

Assessment of posttraumatic stress disorder-related functional impairment: A review

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Abstract—In 2010, the Department of Veterans Affairs (VA) and Department of Defense (DOD) jointly published the revised *VA/DOD Clinical Practice Guideline for Management of Posttraumatic Stress*. The Clinical Practice Guideline (CPG) provides evidence-based recommendations for diagnosing and treating a spectrum of stress-related disorders. Included in the CPG were recommendations for assessing posttraumatic stress disorder (PTSD) and other stress disorder-related functional impairment. This article complements those CPG recommendations by providing information that may further guide clinicians in the assessment of functional impairment related to PTSD and other stress-related disorders. We briefly review some of the empirical literature on the association between PTSD and functional impairment and some of the more frequently used methods and measures for assessing functional impairment and introduce a new measure currently being developed by our group. We suggest that information obtained via patient self-report and/or clinician rating be supplemented whenever possible with collateral data from friends, family members, coworkers, or supervisors to provide a complete picture of current and premorbid functional status. Finally, we explore several important issues that we encourage clinicians to keep in mind when assessing functional impairment among Veterans and Active Duty servicemembers.

Clinical Trial Registration: ClinicalTrials.gov; PT074941, “Development and validation of a PTSD-related functional impairment scale;” <http://www.clinicaltrials.gov>.

Key words: clinical practice guideline, Department of Defense, Department of Veterans Affairs, education, family, functional impairment, intimate relationships, occupational functioning, posttraumatic stress disorder, social functioning.

INTRODUCTION

Research has consistently shown posttraumatic stress disorder (PTSD) to be associated with impairments in functioning across a number of psychosocial domains [1]. Specifically, PTSD is associated with impairments in occupational and academic functioning [2–6], marital and family functioning [5,7–8], parenting [9–10], and friendships and socializing [11]. Additional studies have shown associations between PTSD and objective indicators of quality of life (QOL) such as homelessness and unemployment [12–13]. Such impairments are common among

Abbreviations: ASD = acute stress disorder; CAPS = Clinician-Administered PTSD Scale; COSR = combat and operational stress reaction; CPG = clinical practice guideline; DOD = Department of Defense; DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision; GAF = Global Assessment of Functioning; IOM = Institute of Medicine; IPF = Inventory of Psychosocial Functioning; LIFE = Longitudinal Interval Follow-Up Evaluation; M = mean impairment score; OIF/OEF = Operation Iraqi Freedom/Operation Enduring Freedom; PTSD = posttraumatic stress disorder; QOL = quality of life; SD = standard deviation; VA = Department of Veterans Affairs; WHO = World Health Organization; WHODAS-II = WHO Disability Assessment Schedule II.

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populations at high risk for PTSD, such as military personnel deployed to combat [3,5–6,8–14]. Research suggests that these impairments are currently affecting many Veterans of the wars in Iraq and Afghanistan (Operations Iraqi Freedom and Enduring Freedom) and are therefore important to identify and treat [15].

In 2010, the Department of Veterans Affairs (VA) and the Department of Defense (DOD) jointly published the revised [VA/DOD Clinical Practice Guideline for Management of Posttraumatic Stress](#) [16]. This clinical practice guideline (CPG) provides evidence-based recommendations to clinicians for diagnosing and treating a spectrum of stress-related disorders including combat and operational stress reaction (COSR), acute stress reaction, acute stress disorder (ASD), acute PTSD, and chronic PTSD among servicemembers and Veterans.

The VA/DOD CPG recommends a comprehensive assessment of all relevant domains of functioning. It stresses the importance of a thorough assessment of functional impairment for several reasons: (1) to identify individuals who may be at risk for endangering themselves or others during or after deployment as well as after military discharge, (2) to promote accurate diagnosis, (3) to guide treatment planning by clarifying the domains in which the individual is experiencing impairment, and (4) to monitor changes in functioning during and after treatment.

This article is meant to complement the CPG recommendations for assessing stress disorder-related functional impairment and will provide information that may further guide clinicians in their assessment efforts. Although the VA/DOD CPG addresses several stress-related disorders, this article will focus mainly on the relation between PTSD and psychosocial functioning because the vast majority of prior research has examined this association. The information provided is based on these empirical findings from the extant literature as well as recent findings from an ongoing study of functional impairment among male and female Veterans. Specifically, we begin our article with a review of some of the recent empirical literature on the association between PTSD and impaired functioning across various psychosocial domains. We then provide specific recommendations on how to perform a comprehensive multimethod assessment of functional impairment and introduce a promising new assessment instrument. The article concludes with insights into several important issues related to assessing functional impairment that we encourage all clinicians to keep in mind when assessing functional impairment among Veterans and Active Duty servicemembers.

METHODS

We searched the U.S. National Library of Medicine's PubMed, PsycINFO, and PsycARTICLES databases for articles related to PTSD and functioning. We identified studies by searching the databases for references with the phrases "posttraumatic stress disorder" or "PTSD" ($n = 10,109$ English-language articles) or "functioning" in the title or abstract ($n = 83$). We reviewed the abstracts for the resulting articles to identify those relevant to our topic, and we also reviewed the references for the most relevant articles to identify additional studies of interest. Because we were unable to provide an exhaustive literature review in this article, we emphasized studies published since 2008 but also included a few earlier articles that were of particular relevance.

To identify articles related to impairment in specific domains associated with PTSD, we searched the PsycINFO and PsycARTICLES databases for articles with the search terms "posttraumatic" or "PTSD" in the major subject heading and "marriage," "parenting," "social functioning," "work," "education," "school," "finances," and "homelessness" in the subjects fields. We reviewed the results to determine whether the study addressed functional impairment related to PTSD. After identifying relevant screening measures, we performed additional searches to locate articles about the measures in question, including original validation studies.

