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Role of negative cognitions in PTSD and depression

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ROLE OF NEGATIVE COGNITIONS IN PTSD AND DEPRESSION

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Abstract

This study was conducted to look at common cognitive factors that maintain PTSD and depression in a sample of women who had experienced intimate partner violence (IPV). For this purpose, a path analysis was conducted to study the simultaneous associations of negative thoughts about the self, negative thoughts about the world, and self-blame with continuous ratings of PTSD and depression. The results showed a significant association of negative thoughts about the self with PTSD and depression. The results showed a significant association of negative thoughts about the world with PTSD but not depression. No significant associations were seen for self-blame with either PTSD or depression. The findings suggest that negative thoughts about the self are a common maintaining factor for PTSD and depression. It may benefit to address these thoughts when working with survivors of IPV.

Key words: PTSD, depression, IPV, comorbidity

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Role of negative cognitions in PTSD and depression

Traumatic events can lead to debilitating consequences, such as the development of Posttraumatic Stress Disorder (PTSD; Norris, 1992). Estimates suggest that 9% to 21% of people who experience a trauma develop PTSD (Breslau et al., 1998), a disorder characterized by symptoms of intrusion, hyperarousal, avoidance, and numbing. As well, negative alterations in cognitions and mood were added as an additional symptom cluster with the latest transition of the DSM from DSM IV to DSM V. These symptoms cause significant disruption in the person's daily functioning (American Psychiatric Association [APA], 2013). The APA has recognized PTSD as a mental health consequence specific to traumatic events; however it is common for trauma survivors to show symptoms of other disorders as well (Breslau, Davis, Andreski, & Peterson, 1991; Fan, Zhang, Yang, Mo, & Liu, 2011; Green, Lindy, Grace, & Leonard 1992; Keane & Wolfe, 1990; Mayou, Bryant & Ehlers, 2001). For instance, 30% to 50% of people diagnosed with PTSD have also been diagnosed with depression (Creamer, Burgess, & McFarlane, 2001; Kessler, Berglund et al., 2005), which is the most commonly co-occurring disorder with PTSD (McFarlane, & Papay, 1992; Roszell, McFall, & Malas, 1991). These high rates of comorbidity draw attention to the possibility that there may be common factors which undergird both these disorders. In this study, three types of negative cognitions were examined as potential common factors that could be associated with both depression and PTSD in survivors of intimate partner violence (IPV).

When considering depression, this condition is characterized by two weeks of some of the following symptoms: sadness, hopelessness, difficulty concentrating, difficulty sleeping, fatigue, loss of interest, and excessive guilt (APA, 2013). Research indicates that the presence of comorbidity results in poor mental health consequences. When compared with a single diagnosis

of either depression or PTSD, people with co-occurring PTSD and depression showed significantly worse mental and physical quality of life (Nickerson, Schick, Schnyder, Bryant, & Morina, 2017). This could be because severity of PTSD and depression symptoms are higher in comorbid cases of depression and PTSD as opposed to when there is a single diagnosis of PTSD (Nixon, Resick, & Nishith, 2004; Taft, Resick, Watkins, & Panuzio, 2009).

Past research has indicated various possible reasons for comorbidity. Breslau, Davis, Peterson, and Schultz (2000) indicated in their study that PTSD increases the chances for developing Major Depressive Disorder (MDD). They suggested that MDD was not associated with trauma exposure but rather with PTSD, as the chances for developing MDD significantly increased when there was a diagnosis of PTSD as compared to when there was trauma exposure but no diagnosis of PTSD. Some studies indicate that preexisting MDD increases the likelihood for trauma exposure, as well as increases a person's chances of developing PTSD (Breslau et. al., 2000, Breslau, Davis, Peterson, & Schultz, 1997). In a thoughtful review, Stander, Thomsen, and Highfill-McRoy (2014) suggested that PTSD may be a causal factor for major depressive disorder (MDD) but the relationship between PTSD and MDD is likely to be bidirectional and may involve common risk and vulnerability factors.

