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## Sexual Trauma Uniquely Associated With Eating Disorders: A Replication Study

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### Abstract

**Objective:** Extensive research supports the contention that trauma exposure is a nonspecific risk factor for the development of eating disorders (EDs). Limited research has investigated the relative association of diverse types of traumatic events with EDs in the same statistical model. In a recent exception, Breland et al. (2018) found that only sexual trauma predicted ED pathology among female veterans when both sexual trauma and combat exposure were examined simultaneously, even though combat exposure alone had been previously identified as an ED risk factor. Given the current replication crisis in psychology, it is important to investigate if this finding replicates in different populations. This study investigated whether results from Breland et al. (2018) would (a) replicate in a distinct population (i.e., participants living with food insecurity) and (b) hold when 3 additional traumatic events were included in the statistical model.

**Method:** We hypothesized that self-reported sexual trauma would be uniquely associated with ED pathology as compared to combat exposure, wreck/crash/accident, serious body-related accident, and life-threatening illness or injury.

**Results:** Using a cross-sectional logistic regression model, sexual trauma was the only independent predictor of EDs in the model, thus replicating the findings of Breland et al. (2018) in a different population.

**Conclusion:** Findings highlight the importance of (a) investigating multiple traumatic events in the same statistical models and (b) careful screening of traumatic events in patients presenting with EDs.

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## Keywords

sexual trauma; eating disorders; trauma exposure; food insecurity

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Research indicates that exposure to traumatic events is a nonspecific risk factor for the development of eating disorders (EDs; Brewerton, 2007; Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Mitchell, Mazzeo, Schlesinger, Brewerton, & Smith, 2012; Smyth, Heron, Wonderlich, Crosby, & Thompson, 2008). Research also supports an association between EDs and a wide range of traumatic event types, including sexual assault (Faravelli, Giugni, Salvatori, & Ricca, 2004; Tagay, Schlegl, & Senf, 2010; Wonderlich et al., 2001), physical and emotional abuse (Kent, Waller, & Dagnan, 1999), and combat exposure (Bartlett & Mitchell, 2015). However, despite the well-documented relationship of specific traumatic events and EDs, limitations to the existing literature have been noted. For instance, relatively few studies have investigated the impact of noninterpersonal trauma (e.g., natural disaster; serious accidents, such as fire; or life-threatening illness or injury). In an exception to this, Tagay, Schlottbohm, Reyes-Rodriguez, Repic, and Senf (2014) found that some ED patients not only reported experiencing these types of traumatic events, but also considered them the most traumatic event experienced.

The existing trauma ED literature is further limited by a tendency to not statistically evaluate the *relative* association of different types of traumatic events with EDs. In a recent study, however, Breland, Donalson, Li, Hebenstreit, Goldstein, and Maguen (2018) investigated to what degree military sexual trauma and combat exposure (as assessed by the Life Events Checklist; Blake et al., 1995) were associated with EDs when both were entered in the same statistical model. Results indicated that military sexual trauma was an independent cross-sectional predictor of EDs (odds ratio [*OR*] = 2.03; 95% CI [1.03, 3.98]) whereas combat exposure was not ([*OR*] = 1.32; 95% CI [0.69, 2.54]), even though combat exposure had been previously identified as an ED risk factor (Jacobson et al., 2009).

The primary aim of the present study was to determine whether the results of Breland et al. (2018) would replicate in a markedly different sample, namely those living with food insecurity (FI; i.e., individuals/households with inadequate access to sufficient and nutritious food; Coleman-Jensen, Rabbitt, Gregory, & Singh, 2017). The importance of independent replication of novel findings has been highlighted by the so-called “replication crisis” in psychology (Lindsay, 2015; Ioannidis, 2018). Given that the findings of Breland et al. contrast with previous research, it seems prudent to see if their findings replicate, particularly in different populations. We chose to replicate with a FI population because recent research supports both an association between FI and EDs (Becker, Middlemass, Taylor, Johnson, & Gomez, 2017; Becker, Middlemass, Gomez, & Martinez-Abrego, 2019), *and* an association of trauma and EDs in those living with FI (Becker et al., 2018). Clinically, it would be beneficial to further understand these relationships in this relatively understudied population, which increasingly is being identified as presenting for treatment in clinical practices that accept Medicaid and screen for a history of FI (J. McCray, personal communication, May 3, 2019). Specifically, elucidating which types of traumatic experiences are associated with ED pathology could help clinicians attend to the importance

of (a) careful screening of certain traumatic events in patients presenting with EDs and (b) screening for ED pathology in those presenting with trauma histories.

