

## RESEARCH ARTICLE

# Sensitivity and specificity of the Posttraumatic Stress Disorder Checklist for *DSM-5* in a Canadian psychiatric outpatient sample

Jenna E. Boyd<sup>1,2</sup> | Duncan H. Cameron<sup>1,2</sup> | Philippe Shnaider<sup>2</sup> |  
 Randi E. McCabe<sup>1,2</sup> | Karen Rowa<sup>1,2</sup>

<sup>1</sup> Anxiety Treatment and Research Clinic,  
 St. Joseph's Healthcare Hamilton,  
 Hamilton, Ontario, Canada

<sup>2</sup> Department of Psychiatry and  
 Behavioural Neurosciences, McMaster  
 University, Hamilton, Ontario, Canada

## Correspondence

Jenna Boyd, 100 West 5th Street, Hamilton,  
 ON, L8N 3K7.

Email: [boydj@stjosham.on.ca](mailto:boydj@stjosham.on.ca)

## Abstract

The Posttraumatic Stress Disorder (PTSD) Checklist for *DSM-5* (PCL-5) is a widely used, self-report measure that is employed to assess PTSD symptom severity and determine the presence of probable PTSD in various trauma-exposed populations. The PCL-5 is often administered in clinical settings as a screening tool for PTSD, with a suggested cutoff score of 33 indicating a probable PTSD diagnosis. Recent research indicates that a higher cutoff may be required in psychiatric samples. In the present study, we aimed to determine the sensitivity and specificity of the PCL-5 in a Canadian outpatient psychiatric sample and establish an optimal cutoff score for detecting probable PTSD in this sample. Participants were 673 individuals who reported a history of trauma exposure and were assessed using a semistructured interview and self-report measures. Individuals diagnosed with PTSD ( $N = 193$ ) reported a mean PCL-5 score of 56.57, whereas individuals without PTSD ( $N = 480$ ) reported a mean score of 33.56. A score of 45 was determined to be the optimal cutoff score in this sample, balancing sensitivity and specificity while detecting a probable diagnosis of PTSD. Consistent with findings in other psychiatric samples, these findings indicate that in an outpatient psychiatric sample with a history of exposure to a variety of trauma types, a higher cutoff score is required to determine probable PTSD. In addition, given the estimated rate of false positives even with a higher cutoff, follow-up diagnostic assessments are recommended.

Posttraumatic stress disorder (PTSD) has a 12-month prevalence of 8%–9% in North America (Kessler et al., 1995; Van Amerigen et al., 2008), whereas the lifetime prevalence of exposure to traumatic events (i.e., events that involve actual or threatened death, serious injury, or sexual violence) is as high as 70%–90% in the general population (Frans et al., 2005; Kilpatrick et al., 2013; Resnick et al., 1993). PTSD is associated with significant functional impairment and economic burden (Kessler, 2000; Olatunji et al., 2007; Westphal et al., 2011), and in outpa-

tient psychiatric samples, the prevalence of current PTSD is closer to 20% (da Silva et al., 2019; Kiefer et al., 2020). These statistics point to the importance of screening for both trauma exposure and the presence of PTSD symptoms across health care settings, particularly psychiatric settings. The most recent version of the PTSD Checklist (PCL), which corresponds with the criteria outlined in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*; i.e., the PCL-5; Weathers et al., 2013), and its predecessors (e.g., the PCL that uses criteria

in the fourth edition, text revision of the *DSM*; Weathers, 1993) are among the screening measures most commonly used to assess symptoms of PTSD (Guideline Development Panel for the Treatment of Posttraumatic Stress Disorder in Adults, 2017).

The PCL-5 is a 20-item, self-report scale that is used to assess *DSM-5* PTSD symptoms and their severity. The measure provides a total score as well as symptom cluster scores for items related to intrusions, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity (Weathers et al., 2013). The PCL-5 has demonstrated strong psychometric properties, with good-to-excellent internal consistency across subscales, good test-retest reliability, convergent validity, and sensitivity to detect clinically significant levels of PTSD symptoms (Blevins et al., 2015; Bovin et al., 2016; Wortmann et al., 2016). In previous studies in military and veteran samples as well as trauma-exposed college students, researchers have found cutoff scores of 33–40 to be useful in indicating a probable PTSD diagnosis (Blevins et al., 2015; Bovin et al., 2016; Wortmann et al., 2016); the developers of the PCL-5 recommend a cutoff score of 31–33 for probable PTSD (Weathers et al., 2013).

