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Social Functioning in Individuals With Post-Traumatic Stress Disorder: A Systematic Review

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Abstract

Post-traumatic stress disorder (PTSD) can lead to multiple deleterious outcomes and has negative, sometimes debilitating, impacts on general functioning of those affected. This systematic review of 26 articles evaluates the existing literature on social functioning outcomes used in PTSD research, the association between PTSD and social functioning, and the impact of interventions for PTSD on social functioning. A review of 26 articles using the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines for systematic reviews showed that PTSD was associated with significant impairment in global social functioning. This review also reveals the need for both standardized definitions and better assessment methods to operationalize social functioning and improve our ability to compare findings across studies. The literature also suggests that some evidence-based treatments for PTSD improve social functioning despite not explicitly targeting social functioning in the treatment. The findings of this review suggest that there are ample opportunities for improving both research and interventions to improve global social functioning in PTSD.

Keywords

PTSD, treatment, mental health and violence

Post-traumatic stress disorder (PTSD) is a serious mental health disorder occurring in about 8% of the general population (Kilpatrick et al., 2013) and 17%–23% in veteran populations (Fulton et al., 2015; Richardson et al., 2010). PTSD is defined by the *Diagnostic and Statistical Manual-5* (American Psychiatric Association, 2013) as a response to a traumatic event characterized by intrusive, recurrent thoughts of that traumatic event, avoidance of reminders of the event, and a state of hyperarousal and impaired emotional responsiveness. PTSD is associated with poor physical health and is frequently comorbid with other physical issues and mental health symptoms (Kessler et al., 2005; Pacella et al., 2012; Schnurr et al., 2000; Van der Kolk et al., 2005). PTSD is also linked to increased depression, anxiety, suicidal ideation and suicide attempts, traumatic brain injury, and generally poorer mental health (Greene et al., 2016; Lamoureux-Lamarche et al., 2016).

In order to qualify for a diagnosis of PTSD, symptoms must cause clinically significant distress or impairment in social or occupational functioning, or impairment in other important areas of life functioning (American Psychiatric Association, 2013). In particular, PTSD is commonly associated with poor social functioning (i.e., how individuals relate to one another in social contexts) and substantial interpersonal problems that may lead to social losses, isolation, and distress (Brancu et al., 2014). Individuals with PTSD often feel detached from others and experience anxiety in social interactions (Hagan et al., 2019; Kelly et al., 2020). In addition, individuals with PTSD may perceive the world to be dangerous, view their social support network as a threat to their safety, and avoid members of their support network in order to increase their perceived safety (Resick & Schnicke, 1992). Individuals with PTSD often experience anger and irritability in social situations (Taft et al., 2017),

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perhaps triggered by perceptions of others or of social environments as being threatening (Gardner & More, 2008). These symptoms can lead to increasing social isolation, risk of suicide, and other causes of mortality (Martin et al., 2009; Panagioti et al., 2014; Rees & Smith, 2008). Therefore, negative outcomes associated with poor social functioning are of particular concern for individuals with PTSD due to the substantial social interference associated with PTSD symptoms.

Given the consequences of poor social functioning associated with PTSD and an increasing focus on rehabilitation- and recovery-focused models of mental health care compared to more traditional disease-focused models, PTSD treatments that improve social functioning are becoming both more common and much needed (Glynn et al., 2009; Kelly et al., 2020; Rodriguez et al., 2012). Addressing social functioning in individuals with PTSD can reduce social isolation, risks of suicide, and mortality (Holt-Lunstad et al., 2010, 2015). Assessing and treating problems with social functioning in individuals with PTSD is important for improving their lived relational experiences, over and above reducing their PTSD symptoms.

Defining the Key Construct of Social Functioning

It is a diagnostic requirement that PTSD symptoms cause clinically significant distress or interfere with social, occupational, or other important areas of life functioning (American Psychiatric Association, 2013). Specifically, traumatic experiences may disrupt certain important aspects of healthy functioning including emotion regulation, attentional skills, positive and compassionate self-perception, interpersonal skills, and positive attachments with social others (Courtois, 2004; Herman, 1992). Impairment in any of these areas may negatively impact relationships and contribute to impairment in functioning across domains, but particularly in social functioning.

In the extant PTSD literature, the construct of social functioning has not been well defined. For the purposes of this review, we utilized Bosc's (2000) conceptualization of social functioning in which social functioning is defined by an individual's interactions with their environment and by their ability to fulfill their social roles within social and community activities and relationships with employers, colleagues, friends, partners, and family members. The causal relationship between social functioning and PTSD may be bidirectional, and researchers have used the theoretical models of social causation and social erosion to conceptualize the relationship (Shallcross et al., 2016). In a social causation model, the presence of social functioning may serve as a protective factor that impacts the course and outcome of PTSD symptoms following traumatic experiences. In contrast, in a social erosion model, PTSD-related beliefs and behaviors can lead to social isolation (Shallcross et al., 2016). Studies examining both social causation and social erosion as potential causal frameworks have yielded mixed evidence (Cox et al., 2018; Freedman et al., 2015; Shallcross et al., 2016). However, recent research in this area suggests that PTSD symptoms have a negative impact on social relationships, supporting an erosion model (Cox et al., 2018; Kelly et al., 2019).

Current Study

To assess the effect of PTSD on social functioning, the objective of this study was to systematically review the empirical literature on PTSD and social functioning. Specifically, we examined and summarized the published literature to evaluate the range of social functioning outcomes used in PTSD research using a systematic approach guided by the preferred reporting items for systematic reviews and meta-analyses (PRISMA) guidelines. Using this method, we first examined how the social functioning construct was measured in the included literature and the methodologies of included studies. We next evaluated whether there was any association between a diagnosis of PTSD and social functioning or between symptoms of PTSD and social functioning. We assessed and described how specific interventions impacted social functioning in studies of individuals with PTSD. This review synthesizes these data to distill several key findings, explicate the methodological limitations of extant work, and provide an agenda for future research.

In the following sections, we first describe our systematic search methods and review process. We then provide a detailed review of empirical studies that examine the association between PTSD and social functioning, reporting on aspects of social functioning measurement, sample population, and study design in our results. Finally, we will conclude with a discussion of the implications of these findings and recommendations for future directions for study in this area.

