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The Validity of Screening for Post-traumatic Stress Disorder and Other Mental Health Problems among Asylum Seekers from Different Countries

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Mental health problems are prevalent in asylum seekers and refugees. Screening instruments may be effective tools for identifying individuals with severe mental health problems, which will allow us to offer them further assessment and treatment. The aim of this study was to evaluate the utility of screening instruments in asylum seekers. The Harvard Trauma Questionnaire (HTQ) and the Hopkins Symptom Checklist (HSCL-25) were validated against the Composite International Diagnostic Interview (CIDI) in a sample of 65 asylum seekers in Norway. In this sample, exposure to traumatic events was reported by 95 per cent of participants, and the prevalence of any mental disorder was high (70 per cent). An apparently high agreement between the two screening instruments and CIDI interviews concealed major differences between two sub-groups (MENA and Somalia). Mental health problems were consistently over-estimated for the MENA group, and underestimated for the Somali group. The area of origin was significantly associated with symptom reporting. The results of the screening instruments could not be interpreted in the same manner across the two main groups in this study. Hence, our results did not unequivocally support the use of screening instruments to identify asylum seekers in need of treatment.

Keywords: stress disorders, post-traumatic, depression, asylum seekers, validation studies, Harvard Trauma Questionnaire, Hopkins Symptom Check List

The United Nations High Commission for Refugees (UNHCR 2007) estimated that the total number of refugees and asylum seekers worldwide at the end of 2007 was more than 31 million. An overview of recent trends estimated that 165,100 asylum claims were submitted in industrialized countries during the first half of 2008 (UNHCR 2008). A large proportion of the refugees and asylum seekers carry with them a heavy burden of difficult and traumatic experiences accumulated before the flight from their homeland (Pumariega *et al.* 2005). They may also face separation from their loved ones, detention in camps, difficult or dangerous journeys, and a variety of post-migration difficulties (Silove *et al.* 1997; Carswell *et al.* 2009). Several studies have documented a high risk for mental health problems in refugees and asylum seekers (Andrews and Peters 1998), especially post-traumatic stress disorder and depression (Keller *et al.* 2003) but also anxiety disorders, somatization disorders, and alcohol abuse (Laban *et al.* 2004). Screening instruments may be effective tools for identifying individuals with severe mental health problems which will allow us to offer them further assessment and treatment.

Previous research indicates that the prevalence rates for post-traumatic stress disorder (PTSD) and other mental health problems vary considerably among different groups of asylum seekers and refugees (Fazel *et al.* 2005). These differences may be due to several factors, which include the level of traumatic exposure, cultural differences, and methodological variations among studies. A review of reports on the screening instruments used in order to quantify the traumatic experiences and the psychiatric symptoms of refugees, identified 183 studies that used a total of 125 instruments (Hollifield *et al.* 2002). Although the majority of screening instruments were designed for general use 12 instruments were specifically developed for refugee populations. The Hopkins Symptoms Check List (HSCL-25) is in the first category, and was rated by the authors as one of the best instruments in this group. Three instruments in the second category, (i.e., instruments developed for use in refugee settings) focused specifically on mental health, and the Harvard Trauma Questionnaire (HTQ, part IV) was the only instrument designed to measure PTSD symptoms in this specific population.

The HSCL-25, which is a self-administered questionnaire designed to measure anxiety and depression, has been validated in various clinical and community samples, and has also been applied in a number of refugee studies. A mean score greater than 1.75 on a range from 1 (not bothered) to 4 (extremely bothered), is thought to indicate 'clinically significant distress' (Winokur *et al.* 1984). Mollica and colleagues (1996a) tested the HSCL-25 in three Indochinese groups that showed high agreement with a clinical diagnosis of depression (88 per cent sensitivity and 73 per cent specificity) and the presence of any major DSM-III-R-defined Axis I disorder (93 per cent sensitivity and 76 per cent specificity). Thapa and Hauff (2005) validated the HSCL-25 against Composite International Diagnostic Interview (CIDI) results in a sample of displaced persons in Nepal. They found a high agreement

