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Research Paper

Beyond the threshold: Considering and exploring subthreshold PTSD and co-morbid mental health in a clinical military sample

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ABSTRACT

Subthreshold posttraumatic stress disorder (PTSD) refers to sub-clinical PTSD which may entail functional impairment and distress associated with symptoms of PTSD, without meeting criteria for threshold PTSD. The current study explored the prevalence and mental health associations of subthreshold PTSD in a clinical sample of UK veterans seeking support for mental health difficulties, for whom subthreshold PTSD may be of particular relevance. The sample was drawn from a clinical database of a UK national charity. In total 881 veteran records were extracted which included participants' available demographic data, and PTSD, anxiety, depression and alcohol use measures routinely collected as part of treatment. Overall, those with subthreshold PTSD appeared to have less severe symptoms of PTSD than PTSD. However, only definitions of subthreshold PTSD which required meeting DSM-5 criterion D (negative alterations in mood associated with index trauma) and criterion E (hyperarousal associated with index trauma) were associated with greater symptom severity than those without PTSD. These findings indicate possible clinical utility of a subthreshold definition requiring endorsement of these symptoms in clinical veteran services. Future research might further explore these definitions of subthreshold PTSD and how individuals who meet these criteria might be supported.

1. Introduction

The psychological consequences of trauma exposure exist on a spectrum (Ruscio et al., 2002). According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), posttraumatic stress disorder (PTSD) requires an individual to endorse exposure to a traumatic event (known as criterion A), and presence of at least one symptom from each of four criteria: intrusion/re-experiencing (criterion B), avoidance (criterion C), negative alterations in cognitions (criterion D) and hyperarousal associated with the event (criterion E; American Psychiatric Association, 2022). Compared to individuals who meet the diagnostic criteria for PTSD, relatively little is known about the prevalence and psychological burden of subthreshold PTSD. Subthreshold PTSD is typically defined as the trauma-exposed population who endorse *some* symptoms of PTSD but do not meet a threshold score on validated measures for a diagnosis of probable PTSD (Kulka et al., 1991).

In community trauma-exposed samples across 13 countries (McLaughlin et al., 2015), estimates suggest a 4.6 % prevalence of possible subthreshold PTSD. Indeed, there has been speculation that subthreshold PTSD may be more prevalent than PTSD (Mitchell et al., 2012; Pietrzak et al., 2011). For example, a meta-analysis which included both community and clinical samples, the average rate of subthreshold PTSD across 81 studies was 14.1 % (Brancu et al., 2016).

1.1. Clinical relevance of subthreshold PTSD

The presence of subthreshold PTSD may demonstrate an increased risk of subsequently developing PTSD. A longitudinal study of 9/11 response workers indicated that 14.1 % of individuals with subthreshold PTSD went on to develop PTSD within two years with 14.8 % continuing to meet criteria for subthreshold PTSD (Cukor et al., 2010). As such, identifying and early intervention in subthreshold PTSD may be preventative and reduce the need for trauma-focused treatment later (Smid et al., 2009). As such, several studies have highlighted the clinical relevance of further exploring subthreshold PTSD (Bergman et al., 2015; Brancu et al., 2016; Fink et al., 2018; Klein et al., 2024).

More generally, subthreshold PTSD has been linked with increased symptomatic burden and poorer quality of life, including increased suicidality (Marshall et al., 2001), and poorer health and functioning (El-Gabalawy et al., 2018; Mota et al., 2016; Van Zelst et al., 2006). Such

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findings are of particular relevance to populations with high and repeated trauma-exposure such as the military (Fink et al., 2018).

1.2. Consensus definition of subthreshold PTSD

Definitions of subthreshold PTSD require exposure to a traumatic event but vary according to which combination of other criteria for PTSD need to be endorsed. Various studies have compared the prevalence and health outcomes associated with different definitions of subthreshold PTSD (Bergman et al., 2017; Franklin et al., 2018; Kim et al., 2020; Klein et al., 2024; McLaughlin et al., 2015), with some arguing for specific emphasis on certain symptom clusters that are implicated in the development of PTSD, such as intrusion (criterion B) and avoidance (criterion C; Brancu et al., 2016). By contrast, McLaughlin et al. (2015) posit a definition requiring the presence of symptoms endorsed from any three of the DSM-5 criteria for PTSD might be the most clinically useful. Klein et al. (2024) compared miliary veterans who met nine different subthreshold PTSD definitions with both those who met the threshold for PTSD and those who did not. They found that regardless of what subthreshold definition was used, those with subthreshold PTSD had poorer health outcomes than those without PTSD, but less severe symptoms than those with PTSD.