A review of literature suggests that there are several shared risk factors associated with comorbid PTSD and depression. Some of these factors are event severity, history of childhood trauma, familial history of depression, life stressors, female gender, and psychiatric history including pre-trauma anxiety or depressive disorders (Bremmer, Southwick, Johnson, Yehuda, & Charney 1993; Breslau et. al., 1997, 2000; Kaltman, Green, Mete, Shara, & Miranda, 2010; Nixon et. al., 2004; O'Donnell, Creamer, & Pattison, 2004). Expanding on the knowledge of

common vulnerability factors to PTSD and depression, Ehring, Ehlers, and Glucksman (2008) examined the role of cognitions in PTSD and depression. They tested whether cognitive variables predict PTSD and depression above and beyond the variables that had already been established in the literature as predictors; these variables included number of past traumas, past emotional problems, perceived life threat during the trauma, post trauma social support, peritraumatic emotional responses, and peritraumatic dissociation, years of education and initial symptom severity of PTSD and depression. Their findings suggested that cognitive variables based on the theoretical models of PTSD and depression were better predictors of the disorders. Similarly, DePrince, Chu, and Pineda (2011) found in their study that cognitive appraisals of the trauma predicted post-traumatic stress above and beyond variables describing characteristics of the trauma.

As per past research, common mechanisms that maintain PTSD and depression include overgeneralized autobiographical memories (Harvey, Bryant, & Dang, 1998; Kuyken & Dalgleish, 1995), rumination (Michael, Halligan, Clark, & Ehlers, 2007; Nolen-Hoeksema, 2000; Roley et al., 2015), and negative cognitions. (e.g., Dunmore, Clark, & Ehlers, 2001; Ehring et al., 2008). Some recent studies have focused on the role of negative cognitions in PTSD and depression (e.g., Dunmore et al., 2001; Ehring et al., 2008). With reference to comorbid presentation, studies indicate that trauma survivors diagnosed with comorbid PTSD and depression report higher maladaptive beliefs regarding failure, social undesirability, and defectiveness than the PTSD or MDD group alone (Nixon, et al., 2004).

Several cognitive theorists of PTSD and depression have highlighted the importance of negative appraisals in the development of psychopathology. In their cognitive model of PTSD, Ehlers and Clark (2000) suggested that negative cognitions regarding the self, negative

cognitions regarding the world, and self-blame play a significant role in the development of PTSD. Other cognitive models also indicate that exposure to trauma shatters a person's previous assumptions and leads to a negative thinking style regarding personal vulnerabilities, self-esteem, and meaningfulness of the world (Janoff-Bulman, 1985; Janoff-Bulman, 1992). Similarly, cognitive models of depression emphasize that a cognitive thinking style characterized by a negative view about the self, the world, and the future, plays a crucial role in the development of depression (A.T. Beck, 1967; A.T. Beck, Rush, Shaw, & Emery, 1979). Though cognitive theories suggest content specificity (A.T. Beck, Riskind, Brown, & Steer, 1988), similarities in cognitive thinking styles for both these disorders are prominent.

Taking guidance from previous research and similarities in cognitive models for depression and PTSD, in this study we investigated the association of three forms of negative cognition: negative cognitions about the self, negative cognitions about the world, and self-blame, with continuous ratings of depression and PTSD in female trauma survivors of IPV. Survivors of this type of interpersonal trauma show high rates of PTSD and depression, with 49% of the sample depicting comorbidity (Nixon et. al., 2004). IPV is a widespread social issue, which includes exposure to physical, emotional, or sexual abuse by a romantic partner (Tjaden & Thoennes, 2000). Such a trauma can put the person's beliefs regarding the self and world at risk because the person may have experienced helplessness at the hands of a perpetrator with whom she was romantically intimate (Kaufman, Allbaugh, & Wright, 2018). Previously J. G. Beck, Jones, Reich, Woodward and Cody (2015) examined whether these three forms of post traumatic cognitions had simultaneous associations with PTSD and Generalized Anxiety Disorder (GAD) in an IPV as well as Motor Vehicle Accident (MVA) sample. The results of their study showed that negative cognitions about the self were linked to both PTSD and GAD; furthermore, the IPV

sample showed higher levels of negative cognitions about the self, negative cognitions about the world and self-blame as compared to the MVA sample.