Table 1

Previous Validation Studies of the Harvard Trauma Questionnaire						
Studies	N	Gold Standard	PTSD prevalence	Cutoff level	Sensitivity	Specificity
Mollica <i>et al.</i> (1992)	91	Clinical diagnoses	70%	2.5	78%	65%
Smith <i>et al.</i> (1997)	51	SCID	86%	1.17	98%	100%
Silove <i>et al.</i> (2007)	1,031	SCID	20%	2.0	63%	61%
Lheva <i>et al.</i> (2007)	57	Clinical diagnoses	5%	2.5	33%	93%
Myer <i>et al.</i> (2008)	465	MINI	5%	2.5	38%	80%

between the HSCL anxiety subscale and a diagnosis of generalized anxiety disorder (77 per cent sensitivity and 58 per cent specificity). Likewise, the agreement between the HSCL depression subscale and a CIDI diagnosis of depression was high (87 per cent sensitivity and 60 per cent specificity). The HSCL-25 has good reliability and validity in clinical refugee samples but is limited to symptoms of anxiety and depression, and therefore may not be a valid indicator of the full range of symptoms in refugees and asylum seekers.

The HTQ is a comprehensive screening instrument that was developed to assess potentially traumatic experiences and post-traumatic symptoms in various cultural contexts, and its psychometric properties were first established in a highly traumatized, clinical population. Mollica and his co-workers treated 91 refugee outpatients who had fled from Cambodia to the USA, and whose clinical diagnostic statuses were used to validate this new screening instrument. They established a cut off for HTQ of a mean score above 2.5 on items ranging from 1 (not at all) to 4 (extremely), which resulted in a sensitivity of 78 per cent and a specificity of 65 per cent for PTSD (Mollica *et al.* 1992). In a recent study from Cambodia (Silove *et al.* 2007), a mean HTQ score of 2.0 was most accurate in distinguishing PTSD cases from non-PTSD cases. The results of the few HTQ validation studies available are displayed in Table 1 (Mollica *et al.* 1992; Smith Fawzi *et al.* 1997; Silove *et al.* 2007; Lheva *et al.* 2007; Myer *et al.* 2008). The ability of the HTQ to distinguish between PTSD cases and non-PTSD cases varies greatly among these studies. Nevertheless, the HTQ has been widely used in refugee populations, and has been rated in a recent review study (Hollifield *et al.* 2002) as one of the three instruments that perform best in refugee settings.

The present study was conducted to investigate the usefulness of screening for PTSD and other mental health problems to identify asylum seekers in need of mental health care. The present study aimed to validate the HTQ and the HSCL-25 in a group of unselected asylum seekers from various countries of origin, using the CIDI as the gold standard.

Method

The number of asylum seekers arriving in Norway each year in the last 15 years varies between 5,400 and 17,000. As many as 50 different nationalities are often represented. Shortly after arrival, asylum seekers are placed in open reception centres all over Norway. Thus, these individuals depend on local health services in the communities in which the reception centre is situated. Thus far, the mental health status of the asylum seekers in Norway is not part of any regular screening procedure.

Procedure and Subjects

Because of the costs of translating and testing the screening instruments, the five largest language groups were selected on the grounds that they would fit approximately 50 per cent of the total number of asylum seekers present in Norway at the time the study was planned. The languages chosen (i.e., Arabic, Dari, Farsi, Bosnian, and Somali) allowed the inclusion of asylum seekers from three continents (i.e., Africa, Asia, and Europe). These language groups are henceforth described as Middle East and North Africa (MENA), Somalia, and Balkan.

The Norwegian Directorate of Immigration provided a list of all Norwegian reception centres that would receive new adult (>18 years of age) asylum seekers during the research period (2006–2007). All 24 reception centres, which were situated in south-western and central areas of Norway, were approached and invited to participate. However, 12 centres declined because of practical difficulties. In the remaining 12 centres, all eligible asylum seekers (i.e., stay in Norway four months, age >18 years, and speakers of one of the languages described above) were approached by the centre staff and given written and oral information about the project. The screening instruments were sent to the reception centres and were presented to the asylum seekers by local staff. In cases of illiteracy, participants were offered the help of an interpreter, who read the questions out loud, and filled in the answers as they were provided. Subsequently, subjects participated in the structured clinical interview (i.e., CIDI).

