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BRIEF REPORT

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Posttraumatic stress disorder symptoms and trauma-informed care in higher levels of care for eating disorders

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Abstract

Objective: The purpose of the current study was to examine the prevalence and trajectory of posttraumatic stress disorder (PTSD) symptoms among patients with eating disorders (EDs) in higher level of ED care with trauma-informed components, but without a formal evidence-based trauma intervention.

Method: Participants were 613 adults diagnosed with EDs receiving treatment at inpatient, residential, or partial hospitalization levels of care. Participants completed the PTSD Checklist-5 (PCL-5) at admission and discharge.

Results: Over half of patients scored above the cutoff of 33 on the PCL-5 at admission, suggestive of PTSD symptoms characteristic of a formal PTSD diagnosis. The average PCL-5 score significantly decreased for every ED diagnostic category, and there was a significant reduction in the proportion of patients above the PCL-5 cutoff score at discharge. PCL-5 subscales measuring PTSD criteria B (intrusions) and C (avoidance) improved with modest effect sizes, whereas PCL-5 subscales D (negative alterations in cognitions and mood) and E (alterations in arousal and reactivity) improved with larger effect sizes.

Discussion: PTSD symptoms are prevalent among patients with EDs seeking higher levels of care. Despite not offering evidence-based trauma-specific interventions, PTSD symptoms decreased over the course of treatment. However, improvements cannot definitely be attributed to trauma-informed care.

KEYWORDS

adults, binge eating, eating disorders, higher levels of care, posttraumatic stress disorder, trauma, trauma-informed care

1 | INTRODUCTION

Approximately 30–80% of the general population report having experienced a traumatic event (Lewis et al., 2019). Individuals with eating disorders (EDs) report high rates of childhood and lifetime traumatic events when compared with healthy controls or psychiatric control groups (Brewerton, 2019; Molendijk, Hoek, Brewerton, & Elzinga, 2017). As a result of this trauma, as many as 50% of patients with EDs may struggle with co-occurring posttraumatic stress disorder (PTSD) (Brewerton, 2007; Gleaves, Eberenz, & May, 1998).

A history of abuse or trauma has been shown to negatively impact treatment outcome (Serra et al., 2020). Thus, addressing trauma-related pathology concurrently with EDs is important (Trottier, Wonderlich, Monson, Crosby, & Olmsted, 2016). However, integrating evidence-based trauma treatments into higher-level-of-care (HLOC) settings (such as residential programs) can be challenging.

Most evidence-based trauma treatments (e.g., trauma-focused cognitive-behavioral therapy) require intensive individual therapy over the course of many weeks or months. Since lengths of stay at HLOC for EDs are comparatively short, formal trauma treatment is often not integrated into general psychiatric or ED treatment.

Trauma-informed care (TIC) has been increasingly recommended as part of the overall ED treatment approach among psychiatric programs offering HLOC, as opposed to trauma-specific treatments. However, there is a lack of research on TIC among patients with EDs in HLOC. The purpose of the current study was to examine the prevalence of trauma symptoms among patients with EDs presenting for HLOC treatment, and to determine if trauma symptoms improved over the course of TIC. There were no a priori hypotheses about differences among ED diagnostic groups, but findings within each diagnostic group were examined to determine whether general findings held for each patient population. PTSD symptom clusters were examined separately to determine whether some symptoms would be more responsive to treatment.

2 | METHOD

2.1 | Participants and procedure

Participants were 613 adults diagnosed with a DSM-5 ED (APA, 2013), and admitted to one of two ED treatment facilities with inpatient, residential, or partial hospitalization levels of care, between January 2017 and April 2020. Informed consent was obtained from each participant to complete online self-report assessments within 3 days of admission and discharge. The study was approved by the Salus Institutional Review Board.

2.2 | Treatment

Treatment at each level of care includes 2–3 hr of evidence-based skills groups per day, including acceptance and commitment therapy (ACT), dialectical behavior therapy (DBT), and exposure and response prevention (ERP), 3 meals and 2–3 snacks per day, supervised by trained staff, two individual therapy sessions per week, and one family therapy session per week. A continuity model of care is utilized in which the primary therapist, physician, and dietitian remain consistent across levels of care in order to build a safe and supportive environment. Although trauma-specific interventions are not formally incorporated into treatment, the program has a trauma-informed perspective that shapes treatment. Patients are exposed to a rich TIC milieu and therapy environment throughout treatment, including discussing traumatic events in therapy, building skills to manage trauma symptoms, and using trauma-informed language and behaviors to deescalate situations.

