 95\% CI[0.031, 0.54]$) than for nonattempters ($B = 0.021, 95\% CI[0.006, 0.07]$; See Figure 1). Moderated mediation was not supported for PTSD symptoms ($B = -0.09, p = 0.13$; index = -0.13 ; 95% $CI[-0.35, 0.02]$) or hopelessness ($B = 0.13, p = .65$; index = 0.01; 95% $CI[-0.07, 0.13]$).

The overall model fit for the relation between physical violence and suicide ideation was significant ($R^2 = .42, F_{(8,112)} = 10.32, p < .001$). The direct effect of physical violence on coercive control was not significant ($B = .05, p = .729$). Furthermore, moderated mediation was not for significant for depressive symptoms (index = 0.23; 95% $CI[-0.07, 0.82]$), PTSD symptoms (index = -0.15 ; 95% $CI[-0.47, 0.02]$), or hopelessness (index < 0.01 ; 95% $CI[-0.11, 0.09]$).

4. Discussion

The present study sought to advance the understanding of the IPV-suicide risk link by testing whether coercive control is the primary form of IPV related to suicide ideation and by testing factors thought to explain or modify this association as suggested by fluid vulnerability theory. Results partially supported our hypotheses. Contrary to predictions, the partial correlations of suicide ideation and attempts with coercive control were not stronger than those with physical violence. Furthermore, hopelessness and PTSD symptoms did not mediate the association between coercive control and suicide ideation. Consistent with predictions, depressive symptoms mediated the relation between coercive control and suicide ideation, and suicide attempt history strengthened the association between depressive symptoms and suicide ideation (Rudd, 2000). As expected, no such moderated mediation of psychiatric symptoms and suicide attempts emerged for the relation between physical violence and suicide ideation.

The current findings replicated past work that has demonstrated coercive control as a correlate of suicide ideation (e.g., Cavanaugh et al., 2011; Leiner et al., 2008) while physical violence was not (e.g., Leone, 2011). However, when controlling for physical violence and comparing these partial correlations, coercive control was only marginally associated with suicide ideation. This failure to replicate may be a result of limited power due to a small sample size, as well as due to the strong relation between coercive control and physical violence. Indeed, women experiencing high levels of coercive control are likely to experience co-occurring, severe physical violence (Johnson & Leone, 2005). Physical violence is often used as a tool within controlling relationships (Dutton & Goodman, 2005a); therefore, such overlap makes it difficult to disentangle the unique effects of coercive control on suicide risk. Despite this null finding, multivariate analyses showed that psychiatric symptoms did not mediate the association between physical violence and suicide ideation and suicide attempt history did not moderate the tested mediation, reinforcing suggestions that physical violence may not be primary in promoting suicide risk among shelter-seeking women (Wolford-Clevenger et al., 2016).

In fact, multivariate results supported prior data suggesting that coercive control victimization is key to increased suicide ideation among shelter-seeking women (Leone, 2011; Wolford-Clevenger et al., 2016). Consistent with fluid vulnerability theory, depressive symptoms mediated the relation between coercive control and suicide ideation, and suicide attempt history strengthened the association between depressive symptoms and suicide ideation (Rudd, 2000). This extends past work by examining coercive control and how suicide attempt history relates to current suicide ideation (Leiner et al., 2008). The experience of being coercively controlled may lead to cognitive/emotional experiences of meaninglessness and worthlessness, which in turn generate suicide ideation. In accordance with fluid vulnerability theory, such depressive symptoms may turn to more pernicious, suicidal thoughts among women who have a suicide attempt history given their chronic vulnerability to suicide (Joiner & Rudd, 2000). That is, depressive symptoms may more easily activate suicide ideation among women with prior suicide attempts.