Altogether 141 asylum seekers were asked to participate in the study, and 106 individuals (75 per cent) returned the informed consent. Only one contact attempt was made for each individual, and no payment was offered. Among the 106 asylum seekers who agreed to participate, 85 (80 per cent) returned completed screening instruments. Of these 85 individuals, 65 (76 per cent) completed the CIDI interview. The reasons for the dropouts included failure to make the appointment, refusal of further participation, and relocation to another area of the country. Of the 141 asylum seekers invited to participate, 64 individuals completed both the screening instruments and the CIDI interview, which resulted in an overall response rate of 45 per cent.

We investigated potential systematic differences between dropouts ($n=20$) and completers ($n=65$). Dropouts and completers did not differ significantly on age [mean age of dropouts 29.6 years (SD = 7.2) vs. mean age of completers, 32.6 years (SD 11,5) (ns.)]; PTSD symptoms [HTQ mean score of dropouts 2.32 (SD = 0.9) vs. mean score of completers 2.02 (SD = 0.7) (ns.)]; general mental health symptoms [HSCL-25 mean score of dropouts 2.24 (SD = 0.9) vs. mean score of completers 1.9 (SD = 0.8) (ns.)]; area of origin [dropouts: MENA = 10, Somalia = 8, and Balkan = 2 vs. completers: MENA = 29, Somalia = 31, and Balkan = 5) (ns.)]; education (ns.); or gender [dropouts, 35 per cent female vs. completers 48 per cent female (ns.)].

The Medical Ethics Committee and the Norwegian Social Science Data Services approved this study. Informed consent was obtained from all participants.

Measures

Demographic variables included age, gender, country of origin, and education level. The HTQ (Mollica *et al.* 1996b) is a screening instrument for traumatic exposure and PTSD. The HTQ comprises four separate parts. The first three parts of the instrument register different aspects of potentially traumatic events (Part I: potentially traumatic event screen; Part II: personal description of the most upsetting traumatic event; Part III: brain injuries). Part I is reported in this study. This part comprises 16 questions on exposure to a variety of potentially traumatic events thought to be typical for refugees, which include imprisonment, combat, sexual abuse, torture, and forced separation from family members. All 16 items are scored as 'experienced', 'witnessed', 'heard about', or 'no'. Each item was scored as 'yes' if the individual reported having experienced or witnessed the specific events; otherwise, the response was scored as 'no'.

The HTQ part IV comprises 30 symptom items, among which the first 16 items measure symptoms of PTSD according to the DSM IV (APA 1994). These 16 items were used in this study¹ (Mollica *et al.* 1992). Each symptom (last week) is rated using a four-point Likert-type scale ranging from 1 (not at all) to 4 (extremely). Three different cutoff scores were investigated: a mean score of >2.0 (Silove *et al.* 2007), a mean score of >2.5 (Mollica *et al.* 1996b), and the symptom cluster method (30 Silove *et al.* 2007, Mollica *et al.* 2004). The Cronbach's alpha for the HTQ part IV (16 items) in the present sample was 0.92.

The HSCL-25 is a widely used screening instrument with a history dating back to the early 1950s at Johns Hopkins University (Parloff *et al.* 1954). Since then, at least eight different versions of this instrument have been in use, which comprise from 8 (Thombs and Moum 1993) to 90 (Derogatis 1983) items. The HSCL-25 version used in this study is one of the HSCL versions that has had the most widespread use (Hollifield *et al.* 2002). Each symptom (last week) is rated on a scale of 1 (not at all) to 4 (extremely).

The cutoff value for clinical significant distress is set to a mean score above 1.75 (Hinton *et al.* 2004). The HSCL-25 is used as a general measure of emotional distress. In addition, the anxiety subscale (10 items) and the depression subscale (15 items) may be used separately (Mollica *et al.* 1996a). The Cronbach's alpha in this sample was 0.95 for HSCL-25, 0.92 for HSCL-10 (anxiety subscale), and 0.92 for HSCL-15 (depression subscale).