Despite these recommended cutoff scores, some studies in psychiatric samples have indicated that higher cutoff scores are required to detect probable PTSD. For example, in a study investigating the psychometric properties of the PCL-5 in a Chinese sample recruited from an outpatient psychiatric clinic in which 60.7% of participants were diagnosed with PTSD, the authors found a cutoff score of 49 was optimal to balance sensitivity and specificity (Fung et al., 2019). In a Turkish sample of psychiatric outpatients with diagnoses of major depressive disorder and PTSD, a cut-off score of 47 was found to be optimal (Boysan et al., 2017). In addition, a study by Roberts et al. (2021) investigating the psychometric properties of the PCL-5 in mental health service users in the United Kingdom indicated the optimal cutoff score to be 43–44. In contrast, Pereira-Lima et al. (2019) found an optimal cutoff score of 36 in a sample recruited both from a psychiatric outpatient clinic and the community. Consistent with these findings, the author of a systematic review of PTSD screening instruments commented that the PCL–Civilian Version, which is based on *DSM-IV-TR* criteria, performed at a weaker level in more heterogeneous trauma-exposed samples compared with more homogenous samples (Brewin, 2005). Indeed, the author noted that different cutoff scores may be warranted when assessing different populations or when using the PCL for different purposes.

In general, few studies have investigated the sensitivity and specificity of the measure within community psychiatric samples, with very few studies completed in a

Canadian context. The PCL-5 was validated in a Canadian undergraduate sample in both English and French, with a score of 32 indicating probable PTSD (Ashbaugh et al., 2016); however, no studies of which we are aware have investigated cutoff scores in Canadian psychiatric samples. Further, internationally, studies investigating the psychometric properties of the PCL-5 have primarily focused on specific populations, including military personnel and veterans (Bovin et al., 2016; Wortmann et al., 2016), first responders (Carvalho et al., 2020; Morrison et al., 2021), and individuals exposed to shared traumatic experiences (e.g., natural disasters, civil war; Demirchyan et al., 2015; Ibrahim et al., 2018). It is valuable to study the PCL-5 not only across a variety of trauma-exposed populations but also across a variety of international samples to further the field's understanding of the psychometric properties of this instrument.

The purpose of this study was to present data on the sensitivity and specificity of the PCL-5 in a Canadian psychiatric outpatient sample primarily composed of individuals with anxiety and related disorders, including PTSD, who had been exposed to a variety of traumatic events. Herein, sensitivity refers to the ability of the PCL-5 to detect individuals with a diagnosis of PTSD (i.e., true positives) and specificity refers to the ability of the PCL-5 to correctly identify individuals without a diagnosis of PTSD (i.e., true negative). These values also help to identify individuals who do not have a diagnosis of PTSD but screen positive on the PCL-5 (i.e., false positives) and those who have been diagnosed with PTSD but screen negative on the PCL-5 (i.e., false negatives). Specifically, we aimed to (a) assess whether there was a difference in PCL-5 scores between individuals with clinically diagnosed PTSD and those with other psychiatric diagnoses but without PTSD, (b) present the sensitivity and specificity of the PCL-5 at various cutoff scores, and (c) determine the ideal cutoff score for the PCL-5 in a Canadian psychiatric outpatient sample.

## METHOD

### Participants

Participants ( $N = 673$ ) were individuals seen as outpatients at a large academic clinic for anxiety and related disorders in Ontario, Canada. The mean participant age was 36.11 years ( $SD = 13.16$ ), the sample was 76.1% White, and most participants had completed at least some college or university. Full demographic data are available in Table 1. Table 2 contains the frequencies of *DSM-5* diagnoses present in the sample, and Table 3 shows the index traumas reported by participants in the sample.