In this study we expanded on the findings by J. G. Beck and colleagues (2015) by applying the model to test whether the three types of post trauma cognitions have an association with PTSD and depression. Simultaneous associations for negative cognitions about the self, negative cognitions about the word, and self-blame with interviewer ratings of PTSD and depression were studied to see how cognitions were associated with disorders at the full range of symptomology instead of only at clinical levels (J. G. Beck et al., 2015). Taking into consideration the addition of the negative changes in cognitions and emotions cluster in Diagnostic and Statistical Manual of Mental Disorders -5, we adopted Diagnostic and Statistical Manual of Mental Disorders IV (DSM IV) criteria for PTSD and depression ratings, to avoid results that are just an artifact of the similarity between post traumatic cognitions and this new cluster.

Based on previous research and cognitive theories of depression and PTSD, one hypothesis for this study was that negative post trauma cognitions about the self would be associated with both PTSD and depression. Additionally, we hypothesized that negative post trauma cognitions about the world would be associated with both PTSD and depression. No hypothesis was formed regarding association of self-blame with PTSD and depression, as this research question was considered exploratory in nature.

Method

Participants

Participants were selected from a bigger pool of N=527 female survivors of IPV who sought help from a mental health research clinic. These participants were recruited through health fairs, college campuses, and community outreach. Inclusion criteria for this report was exposure to IPV, a minimum age of 18 years, female, and the presence of Criterion A for PTSD, which states that the person must have had exposure to a traumatic event such as death, threatened death, actual or threatened serious injury, or threat to physical integrity (American Psychiatric Association, 2000). Sixty-five participants were removed from the subject pool because they were still involved with the abuser at the time of assessment, Twenty-four participants were removed due to not having met Criterion A. An additional 13 participants were removed due to low MOCA scores, indicative of low cognitive functioning; 13 were removed as they showed symptoms of psychosis; 3 were removed as their experience didn't meet the definition of IPV; 9 were removed due to inconsistent reporting; and 1 was removed as she was too distressed to complete the assessment. From the remaining 399 participants, 74 dropped from the study before they could complete the interview and questionnaires needed for data on the variables included in this study. Further, 64 participants dropped before they could complete questionnaires needed for the exogenous variable and 13 participants dropped before they could complete the interview needed for the control variable. Little's MCAR test was done to assess the missing data pattern; the results of the test showed that the data was missing completely at random ($\chi 2$ (6, N=399) = 4.26, p = .642). The data for these participants were handled through listwise deletion. After further excluding these participants, the final sample included *N*= 248 participants. The mean age for the participants in the study was 37 years (*SD*=12.76), with a

range from 18 years to 75 years. Other demographic information of the participants is listed in Table 1. The participants in this study were drawn from the same research clinic as used by J. G. Beck and colleagues (2015).

Measures

Domestic violence interview (DVI). The DVI is a semi structured interview that was used to note exposure to the types of traumatic abuse experienced. The DVI was modelled after a similar interview developed by Blanchard and Hickling (2004). The DVI assesses the presence of physical, emotional, and sexual abuse from the most recent and worst abusive relationship. This instrument also assesses levels of fear, helplessness, and the perception that the individual would die, using a scale from 0 to 100 where 0 = *not at all* and 100 = *extreme*. These responses to the trauma are measured in order to determine if the trauma meets for criterion A (American Psychiatric Association, 2000). Similar to other works, a score of 50 or higher on one of these questions was used to decide if the IPV was traumatic (Beck et. al., 2014).

