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## The association between posttraumatic stress symptoms and functional impairment during ongoing conflict in the Democratic Republic of Congo

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### Abstract

The Democratic Republic of Congo (DRC) has suffered from a bloody conflict for more than a decade. More than 5,400,000 people died from war-related causes since 1998 and exposure to violence was wide-spread. This study investigated the impact of posttraumatic stress disorder (PTSD) symptoms on perceived health and physical and social functioning, filling an important gap in the current literature. Data were collected from a sample of 93 adults living in Bunia, Eastern Democratic Republic of Congo. Structured in-person interviews included the PTSD section of the Composite International Diagnostic Interview and the World Health Organization Disability Assessment Scale. Additional questions were included to assess social resources. Study recruitment was balanced to achieve equal representation of both sexes and each quarter of town. Forty percent met symptom criteria for probable PTSD. Individuals with PTSD reported poor perceived general health and had high disability scores compared to those without PTSD. Of the three PTSD symptom clusters, hyperarousal was most strongly associated with disability. Individuals with PTSD were significantly more emotionally affected by their health problems than those without PTSD (85% versus 41%), had more difficulties in activities involving social contact (54% versus 16%) and in doing their daily work (54% versus 20%). The impact of war-related violence on mental health is severe in the DRC. Psychosocial interventions developed in conflict areas might be best targeted primarily to supporting social functioning and reducing hyperarousal. Implications for clinical treatment and future directions are discussed.

### Keywords

PTSD; functional impairment; social resources; War; Violence; DR Congo

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## 1. Introduction

The Democratic Republic of Congo (DRC) has suffered from a bloody conflict for more than a decade. More than 5,400,000 people have died from war-related causes since 1998, making this the deadliest documented conflict since World War II (Coghlan et al., 2008). The most violent period of the conflict was from 1999 through 2006. Exposure to violence and war increases the risk of experiencing mental health problems. The prevalence of posttraumatic stress disorder (PTSD) in low- and middle-income countries (LMIC) following war and political violence varies from 20% to 40% (De Jong et al., 2001; Pham, Weinstein, & Longman, 2004; Roberts, Ocaña, Browne, Oyok, & Sondorp, 2008; Scholte et al., 2004), which is remarkably high as these estimates are obtained years after conflict had ended.

Few studies have been conducted within highly traumatized populations facing ongoing threat of violence and continued exposure to political instability and economic deprivation. The mental health consequences of exposure to protracted large scale violence within the civilian populations in the DRC are only beginning to be revealed. A large household survey in Eastern DRC found that 50% of the population met symptom criteria for PTSD and 41% for major depressive disorder (Johnson et al., 2010). Fifty-two percent of adolescents in schools in three districts in Eastern DRC met the criteria for PTSD; symptom scores were strongly related to cumulative trauma exposure (Mels, Derluyn, Broekaert, & Rosseel, 2009). However, these studies were conducted after the cessation of large-scale violence.

The effect of trauma on the social and physical functioning of people living in the DRC has not been investigated. This is true of most post-conflict settings and little is known about the extent to which the severity and type of PTSD symptoms are most significantly related to disability and functional impairment. The few studies that have explored this issue in the post-conflict populations suggest that this impairment is high. For example, in sample of Bosnian refugees living in camps who survived mass violence, 25% reported having a significant physical disability (Mollica et al., 1999). The risk for disability increased with comorbid symptoms of PTSD and depression, and with cumulative experiences of trauma.

It is important to increase knowledge about the association between PTSD symptoms and functional impairment, because there is an ongoing debate on the controversial value of PTSD diagnosis and allocation of resources for trauma-focused care during and after acute emergencies, particularly in non-Western countries with massive exposure of the population to trauma (Rajkumar, Mohan, & Tharyan, 2011; Summerfield, 2001; Van Ommeren, Saxena, & Saraceno, 2005).

The purpose of this investigation was to assess the association between PTSD symptoms and probable PTSD diagnosis on perceived health and physical and social functioning in daily life among an adult population of Bunia, Eastern DRC in 2006, during a time of ongoing conflict.