However, much of the research corpus utilises US community samples. This may present limitations to the generalisabilty to clinical treatment-seeking populations, as well as populations in other countries and healthcare systems where access to specific treatment pathways may be contingent on endorsing different symptomatic presentations. As an understanding of subthreshold PTSD could potentially inform preventative treatment and service provision criteria, it is important to explore if the findings from these studies generalise to other trauma-exposed populations, such as UK veterans. Research on this population in particular has shown that UK veterans seeking treatment for trauma-related mental health difficulties may take longer to seek help compared to other groups (Murphy & Busuttil, 2015) and may be more likely to end treatment early (Varker et al., 2021). The clinical UK veteran population may also exhibit high levels of comorbidity and complexity in their clinical presentations (Campbell et al., 2023; Williamson et al., 2022), which in turn may be relevant to PTSD presentation and treatment.

The current study explored the prevalence and mental health associations of subthreshold PTSD in a sample of UK veterans seeking support for mental health difficulties. The secondary aim of this study was to compare these rates and outcomes across nine definitions of subthreshold PTSD (following Klein et al., 2024), to understand whether there is an optimal operationalisation of subthreshold PTSD for this population.

2. Method

2.1. Participants

Data were drawn from a database of a national charity offering clinical services to military veterans with mental health difficulties. Eligible participants were those who had 1) consented for their data to be used for the purposes of research, 2) for whom records were collected within the previous two years (the cut-off for consent renewal) and 3) who had PTSD Checklist for DSM-5 (PCL-5) scores available. In total, 881 participant records were extracted. Those for whom demographic information was recorded had a mean age of 50.0 years (SD = 11.3) of whom 93.0 % were male, and 80.6 % had served in the British Army

2.2. Procedure

Data was extracted in February 2024 and included participants' available demographic data, and scores for measures of PTSD, anxiety, depression and alcohol misuse. The data was imported into Excel to be used for analysis.

2.3. Measures

2.3.1. PTSD

PTSD symptom severity was measured using the PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). The scale has 20 self-report items measured on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). Scores range from 0 to 80, with a higher score indicating worse symptom severity. A score of 34 and above is indicative of probable PTSD. Whilst this is a higher threshold than for the general population, a cut-off score of 34 has been shown to be valid both in comparison to clinician administered diagnostic tools, and ecologically appropriate for the complex and comorbid symptomatic presentations often typical of treatment-seeking veterans (Murphy et al., 2017). An alternative to scoring probable PTSD on the scale is to count each item rated two or higher as an endorsed symptom and follow DSM-5 diagnostic criteria under each criterion. This method of scoring was employed in the current study to determine how many participants met each subthreshold definition. The scale has good psychometric properties (internal consistency; $\alpha = 0.94$; Blevins et al., 2015).

2.3.2. Alcohol use

Symptoms of alcohol misuse were measured using the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993), a 10-item scale where scores higher than eight and 16 are classified as possible hazardous and harmful alcohol use respectively. The AUDIT has good internal consistency (α=0.60 – 0.80; Saunders et al., 1993).

2.3.3. Depression

Symptoms of depression were measured using the Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002), a 9-item scale where scores of 5, 10, 15, 20 represent cut-offs for mild, moderate, moderately severe and severe depression, respectively. The scale has good internal consistency (α=0.87; Beard et al., 2016).

2.3.4. Anxiety

Symptoms of anxiety were measured using the Generalised Anxiety Disorder scale (GAD-7; Spitzer et al., 2006), a 7-item scale where scores of 5, 10 and 15 represent cut-offs for mild, moderate and severe anxiety respectively. The scale has good internal consistency (α=0.93; Villarreal-Zegarra et al., 2024).