Method

To synthesize current research on PTSD and social functioning, we conducted a comprehensive literature search through electronic databases. We searched PubMed, databases through EBSCOhost (including CINAHL Plus with Full Text, Dentistry & Oral Sciences Source, eBook Collection (EBSCOhost), ERIC, Health Business Elite, Health Policy Reference Center, Library, Information Science & Technology Abstracts, MEDLINE with Full Text, PsycARTICLES, PsycBOOKS, Psychology and Behavioral Sciences Collection, PsycINFO, Rehabilitation & Sports Medicine Source, Social Work Reference Center, and SocINDEX with Full Text), databases through ProQuest (including Family Health Database, Health & Medical Collection, Health Management Database, Nursing & Allied Health Database, PILOTS: Published International Literature on Traumatic Stress, and Psychology Database), and databases in OvidSP (including eBooks on Ovid, Ovid Journals Database for Abstracts & Tables on Contents, VISN 1 Full Text Journals on Ovid, Joanna Briggs Institute EBP Database—Current to May 23, 2018, Embase, Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily, and Ovid MEDLINE and Versions(R) 1946 to May 23, 2018) for articles published between January 1, 2008, and December 31, 2018. This time frame was used because of the substantial increase in PTSD research published after 2009. The searches, developed in consultation with a research librarian, were limited to English-language literature.

The search strategies included multiple key words and differed slightly based on database-specific search availabilities. In PubMed: (((“social functioning”[Title/Abstract]) OR (social[Title/Abstract] AND functioning[Title/Abstract]))) AND ((((“Stress Disorders, Post-Traumatic/drug therapy”[Mesh] OR “Stress Disorders, Post-Traumatic/prevention and control”[Mesh] OR “Stress Disorders, Post-Traumatic/therapy”[Mesh])))) OR (PTSD[Title/Abstract] OR posttraumatic stress disorder[Title/Abstract])). In EBSCOhost: AB (“social functioning” OR (social AND functioning)) AND AB (“Stress Disorders, Post-Traumatic” OR PTSD OR posttraumatic stress disorder) NOT AB (pediatric OR adolescent OR adolescence OR pediatric). In ProQuest: ab((social functioning) OR (social AND functioning)) AND (ab(PTSD OR posttraumatic stress disorder) OR mesh(stress disorders, posttraumatic)) NOT (pediatric OR adolescent OR adolescence OR paediatric). In OvidSP: (((“posttraumatic stress disorder” or PTSD) and (“social functioning” or (social and functioning))) not (pediatric or adolescent or adolescence or paediatric or youth or children)). The use of social functioning as a search term for reviews on this construct is in line with previous systematic reviews of social functioning related to other conditions such as depression (Hirschfeld et al., 2000), attention deficit hyperactivity disorder (Ros & Graziano, 2018), and chronic pain (Forgeron et al., 2010).

Study Selection

Initial titles were screened by one author (S.C.) and remaining abstracts were dual-screened (A.S., S.C.). We included peer-reviewed studies that measured global social functioning in the PTSD literature, according to Bosc’s (2000) definition of social functioning. Additional selection criteria included PTSD sample (or PTSD sample and comparison group), study focus on PTSD or an aspect of social functioning, had to examine the relationship between PTSD and social functioning, and the measurement of social functioning had to meet our definition (Bosc, 2000). We used a minimum sample size of 100, similar to the strategies of previous reviewers, to ensure that included studies were sufficiently powered to test associations between PTSD and social functioning and avoid potential Type II errors (Coelho et al., 2014). For intervention studies, the intervention had to target PTSD to be included. Additional exclusion criteria included case studies, case series, reviews, theoretical papers, refugee samples only, nonadult samples, and studies that used nonvalidated measures of social functioning, single items to measure social functioning, or measures that examined a single aspect of social functioning (e.g., parenting). We chose to exclude refugee samples from this review (Makwarimba et al., 2013; Stewart et al., 2010) because many such samples are still living in a conflict zone at the time of testing (Abdi, 2005; Lischer, 2015), which poses challenges for comparing findings across studies. We also excluded pediatric samples because developmental differences may influence how PTSD presents and because there are very different experiences of social functioning in children compared to adults (Bronstein & Montgomery, 2011; Murray et al., 2010).

Two authors (A.S., E.R.) conducted a dual screening of the full text of the remaining articles, using inclusion and exclusion criteria and Covidence software (Veritas Health Innovation, n.d.). All coding at each stage was done independently, and disagreements were reviewed and resolved through consensus at each stage. Two authors (A.S., C.G.) then extracted study details, such as study type, sample population and size, measures of constructs of interest, and main findings. Data were collected and organized into a data collection spreadsheet using Microsoft Excel. Twenty-six studies were included in the final review. Our selection and review processes are detailed in Figure 1.

Quality Assessment

Study quality assessment occurred at the full-text review and abstraction stage, where two authors (A.S. and E.R.) independently assessed study quality based on the National Institutes of Health quality assessment 14-item checklist for observational cohort and cross-sectional studies (National Heart Lung and Blood Institute, 2019). Quality ratings were obtained for each checklist item and coded as either a 0 or 1 and summed for a total score between 0 and 14. Quality ratings were not used to exclude studies from the review but instead to reveal areas of weakness or strength across studies.

Results

Measurement and Study Methodology Findings

Our final review included 26 empirical studies, with sample sizes ranging from 100 to 1,312 ($M = 350$). Table 1 summarizes key methodological aspects and outcomes of studies that examined both PTSD and social functioning outcomes, including cross-sectional, longitudinal observational, and interventional designs. We have also included a table that summarizes the demographic characteristics of each study in detail as an Online Appendix. The most commonly used study design was a cross-sectional design ($n = 12$), followed by six treatment studies, with various designs including randomized controlled trials (RCTs) and open trials. A majority of the included studies ($n = 16$) examined military or veteran samples, including active duty service members, veterans, and members of the U.S. National Guard. In addition, samples for the reviewed studies were drawn from inpatient and outpatient populations ($n = 5$), survivors of interpersonal violence (child abuse or sexual assault; $n = 3$) and police officers ($n = 1$), and there was one study on civilian survivors of a terrorist attack ($n = 1$).

The majority of studies evaluated post-traumatic symptom severity rather than diagnostic status. Our review revealed variability in measurements used to assess both PTSD symptoms and social functioning. Of the 10 PTSD scales used, the most common were the PTSD Checklist-Military version ($n = 8$) and the Clinical-Administered PTSD Scale ($n = 7$), often considered the gold standard in PTSD assessment (Hunt et al., 2018).