**TABLE 1** Sample demographic characteristics

Variable	M(SD)
Age, mean (SD)	36.11(13.16)
	%
Gender	
Male	27.6
Female	71.3
Transgender	0.7
Nonbinary	0.3
Educational attainment	
Completed high school	12.3
Some college or university	23.0
Completed college or university	40.3
Other	25.6
Ethnicity	
White/European	76.1
Asian	4.5
Black/Afro-Caribbean/African	3.0
Indigenous	2.8
Biracial or multiracial	3.3
Other	10.3
Employment status	
Full-time	25.9
Part-time	16.9
Unemployment due to illness	19.0
Other	38.2

**TABLE 2** Frequency with which participants met the diagnostic criteria for psychiatric diagnoses, based on diagnostic assessment

Disorder	Frequency (%)
Generalized anxiety disorder	39.1
Major depressive disorder	38.9
Social anxiety disorder	36.4
Posttraumatic stress disorder	28.7
Persistent depressive disorder	20.2
Panic disorder	13.8
Obsessive–compulsive disorder	12.9
Agoraphobia	11.3
Substance use disorder <sup>a</sup>	7.0
Specific phobia	6.7
Alcohol use disorder	5.1

<sup>a</sup>Any substance.

## Procedure

The present study was a retrospective database analysis of data collected from outpatients who presented to

the clinic for assessment and/or treatment. All individuals responded to a series of self-report questionnaires, including the PCL-5, just before their diagnostic assessment. All participants were assessed via the Diagnostic Assessment and Research Tool (DART; McCabe et al., 2017), a semistructured diagnostic interview used to assess for *DSM-5* disorders, including PTSD. All assessments were conducted by clinical psychologists, trained clinicians supervised by a clinical psychologist (e.g., social workers), or students in clinical psychology at the graduate level or higher who were supervised by clinical psychologists. To be included in the study, participants had to have endorsed exposure to a Criterion A traumatic event and gone on to fill out the remainder of the questionnaire. Individuals who endorsed exposure to a Criterion A traumatic event and did not complete the PCL-5 were not included in this analysis ( $n = 365$ ). This study was approved by the Hamilton Integrated Research Ethics Board.

## Measures

### PTSD symptoms

The PCL-5 (Weathers et al., 2013) is a 20-item questionnaire that corresponds with the *DSM-5* symptom criteria for PTSD. The PCL-5 provides a total score and subscale scores for *DSM-5* PTSD symptom clusters, including symptoms of intrusions, avoidance, negative alterations in cognitions and mood, and alterations in arousal and reactivity. The PCL-5 can be scored either by summing the scores of all items or by assessing whether criteria are met across PTSD symptom clusters (i.e., a score of 2 or higher for at least: one item on the Intrusion subscale, one item on the Avoidance subscale, two items on the Negative Alterations in Cognitions and Mood subscale, and two items on the Alterations in Arousal and Reactivity subscales; Blevins et al., 2015). In the present sample, Cronbach's alpha for the overall scale was .95.

### *DSM-5* mental disorders

The DART Interview (McCabe et al., 2017) is a semistructured diagnostic tool used to assess *DSM-5* mental disorders in clinical and research settings. Psychometric data available for the DART demonstrate excellent construct validity and good convergent and discriminant validity (Schneider et al., 2021).

TABLE 3 Endorsed index trauma types, by posttraumatic stress disorder (PTSD) diagnostic status

Trauma type	PTSD	No PTSD	Total
Natural disaster (e.g., flood, hurricane, tornado, earthquake)	0.6	0.0	0.2
Fire or explosion	3.4	0.4	1.3
Transportation accident (e.g., car accident, boat accident, train wreck, plane crash)	9.6	7.7	8.3
Serious accident at work, home, or during recreational activity	2.3	3.8	3.3
Physical assault (e.g., being attacked, hit, slapped, kicked, beaten up) or assault with a weapon (e.g., being shot, stabbed, threatened with a knife, gun, bomb)	20.9	20.8	20.8
Sexual assault (e.g., rape, attempted rape, made to perform any type of sexual act through force or threat of harm)	31.1	15.3	19.7
Other unwanted or uncomfortable sexual experience	6.2	13.1	11.1
Combat or exposure to a war zone while in the military or as a civilian	0	0.7	0.5
Captivity (e.g., being kidnapped, abducted, held hostage, prisoner of war)	1.1	0.4	0.6
Life-threatening illness or injury	3.4	6.4	5.6
Severe human suffering	1.7	4.2	3.5
Sudden violent death (e.g., homicide, suicide)	5.6	6.4	6.2
Sudden accidental death	4.0	4.9	4.6
Serious injury, harm, or death you caused to someone else	0.6	0.7	0.6
Other	9.6	15.3	13.7

