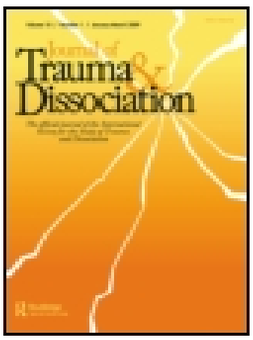

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The Relationship Between Experiential Avoidance and Posttraumatic Stress Symptoms: A Moderated Mediation Model Involving Dissociation, Guilt, and Gender

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ABSTRACT

Experiential avoidance, dissociation, and guilt have been shown to be associated with trauma exposure and to play an important role in explaining the development and maintenance of posttraumatic stress symptoms. However, there is a lack of studies that simultaneously address the relationship between these variables, which has never been studied within the framework of emotional processing theory. Furthermore, gender differences in traumatic victimization, posttraumatic stress symptoms, experiential avoidance, dissociation, and guilt have also been reported. Therefore, this study had a double aim: a) to assess the mediating roles of dissociation and guilt in the relationship between experiential avoidance and posttraumatic stress symptoms; and b) to investigate whether gender moderates any such relationship. The final sample comprised 683 undergraduate students (150 men and 533 women) with a history of exposure to traumatic events and with posttraumatic stress symptoms. Mediation and moderated mediation analyses were conducted. Dissociation and guilt independently mediated the association between experiential avoidance and posttraumatic stress symptoms: however, this mediation effect was not moderated by gender. The findings suggest that interventions aimed at controlling psychological variables linked to PTSD (i.e. experiential avoidance, dissociation, and guilt) may be of help to both men and women.

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PTSD; experiential avoidance; dissociation; guilt; gender

Several studies have demonstrated that, following trauma exposure, some variables can play an important role in explaining the development of posttraumatic stress symptoms (PTSS) (Maack et al., 2012). As suggested by emotional processing theory (Foa & Kozak, 1986), individuals differ in their ability to successfully recover from a traumatic event. This ability may be related to different factors, such as emotional engagement (i.e. the activation of

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fear in the face of a stimulus which evokes the traumatic situation), negative trauma-related cognitions (i.e. about oneself or about the world), and the coherence of the trauma narrative (Foa, 1997). The theory suggests that poor trauma recovery is related to the non-confrontation of trauma-related stimuli and the avoidance of trauma memories and reminders, a lack of emotional engagement aimed at avoiding emotions related to the traumatic situation, and severe negative cognitions (Foa et al., 2006). These three factors could be explained by variables such as experiential avoidance, dissociation, and guilt, respectively.

Experiential avoidance (EA) is a broad construct characterized by the reluctance to remain in contact with private emotions, sensations, thoughts, or memories, and the actions directed to alter the events that elicit them (Hayes et al., 1996). EA is thought to be crucial to the development and maintenance of psychopathology (Hayes et al., 1999), and has therefore been posited as an underlying variable in various psychological disorders (Berman et al., 2010). In the specific field of PTSS research, Kumpula et al. (2011) conducted a prospective study using a sample of undergraduate women in which EA was measured before the traumatic event (a campus shooting), showing that this variable promotes PTSS. Likewise, Meyer et al. (2013) conducted a study using a sample of War Veterans (84% male) and found that after controlling for the posttraumatic stress avoidance symptoms, among other variables, EA scores continued to account for unique variance in the severity of PTSS. The aforementioned findings suggest that EA is a dispositional variable in the development of PTSS and not merely a maintaining variable of this disorder.

It has been shown that EA scores are higher among women than among men (Karekla & Panayiotou, 2011): however, a significant association has been found between EA and PTSS severity scores in women (Palm & Follette, 2011) and in men (Tull et al., 2007). Nevertheless. Gold et al. (2011) found that EA did not mediate childhood trauma and PTSS in a sample of men.