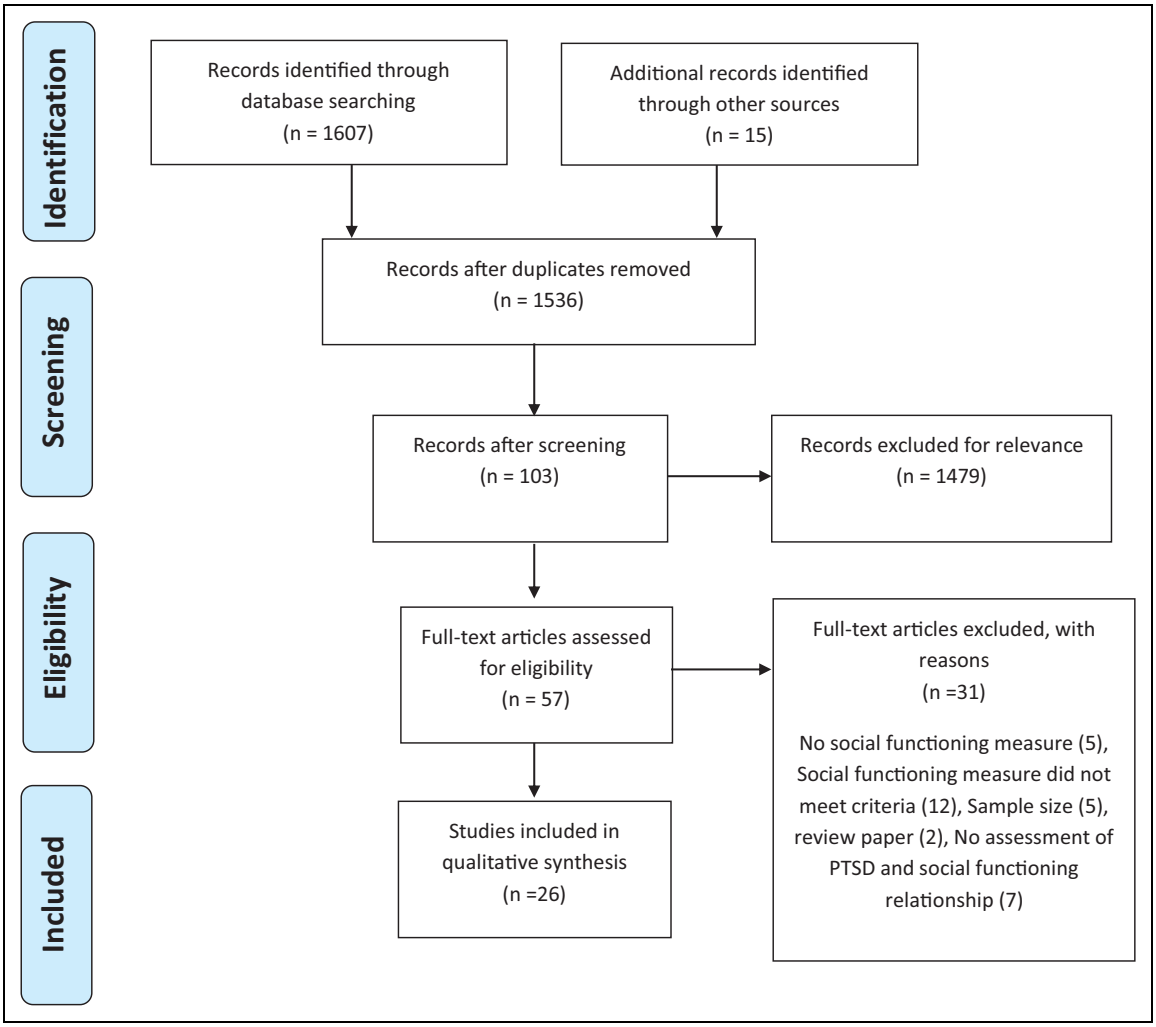

Figure 1. Search and review strategy flow diagram.

In quality assessment ratings, studies commonly lost points related to design, as cross-sectional studies often did not report effect sizes, power calculations, or did not examine variables of interest at more than one time point. A majority of studies fell in the 7–10 range on the quality assessment scale, indicating medium quality. The quality assessment ratings table is included as an Online Appendix.

Our review also revealed heterogeneity across studies in both measurement and definition of social functioning. We summarize the social functioning measures as well as how each scale defines social functioning in Table 2. Although several distinct measures were used in the reviewed studies, all measures conceptualized social functioning in either multiple relationships or as a global construct that may impact daily living. The most commonly used measures of social functioning were the Social Functioning subscale of the Short-Form Health Survey (SF-36; $n = 6$) and its variants, the Short-Form Health Survey (SF-12; $n = 1$) and Veterans RAND 36-item Health Survey (VR-36; $n = 1$), for cross-sectional ($n = 5$) or treatment studies ($n = 3$). For these measures, social functioning is measured via a subscale based on limitations in social activities and roles due to current problems. This subscale is part of a larger set of physical and mental health functioning subscales. Also common in the reviewed literature was the use of the Social Adjustment Scale ($n = 6$), with five studies utilizing the self-report version, and one using the interview version of the measure. This scale reports on social functioning across multiple domains including work, social and leisure activities, relationships with extended family, role as a marital partner, role as a parent, and role within the family unit, and was used in clinical trials ($n = 2$), cross-sectional observational studies ($n = 3$), and a prospective cohort study ($n = 1$). Finally, the Psychosocial Difficulties Scale (PDS; $n = 4$) was used to evaluate functioning in areas such as family and peer relationships, work, school, and financial functioning in four cross-sectional studies. Other measures of social functioning used in the remaining studies, included two studies using the Work and Social Adjustment Scale, and single studies using the Sickness Impact Profile, Inventory of Psychosocial Functioning (IPF), Posttraumatic Stress–Related Functioning (PRFI), the Behavior and Symptom Identification Scale (BASIS-32), Social

Table 1. Main Evidence of Reviewed Studies.