Clinician-administered PTSD scale. (CAPS: Blake et al., 1990) is used to measure symptoms of PTSD according to DSM-IV and DSM-V criteria. Each question on the CAPS inquires about the frequency and intensity of a symptom. The frequency is rated on a 5-point scale from 0 = *Never* to 4 = *Occurs every day* and the intensity is rated on a scale from 0 = *No Distress* to 4 = *Extreme distress*. The scores on the frequency and intensity scales are summed to compute the total CAPS score. The total score on the CAPS-IV can range between 0 and 136. PTSD symptoms stemming from other non-interpersonal traumas were assessed by probing and were not counted towards the CAPS total for interpersonal traumas.

The CAPS was administered by trained graduate and PhD-level clinicians and the interviews were recorded. A sample of 31 % of the cases were randomly selected for inter-rater

agreement. The intraclass coefficient for the CAPS total score was = .98. The CAPS has proven excellent reliability and validity in the past, with reliability coefficients ranging from .73 to .98 (Weathers, Keane & Davidson, 2001).

Anxiety Disorder Interview Schedule. (ADIS: DiNardo, Brown, & Barlow, 1994). Depression was assessed through the ADIS, a semi-structured interview designed to assess anxiety, mood, and substance use disorders. The depression variable was computed by taking the highest rating from among depression and dysthymia. The participants were given a clinical severity rating based on their reported functional interference and subjective distress caused by the symptoms of the disorder. The clinical severity rating ranges from 0 = *none* to 8 = *very severely disturbing*. The ADIS has shown a reliability of α = .69 in the past (Brown, DiNardo, Lehman, & Campbell, 2001). Similar to the procedure for the CAPS-IV, 31% of the cases were randomly selected and inter-rater reliability was calculated. The intraclass correlation coefficient for depression for this sample was .88. The intra class correlation coefficient for dysthymia was .83.

Other mood, anxiety and substance related disorders were also assessed and controlled for in the analysis. These disorders included; panic disorder, panic disorder with agoraphobia, agoraphobia, social phobia, GAD, obsessive compulsive disorder, specific phobias, bipolar disorder, hypochondriasis, somatization disorder, mixed anxiety disorder, ethanol abuse disorder, ethanol dependence disorder, drug abuse disorder, drug dependence disorder. Disorders with a clinical severity rating of 4 or above were counted as an additional diagnosis.

Posttraumatic Cognition Inventory. (PTCI: Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) was used to measure negative cognitions after IPV. The PTCI consists of 33 items which are divided into 3 subscales; 21 items measure *negative cognitions about self*, 7 items assess

negative cognitions about the world, and 5 items assess *self-blame*. The PTCI is rated on a scale from 1 = *totally disagree* to 7 = *totally agree*. The PTCI has shown good internal consistency in the past: self-subscale: α = .97, world subscale: α = .88, self-blame subscale: α = .86. It has good convergent validity with other scales measuring trauma cognitions and has sensitivity and specificity values of .78 and .93 in its ability to differentiate individuals with and without PTSD (Foa et al., 1999). Internal consistencies for the sample in the current study were: self-subscale: α = .95, world subscale: α = .89, self-blame subscale: α = .80.

Montreal Cognitive Assessment (MOCA; Nasreddine et al., 2005) was administered to assess cognitive impairment. The MOCA is an interviewer-administered test used to screen for executive function including visuospatial abilities, memory, and orientation. A cut off score of 19 was used for screening participants in this study (Waldron & Axelrod, 2012). The MOCA has a test retest reliability of .92 and internal consistency of α = .83.