This article also presents data collected through a grant awarded to Brian Marx, PhD, by the Department of Defense with the goal of designing and validating a new measure of functional impairment related to PTSD. This project was observational and cross-sectional. Phase 1 ($n = 53$) involved the use of focus groups to obtain information about the domains related to impairment among Veterans with PTSD. Phase 2's test development sample and hypothesis testing ($n = 285$) involved the use of clinical interviews and self-report questionnaires administered to male and female Veterans with representation from the Vietnam, Persian Gulf, and Operation Iraqi Freedom/Operation Enduring Freedom (OIF/OEF) conflicts. For Phase 3, involving test validation and hypothesis testing, a sample of 1,800 Active Duty personnel and 300 Veterans from the Vietnam, Persian Gulf, and OIF/OEF conflicts were recruited.

RESULTS

Empirical Findings on Relation Between PTSD and Functional Impairment

Prior research has found strong and reliable associations between PTSD and functional impairment. Studies usually show these associations to be characterized by medium to large effect sizes [e.g., 9,15,17]. A comprehensive review of the literature on the association between PTSD and psychosocial functioning is beyond the scope of this article. For thorough reviews, please see Holowka and Marx [1], Schnurr et al. [18], Sayer et al. [19], and Norman et al. [20]. We briefly review some of the more recently published literature in this area as well as some of the findings from our current work. Specifically, we discuss findings describing the associations between PTSD and difficulties in intimate relationships, friendships and socializing, parenting, work and academic performance, and financial problems and homelessness.

Intimate Relationships

Recent research has found that the symptoms of PTSD frequently result in deleterious consequences for intimate relationships. Combat Veterans with PTSD have been reported twice as likely as non-PTSD Veterans to be divorced and three times as likely as those without PTSD to experience multiple divorces [21]. Studies have found that PTSD avoidance/numbing symptoms (e.g., anhedonia, emotional detachment from others, avoidance of trauma-related thoughts and feelings) are strongly associated with intimate relationship problems among Veterans [22–24]. In the context of intimate relationships, avoidance may initiate a cycle in which withdrawal and reluctance to discuss the past may strengthen feelings of uncertainty and loneliness. This, in turn, reinforces the partner's apprehension, which leads to further withdrawal on the Veteran or servicemember's part [23]. Monson et al. also theorized that difficulties with effective trauma disclosure and poor conflict resolution may lead to poor communication, which in turn exacerbates relationship problems [23]. Consistent with these hypotheses, Veterans in our ongoing study* commonly reported that PTSD avoidance and numbing

symptoms were related to an increasing reluctance to participate in previously enjoyable activities with their partners. Many of these Veterans described a new preference for quiet, solitary activities, such as watching television or fishing, as well as a preference for activities they could perform without leaving the house.

Hyperarousal symptoms of PTSD have also been associated with greater intimate relationship difficulties. In particular, studies have found that increased anger, irritability, and aggression are related to problems in intimate relationships [17,25–26]. PTSD-related hyperarousal symptoms may also contribute to challenges that Veterans and their partners face when they engage in activities in public places. For example, PTSD-related hypervigilance may lead to Veterans avoiding crowds or prematurely or abruptly leaving social events when their partners are not ready to leave, sitting in certain places (e.g., near an exit or with their backs to the wall) when dining or in public, having problems regulating affect in public, and creating discomfort for their partners [27–28]. PTSD-related hyperarousal may also lead to problems related to driving; partners of Veterans with PTSD often complain of “road rage” and difficulty tolerating aggressive or risky driving, which can lead to frequent arguments [23,24].

It has been hypothesized that combat Veterans with PTSD may experience trouble processing threatening social stimuli because these events may activate “survival mode” reactions characterized by increased physiological arousal, hostile appraisals, and defensive behavior, which may have been adaptive in life-threatening contexts (e.g., combat), but are no longer adaptive and can lead to problems in their current contexts [17].

It is also important to keep in mind that relationships are cocreated and a spouse/partner may also be experiencing his or her own difficulties, which can contribute equally or more so to discord in the relationship. Finally, it is also worth noting that, in addition to acting as a causal factor, PTSD symptoms can worsen or intensify existing problems.

Friendships and Socializing

Data from our ongoing study show that avoidance and numbing symptoms also impair friendships. Specifically, we found that PTSD symptoms were associated with difficulties in sharing thoughts or feelings, being emotionally supportive, and settling arguments or disagreements with friends. Our data have also shown that, although PTSD-related hypervigilance interfered with meeting new people,

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a combination of irritability, feelings of detachment/estrangement, and hypervigilance were all related to impairment in friendships and socializing.

Parenting

Other recent studies have noted an association between PTSD and parenting difficulties [9–10,29]. Gewirtz et al. found that among male Vietnam Veterans PTSD symptoms were associated with decreased parenting satisfaction, impaired attachment with children, child behavior problems, and family violence [30]. PTSD symptoms were also associated with less effective parenting (e.g., inconsistent discipline and poor supervision). In trying to explain how PTSD symptoms result in parenting difficulties, investigators have suggested that avoidance and numbing symptoms may produce impaired relationships through emotional and physical detachment, lack of interest, and reduced monitoring and involvement with children [31], while hyperarousal symptoms may be associated with volatile or emotionally dysregulated parent-child interactions, especially in stressful situations [30].