## 2. Methods

### 2.1 Procedure and participants

In November 2006, structured clinical interviews were conducted in Bunia, Orientale Province, the northern region, of the Democratic Republic of Congo. People were approached in safe public areas to participate by local interviewers hired and trained by the NGO Medair. All interviewers received training in understanding psychosocial functioning within post-conflict areas and specific training in how to administer the study interview. They received daily supervision and debriefing throughout data collection. The interviews were conducted in French or in the local language (Swahili). All in-person interviews were conducted privately, with just one participant being interviewed at a time to ensure confidentiality. Participants were asked if they wanted to go to their homes or another location if they felt that it would make them more comfortable, but few choose this option. The locations within the town provided sufficient privacy that people were not able to overhear the interviews.

Study recruitment was balanced to achieve equal representation of both sexes and each of the 12 quarters of town. This approach was used in order to minimize selection bias as some quarters had more displaced persons than others and to ensure equal representation of all ethnic groups since inquiring about participant ethnicity was deemed too sensitive by local authorities. Oral informed consent was obtained due to the high population illiteracy and fear of signing forms. Participants did not receive incentives for their participation. Research ethics approval was obtained from local program directors and local authorities.

### 2.3 Measures

Participant demographic characteristics were obtained for age, sex, and marital status.

**2.3.1. The Composite International Diagnostic Interview (CIDI)**—The CIDI, version 2.1 (Smitten, Smeets, & Van den Brink, 1998) was used to measure symptoms of PTSD present in the last year and exposure to potentially traumatic events. The CIDI is one of the most widely used, and the most widely translated, structured interview for the diagnostic assessment of PTSD. It has been validated in French. The CIDI has been found to compare well with clinician administered structured interviews (Haro et al., 2006; Kessler et al., 2004) indicating its reliability and validity. In the present study, items were summed to create a total score and scores for reexperiencing, avoidance and hyperarousal symptoms. Internal reliability (Cronbach's alpha) for the total scale was .86, .76 for reexperiencing, .68 for avoidance, and .75 for hyperarousal. Two items assessed peri-traumatic anxiety and helplessness. Probable PTSD diagnosis was made using the DSM-IV diagnostic scoring algorithm of one reexperiencing, three avoidance, and two hyperarousal symptoms.

**2.3.2. World Health Organization Disability Assessment Scale (WHO DAS II)**—To assess perceived health and daily functioning, the 12-item version of the cross-culturally validated World Health Organization Disability Assessment Scale (WHO DAS II) (Epping-Jordan & Ustun, 2000) was used. The WHODAS II was designed to measure functioning in six activity domains: understanding and communicating, getting around, self-care, getting

along with others, household and work activities, and participation in society. The WHODAS II underwent reliability and validity testing in approximately 28 centres across 18 countries (Luciano et al., 2010).

**2.3.3. Social support resources**—Social support seeking was measured by asking participants whether they talked about their mental health problems with significant others (0 = “No”, 1 = “Yes”). Received social support was evaluated by asking participants whether they received social support from family, church, NGO or others by having a place to go to when they felt lonely or wanted to talk. The response options were 0 = “No” or 1 = “Yes” for every source of social support, the cumulative score ranged from 0 – 4.

## 2.4. Data Analyses

Data analyses were conducted using Stata statistical program version 9.2. The proportion of participants meeting the ICD-10 diagnostic criteria for PTSD was calculated, with 95% Confidence Intervals (95% CI). Associations between PTSD diagnosis treated as a dichotomous dependent variable and sex, marital status, cumulative social support score, and number of traumatic events as predictors were investigated by calculating odds ratios (OR) with 95% CI, using logistic regression analysis.

Next, proportions of participants meeting the criteria for the separate symptom clusters were calculated. Then, mean disability scores from the WHO DAS were compared between participants with and without PTSD (symptom clusters), using t-tests. To compare the prevalence of the separate disabilities between those with and without PTSD, dichotomous WHO DAS disability variables were created. Scores of 1 (“None”) was classified as “No” and scores of 2 to 5 (“Mild” to “Severe”) were classified as “Yes.” Differences between the groups were tested with  $\chi^2$  tests, using logistic regression analyses. All associations were adjusted for age, sex and marital status. Finally, in order to evaluate the possibility that health problems and disability are direct consequences of traumatic events rather than due to PTSD, Pearson correlation coefficients were calculated for total number of traumatic events, total PTSD symptoms, total WHO DAS disability score and perceived general health.