A secondary aim of this study was to extend Breland et al. (2018) by investigating the association of three other noninterpersonal traumatic events less commonly explored in the ED literature. Based on Breland et al. (2018), we hypothesized that sexual trauma but not combat exposure would be associated with ED pathology. We also hypothesized that the other forms of noninterpersonal trauma would not be associated with ED pathology when five types of traumatic events were included in the same statistical model. Identification of trauma types in relation to ED risk that similarly apply to different populations may stimulate research aimed at elucidating mechanisms by which specific types of trauma increases risk for EDs (Breland et al., 2018; Trottier & MacDonald, 2017).

## Method

### Participants

In collaboration with the San Antonio Food Bank (SAFB), we recruited 503 adult clients from SAFB-affiliated food pantries. Almost 65% identified as Latino/Hispanic; this is consistent with the overall demographics of the city (<https://censusreporter.org/profiles/16000US4865000-san-antonio-tx/>). Most participants were female (76.5%) and between 25 and 65 years old (72.8%). A detailed breakdown of demographics, including income and education level, was previously published in Becker et al. (2017). Participants received a \$5 gift card from a local grocery store chain in exchange for participation.

### Procedure

After approval from the Institutional Review Board and SAFB, research assistants (RAs) contacted partner agencies individually. If an agency decided to participate, we collaborated to determine the best way to recruit participants based on the setting and procedures of the agency. Typically, staff members from the agency introduced the project and RAs to clients before the start of food distribution. RAs recruited participants and explained consent using a script in either English or Spanish. If necessary, RAs were available to read questions aloud in the participant's preferred language and address questions regarding comprehension. After completion, RAs debriefed participants and distributed a list of free/low-cost local mental health resources (see Becker et al., 2017 for full procedure details).

### Measures

**Demographic characteristics.**—Self-reported age, race/ethnicity, annual household income, and level of education were collected and included.

**Exposure to potential traumatic events.**—To assess potentially traumatic events from childhood to present, we used the 17-item Life Events Checklist (LEC-5). The LEC-5 has demonstrated good convergence with the Traumatic Life Events Questionnaire and acceptable temporal stability (Gray, Litz, Hsu, & Lombardo, 2004). Participants indicated whether they directly experienced the event, witnessed the event, learned about the event, were not sure about exposure, or never experienced the event. Only individuals who reported

direct experience with the following potentially traumatic events were included in this study: exposure to sexual assault, combat, wreck/crash/accident, serious body-related accident, or life-threatening illness or injury. A full breakdown of frequencies of traumatic events is available at Becker et al. (2018).

**Eating disorder pathology.**—We used 18 items from the Eating Disorder Diagnostic Scale for *DSM-5* (EDDS-5; Stice, Fisher, & Martinez, 2004). The EDDS-5 is a brief self-report measure that assesses the spectrum of EDs. Research supports criterion validity with interview-based diagnoses, internal consistency, and convergent validity, as well as sensitivity to change and predictive validity (Stice et al., 2004). Per Stice et al. (2004) and Krabbenborg et al. (2012), we computed a standardized summed composite score; internal consistency was excellent ( $\alpha = .91$ ). We used the previously established clinical cutoff score of 16.5 to indicate probable clinically significant EDs (see Becker et al., 2017 for additional detail on EDDS-5 scoring and results).

## Results

We used a logistic regression model to predict whether FI participants met the clinical cutoff for an eating disorder (EDDS-5) as a function of sexual trauma, combat trauma, and three noninterpersonal categories of trauma. The three other forms of direct trauma exposure were (a) wreck, crash, or vehicle accident; (b) serious body accident at home, work, or doing recreational activities; and (c) life-threatening illness or injury. We selected these three other types of direct trauma exposure as comparison because the sample sizes of each were similar to that of sexual trauma, and because they comprise noninterpersonal forms of trauma. Based on prior literature linking different forms of disordered eating to trauma exposure (e.g., Breland et al., 2017) and based on Breland et al. (2018) study of female veterans, we did not distinguish between types of disordered eating behaviors as endorsed on the EDDS-5. Rather, we included clinically disordered eating as a single, dichotomous outcome variable so that our analyses would be directly comparable to those conducted by Breland et al. (2017). In addition, in line with past research and with Breland et al. (2018), we adjusted for other participant demographic characteristics that may be associated with disordered eating: gender, age, ethnicity, and education level. We tested for collinearity among predictor variables using variance inflation factors (VIFs); VIFs greater than 10 suggest collinearity. All analyses were completed using SPSS Version 21.