Clinicians and researchers have identified the emotional numbing and hyperarousal components of PTSD as particularly disruptive of the Veteran's family life [28]. Galovski and Lyons suggested that fear and guilt over violent impulses acted on during combat situations and in the home, and current attempts to control these impulses, may lead the Veteran to avoid certain roles and activities that, in turn, affect the Veteran's overall ability to perform familial responsibilities and may further estrange them from their loved ones [28]. Such withdrawal and avoidance may create other problems in the home because the other parent or partner may struggle with the increased responsibility and burden placed on him or her [27–28].

Work and Academic Performance

Recent studies have confirmed the results of earlier studies demonstrating that PTSD symptoms can adversely affect work and academic performance, as well as the interactions with supervisors and peers in these domains [2,32–34]. Rona et al. found that, among a sample of U.K. military personnel, PTSD-related avoidance and numbing symptoms, followed by hyperarousal symptoms, were most strongly associated with poor performance at work, (e.g., less time on task, less accomplished, difficulty performing duties) [5]. Sleep disturbances have been shown to adversely affect work and academic performance, as evi-

denced by increased absenteeism and reduced productivity [35–36]. Fernandez-Mendoza et al. showed that sleep disturbances were associated with worse neuropsychological performance on tasks involving processing speed, executive control of attention, and visual memory, all of which can affect work and academic performance [37].

Other studies, including Heir et al. [34] and the ongoing study by Marx et al., have confirmed that greater PTSD symptom severity is associated with an increased number of days absent from work. Other investigators have found that exposure to trauma among a sample of Active Duty military personnel predicted increases in PTSD symptoms, as well as job burnout, job stress, work-family conflict, and job dissatisfaction [38]. Research with women has also found negative associations between a history of interpersonal violence and job satisfaction and productivity [32]. Bolton et al. found that, once again, PTSD-related symptoms of avoidance, numbing, and hypervigilance can deleteriously affect academic performance [2], and research with adolescents has found associations between PTSD and school truancy and suspensions [39]. Adolescents with PTSD show slower processing of incoming information and difficulties in concentration and decision-making, which can have negative consequences for functioning in school [39].

Financial Problems and Homelessness

Parto et al. examined the prevalence of PTSD among urban residents and found that men and women living below the poverty level were more likely to screen positive for PTSD compared with those living above the poverty level [40]. They also found that, among participants at all income levels, people aged 30 to 47 years were more likely to report symptoms of PTSD than those aged 47 to 64 years. Women were more likely than men to screen positive for PTSD; white participants were more likely than African-American participants to endorse PTSD. Lastly, results showed that white women living below the poverty level were most likely to report PTSD symptoms [40].

An estimated 2.3 to 3.5 million people experience homelessness in the United States in a given year, and an estimated 26 percent of homeless adults are Veterans [41]. Women who have served in the military are three to four times more likely to become homeless than nonveteran women, though the reasons for this are unclear [41]. Results from a recent study of homelessness showed that, in general, male Veterans report homelessness because of job loss, discharge from an institution, mental health problems, and

alcohol or drug problems. In contrast, female Veterans usually report homelessness because of eviction, interpersonal conflict, and the loss of someone they depended on financially (either through disruption of that relationship or because of illness or death) [42]. Recent research focusing specifically on Veterans has shown that important risk factors for homelessness include extreme poverty, a postmilitary psychiatric disorder, and social isolation. Additional studies with homeless Veterans have found associations between PTSD and homelessness and financial loss [41,43]. Homeless female Veterans were more likely to screen positive for PTSD than nonhomeless female Veterans. These women were also more likely to have experienced military sexual trauma, to be unemployed, and to be disabled [41]. Importantly, Galea et al. have shown that there may be reciprocal associations between financial loss and PTSD [43]. Specifically, they showed that, in the aftermath of Hurricane Katrina, financial loss predicted PTSD diagnostic status 2 years posttrauma.

Assessment of Functional Impairment

We recommend that the assessment of functional impairment be accomplished using both clinical interviews and self-report instruments that assess functioning more broadly in addition to specific domains. Although researchers have successfully developed a number of valuable methods that can reliably and validly assess functional impairment, the information derived from these methods may be affected by therapist-client rapport, memory biases, response biases, cultural biases, and clinical orientation. Further, reliance on a single assessment methodology or instrument may lead to an inaccurate understanding of the forms and degrees of functional impairment. As a result of these limitations, we recommend the use of multiple methods and measures. Such multimethod assessment takes advantage of each measure's relative strengths, overcoming the psychometric limitations of any single instrument and maximizing correct diagnostic decisions. We suggest that information obtained via patient self-report or clinician rating be supplemented with data from friends, family members, coworkers, supervisors, or teachers to provide a complete picture of current and premorbid functional status. Although these corroborating reports are also subjective, when combined with other data, they may strengthen the resulting conclusions.

Consistent with the CPG recommendation to monitor changes in functioning over time, past research has shown

that the nature of the relation between psychiatric symptomatology and functioning may vary [13,44–45]. Changes in functioning over time have important implications for both the diagnosis and treatment of individuals with PTSD and other stress-related disorders. With respect to diagnosis, the time point at which functional impairment is noted will determine which diagnosis is allowed by the current classification scheme. Specifically, if dysfunction is noted within the first 30 days of exposure to a traumatic event (along with the other requisite symptoms), then the clinician would consider COSR or ASD as viable diagnoses. If dysfunction and associated symptoms are present for at least a month but less than 3 months, then the clinician should consider acute PTSD as a diagnosis. If dysfunction and associated symptoms are present for 3 months or longer, then clinicians should consider diagnosing the individual with chronic PTSD.