The HTQ and the HSCL-25 were translated into the languages included in this study and tested by Centrum-45 in the Netherlands (Kleijn *et al.* 2001). Paper copies of these translated instruments were kindly made available by this research centre upon request. Electronic versions of the HTQ and HSCL-25 with added instructive text in Norwegian were then constructed for each language, and professional interpreters from the different countries were consulted in order to correct misspellings, grammatical mistakes, and cultural misunderstandings. The instruments were distributed to the participants in paper and pencil versions.

The CIDI (computer-based version 1.1C) is a structured diagnostic interview that was developed by the World Health Organization, in collaboration with the US Mental Health Administration Task Force (Robins *et al.* 1988). Previous research has documented good reliability and validity of the interview (Wittchen *et al.* 1991; Andrews and Peters 1998). Each person was interviewed using the modules for somatoform disorders, depression, psychosis, anxiety, substance abuse and PTSD, in a fixed sequence. The PTSD section was performed last, to avoid the possibility of painful memories hampering the completion of the interview. The length of the interviews varied greatly; although the more symptomatic participants needed as much as 6 hours in order to complete the interview, the average interview length was 3 hours. Interpreters were present during the whole interview. The CIDI tests were performed by seven health professionals, who were trained and certified in the use of CIDI and were blind to the screening results. All interviewers had some experience working with refugees and with the use of interpreters. The mean period from arrival in Norway to the screening procedure was 26.4 weeks ($SD = 24.4$). The mean period between the screening procedure and the diagnostic interview was 19 weeks ($SD = 10.1$).

Statistical Procedures

Potential systematic differences between dropouts and completers and potential differences between the two larger subgroups in the study were analysed using a Fisher's exact test (for dichotomous variables), an independent-sample t test (for continuous variables), and a linear-by-linear association (for nominal variables). The sensitivity, specificity, positive and negative predictive value, and overall efficiency were calculated as measures of agreement between the screening instruments and CIDI interviews. The analysis of the agreement between the screening instruments and diagnostic interviews included all three subgroups in the study (MENA, Somalia, and Balkan).

Table 2

Demographic Characteristics of the Total Sample and of the Subsamples				
	MENA (<i>n</i> = 29)	Somalia (<i>n</i> = 30)	Balkan (<i>n</i> = 5)	Total (<i>n</i> = 64)
Mean age (SD)	36 (13.3)*	28 (8.3)	39 (10.4)	33 (11.6)
Male gender, % (<i>n</i>)	65% (19)	40% (12)	60% (3)	53% (34)
<5 years of education, % (<i>n</i>)	17% (5)**	70% (21)	20% (1)	42% (27)

* $P < 0.05$ and ** $P < 0.01$ for the difference between the MENA and Somalia groups.

However, the analysis of potential differences between the groups excluded the Balkan group because of low sample size ($n = 5$). To investigate potential predictors of symptom reporting, three separate multiple regressions were performed using the HTQ, the HSCL-10 (anxiety subscale), and the HSCL-15 (depression subscale) sum scores as outcome variables. Independent variables included gender, age, number of traumatic experiences, a CIDI diagnosis (of PTSD, anxiety, and depression), area of origin, and level of education. All statistical analyses were performed using the SPSS software, version 16.0.

Results

The mean age of the subjects was 33 years, and 46 per cent of the participants were female (Table 2). There was no significant difference between the two main subgroups (MENA and Somalia) regarding gender. Individuals in the MENA group were older than individuals in the Somali group, and had a significantly higher education level.

Exposure to Traumatic Events

Almost all participants in this study (95 per cent) reported that they had experienced one or more traumatic events. On average, participants in our study reported nine traumatic experiences ($SD = 4.1$). There was no difference between the Somalia and MENA groups regarding the number of self-reported traumatic events ($P = 0.676$). The most frequently reported traumatic events were: 'being close to death' (76 per cent), 'combat situations' (72 per cent), 'murder of family or friend' (70 per cent), and 'unnatural death of family or friend' (70 per cent). In this sample, 67 per cent of individuals reported witnessing or experiencing torture, and 13 per cent reported having been raped.

