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Adaptation of Harvard Trauma Questionnaire for working with refugees and asylum seekers in Serbia

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The number of refugees and asylum seekers in Serbia is significantly increasing. Many have experienced traumatic events and suffer from posttraumatic stress disorder and depression. In order to provide them with adequate assistance, caregivers need adjusted assessment tools. The main goal of this research was the adaptation of the Harvard Trauma Questionnaire for working with refugees and asylum seekers in Serbia. A total of 16 focus groups were interviewed in two phases in order to create an adequate list of traumatic events for this population. The adapted list was subsequently administered to 226 persons seeking asylum in Serbia, along with the remaining parts of HTQ, HSCL-25 and BDI-II. Results show that the adapted list of traumatic events, as well as a shorter version, has good validity and other metric properties. The adaptation of the first assessment tool for working with refugees and asylum seekers in Serbia has significant practical implications.

Keywords: asylum seekers, refugees, traumatic events, HTQ

Recently, more than 51 million people worldwide have been forcibly displaced, 20 million of whom are refugees (UNHCR, 2014). Syria is a country with more than 3 million refugees, Afghanistan 2.7 million, Somalia 1.1 million, Sudan 670,000, etc. (UNHCR, 2014). Most of these refugees seek protection in neighboring countries, but statistics show that more and more of them are trying to reach European countries in order to seek protection (UNHCR, 2014). The latest UNHCR publications described 2015 as the year with the largest number of refugees worldwide, with every 113th person in the world forcibly displaced and the numbers are continually rising (UNHCR, 2016a, 2016b).

A main route for these refugees goes through Turkey, Greece, Macedonia, Serbia, and Hungary to West European countries (Vukčević, Dobrić, & Purić, 2014; Belgrade Center for Human Rights, 2015). In 2015, 650000 refugees in need of protection entered Serbia (UNHCR, 2015). Most of these people come

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from countries stricken by war or political instability, such as Syria, Afghanistan, Eritrea and Somalia (Belgrade Center for Human Rights, 2015).

Studies in Western countries have shown that refugees affected by war and civil unrest experience a high number of traumatic events, ranging from seven to 18 (Carswell, Blackburn, & Barker, 2009; Heeren et al., 2012; Mghir & Raskin, 1999; Mollica et al., 1999; Steel, Silove, Bird, McGorry, & Mohan, 1999). It was found that 88.4% of refugees reported experiencing at least one traumatic event (Heeren et al., 2012) and that torture was reported by 26 – 81% of respondents (Carswell et al., 2009; Steel et al., 1999). Some of the most frequently experienced trauma events include the unnatural death of family or friends, forced separation from family members, witnessing murder of strangers and a near-death experience (Steel et al., 1999).

Physical and mental health problems are also highly prevalent among refugees and asylum seekers (Carswell et al., 2009; Cleveland & Rousseau, 2013; Fazel, Wheeler, & Danesh, 2005; Fouchier et al., 2012; Gerritsen et al., 2006; Gerritsen et al., 2004; Heeren et al., 2012; Keller et al., 2003; Kim, Kim, & Lee, 2013; Mann & Fazil, 2006; Renner & Salem, 2009; Steel et al., 1999; Tufan, Alkin, & Bosgelmez, 2013). It has been demonstrated that different pre- and post-migratory traumatic experiences are related to these problems, especially posttraumatic stress disorder (PTSD) and major depression (Marshall, Elliott, Berthold, & Chun, 2005). Among pre-migratory trauma, the number of experienced traumatic events is highly correlated with psychiatric morbidity, symptomatology, vulnerability and different health outcomes (Carswell et al., 2009; Gerritsen et al., 2004; Heeren et al., 2012). As for the post-migratory trauma – higher level of post-migration stress, lower level of social support, older age, having poor relevant language-speaking proficiency, unemployment, being retired or disabled and living in poverty have all been shown to be related to PTSD and depression/anxiety symptoms (Gerritsen et al., 2006; Marshall et al., 2005; Steel et al., 1999). Furthermore, correlations have been identified between increased symptoms on one hand and the number of experienced traumatic events, adaptation difficulties, loss of culture and confidant support on the other (Carswell et al., 2009). Refugees, asylum seekers and illegal migrants showed higher level of psychiatric morbidity than residents and migrants with legal status which indicates the importance of living conditions (Heeren et al, 2014).

There are numerous difficulties in asylum seekers' and refugees' trauma assessment (Hussain & Bhushan, 2009). Some of them refer to theoretical issues of cultural adaptation of existing clinical instruments for use in refugee population (Mollica, McDonald, Massagli, & Silove, 2004), while others are methodological, such as differences between migrants and the receiving society, sampling difficulties, observation of etiquette, etc. (Pernice, 1994). In order to overcome these difficulties, constructing or adapting instruments specifically for the target group is recommended. One of the most frequently and widely used instruments for assessing trauma is the Cross-Cultural Instrument for Measuring Torture, Trauma and Posttraumatic Stress Disorder – Harvard Trauma Questionnaire (HTQ, Mollica et al., 2004). HTQ is a four-part self-

report instrument. Part I comprises a list of traumatic events that participants may or may not have experienced, and the answers are given in a binary format. Initially, respondents could answer by choosing one of four possible responses: "Experienced", "Witnessed", "Heard about it", or "No", which was later changed to "Yes" or "No" for clarity and easier response interpretation (Mollica et al., 2004). Part I is the only "variable" part of the questionnaire, as it must always be adapted in accordance with specific features of the investigated population. Using two open-ended questions, Part II explores the most traumatic experiences of participants and aims to capture their subjective perception of trauma. Part III is related to head trauma and potential neurological damage as a result of certain traumatic events. Part IV assesses participants' symptoms of PTSD and self-perception of functioning (SPFS). The first version of HTQ only contained PTSD items, but was later expanded by including items about the impact of trauma on individual's perception of one's ability to function in everyday life (Mollica et al., 2004). Apart from calculating the total score for Part IV, separate PTSD and SPFS scores can be calculated as well.

