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**Masterthesis
Klinische en Gezondheidspsychologie**

**A cluster analysis in traumatized refugees: high versus low
pathology**

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Abstract

Previous studies concluded that worldwide tens of thousands (former) refugees who resettled in Western countries probably have post-traumatic stress disorder (PTSD). Miller (2003, 2004) demonstrated in cluster analytic studies that internalizing and externalizing personality styles are associated with different PTSD comorbidities. The present study conducted a cluster analysis on PTSD symptoms, which yielded support for a two cluster analysis. Participants had resettled in the Netherlands resulting from persecution, war, and violence. The two clusters reflect a high and low pathology cluster. The high pathology cluster, in this study is defined by more reported traumatic events and more avoidant coping compared to the second cluster. Participants in the second cluster seek more social support. The results of this study contribute to the growing recognition that there is more than the core features as defined by DSM-IV-TR. This is the first study to conduct a cluster analysis on PTSD symptoms in sample of refugees.

Introduction

There are over 15 million refugees worldwide, most of them left their home country because of war and other organised violence (Bogic et al., 2012). For many years, or even decades, large numbers of these refugees remain in recipient countries, and addressing their health needs can pose a challenge to the recipient countries.

A systematic review by Fazel, Wheeler and Danesh (2005) concluded that, worldwide, tens of thousands (former) refugees who resettled in Western countries probably have post-traumatic stress disorder (PTSD). Since the 1980's refugees have been coming to the Netherlands, however very few epidemiological studies have focused on the refugees who have resettled in this country (Gerritsen et al., 2005). Around 85% of men and 80% of women with PTSD are also meeting criteria for another Axis 1 condition, most commonly depression, other anxiety disorders and substance abuse disorders (Forbes, Elhai, Miller & Creamer, 2010). In European countries, a differentiation can be made between refugees and asylum seekers (Gerritsen et al., 2005). Refugees have been recognised as being in genuine fear of persecution and have therefore received a residence permit. In contrast, asylum seekers are still in process of achieving such status which makes their future uncertain. This study will primarily be referring to refugees because they constitute the largest group in the sample of this study.

There is a substantial variation in the range of prevalences reported for PTSD, depression and anxiety symptoms reported in population based studies focusing on asylum seekers and refugees living in Western countries (Gerritsen et al., 2005). This is due to the fact that the studies are considerably very heterogeneous with regard to the study population and measurement instruments. The accurate assessment of psychiatric disorders is difficult to ensure in epidemiological studies, especially in non-Western refugees for whom the validity of psychiatric developed in western populations might be restricted (Fazel et al., 2005). Fazel et al. (2005) conclude in their systematic review that 9% were diagnosed with PTSD and 5% with major depression, with evidence of much psychiatric comorbidity. This makes the comparison of the results of different studies very difficult. Gaining more understanding of this difficulty might be important because it can lead to a different view of the heterogeneity of psychopathology and patterns of comorbidity observed in association with the specific PTSD.

In a review Miller (2003) discusses cluster analytic studies of the personality profiles of individuals with PTSD symptoms. These studies have shown evidence that patterns of psychiatric comorbidity cohere along two dimensions that differ with regard to the form in which psychological distress is expressed. These two dimensions are distinguished by traits and symptoms related to externalizing and internalizing psychopathology. A person high on externalisation is likely to express

distress outward through behaviours and has been characterized by low constraint (CON), high negative emotionality (NEM) and problems in the domain of anger, aggression, antisociality and substance-related disorders. Internalizers, on the other hand, are likely to experience their distress internally and are defined by high NEM, low positive emotionality (PEM), and problems in the areas of expression, anxiety, social avoidance, and withdrawal. These findings have been replicated in different studies (Flood et al., 2010; Forbes et al., 2010; Miller, Kaloupek, Dillon & Keane, 2004; Wolf, Miller, Harrington & Reardon, 2012) and assumingly, these clusters seem robust. A low pathology cluster was discovered in follow-up research of Miller (Miller, Greif & Smith, 2003). The low pathology cluster is characterized by low scores on either of the extremities. The studies mentioned before suggest that internalizers and externalizers share a common disposition to experience frequent and intense negative emotions and distress but may differ in ways of expressing their distress. Individuals described as externalizers tend to display their distress outwardly and are likely to react in an aggressive manner, whereas internalizers tend to display their distress inwardly and demonstrate low positive emotionality (Flood et al., 2010).