2.4. Data analysis

Participants were grouped into: those who met criteria for PTSD ("PTSD"); those who met each of the nine subthreshold definitions ("subthreshold PTSD"); and those who did not meet criteria for either PTSD or subthreshold PTSD ("no-PTSD"). The nine definitions used in the current study and subsequent comparisons of definitions and PTSD, subthreshold and no-PTSD groups follow Klein et al. (2024). These definitions are summarised in Table 1. Each definition was then compared across demographic characteristics, as well as the number of participants who endorsed each symptom and met each DSM-5 PTSD criterion. There were no missing data. Visual inspection indicated the data were not normally distributed. As such, to compare the scores participants in each subthreshold definition on measures of PTSD, alcohol use, depression and anxiety, Kruskal-Wallis tests were completed. Type 1 error was corrected for with post-hoc Dwass--Steel-Critchlow-Flinger pairwise comparisons. The subthreshold PTSD groups could not be compared to each other in terms of comorbidities using inferential statistics as they include the same participants merely categorised differently and are therefore not independent, following Klein et al. (2024).

Table 1
Summary of definitions of subthreshold PTSD.

Subthreshold PTSD Definitions	Description as per DSM-5 criteria
Definition 1	Endorsing at least one symptom from criteria B to E
Definition 2	Criterion B + Criterion C + (Criterion D or Criterion E)
Definition 3	Criterion B + Criterion C
Definition 4	(Criterion B or Criterion C) + (Criterion D or Criterion E)
Definition 5	Endorsing any three criteria (B to E)
Definition 6	(Criterion B or Criterion C) + Criterion D + Criterion E
Definition 7	Endorsing any two criteria (B to E)
Definition 8	Endorsing any 6+ individual symptoms
Definition 9	Criterion D + Criterion E

Criteria taken from DSM-5 symptomatic definition of PTSD: criterion B = intrusion; criterion C = avoidance; criterion D = negative alterations in cognitions; criterion E = hyperarousal.

3. Results

Overall, 649/881 (73.7 %) of participants met criteria for PTSD. A total of 144/881 (16.3 %) met criteria of at least one subthreshold PTSD definition, whilst 88/881 (10.0 %) comprised the no-PTSD group. Across the nine subthreshold definitions, the demographic characteristics of each group were similar (Table 2), with those in each group similar in age, marital status and gender and ethnicity.

3.1. Group comparisons on PTSD symptoms and scores

The mean number of symptoms endorsed for each definition (Table 3) ranged from 8.47 for subthreshold PTSD Definition 7 (endorsing any two criteria) to 10.28 for subthreshold PTSD Definition 6 (endorsing criterion B or C + criterion D + criterion E).

Table 4 compares the PCL-5 scores between veterans in the PTSD and non-PTSD with the scores for veterans with subthreshold PTSD as per the nine definitions. Those with PTSD and subthreshold PTSD had significantly different PCL-5 scores, except under subthreshold PTSD Definition 1 (endorsing one symptom per criterion). Only those in five of the nine subthreshold PTSD groups had significantly different PCL-5 scores from the no-PTSD group.

3.2. Group comparisons on depression, anxiety and alcohol misuse

Table 5 shows the comparison of scores on measures of depression, anxiety and alcohol misuse for veterans with subthreshold PTSD as per the nine different subthreshold definitions, with both those with and without PTSD. Those in all nine subthreshold PTSD definition groups had significantly lower depression scores than those with PTSD. However, these scores did not significantly differ from the no-PTSD group. Three definitions of subthreshold PTSD (Definitions 1, 4 and 5) were found to be associated with significantly lower anxiety scores. No other differences in anxiety scores between groups were found. No significant differences in alcohol use were found between any subthreshold PTSD definition groups and the PTSD or no-PTSD groups.

4. Discussion

The current study explored the prevalence, symptom severity and extent of common mental health comorbidities across nine definitions of subthreshold PTSD in a large clinical sample of UK veterans. In line with a similar study with a US community veteran sample, those in each subthreshold category were demographically alike (Klein et al., 2024). The symptom severity across subgroups with PTSD, subthreshold PTSD and no-PTSD were explored. For all subthreshold definitions except Definition 1 (one symptom per DSM-5 criteria), PTSD symptom severity as per PCL-5 scores was observed to be significantly lower than for those with PTSD. However, our finding that symptom severity was not consistently significantly higher for the subthreshold PTSD groups compared with veterans in the no-PTSD group, is in contrast with the previously published research. Prior studies found PTSD symptom severity to be consistently worse in subthreshold PTSD groups compared to no-PTSD (Klein et al., 2024; El-Gabalawy et al., 2018; Mota et al., 2016; van Zelst et al., 2006). The present sample differs in that it is taken from a clinical sample of treatment-seeking veterans, and not community samples of veterans. Accordingly, those seeking-treatment may present with more universally severe symptoms of PTSD regardless of whether or not they meet caseness thresholds. Further comparisons between clinical and non-clinical veteran cohorts may allow better exploration of whether threshold, subthreshold and no caseness boundaries are uniform across the veteran population.