Symptom Burden

A high prevalence of mental disorders (70 per cent) was identified in this sample (Table 3). The most prevalent mental disorder was PTSD (45 per cent),

Table 3

Prevalence of Mental Disorders (CIDI) in the Total Sample and in the Subsamples				
	MENA (<i>n</i> = 29)	Somalia (<i>n</i> = 30)	Balkan (<i>n</i> = 5)	Total (<i>n</i> = 64)
PTSD, % (<i>n</i>)	62% (18)*	30% (9)	40% (2)	45% (29)
Anxiety, % (<i>n</i>)	48% (14)**	10% (3)	0% (0)	27% (17)
Depression	48% (14)	23% (7)	0% (0)	33% (21)
Somatoform disorder	41% (12)	20% (6)	20% (1)	30% (19)
More than one diagnosis	66% (19)**	23% (7)	20% (1)	42% (27)
At least one diagnosis	90% (26)**	57% (17)	40% (2)	70% (45)

* $P < 0.05$ and ** $P < 0.01$ for the difference between the MENA and Somalia groups.

which was followed by depression (33 per cent). Almost half of the study participants (42 per cent) fulfilled the criteria for more than one diagnosis. None of the participants was diagnosed with substance abuse or substance dependence, and only one individual was diagnosed with a psychotic disorder (not displayed in Table 3). The most frequent combination of mental disorders was PTSD and depression ($n = 13$), which was followed by PTSD and anxiety disorder ($n = 10$), and depression and anxiety disorder ($n = 9$).

The major differences observed between the subgroups in this study included a higher prevalence of any mental disorder, PTSD, anxiety, and co-morbidity which were identified in the MENA group vs the Somali group.

Agreement between Screening Instruments and CIDI Interviews

The upper part of Table 4 shows the agreement between the HTQ results and CIDI-based PTSD diagnosis in the total sample, using three different cutoff strategies for HTQ. The best agreement was obtained using the HTQ mean cutoff of ≥ 2.0 . This cutoff resulted in a sensitivity of 0.71, and a specificity of 0.77. Using this cutoff, the HTQ identified a prevalence of 44 per cent, compared with the prevalence of 45 per cent identified using the CIDI interviews.

The lower part of Table 4 displays the agreement between the HTQ results and CIDI-based PTSD diagnosis after segregation of the MENA and Somali groups, using the 2.0 cutoff value (the Balkan group was excluded from further analyses because of low sample size). Large differences were observed between groups. In the MENA group, the sensitivity was high (0.89), but the specificity was low (0.45). In contrast, the sensitivity was very low (0.25) and the specificity was high (0.90) in the Somali group. The differences between the two groups were significant for both sensitivity and specificity (Fisher's exact test, $P < 0.01$). The other two cutoff strategies used showed similar between-group differences (not displayed in Table 4).

Table 4

Performance of the HTQ with Various Cutoff Levels in the Total Sample, and Performance of the HTQ (Cutoff ≥ 2.0) in Subsamples

	Subjects	Sensitivity	Specificity	PPV ^a	NPV ^b	OE ^c
<i>Cutoff levels</i>						
Cutoff ≥ 2.5	All	0.50	0.86	0.74	0.68	0.70
Cutoff ≥ 2.0	All	0.71	0.77	0.71	0.77	0.75
Algorithm	All	0.39	0.89	0.73	0.65	0.67
<i>Subsamples</i>						
Cutoff ≥ 2.0	MENA	0.89	0.45	0.73	0.71	0.72
Cutoff ≥ 2.0	Somalia	0.25	0.90	0.50	0.76	0.73

^aPositive predictive value; ^bnegative predictive value; ^coverall efficiency.