First Author, Year	Study Design	Sample/Population	Sample Size (*n*)	Social Functioning Measure	PTSD Measure	Main Findings
Aversa, 2014	Secondary analyses of cross-sectional data	OEF/OIF active duty and combat veterans	389	SF-36[a]	CAPS-IV[b]	• PTSD was negatively correlated with social functioning ($r = -.73$, $p < .001$) • Childhood maltreatment predicted lower social functioning ($r = -.26$, $p < .001$) • Depression and complex-PTSD mediated the relationship between childhood maltreatment and social functioning (Sobel $t = -2.37$, $p = .02$ for depression; Sobel $t = -2.99$, $p = .003$ for PTSD)
Aversa, 2012	Secondary analyses of clinical trial data	Veterans with PTSD	943	SF-36[a] and VR-36[c]	CAPS-IV[b] PCL-M[d]	• Veterans with fewer symptoms of depression and PTSD reported better social functioning than those with more severe symptom profiles ($z = 2.97$, $p = .003$)
Clapp, 2010	Cross-sectional	MVA survivors with chronic pain	234	SIP[e]	CAPS-IV[b]	• PTSD interacted with opioid medication use ($p = .03$) to predict lower functioning • Participants with PTSD reported poorer psychosocial functioning than those without ($p < .01$)
Corry, 2010	Longitudinal (2-year follow-up)	Patients with major burn injuries	171	SF-36[a]	DTS[f]	• Higher PTSD symptoms at 6, 12, and 24 months after discharge were significantly associated with poorer social functioning ($p = .001$) • The effect PTSD on social functioning attenuated during the 2-year follow-up period ($p = .002$)
Galovski, 2012	RCT-semi-crossover design	Adults with PTSD secondary to a sexual or physical assault in childhood or adulthood	100	SF-36[a]	CAPS-IV[b]; PDS[g]	• Participants in both the modified cognitive processing therapy and delayed treatment group significantly improved in reported social functioning with participants ($p < .001$)
Ginzburg, 2010	Longitudinal (20-year follow-up)	Israeli war veterans	664	SFP[h]	PTSD Inventory[i]	• PTSD was significantly associated with impaired functioning • Participants with multiple comorbidities at Time 1 reported more impaired functioning than participants with PTSD only $t(283) = 2.83$
Hassija, 2015	Cross-sectional	Women survivors of childhood interpersonal violence	303	SAS-SR[j]	PSS-SR[k]	• PTSD was correlated with social functioning ($r = .48$, $p < .01$) • Dysphoria symptoms were significantly associated with worse social functioning ($\beta = .419$, $SE = .006$, $p < .001$) • The relationship between dysphoria symptoms and social functioning was mediated by active coping (standardized bootstrap coefficient = .036, $SE = .019$, 95% CI [<.001, .072]), and seeking emotional support (standardized bootstrap coefficient = .041, $SE = .020$, 95% CI [.002, .080])
Jackson, 2016	Cross-sectional	OEF/IF U.S. veterans (part of the Project VALOR study)	1,312	IPF[l] Psychosocial subscale	SCID-IV[m]	• Individuals with PTSD and those with PTSD and mTBI, reported significantly worse psychosocial functioning than individuals with mTBI alone or neither mTBI nor PTSD ($p < .001$)

(continued)

Table 1. (continued)

First Author, Year	Study Design	Sample/Population	Sample Size (*n*)	Social Functioning Measure	PTSD Measure	Main Findings
Kehle, 2011	Cross-sectional secondary analysis of longitudinal cohort data	National Guard soldiers (Readiness and Resilience in National Guard Soldiers)	348	SAS-SR[j]	CAPS-IV[b]	• PTSD was significantly correlated with overall social functioning ($d = 1.27$) • PTSD risk significantly increased (3.03, 95% CI [1.83, 5.00]) with each unit increase in social functioning impairment, after controlling for age, marital status, enlisted status, and educational level
Lab, 2008	Open trial pre–post collection	Patients at the traumatic stress service at Maudsley Hospital	112	WSAS[n]	PDS[g]	• PTSD symptoms were related to social functioning impairment • Pre and post measurements revealed reductions in PTSD symptoms ($t = 8.7$, $p < .001$) and social functioning impairment ($t = 6.2$, $p < .001$)
Markowitz, 2015	Randomized 14-week trial (5-year study)	Unmedicated patients with chronic PTSD	110	SAS-SR[j] and IIP[o]	CAPS-IV[b] and PSS-SR[k]	• Both treatment groups reported improvements in social functioning and fewer interpersonal problems, but treatment groups did not significantly differ from each other
McCaslin, 2016	Cross-sectional	OEF/OIF/OND veterans	251	PRFI[p]	PCL-M[d]	• Higher PTSD scores were associated with poorer social functioning
Murphy, 2016	Within-participant design	Veterans who completed a standardized 6-week residential treatment	401	WSAS[n]	PSS-I[k]	• One-year post treatment, reductions in PTSD severity were observed (PSS-I: −11.9, 95% CI [−13.1, −10.7]) • Poorer PTSD treatment response at 1 year was associated with more functional impairment (0.24, 95% CI [0.08, 0.41])
Ng, 2016	Secondary analysis of data from 3/1999 to 12/2002	Patients with schizophrenia	125	BASIS-32[q]	HTC[r]	• PTSD symptoms significantly predicted patient-rated social functioning ($B = -.53$, $p = .001$) • PTSD symptoms were not associated with interviewer-rated social functioning ($B = .21$, $p = .16$)
Pietrzak, 2011	Cross-sectional	OEF/OIF veterans	272	PDS[s]	PCL-M[d]	• PTSD group was more likely to report social functioning difficulties ($M = 56.45$, $SD = 1.87$) compared to the control group ($M = 40.74$, $SD = 1.43$), $\times 2 = 27.23$, $p < .001$, $d = 1.09$)
Pietrzak, 2010a	Cross-sectional	OEF/OIF veterans	272	PDS[s]	PCL-M[d]	• Dysphoria symptoms predicted poorer social functioning ($r = .48$, $p < .001$), after adjusting for the effects of age, combat exposure, and other PTSD symptom clusters • Avoidance symptoms predicted impairment in social functioning ($r = .26$, $p < .001$)
Pietrzak, 2010b	Cross-sectional	OEF/OIF veterans	272	PDS[s]	PCL-M[d]	• Low levels of unit support were associated with increased PTSD ($r = -.23$, $p < .001$) • Low levels of postdeployment social support were associated with increased PTSD ($r = -.56$, $p < .001$) and decreased social functioning ($r = -.53$, $p < .001$)
Pietrzak, 2009	Cross-sectional	OEF/OIF veterans	277	PDS[s]	PCL-M[d]	• Those with mTBI were more likely to have PTSD (65.4% vs. 24.4%; $F = 32.46$, $p < .001$) and more impaired social functioning ($M = 42.19$, $SE = 1.69$) than non-mTBI ($M = 38.42$, $SE = .81$; $F = 4.02$, $p < .05$, $d = 0.38$) counterparts • PTSD mediated the relationship between mTBI and social functioning ($p < .001$)

(continued)

Table 1. (continued)