With respect to treatment, the practice of assessing functioning over time is beneficial to see how changes in QOL and functioning may or may not correlate with therapy-related changes in symptomatology. Such assessment also provides clinicians with information needed to make modifications to treatment intensity (frequency and duration), goals, mode (individual, group, couple, family), and specific strategies and techniques [46] for the purpose of meeting the changing needs of their patients. In some cases, PTSD symptoms may not change or decrease, but the person may learn new skills in therapy to cope more effectively with his or her symptoms. In these instances, a designated informant may observe improvements in functioning or QOL (an individual's subjective appraisal of his or her physical, mental, and social well-being) [18] before the Veteran. Some commonly used QOL measures include the World Health Organization (WHO) QOL Assessment [47], the QOL Inventory [48], and the Satisfaction with Life Scale [49]. For more detailed description of these measures, please see the **Table**.

Interviews

It is beyond the scope of this article to review all available interview measures. We review some of the more commonly used ones here. Specific questions within various clinician-administered diagnostic interviews assess the extent to which an individual is experiencing overall functional impairment related to PTSD and other stress-related disorders. For example, the Clinician-Administered PTSD Scale (CAPS) [65] and the Structured Clinical Interview

Table.

Measures of functional impairment and quality of life.

Measure	Domains Assessed	Description	Items
World Health Organization Disability Assessment Schedule-II (WHODAS-II) [50]	1. Understanding and communicating 2. Mobility 3. Self-care 4. Interpersonal 5. Work and household 6. Participation in society	Revised version of WHODAS (World Health Organization, 1988), WHODAS-II is measure of impairment because of military or health-related problems experienced in past 30 days. It provides profile of functioning across 6 activity domains, as well as general disability score. It can be administered as self-report questionnaire [48] or in interview form [55]. Available to those who complete and submit user agreement form.	36
Medical Outcomes Study Short Form (SF-36) [51]	1. Physical functioning 2. Role physical 3. Bodily pain 4. General health 5. Vitality 6. Social functioning 7. Role emotional 8. Mental health 9. Health change	Generic, widely used measure of health status. 8 domains included in SF-36 were selected from 40 used in Medical Outcomes Study [52]. Short form is also available (SF-12). Available to those who complete and submit License Application Form.	36
Sheehan Disability Scale [53]	1. Work/school 2. Social 3. Family	Respondent rates difficulties due to symptoms in each of 3 domains on 10-point scale with verbal anchors. Author holds copyright to scale; permission to use may be obtained by contacting author.	3
Sheehan Work Disability Scale (SWDS)*	1. Physical work 2. Mental work (thinking, planning, using your brain) 3. Work closely and effectively with others	Respondent rates difficulties in occupational functioning due to his or her symptoms on 10-point scale with anchors. Author holds copyright to scale; permission to use may be obtained by contacting author.	3
Sheehan Disability Scale-W (SDS-W) [†]	1. Work/school 2. Social life 3. Family life/home responsibilities 4. Balance between personal life and career	Respondent rates extent to which he or she experiences problems in each of 4 domains due to symptoms on 10-point visual analog scale. Author holds copyright to scale; permission to use may be obtained by contacting author.	4
Health and Work Performance Questionnaire-Short Form (HPQ) [54]	1. Absenteeism 2. Presenteeism	Self-report measure that assesses work-related consequences of illness, including absenteeism, presenteeism, and workplace accidents. Available in public domain.	4
Work Limitation Questionnaire (WLQ) [55–56]	1. Work-related time management 2. Physical demands 3. Interpersonal/mental demands 4. Output demands	Evaluates level of limitation patient is experiencing in workplace due to health problems. Patient reports his/her ability or inability to execute work tasks and related loss of productivity. Available upon request.	25 (8-item version also available)
Work Productivity and Activity Impairment (WPAI) [57]	1. Hours absent from work because of health issues 2. Hours absent for other reasons 3. Hours worked 4. Effect of health on productivity 5. Effect of health on productivity outside of work	Assesses effect of health problems on work productivity. Available in public domain.	6
Social Adjustment Scale (SAS-SR) [58]	1. Work 2. Social/leisure activities 3. Relationships with extended family 4. Roles as spouse, parent, and member of family unit 5. Financial	Self-report that allows routine assessment of patient's social adjustment, especially in case of depression. It is also useful method as part of detection of even mild depressions, regular aftercare evaluation of outpatients, or as outcome measure in longitudinal studies. Available for purchase.	54
Dyadic Adjustment Scale (DAS) [59]	1. Dyadic satisfaction 2. Dyadic cohesion 3. Dyadic consensus 4. Affectional expression	Self-report measure of relationship adjustment. 5–10 min to administer. Can also be adapted into interview format. Available for purchase.	32
Life Stressors and Social Resources Inventory (LISRES) [60]	1. Physical health 2. Spouse/partner 3. Finances 4. Work 5. Home/neighborhood 6. Children 7. Friends and social activities 8. Extended family	Self-report measure that gauges ongoing life stressors and social resources as well as changes over time. Available for purchase.	200

Table. (cont)

Measures of functional impairment and quality of life.