HTQ was first established for Indochinese refugees living in America and has subsequently been adapted and cross-culturally validated in numerous refugee and non-refugee samples in various countries (Fouchier et al., 2012; Gerritsen et al., 2004; Ghassemzadeh, Mojtabai, Karamghadiri, & Ebrahimkhani, 2005; Lhewa, Banu, Rosenfeld, & Keller, 2007; Miyazaki, Dewaraja, & Kawamura, 2006; Mordeno, Nalipay, Untalan, & Decatoria, 2013; Renner, Salem, & Ottomeyer, 2006; Roth, Ekblad, & Ågren, 2006; Shoeb, Weinstein, & Mollica, 2007; Ward et al., 2004). One of the main reasons for its broad utilization is precisely that it can readily be linguistically and culturally adapted for different populations. The importance of having culturally adapted instruments for measuring trauma lies in different ways of describing and labeling emotional distress and human suffering among different cultures. Therefore, specific political and sociocultural histories of trauma should be studied using historical or other reports from key informants and focus groups (Mollica et al., 2004). It is only the valid diagnostic instruments that have been culturally adapted in the aforementioned manner that can be used to identify different programs of psychological intervention and support (Laban, Gernaat, Komproe, & De Jong, 2007).

Hollifield et al. (2002) evaluated instruments used to measure trauma and health status of refugees by four criteria: purpose, construct definition and design, development process and internal consistency and validity. They concluded that HTQ has well-described purpose, construct definition and design, but shows lower internal consistency and validity in diagnosing PTSD. However, despite minor issues regarding the usage of standard cut-off scores on PTSD measures, Rasmussen et al. (2015) recommend the usage of HTQ, especially in multilingual contexts.

Bearing in mind that refugees in Serbia are arriving from countries that are culturally, historically and socially different, HTQ was an obvious choice for use in this research. Furthermore, HTQ provides the researcher / practitioner with a wide range of information related to traumatic life experiences, psychiatric symptoms and disability associated with trauma (Mollica et al., 2004).

It is important to emphasize that, even though different programs have been developed and implemented with the goal of providing psychosocial support for refugees and asylum seekers in Serbia (Belgrade Center for Human Rights, 2013), there are no psychological assessment instruments adapted for this population.

Aims

The main aim of this research was the adaptation of the list of traumatic events from the Cross-Cultural Instrument for Measuring Torture, Trauma and Posttraumatic Stress Disorder – Harvard Trauma Questionnaire (Mollica et al., 2004) for working with refugees and asylum seekers in Serbia and the examination of psychometric properties of all quantitative parts of HTQ. Apart from assessing content validity, internal consistency and sampling adequacy of the items, we wanted to evaluate the predictive validity of the list of traumatic events through correlations with different measures of symptomatology, such as PTSD, anxiety and depression. An additional goal was to construct a short version of the list of traumatic events, convenient for working in restricted time conditions. The advantage of such a list would be a shorter time of administration which would, in turn, increase the number of individuals having access to professional care. Furthermore, as many refugees and asylum seekers in Serbia suffer from exhaustion, lack of energy, difficulties in focus and restlessness (Vukčević et al., 2014), it is important to be mindful of the total length of interviews in order to reduce recalling traumatic experiences and to prevent unnecessary actuating of these events which could be exhausting and may result in overwhelming by negative emotions.

Method

Participants

The study was conducted on a total of 226 persons seeking asylum in Serbia, 88 percent of whom were male. The average age of the sample was 27 years (SD=8 years) and the median was 26 years (ranging from 18 to 61). Forty-five percent of asylum seekers were Syrian, 23 percent were Somali and 16 percent were Afghan. The remaining 23 percent of participants were from other countries (Eritrea, Sudan, Algeria, Iraq, Iran, Nigeria, Pakistan, Ghana, Bangladesh, Egypt, Palestine and Ethiopia) each of which was represented by less than five percent of all cases. Regarding their ethnic origin, 53 percent of all participants were Arabs, eight percent were Tajiks and five percent were Khazars, while other ethnic groups comprised less than five percent of the sample. Almost the entire sample is of Islamic religious denomination – 94 percent of participants, of which the most numerous are Sunni (73 percent of the total sample), followed by asylum seekers who declare themselves as Muslim only (14 percent of the total sample) and Shiites (seven percent of the total sample). There were three percent of Orthodox Christians in the sample, and Catholics, Protestants and Atheists were represented by one percent each. Seventy-two percent of male and 33 percent of female asylum seekers were single, only one respondent (female) was divorced, and all others were married.

Instruments

Harvard Trauma Questionnaire (HTQ; Mollica et al., 2004). For the purposes of this research, HTQ Part I was adapted for use with refugees and asylum seekers in Serbia. Other parts were used in their original form: Part II used two open-ended questions about the most

traumatic experiences, Part III contained six binary questions related to head trauma, and Part IV used 40 items to assess participants' symptoms of PTSD (16 items) and SPFS (24 items). The answers on Part IV were given on a four-point Likert scale.

Throughout the process of adaptation, 78 asylum seekers took part in 16 focus group discussions, conducted in asylum centres in Bogovađa, Obrenovac and Banja Koviljača. Focus groups lasted between 60 and 90 minutes and included between two and nine respondents. In addition, individual interviews were conducted with three asylum seekers who preferred individual over group discussions. All focus group discussions and individual interviews were conducted by two psychologists, and the services of interpreters were used for interviewing respondents who did not speak English. Respondents were informed about the study objective and gave their informed consent for participating.

Based on their country of origin, asylum seekers were placed in three groups: Syrians, Afghans and nationals of other Arabic speaking countries. This division was the result of representation of asylum seekers from the aforementioned countries in asylum centers as well as different circumstances in each of these countries i.e. existence/absence of war, civil unrest and political instability. Males and females were also interviewed in separate groups.