Dissociation is another variable that has been linked to PTSS (Blevins et al., 2014). It is considered to be a strategy oriented at self-protection in response to threat, and forms part of all trauma-related conditions (Şar, 2014). Previous empirical research has shown that trait or persistent dissociation is a strong predictor of PTSS (Briere et al., 2005). Moreover, it has been recently suggested that dissociation should be quantified to facilitate the search for effective PTSS treatment (Wolf et al., 2016). However, the results of studies on the association between gender differences and this variable remain inconclusive. Stein et al. (2013) found that men had higher dissociative symptoms scores than women, whereas Lipsanen et al. (2000) found that women had higher scores on this variable.

The DSM-IV (American Psychological Association, 2000) states that in addition to emotional reactions involving fear, helplessness, or horror,

traumatic events can elicit other emotions, including guilt (e.g., Lee et al., 2001). In addition, the DSM-5 diagnostic criteria for PTSD (American Psychiatric Association, 2013) suggest that individuals could develop trauma-related guilt (an unpleasant feeling in addition to beliefs that one should have thought, felt, or acted in a different way) after traumatic events. In fact, guilt has been associated with traumatic experiences and the severity of posttraumatic symptoms (e.g., Stotz et al., 2015). It has been suggested that cognitive therapy for guilt can be a valuable supplement in the treatment of PTSD (Stapleton et al., 2006), although recent findings have shown that higher guilt cognitions predicted lower post-treatment PTSD severity (Clifton et al., 2017). A meta-analysis of gender differences on this variable found that women had higher scores on guilt than men (Else-Quest et al., 2012).

Research on the association between EA and dissociation or guilt is scarce and, as far as we know, their relationship has never been studied within the framework of emotional processing theory. Nevertheless, some studies have suggested that EA could be considered a diathesis or an antecedent variable of dissociation and guilt. Kumpula et al. (2011) studied a sample of college women and found that pre-shooting EA predicted reports of peritraumatic dissociation. Similarly, Rüsh et al. (2007) found an association between higher EA scores and increased levels of guilt. Taken together, these findings suggest that there is an association between EA, dissociation, and guilt and PTSS. To the best of our knowledge, no studies have considered all these variables simultaneously.

Based on this perspective, this study had a double aim. Firstly, to investigate the direct and indirect effects of EA, dissociation, and guilt on PTSS. Secondly, to assess whether gender could moderate any such associations. Specifically, we used a moderated mediation model to answer the following questions: (1) Do dissociation and guilt mediate the association between EA and PTSS?; and (2) Does gender moderate any such mediating effects? The empirical results of the moderated mediation model could also contribute to support the application of emotional processing theory to PTSS.

Method

Participants and procedure

A total of 903 participants were assessed. The sample consisted of university students following different degrees. Inclusion criteria were being of legal age and having a history of lifetime trauma exposure. Thus, the following participants were excluded from data analyses: a) 98 individuals who had never been exposed to traumatic situations; b) 119 individuals who reported having been exposed to one event but who did not specify the type; and c) 3 participants who were multivariate outliers. The final sample comprised 683 university students: 533 women (87.5%) and 150 men (12.5%). The mean age was

22.25 years (*SD* = 5.17) for the total sample, 21.9 years (*SD* = 4.5) for the sample of women, and 23.50 years (*SD* = 6.92) for the sample of men.

The study complied with the Declaration of Helsinki and received institutional review board approval at the [redacted for peer review]. The research protocol was developed online using an open source software survey tool (LimeSurvey 2.0, PHPSurveyor). After explaining the study to the students and made clear that they would receive credit for their participation, they were asked to voluntarily participate in the survey. They accessed the online protocol via a specific link that was provided by the research team to prevent misuse of the survey. The survey showed on the first screen the informed consent that participants had to accept in order to continue answering the research protocol questions.

Measures

Participants were asked to provide information on age, gender, marital status, university degree, and year of studies. Subsequently, they completed the following battery of measures in the order presented below.

Exposure to past traumatic events

The Spanish Version of the Stressful Life Event Screening Questionnaire-Revised (SLESQ-R; Ruiz-Párraga & López-Martínez, 2015) was used. An open item provided participants with the opportunity to provide further information on other traumatic life events. If the participants reported more than one traumatic event, they were asked to nominate the most distressing life event for the subsequent investigation into PTSS.