Note: Data were available for 93.5% ( $n = 629$ ) of the total sample, 91.7% ( $n = 177$ ) of the PTSD subsample, and 94.2% ( $n = 452$ ) of the no PTSD subsample. The remaining 6.5% of participants ( $n = 44$ ) did not endorse a specific index traumatic event on the background trauma question of the PTSD Checklist for DSM-5.

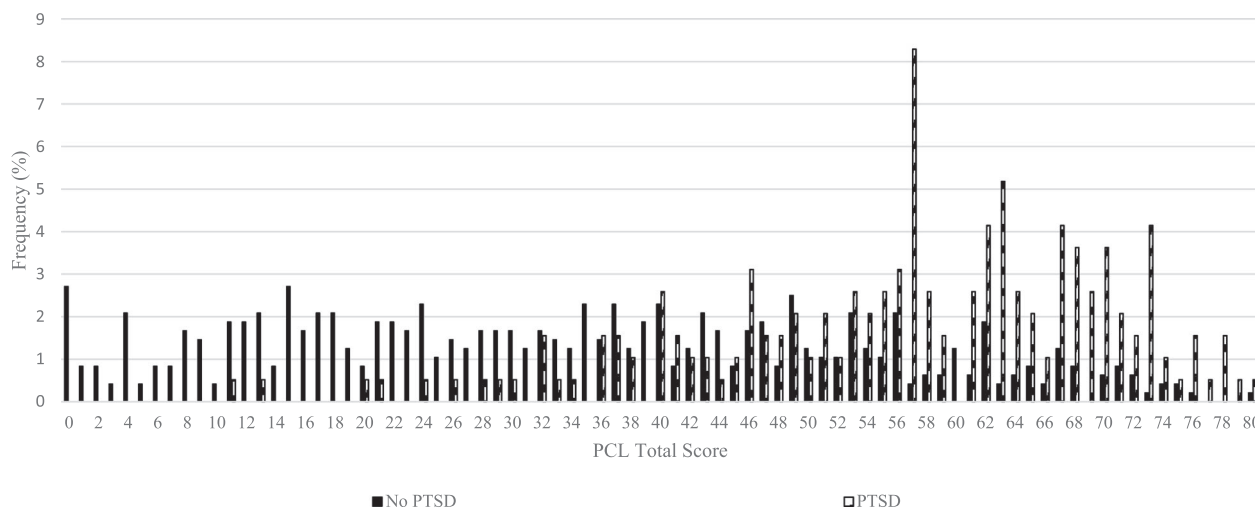
## Data analysis

Although all participants endorsed exposure to a DSM-5 Criterion A traumatic event (i.e., actual or threatened death, serious injury, or sexual violence), 44 (6.5%) participants did not complete the question regarding background trauma exposure on the PCL-5, which indicates the nature of the traumatic event to which they were exposed. Only participants with complete responses to the rest of the questionnaire items were included in the analysis. All statistical analyses were performed using IBM SPSS (Version 25).

An independent-samples  $t$  test was used to assess the difference in PCL-5 score between participants with and without a clinical diagnosis of PTSD. Next, a series of sensitivity and specificity analyses were performed for various levels of the PCL-5 total score to observe the effect of different cutoff scores on the sensitivity and specificity of the tool. In particular, this was examined for (a) the published cutoff score (i.e., 33; Weathers et al., 2013) and (b) the PCL-5 score based on criteria scoring. Here, we assessed true posi-

tive rate (TPR; i.e., sensitivity), true negative rate (TNR; i.e., specificity), false-positive rate (FPR), and false-negative rate (FNR) based on the higher cutoff scores suggested by previous research in psychiatric samples (Fung et al., 2019; Boysan et al., 2017). These were calculated by creating a  $2 \times 2$  contingency table of individuals who scored above and below the clinical cutoff for the PCL-5 (i.e., predicted condition) versus those who received or did not receive a clinical diagnosis of PTSD (i.e., actual condition).