Trauma-informed training is required for all staff interacting with patients, consisting of five modules that are 15–30 min in length. The modules cover (a) the history of TIC, including Felitti et al.'s (1998) landmark study on adverse childhood experiences, (b) trauma causes, prevalence, and impact, (c) the principles of TIC (safety, trust, choice, collaboration, and empowerment), (d) TIC in action, including how it is implemented in the management of the milieu, in group therapy, and during meal support, and (e) self-care for caregivers.

2.3 | Measures

Demographic and clinical data. As part of routine clinical care, age, gender, and diagnosis were collected during the initial assessment. ED diagnoses were made based on semi-structured diagnostic interviews conducted by masters-level clinicians. The interview was developed by the treatment clinic based on the guidelines of various regulatory bodies, including the Joint Commission on Accreditation of Healthcare Organizations.

The *PTSD Checklist-5* (*PCL-5*; Weathers et al., 2013) is a 20-item self-report questionnaire designed to assess the DSM-5 (APA, 2013) symptoms of PTSD over the previous month. Four subscales map onto PTSD symptom clusters B (intrusions), C (avoidance), D (negative alterations in cognitions and mood), and E (alterations in arousal and reactivity). A cutoff score above 33 on this screening measure has been used to indicate a possible PTSD diagnosis in veterans (Bovin et al., 2016; Wortmann et al., 2016) and provides good diagnostic accuracy in non-veteran women outpatients (Walker, Newman, Dobie, Ciechanowski, & Katon, 2002). A secondary definition for PTSD threshold was also examined, involving endorsement of two or higher for at least one Cluster B item, one Cluster C item, two Cluster D items, and two Cluster E items (Wortmann et al., 2016).

The *eating pathology symptoms inventory* (EPSI; Forbush et al., 2013) is a 45-item self-report measure with eight subscales assessing ED pathology, three of which were used for this study: binge eating, purging, and restricting.

2.4 | Statistical analyses

Changes in continuous PCL-5 scores from admission to discharge were calculated with paired-samples *t* tests, with Cohen's d effect size reported (values of 0.3, 0.5, and 0.8 considered small, medium, and large effects, respectively [Fritz, Morris, & Richler, 2012]). Changes in proportion of patients meeting PTSD threshold criteria from admission to discharge were calculated using chi-square, with phi coefficient effect size reported (values of .1, .3, and .5 considered small, medium, and large effects, respectively). Reliable change on the PCL-5 is defined as >5 (Clapp, Kemp, Cox, & Tuerk, 2016). Because PCL-5 scores for each participant were used in seven separate inferential analyses, a Bonferroni test correction was applied, making the requisite significance level $p < .00714$. Uncorrected *p*-values are presented because no inferential tests were significant at $.05 < p > .00714$.

3 | RESULTS

Table 1 presents demographics and clinical characteristics for the total sample and within ED diagnosis.