## 3. Results

### 3.1. Sample Characteristics

Ninety-three people agreed to be interviewed. Table 1 gives the age and sex distribution of the study sample. The mean number of traumatic events was 5.4 (SD, 2.1). Virtually everyone had experienced trauma related to war and the majority reported having been beaten up badly, threatened with a weapon and witnessed someone being seriously wounded or killed (Table 1). Nearly all participants reported peritraumatic anxiety (98%) and helplessness (96%) during the traumatic event(s). Thus, this non-treatment seeking sample of the general population in Bunia was severely traumatized. Nearly everyone (86%) reported to have talked to someone about the traumatic events. Family was the most accessible source of social support, as 79% of the sample had found support from a family member.

### 3.2. PTSD prevalence

According to the CIDI, the criteria for probable PTSD was met by 40% (95% CI, 30–50) of the sample. Fifty percent of the women and 29% of the men met the criteria for probable PTSD (Odds Ratio for women compared to men 2.46, 95% CI, 1.04–5.80). Seventy eight percent of the participants met the criteria for the reexperiencing symptom cluster, 55% for the Avoidance cluster and 58% for the hyperarousal cluster (Table 2).

### 3.3. Predictors of PTSD

The risk for probable PTSD increased with the number of traumatic events reported by the sample: adjusted Odds Ratio = 1.26; 95% CI, 1.01–1.57. This indicated that for each additional trauma reported, the odds of having PTSD increased by 26%. There were no significant associations between probable PTSD diagnosis and age, marital status, whether participants talked about their mental health problems, or whether they received support from family, church or others.

### 3.4. Association between PTSD and Health

Participants without probable PTSD perceived their health as significantly better than those with PTSD (Table 3). They had lower disability scores; disabilities had less influence on their life, and were present for fewer days during the previous month. Of the three symptoms clusters, reexperiencing and hyperarousal were significantly associated with poorer perceived health. Hyperarousal was also most significantly related to the other measures of disability compared with the other PTSD symptom clusters (Table 3).

### 3.5. Association between PTSD and Functioning

Table 4 displays the specific disabilities in daily life by probable PTSD diagnosis. Apart from washing oneself, getting dressed and learning a new task, individuals with probable PTSD experienced significantly more problems in all domains than participants without the diagnosis. In particular, they were more emotionally affected by their health problems (86% versus 41%), had more difficulties in activities involving contact with other people (joining community activities [54% versus 16%], maintaining a friendship [57% versus 24%], dealing with people they do not know [59% versus 27%]) and had more problems in doing their daily work (54% versus 20%).

### 3.6 Correlations between trauma, PTSD and disability

Cumulative number of traumatic events was not correlated at all with total WHO DAS disability score (Pearson  $r = 0.09$ ,  $p = 0.45$ ), nor with perceived health ( $r = -0.15$ ,  $p = 0.17$ ). In contrast, total number of PTSD symptoms was significantly correlated with both variables ( $r = 0.49$ ,  $p < 0.01$  and  $r = -0.53$ ,  $p < 0.01$ ).

## 4. Discussion

This cross-sectional study was conducted in the main town in a conflict area in the Eastern area of the Democratic Republic of Congo in 2006. The population under study was severely traumatized and 40% of the population met the criteria for probable PTSD. This is a higher

estimate than other studies conducted in contexts of ongoing violence (Hobfoll, Mancini, Hall, Canetti, & Bonanno, 2011) and in post-conflict settings (De Jong, et al., 2001), but it is consistent with studies among adults (Johnson, et al., 2010) and adolescents (Mels, et al., 2009) in the DRC conducted few years after the cessation of violence. This suggests our current study sample was vulnerable to mental health problems during this conflict. Women were significantly more likely to have probable PTSD compared to men, which supports previous investigations reporting greater risk for PTSD among women (Tolin & Foa, 2008).

Hyperarousal was related to poor perceived general health and high disability scores. Of the three PTSD symptom clusters, hyperarousal was most strongly associated with poor perceived general health and higher disability scores. This finding is supported by other reports indicating that this symptom cluster is linked to poorer physical functioning (Aversa et al., 2012; Liedl et al., 2010).

Several models can help to explain this observed association between physical health and PTSD Symptoms. Sharp and Harvey (2001) suggest that disability and PTSD are mutually maintained. In their model, physiological, affective, and behavioural factors of PTSD maintain or exacerbate pain; they also posit that the reverse is also true, such that pain and disability can maintain or exacerbate PTSD.