Table 5

Agreement between Screening Instruments and CIDI Diagnoses in the Total Sample and in the Subsamples

Diagnosis	Subjects	HTQ ^a		HSCL-10 ^b		HSCL-15 ^c	
		Sens.	Spec.	Sens.	Spec.	Sens.	Spec.
PTSD	All	0.71	0.77	0.62	0.73	0.72	0.73
	MENA	0.89	0.45	0.78	0.36	0.83	0.36
	Somalia	0.25	0.90	0.22	0.89	0.44	0.89
Anxiety	All	0.88	0.72	0.81	0.70	0.88	0.65
	MENA	0.93	0.40	0.86	0.40	0.93	0.40
	Somalia	0.67	0.92	0.50	0.88	0.50	0.81
Depression	All	0.67	0.67	0.62	0.66	0.71	0.63
	MENA	0.93	0.40	0.79	0.33	0.86	0.33
	Somalia	0.14	0.86	0.29	0.90	0.50	0.82
Any diagnosis	All	0.64	1.00	0.57	0.89	0.66	0.94
	MENA	0.85	1.00	0.73	0.33	0.81	0.67
	Somalia	0.25	1.00	0.25	1.00	0.38	1.00

^aPTSD screen; ^banxiety screen; ^cdepression screen.

To investigate whether HSCL-25, or a combination of HSCL-25 and HTQ, could achieve a better agreement across the subgroups used in this study, we calculated the agreement of their results with CIDI-based diagnoses of PTSD, depression, anxiety, and any mental disorder (Table 5). The different screening procedures consistently resulted in high sensitivity and low specificity for the MENA group and in the converse result for the Somali group.

Table 6

Factors Associated with Symptom Reporting on HTQ, HSCL-10, and HSCL-15, Unadjusted and Adjusted Unstandardized betas (B), and 95% Confidence Intervals (CI) of B

	HTQ		HSCL-10		HSCL-15	
	B (95% CI)		B (95% CI)		B (95% CI)	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Male gender	n.s.	–	n.s.	–	n.s.	–
Age	n.s.	–	n.s.	–	n.s.	–
No of traumas	n.s.	–	n.s.	–	n.s.	–
CIDI diagnosis ^a	11.5** (6.1–16.9)	6.3* (0.7–11.8)	9.7** (5.2–14.1)	6.8** (2.4–11.3)	9.6** (3.6–15.7)	6.2* (0.7–11.7)
Area of origin	11.6** (6.5–16.8)	9.5** (3.5–15.5)	9.3** (5.4–13.2)	5.3* (0.6–10.0)	12.8** (7.5–18.1)	9.4** (3.3–15.6)
Education level	7.5* (1.6–13.3)	n.s.	6.6** (2.4–10.8)	n.s.	9.8** (4.1–15.5)	n.s.

* $P < 0.05$, ** $P < 0.01$.^aCIDI diagnosis of PTSD for HTQ, anxiety disorder for HSCL-10, and depression for HSCL-15.

The investigation of the combination of HTQ and HSCL-25 (i.e., scoring above the cutoff value on one or both) as a screen for any mental disorder, revealed the presence of similar differences between the two subgroups: a high sensitivity (0.88) and a low specificity (0.33) for the MENA group, and a low sensitivity (0.40) and a high specificity (1.0) for the Somali group (not displayed in Table 5).

The various screening instruments were unspecifically in agreement with the different diagnostic categories (Table 5). In this sample, which had a high prevalence of mental disorders and co-morbidity, HTQ performed as well as a screening method for anxiety as it did for PTSD, and HSCL-15 performed as well as a screening method for PTSD as it did for depression.

Factors Associated with Symptom Reporting

Table 6 displays the results of three multiple regressions investigating factors associated with symptom reporting on HTQ, HSCL-10, and HSCL-15. Gender, age, and number of reported traumatic events were not significantly associated with symptom reporting on any of the three scales. However, in addition to a CIDI diagnosis, area of origin (MENA) and level of education (≥ 5 years) were univariately associated with higher symptom reporting on all three measures. Multiple regression analyses revealed that the area of origin was associated with symptom reporting on all three scales, even after adjusting for the CIDI diagnosis. The area of origin was a stronger predictor of self-reported PTSD symptoms than having a CIDI diagnosis of PTSD, and

was a stronger predictor of self-reported depressive symptoms than having a CIDI diagnosis of depression.

Discussion

The primary objective of the present study was to investigate the utility of using screening instruments to identify asylum seekers in Norway in need of treatment. Our results revealed several problems associated with the use of the HTQ and the HSCL in this setting.