TABLE 1 Sample characteristics and eating disorder outcomes

	Total (*N* = 613)	AN-R (*N* = 177)	AN-BP (*N* = 173)	BN (*N* = 76)	OSFED (*N* = 62)	BED (*N* = 40)	ARFID (*N* = 85)
Age (*SD*)	24.47 (9.78)	25.91 (9.84)	26.32 (8.91)	25.14 (8.33)	26.64 (8.76)	37.11 (14.32)	25.40 (8.64)
Gender (*N*, %)							
Female	514 (83.8%)	153 (86.4%)	142 (82.1%)	68 (89.5%)	53 (85.5%)	32 (80.0%)	66 (77.6%)
Male	63 (10.3%)	14 (7.9%)	14 (8.1%)	7 (9.2%)	5 (8.1%)	7 (17.5%)	16 (18.8%)
Trans	3 (0.5%)	0	1 (0.6%)	0	2 (3.2%)	0	0
Non-binary	1 (0.2%)	0	0	0	0	1 (2.5%)	0
Prefer not to answer	32 (5.2%)	10 (5.6%)	16 (9.2%)	1 (1.3%)	2 (3.2%)	0	3 (3.5%)
Race (*N*, %)							
White, non-Hispanic	436 (71.1%)	129 (72.9%)	123 (71.1%)	58 (76.3%)	50 (80.6%)	24 (60.0%)	52 (61.2%)
Biracial/mixed race	23 (3.8%)	2 (1.1%)	8 (4.6%)	5 (6.6%)	1 (1.6%)	4 (10.0%)	3 (3.5%)
Hispanic/Latino	21 (3.4%)	6 (3.4%)	3 (1.7%)	4 (5.3%)	2 (3.2%)	1 (2.5%)	5 (5.9%)
Asian	12 (2.0%)	9 (5.1%)	1 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.4%)
Black	5 (0.8%)	0 (0.0%)	2 (1.2%)	0 (0.0%)	1 (1.6%)	0 (0.0%)	2 (2.4%)
Native American	1 (0.2%)	0 (0.0%)	1 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Prefer not to answer	115(18.8%)	31 (17.5%)	35 (20.2%)	9 (11.8%)	8 (12.9%)	11 (27.5%)	21 (24.7%)
Weeks of Tx (*SD*)	8.86 (5.58)	10.69(5.93)	9.83 (5.69)	8.39 (4.50)	7.45 (3.28)	7.80 (4.04)	9.06 (5.20)
EPSI—Admission binge eating (*SD*)	9.61 (8.69)	5.27 (3.92)	9.77 (7.99)	18.70 (9.66)	7.41 (7.10)	20.57 (7.11)	6.85 (5.50)
EPSI—Discharge binge eating (*SD*)	7.63 (6.06)	6.80 (5.61)	7.82 (5.98)	9.25 (7.18)	7.21 (6.10)	9.63 (7.42)	6.93 (4.83)
EPSI—Admission purging (*SD*)	5.01 (5.60)	2.68 (3.92)	7.99 (5.59)	9.04 (5.65)	3.52 (4.90)	2.11 (4.39)	2.53 (4.56)
EPSI—Discharge purging (*SD*)	2.70 (4.37)	1.58 (3.37)	4.16 (4.88)	4.10 (5.01)	2.43 (4.53)	1.17 (3.30)	1.63 (3.62)
EPSI—Admission restricting (*SD*)	14.90 (6.73)	16.12 (5.87)	17.22 (5.59)	11.29 (6.81)	14.95 (6.77)	4.20 (4.57)	15.69 (5.45)
EPSI—Discharge restricting (*SD*)	8.28 (6.35)	8.86 (6.25)	9.43 (6.69)	6.70 (5.46)	10.14 (6.39)	2.86 (3.75)	7.13 (5.82)

3.1 | PCL-5 and ED pathology

Across the full sample, EPSI Binging decreased significantly (Δ = 1.98, *SD* = 7.96, t[555] = 5.53, $p < .001$; d = 0.24), and was associated with decreases in PCL-5 ($r = .18$, $p < .001$) and all symptom clusters (B: $r = .16$, C: $r = .11$, D: $r = .17$, E: $r = .14$, all *p*'s < .01). Similar results were found for EPSI Purging (Δ = 2.31, *SD* = 4.46, t[555] = 11.67, $p < .001$; d = 0.52; correlation with decreases in PCL-5, $r = .27$, $p < .001$; symptom cluster B: $r = .24$, C: $r = .15$, D: $r = .25$, E: $r = .22$, all *p*'s < .01), and EPSI Restricting (Δ = 6.62, *SD* = 4.83, t[555] = 22.41, $p < .001$; d = 0.99; correlation with decreases in PCL-5, $r = .29$, $p < .001$; symptom cluster B: $r = .21$, C: $r = .18$, D: $r = .30$, E: $r = .25$, all *p*'s < .01). There were no significant differences across all measured variables between patients completing both PCL-5 and EPSI measures ($n = 556$) and patients completing only PCL-5 ($n = 57$; all *p*'s > .05).

3.2 | PCL-5 in the total sample

Patients' average admission PCL-5 met criteria for likely PTSD (M = 35.17, *SD* = 18.78) (see Table 2). Patients' average PCL-5 change from admission to discharge was significant, with a reliable and moderate effect size. PCL-5 change was unrelated to length of stay ($r = .02$, $p = .71$).

Significantly more patients ($n = 328$; 53.5%) were above the PCL-5 threshold of 33 at admission than discharge ($n = 202$; 33.0%), ($\chi^2[1] = 123.15$, $p < .001$). While 155 (47.3% of the 328 above-threshold at admission) moved from above-threshold at admission to below-threshold at discharge, 29 (10.2% of the 285 below-threshold at admission) moved from below-threshold at admission to above-threshold at discharge. The primary PTSD threshold definition (>33) produced similar classifications to the secondary PTSD threshold definition (item endorsement per cluster, reported in Table 2 as PTSD[a]) in 97.2% of patients at admission ($\chi^2 = 0.73$, $p = .39$) and 98.7% of patients at discharge ($\chi^2 = 0.23$, $p = .63$).