Experiential avoidance

EA was assessed using the Spanish Version of the 7-item Acceptance and Action Questionnaire-II (AAQ-II; Ruiz et al., 2013). The AAQ-II showed good internal consistency for the sample used in the present study (Cronbach's alpha = .90).

Dissociative experiences

Dissociation was assessed using the Spanish version of the abbreviated scale of the Dissociative Experiences Scale-Modified (DES-M; Montes et al., 2011). The reliability for the sample used in the present study was good (Cronbach's alpha = .86).

Guilt

Guilt was assessed using the trait guilt subscale of the Guilt Inventory (Kugler & Jones, 1992). The English version was translated into Spanish using

a forward and backward translation procedure. The trait guilt subscale used in the present study showed high reliability (Cronbach´s alpha = .91).

Posttraumatic stress symptoms

At the time of the present study (2020), there was no validated Spanish version of the instrument based on DSM-5 criteria. Thus, PTSS were assessed using the Spanish version of the Posttraumatic Stress Disorder Checklist-Civilian Version (PCL-C; Orlando & Marshall, 2002). The PCL-C is one of the most widely used self-report instruments for the assessment of PTSD symptoms in both research and clinical settings and has satisfactory psychometric properties (McDonald & Calhoun, 2010). The overall scale score alone was used in this study. The total scale showed good reliability for the sample used in the present study (Cronbach´s alpha = .94).

Statistical Analyses

Statistical analyses were conducted using IBM SPSS for Windows, version 22.0. In an initial step, data were examined for incomplete responses regarding the traumatic event. For this reason, 119 participants were excluded because they did not specify the type of trauma that they had experienced. No data were missing, because the open source software survey tool (LimeSurvey) that was used does not allow the respondent to continue if a question has been left blank. The within-groups Mahalanobis distance showed that there were 3 multivariate outliers (Mahalanobis distance $p < .001$; Tabachnick & Fidell, 2007). The assumptions of normality and homoscedasticity were confirmed. We also evaluated the predictors for the presence of multicollinearity using the Durbin-Watson statistic.

Firstly, means, standard deviations, and Pearson´s correlations were calculated for each continuous variable measured in the study. Secondly, the Student *t*-test was used to analyze significant mean differences between men and women on EA, PTSS, dissociation, and guilt. Finally, mediation and moderated mediation models were tested using the SPSS macro PROCESS (Hayes, 2013). The indirect effects of EA on PTSS through dissociation and guilt was examined with the mediation model. To test gender as a moderator, the moderated mediation model was conducted. Direct and indirect effects were estimated using Preacher and Hayes' techniques with 5000 bootstrap samples (Preacher & Hayes, 2004). Mediation and moderated mediation effects were further evaluated using bias-corrected bootstrap 95% confidence intervals (CI). These effects were considered statistically significant if the confidence intervals did not contain zero.

Results

Preliminary analyses

Participants were considered to have a positive history of exposure to traumatic events when they answered *Yes* to at least one of the SLESQ-R items. The most common traumatic events were a very close person experiencing a life-threatening event (63.8%), emotional abuse (47.3%), the unexpected death of a very close person (41.3%), witness to violence (26.9%), and physical abuse (25.5%). The average number of traumatic situations experienced by the participants was 3.6 (SD = 2.2). Participants with scores equal to or greater than 30 were considered to have a probable diagnosis of PTSD. This score is considered to be the cutoff for PTSD in general population samples (National Center for PTSD, 2014).

Table 1 shows the mean and standard deviation for each variable used in the study, the results of the Student *t*-test, and the correlations between variables. There were significant mean differences between men and women on all the variables, except for dissociation and guilt. Women´s scores were higher than men's on EA and PTSS, whereas men had a significantly higher number of traumas than women. All the correlations between the variables were significant and were in the expected direction.