Finally, a receiver operating characteristic (ROC) analysis was performed to determine whether there was an appropriate cutoff score that could accurately detect clinically significant PTSD symptoms while balancing sensitivity and specificity, using clinically diagnosed PTSD as the state (i.e., “gold standard”) variable and PCL-5 total score as the test variable. Youden’s  $J$  was calculated as sensitivity + specificity – 1 to determine an optimal score that balanced sensitivity and specificity (Zhou et al., 2011). In addition, we calculated the PPV as  $PPV = TP / TP + FP$  and the negative predictive value as  $NPV = TN / FN + TN$ . We also calculated the positive likelihood ratio ( $LR^+$ ) as  $LR^+ = TPR$



**FIGURE 1** Distribution of Posttraumatic Stress Disorder (PTSD) Checklist for *DSM-5* (PCL-5) total score for the PTSD versus no-PTSD groups

/ FPR and the negative LR ( $LR^-$ ) as  $LR^- = FNR / TNR$  for each coordinate on the ROC curve.

The area under the curve (AUC) value for the ROC analysis of .9 or higher can be interpreted as high accuracy of the diagnostic measure, a value of .7–.9 can be considered to be moderately accurate, and a value of .5–.7 represents low accuracy (Fischer et al., 2003). LRs can be interpreted such that an  $LR^+$  of 5.0–10.0 or  $LR^-$  of 0.1–0.2 indicates clinically useful information, whereas ratios ranging from 0.33 to 3.0 rarely alter clinical decisions (Fischer et al., 2003). Sensitivity and specificity are, ideally, both maximized for a clinical cutoff, but as there is generally an inverse association between these two values, often, they must be balanced depending on the intent and priorities of the measure (Streiner & Norman, 2008). A sensitivity of .5 indicates that the measure appropriately detects only 50% of true positive cases, whereas a specificity of .5 indicates that the measure detects only 50% of true negatives.

## RESULTS

There were 193 individuals with a DART interview-confirmed diagnosis of PTSD (PTSD group) and 480 individuals who did not meet the criteria for a PTSD diagnosis but met the criteria for other *DSM-5* diagnoses (no PTSD group; see Table 2 for distribution of diagnoses in the sample). Table 3 shows the index traumatic events endorsed by participants in the sample. The *t* test between these two groups on PCL-5 scores was significant,  $t(672) = -14.98$ ,  $p < .001$ , indicating significantly higher scores on the PCL-5 among individuals with a diagnosis of PTSD compared to those without a diagnosis of PTSD. The mean PCL-5 score for the PTSD group was 56.57 ( $SD = 19.50$ ), and the mean

PCL-5 score for the no PTSD group was 33.56 ( $SD = 13.67$ ). Figure 1 shows the distribution of PCL-5 scores for both the PTSD and no PTSD groups.

Table 4 shows the results of the sensitivity and specificity analyses for increasing total PCL-5 cutoff scores. The PCL-5 appeared to demonstrate high sensitivity at all cutoff scores tested. For a score of 33 (i.e., the established cutoff score) and the scoring based on meeting the *DSM-5* criteria, the specificity rate held at around 50%, indicating that the recommended PCL-5 scoring procedures provided a diagnosis of PTSD in 50% of respondents who did not have a confirmed diagnosis of PTSD in this sample of patients at an outpatient psychiatric clinic.

The results of the ROC analysis indicated that the PCL-5 demonstrated excellent diagnostic ability,  $AUC = .825$ , 95% CI [.793, .857] (see Figure 2), in this sample. A middle section of the curve coordinates can be found in Table 5. As shown in Table 5, the sensitivity of the PCL-5 remained very strong until high PCL-5 scores reached the upper levels of the possible score range, whereas specificity remained somewhat low, even at high PCL-5 scores. Youden's *J* was calculated for all coordinate values on the ROC curve, and the highest values were observed for PCL-5 scores of 44.5,  $J = 0.511$ , and 45.5,  $J = 0.508$ , indicating an optimal score of 45 to balance sensitivity and specificity in this sample. Given these values, we also calculated and reported sensitivity and specificity for a cutoff score of 45 in Table 4.