The sample in this study consisted primarily of asylum seekers from Arabic-speaking regions of North Africa, the Middle East, and Somalia. Traumatic events were reported by 95 per cent of the participants. The prevalence of mental disorders was high (70 per cent); PTSD (45 per cent) and depression (33 per cent) were the most prevalent conditions, and there was a high level of co-morbidity (42 per cent). These figures are comparable to those reported in previous studies of asylum seekers and refugees in Europe. Gäbel and colleagues (2006) found a PTSD prevalence of 40 per cent in a mixed group of asylum seekers in Germany. In the Netherlands, Laban and colleagues (2004) found 32 per cent PTSD and 42 per cent any mental disorder cases in newly arrived asylum seekers from Iraq, and 42 per cent PTSD and 66 per cent any mental disorder cases in asylum seekers who had stayed in exile for a longer period. A British study of refugees from Kosovo identified a 39 per cent PTSD rate (Turner *et al.* 2003).

A combination of HTQ as a screen for PTSD, and HSCL as a screen for anxiety and depression has been widely used not only to estimate the prevalence of mental disorders among refugees and asylum seekers (Gerritsen *et al.* 2006), but also as an outcome measure (Hinton *et al.* 2004). The validity of the screening instruments is pivotal to the estimation of the prevalence of mental health problems in a given population. According to a review study conducted by Hollifield and colleagues (2002), 93 per cent of published articles on refugees and asylum seekers use screening instruments assuming that the validity of these measures has already been established. However, the number of validity studies performed to date is small.

The present study tested the validity of HTQ. In our sample, a cutoff value ≥ 2.0 on the HTQ resulted in the best agreement with the PTSD diagnosis according to CIDI. This cutoff resulted in a very good agreement on the overall PTSD prevalence rate: 44 per cent with HTQ, and 45 per cent with CIDI. These apparently good results concealed contradictory findings between the two subgroups used in our study. The assessment of PTSD using HTQ led to an overestimation of this disorder in the MENA group (76 per cent in HTQ, 62 per cent in CIDI) and an underestimation in the Somali group (14 per cent in HTQ, 30 per cent in CIDI). In the MENA group, HTQ was a sensitive instrument and identified 89 per cent of the PTSD cases (sensitivity). However, among those who did not have a PTSD diagnosis, only 45 per cent were correctly identified as non-PTSD

cases (specificity). For the Somali group, the HTQ was a very insensitive instrument. Only 25 per cent of the true PTSD cases were identified, but 90 per cent of the non-PTSD cases were correctly identified.

This observed difference in sensitivity and specificity between groups was not unique to HTQ as a screen for PTSD. Similar differences between the MENA and Somali groups were found using HSCL as a screen for anxiety and depression, and the HTQ/HSCL combination screen for any mental health problems, as mental health problems were consistently overestimated for the MENA group and underestimated for the Somali group.

Previous research has identified a wide range of factors that may influence the responses to self-reported screening instruments in general (Switzer *et al.* 1999; Lewis and Araya 1995; Sandanger *et al.* 1999). These include gender, age, symptom burden, cultural context, level of education, and illiteracy. These factors have been less investigated in screening instruments for PTSD. Ideally, screening instruments should be applicable to populations that have a varying prevalence of PTSD, have experienced different traumas (Brewin 2005) and are from different cultural backgrounds. It is, however, well known that optimal cutoff levels vary with the prevalence of PTSD in the population under investigation (Terhakopian *et al.* 2008), while other factors have been less researched. In the current study, the area of origin was an important predictor of symptom reporting, even after controlling for CIDI diagnosis. Hence, the results of these instruments could not be interpreted in the same manner across groups. This study was limited in sample size and in the number of groups included. Thus, we could not identify which aspects of the geographical background contributed to the observed differences between the two groups. Possible explanations include language differences, cultural differences, socioeconomic factors, and taboo and stigma related to mental illness.