The purpose of a recent unpublished study (Van Dinther, 2013) was to extend prior evidence of personality based internalising and externalising subtypes of posttraumatic response among a sample of Dutch veterans with combat-related PTSD. In contrast to what was expected, the clear distinction in an externalising and internalising cluster as found by Miller et al. (2004) was not found replicated. Rather a division in high and low severity of PTSD related symptoms and a high severity of PTSD cluster combined with substance abuse disorder described the sample of a Dutch veteran group.

There has been growing recognition that there is more to PTSD than the core features (i.e. re-experiencing, avoidance and hyperarousal; American Psychiatric Association, 2000) as defined by DSM-IV-TR (Taylor, Asmundson & Carlton, 2006). This had led investigators like Miller (2003) and Herman (1992, 1997) to examine whether it is useful to distinguish among subtypes of PTSD as defined by the presence of particular associated features. Herman proposed a distinction between simple and complex PTSD (Herman 1992). Complex PTSD is an attempt to describe the various problems associated with exposure to interpersonal traumatic stress with pervasive personality disturbance (particularly borderline personality features) as a key feature. The concept of simple PTSD is similar as PTSD as defined by DSM-IV-TR criteria, without the associated features and comorbid disorders (Taylor et al., 2006). Taylor et al. (2006) extended the investigation of the concept of complex PTSD by cluster analysing a broader range of associated PTSD features (as defined by DSM-IV-TR). The results were comparable to the concept of simple and complex PTSD as described by Herman (1992, 1997).

Traumatic experiences could be associated with the endorsement of particular coping strategies in relations to immigration stressors and the protracted effects of surviving traumatic events. Problem-focused coping and social support seeking are generally considered as effective strategies. Emotion-focused and especially avoidant copings are considered less effective in long term of psychological adjustment (Huijts, Kleijn, van Emmerik, Noordhof & Smith, 2012). Emotion-focused and avoidant coping have been associated with depressive affect and poor physical health in refugees (Matheson, Jordan & Anisman, 2008).

The aim of the current study is to determine if there is a division in high and low severity of PTSD related symptoms described in the sample of a refugees group. To my knowledge no cluster analyses has yet been undertaken in a sample of refugees. The identification of different PTSD clusters helps to account for patterns in the considerable comorbidity between PTSD and other mental disorders. The findings of this study could also provide support for the relevance of high and low pathology model, consistent with the theory (Herman, 1992, 1997) and emerging research (Taylor et al., 2006). I will also explore whether these divisions fit differently in male and female refugees. Specifically, following prior research, it is expected that there can be found (a) two different clusters defined by low and high pathology, also (b) the high pathology cluster is defined by more reported traumatic events and (c) more avoidant coping, and finally (d) the low pathology cluster is defined by more active coping and (e) seeking more social support.

Method

Participants

Participants were 103 asylum seekers and refugees referred to Foundation Centrum '45, a Dutch specialist institute for diagnoses and treatment of posttraumatic stress resulting from persecution, war, and violence. All participants had been granted permanent or temporary legal residency in the Netherlands. Eligible participants had to be at least 18 years of age and have suffered one or more man-made traumatic events. A total amount of participants when starting this study consisted 174 refugees, 71 of these refugees were removed from this study because participants failed to complete all of the questionnaires. This resulted in a finale sample of 103 refugees and asylum seekers with PTSD. The sample consisted of 80 (77,7%) men and 23 (22,3%) women. The mean age was 41,6 years ($SD = 7,90$). The exact correlations of the variable age is shown in table 1.