## DISCUSSION

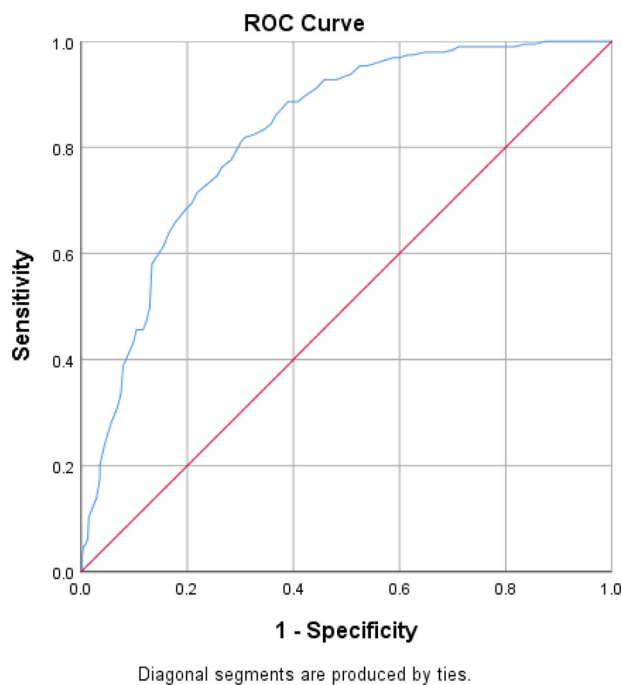
The purpose of the present study was to report on the sensitivity and specificity of the PCL-5 in a Canadian

**TABLE 4** True and false positive and negative rates for the posttraumatic stress disorder (PTSD) checklist for *DSM-5* (PCL-5), by total score

PCL-5 score category	True positive (%)	True negative (%)	False positive (%)	False negative (%)
≥ 33	93.8	49.2	50.8	6.2
PCL <i>DSM-5</i> criteria met <sup>a</sup>	90.7	49.8	50.2	9.3
≥ 40	88.6	61.0	39.0	11.4
≥ 45	81.9	69.2	30.8	18.1
≥ 50	72.5	76.9	23.1	27.5

Note: At each cutoff value, the true positive rate can also be interpreted as sensitivity, whereas the true negative rate can be interpreted as the specificity of the scale. The false-positive rate can also be interpreted as the Type I error rate, whereas the false-negative rate can be interpreted as the Type II error rate.

<sup>a</sup>At least: one intrusion item, one avoidance item, two negative alterations in cognitions and mood items, and two alterations in arousal and reactivity items.

**FIGURE 2** Receiver operating characteristic (ROC) curve for Posttraumatic Stress Disorder (PTSD) Checklist for *DSM-5* total score versus formal diagnosis of PTSD

psychiatric outpatient sample with prevalent anxiety and related disorders and exposure to various trauma types. In addition, we aimed to provide a suggested cutoff score to detect probable PTSD among psychiatric outpatients. In the current study, we found that a PCL-5 score of 45 was optimal in balancing sensitivity and specificity. This aligns with previous studies in psychiatric samples, in which higher cutoff scores have been reported (Fung et al., 2019; Boysan et al., 2017), as compared with earlier studies on the PCL-5 in military and veteran samples and trauma-exposed college students (Blevins et al., 2015; Bovin et al., 2016; Wortmann et al., 2016). In the current sample, the mean PCL-5 score among participants in the PTSD group was 56.57, and the mean score in the no PTSD group was 33.56. Additionally, 50.8% of participants in the no

PTSD group received a score of 33 or above on the PCL-5, indicating that the previously published suggested mean scores to detect a probable diagnosis of PTSD (Weathers et al., 2013) may be associated with a high rate of false positives in psychiatric outpatient samples. Indeed, if a cutoff score of 33 were to be used in this sample, 50.8% of the sample would be identified as having probable PTSD, whereas only 28.7% of the participants received a PTSD diagnosis following diagnostic assessment.