4.1. Clinical relevance of criterion D and E in subthreshold PTSD

Nonetheless, the present study did find some difference in PTSD symptom severity between subthreshold PTSD groups and the no-PTSD group. However, only for subthreshold PTSD definitions requiring endorsement of criteria D (negative alterations in cognitions) and E (hyperarousal) was symptom severity observed to be significantly worse in the subthreshold PTSD groups compared to those in the no-PTSD group. A complimentary finding has been reported by Costanzo et al. (2016) in a sample of veterans with subthreshold PTSD, in which those with more severe symptoms exhibited higher levels of hyperarousal and negative mood.

These findings suggest that in a clinical sample of veterans, criteria D and E may be particularly salient and potentially drive the increased distress and symptom severity associated with subthreshold PTSD. While other studies have reported low prevalence of subthreshold definitions including criteria D and E (e.g. Klein et al., 2024) and therefore suggested these definitions may have limited clinical utility, the present study suggests these definitions may be key in *clinical* groups of veterans by highlighting those who may not meet the threshold for PTSD yet may still be experiencing significant residual distress.

Table 2
Demographic characteristics for subthreshold PTSD definitions.

Subthreshold PTSD Definition	Total	Demographic characteristic							
		Age (Years)		Ethnicity: White race		Marital status: In a relationship		Sex: Male	
	n	M	*SD*	*n*	%	*n*	%	*n*	%
Definition 1	60	49.92	11.03	60	100	50	83	100	100
Definition 2	65	50.17	11.05	65	100	54	83	64	98
Definition 3	71	50.72	11.03	71	100	59	83	70	99
Definition 4	115	50.47	11.13	115	100	97	84	110	96
Definition 5	94	49.68	11.06	94	100	77	82	90	96
Definition 6	60	48.41	11.06	60	100	58	97	59	98
Definition 7	139	50.70	11.13	139	100	116	83	133	96
Definition 8	122	50.12	11.46	122	100	99	81	118	97
Definition 9	85	48.76	11.06	85	100	69	81	81	95

Table 3
Prevalence rates for subthreshold PTSD definitions.

Subthreshold PTSD Definition	Prevalence				PTSD Criterion met									
	Total sample (N = 881)		Veterans with subthreshold PTSD (*n* = 144)		Number of symptoms		Criterion B		Criterion C		Criterion D		Criterion E	
	n	***%***	***n***	***%***	**M**	***SD***	***n***	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Definition 1	60	6.8	60	41.7	9.78	6.75	60	100	60	100	41	68	55	92
Definition 2	65	7.3	65	45.1	9.62	6.74	65	100	65	100	43	66	60	92
Definition 3	71	8.1	71	49.3	9.15	6.75	71	100	71	100	43	60	60	85
Definition 4	115	13.1	115	79.9	9.62	6.74	115	100	115	100	43	37	60	52
Definition 5	94	10.7	94	65.3	9.62	6.74	94	100	94	100	43	46	60	64
Definition 6	60	6.8	60	41.7	10.28	6.73	60	100	38	63	60	100	60	100
Definition 7	139	15.8	139	96.5	8.47	6.71	109	78	83	60	95	68	123	88
Definition 8	122	13.8	122	84.7	9.17	6.71	91	75	73	59	88	72	114	93
Definition 9	85	9.6	85	59.0	9.54	6.73	60	71	45	53	85	100	85	100

Table 4
Comparison of PCL-5 scores between subthreshold PTSD definitions and veterans with and without PTSD.

Subthreshold PTSD definition	PTSD v. Subthreshold PTSD W	Subthreshold PTSD v. no PTSD W
Definition 1	13.18	3.47*
Definition 2	13.89*	3.25
Definition 3	14.71*	2.69
Definition 4	19.12*	2.44
Definition 5	16.80*	3.52*
Definition 6	12.76*	4.19*
Definition 7	21.48*	1.47
Definition 8	19.63*	3.45*
Definition 9	15.75*	3.65*

W=Dwass-Steel-Critchlow-Fligner pairwise comparison test statistic; *$p < 0.05$.