The work in focus groups consisted of two phases. The first phase aimed to collect as much information as possible about traumatic events specific for participants' countries of origin so that appropriate changes could be made to Part I of HTQ. The items that the respondents recognized as characteristic for their country of origin were kept in their original form; the items that differed from the respondents' experiences to some extent were modified and items that the respondents reported not to have happened in their countries of origin were excluded from the questionnaire. Additionally, a number of traumatic events characteristic for the participants' countries of origin which did not exist in previous versions of HTQ was added. A detailed account of the changes made to Part I of the HTQ is presented in Appendix A. The content and phrasing of the newly established list of events were checked in the second phase of focus group discussions.

No relevant differences in meanings, experiences and responses were found between asylum seekers from Syria, Afghanistan and other Arab countries. Both men and women specified the same trauma events related to the countries of origin. Consequently, an integrated list of 64 traumatic events was developed for all asylum seekers in Serbia.

Hopkins Symptom Checklist-25 (HSCL-25; Mollica et al., 2004) is a 25 item scale that measures the extent of participants' anxiety (10 items) and depression (15 items). The responses are given on a four-point Likert scale (1 – not at all, 2 – a little, 3 – quite a bit, and 4 – extremely). It is possible to calculate both the anxiety and depression scores, as well as the total score (obtained by adding scores for all items). The scale has been tested in diverse contexts and, although standard cut-off values cannot be readily applied to all populations, it shows good criterion validity (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; Kaaya et al., 2002; Nettelbladt, Hansson, Stefansson, Borgquist, & Nordström, 1993).

Beck Depression Inventory – II (BDI-II; Beck, Steer, & Brown, 1996) contains 21 statements assessing the severity of depression. Responses are given on a scale from 0 (absent or mild) to 3 (severe), where each number represents a statement describing the severity of depressive symptoms over the past 2 weeks. The total score is computed as the sum of all items' scores (range 0–63).

Procedure

Asylum seekers were approached in asylum centers where they were accommodated and asked to participate in the research. All participants gave written informed consent to taking part in the study. Interviews were individually conducted by trained psychologists –

psychotherapists with at least seven years of experience in working with refugees and asylum seekers in Serbia and lasted about 90 minutes. Interpreters' services were used in all cases when participants did not speak English. All interpreters completed a comprehensive training for working with refugees and asylum seekers.

Data Analysis

Using IBM SPSS 20 and the RTT10G macro for SPSS (Knezević & Momirović, 1996) we calculated several indices useful for assessing metrical properties of the scales used in the research. Cronbach's alpha coefficient (α) is an indicator of internal consistency of scale items and KMO is the Kaiser-Meyer-Olkin index of sampling adequacy (KMO). Values over .80 are usually considered good and over .90 excellent for both measures. To assess the level to which all items share the same underlying theoretical construct, we employed two homogeneity indexes – average item correlation (H1) and proportion of variance explained by the first principal component, corrected for the number of significant components (H5, Knezević & Momirović, 1996). Values over .10 for H1 and .60 for H5 are interpreted as signs of scale homogeneity, while lower values indicate heterogeneity.

It should be noted that Part I of the HTQ belongs to so-called formative measures; rather than simply *reflect* the latent variable, indicators of formative measures cause, i.e. *form* the latent variable. This means that indicators are not necessarily highly, or even positively correlated, making them unsuitable for a classical psychometric approach (Diamantopoulos, Reifler, & Roth, 2008). With this in mind, we proceeded to investigate the metric properties of all quantitative scales used in the research, including HTQ Part I, although the results for this particular instrument must be interpreted with caution. We chose not to analyze Part II of the HTQ as its primary function is to enable a better view of participants' subjective experiences and is as such not suitable for the type of analysis employed here.

Results

Table 1 shows means and standard deviations of the scores on the scales and subscales used in the research, along with their metric properties. Asylum seekers in Serbia have, on average, experienced 23 traumatic events in their countries of origin. All participants have experienced at least one traumatic event, and one asylum seeker experienced 53 traumatic events. It is clear that, at least compared to previous research (Carswell et al., 2009; Heeren et al., 2012; Mghir & Raskin, 1999; Mollica et al., 1999; Steel et al., 1999), the level of traumatization is high in this group. PTSD, Functioning, HSCL Anxiety and Depression and BDI-II scores are all close to the theoretical mean of the scales and some of the participants achieved very high scores on these scales (one participant even had the maximum score on anxiety), indicating high levels of symptomatology as well.

All score distributions were approximately normal, save for the HTQ Part III distribution which was positively skewed and leptokurtic. This is not surprising as Part III is a six-item scale specifically aimed at detecting head trauma events which are rather infrequent even in this population. However, the normality of other scales further stresses that levels of both traumatization and symptomatology in the sample are high, as mean values were not the

consequence of a small number of participants with very high scores. All scales showed adequately high internal consistencies, item sampling adequacies as well as homogeneities. It is interesting to notice how the adapted list of traumatic events showed equally good metric properties as the other subscales. The somewhat lower homogeneity measures in fact reflect a desirable amount of content diversity in scale items.