Table 1

Demographic variable age by gender

Gender	<i>M</i>	<i>SD</i>
Male ($n = 80$)	40.9	7.8
Female ($n = 23$)	43.9	7.9

Measures

PTSD symptoms were measured using the The Harvard Trauma Questionnaire (HTQ; Kleijn, Hovens & Rodenburg, 2001). The HTQ is developed for the research on the posttraumatic stress symptoms as found in people who fled their home countries in search of asylum in Western society's (Kleijn et al., 2001). The questionnaire format was based on the Indochines versions of the Hopkins Symptom Checklist-25 (Kleijn et al., 2001; Mollic, Caspi-Yavin, Bollini, Truong, Tor & Lavelle, 1992). The HTQ is a self-report scale consisting of three sections. Items were rated on a 4-point rating scale with anchors of 1: not at all distressed by the symptoms and 4: extremely distressed. A mean items score above 2.5 indicates a posttraumatic stress disorder. The HTQ has good psychometric qualities. The validity of the measures is high and has proven criteria validity, content validity and construct validity. The internal consistency is high (Cronbach's $\alpha = .90$)(Mollica et al., 1992). The HTQ is also culturally sensitive in various cultures and has been widely used in refugee populations (Mollica et al., 1992; Kleijn et al., 2001). Coefficient α was .87 in this sample.

The Hopkins Symptom Checklist 25 is a well-known and widely used screening instrument that uses 10 items from the HSCL-58 anxiety scale and 13 items from the depression scale (Khuon & Lavelle, 1987). It also includes two additional somatic symptoms. Items were rated on a 4-point

rating scale, with higher scores reflecting greater severity of anxiety or depression symptoms. A score equal to or larger than 1.75 indicates was classified as having significant emotional distress (Mollica, 1987). The HSCL-25 has strong internal consistency. The 1-week test-retest reliability and the interrater reliability of the HSCL-25 were .89 and .98 (Khuon & Lavelle, 1987). Coefficient α of the anxiety scale was .89 and the coefficient α of the depression scale was .87 in this sample.

Coping style was assessed using the trait version of the COPE-EASY-32, an adapted version of the COPE inventory (Carver, Scheier & Weintraub, 1989). The 32 items constitute 15 scales, which can be classified into four broader factors measuring problem-focused coping, emotion-focused coping, avoidant coping and social support seeking (Litman, 2006). Items were rated on a 4-point rating scale. Mean total factor scores range between 1 and 4, with higher scores reflecting more frequent use of each coping style. The COPE inventory (or its brief form) has been proved to be reliable and valid in various ethnic populations (Kallasmaa & Pulver, 2000). Coefficient α for the subscale avoidance was .48 and for the subscale active coping .85.

The availability of resources in difficult situations was assessed using the Resources Questionnaire (ResQ). The ResQ is developed by Foundation Centrum '45 and is also used to assess in which situations a person normally experiences social support throughout his life. The 33 items constitute 8 different scales. Items are rated on a 4-point Likert Scale (1 = *Never* and 4 = *Always*). The internal consistency of the ResQ is high (Cronbach's alpha = .85). The subscale seeking social support was used for the analysis of this sample. The Coefficient α was .61 for this sample.

Procedures

The refugees who were selected for this study from the available dataset were diagnosed with posttraumatic stress disorder and completed all of the before mentioned questionnaires. The mean scores of the subscales of the questionnaires were used to conduct a cluster analysis. The condition of the number of items that were used to be classified as a scale contained between 80% and 100% of the original subscales. Therefore the mean score of the subscales were filled in for the missing values. This was applied to require a complete data matrix.

Statistical analyse

The SPSS version 20 was used to conduct cluster analyses based on participants responses. In the sample, a two-step cluster analysis was first conducted to test what number of clusters best accounted for variance in the questionnaire subscales. A cluster analysis reduces the number of observations or cases by grouping them into a smaller set of clusters. Hierarchical cluster analysis, which has been widely applied in cluster analysis, was used to classify the optimal number of clusters. Among the several options in determining the strategy for merging clusters, Ward's method

was chosen. This method was applied using the squared Euclidean distances as a similarity measure and Ward's method as the clustering algorithm. Cluster membership is assessed by calculating the total sum of squared deviations from the mean of a cluster. The criterion for fusion is that it should produce the smallest possible increase in the error sum of squares. The first stage of cluster analyses to obtain the ideal number of clusters, Ward's method was used (Ward, 1963). The best-fitting solution then was used to specify the number of clusters and provide initial clusters in a K-means cluster analysis, based on published guidelines for cluster analyses (Clatworthy, Buick, Hankins, Weinman & Horne, 2005). Two assumptions need to be checked before starting with conducting these analyses. The scores of the different variables need to be normally distributed and no correlation between the variables $r > .90$ can exist (Field, 2013).