These findings and those reported by others (Fung et al., 2019; Boysen et al., 2017; Roberts et al., 2021) diverge from initial psychometric studies completed in military and veteran samples and trauma-exposed college students, where suggested cutoff scores ranged from 33 to 40 (Blevins et al., 2015; Bovin et al., 2016; Wortmann et al., 2016). It is likely that in a sample of individuals with high rates of comorbidity, such as those seen in psychiatric inpatient and outpatient settings, a higher cutoff is required. This may be due to the overlap between *DSM-5* PTSD symptoms and the symptoms associated with other *DSM-5* disorders (e.g., depression, anxiety disorders), which likely inflate PCL-5 scores (Afzali et al., 2017; Walton et al., 2017). For example, in the present sample, 39.1% of respondents had a diagnosis of generalized anxiety disorder, and 39.9% of participants had a diagnosis of major depressive disorder. These individuals would likely endorse items on the PCL-5, particularly in Cluster D (i.e., negative alterations in cognitions and mood) and Cluster E (i.e., alterations in arousal and reactivity), such as anhedonia, persistent negative emotions, feelings of disconnection from others, irritability, concentration difficulties, and sleep difficulties. This would, thus, inflate the score required to detect individuals with a diagnosis of PTSD in a sample with high rates of anxiety and mood disorders. This is also consistent with previous suggestions that the population and purpose of screening may warrant different cutoff scores when screening for PTSD (Brewin, 2005). Indeed, Roberts et al. (2021) reported that scores on the PCL-5 were strongly correlated with measures of depression and generalized anxiety, suggesting that the PCL-5 may have reduced efficacy in

**TABLE 5** Coordinates of the receiver operator characteristic curve for the posttraumatic stress disorder (PTSD) Checklist for *DSM-5* (PCL-5) total score versus formal PTSD diagnosis

PCL-5 score	Sensitivity	1-Specificity	<i>J</i>	PPV	NPV	LR <sup>+</sup>	LR <sup>-</sup>
10.50	1.000	.875	.125	.315	1.00	1.14	.000
11.50	.995	.856	.139	.319	.986	1.16	.035
12.50	.995	.838	.157	.323	.988	1.19	.031
13.50	.990	.817	.173	.328	.979	1.21	.055
14.50	.990	.808	.182	.330	.979	1.23	.052
15.50	.990	.781	.209	.338	.982	1.27	.046
16.50	.990	.765	.225	.342	.983	1.29	.043
17.50	.990	.744	.246	.349	.985	1.33	.039
18.50	.990	.723	.267	.355	.986	1.37	.036
19.50	.990	.710	.280	.359	.986	1.39	.034
20.50	.984	.702	.282	.360	.979	1.40	.054
21.50	.979	.683	.296	.366	.974	1.43	.066
22.50	.979	.665	.314	.372	.975	1.47	.063
23.50	.979	.648	.331	.378	.977	1.51	.060
24.50	.974	.625	.349	.385	.973	1.56	.069
25.50	.974	.615	.359	.389	.974	1.58	.068
26.50	.969	.600	.369	.394	.970	1.62	.078
27.50	.969	.588	.381	.399	.971	1.65	.075
28.50	.964	.571	.393	.404	.967	1.69	.084
29.50	.959	.554	.405	.410	.964	1.73	.092
30.50	.953	.538	.415	.416	.961	1.77	.102
31.50	.953	.525	.428	.422	.962	1.82	.099
32.50	.938	.508	.430	.426	.952	1.85	.126
33.50	.933	.494	.439	.432	.949	1.89	.132
34.50	.927	.481	.446	.437	.946	1.93	.141
35.50	.927	.458	.469	.449	.949	2.02	.135
36.50	.912	.444	.468	.452	.940	2.05	.158
37.50	.896	.421	.475	.461	.933	2.13	.180
38.50	.886	.408	.478	.466	.928	2.17	.193
39.50	.886	.390	.496	.477	.930	2.27	.187
40.50	.860	.367	.493	.485	.918	2.34	.221
41.50	.845	.358	.487	.487	.912	2.36	.241
42.50	.834	.346	.488	.492	.907	2.41	.254
43.50	.824	.325	.499	.505	.905	2.54	.261
44.50	.819	.308	.511	.517	.905	2.66	.262
45.50	.808	.300	.508	.520	.901	2.69	.274
46.50	.777	.283	.494	.525	.889	2.75	.311
47.50	.762	.265	.497	.536	.885	2.88	.324
48.50	.746	.256	.490	.540	.879	2.91	.341
49.50	.725	.231	.494	.558	.874	3.14	.358
50.50	.715	.219	.496	.568	.872	3.26	.365