Patients' average admission PCL-5 for Criteria B, C, D, and E symptoms were significantly lower from admission to discharge. PCL-5 scores at admission, discharge, and changes from admission to discharge are presented in Table 2 for admissions with PTSD-level and below threshold PCL-5's. For patients admitting with PTSD-level PCL-5 scores, total PCL-5 and Criteria B, C, D, and E symptoms reduced significantly from admission to discharge (all *p*'s < .001). For these same patients, total PCL-5 score and Criteria D and E reduced

TABLE 2 PCL-5 scores and changes by admission PCL-5 category

	Admission M (*SD*)	Discharge M (*SD*)	Change M (*SD*)	Test statistic, *p*-value	Effect size
PCL-5 total	35.17 (18.78)	24.70 (17.76)	−10.47 (15.65)	t(612) = 16.56, *p* < .001	d = 0.67
PTSD, *n* (%)	328 (53.5%)	202 (33.0%)	−155 (47.3%)[ǂ]	$\chi^2(1) = 123.15$, *p* < .001	Φ = 0.45
No PTSD, *n* (%)	285 (46.5%)	411 (67.0%)	29 (10.2%)[†]		
PTSD[a], *n* (%)	311 (50.7%)	210 (34.3%)	−153 (49.2%)	χ^2 (1) = 92.00, *p* < .001	Φ =0.41
No PTSD[a], *n* (%)	302 (49.3%)	403 (65.7%)	38 (12.6%)		
PTSD	50.08 (10.49)	33.23 (17.35)	−16.85 (15.81)	t(327) =19.30, *p* < .001	d = 1.07
No PTSD	18.01 (9.04)	14.88 (12.35)	−3.13 (11.79)	t(284) = 4.48, *p* < .001	d = 0.27
Criterion B	7.55 (5.61)	5.87 (5.07)	−1.68 (4.68)	t(612) = 8.90, *p* < .001	d = 0.36
PTSD	11.45 (4.36)	8.27 (4.98)	−3.18 (5.03)	t(327) = 11.46, *p* < .001	d = 0.63
No PTSD	3.07 (2.89)	3.11 (3.53)	0.05 (3.52)	t(284) = −0.22, *p* = .83	d = −0.01
Criterion C	3.76 (2.64)	3.00 (2.51)	−0.76 (2.39)	t(612) = 7.89, *p* < .001	d = 0.32
PTSD	5.55 (1.86)	4.11 (2.42)	−1.45 (2.48)	t(327) = 10.57, *p* < .001	d = 0.58
No PTSD	1.68 (1.71)	1.72 (1.93)	0.03 (2.00)	t(284) = −0.27, *p* = .79	d = −0.02
Criterion D	14.32 (7.35)	9.68 (7.02)	−4.64 (6.43)	t(612) = 17.89, *p* < .001	d = 0.72
PTSD	19.72 (4.32)	12.64 (6.94)	−7.08 (6.42)	t(327) =19.97, *p* < .001	d = 1.10
No PTSD	8.11 (4.75)	6.27 (5.39)	−1.85 (5.18)	t(284) = 6.01, *p* < .001	d = 0.36
Criterion E	9.57 (5.60)	6.20 (4.93)	−3.37 (5.05)	t(612) = 16.51, *p* < .001	d = 0.67
PTSD	13.39 (4.04)	8.25 (5.03)	−5.14 (5.14)	t(327) =18.13, *p* < .001	d = 1.00
No PTSD	5.18 (3.55)	3.85 (3.60)	−1.33 (4.10)	t(284) = 5.47, *p* < .001	d = 0.32

[a]Secondary definition for PTSD threshold based on endorsement of minimum symptoms per cluster. d = Cohen's d effect size. PCL-5 Categories do not indicate an official PTSD diagnosis. "PTSD" (*n* = 328) refers to the patient group with PCL-5 scores above 33. "No PTSD" (*n* = 285) refers to the patient subgroup with PCL-5 scores at or below 33.

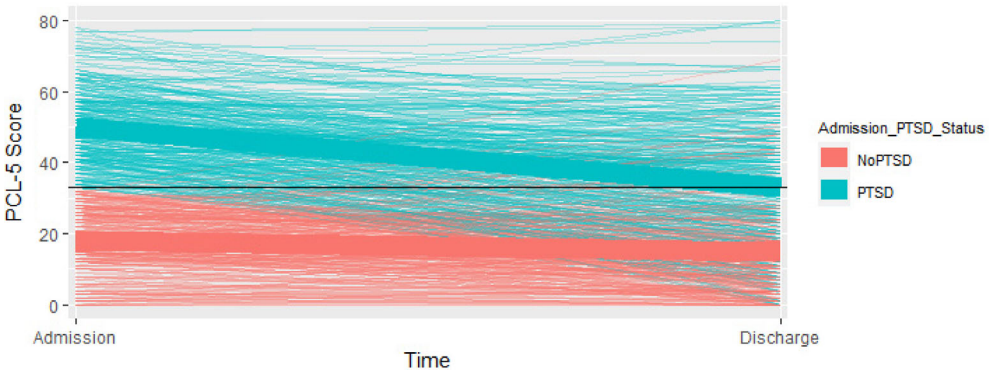

FIGURE 1 Total sample PCL-5 changes split by admission PTSD threshold [Color figure can be viewed at wileyonlinelibrary.com]