Measure	Domains Assessed	Description	Items
Liebowitz Self-Rated Disability Scale [61]	1. School 2. Work 3. Family 4. Marriage/dating 5. Friendships 6. Other interests 7. Activities of daily living 8. Suicidal behavior	Self-report measure assessing current and most severe lifetime impairment due to social phobia in 8 domains. Available in public domain.	11
Social Functioning Questionnaire [62]	1. Work and home tasks 2. Financial concerns 3. Relationships/family 4. Sexual activities 5. Social contacts 6. Spare time activities	Short self-report measure adapted from Social Functioning Schedule (SFS) to gauge respondent's perception of his/her social functioning. Available in public domain.	8
UCLA Social Attainment Scale (SAS) [63]	Social functioning	Assesses level of social functioning. Used mostly in assessing functional impairment in psychotic populations. Available in public domain.	7
Quality of Life Inventory (QOLI) [48]	1. Health 2. Self-regard 3. Philosophy of life 4. Standard of living 5. Work 6. Recreation 7. Learning 8. Creativity 9. Helping 10. Love 11. Friends 12. Children 13. Relatives 14. Home 15. Neighborhood 16. Community	Measure of general life satisfaction; it requires respondents to indicate level of importance of each area on 3-point scale and their level of satisfaction with that area of their life. Brief descriptions/definitions are provided of each domain prior to each pair of items. Available for purchase.	32
Inventory of Psychosocial Functioning (IPF) [‡]	1. Romantic relationships 2. Family relationships 3. Work 4. Friendships and socializing 5. Parenting 6. Education 7. Self care	New self-report instrument designed to assess functional impairment across spectrum of domains. Available for public use—please contact author.	80 items on full scale; 7 items on brief scale
Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) [64]	1. Physical health (13 items) 2. Subjective feelings (14 items) 3. Leisure time activities (6 items) 4. Social relationships (11 items) 5. General activities (14 items) 6. Work (13 items) 7. Household duties (10 items) 8. School/course work (10 items) 9. Medication (1 item) 10. Overall life satisfaction and contentment (1 item)	Self-report questionnaire intended to measure level of enjoyment/satisfaction across several elements of daily functioning over past week. Permission to use may be obtained by contacting author.	93

*Sheehan DV. Sheehan Work Disability Scale. 1983. Unpublished instrument.

†Sheehan DV. Sheehan Disability Scale (SDS-W). 2003. Unpublished instrument.

‡Marx BP, Schnurr P, Rodriguez P, Holowka DW, Lunney C, Weathers F, Sloan D, Keane TM. Development and validation of a scale to assess functional impairment among active duty service members and veterans. Proceedings of the 25th Annual Meeting of the International Society for Traumatic Stress Studies; 2009 Nov 5–7; Atlanta, GA.

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for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), PTSD module [66] both contain questions designed to assess impairment more generally within social and occupational domains. A limitation of using this method of assessing functional impairment is that clinicians are unable to obtain more specific information about an individual's functioning across a number of different psychosocial domains (e.g., intimate relationships, parenting, friendships, occupational performance, self-care).

A more detailed assessment, on the other hand, provides an opportunity to explore the extent to which specific PTSD and other stress-related disorder symptoms are affecting specific areas of functioning. During a detailed assessment, the clinician can pose additional questions by psychosocial domain, thereby providing a better overview of the quality of multiple systems in the individual's life.

In order to more accurately assess a broad range of impairment, researchers have developed more comprehensive, standardized interviews to assess psychosocial functioning. A good example of one such instrument is the WHO Disability Assessment Schedule II (WHO-DAS-II) [50]. The WHODAS-II was developed to assess disability related to physical and psychiatric disorders experienced within the past 30 days and provides a profile of functioning across six activity domains—understanding and communicating, mobility, self-care, getting along with others, life activities, and participation in society—as well as an overall disability score. The WHO-DAS-II has been used with individuals with PTSD and other stress-related disorders; research has shown it to be useful in these populations [67–71]. A notable asset of the WHODAS-II is its relationship with the International Classification of Functioning, Disability, and Health [72], an internationally recognized system of classifying the consequences of physical and mental health conditions. The WHO has also developed and validated a self-report version of the WHODAS-II that can be used in instances when an interview is not feasible or efficient [50].

The Longitudinal Interval Follow-Up Evaluation (LIFE) [73] is also a standardized interview that was designed to assess the long-term course and effects of psychiatric disorders. Like the WHODAS-II, it evaluates and provides the clinician with information about an individual's functioning across multiple domains (e.g., work, relationships, sexual, household, recreation) as well as providing a global social adjustment score. Research has

shown the LIFE to be useful when used with individuals with PTSD and other stress-related disorders [74–75].

Self-Report Measures

Currently, there are a number of self-report instruments available for use as part of an assessment battery (Table). In selecting a self-report instrument, clinicians may wish to consider the relative strengths and limitations of each scale. With respect to specific use with Veterans and/or servicemembers, most of these scales do not have norm-referenced scoring available. In addition, when assessing functional impairment, it is important to choose a measure that is not only valid and reliable but also sensitive to changes within individuals over time. This is necessary in order to detect minimal clinically important differences. Guyatt et al. have used the term “responsiveness” to describe a measure's ability to detect change within individuals over time [76]. Although, in general, reliable measures are likely to be responsive, the conventional method of assessing reliability using the correlation relating between-person variance to total variance may be misleading if it is used as the only index of reliability. As such, it is possible for instruments to be reliable but unresponsive to change; conversely, instruments may show poor reliability but excellent response to change over time [76]. Guyatt et al. suggested using an index of responsiveness, defined as an intraclass correlation coefficient that can be calculated as the ratio of the variance in participants' scores attributable to characteristics of the participant to the total variance in score (including variance attributable both to between-subject differences and to differences for the same subject over multiple repetitions of the instrument) [76]. This intraclass coefficient provides information about the extent to which multiple administrations of the instrument yield the same values under the same conditions in the same individuals [76]. To address this and other limitations of the available self-report instruments (e.g., difficulty in scoring, requiring causal attributions on the part of the respondent), we are developing a new measure of functional impairment: the Inventory of Psychosocial Functioning (IPF). This instrument has been created by the authors of this article in collaboration with several experts in PTSD and functional impairment among Veterans and servicemembers. The IPF was developed by first defining and systematically operationalizing each of the variables representing functional impairment. This objective was accomplished using a rational, classical test theory-oriented approach to instrument development. We then collected data from an initial test development sample

of Veterans and conducted first-stage psychometric analyses. Item and scale characteristics were derived and scrutinized to refine the item sets for optimal internal consistency and reliability, as appropriate. We are now in the process of crossvalidating results from the initial test development using several independent samples.