Table 1
Means, standard deviations and metric properties of scales

	i	*M*	*SD*	*Md*	*Min*	*Max*	*K-S (p)*	*Sk*	*Ku*	α	*KMO*	*H1*	*H5*
HTQ Part I	64	23.44	8.32	24	1	53	.06 (.39)	.00	.90	.89	.93	.11	.39
HTQ Part I short	48	21.40	7.60	23	0	42	.09 (.06)	-.37	.45	.87	.92	.13	.47
HTQ Part III	6	1.38	1.33	1	0	6	.24 (.00)	1.09	1.08	.56	.71	.21	.70
HTQ Part IV Total	40	93.80	22.27	92	42	149	.07 (.28)	.03	-.69	.92	.96	.22	.55
HTQ Part IV PTSD	16	40.24	9.55	40	16	61	.06 (.36)	-.20	-.57	.82	.91	.22	.57
HTQ Part IV Functioning	24	53.56	14.31	53	24	93	.08 (.16)	.21	-.63	.89	.95	.25	.61
HSCL-25 Total	25	57.67	17.06	58.8	25	96	.06 (.44)	.03	-.86	.93	.98	.34	.68
HSCL-25 Anxiety	10	22.01	7.77	22	10	40	.08 (.14)	.14	-.75	.87	.96	.41	.79
HSCL-25 Depression	15	35.76	10.36	37	15	58	.08 (.15)	-.10	-.86	.88	.96	.38	1
BDI-II	21	23.04	12.58	22.5	0	54	.06 (.39)	.18	-.78	.91	.97	.32	.66

Note. Md – Median, *K-S* – Kolmogorov-Smirnov *D* statistic, *df* was 226 for all variables, *α* – Cronbach's alpha internal consistency coefficient, *KMO* – Kaiser-Mayer-Olkin measure of sampling adequacy, *H1* – average item intercorrelation, *H5* – Knežević-Momirović homogeneity measure (Knezević & Momirović, 1996)

Aiming to shorten administration time of Part I, we proceeded to construct a short list of traumatic events. Items were selected primarily on their content, although frequency of endorsement, metric properties (which can be found in Appendix B) and correlations with PTSD, anxiety and depression were also taken into account. Single item correlations with symptomatology ranged from $r = .00$, $p = .99$ (for item *Murder, or death due to violence, of child* and both HTQ Part IV Total and HSCL-25 Depression) to $r = .30$, $p < .01$ (for item *Murder, or death due to violence, of other family member or friend* and PTSD as well as for item *Someone was forced to betray you and place you and your family at risk of death or injury* and HSCL-25 Depression). All items showing significant correlations with either of the symptomatology scores were retained in the short version. Items with very high frequencies were excluded because, being experienced by nearly all participants, they do not discriminate well between asylum seekers with higher and lower levels of traumatization. Therefore, in quick screening procedures the extra time needed for their administration outweighs their potential usefulness. Furthermore, HTQ Part I contains an open-ended question which provides the participant with the possibility to specify additional traumatic events that were not previously listed. In some instances, several items with the

same stem and different target persons were merged into one overarching item, and an additional question registering the nature of the respondent's relationship with the target person was introduced, so as to retain all relevant information. In a similar manner, items with very low frequencies and overlapping content were merged with other items, and a supplementary question specifying the nature of the traumatic event was added. A total of 16 items were removed from the list of traumatic events, resulting in 48 items in the short version (a full list of excluded and merged items is given in Appendix C). This number of items is large enough to be comprehensive in trauma assessment, yet short enough not to be too tiresome for participants to respond to. Metric properties of this scale can also be seen in Table 1. Even though significantly shorter, the short version has nearly identical metric properties to the initial adapted list of traumatic events and covers a wide array of traumatic events. Moreover, the correlation of the two versions of the scale (which can be found in Table 2) is near-perfect.

As a way of testing scales' validity, correlations between traumatic events and different measures of symptomatology were calculated both for the initial adapted and the short list of traumatic events. As can be seen in Table 2, traumatic events are moderately correlated with post-traumatic stress disorder, self-perception of functioning, HSCL – 25 measures of anxiety and depression and with BDI – II measure of depression. This strength of correlations is in line with those obtained in previous research (Carswell et al., 2009; Cleveland & Rousseau, 2013). It is interesting to note that the correlation of BDI – II with HSCL Depression scale, although high in absolute terms, is lower than with some of the scales measuring different constructs. Although there is significant overlap in content between the scales, BDI – II seems to cover a wider array of symptoms, some of which are similar to HTQ Part IV SPFS.

Our results show that males have, on average, been exposed to a higher level of traumatic events, while females show higher levels of anxiety and depression which is in line with previous research (Gerritsen et al., 2006, Renner & Salem, 2009). Older participants scored higher on all measures of symptomatology, but not on measures of traumatic events, indicating an increase in general vulnerability with age. It should be noted that these correlations remained (in)significant even after controlling for gender. Marital status was neither a protective nor a risk factor for traumatization or symptomatology. It is, however, interesting to observe the positive correlation of marital status with gender. It seems that single men have higher mobility while females leaving their country of origin more often do so accompanied.

Table 2
Correlations of traumatic events with symptomatology measures

	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender [a]	-											
2. Age	.18**	-										
3. Marital status [b]	.27**	.47**	-									
4. HTQ Part I	-.19**	.08	.04	-								
5. HTQ Part I – short	-.19**	.07	.02	.99**	-							
6. HTQ Part III	-.09	-.04	.01	.38**	.38**	-						
7. HTQ Part IV Total	.09	.16*	.00	.23**	.20**	.15*	-					
8. HTQ Part IV PTSD	.06	.17**	.06	.26**	.25**	.13	.92**	-				
9. HTQ Part IV SPFS	.10	.14*	-.04	.19**	.15*	.15*	.96**	.77**	-			
10. HSCL-25 Total	.19**	.19**	.02	.26**	.25**	.27**	.86**	.76**	.85**	-		
11. HSCL-25 Anxiety	.23**	.17*	.01	.21**	.21**	.25**	.74**	.64**	.74**	.92**	-	
12. HSCL-25 Depression	.15*	.20**	.03	.27**	.26**	.25**	.85**	.75**	.82**	.94**	.74**	-
13. BDI-II	.13	.19**	.04	.25**	.25**	.30**	.72**	.59**	.74**	.76**	.69**	.73**

Note. [a] – males were coded 0, females 1; [b] – single participants were coded 0, married 1 (one divorced participant was excluded from the analysis); * $p < .05$ ** $p < .01$

Discussion

The number of asylum seekers and refugees in Serbia is rapidly increasing. Over 500 000 people entered Serbia in 2015, which is more than thirty times larger than in 2014 (UNHCR, 2014, 2015) and the numbers are constantly increasing (UNHCR, 2016a, 2016b). As our results show, many of these asylum seekers suffer from PTSD, depression and anxiety symptoms and they have all experienced numerous traumas in their countries of origin. Bearing all of this in mind, it is of crucial importance to provide refugees and asylum seekers in Serbia with appropriate assistance and care. In order to ensure adequate psychological support, it is necessary to be aware of their traumatic experiences and the hardships they are dealing with. Thus, a reliable and valid assessment tool is needed. The main goal of this research was to adapt HTQ for working with this population. Additionally, since refugees and asylum seekers in Serbia have limited access to caregiving professionals due to a lack of time and resources, another goal was to provide a shorter version of the list of traumatic events.