Procedure

The study was approved by The Institutional Review Board. The data collection began in late 2008 and is still ongoing. Participants were initially screened on the phone and considered eligible for the study if they mentioned experiencing IPV and described mental health issues. Once the participants were considered eligible for the study, they were assigned to a trained graduate or Phd level student. The participants were assessed individually. At the beginning of the assessment the woman provided informed consent and then completed some questionnaires after which they were interviewed with the DVI, CAPS, and ADIS. The assessment was completed over 3-4 sessions on average and another packet of questionnaires which included the PTCI was typically administered towards the end. The sessions were followed by a feedback

appointment in which the results of the assessment were conveyed and referrals to treatment were provided if needed.

Data Analytic plan

Prior to the analysis, data screening procedures were conducted using IBM SPSS Statistics Version 25. Data were screened for univariate and multivariate outliers based on guidelines by Tabachnick and Fidell (2007); the data showed no outliers on any variable except the covariate (total number of other diagnoses): Three cases met the criteria for a univariate outlier, but were retained because they were considered valid data. There were no multivariate outliers. The data were screened for evidence of non-normality by examining skewness and kurtosis, as well as by visually inspecting the histograms. All variables in the data set were normally distributed except the variable depression and total number of other diagnosis, which had a high concentration of people with a score of 0. Bivariate correlations between all model variables were run to assess for multicollinearity; there were no correlations of above .90 (Tabachinick & Fidell, 2007; see Table 2). From the 248 participants in the dataset, there were missing data on 3 cases for the CAPS total variable. The missing data for these participants were handled through full information maximum likelihood method (FIML) in M plus.

Path analysis was used to assess the simultaneous association between negative self, negative world, and self-blame cognitions to continuous PTSD severity and depression severity using Mplus software, version 8. The model is just-identified so model fit was not assessed. Path coefficients were computed between each negative posttraumatic cognition subscale (i.e., negative thoughts about the self, negative thoughts about the world, and self-blame) and PTSD severity. Similarly, path coefficients were computed between each negative posttraumatic cognition subscale (i.e., negative thoughts about the self, negative thoughts about the world, and

self-blame) and depression severity. Number of additional diagnoses were controlled in the analysis. Path coefficients were interpreted according to the guidelines provided by Kline (2016). Coefficients of .10 are considered small, .30 are considered medium and .50 are considered large effect sizes.

Results

The results of the analysis showed a R square value of 0.25 for PTSD and 0.32 for depression. This shows that the model accounts for 25% variance in PTSD and 32% variance in depression. The estimates of the path coefficients showed a significant direct association between negative thoughts about the self with PTSD ($B = 4.36$, $\beta = .29$, $p = .001$) and depression ($B = .96$, $\beta = .56$, $p < .001$). These results show that with one unit increase in negative cognitions about the self, there is a 4.36 unit increase in PTSD and .96 unit increase in depression. The effect size for the association between negative thoughts about the self and PTSD are medium in size and the size of the association between negative thoughts about the self and depression are large. The results of the path coefficients for negative thoughts about the world and PTSD were significant ($B = 2.78$, $\beta = .18$, $p = .010$), however no significant findings were seen between negative thoughts about the world with depression ($B = -.03$, $\beta = -.02$, $p = .777$). These results show that with 1 unit increase in negative cognitions about the world, there is a 2.78 unit increase in PTSD. The path coefficient for negative thoughts about the world with PTSD was small in size. No significant findings were seen for self-blame with PTSD ($B = .07$, $\beta = .01$, $p = .943$) or depression ($B = -.07$, $\beta = -.05$, $p = .479$). See Figure 1 for further details on estimates of the model.

Discussion

This study assessed the simultaneous associations of negative thoughts about the self, negative thoughts about the world, and self-blame, with PTSD and depression. The first hypothesis of the study was that negative thoughts about the self would be significantly associated with both PTSD and depression. The results of our study were consistent with this hypothesis and showed significant positive associations of negative thoughts about the self with PTSD as well as depression. The second hypothesis was that negative thoughts about the world would be significantly associated with both PTSD and depression. This hypothesis was partially supported as the findings of the study showed a significant positive association of negative thoughts about the world with PTSD but no significant association was seen with depression. The third hypothesis of the study was exploratory and aimed to test whether self-blame would have a positive significant association with both PTSD and depression. The results of this analysis showed that there were no significant associations of self-blame with either PTSD or depression.