The IPF has both full (80 items) and brief (7 items) versions. The full IPF assesses impairment within the last 30 days across multiple psychosocial domains of functioning with sufficient breadth and depth without requiring respondents to make attributions regarding the cause of the impairments. Respondents answer each item by using a 7-point scale ranging from 1 (“never”) to 7 (“always”). The IPF yields an overall functional impairment score as well as scores for seven domains: romantic relationships, family relationships, work, friendships and socializing, parenting, academic pursuits, and self-care. Higher scores indicate greater functional impairment. Because functioning over the past 30 days is assessed, respondents are instructed to skip sections of the instrument that are not currently relevant. Respondents take approximately 7 to 12 minutes to complete the full IPF, depending on the number of questions answered. The psychometric properties of the full IPF are being tested using several independent Veteran and servicemember samples.

Data collected from 457 Veterans show that the IPF has excellent reliability, based on the guidelines suggested by Cicchetti [77]. The IPF demonstrates excellent internal consistency, with a Cronbach alpha coefficient of 0.93 for the entire scale. The IPF subscales demonstrate good internal consistency, with Cronbach alphas ranging from 0.80 to 0.90. Additionally, the corrected item-total correlations by subscale range from $r = 0.18$ to $r = 0.78$. The overall mean IPF score for this sample is 3.27 (standard deviation [SD] = 0.95). The mean impairment scores (M) and SDs for each of the IPF scales are as follows: romantic relationships: $M = 3.18$, $SD = 1.03$; family: $M = 3.64$, $SD = 1.33$; work: $M = 2.31$, $SD = 0.88$; friendships and socializing: $M = 3.19$, $SD = 1.22$; parenting: $M = 2.74$, $SD = 1.14$; education: $M = 2.80$, $SD = 0.934$; self care: $M = 3.36$, $SD = 1.11$.

The overall IPF score correlates significantly with a number of other self-report measures of impairment and QOL, such as the WHODAS-II ($r = 0.71$), the Medical Outcomes Study 36-Item Short Form for Veterans ($r = 0.68$), the Sheehan Disability Scale ($r = 0.53$ – 0.57), and the QOL Inventory ($r = 0.59$) (all $p < 0.001$). Scores on the social and interpersonal IPF scales (i.e., romantic

relationships, family, friendships and socializing, parenting) correlate significantly with similar subscales on other measures, with correlations ranging from $r = 0.30$ to $r = 0.61$ (all $p < 0.001$). Scores on the work and education IPF scales correlate significantly with scores on other similar scales, with correlations ranging from $r = 0.38$ to $r = 0.60$ (all $p < 0.001$). Scores on the IPF Self-Care subscale correlate significantly with several similar subscales in other measures, with correlations ranging from $r = 0.39$ to $r = 0.62$ (all $p < 0.01$). The overall IPF score correlates significantly with PTSD symptom severity, $r = 0.48$, $p < 0.001$, assessed using the CAPS for DSM-IV-TR. Similarly, participants meeting diagnostic criteria for PTSD had significantly greater overall IPF scores ($M = 3.90$, $SD = 0.99$) than participants who did not meet diagnostic criteria for PTSD ($M = 3.08$, $SD = 0.82$), $t(283) = -7.04$, $p < 0.001$. The overall IPF score also correlates significantly ($r = 0.53$, $p < 0.01$) with major depression symptom severity assessed using the module for major depressive episode (current) from the Mini-International Neuropsychiatric Interview. Similarly, relative to participants who did not meet diagnostic criteria for major depressive disorder ($M = 2.89$, $SD = 0.74$), participants who met diagnostic criteria for major depressive disorder had significantly greater overall IPF scores ($M = 3.78$, $SD = 0.93$), $t(281) = -8.97$, $p < 0.001$.

Idiographic Assessment

In addition to using well-validated interviews and self-report instruments, consistent with the CPG, we recommend that clinicians ask clients to provide a narrative description in their own words of changes within all relevant psychosocial domains of functioning. Doing so will allow the clinician to obtain more idiographic information about the nature of an individual’s functional impairment. Following the patient’s description, clinicians may ask about the subjective importance of each functional domain. For example, if a person is not performing occupational duties well, the clinician could ask, “How important is it for you to do your job well?” and “Was your job always important to you?” If the individual indicates that it is indeed important to perform his or her job duties well, then occupational functioning ought to be considered in treatment planning.

Next, it is important that clinicians determine whether the noted impairment is trauma-related. One of the techniques most helpful in determining whether an existing impairment is related to the stressor exposure is asking

explicitly about time of onset. Such questions can be worded simply, such as “When did you start having arguments with your wife? Did it start (or get worse) after [the event]?” In order for impairment to be potentially related to the stressor exposure, it must have either had an onset or worsened after the event. It is important to note that clinicians may wish to use caution in using the time of onset as the only indicator of whether the impairment is trauma-related or not. Time of onset is only a partial indicator. The clinician may wish to ask the Veteran if there are any other issues that could be associated with the impairment. For instance, domestic arguments could be more closely related to intoxication or other co-occurring conditions even if trauma exposure preceded their onset.