Moderated mediation model

The parallel mediation model was used to evaluate the indirect effect of EA on PTSS through dissociation and guilt. Figure 1 shows this model and includes the indirect effects of gender. The overall model accounted for 37% of the variance in PTSS scores and was significant, F (3, 679) = 132.91, $p < .001$. Bootstrapped confidence intervals showed that the association between EA and PTSS was independently mediated by dissociation and guilt. Statistically holding dissociation constant, the indirect effect of EA on PTSS was $B = 0.36$, $SE = 0.05$, $p < .001$, 95%CI [0.29, 0.43]. Statistically holding guilt constant, the indirect effect of EA on PTSS was $B = 1.13$, $SE = 0.05$, $p < .001$, 95%CI [1.04, 1.22]. The moderated mediation model was used to assess the potential moderating role of gender on the association between EA and both

Table 1. Correlations, means, standard deviations, and results of student t-test for men and women of study variables.

					Men		Women			
Variables (range)	1	2	3	4	Mean	*SD*	Mean	*SD*	*t*	*p*
1. Experiential avoidance (7–49)	1	.35	.68	.52	21.09	8.42	23.12	8.27	2.64	0.00
2. Dissociation (18–90)		1	.36	.42	33.44	7.80	33.72	8.79	.36	0.36
3. Guilt (20–100)			1	.51	54.21	13.39	53.67	13.98	.43	0.34
4. PTSS (17–85)				1	26.89	11.68	29.42	13.02	2.15	0.01
Number of traumatic experiences (1–7)					4.1	2.2	3.4	2.2	−3.30	0.00

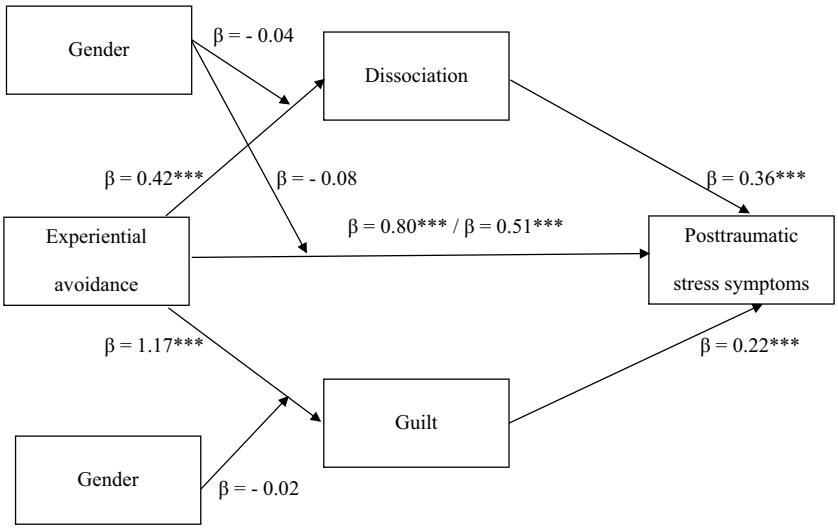

Figure 1. Moderated mediation model of the moderational effects of gender on the mediating roles of dissociation and guilt in the relationship between emotional avoidance and posttraumatic stress symptoms. The first path between emotional avoidance and posttraumatic stress symptoms is before dissociation, guilt, and gender are added. The second path is with dissociation, guilt, and gender in the model. Unstandardized B weights are reported. ***$p < .001$

dissociation and guilt. The overall model accounted for 37% of the variance in PTSS and was significant, F (4, 678) = 100.85, $p < .001$. When the mediating and moderator variables were included in the analysis, the direct relationship between EA and PTSS remained significant. However, no significant interaction was found between EA and gender when predicting dissociation, guilt, and PTSS (Figure 1).

Discussion

To our knowledge, this is the first study to examine the mediating roles of dissociation and guilt in the relationship between EA and PTSS and the moderating role of gender, while taking as a reference the conceptual framework of emotional processing theory. Therefore, this exploratory study had a double aim: a) to assess the direct and indirect effects of EA, dissociation, and guilt on PTSS; and b) to investigate whether gender moderates any such relationship. We found that dissociation and guilt independently mediated the association between EA and PTSS: however, these mediation effects were not moderated by gender. The final moderated mediation model accounted for 37% of the variance in PTSS.