However, hopelessness did not mediate the association between coercive control and suicide ideation, suggesting that when depressive symptoms are accounted for these cognitive/affective states may not be pertinent to shelter-seeking women's risk of suicide ideation. At face value this finding is surprising, as hopelessness is more strongly associated with suicide ideation than depression in clinical samples (A. Beck et al., 1993). Hopelessness has been relatively low in prior shelter-seeking samples (Clements et al., 2004) and in the current sample. Women in violent relationships who are hopeless may not expect that seeking shelter will improve their situation and thus may not present to these settings (Clements et al., 2004). Alternatively, the very act of seeking shelter may bolster hope. Therefore, a low mean of hopelessness may have resulted in its null association with suicide ideation. Additionally, PTSD symptoms did not mediate the relation between coercive control and suicide ideation, potentially due to the heterogeneity of such symptoms. PTSD symptoms consist of several clusters, including intrusion, avoidance/numbing, and hyperarousal (Blanchard et al., 1996). Some symptom clusters (e.g., hyperarousal) may contribute to the suicidal mode more than others (e.g., intrusion symptoms), resulting in a null effect (e.g., Nye & Bell, 2007; Smith et al., in press).

Taken together, these results suggest that symptoms related to a negative view of the self (e.g., depressive symptoms of worthlessness) may contribute more to the suicidal mode than those related to a negative view of the world (e.g., hopelessness and PTSD symptoms of pessimism, distancing from others, traumatic memories) in women seeking shelter from IPV. The present study provides preliminary support for the applicability of fluid vulnerability theory to suicide ideation among shelter-seeking women. Future work testing what additional cognitive-emotional experiences and facilitating modes may increase suicide ideation will advance the understanding and prevention of suicide risk within this population.

4.1 Limitations

First, we used a small convenience sample that consisted of women seeking shelter from IPV, which limited the study's power and generalizability. Further, we did not assess whether women were in different- or same-sex relationships. Second, the use of retrospective, self-report methodology introduces recall inaccuracies, and temporal conclusions cannot be drawn from the present study due to its use of cross-sectional design. Relatedly, psychiatric symptoms that predispose women to suicide ideation (Levine, Bakst, & Rabinowitz, 2010) may have preceded women's victimization by coercive control. Third, women typically participated early in their stay at the shelter. Although, the length of stay in shelter was not associated with the study variables, length of stay may have impacted recall on some of the IPV variables. Fourth, White/Caucasian race of the research assistants may have affected reports made by participants in ethnic minority groups, introducing nonrandom measurement error. African American women may report less distress to White/Caucasian interviewers than to interviewers of the same race (Samples et al., 2014).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- Women seeking shelter from violent relationships are at risk for suicide ideation.
- We tested fluid vulnerability theory in women seeking shelter from IPV.
- Depressive symptoms mediated the coercive control-suicide ideation relation.
- Suicide attempt history facilitated this mediated association.
- No variables mediated the physical violence-suicide ideation relation.

Figure 1. Suicide attempt history moderates the mediating role of depressive symptoms on the coercive control-suicide ideation association. $*p < .05$, $**p < .001$. Dashed lines indicate nonsignificant relations. Note that the relation between depressive symptoms and suicide ideation represents the association while accounting for the interaction between suicide attempt history and depressive symptoms.

Table 1

Means, Standard Deviations, and Correlations of Study Variables

	1	2	3	4	5	6	7
1. Physical violence	-						
2. Coercive control	.54**	-					
3. Depressive symptoms	.09	.20*	-				
4. PTSD symptoms	.32**	.44**	.63**	-			
5. Hopelessness	.04	.13	.41**	.48**	-		
6. Suicide Attempt History	.08	.13	.12	.24**	.17 ^a	-	
7. Suicide Ideation	.08	.21*	.24**	.24**	.12	.16 ^a	-
Mean (<i>SD</i>)	7.60 (3.24)	14.63 (5.77)	14.06 (10.43)	48.11 (17.38)	2.93 (3.31)	2.76 (6.17)	1.77 (5.25)

Note:

**
 $p < .01$;*
 $p < .05$;^a
 $p = .06$;PTSD = posttraumatic stress disorder; Suicide Attempt History: 0 = absence, 1 = presence; *SD* = Standard Deviation; Mean and *SD* for number of suicide attempts reported by attempters are presented under suicide attempt history.