Results of the logistic regression model predicting ED risk as a function of trauma type (i.e., sexual trauma, combat trauma, and other trauma) are presented in Table 1. Notably, all VIFs were less than 2, indicating that collinearity was not a concern in this study. Participants reporting a history of sexual trauma had over twice the odds of meeting the clinical cutoff for ED symptoms, per the EDDS (see Table 1). However, none of the other forms of trauma, including combat trauma, wreck/crash/accident, serious body-related accident or life-threatening illness or injury, were associated with ED risk. Regarding demographic variables, none of the variables assessed (gender, race/ethnicity, age, education level) predicted ED clinical cutoff in this sample.

## Discussion

The aims of this study were to (a) determine whether the results of Breland et al. (2018) would replicate in a sample of individuals living with FI, and (b) extend their findings by investigating three other noninterpersonal types of traumatic events in relation to EDs. Consistent with both hypotheses, results indicated that sexual trauma was an independent predictor of EDs, whereas no other traumatic events were independent predictors of ED pathology. Thus, our findings both replicate and extend those of Breland et al. (2018).

This study adds to the significance of the original Breland et al. (2018) study for several reasons. First, results here suggest that findings from Breland et al. (2018) were not spurious. Given the replication crisis in psychology (Lindsay, 2015), it is critical that researchers independently attempt to replicate novel findings; we have accomplished that here. Second, results indicate that findings from Breland et al. (2018) among predominantly White (60%) female veterans generalize to a markedly different sample. Specifically, our study consisted of male and female participants with large Latinx representation (64.6%), with and without military status. These results support the contention that sexual trauma may be a unique cross-sectional predictor even when sample characteristics change markedly. Lastly, this study included three forms of noninterpersonal trauma in the statistical model (wreck, crash, accident; serious body related accident; life threatening illness or injury), none of which were associated with EDs.

This study has several limitations. First, data were based on self-reported measures instead of diagnostic clinical interviews, and we did not investigate specific ED symptoms or diagnoses. Further, the use of the LEC-5 means that we lacked information as to the types of combat exposure participants experienced. In addition, this study was cross-sectional, thus we were unable to test the prospective relationship between different traumatic events and ED development. Future research is needed to further investigate the complex relations between types of trauma exposure and prospective risk for EDs, the effects of interpersonal versus noninterpersonal trauma, and identification of protective factors for the development of EDs in populations with high exposure to traumatic events. Clinicians, particularly those working with FI populations, need to carefully screen for a history of sexual assault as well as ED pathology.

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**Clinical Impact Statement**

Results from this study suggest that sexual assault is associated with eating disorder pathology, whereas combat exposure and three forms of noninterpersonal trauma were not. These findings replicate previous research and highlight the particular importance of assessing the possible co-occurrence of sexual assault and eating disorders across diverse populations.

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**Table 1**

Results of the Logistic Regression Model Predicting Eating Disorder Risk as Function of Different Exposure to Trauma

| Predictor                                      | Odds ratio [95% CI]      |
|--|--------------------------|
| Gender   | 1.29 [.558, 2.97]        |
| Age  | .92 [.643, 1.33]         |
| Race/Ethnicity                                 |                          |
| White  | Reference                |
| Black/African American                         | .605 [.203, 1.80]        |
| Asian  | .000 [.000, .000]        |
| Hispanic                                       | .583 [.252, 1.35]        |
| Other  | .515 [.099, 2.67]        |
| Education                                      |                          |
| High school or less                            | Reference                |
| Some college or college graduate               | .757 [.350, 1.64]        |
| Some graduate or graduate degree               | 2.41 [.433, 13.44]       |
| Sexual assault (reference)                     | <b>2.64 [1.22, 5.71]</b> |
| Combat exposure (reference)                    | 1.48 [.427, 5.12]        |
| Wreck, crash, accident (reference)             | .935 [.452, 1.94]        |
| Serious body-related accident (reference)      | .563 [.220, 1.44]        |
| Life-threatening illness or injury (reference) | 1.17 [.482, 2.86]        |

Note. CI = confidence interval. Bold indicates statistical significance at  $\alpha = .05$ .