Asmundson and colleagues (2002) suggested a shared vulnerability model that would explain how certain factors could contribute to both disability and PTSD. They noted that pain, disability and PTSD may all share somatic hypervigilance, possible biases towards threatening external stimuli, and exaggerated startle response. Hyperarousal symptoms are also associated with the detection of pain (Asmundson, Wright, McCreary, & Pedlar, 2003) indicating a hypersensitivity to bodily sensations.

Although these models are focused on chronic pain, they offer possible theoretical explanations for our current findings. In addition, hyperarousal symptoms are most related to allostatic load which is the body's response to chronic stressors, which may in turn lead to disease and physical disability (McEwen & Stellar, 1993). We do need to be cautious in our interpretation of these results as it could be the case that disability increases the likelihood of greater PTSD (Hobfoll, Hall, & Canetti, 2012; Liedel et al., 2010).

Individuals with probable PTSD were more emotionally affected by their health problems than those without probable PTSD. This may suggest that the coping repertoire of participants with probable PTSD in this sample may have been overwhelmed such that physical health problems elicited a higher degree of negative emotionality.

Those with probable PTSD reported more difficulties in activities involving their social relationships and social role. Specific concerns were noted in maintaining friendships, participating in community events, dealing with people that they did not know. These results indicate that probable PTSD contributed to a loss of social resources (i.e., friends and sense of community), which is consistent with previous investigations that have noted that psychological distress leads to changes in these resources over time (Bonanno, Brewin, Kaniasty, & La Greca, 2010; Heath, Hall, Russ, Canetti, & Hobfoll, in press; Kaniasty &

Norris, 2008). In contrast, the stress buffering role of social support to lessen the risk of probable PTSD was not found in the current study.

It is important to consider that the concept of PTSD in non-Western populations with massive exposure to severe and ongoing trauma has been criticized (Rajkumar, et al., 2011; Summerfield, 2001). Without validating the diagnostic constructs under study, it may be possible that we have imposed a western conceptualization of distress on the local community that may not fully fit or missed mental health problems unique to this population (e.g., somatization). Mixed methods approaches (qualitative and quantitative) can aid in establishing the relevant mental health issues within a context. Qualitative methods such as free listing can allow for a rapid assessment of these concerns. Local symptoms derived from these methods can be included in measures to increase the usefulness of an assessment and the validity of this adapted measure can be directly evaluated within a quantitative validity study (see Bolton, 2001 for a review of this method).

However when conducting rapid psychosocial evaluation of the needs of a community undergoing continued threat and trauma, thorough local validation of study instruments and constructs are limited by the post-trauma milieu (e.g., on-going violence) and limited available resources (e.g., personnel, financial means).

We must keep in mind that PTSD symptoms in this context were common and may be a normal response to abnormal experiences of ongoing extreme traumatic events. When threats continue in unstable social and political environments, such as the case in this study, some symptoms may be acute adaptations to this continued threat. However, even in environments where threat is present, the likelihood of violence and trauma exposure is not pre-determined. The Congo was and continues to be a dangerous place, but that danger does not correspond to 100% likelihood of victimization, so even symptoms of avoidance in this sample are likely to be pathological responses (e.g., distorted cognitions or overgeneralized threat). The events that were inquired about in this study were historical events and symptoms were assessed for the year previous to this study. Current events may have influenced the symptoms reported – an unavoidable consequence of measuring trauma-related reactions occurring in unstable environments – but the symptoms reported are no less real or debilitating to those that occur in peaceful times.

This study contributes significantly to the understanding of how trauma-related symptoms are related to functional impairment, an often neglected outcome related to trauma exposure (Van Ommeren, et al., 2005). The results of this study indicate that PTSD is an important mental health problem in the massively traumatized population of Bunia. Symptom criteria were associated with poor perceived health and substantial difficulties in daily functioning. Hyperarousal was most strongly related to perceived health and disability of the three symptom clusters. Of the disabilities, probable PTSD diagnosis was most strongly related to emotional problems and activities involving contact with community and potential social supports. Thus, interventions may be targeted to reduce hyperarousal, aiming to improve emotional stability and helping to restore positive social relationships. Promising evidence from randomized clinical trials of interpersonal therapy (IPT) suggest that mental health symptoms can successfully be reduced (Bolton et al., 2003) and initial evidence suggests

that social support may be improved through post-treatment maintenance of contact with therapy group members (Bass et al., 2006). Social connectedness and sustained attachments to loved ones was identified as one of the basic principles of interventions after mass trauma (Hobfoll et al, 2007).