First Author, Year	Study Design	Sample/Population	Sample Size (*n*)	Social Functioning Measure	PTSD Measure	Main Findings
Polusny, 2011	Longitudinal cohort study (1 year)	U.S. National Guard Soldiers	953	SAS-SR[j]	PCL-M[d]	• Those with concussion/mTBI were to report poorer social functioning than those without such injuries • After controlling for PTSD symptoms, concussion/mTBI was no longer associated with social functioning outcomes
Rauch, 2009	RCT	Female survivors of physical or sexual assault	107	SAS-interview[j]	PSS-I[k]	• Improvements in social functioning was found between 3- and 12-month assessments • Changes in PTSD and depression symptoms accounted for 30% of the variance in improvement of social functioning
Sayer, 2010	Cross-sectional	Iraq–Afghanistan combat veterans (nationally representative)	754	SF-12[t]	PCPTSD[u]	• 25%–56% of combat veterans who use VA services reported at least some difficulty in social functioning • Probable PTSD was associated with worse functioning ($p < .001$)
Schnurr, 2016	RCT	Female veterans and Army soldiers	235	SF-36[a]	CAPS-IV[b]	• No response and response groups reported poorer social functioning than the loss of diagnosis and remission groups
Tsai, 2012	Cross-sectional	Veterans seeking VA primary care within 1 year of returning from Iraq/ Afghanistan	164	SFQ[v]	PCL-M[d]	• 52% of veterans with PTSD reported poorer social functioning compared to other treatment-seeking veterans, $t\ (155) = -8.48$, $p < .001$, $d = 1.36$. • Less social support from the community was a mediator of the association between PTSD and poor social functioning
Weinberg, 2018	Cross-sectional	Terror survivors directly exposed to terror attacks in Israel	108	PAIS[w]	PSS-SR[k]	• PTSD symptoms and psychosocial functioning were negatively associated ($r = .82$, $p < .01$)
Wingo, 2017	Cross-sectional	Veterans	264	SF-36[a]	PSS-SR[k]	• Higher scores of PTSD ($\beta = -.59$, $p = .0004$) and higher scores of depression ($\beta = -.88$; $p < .0001$) were significantly associated with more impairment in social functioning, while less physical health problems were significantly correlated with better social functioning ($\beta = .40$; $p < .0001$)
Yuan, 2011	Prospective (2-year follow-up)	Police officers	233	SAS-SR[j]	CMS[x]	• Caucasian race, lower critical incident exposure during police service, greater assumptions of benevolence of the world, and better social functioning during academy training were associated with lower PTSD symptoms after 2 years of police service

Note. PCL-M = PTSD Checklist-Military version; CAPS = Clinical-Administered PTSD Scale; RCT = randomized controlled trial; PTSD = post-traumatic stress disorder; MVA = motor vehicle accident; OEF = operation enduring freedom; OIF = operation Iraqi freedom; OND = operation new dawn; TBI = traumatic brain injury; mTBI = mild traumatic brain injury. [a] 36-Item Short Form Health Survey (Ware & Sherbourne, 1992). [b] Clinician-Administered PTSD Scale (Blake et al., 1995). [c] Veterans RAND 36-Item Health Survey (Kazis et al., 2004). [d] Posttraumatic Stress Disorder Checklist, Military Version (F. Weathers et al., 1991). [e] Sickness Impact Profile (Bergner et al., 1976). [f] Davidson Trauma Scale (Davidson et al., 1997). [g] Posttraumatic Diagnostic Scale (Foa et al., 1997). [h] Social Functioning Problems Questionnaire (Solomon, 1989). [i] PTSD Inventory (Solomon et al., 1993). [j] Social Adjustment Scale–Self-Report (Weissman & Bothwell, 1976). [k] Posttraumatic Stress Disorder Symptom Scale (Self-Report (S) and Interview (I), Foa et al., 1993). [l] Inventory of Psychosocial Functioning (Marx et al., 2009). [m] Structured Clinical Inventory for *DSM-IV*: (PTSD Module; Spitzer et al., 1992). [n] Work and Social Adjustment Scale (Mundt et al., 2002). [o] Inventory of Interpersonal Problems (Horowitz et al., 1988). [p] Post-Traumatic Stress Related Functioning Inventory (McCaslin et al., 2016). [q] Behavior and Symptom Identification Scale: Relation to Self and Others and Daily Living/Role Functioning subscales (Eisen et al., 1994). [r] Harvard Trauma Questionnaire (Mollica et al., 1996). [s] Psychosocial Difficulties Scale (Pietrzak et al., 2010b). [t] Short-Form Health Survey (Ware et al., 1996). [u] Primary Care PTSD Screen (Prins et al., 2004). [v] Social Functioning Questionnaire (Tyrer et al., 2005). [w] Psychosocial Adjustment to Illness Scale (Derogatis, 1986). [x] Civilian Mississippi Scale (Vreven et al., 1995).

Table 2. Scales Assessing Social Functioning of Individuals With Post-Traumatic Stress Disorder (PTSD).