Through a multi-phased process of adaptation, including focus groups and individual interviews, the HTQ Part I list of traumatic events specifically aimed at asylum seekers and refugees in Serbia has been created. The employed methodology should ensure that the list is comprehensive and it does not appear

that any relevant aspects of traumatic experience have been omitted. HTQ Part I shows both good content validity, as it had been created following the guidelines set by the authors of the HTQ themselves (Mollica et al., 2004), and also good criterion validity, as evidenced by its moderate positive correlations with symptomatology – PTSD, SPFS, depression and anxiety symptoms. As previously stated, traumatic experiences are one of many factors related to symptomatology in the asylum seeker population (Gerritsen et al., 2006; Marshall et al., 2005; Steel et al., 1999). Therefore, it would be surprising to obtain correlations much higher than those obtained in our research, as traumatic events need not necessarily lead to PTSD, anxiety or depression symptoms. However, the existence of a moderate correlation suggests that the list of traumatic events that has been developed specifically for the population of refugees and asylum seekers in Serbia is indeed relevant for this population and can help in predicting their psychological wellbeing or lack thereof.

Our results show good metrics properties of all quantitative parts of HTQ, similar to those obtained for previous adaptations (Fouchier et al., 2012; Lhewa et al., 2007; Miyazaki et al., 2006; Mordeno et al., 2013; Renner et al., 2006; Roth et al., 2006; Ward et al., 2004). However, most of these studies only report on internal consistency coefficients, and only for Part IV of the questionnaire, i.e. the only reflective scale in the instrument. Only one study reported on internal consistency of Part I, and the value obtained in our study is slightly higher compared to that one (Renner et al., 2006). It is interesting to note how the adapted list of traumatic events showed comparable metric properties to other parts of the HTQ, with its good internal consistency, sampling adequacy and distribution normality. The list discriminates well between asylum seekers who have experienced different amounts of traumatic experiences and thus provides very important information for caregivers working with this population as the approach to providing psychological support may differ significantly depending on the type and the extent of the person's traumatization.

As previously mentioned, formative measures usually do not lend themselves readily to calculating coefficients based on correlations between items. That is to say, poor metric properties of formative scales are often the result of model inadequacy, rather than the poor quality / validity of the scale itself. Nevertheless, we believe that obtaining good metric properties for a formative scale does not mean it has been poorly operationalized and may speak in its favor. Therefore, a thorough analysis of metric properties of all quantitative parts of the HTQ is one of the contributions of our study.

Despite containing fewer items, the short list of traumatic events seems to be very similar to the initial adapted list in all respects. This pattern of results favors the use of the short list in future studies and practical contexts, as it provides the same information as the initial adapted version but takes less time to administer. This might enable a larger number of refugees and asylum seekers to gain access to professional care. Moreover, short assessment tools could generally be considered more appropriate in working with vulnerable populations in order to prevent reactivation of trauma and potential retraumatization.

Study limitations

One limitation of our study is the lack of independent clinician assessment of participants' symptomatology, which makes it difficult to ascertain whether asylum seekers scoring above clinical cut-off points suffer primarily from psychiatric disorders or rather from situational distress. Still, the validity of the initial adapted and the short list was confirmed not only through correlations between separate sections of HTQ, but also through correlations with BDI-II, an independent instrument assessing the severity of depression.

Some HTQ adaptations include a separate list of torture events as an addition to Part I, but this is not always the case (Cleveland & Rousseau, 2013; Gerritsen et al., 2004; Miyazaki et al., 2006; Mordeno et al., 2013). In our study, we decided not to include this part as the list of traumatic events was already very extensive, comprehensive and time-consuming. Future studies should develop and validate such a list for the population of refugees in Serbia.

Another shortcoming of this study is the use of nonrandom sampling, even though the response rate was high and there was no indication of selection bias. The proportion of women was considerably lower than the proportion of men and the sample focuses on young and middle-aged adults only. No young children, underage, or elderly refugees took part in this study. Additionally, asylum seekers who took part in this research were all placed in asylum centers in Serbia. Asylum seekers and refugees outside these camps – accommodated privately or without any accommodation – were not included in the research due to sampling difficulties. Future research should overcome these difficulties and further verify the adapted list of traumatic events in different samples of refugees and asylum seekers in Serbia. Apart from Serbia, the instrument could also be used in other countries of the region such as Macedonia, Greece, Bulgaria, Hungary, Croatia, Montenegro and Albania without adaptation, provided that its internal consistency and validity are demonstrated on samples from these countries as well.

Finally, some authors raise concerns regarding refugees' (conscious and unconscious) tendencies to report on high levels of traumatization and symptomatology in order to positively influence their asylum procedure (Hollifield et al., 2002). However, we do not believe this to have been an important issue in our study for several reasons. Namely, the majority of participants decide not to stay in Serbia and wait for the end of the asylum procedure, but rather continue their transit to Western countries (Vukčević et al., 2014). Furthermore, the possibility of asylum procedure being influenced by psychological assessment in Serbia is quite limited. Finally, the participants were explicitly informed that their participation in the research would not influence their asylum procedure or any other aspect of their status in any way. We do, however, recognize difficulties in assessment of trauma in contexts where decisions regarding one's status need to be made based on a participant's scores. Professionals working with asylum seekers and refugees should have in mind that this is a sensitive population which, apart from being empathetic and

supportive, emphasizes the need for clear instructions in order to avoid biased responses. This may not eliminate biased responses entirely, but should at least somewhat reduce them.