The results of the study suggest that negative thoughts about the self were significantly associated with both PTSD and depression. In the previous study by Beck and colleagues (2015), negative thoughts about the self also showed significant simultaneous associations with both PTSD and GAD. The results of the current study further add to these previous findings and highlight the salience of negative thoughts about the self in association with comorbid psychopathology. Though not studied simultaneously with PTSD and depression, previous studies have shown the importance of negative thoughts about the self on depression severity in a female sample of childhood sexual abuse survivors with comorbid PTSD and depression. (De Petrillo, 2012). Several other studies have also shown links of negative thoughts about the self

with PTSD (Dunmore et. al., 2001) and depression (Tang, Deng, Du, & Wang, 2018). These findings match the theoretical framework of PTSD (Ehlers & Clark, 2000; Janoff-Bulman, 1985; Janoff-Bulman, 1992) and depression (A.T. Beck, 1967; A.T. Beck et. al., 1979). Both these theories have indicated maladaptive thoughts about the self as one of the factors leading to psychopathology. Negative thoughts about the self following trauma are linked to feelings of incompetency; such feelings may prove harmful for a person as they may hinder self-protective actions and social interactions (Beck, Jacobs-Lentz, Jones, Olsen, & Clapp, 2014). It is possible that feelings of incompetency (which underlie negative thoughts about the self) are a mediating mechanism, which helps to maintain both PTSD and depression.

The results also showed that negative thoughts about the world were only significantly associated with PTSD but not depression. Again, studies that looked at PTSD and depression as outcomes in the same model have not been conducted but the partial finding of the study that suggested negative thoughts about the world as a significant predictor of PTSD map on to a previous study that showed negative world assumptions as a mediator between IPV exposure and PTSD (Lilly, Howell & Graham-Bermann, 2015). However, the findings of the current study also contradict other studies looking at both IPV and undergraduate samples, which showed a significant association between negative thoughts about the world with depression but not PTSD when entered together in a model with attachment style and emotions dysregulation (Lilly & Lim, 2013). Significant associations between negative thoughts about the world and depression have been seen in other studies as well, which showed negative world cognitions were a mediator between trauma exposure and depression (Lilly, Valdez, & Graham-Bermann, 2011). According to current theories of trauma, negative thoughts about the world should be linked to PTSD (Ehlers & Clark, 2000; Janoff-Bulman, 1985; Janoff-Bulman, 1992); however considering

the theoretical framework of depression, these thoughts should have been linked to depression as well (A.T. Beck, 1967; A.T. Beck et. al., 1979). The results of the current study indicated that negative thoughts about the world were a significant predictor of PTSD but not depression when examined in the same model. This further extends our findings of the previous study by J. G. Beck and colleagues (2015) by showing that in addition to GAD, negative thoughts about the world are not a predictor of depression either when studied together with PTSD. It could be possible that the link between negative thoughts about the world with depression diminishes when the effects for negative thoughts about the self are controlled. For instance, negative post trauma cognitions may be linked to adaptive as well as maladaptive behaviors (Beck et. al., 2014), such that negative thoughts about the world that are linked to injustice may promote anger in survivors of trauma who have PTSD (Chemtob, Novaco, Hamada, Gross, & Smith, 1997). On the other hand, similar cognitions may lead to behavioral activation (Beck et. al., 2014) which is a buffer against depression. It is possible that the link between negative thoughts about the world and depression occurs via perceptions of helplessness, which prevent a person from taking action.