*Note:* The ideal cutoff value will attempt to maximize the values in each column of this table, except LR<sup>-</sup> and 1-specificity, which should be minimized, although the balancing of values across columns is generally required. *J* = Youden's *J* (sensitivity + specificity - 1); LR<sup>+</sup> = positive likelihood ratio (true positive rate / false positive rate); LR<sup>-</sup> = negative likelihood ratio (false negative rate / true negative rate); NPV = negative predictive value (true negatives / true negatives + false negatives); PPV = positive predictive value (true positives / true positives + false positives).

distinguishing PTSD from mood or anxiety disorders; this is particularly relevant in populations with high levels of comorbidity.

These findings point to the importance of completing a diagnostic assessment following screening with the PCL-5 to establish a diagnosis of PTSD. This suggestion contrasts with findings reported by Geier et al. (2019), who evaluated the diagnostic utility of the PCL-5 among traumatically injured individuals 6 months postadmission to a trauma hospital. The authors reported that the PCL-5 was able to detect PTSD reliably with an optimal cutoff score of 30, which they note is lower than previous samples. Given the sensitivity and specificity of the PCL-5 in Geier and colleagues' sample, the authors posited that the PCL-5 can be used over more rigorous screening measures such as the Clinician-Administered PTSD Scale for *DSM-5* (CAPS-5); nonetheless, they did comment on the need for clinician interpretation beyond simple cutoff scores (Geier et al., 2019). We caution against this approach given the findings of a higher cutoff required to detect a diagnosis of PTSD in the present sample as well as the aforementioned symptom overlap between *DSM-5* PTSD and other disorders. We strongly encourage clinicians to utilize the PCL-5 as a screening measure and to follow its administration with a clinical interview to determine diagnosis.

The present results should be interpreted with some limitations in mind. In particular, our study investigated the sensitivity and specificity of the PCL-5 in a sample of psychiatric outpatients with a primary diagnosis of an anxiety disorder or related disorder or unipolar depression. Thus, our sample did not include individuals with serious mental illness, such as schizophrenia, bipolar disorder, or personality disorders, and our findings may not be generalizable to these individuals. Further, previous studies in psychiatric samples have either not included information about comorbid diagnoses, such as schizophrenia or bipolar disorders, or have not assessed for the presence of other psychiatric disorders (Boysen et al., 2017; Fung et al., 2019; Pereira-Lima et al., 2019). This points to the need for further research investigating the psychometric properties of the PCL-5 in psychiatric samples with comorbid PTSD and these disorders. In addition, as indicated in previous studies, the appropriate PCL-5 cutoff score may vary depending on the population assessed (Brewin, 2005; Roberts et al., 2021), and our results likely do not generalize to other trauma-exposed populations, such as military members, veterans, first responders, or community samples. Finally, the results of the current study rely heavily on the accuracy of the diagnostic assessments conducted, which are not perfect themselves. To increase accuracy, we used a semistructured diagnostic tool with excellent psychometric properties, and all diagnosticians received extensive

training in diagnostic assessment with this tool; however, it is still possible that the results of the diagnostic assessments do not perfectly reflect the presence or absence of PTSD.

The overall results of the present study point toward the efficacy of the PCL-5 as a screening tool within a Canadian psychiatric outpatient sample. The results indicate that a higher cutoff score of 45 was required to balance specificity and sensitivity in this sample. The similarity of our results with those reported in studies with similar samples from China and Turkey (Fung et al., 2019; Boysen et al., 2017) adds to an encouraging international consensus on the need for a higher PCL-5 cutoff score in psychiatric samples. These findings also add to the literature suggesting a need for different cutoff scores that are dependent upon the sample in question (Blevins et al., 2015; Boysen et al., 2017; Bovin et al., 2016; Fung et al., 2019; Wortmann et al., 2016).

## OPEN PRACTICES STATEMENT

The study reported in this article was not formally preregistered. Neither the data nor the materials have been made available on a permanent third-party archive; requests for the data or materials can be sent via email to the lead author at [boydj@stjosham.on.ca](mailto:boydj@stjosham.on.ca).

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