Once key functional impairments are identified and clearly linked to the index event, clinicians can ask more specific questions about the nature of the impairments and how the noted impairments are related to specific PTSD or other stress disorder-related symptoms. Furthermore, we suggest that clinicians identify which areas are relevant to each client (e.g., if the individual has children, then the clinician may wish to inquire about functioning in the parenting domain). One way to ask is, “How has your relationship with [your children] changed since the event?” This sample question can be adapted to assess other domains of functioning as necessary.

DISCUSSION: IMPORTANT CONSIDERATIONS WHEN ASSESSING FUNCTIONAL IMPAIRMENT

Limitations of Current Diagnostic Classification System

In order to meet diagnostic criteria for PTSD and other disorders currently listed in the DSM-IV-TR, an individual must not only endorse the requisite number of PTSD symptoms but also report that these symptoms have resulted in “clinically significant distress or impairment in social, occupational, or other important areas of functioning” [78]. Although this criterion is satisfied by the report of either distress or impairment, it is unlikely for one to be present without the other. Although this still could change, the DSM-5 work group is aiming to maintain the clinical significant criterion part of the revised PTSD diagnostic criteria [79–80].

Data from our ongoing study has revealed strong, significant correlations between Veterans’ self-rated level of functional impairment across several psychosocial domains (e.g., romantic relationships, family, parenting,

friendships and socializing, work, education, self-care) and self-reported distress. Specifically, correlations between self-reported functional impairment and distress ranged from $r = 0.70$ to $r = 0.88$ ($p < 0.001$). Our findings suggest that clinicians may wish to consider the likelihood that dysfunction and distress usually go hand in hand. That being said, our findings also suggest that there may indeed be instances in which levels of dysfunction and distress may be incongruous among clients. This is precisely why a detailed and comprehensive assessment of functional assessment is necessary.

Another important point for clinicians to keep in mind is that functional impairment is not exclusive to individuals meeting full diagnostic criteria for PTSD or other stress-related disorders. Individuals who may be sub-threshold, diagnostically speaking, or who report only some symptoms of a given disorder may also experience substantially impaired functioning [81–82]. One study found that individuals with PTSD evidenced 30 percent greater overall impairment in social, occupational, and family functioning compared with a group with subthreshold PTSD. Nonetheless, the subthreshold group also experienced substantial impairment, approximately four times greater than those without PTSD [82]. Other studies have found that individuals with partial PTSD showed levels of impairment similar to individuals who met full criteria [83], and those with full or subthreshold PTSD had similar degrees of social and work impairment [84].

Although functional impairment has been used by some researchers to refer more broadly to limitations in social and occupational spheres of life [85], DSM-IV-TR criteria do not make it clear how the symptoms may affect social, occupational, or other important areas of functioning, thereby making it difficult for clinicians to have a clear sense of what types of changes to look for in their assessments. Although the DSM-IV-TR states that symptoms must cause clinically significant distress or impairment in social, occupational, or other areas of functioning, the DSM-IV-TR does not specify what is meant by “clinically significant.” This makes assessing the clinical significance criterion more difficult and requires a judgment on the part of the clinician. The DSM-IV-TR provides the Global Assessment of Functioning (GAF) as a tool for clinicians to assess the level of functioning. However, the GAF score has limited utility in the assessment of PTSD-related impairment for Veterans. The GAF score is only minimally relevant to PTSD because of its emphasis on the symptoms of mood

disorders and schizophrenia and its limited range of symptom content [86]. Another limitation associated with using the GAF identified by the Institute of Medicine (IOM) [87] is that, even though it combines symptomatology and social-occupational functioning into one score [88], these constructs may be distinct. Additionally, because the GAF is a single-item measure, its psychometric properties show mixed findings [89]. Given that the methods by which we measure psychiatric-related functional impairment have critical value from a health-care perspective in terms of identifying individuals with the disorder and for promoting more efficient allocation of resources and efforts toward those who are in most need, the IOM committee recommended that the VA ultimately identify and implement an appropriate replacement for the GAF, although they did not specifically identify any such replacement [86].

Obtaining Collateral Reports

We suggest clinicians consider obtaining collateral information from family members and other third parties to determine the extent to which an individual's self-reported impairments rise to the level of clinical significance. Collateral information can be obtained by simply asking a spouse or family member (or any other individual who is close to the Veteran) to complete the same measure administered to the Veteran (e.g., the WHO-DAS-II) but instructing the spouse or family member to answer the questions based on their perception of how the Veteran is doing in each of those domains.

Concerns About Response Bias

Another important consideration is that some Veterans may exaggerate or even malingering symptoms of PTSD and associated functional impairment to support or maintain a claim for PTSD service-connection disability [90–91]. As such, any assessment protocol for assessing PTSD and associated impairments should include measures of response bias to assess overreporting or malingering. Possible measures include the Minnesota Multiphasic Personality Inventory-2 [92], Structured Inventory of Malingered Symptomatology [93], or Miller Forensic Assessment of Symptoms Test [94]. It is important, however, to keep in mind that no single measure is ideal for identifying those who malingering PTSD symptoms and that elevations on such indicators are not necessarily caused by intentional efforts to “fake bad” [95]. Additional possibilities for exaggerated profiles may be that such individuals are in

greater distress or subjectively feel more distress than other patients [96–98].