#### 4.1. Strengths and Limitations

This study has several important strengths and limitations that must be noted. The study was designed to evaluate the needs for psychosocial support in the Bunia area. Although participant recruitment was balanced in order to achieve equal gender, ethnic, and geographical representativeness within the town, a true population estimate was not obtained. This would not have been possible within the circumstances of ongoing regional instability stemming from recent war and violence and lack of reliable population data. This sampling methodology may have influenced the results in different ways. First, many non-residents fled to Bunia from surrounding rural communities during the peak of violence and may therefore represent a unique subgroup of displaced and highly traumatized people. We were unable to ascertain the origin of these participants as this topic was considered too sensitive by the local authorities. Second, recruiting participants in public spaces may have led to an underestimation of PTSD rates and disability, because individuals with severe symptoms or disability may have been less likely to be in the public spaces. Indeed, those feeling most avoidance may have naturally stayed indoors. Other limitations include the relatively small size of the sample and lack of information about response rates. According to interviewers, the majority of those asked also participated (estimated refusal rates are 25%–30%), but still, there may have been selection bias. We also used local interviewers and despite their training, we must be cautious in our statements about the certainty of the diagnostic status of our participants. Despite these limitations, this study is among few that have reported on the incidence of probable PTSD during circumstances of ongoing political unrest and mass-violence. This study represents the profile of participants who were highly traumatized, the most vulnerable (many fleeing to this town), and affected by violence; therefore this study offers a unique look at a population within the DRC during these years of the ongoing conflict war. The novelty of this investigation is noteworthy as few studies were conducted within this population so soon after the cessation of violence. Further research is needed to evaluate these processes in other post-conflict settings.

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**Table 1**

Sociodemographic characteristics, traumatic experiences and social support.

	Men	Women	Total
Participants, N (%)	45 (48)	48 (52)	93 (100)
Age, mean (SD)	35.5 (13.7)	34.3 (14.8)	34.8 (14.2)
Marital status, N (%)			
Married	23 (51)	23 (48)	46 (50)
Widow(er)	6 (13)	6 (13)	12 (13)
Divorced	3 (7)	3 (6)	6 (7)
Single marital status	15 (33)	13 (27)	28 (30)
Number of traumatic events, mean (SD)	5.4 (2.4)	5.3 (1.9)	5.4 (2.1)
Type of events, N (%)			
Acts of war	44 (98)	48 (100)	92 (99)
Life threatening accident	22 (49)	23 (48)	45 (48)
Major natural disaster	33 (73)	34 (71)	67 (72)
Witness someone being seriously wounded or killed	29 (64)	34 (71)	63 (68)
Rape	4 (8)	6 (13) <sup>a</sup>	10 (11)
Other sexual assault or molest	6 (13)	12 (25) <sup>a</sup>	18 (19)
Badly beaten up	26 (58)	28 (58)	54 (58)
Threatened with weapon, being held, kidnapped	25 (56)	24 (50)	49 (53)
Tortured	18 (40)	13 (27)	31 (33)
Other	37 (82)	36 (75)	73 (79)
Seeking social support by talking to significant others, N (%) <sup>b</sup>	38 (86)	40 (85)	78 (86)
Source of received social support, N (%) <sup>c</sup>			
Family	33 (87)	41 (100)	74 (79)
Church	22 (58)	29 (71)	51 (65)
NGO	11 (30)	18 (45)	29 (31)
Other	11 (29)	14 (35)	25 (32)

<sup>a</sup>Four women refused to answer these questions.<sup>b</sup>Missing for 1 man and 1 woman.<sup>c</sup>Missing for 14 (Family, Church), 16 (NGO) and 15 (Other) participants.

**Table 2**

Prevalence of diagnosis and symptoms of posttraumatic stress disorder, 2006.

	Men	Women	Total
Probable PTSD diagnosis, n (%)	13 (29)	24 (50) <sup>a</sup>	37 (40)
Mean number of PTSD symptoms, n (SD)	5.69 (3.78)	8.46 (4.55) <sup>b</sup>	7.12 (4.40)
PTSD symptom cluster, n (%)			
Reexperiencing	30 (67)	43 (90) <sup>a</sup>	73 (78)
Avoidance	20 (44)	31 (65)	51 (55)
Hyperarousal	22 (49)	32 (67)	54 (58)

<sup>a</sup>  $p < 0.05$ ,  $\chi^2$  tests (df = 1)<sup>b</sup>  $p < 0.01$ , Mann-Whitney test

**Table 3**

Perceived health and disabilities, by PTSD diagnosis and PTSD symptom clusters.