Scale	Scale Description	Number of Studies in Review Using Measure
36-Item Short Form Health Survey (SF-36)[a]	The SF-36 is a 36-item measure using Likert-type response options and assesses eight health concepts: limitations in quality of life physical activities because of health problems, limitations in social activities because of physical or emotional problems, limitations in usual role activities because of physical health problems, bodily pain, general mental health, limitations in usual role activities because of emotional problems, vitality, and general health perceptions. The standard form of the instruments asks for participants to reply to questions according to how they have felt over the previous week. Two summary scores are provided: a physical component score (PCS) and a mental component score (MCS)	Six (Aversa, 2014; Aversa, 2012; Corry, 2010; Galovski, 2012; Schnurr, 2016; Wingo, 2017)
Short-Form Health Survey (SF-12)[b]	Containing one third of the SF-36 items, the SF-12 also measures an eight-dimension profile of health status, with two summary scores calculated: PCS and MCS	One (Sayer, 2010)
Veterans RAND 36 Item Health Survey (VR-36)[c]	Developed from the SF-36, and with the support and endorsement of the Department of Veterans Affairs, the VR-36 also measures health-related quality of life and functioning. Two summary scores are provided: a PCS and an MCS	One (Aversa, 2012)
Social Adjustment Scale–Self-Report (SAS-SR)[d]	The SAS-SR is a 42-item measure, with a Likert-type scale response option. It assesses the level of functioning over the past 2 weeks for six domains: work, social and leisure activities, relationships with extended family, role as a marital partner, parental role, and role within the family unit. A mean score can be calculated for each of the six domains, as well as one overall mean social-adjustment score, based on the total number of relevant items responded to, with higher scores being suggestive of greater social impairment	Six (Hassija, 2015; Kehle, 2011; Markowitz, 2015; Polusny, 2011; Rauch, 2009; Yuan, 2011)
Psychosocial Difficulties Scale (PDS)[e]	The PDS is a 23-item questionnaire that assesses psychosocial functioning in areas such as family and peer relationships (e.g., "have difficulty connecting emotionally with family and/or friends") and work, school, and financial functioning (e.g., "have difficulty finding employment"). A total score is calculated, with higher scores indicating greater psychosocial difficulties	Four (Pietrzak, 2009, 2010a, 2010b, 2011)
Work and Social Adjustment Scale (WSAS)[f]	The WSAS is a 5-item self-report measure that assesses impairment related to work and social functioning due to a specified diagnosis or condition. The 5 items of this scale measure occupation issues, home management, social leisure activities, private leisure activities, and one's ability to create and maintain close relationships with others. It is scored on a Likert-type scale, with higher scores indicating greater levels of impairment	Two (Lab, 2008; Murphy, 2016)
Sickness Impact Profile (SIP)[g]	The SIP is a 136-item measure examining impairment across physical and psychosocial domains. Patients respond to behaviorally anchored items that "describe you today and are related to your state of health." The Physical subscale of the SIP contains 45 and focuses on the areas of body care and management, mobility, and ambulation. The Psychosocial subscale contains 48-items regarding social interaction, alertness behavior, emotional behavior, and interpersonal communication. Scores for each subscale, and range from 0 to 100, with higher scores indicating poorer functioning on that scale	One (Clapp, 2010)
Inventory of Psychosocial Functioning (IPF)[h]	The IPF is a 29-item self-report questionnaire that assesses problems in social functioning. The questionnaire assesses problems in five areas of social functioning: (a) work performance, (b) family functioning, (c) sexual functioning, (d) social functioning and interpersonal relations, and (e) social independence. Participants were asked to read each item and to indicate on a dichotomous scale (1 = *true*, 0 = *not true*) whether they had experienced the problem mentioned during the last year. A total score ranging from 0 to 100 is then computed, with higher values representing a greater number of social functioning impairments	One (Jackson, 2016)
Posttraumatic Stress Related Functioning (PRFI)[i]	The PRFI has 27 items and assesses functioning related to three domains: work and school, relationships, and lifestyle. Each domain is made up of two subscales: Symptom Cluster Impact which separately assesses the impact of reexperiencing, avoidance, numbing, and hyperarousal symptom clusters on each domain of functioning and Total Symptom Impact which includes items that address the functional impact of all four clusters of PTSD symptoms taken together. Items for the PRFI are scored on a 5-point Likert-type scale from 0 (*not at all*) to 4 (*extremely*). Only the first 26 items are scored: Item 27 provides a space for the individual to provide additional information about functional difficulties. Total scale scores are calculated for work and school functioning, relationship functioning, and lifestyle, with higher scores indicating worse functioning in the respective domain	One (McCaslin, 2016)

(continued)

Table 2. (continued)

Scale	Scale Description	Number of Studies in Review Using Measure
Social Functioning Questionnaire (SFQ)[j]	The SFQ is an 8-item questionnaire assessing an individual's functioning in social relationships over the previous 2 weeks. Items are scored on a Likert-type scale and summed for a total score	One (Tsai, 2012)
The Behavior and Symptom Identification Scale (BASIS-32)[k]	The BASIS-32 is a patient-oriented measure of symptoms and behavioral distress. It is composed of 32 items and measures the degree of difficulty (0 = *no difficulty*, 4 = *extreme difficulty*) patients have had with different problems and areas of life functioning during the preceding week. There are five subscale score calculated: Relations With Self and Others (7 items), Daily Living and Role Functioning (7 items), Depression and Anxiety (6 items), Impulsive and Addictive Behavior (6 items), and Psychosis (4 items)	One (Ng, 2016)
Inventory of Interpersonal Problems (IIP)[l]	The IIP is a self-report instrument that identifies a person's most salient interpersonal difficulties. The instrument contains eight scales that assess different aspects of an individual's interpersonal difficulties. These scales assess problems related to manipulating, controlling, and/or being too aggressive toward others (domineering); being distrustful, suspicious, and self-centered (vindictive); having difficulties expressing affection and sympathy and maintaining relationships (cold); being too socially anxious, shy, and inhibited (socially Inhibited); having difficulties being assertive and forceful (nonassertive); having difficulties expressing anger and being too trusting and exploitable (overly accommodating); trying too hard to please others or being too caring, trusting, and permissive of others (self-sacrificing); and being overly intrusive, attention seeking, and inappropriately open (intrusive). Items are scored on a Likert-type scale. The IIP has two forms: IIP-64 and IIP-32 (brief version developed for screening purposes, containing the same scales as the original)	One (Markowitz, 2015)
Psychosocial Adjustment to Illness Scale (PAIS)[m]	The PAIS includes 45 statements relating to an individual's adjustment and functioning designed to assess the psychological and social adjustment of medical patients, or members of their immediate families, to the patient's illness, score on a Likert-type scale. The scale can be administered both as a semistructured psychiatric interview by a trained clinician and as a self-report measure (PAIS-SR). In addition to an overall adjustment score, seven subscales are provided. These include Health Care Orientation, Vocational Environment, Domestic Environment, Sexual Relationships, Extended Family Relationships, Social Environment, and Psychological Distress	One (Weinberg, 2018)

[a] Ware and Sherbourne (1992). [b] Ware et al. (1996). [c] Kazis et al. (2004). [d] Weissman and Bothwell (1976). [e] Pietrzak et al. (2010b). [f] Mundt et al. (2002). [g] Bergner et al. (1976). [h] Marx et al. (2009). [i] McCaslin et al. (2016). [j] Tyrer et al. (2005). [k] Eisen et al. (1994). [l] Horowitz et al. (1988). [m] Derogatis (1986).

Functioning Questionnaire, Inventory of Interpersonal Problems, and Psychosocial Adjustment to Illness Scale.