As hypothesized, independent positive correlations were found between EA, dissociation, and guilt and PTSS. The mediation analysis showed that dissociation and guilt independently mediated the relationship between EA

and PTSS. When gender was included as a moderator of these relationships, the independent indirect effects of dissociation and guilt reached statistical significance in both genders. Thus, it appears that these variables may represent mechanisms through which EA increases the risk of PTSS in both genders. In addition, a significant and positive association was found between EA and dissociation and guilt; that is, the higher the score on EA, the higher the score on both dissociation and guilt.

Some partial results support our findings. EA has been considered to be a regulatory strategy to temporarily reduce unpleasant private events that include strategies of avoidance and escape in all of their forms (S.C. Hayes et al., 2006). Dissociation could be considered to be one of these strategies. Thus, individuals with a greater tendency to use EA could experience more dissociative phenomena after a traumatic event in order to modify the negative and unpleasant emotions related to this experience. Several studies have demonstrated that EA is associated with higher emotional reactivity (Sloan, 2004), more injurious emotions and cognitions (Karekla et al., 2004), and increased levels of worry (Santanello & Gardner, 2007). Although in the short term EA can be potentially adaptive, because of decreased unpleasant private events, in the long term it could lead to an increase in vigilance responses and rumination maintenance as well as to an increase in the frequency of unpleasant emotions and thoughts (Hayes et al., 1996; Kumpula et al., 2011). One type of unpleasant private event can be a feeling of guilt (i.e. as a negative evaluation of one's specific behavior) due to the tendency of trauma-exposed individuals to engage in rumination. In fact, studies have found that the attempt to suppress thoughts can result in a subsequent increase in their frequency, as well as in an increase in negative emotions (i.e. Wegner et al., 1996). Thus, feelings of guilt may increase in the long term as a result of efforts to suppress negative thoughts. Nevertheless, this speculation should undergo empirical study.

As was also predicted, the results of the empirical model showed that higher levels of dissociation and guilt lead to higher rates of PTSS. These findings are in line with those reported in the empirical literature regarding the relationships found between PTSD and both dissociation (e.g., see Briere et al., 2005; Dorahy et al., 2013) and guilt (e.g., see Beck et al., 2011; Stotz et al., 2015). In fact, it has been suggested that dissociation limits the capacity to encode and process the traumatic memory, which is a crucial variable in the development, maintenance, and recovery from PTSD (Bedard-Gilligan & Zoellner, 2012; Stein et al., 2013). Some studies have suggested that dissociation is a central construct not only in the maintenance of PTSD, but also in its etiology, particularly in complex PTSD (e.g., Chu, 2011; Ford, 2009; Steele et al., 2005). Regarding guilt, Kubany et al. (1995) found that this variable was associated with PTSS. Furthermore, Rugens and Terhune (2013) proposed that an individual's response to guilt might be more strongly shaped by the

propensity to dissociative tendencies than the response to other emotional states.

Taken as a whole, the results of the mediation model contribute to empirical support for emotional processing theory. According to this theoretical framework, three factors are associated to recovery from trauma and to the decrease in PTSD severity. Specifically (Foa et al., 2006), (a) the avoidance of trauma-related stimuli, memories and reminders, which features EA; (b) a lack of emotional engagement, which is characteristic of dissociation; and (c) negative cognitions about the world and oneself, which is a hallmark of guilt.