The results of the study did not show any significant associations of self-blame with either PTSD or depression. Findings regarding self-blame have been inconsistent in the literature. Other studies have not looked at depression and PTSD together in a model but separate analysis for both these outcomes have shown significant positive association of self-blame with depression but no significant association with PTSD (DePrince, Chu, & Pineda, 2011). However, when studied using latent profile analysis of PTSD symptoms in female survivors of IPV, the results revealed 5 latent profiles (low symptoms, low symptoms with high hypervigilance, intermediate symptoms, intermediate symptoms with high hypervigilance, and high symptoms)

and self-blame was a predictor of these profiles (Hebenstreit, Maguen, Koo, & DePrince, 2015). In this study, women with higher self-blame were more likely to be in latent profiles characteristic of low overall PTSD symptoms but higher hyperarousal and startle symptoms or latent profiles characteristic of more re-experiencing and avoidance symptoms. Future studies employing different methods of assessing self-blame should be conducted in order to dissect the association with PTSD and depression.

The results of the study suggest that it may be helpful to target negative thoughts about the self as an early intervention factor following IPV. Future studies should be conducted to test if targeting these thoughts could be an effective prevention method against negative trauma consequences. The results also have implications for combined treatment of PTSD and depression following IPV, suggesting that interventions which target negative thoughts about the self hold a promise for reducing symptoms of both conditions. Furthermore, the results of the study can be used to help educate the public and agencies to encourage healthy communication when dealing with IPV survivors. It is important because negative reactions after disclosing IPV may heighten negative appraisals in a survivor as well as cause the survivor to stop disclosing about the IPV (Ahrens, 2006; Ullman, Townsend, Filipas, & Starzynski, 2007). This may block them from seeking treatment, as well prevent them from accessing positive social support which is a buffer against negative cognitions (Tang et al., 2018; Zhen, Quan, & Zhou, 2018).

Some limitations of the study include the use of cross sectional data so causal inferences cannot be made. Future studies using a longitudinal design should be conducted. Another limitation of the study is that the sample included only female participants. These results cannot be generalized to male samples as previous research has shown that women report more PTSD symptoms, depression, negative posttraumatic cognitions about the self and world than men.

Furthermore, the study included a help seeking sample that volunteered to participate in the study. Findings cannot be generalized to community populations, who may have less severe post traumatic distress. The study also included observed variables only to measure the constructs which may limit the reliability and validity of measurement. Future studies using latent variables of these constructs should be conducted.

In conclusion, the findings of the study showed that negative post trauma cognitions about the self were significantly associated with both PTSD and depression. Future studies should be conducted testing other cognitive factors, such as rumination and helplessness, which may contribute to both conditions. Such knowledge may benefit in improving combined treatments for PTSD and depression. In addition, future studies should also test the role of negative cognitions about the self with other forms of comorbid disorders with PTSD. Furthermore, it may be worthwhile to test for factors that may mediate the relationship of negative cognitions about the self with PTSD and depression.

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Table 1.

Demographic information of the sample

	n	**%**
Race		
African American	87	35.1
Caucasian	138	55.6
Hispanic	3	1.2
Asian	3	1.2
Other	14	5.6
Missing	3	1.2
Total	248	100.0
Education level		
Elementary	2	.8
High School	30	12.1
Some college	107	43.1
2-year degree	22	8.9
4-year college	41	16.5
Some graduate	10	4.0
2-year advanced	21	8.5
Grad	14	5.6
Missing	1	.4
Total	248	100.0
Marital status		
Married	31	12.5
Single	87	35.1
Cohabitating	16	6.5
Separated	44	17.7
Divorced	65	26.2
Widowed	5	2.0
Total	248	100.0
Employed		
Full time	70	28.2
Part time	80	32.3
Unemployed	67	27.0
Homemaker	11	4.4
Disability	11	4.4
Retired	5	2.0
Missing	4	1.6
Total	248	100.0

Table 1 (Continued)

	n	**%**
Household income		
below 10,000	93	23.3
10-20,000	95	23.8
30-40,000	34	8.5
40-50,000	28	7.0
50-60,000	16	4.0
60-70,000	22	5.5
Over 70,000	30	7.5
Missing	39	9.8
Total	399	100.0

Table 2.