PTSD and Social Functioning Findings Review

Of the 26 empirical studies reviewed, nearly all reported a statistically significant positive association between PTSD diagnosis or symptom severity and increased impairment in social functioning ($n = 21$). However, 18 of these were specifically cross-sectional study designs and therefore reported only correlational associations that could not assess directionality between PTSD symptoms and social functioning (see Table 1 for details). Some longitudinal investigations had similar findings to the cross-sectional results with the additional advantage of assessing the impact of PTSD on global social functioning and revealed that a PTSD diagnosis or greater symptom severity predicted greater impairment in social functioning across time (Ginzburg et al., 2010; Polusny et al., 2011). Specifically, Ginzburg et al. (2010) examined 664 Israeli war veterans with and without combat stress reaction and found that PTSD at baseline was significantly associated with lower social functioning at follow-up, particularly if it was comorbid with disorders such as depression and anxiety. Polusny and colleagues (2011) assessed a longitudinal cohort of 953 U.S. National Guard soldiers and found that those with more PTSD symptoms had poorer social functioning outcomes after 1 year than those with concussion symptoms or mild traumatic brain injury, showing a positive prospective association between PTSD symptoms and impairment in social functioning. In another longitudinal study of patients with major burn injuries, PTSD symptom severity at 6, 12, and 24 months after discharge was prospectively related to subsequent poorer social functioning at each follow-up over a 2-year period (Corry et al., 2010). However, the strength of association attenuated over time. Nearly all of the reviewed studies assessed social functioning as an outcome ($n = 25$), and just over half assessed it as a secondary outcome ($n = 14$). One exception was a prospective study with police officers in four urban police departments, which found that pretrauma social functioning was a protective factor: Both better social adjustment and higher levels of social support during police academy training were associated with a lower risk of PTSD symptoms measured 24 months into an officer's service (Yuan et al., 2011).

Impacts of PTSD Treatment on Social Functioning

In general, treatment studies observed improved PTSD symptoms as a function of treatment but largely did not assess for changes in social functioning between pre- and posttreatment assessments. In three treatment studies, comparison groups were not used, but results indicated improvement in PTSD symptoms with treatment (Aversa et al., 2012; Lab et al., 2008; Murphy et al., 2016). In these studies, social functioning and PTSD symptoms were inversely related at a single preintervention time point. However, changes in social functioning posttreatment were not necessarily reported, which does not enable assessment of whether functioning changed over time. For example, Aversa and colleagues (2012) performed secondary analyses on baseline clinical trial data of 943 veterans with PTSD and found that veterans with fewer symptoms of depression and/or PTSD reported better social functioning than those with more severe symptom profiles of either disorder ($z = 2.97$, $p = .003$). Because these data were cross-sectional, it was not possible to determine whether this effect was due to depression, PTSD, or both. Similarly, multiple other studies did not utilize social functioning as a treatment outcome variable, which does not enable us to make inferences about whether social functioning may have improved alongside PTSD symptoms as a function of these interventions (Galovski et al., 2012; Lunney & Schnurr, 2007; Markowitz et al., 2015; Murphy et al., 2016; Rauch et al., 2009). Lab et al. (2008) evaluated the efficacy of a treatment called traumatic stress service (TSS) by collecting pre- and posttreatment self-report measures from 112 patients in a hospital setting. Results indicated that having more PTSD symptoms was related to greater preintervention impairment in social functioning, and also that TSS led to posttreatment-related reductions in PTSD symptoms ($t = 8.7$, $p < .001$) and social functioning impairment ($t = 6.2$, $p < .001$). However, there was no comparison treatment control, which means that the authors could not unequivocally determine whether this treatment was responsible for the changes in PTSD symptoms and social functioning over and above any other treatment or just changes over time.

Potential mediating factors related to PTSD and social functioning were explored in five of the 26 studies, although not all these studies examined mediators for the relationship between PTSD and social functioning. Two of these articles analyzed PTSD as a mediating variable, with one finding that the severity of PTSD symptoms mediated the association between trauma exposure and social functioning (Aversa et al., 2014), while another found that PTSD symptom severity mediated the association between mild traumatic brain injury (mTBI) and social functioning (Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2010b). The remaining three examined potential mediators for the association between PTSD symptoms and social functioning and found that more active coping (Hassija et al., 2015) and more postdeployment social support (Pietrzak et al., 2010; Pietrzak, Johnson, Goldstein, Malley, Rivers et al., 2009) may buffer the impact of PTSD symptomology on social functioning, while low social support from the community may increase these negative impacts (Tsai et al., 2012).

Discussion

Our review of the literature suggests that the presence of PTSD symptomology is a complex construct with clear links to poorer social functioning. Historically, assessments of social functioning did not determine the extent to which an individual's social difficulties were directly related to PTSD symptoms (McCaslin et al., 2016). Our review of 26 studies highlights that there is a clear and consistent negative relationship between PTSD symptoms and social functioning, evidenced by the findings of a majority of the reviewed studies. This relationship was observed across multiple populations in our review (veterans, sexual assault survivors, patients with chronic PTSD) and was present across different kinds of traumatic experiences (abuse, combat experiences, etc.) that can lead to the development of PTSD. Some of the included studies also explored possible causal mechanisms for the link between PTSD symptom severity and poor social functioning, suggesting that social functioning and PTSD could be connected through factors such as mTBI/traumatic brain injury (TBI), poor coping, and a lack of emotional or community support. However, these causal pathways and evidence regarding directionality warrant further research and exploration, including via prospective studies that permit stronger mechanistic claims.

A major finding of our review was the heterogeneity present in the measurement and definitions of social functioning. Across the 14 scales used to assess social functioning, definitions of social roles and social functioning varied greatly, with some scales assessing functioning across multiple unique roles (worker, parent, etc.) and others combining social functioning across different roles to provide a more general assessment of one's ability to make and maintain relationships. However, this methodological variation limits our ability to compare findings across the included studies. Researchers have highlighted the limitations of current assessments of functioning (McQuaid et al., 2012), particularly in relation to PTSD diagnosis (Speroff et al., 2012), and in response, other broader measures have been developed in attempts to improve measurement (Marx et al., 2015). Two self-report measures have recently been developed specifically to measure functioning related to PTSD symptoms, the IPF and the PRFI (Bovin et al., 2018; McCaslin et al., 2016). These two instruments have subscales based on specific social relationships (i.e., parenting, friendship) but not an overall social subscale.

Our systematic search and review process revealed that research on PTSD that includes a measure of social functioning has different foci, with some studies tending to focus on one area of social functioning (like marital partnerships), while others use a more global assessment of social functioning. PTSD may be particularly socially disruptive because posttraumatic stress symptoms often lead to interpersonal conflict and social isolation (Briere, 1992; Cloitre et al., 2005). For example, in a cross-sectional study of a nonmilitary sample of 176 urban mothers, PTSD diagnosis was associated with significant parental and family functioning problems (L. R. Cohen et al., 2008). Although the impact of PTSD on marital

and family relationships is very important, the social functioning domain is broader than just relationships with one's partner and includes multiple different kinds of relationships, as disruption of any one of these can have a profound impact on daily life. Impairment in social functioning may co-occur with impairment in other domains, and the severity of PTSD appears to covary with increased impairment in social functioning.