Gender was added as a moderating variable in the analyses because the scientific literature has so far shown differences between men and women in the variables that were investigated. In the present study, as in previous findings (for a review, see e.g., Pineles et al., 2017), men had experienced significantly more traumatic events, whereas woman reported higher posttraumatic scores. Likewise, EA scores were significantly higher among women than among men, as shown in previous studies (Karekla & Panayiotou, 2011). The literature has demonstrated differences between men and women in emotions and emotional processing (Whittle et al., 2011), showing that women tend to experience more negative affect than men and report more frequent and intense negative emotions (Brebner, 2003). However, no significant differences between men and women in either dissociation or guilt were found in the current study. Regarding dissociation, our findings are in line with those obtained by Wolf et al. (2012), who also found no differences between men and women in dissociation. However, they are in contrast to those of Stein et al. (2013), who found high dissociative symptoms scores in men (Stein et al., 2013), and are also in contrast to those of Steuwe et al. (2012), who found higher dissociation scores in women. In relation to guilt, a meta-analysis conducted by Else-Quest et al. (2012) demonstrated higher guilt scores among women than among men, although the differences were small. Despite the undeniable gender differences in PTSD rates, there is limited evidence for measurement invariance of PTSD scales, symptoms profiles, and differential efficacy of posttraumatic stress treatment for men and women (Pineles et al., 2017). The present findings point in this direction and suggest that interventions aimed at controlling psychological variables linked to PTSD (i.e. EA, dissociation, and guilt) may be a way of helping both men and women.

Limitations

Although the results add to our knowledge documenting the associations of EA, dissociation, guilt, and posttraumatic stress, some limitations of the study

should be mentioned. Firstly, the design was cross-sectional and data collection was conducted exclusively with self-report questionnaires; consequently, it is not possible to establish causal effects between the variables that have been studied. In addition, although dissociation was measured with an instrument that assesses trait dissociation as an overall tendency to dissociate (DeCou et al., 2016), it is difficult to differentiate between dissociation and PTSS. Nevertheless, there is some inconclusive research that has drawn attention to the relevant role of trait dissociation in the manifestation of PTSD symptoms (e.g., Sugar & Ford, 2012). More prospective research is therefore needed. Secondly, this study assessed guilt but not shame. Although related, they refer to different psychological dimensions (for a review, see Wilson et al., 2006). Nevertheless, our study sample comprised people who had not only experienced interpersonal traumas, but also non-interpersonal traumatic events. Previous research has suggested that posttraumatic shame is significantly associated with PTSD symptoms due to interpersonal traumatic events and that it might be considered to be the result of the traumatic experience rather than as a proneness variable (Ginzburg et al., 2009). This possibility suggests a direction for future research. Thirdly, PTSS was assessed with the PCL-C that is based on the DSM-IV criteria. Although only the overall score to the questionnaire was considered and therefore the direction of the results may not have changed, future studies should replicate this work with the use of the PCL-5 (DSM-5 criteria). Fourthly, some variables may have affected the results (e.g., previous treatment for PTSS). Future studies should consider this aspect. Fifthly, the sample of men was smaller than that of women. Although the number of men exceeded that required in the analysis, a larger sample of men could have yielded different results. Finally, the findings could have been affected by the fact that the sample was exclusively composed of undergraduate students, whose sociodemographic variables do not necessarily represent a general population sample. Thus, participants in this study may not be similar to people in the clinical population. In view of these limitations, additional research is needed to evaluate the generalizability of these findings. We suggest that future research should be longitudinal and use clinical samples with a large number of men.

Conclusions

Despite the aforementioned limitations, the present findings could have implications for clinical practice. If these results are confirmed (i.e. experiential avoidance was associated with dissociation, guilt, and posttraumatic stress), this variable may be considered to be a target of psychological interventions for people with PTSS regardless of gender. Furthermore, because dissociation and guilt have been shown to increase PTSS, both variables should also be taken into account when planning psychological interventions.

Although the treatment of dissociation is complex, there is evidence to suggest that people who have experienced traumatic events and have a significant number of dissociative symptoms benefit from psychological interventions aimed at reconstructing the trauma and giving it a coherent meaning (Holmes et al., 2005). In addition, it has been suggested that guilt may interfere with PTSD treatment (Bub & Lommen, 2017) and that the cognitive appraisals associated with guilt should also be singled out as a goal of psychological therapy in this context (Ehlers et al., 1998). In relation to the findings of the present study, clinicians may need to create new approaches to PTSD treatment that better address variables such as EA, dissociation, and guilt. Interventions to reduce the avoidance of trauma-related memories, feelings, emotions, and thoughts in men and women may help to prevent or reduce PTSS among trauma-exposed individuals.

Conflicts of Interest

The authors declare no conflict of interest

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