This coheres with a study in which negative emotional state (criterion D) and exaggerated startle response (criterion E) were implicated as central to PTSD symptom presentation in a clinical veteran sample (Ross et al., 2018). Therefore, there is a need to attend to the possibility that veterans may present with idiosyncratic PTSD symptom profiles, and that there may be commonalities with the symptom profile across treatment-seeking veterans in general regardless of PTSD status. Interventions which specifically target criteria D and E symptoms in subthreshold PTSD veteran groups may be effective in preventing the subsequent worsening of symptoms to the point where caseness thresholds for PTSD are exceeded.

Furthermore, Ross et al. (2018) stated that impairments with close relationships were associated most closely with criterion D symptoms. Whilst overinterpretation should be avoided, recent research has shown that Complex PTSD – typified as PTSD plus three other symptom groups including interpersonal disturbances – may be more prevalent than PTSD in UK treatment-seeking veterans (Murphy et al., 2021). Such a finding adds credence to the potential prominence of criterion D symptoms in veterans.

Additionally, whilst all the veterans in the current study were treatment-seeking, it was unclear at what point in their treatment individual veterans were at time of data collection; some symptom scores were collected following treatment. Therefore, there is a possibility that elevated symptom severity in general alongside the presence of criteria D and E symptoms may indicate those veterans for whom a risk of relapse or recurrence is more likely. The continued presence of criteria D and E symptoms may be particularly relevant to consider in any monitoring of veterans after discharge from PTSD treatment, outpatient treatment of subthreshold PTSD (e.g. Roy et al., 2017) or in individuals who repeatedly present to services.

Nonetheless, more work is required to understand whether these findings are generalisable in two primary ways. First, whether the potential sensitivity of the self-report PCL-5 measure for identifying at-risk subthreshold PTSD groups of veterans is also seen in more diagnostically robust, clinician-administered measures of PTSD symptoms such as the Clinician Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2013). Second, amidst evidence that different types of traumatic experience may result in different PTSD symptom profiles amongst veterans (e.g. Litz et al., 2018), whether the specificity of criteria D and E symptoms as a means of distinguishing subthreshold PTSD groups also applicable in cohorts with differing index traumas, for example combat trauma versus military sexual trauma, or non-veteran groups more widely.

4.2. Comorbid conditions

In line with the findings of Klein et al. (2024), across all nine subthreshold PTSD definitions, depression scores were significantly higher in the PTSD group but did not differ from the no-PTSD group, and very

Table 5
Comparison of secondary health outcome scores between subthreshold PTSD definitions and veterans with and without PTSD.

	Subthreshold PTSD definition								
	Definition 1	Definition 2	Definition 3	Definition 4	Definition 5	Definition 6	Definition 7	Definition 8	Definition 9
	Depression (W)								
PTSD v Subthreshold PTSD	11.36*	11.89*	12.84*	15.52*	13.36*	9.88*	17.61*	15.10*	11.92*
Subthreshold PTSD v no PTSD	−1.26	−0.92	−1.52	0.18	1.12	1.65	0.33	2.63	2.40
	Anxiety (W)								
PTSD v subthreshold PTSD	1.78*	2.29	2.29	3.46*	2.93*	2.26	2.67	2.10	1.04
Subthreshold PTSD v no PTSD	−0.51	0.42	0.42	−0.57	−0.33	−1.90	0.42	0.71	1.50
	Alcohol misuse (W)								
PTSD v subthreshold PTSD	−0.68	0.26	0.13	0.41	−0.37	−2.23	0.91	0.27	−0.46
Subthreshold PTSD v no PTSD	0.53	−0.41	−0.16	0.78	0.74	2.21	0.21	0.20	0.48

W=Dwass-Steel-Critchlow-Fligner pairwise comparison test statistic; depression measure: PHQ-9; anxiety measure: GAD-7; alcohol misuse measure: AUDIT; *$p < 0.05$.

few differences in anxiety scores across groups were observed. This may be a feature of veteran samples, for whom common mental health disorders such as a generalized anxiety disorder and depression have been observed as highly prevalent in treatment-seeking veterans (Williamson et al., 2022) and whose presentations are often complex and comorbid. Whilst they are distinct conditions, PTSD and depression are highly comorbid in veterans (Rytwinski et al., 2013), with co-occurrence potentially indicating a subtype of PTSD (Flory & Yehuda, 2015).