Given our review finding that PTSD severity and positive social functioning are often inversely related, assessing social functioning separately from other diagnostic PTSD features would likely be beneficial to PTSD clinical treatment, and examining how therapy-related changes in social functioning may or may not be related to changes in symptoms (Rodriguez et al., 2012). Provision of social support has recently emerged as an important treatment component in treating those with various kinds of traumatic exposures (Cloitre et al., 2016) because increasing social support can positively affect functioning and PTSD symptoms (Tsai et al., 2012). Success in occupational or academic settings often requires effective social functioning to avoid interpersonal conflict and to support effective communication in the pursuit of goals (Drebing et al., 2016). In addition, for survivors of sexual assault and childhood maltreatment, social support is a protective factor that may help prevent the development of PTSD both within and outside the treatment context (Guay et al., 2006). As social support is related to social functioning, such findings highlight the importance of further study into the social functioning domain and how it might influence clinical outcomes for PTSD.

It may seem intuitive that the main goal of any therapeutic intervention would be to increase the quality of a client's life, which would potentially include improving impairments in social functioning. However, in the treatment of PTSD, the goal of symptom reduction has often been the more explicit goal, whereas improving daily functioning has often been more implicit and therefore often not explicitly examined. Few studies of treatments targeting PTSD have used social functioning as a primary outcome measure. In a recent RCT comparing cognitive processing therapy (CPT) to person-centered therapy for veterans with PTSD after military sexual trauma, the authors assessed the quality of life and psychosocial functioning (SF-36) as a secondary outcome and found that participants treated with CPT reported higher physical functioning than controls but that no specific therapy approach was a significant predictor of change in social functioning (Holliday et al., 2015).

Similarly, few behavioral treatments attempt to target social functioning directly. According to a review of the literature by Charney and Marx (2012), evidence-based practices for PTSD often focus on symptom management, but not on social functioning. One intervention, skills training in affective and interpersonal regulation, does explicitly focus on improving social functioning and skills with promising preliminary results with veterans (Cloitre et al., 2016). Cusack and colleagues (2016) reviewed 64 trials of evidence-based treatments for PTSD, and their findings indicated support for the efficacy of prolonged exposure, CPT, cognitive therapy, cognitive behavioral therapy, eye movement desensitization and reprocessing, and narrative therapy on PTSD symptom reduction for adults; however, the graded strength of evidence for social outcomes, when reported at all, was considered by these reviewers to be insufficient to make claims regarding outcomes in social functioning. Although one might expect functioning to improve when PTSD symptoms improve, symptom-directed treatments sometimes have symptom-specific effects and do not necessarily also lead to improved functioning (Sayer et al., 2010). No treatment studies in this review explicitly targeted social functioning, though multiple studies reported improvements in social functioning, alongside improvements in PTSD symptoms. This suggests that PTSD treatment potentially can impact social functioning even when the specific focus is not on functioning. More research is needed to better understand the possible mechanisms of change that enable such treatments to help patients improve their social functioning.

On the other hand, some studies showed that PTSD symptom reduction does not always accompany improvements in functioning (Sayer et al., 2010). Given the importance of social relationships in buffering against negative outcomes and suicidal ideation for persons with PTSD, there is a strong need to assess the circumstances, treatments, or samples for which symptom-focused PTSD treatment can also improve social functioning. We recommend that research on PTSD treatment outcomes also include measures of social functioning, to better explain the impact of treatment on this critically important functional domain. We also recommend (1) that researchers use common or multiple measures of social functioning outcomes to increase the ability to compare findings across studies, (2) that researchers provide a rationale and definition for their choice of social functioning, and (3) that researchers measure and assess the importance of additional possible mediators of the relationship between PTSD symptoms and social functioning. In addition, as only one study reviewed examined social functioning prospectively, further exploration of the potential bidirectional relationship between PTSD and social functioning is warranted.

Strengths and Limitations

Our review is limited by our chosen search and review criteria and by the individual studies reviewed. We chose to search the past 10 years of published peer-reviewed literature, which may have excluded other relevant gray literature or literature published more than 10 years ago that was not included in previous reviews. Exclusion of gray literature may have increased the risk of publication bias in this review, and we recommend that future reviews on this topic examine the gray literature. Our search terms were specific to publications that contained social functioning as a major topic, and it is possible that the use of broader search terms may have yielded additional studies that focused on social functioning as a secondary outcome. Including the names of measures used to assess social functioning may have also been an alternative strategy and one that warrants further attention in future reviews. Similarly, the choice to exclude literature explicitly focused on functioning within only

specific social relationships (e.g., marriage) may be a limitation in that functioning within specific social roles is one part of social functioning. Future reviews may want to explore ways to incorporate research into specific social relationships. In addition, we implemented a minimum sample size that may have excluded smaller studies that may have still been relevant to our research question.

Because our review focused on individuals with PTSD symptoms, our findings may not generalize to trauma-exposed individuals who do not display PTSD symptoms, since they would not have been captured in our review. Despite these limitations, our review did include a variety of study designs—allowing us to examine longitudinal, cross-sectional, and treatment studies. In particular, it is important to review the racial and ethnic diversity of the included articles to assess the generalizability of this review of social functioning and PTSD. Although the articles included in this review were from multiple countries of origin, the reported sample demographics were approximately 66% White racial majority, with non-White individuals of ethnic and racial minority status underrepresented; consequently, overall findings may not generalize beyond White individuals with PTSD. There was also a lack of gender diversity, with four studies exclusively studying women and 12 having greater than 85% male samples, likely due to the number of military samples. Future reviews should investigate these disparities further, and future research should aim to further explore the impact of PTSD on the social functioning of civilian, racial and ethnic minority, and gender-diverse groups.

Conclusion

The literature reviewed here supports the idea of a relationship between PTSD symptoms and social functioning, while also pointing to areas where additional empirical data are needed to better understand underlying causality and potential mediators of this relationship. Work that creates and evaluates new measures of social functioning also could greatly aid in the treatment and evaluation of many mental health interventions, including PTSD, since measurement and definitions of social functioning are highly heterogeneous in the current literature. In addition, as many of our reviewed articles utilized cross-sectional design, there is a need for additional empirical studies including RCTs and prospective longitudinal designs to examine the possible impacts of PTSD on social functioning over time. An increase in the research and measurement of social functioning using reliable, valid measures is vital to our ability to assess, monitor, and detect meaningful improvement in a critical area of social functioning for those with PTSD.

Implications for Practice, Policy, and Research

- PTSD can lead to significant impairment in social functioning.
- Treatments of PTSD should explicitly target improved social functioning as a goal.
- Consistent definition and measurement of social functioning will improve future research.

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Supplemental Material

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