In this highly symptomatic sample, the different screens were unspecifically in agreement with the different diagnostic categories. For example, HTQ identified individuals with a CIDI anxiety diagnosis as well as a PTSD diagnosis, and HSCL-25 identified individuals with a CIDI diagnosis of PTSD as well as of depression. Similar results have been obtained by Turner and colleagues (2003) in their study of Kosovo-Albanian refugees in the UK. In that study, the Post-traumatic Diagnostic Scale (PDS) (Foa *et al.* 1993) was in better agreement with the interview diagnosis of depression than with PTSD. These results indicate that different mental health screens may not provide accurate diagnostic information for highly symptomatic samples, such as the one used here. There seems to be a large overlap between the different screening instruments, possibly because they all tap into the total burden of mental health problems.

Strengths and Limitations

The most important limitations of the present study include a modest sample size and a modest response rate. As noted by other authors (Gerritsen *et al.*

2006), asylum seekers are a hard-to-reach population, and this type of research includes costly translation procedures and time-consuming coordination between the interviewer, the interviewee, the reception centre, and the interpreter. The problem of reaching the asylum seekers and the loss of participants between the screening and the interview is shared with previous validation studies that used this type of population and may result in the over- or underestimation of the prevalence of mental disorders in these groups. We did not identify any systematic differences between completers and dropouts. Nevertheless, non-respondents may have differed from respondents on aspects which were not measured in this study. The average time span between completion of the screening instruments and the diagnostic interview was four months. Symptom changes may have occurred in this period that may account for some of the discrepancies observed between screening and interview results. In addition, interrater reliability was not assessed. Asylum seekers are in a very uncertain life situation. Even though the information given at the beginning of the project stressed the fact that the results of the study would be anonymous, and would have no impact on the result of their asylum application, there remains the possibility that some individuals may have answered in a manner that they thought could increase the likelihood of being accepted as a refugee. Some individuals needed help from interpreters to complete the screening instruments because of illiteracy, while others completed the instruments by themselves. This difference in mode of reporting may have resulted in systematic differences in disclosure of experiences and mental health symptoms. The strengths of the current study included the use of experienced, trained, and certified interviewers; the use of CIDI interviews, which has previously been found to be a reliable and valid measure of mental health problems; the use of professional interpreters who were present during the whole interview; and the thorough work performed to correct potential language problems in the screening instruments.

The primary aim of this study was to investigate the usefulness of screening for PTSD, anxiety and depression to identify asylum seekers in need of further assessment and treatment for mental health problems. The overall conclusions of this study do not support this strategy. Firstly, the screening instruments performed differently in the two groups and achieved either unacceptably low specificity or unacceptably low sensitivity. Secondly, the symptom burden in this sample was so high that the cost-benefit ratio of screening would be marginal compared with the necessary resources associated with developing and translating screening instruments for each new language group. Thirdly, screening resulted in underestimation of mental health problems in one of our two groups. If we assume that other subgroups would react in a similar manner, it follows that this strategy may lead to a false impression of better mental health in certain subgroups of asylum seekers. This may in turn result in insufficient mental health efforts directed toward these groups.

Researchers in the field of transcultural psychiatry have often advocated that the understanding of culture and ethnicity are tools that are fundamental for performing an appropriate mental health assessment (Mollica *et al.* 1993; Lheva *et al.* 2007; Mollica *et al.* 1999; Shoeb *et al.* 2007) and that ethnic minorities need to be studied specifically in order to determine the correct cutoff score on a PTSD screen (e.g., HTQ). In our view, the validation of each screening instrument for each specific language or cultural group may be a costly and time consuming task. However, it would be of great value to investigate further different cultural aspects that may affect symptom burden and reporting in various groups of refugees and asylum seekers. In addition, alternative modes of assessment may prove to be less culturally dependent. Examples of such assessment are neurophysiological measures (e.g., hormonal samples or heart rate variability) and the MultiCASI (Knaevelsrud and Müller 2008) approach, which was developed by researchers in the treatment centre for torture victims in Berlin. In the latter method, the screening instruments are presented both as words on a screen and as spoken sentences, and the screen can be operated by touch, in a simple manner, which allows the self-administration of the test by individuals without reading or writing skills. However, future studies should investigate the cross-cultural validity of these methods.

1. These 16 items are often used as a screening instrument for PTSD under the name Post Traumatic Symptom Scale-16, the PTSS-16.

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