	PTSD		Reexperiencing		Avoidance		Hyperarousal	
	Yes (N=37)	No (N=55)	Yes (n = 73)	No (n = 20)	Yes (n = 51)	No (n = 42)	Yes (n = 54)	No (n = 39)
Perceived general health (SD) [range 1–5, 5 is best]	3.4 (0.9)	4.1 (0.7) <sup>a</sup>	3.7 (0.8)	4.5 (0.6) <sup>a</sup>	3.7 (1.0)	4.0 (0.7)	3.6 (0.9)	4.2 (0.6) <sup>b</sup>
Total disability score (SD)	21.6 (7.9)	16.1 (7.9) <sup>b</sup>	18.9 (8.5)	15.8 (6.9)	20.2 (7.7)	15.9 (8.4)	20.4 (8.4)	15.1 (7.1) <sup>a</sup>
Influence disabilities on life (SD)	2.8 (0.9)	1.7 (0.7) <sup>a</sup>	2.3 (1.5)	1.4 (1.0) <sup>a</sup>	2.5 (1.0)	1.6 (0.7) <sup>a</sup>	2.5 (0.9)	1.5 (0.6) <sup>a</sup>
Number of days disabilities present last month (SD)	8.5 (10.6)	1.8 (3.4) <sup>a</sup>	5.1 (8.5)	1.7 (2.6)	6.9 (9.5)	1.6 (3.6) <sup>a</sup>	6.6 (9.4)	1.4 (2.6) <sup>a</sup>
Number of days impaired functioning last month (SD)	3.0 (5.6)	0.7 (1.7) <sup>b</sup>	1.9 (4.3)	0.5 (0.8)	2.4 (4.9)	0.6 (1.8)	2.5 (4.9)	0.4 (1.0) <sup>b</sup>
Number of days not able to function at all last month (SD)	4.5 (7.2)	1.0 (2.0) <sup>a</sup>	2.7 (5.5)	1.0 (1.8)	3.7 (6.3)	0.9 (2.1) <sup>b</sup>	3.5 (6.2)	0.8 (1.7) <sup>b</sup>

<sup>a</sup> p < 0.01, adjusted for age, sex and marital status.

<sup>b</sup> p < 0.05, adjusted for age, sex and marital status.

**Table 4**

Prevalence of disabilities as a result of health problems in past month, measured with WHO DAS, by PTSD diagnosis.

Disabilities, n (%)	PTSD		OR (95% CI) <sup>a</sup>
	Yes (n=37)	No (n=55)	
Emotionally affected by health problems	32 (86)	23 (41)	9.1 (3.0–27.7) <sup>b</sup>
Joining in community activities	20 (54)	9 (16)	5.8 (2.0–16.7) <sup>b</sup>
Day to day work	20 (54)	11 (20)	5.6 (2.0–15.6) <sup>b</sup>
Maintaining a friendship	21 (57)	13 (24)	4.8 (1.8–12.6) <sup>b</sup>
Concentrating for ten minutes	20 (54)	12 (22)	4.1 (1.5–10.7) <sup>b</sup>
Standing for long periods	17 (46)	9 (16)	4.0 (1.4–11.4) <sup>b</sup>
Taking care of household responsibilities	19 (51)	12 (22)	3.9 (1.5–10.6) <sup>b</sup>
Dealing with people you do not know	22 (59)	15 (27)	3.3 (1.3–8.4) <sup>c</sup>
Walking a long distance	13 (35)	8 (15)	3.3 (1.0–10.7) <sup>c</sup>
Learning a new task	14 (38)	10 (18)	2.6 (0.9–7.4)
Getting dressed	10 (27)	9 (16)	1.7 (0.6–5.3)
Washing whole body	7 (19)	6 (11)	1.6 (0.5–6.0)

<sup>a</sup>Odds Ratio of having disability for participants with probable PTSD diagnosis compared to participants without PTSD, adjusted for age, sex and marital status.

<sup>b</sup>p < 0.01.

<sup>c</sup>p < 0.05.