Conclusion

Although the number of refugees and asylum seekers in Serbia and other European countries is rising, up to date there have been no assessment tools specifically aimed at this growing population in need of psychological support. The main contribution of this research is that it offers a reliable and valid assessment instrument adapted for working with refugees and asylum seekers in Serbia. The demonstration of good content, predictive validity and other metric properties of this adaptation of HTQ is the necessary prerequisite for its future use in diverse contexts. It enables further exploration of refugees' and asylum seekers' traumatic experiences and development of psychological intervention and support programs specifically adjusted to the needs of this population.

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Appendix A

List of changes made to HTQ Part I list of traumatic events based on focus group discussions

Item	Decision	Comment
Unable to gain support from family and friends for physical or emotional problems	Excluded	According to all focus groups and individual interview participants, this item is not applicable to their culture. There is always at least someone who will be able or at least try to provide help and support – was what all participants said.
Received incoming fire	Excluded	Content is covered by other items.
Participated in combat missions resulting in civilian casualtes Participated in combat missions resulting in enemy casualtes	Excluded	Participants found no difference between traumatic events which were or were not part of the combat missions; accordingly, the content of these items was already included in other items.
Participated in combat missions resulting in casualtiens in your own unit	Excluded	However, participation in combat missions per se represents a traumatic event for participants. Therefore, two new items were added: *Participated in combat missions* and *Family member or close friend participated in combat missions*.
Ran into an ambush	Excluded	Content is covered by other items.
Overrun by the enemy and forced to flee	Excluded	Content is covered by other items and participants were confused by its formulation.
Ran into a minefield, cleared mines from tne field	Excluded	First part was already covered by other items and for the second part respondents said it is not present in their countries of origin.
While on combat duty assinged the responsibility of transporting and burying the dead	Excluded	Not typical for participants' countries of origin.
Upon return from the war zone felt neglected by the local authorities	Excluded	Participants found these items not to be applicable for them since as they explained – there is never any support from the local authorities and the war never ended so they do not have experience on how it might look like when it's over.
Upon return from the war zone felt unappreciated by family and friends	Excluded	
Other types of sexual abuse or sexual humiliation	Excluded	Content is included in other items.
Forced separation from family members	Excluded	Content is included in other items.
Injury due to combat of member of your unit	Excluded	Participants found no difference between traumatic events which were or were not part of the combat missions; accordingly, content of these items was already included in other items.
Death due to combat of member of your unit	Excluded	Participants found no difference between traumatic events which were or were not part of the combat missions; accordingly, content of these items was already included in other items.

Item	Decision	Comment
Serious physical injury of family member or friend due to combat situation or landmine	Excluded	Participants found no difference between traumatic events which were or were not part of the combat missions; accordingly, content of these items was already included in other items.
Forced to find and bury bodies	Excluded	Since finding and burying bodies is not something that is done under coercion, the content is included in other items.
Forced to pay for bullet used to kill family member (child, spouse, etc.)	Excluded	Not typical for participants' countries of origin.
Prevented from burying someone	Excluded	Content is included in other items
Forced to desecrate or destroy the bodies or graves of deceased persons	Excluded	Not typical for participants' countries of origin.
Enforced isolation from others	Excluded	Content is included in other items.
Forced evacuation under dangerous conditions	Excluded	Content is included in other items.
Other forced separation from family members	Excluded	Participants found this item to be unclear and not applicable.
Forced to sing songs you did not want to sing	Excluded	Not typical for participants' countries of origin.
Lack of shelter	Kept in original form	
Lack of food or water	Kept in original form	
Ill health without access to medical care	Kept in original form	
Confiscation or destruction of personal property	Kept in original form	
Exsposure to frequent and unrelenting sniper fire	Kept in original form	
Used as a human shield	Kept in original form	
Witnessed chemical attacks on residential areas or marshlands	Kept in original form	
Beating to the body	Kept in original form	
Sexual abuse	Kept in original form	
Rape	Kept in original form	
Murder, or death due to violence, of spouse	Kept in original form	
Murder, or death due to violence, of child	Kept in original form	
Murder, or death due to violence, of other family member or friend	Kept in original form	
Received the body of a family member(child, spouse, etc.) and prohibited from mourning them and performing burial rites	Kept in original form	

Item	Decision	Comment
Witness beatings to head or body	Kept in original form	
Witness rape or sexual abuse	Kept in original form	
Witness torture	Kept in original form	
Witnessed mass execution of civilians	Kept in original form	
Witness burned or disfigured bodies	Kept in original form	
Forced to destroy someone else's property or possessions	Kept in original form	
Forced to betray family member, or friend placing them at risk of death or injury	Kept in original form	
Forced to betray someone who is not family or friend placing them in risk of death or injury	Kept in original form	
Forced to physically harm family member, or friend	Kept in original form	
Forced to physically harm someone who is not familyor friend	Kept in original form	
Searched	Kept in original form	
Present while someone searching for people or things in your home(or un place where you were living)	Kept in original form	
Extortion or robbery	Kept in original form	
Forced to leave your hometown and settle in a different part of the country with minimal services	Kept in original form	
Forced to flee your country	Kept in original form	
Imprisonment	Kept in original form	
Solitary confinement	Kept in original form	
Brainwashing	Kept in original form	
Witnessed the desecration or destruction of religious shrines or places of religious instruction	Kept in original form	
Unable to gain support from local authorities for physical or emotional problems	Modified	Word *local* was excluded since according to participants there is no difference between local and any other authorities; therefore they find this word to be confusing.
Combat situation (e.g. shelling and grenade attacks)	Modified	This item was modified into *Combat situation (e.g. shelling, grenade attacks, explosions)* since participants mentioned explosions several times related to Combat situations.

