The Mediational Role of the Behavioral Inhibition System in the Relationship Between Gender and PTSD Symptomatology

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ABSTRACT

Objectives: Women are at greater risk for developing posttraumatic stress disorder (PTSD) than men. There are a myriad of proposed theoretical mechanisms delineating gender differences, but the behavioral inhibition system (BIS) has not yet been researched as a possible explanation. BIS (Gray, 1973) is a theoretical system that arose out of reinforcement sensitivity theory involving personality, cognitive, and physiological components that identifies anxiety proneness and risk aversion. The behavioral activation system (BAS), conversely, identifies individuals motivated to act based on reward. BIS is unique to other gender explanations because it is a system that governs behaviors and cognitions, rather than a single factor explanation for PTSD presentation differences.

Method: In a sample of 335 trauma-exposed university students, we examined BIS, as well as BAS, as potential mediators in the relationship between gender and PTSD symptom severity. Results: Women reported more severe PTSD symptomatology than men and higher BIS scores. Mediation analyses revealed a significant indirect effect of BIS, but not BAS, on the relationship between gender and PTSD symptom severity, and there was no longer a direct effect of gender. Cluster D symptoms were uniquely related to BIS scores.

Conclusion: Behavioral inhibition may contribute to women experiencing more negative cognitions after trauma and may render women more susceptible to the development of PTSD and greater symptom severity. These findings extend current explanations of PTSD gender differences and may help target treatment efforts for trauma survivors.

BACKGROUND

• Although men are more likely than women to be exposed to potentially traumatic events, women are approximately twice as likely to develop PTSD (Breslau et al., 1997; Tolin & Foa, 2008).
• A unifying, biopsychosocial construct has not been investigated to account for the gender differences.
• Reinforcement Sensitivity Theory (RST) suggests that inherent within each person is a behavioral inhibition system (BIS) and behavioral activation system (BAS; Gray, 1987).
• The BIS refers to the potential for negative affect that may occur when an individual encounters a threat, and is thought to be responsible for restricting behavior that may cause harm or poor outcomes (Gray, 1987).
• The BIS creates a physiological and psychological response to conflict that is characterized by risk aversion and cautiousness. Individuals high in BIS are sensitive to punishment reinforcement and are motivated to avoid a situation that may result in negative outcomes.
• The BAS drives individuals’ decisions to engage in activity and is driven by rewards. Individuals high in BAS are motivated to approach a situation that may result in positive outcomes (Carver & White, 1994).

HYPOTHESES

1. BIS, but not BAS, will mediate the relationship between gender and PTSD symptom severity in a sample of trauma-exposed college students.
2. Cluster C (avoidance) and Cluster D (negative alterations in cognitions and mood) will be significantly associated with BIS.

METHODS

Participants: • Participants were 335 trauma-exposed undergraduate students enrolled in psychology courses from a mid-sized Western public university.
• Participants were at least 18 years of age, living in the United States, fluent in English, and enrolled at the university at least part-time.
• All participants had experienced a psychological trauma. They were asked to describe their worst traumatic event in their lifetime and respond to the PTSD Checklist (PCL-5) with that event in mind. Participants who did not describe a Criterion A event were excluded from analyses.
• The mean age of participants was 23.05 years old. The sample was largely female (76.7%), White (80.9%), and non-Hispanic (73.3%).

MEASURES

• Exposure to traumatic events was assessed using the Brief Trauma Questionnaire (BTQ).
• Behavioral Inhibition System and Behavioral Activation System sensitivity were measured using Carver and White’s (1994) BIS/BAS scale.
• PTSD symptom severity was assessed using the PCL-5.

RESULTS

• BIS mediated the relationship between gender and PTSD symptom severity, F(2, 344) = 16.19, p < .001. A direct effect of gender on PTSD symptom severity was no longer present after accounting for the indirect effect of BIS (c’ = .291, p = .28).
• As a sensitivity analysis, we tested the same model with BAS as the mediator and did not observe a significant indirect effect.
• Ordinary least squares showed that, overall, the PTSD clusters explained 10% of the variance in BIS scores, F(4, 336) = 9.00, p < .001. Specifically, Cluster D symptoms (β = .30, p < .01) were uniquely related to BIS scores.
• BIS mediates the relationship between gender and PTSD symptoms. BCa = bias-corrected and accelerated. *p < .01, **p < .001.

CONCLUSION

• Women who have an underlying system of greater behavioral inhibition may be predisposed to experience negative cognitions about the self and the world following a trauma.
• Higher levels of behavioral inhibition may be attributed to gendered socialization processes. Women are socialized to show greater conflict prevention through restriction of behavior, which may hinder coping abilities following trauma.
• Gender roles may reinforce that women, congruent with femininity ideals, express fear in anxiety-provoking situations, whereas men, congruent with masculinity ideals, confront such situations with autonomy and assertiveness.
• Avoidance symptoms were not related to BIS, which supports the conceptualization of BIS as a personality characteristic involved in detecting threat and managing arousal during conflict rather than proactively restricting behavior that may lead to harm.
• Mindfulness has been suggested as a therapeutic technique for individuals high in BIS because it promotes acceptance, rather than avoidance, of events that elicit negative affect (Maack, Tull, & Gratz, 2012).
• Cognitive-behavioral interventions aimed at challenging negative posttraumatic cognitions about the self and world are particularly warranted for trauma-exposed women.
• Future research should specifically study whether gendered socialization contributes to gender differences in BIS activation and subsequent PTSD symptom severity.
• Future research should also examine potential explanatory factors for gender differences in PTSS (e.g. neuroticism, clinical anxiety, negative affect, harm avoidance, and emotional sensitivity) in one large model.

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