Network analysis, in which disorders and their co-occurrence with other disorders are visualised as patterns of linked symptoms, has shown that in subthreshold PTSD cohorts connections are present between the symptoms of depression and PTSD, and that it is the greater strength and number of associations between these symptoms that may be a feature of those who met PTSD diagnostic score thresholds (Lazarov et al., 2020). Therefore, the presence of these connections point to the potential utility of treatments targeting specific symptoms and the connections between them in different ways for both PTSD and subthreshold PTSD groups of veterans.

The lack of difference in alcohol misuse scores between the PTSD, nine subthreshold PTSD, and no-PTSD groups may be a feature of veterans in general for whom alcohol use tends to be higher than in the general population (e.g. Rhead et al., 2022). Hitch et al. (2023) have suggested that veterans may use alcohol as a way of managing PTSD symptoms and delaying the onset of mental health crisis. All veterans in the current study were drawn from a treatment-seeking population presenting with mental health difficulties. Therefore, alcohol misuse levels may be a transdiagnostic indication of active symptom control strategies being used without which veterans' PTSD symptom severity may increase to above threshold levels, and thus treatment for both alcohol misuse and PTSD symptoms are merited. However, more work is required to understand the interaction of alcohol use and symptom severity and its underlying mechanisms in different groups.

4.2. Limitations

Several limitations to the present study should be noted. Firstly, data were collected at different timepoints over the one-year extraction period and different stages of participants' treatment pathways, which means that no conclusions can be drawn about subthreshold PTSD in relation to treatment completion. However, the sample size is the largest to date drawn from a veteran clinical population. Secondly, the sample comprises veterans who actively sought treatment for mental health difficulties and does not include veterans who may be experiencing symptoms of PTSD and mental distress but have not presented to clinical services. Evidence suggests that veterans may delay treatment-seeking until close to point of crisis (Randles & Finnegan, 2022), therefore the symptomatic profile in the current treatment-seeking sample may be more severe in nature. Furthermore, the sample is demographically homogenous; predominantly male and having served in the British Army. Accordingly, such findings may not generalise to minority veteran groups, such as female or ethnic minority veterans, who may face unique barriers to accessing treatment for PTSD (Campbell et al., 2024). However, the present sample is considered representative of the treatment-seeking veteran population (Williamson et al., 2022). Nonetheless, there is a need for future studies to explore more diverse veteran populations, in reference to both demographic characteristics and in-service experiences, and whether symptomatic presentations may vary.

5. Conclusions

The current study was one of the largest explorations to date of subthreshold PTSD definitions, prevalence and mental health associations in UK veterans. Whilst subthreshold PTSD was found to have less severe PTSD symptom severity and overall health than threshold PTSD across definitions, only definitions including criterion D (negative alterations in cognitions) and criterion E (hyperarousal) were associated with greater symptom severity than those without PTSD. In contrast with prior subthreshold PTSD definition research, these findings suggest possible clinical utility of a subthreshold definition specifically requiring endorsement of these symptoms for clinical veterans. Future work should explore whether such definitions are also applicable across different subgroups of veterans, and non-veteran populations.

The potential salience of these symptoms and opportunity to specifically target them during therapeutic interventions, may be beneficial to those subthreshold PTSD veterans who have elevated distress and are at increased risk of subsequently developing diagnosable PTSD, as well as those who have completed treatment yet remain at subthreshold symptom levels and who are at risk of PTSD relapse or recurrence.

Further exploration of whether it is possible to develop an operationalisable consensus definition of subthreshold PTSD that is validated across self-report and clinician-assessed measures, would also enable future studies to compare rates and levels of comorbidities such as depression, anxiety and alcohol misuse across PTSD, subthreshold PTSD, and no-PTSD groups.

CRediT authorship contribution statement

Natasha Biscoe: Writing – original draft, Formal analysis, Data curation, Conceptualization. **Gavin M. Campbell:** Writing – review & editing, Data curation. **Dominic Murphy:** Writing – review & editing, Conceptualization.

Declaration of competing interest

There are no conflicts of interest to declare.

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