by reliable levels with large effect sizes, while Criteria B and C reduced by moderate effect sizes. For patients admitting with below threshold PCL-5 scores, total PCL-5 score and Criteria D and E reduced significantly from admission to discharge with small effect sizes (all *p*'s < .001), while Criteria B and C did not change significantly. Figure 1 presents each patient's PCL-5 change.

3.3 | PCL-5 by eating disorder diagnosis

PCL-5 scores and PTSD categories at admission, discharge, and changes from admission to discharge are presented separately for each ED diagnosis in the Table S1. Significantly fewer patients met PTSD-level PCL-5 criteria at discharge than admission for all ED diagnoses. For patients with AN-BP, average PCL-5 change from admission to discharge was significant, with a reliable and small-to-moderate effect size. For patients with AN-R, EDNOS, and ARFID, average PCL-5 change was significant, with moderate effect sizes. For patients with BN and BED, average PCL-5 change was significant, with reliable and large effect sizes. The Figure S1 presents each patient's PCL-5 change score within each ED diagnosis. No statistical tests were performed within PTSD-level or below threshold admission PCL-5's within each ED diagnosis due to small cell sizes.

4 | DISCUSSION

The purpose of this study was to assess the prevalence of trauma symptoms among those receiving HLOC treatment for an ED, and to determine if symptoms changed over the course of treatment. Over half of patients scored over 33 on the PCL-5 at admission, suggesting a likely diagnosis of PTSD. Patients had reliable decreases in trauma symptoms during treatment. While not directly compared, Criteria B (intrusions) and C (avoidance) seemed to improve less than Criteria D (negative alterations in cognitions and mood) and E (alterations in arousal and reactivity). It is possible that Criteria B and C require more trauma-specific interventions, whereas D and E may be more amenable to general therapeutic interventions such as DBT. However, it is also possible that a different form of treatment is not needed; perhaps patients would have benefitted from a longer length of stay to allow for further treatment of trauma symptoms. Findings from the current study suggest that even patients whose primary goal while in HLOC for treatment of their ED is weight restoration, or cessation of binge eating/purging, may benefit from concurrent ED and trauma-centered treatment.

4.1 | Strengths and limitations

Strengths of the current study include the large sample size, diversity of ED diagnoses, and information on "real world" clinical interventions. Limitations include the lack of a gold-standard diagnostic instrument, not having a specific clinical protocol for TIC, lack of a control group, and lack of post-discharge follow-up data. In addition, the diagnostic groups have unequal sample sizes, with the majority of patients (almost 60%) meeting criteria for AN. The study also assesses PTSD symptoms but did not assess exposure to trauma, thus it is unknown whether PCL-5 scores may be capturing general distress in individuals without a history of trauma. Heightened scores for Criteria D and E and the decrease in scores may be due to eating disorder treatment and reduction in associated symptoms, rather than a decrease in trauma-related symptoms. Additionally, different variances across symptom clusters due to different numbers of items make cross-cluster comparisons of results difficult. Given the therapeutic milieu, we are also unable to conclusively state that TIC was responsible specifically for the reduction in PTSD symptoms. Finally, while "refresher" trainings occur within the first 6 months of employment for all staff providing patient care, and the provision of TIC is discussed in staff supervision, there was no measure of fidelity to determine the degree of adherence to TIC provided by clinicians.

4.2 | Conclusion

Findings from the current study are promising and may inform future development of important treatment components to include in TIC. Further research is needed to determine whether response to TIC varies depending on patient body mass index (BMI), and presence and frequency of purging behaviors and self-injurious behavior. Further research is also needed to determine whether these positive changes endure post-discharge from HLOC, and to examine ways to ensure fidelity to TIC in clinical settings.

CONFLICT OF INTEREST

Dr. Rienecke receives consulting fees from the Training Institute for Child and Adolescent Eating Disorders, LLC, and receives royalties from Routledge. Dr. Le Grange receives royalties from Guilford Press and Routledge and is Co-Director of the Training Institute for Child and Adolescent Eating Disorders, LLC. Drs. Blalock and Le Grange consult for Eating Recovery Center. All other authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

Data will be made available upon reasonable request.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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