Correlation, Means, Standard deviations, Range and sample size

	1	2	3	4	5	*M*	*SD*	Range	*n*
PTSD	-					30.64	21.41	0-83	245
Self	.45**	-				3.28	1.41	1-6.62	248
World	.39**	.60**	-			4.92	1.38	1-7	248
Self-blame	.30**	.62**	.40**	-		3.62	1.59	1-7	248
Depression	.31**	.56**	.32**	.32**	-	2.52	2.41	0-7	248

Note. PTSD = CAPS IV Post traumatic stress disorder, total score: Self = PTCI negative thoughts about the self subscale: World = PTCI negative thoughts about the world subscale: Self-blame = PTCI self-blame subscale: Depression = highest clinical severity rating from among depression and dysthymia.
**p<.001.

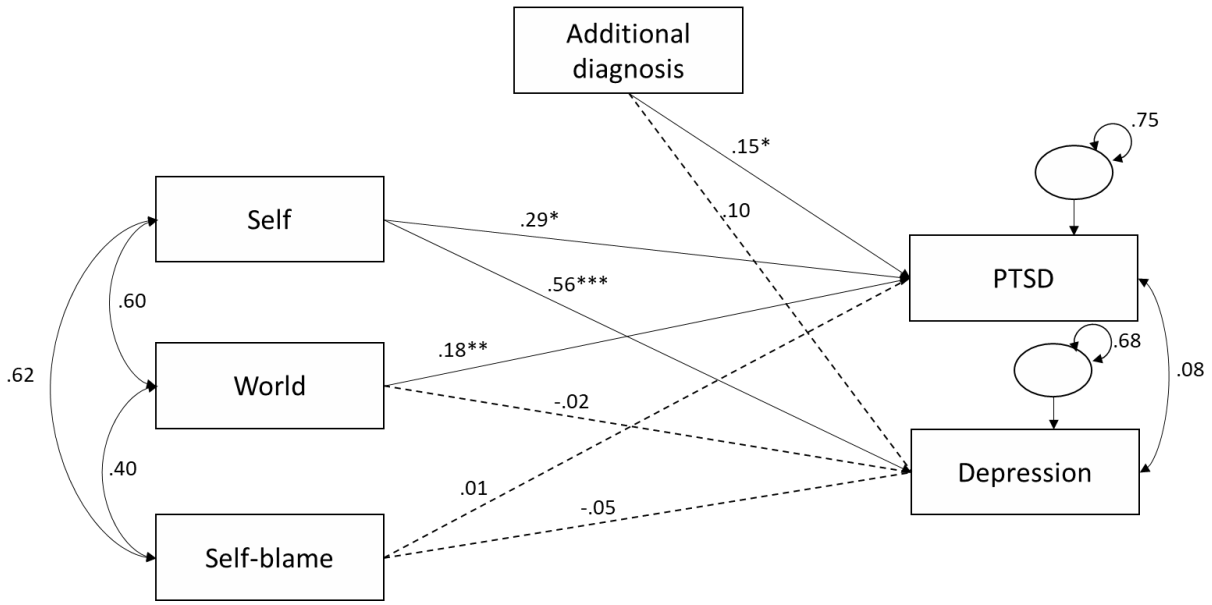

Figure 1. Path diagram showing standardized associations of negative post traumatic cognitions on PTSD and depression. Notes: PTSD = CAPS IV Post traumatic stress disorder, total score: Self = PTCI negative thoughts about the self-subscale: World = PTCI negative thoughts about the world subscale: Self-blame = PTCI self-blame subscale: Depression = highest clinical severity rating from among depression and dysthymia. Dotted lines represent non-significant paths ($p > .05$). Solid lines represent significant paths *$p < .05$, **$p < .01$, ***$p < .001$.