Item	Decision	Comment
Fired on the enemy	Modified	Item was modified into *Killed someone or endangered someone's life.* In order to cover all possible situations.
Exposed to combat situation (explosions, artillery fire, shelling) or landmine.	Modified	First part of this item is excluded since its content is included in other items and second part was modified into *Exposed to minefield, blasting buildings or vehicles* in order to cover all situations participants mentioned during focus groups.
Took part in "cleaning the terrain"	Modified	Participants did not understand the meaning of this item. After detailed consideration it was concluded that there are two possible meanings – one related to cleaning the terrain from ruins and the second one related to gathering the wounded or the dead. Since the first meaning is already included in other items, this item was modified into: *Gathering the wounded or the dead.*
Witnessed shelling, burning, or razing of residential areas or marshlands	Modified	First part of this item was already included in other items, therefore the item was modified into *Witnessed shelling, burning, or razing of residential areas or Marshlands.*
Knifing or axing	Modified	Modified into *Attack with cold weapon* because, in addition to knives and axes, participants spoked about attacks with swords and machetes.
Torture, i.e., while in captivity you received deliberate and systematic infliction of physical or mental suffering	Modified	Determination *while in captivity* was erased in order to include all cases.
Serious physical injury from combat situation or landmine	Modified	Specification *landmine* was expanded into *mining* in order to include all cases participants mentioned during focus groups.
Disappearance or kidnapping of spouse	Modified	Merged and modified into:
Disappearance or kidnapping of child	Modified	Disappearance or kidnapping of spouse or spouse taken as a hostage
Disappearance or kidnapping of other family member or friend	Modified	Disappearance or kidnapping of child or child taken as a hostage
Family member (child, spouse, etc.) kidnapped or taken as a hostage	Modified	Family member or friend disappeared, kidnapped or taken as a hostage
Friend kidnapped or taken as a hostage	Modified	
Someone was forced to betray you and place you at risk of death or injury / Someone informed on you placing you and your family at risk of injury or death.	Modified	Modified into *Someone was forced to betray you and place you and your family at risk of death or injury* in order to avoid redundant formulation.
Confined to home because of danger outside	Modified	Unified into one item: *Confined to home because of danger outside/ Forced to hide* in line with participants' suggestion because of the similarities of these two items.
Forced to hide	Modified	

Item	Decision	Comment
Kidnapped	Modified	Content is included in item: *Kidnapped/ taken as a hostage.*
Forced labor (like animal or slave)	Modified	Modified into: *Forced labor* because participants" suggested it could then include more situations from their experiences.
Expelled from country based on ancestral origin, religion, sect or sexual orientation	Modified	Sexual orientation was included in order to cover all cases.
Witnessed the arrest, torture, or execution of religious leaders or important members of tribe	Modified	Participants suggested that kidnaping is something that should also be included.
Participated in combat missions	New item	
Family member or close friend participated in combat missions	New item	
Rape by an enemy army (groupation, troop, etc.)	New item	
Forced to provide sexual favors to soldiers in the "holy war"	New item	
Pregnancy as a result of a rape	New item	
Rape of a family member or a friend	New item	
Killed someone	New item	Items developed during focus groups
Imprisonment without hygienic conditions, possibility to move, sleep, use toilet, etc.	New item	
Victim of organ trafficking	New item	
Family member or friend victim of organ trafficking	New item	
Forced recruitment	New item	
Forced marriage	New item	
Forced prostitution	New item	

Appendix B

Metric properties of HTQ Part I items

Item	Count	%	REP	REL	CITC
Forced to flee your country	216	96	0.87	0.40	.31
Forced to leave your hometown and settle in a different part of the country with minimal services	209	93	0.85	0.43	.29
Unable to gain support from authorities for physical or emotional problems	201	91	0.79	0.30	.19
Searched	188	84	0.94	0.46	.44
Confined to home because of danger outside / Forced to hide	186	83	0.89	0.38	.29
Witnessed burning, or razing of residential areas or marshlands	181	80	0.95	0.57	.43
Murder, or death due to violence, of other family member or friend	181	81	0.93	0.49	.41
Witness beatings to head or body	175	78	0.95	0.52	.47
Confiscation or destruction of personal property	170	76	0.92	0.48	.35
Witness burned or disfigured bodies	165	73	0.95	0.54	.49
Without access to medical care	164	73	0.94	0.55	.38
Combat situation (e.g. shelling, grenade attacks, explosions)	158	70	0.96	0.67	.50
Lack of shelter	153	68	0.94	0.55	.39
Extortion or robbery	150	67	0.95	0.48	.40
Witnessed the desecration or destruction of religious shrines or places of religious instruction	147	65	0.94	0.60	.48
Lack of food or water	142	63	0.89	0.47	.31
Exposed to minefield, blasting buildings or vehicles	141	63	0.95	0.51	.43
Present while someone searching for people or things in your home (or in place where you were living)	137	61	0.92	0.45	.35
Gathering the wounded or dead	136	60	0.94	0.50	.47
Family member or close friend participated in combat missions	136	61	0.87	0.43	.30
Family member or friend disappeared, kidnapped or taken as a hostage	129	57	0.90	0.44	.32
Exposure to frequent and unrelenting sniper fire	124	55	0.92	0.55	.39
Expelled from country based on ancestral origin, religion, sect or sexual orientation	121	54	0.70	0.43	.04
Beating to the body	118	52	0.94	0.54	.41
Witness torture	115	51	0.95	0.60	.49
Someone was forced to betray you and place you and your family at risk of death or injury	114	51	0.88	0.41	.35
Witnessed mass execution of civilians	110	49	0.94	0.49	.48
Witnessed the arrest, kidnaping, torture, or execution of religious leaders or important members of tribe	97	43	0.86	0.51	.36
Torture, i.e., you received deliberate and systematic infliction of physical or mental suffering	82	36	0.95	0.60	.35
Received the body of a family member (child, spouse,etc.) and prohibited from mourning them and performing burial rites	82	36	0.83	0.49	.16
Forced recruitment	74	33	0.80	0.39	.25
Attack with cold weapon	65	29	0.90	0.54	.38
Imprisonment	63	28	0.97	0.80	.33