Distinguishing Impairment from Symptomatology

It is not surprising that past research has shown an association between PTSD and functional impairment: these two constructs are conceptually intertwined. Generally speaking, a condition or behavior would not be labeled as a symptom if it were not causing some sort of difficulty. Nonetheless, the focus on impairment itself as an outcome is relatively new to the field. Beginning in 1980, with DSM, Third Edition [99], significant distress or functional impairment was formally considered a necessary criterion for psychiatric disorder.

The current CPG clearly directs clinicians to assess functioning as an important part of the clinical picture and as a necessary condition for diagnosis. Because functioning is largely defined in terms of social and occupational functioning, it is easy to see how many PTSD symptoms can lead to difficulties in performing social or work roles. As mentioned earlier, symptoms of numbing could easily lead to relationship difficulties, and it is easy to imagine how angry outbursts could cause trouble at work. However, in some cases it can be more difficult to distinguish the symptom from the impairment it causes. For instance, “difficulty concentrating” will only be evident if it disrupts some meaningful activity, and thus the impairment is more readily apparent but is effectively subsumed within the symptom. In contrast, other symptoms may be more egosyntonic and thus are less likely to be identified as impaired functioning by the patient. For instance, when asked whether they “make a special effort to avoid activities, people, or places” that remind them of the trauma, many Veterans reply that they have been avoiding reminders for so long that it no longer requires any effort at all. In such cases, although the symptom is not perceived as distressing, the impairment associated with it (i.e., withdrawal from meaningful activities) may be of clinical concern and thus important to assess. Finally, some symptoms may cause only transient or insignificant distress or impairment, and in such cases, it is unclear to what extent these symptoms ought to be considered in the diagnosis of PTSD or other stress-related disorders. The DSM-IV-TR simply suggests that the “symptoms cause significant distress or impairment,” but in practice clinicians do not routinely assess the relative impairment of each symptom in order to determine whether it should be counted toward a diagnosis. Rather, most clinicians are more likely to

assess overall level of functioning even though a more detailed assessment may provide a more accurate diagnosis and a better treatment plan.

Given that comorbidity is common, some patients may have difficulty determining the extent to which their psychosocial difficulties are due to PTSD symptoms versus depression or substance abuse. In other cases, however, patients can be quite insightful about such differences, and thus we recommend asking them to provide a clearer picture whenever possible; however, these data ought to be interpreted with caution.

It is also important to note that, for some individuals, symptoms may only lead to impairment in certain contexts. In fact, it is widely believed that not only are certain symptoms normal, but under battlefield conditions, some of the behaviors frequently considered symptomatic are actually quite adaptive. For instance, it is not difficult to see how hypervigilance, efforts to avoid situations that may be harmful, and clear memories of past dangerous situations may in fact help keep military personnel alive and are therefore quite functional in the context of a war zone. Nonetheless, it is also understandable how such behaviors can lead to impairments in civilian life. Thus, the context and circumstances of the patient's life must be taken into account. This is where diligent assessment of functional impairment serves the crucial role of determining what constitutes a problem or symptom worthy of clinical attention.

Client's Personal Characteristics and Environmental Circumstances

While conducting assessments of functioning, it is important to remember that we may sometimes make assumptions of what can be reasonably expected of individuals based on relatively little information. Such assumptions must be checked against the client's history or self-report to avoid jumping to conclusions based on superficial data, which could lead to over- or underestimating past or future functioning without a solid basis in fact. Comparing one soldier to another may also be problematic. Although it may be easy at times to assume similar abilities among an ostensibly homogeneous cohort, we urge caution in making such assumptions and always encourage direct assessment.

Another related, but less conspicuous, pitfall in the assessment of functional impairment is that the metric by which we determine impairment may affect our overall assessment and may not be readily apparent. The simplest point of comparison is likely to the individual's

level of functioning prior to the trauma, if such information is available. If not, self- or other report may be helpful in determining whether a decline in functioning has occurred. However, in cases where military personnel are younger, functional impairment may be more evident in terms of a deviation from expected developmental trajectories. For instance, failure to attend college would certainly not indicate impairment in the majority of the population, but for someone who had previously been an honor student with aspirations of graduate school, this could indicate a serious level of impairment. Thus, an inability to achieve goals that would previously have been thought well within reach could also be clinically meaningful.

CONCLUSIONS

VA and DOD's renewed focus on functional impairment in the assessment of stress-related disorders is encouraging. Although a necessary condition for a DSM-IV-TR diagnosis, functional impairment is all too often overlooked or given only cursory evaluation. Nonetheless, functional impairment is clearly important, perhaps even more so than other criteria given its status as a straightforward outcome. Although symptomatology may be the substance of the disorder, impairment defines its form. Ultimately, functional impairment may be the outcome we are most interested in ameliorating, and thus, paying specific attention to its assessment is crucial.

What we have provided here hopefully serves as a valuable companion to the CPG, drawing attention to issues that may complicate the assessment of functional impairment and providing more specific guidelines for its execution. We recommend a multimethod assessment of functional impairment using clinical interviews, self-report instruments, and narratives to collect broad functioning information and information within specific domains. We also suggest that information obtained via patient self-report or clinician rating be supplemented with data from friends, family members, coworkers, supervisors, or teachers to provide a more complete picture of current and pre-morbid functional status. Although these corroborating reports are also subjective, when combined with other data, they may strengthen the resulting conclusions.

Clearly, further research is necessary in this area to improve our methods of assessing functional impairment, to further evaluate risk and resilience factors for impaired

functioning, and to explore treatment approaches that maximize gains in functional outcomes. Finally, it is our belief that continued implementation of the CPG recommendations will lead to further research in this area, as well as improved treatment for Active Duty military and Veterans alike.

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