Item	Count	%	REP	REL	CITC
Rape of a family member or a friend	59	26	0.89	0.43	.28
Serious physical injury from combat situation or mining	54	24	0.95	0.36	.42
Brainwashing	51	23	0.89	0.41	.32
Used as a human shield	50	22	0.85	0.43	.24
Witness rape or sexual abuse	50	22	0.84	0.53	.26
Imprisonment without hygienic conditions, possibility to move, sleep, use toilet, etc.	47	21	0.98	0.74	.37
Kidnapped/ taken as a hostage	37	16	0.96	0.62	.40
Witnessed chemical attacks on residential areas or marshlands	31	14	0.76	0.44	.15
Forced labor	31	14	0.84	0.47	.18
Solitary confinement	28	13	0.95	0.62	.29
Participated in combat missions	27	12	0.90	0.49	.29
Forced to destroy someone else's property or possessions	27	12	0.97	0.64	.37
Forced to betray someone who is not family or friend placing them in risk of death or injury	25	11	0.93	0.71	.36
Family member or friend victim of organ trafficking	18	8	0.90	0.46	.21
Forced to betray family member, or friend placing them at risk of death or injury	15	7	0.95	0.69	.30
Forced marriage	15	7	0.95	0.52	.13
Sexual abuse	12	5	0.97	0.78	.19
Forced to physically harm someone who is not family or friend	12	5	0.96	0.73	.37
Rape	8	4	0.99	0.88	.23
Forced to physically harm family member, or friend	7	3	0.92	0.56	.28
Killed someone or endangered someone's life.	7	3	0.85	0.57	.22
Rape by an enemy army (groupation, troop, etc.)	6	3	0.99	0.88	.33
Victim of organ trafficking	6	3	0.91	0.66	.22
Disappearance or kidnapping of spouse or spouse taken as a hostage	5	2	0.90	0.52	.11
Murder, or death due to violence, of child	5	2	0.80	0.51	.10
Disappearance or kidnapping of child or child taken as a hostage	4	2	0.94	0.70	.10
Forced prostitution	3	1	0.96	0.71	.23
Forced to provide sexual favors to soldiers in the „holy war"	2	1	0.96	0.78	.19
Murder, or death due to violence, of spouse	2	1	0.93	0.58	.21
Pregnancy as a result of a rape	0	0	/	/	/

Note. We provide the following item-level indices: REP – item sampling adequacy which is similar to KMO, but is calculated on item level; REL – item internal consistency which reflects the proportion of item variance that can be explained by all other items; and CITC – corrected item-total correlation which is the correlation of the item with the total score excluding that item. Good items are usually identified by values of REP above .80-.90, REL above .30-.40 and CITC above .30-.40.

Appendix C

Excluded and merged items of HTQ Part I

Item	Comment
Unable to gain support from authorities for physical or emotional problems	Excluded due to very high frequency
Forced to leave your hometown and settle in a different part of the country with minimal services	Excluded due to very high frequency
Witnessed chemical attacks on residential areas or marshlands	Excluded due to poor metric properties and partial content overlap with item "Witnessed shelling, burning, or razing of residential areas or marshland"
Disappearance or kidnapping of spouse or spouse taken as a hostage	These three items were merged into one: "Did a person close to you disappear, get kidnapped or was taken hostage. What is/was your relationship with this person?" due to near zero frequencies of "Disappearance or kidnapping of spouse or spouse taken as a hostage" and "Disappearance or kidnapping of child or child taken as a hostage" and overlapping content.[1]
Disappearance or kidnapping of child or child taken as a hostage	
Family member or friend disappeared, kidnapped or taken as a hostage	
Murder, or death due to violence, of spouse	These three items were merged into one: "Did a person close to you get murdered or die due to violence. What was your relationship with this person?" due to near zero frequencies of "Murder, or death due to violence, of spouse" and "Murder, or death due to violence, of child" and overlapping content.
Murder, or death due to violence, of child	
Murder, or death due to violence, of other family member or friend	
Rape by an enemy army (groupation, troop, etc.)	These three items were merged with item "Rape" due to zero or near zero frequencies and overlapping content. An additional question "Under what circumstances did this happen?" was added in order to enable retaining of all relevant trauma aspects.
Forced to provide sexual favors to soldiers in the „holy war"	
Pregnancy as a result of a rape	
Witness beatings to head or body	Merged into "Did you witness beating or torture" due to overlapping content.
Witness torture	
Forced to betray someone who is not family or friend placing them in risk of death or injury	Merged into "Were you forced to betray someone or physically harm them? What was your relationship with this person?" due to low frequencies of "Forced to betray family member, or friend placing them at risk of death or injury", "Forced to physically harm someone who is not family or friend" and „Forced to physically harm family member, or friend" and overlapping content.
Forced to betray family member, or friend placing them at risk of death or injury	
Forced to physically harm someone who is not family or friend	
Forced to physically harm family member, or friend	
Solitary confinement	Merged into "While imprisoned, were you put into solitary confinement, were you prevented to move, sleep, relieve yourself, unhygienic conditions" due to moderately low frequencies and overlapping content.
Imprisonment without hygienic conditions, possibility to move, sleep, use toilet, etc.	

1 For simplicity, all questions of this type were coded as a single question, regardless of the target person in question. However, future studies and practitioners may employ different strategies as well, such as separate coding for each target person and/or applying differential weights to different target persons.