For each outcome measure, a univariate ANOVA was used to explore differences between the clusters based on HTQ scores.

Results

Correlational analyses

To conduct a cluster analysis correlations between all variables are required $r < .90$. This assumption was met with the highest correlation of .77 between PTSD symptoms (HTQ) and the subscales anxiety and depression of the HSCL-25. The exact correlation coefficients are shown in table 1.

Table 2

Correlations between the anxiety and depression scales and PTSD symptoms

	Anxiety	Depression	PTSD symptoms
Anxiety	-		
Depression	.61	-	
PTSD symptoms	.70	.77	-

Note. Anxiety and depression subscales were measured using HSCL-25. PTSD symptoms were measured using HTQ.

Cluster analysis

As seen in the results (table 3) the final column, headed 'Difference', enables to determine the optimum number of clusters. In this study the optimum number of clusters is two. Adding a third cluster hardly contributes, since the differences in coefficients become considerably smaller.

Table 3

Re-formed agglomeration schedule

Number of clusters	Last step	Current step	Difference
1	105.64	47.78	57.86
2	47.78	37.18	10.59
3	37.18	30.09	7.09

The next stage was to rerun the hierarchical cluster analysis with two clusters, and allocate each case in this sample to one of the clusters. This was conducted with *k*-means analysis. The *k*-means analysis resulted in the assignment of 57 cases to cluster 1 and 46 to cluster 2. The mean and standard deviation for all clusters on the subscales fear and depression on HSCL-25 and the PTSD symptoms are shown in table 4.

Table 4

Anxiety and depression subscales and PTSD symptoms scores by Cluster

Measure	Cluster 1 (<i>n</i> = 57)		Cluster 2 (<i>n</i> = 46)		<i>F</i>	<i>Sig.</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Anxiety	3.29	.41	2.38	.49	104.34	.000**
Depression	3.24	.37	2.27	.36	173.18	.000**
PTSD symptoms	3.45	.28	2.73	.45	97.50	.000**

** $p < .01$

Analysis of variance (ANOVA)

The means of each cluster were examined using a one-way between-groups analyses of variance (ANOVA) to profile the two clusters. The results are shown in table 5. Subjects were divided into two groups according to their cluster membership. The differences between the two clusters are characterized by four dependent variables: 1. the amount of traumatic events a person has experienced (HTQ events), 2. subscale of received social support on the RESQ and the subscales 3. Active coping and 4. avoidant coping on the COPE-easy-32. The magnitude of the *F* values performed on each dimension is an indication of how well the respective dimension discriminates between clusters.

There was a statistically significant difference between the clusters at the $p < .05$ level in the scores based on the different subscales. As expected the numbers of traumatic events a person has experienced were significantly different in both clusters $F(1,101) = 4.089$, $p < .05$, $\eta = .19$. The subscale of receiving social support on the RESQ was significantly different $F(1,101) = 8.006$, $p < .01$, $\eta = .27$. Finally, avoidant coping was also a significant subscale $F(1,101) = 6.246$, $p < .01$, $\eta = .29$. However, active coping was not significantly different between cluster 1 and 2 ($p = .112$). Standardized path coefficients with absolute values less than .10 may indicate a small effect, values around .30 a medium effect, and values greater than .50 a large effect (Cohen, 1992). For this study the mean size effects were considered small.

Table 5

Traumatic events, Seeking Social Support, Active and Avoidant coping by Cluster

Measure	Cluster 1 (n = 57)		Cluster 2 (n = 46)		F	Sig.
	M	SD	M	SD		
Traumatic events	12.93	5.00	10.76	5.88	4.089	.046*
Social support	2.04	.69	2.43	.68	8.006	.006**
Active coping	2.41	.56	2.58	.54	2.431	.112
Avoidant coping	2.35	.49	2.11	.46	6.246	.014**

* $p < .05$. ** $p < .01$.*Conclusion*

The first cluster can be considered as a high pathology group, characterized by high scores on the subscales HTQ events and avoidant coping, and relatively lower scores on receiving social support. The second cluster can be considered as a low pathology group, characterized by relatively low scores on HTQ events scale and avoidant coping and relatively high scores on receiving social support. Finally, active coping was not significantly different between the two clusters. Results are shown in table 5.

Discussion

The aim of this study was to determine if there is a division in high and low severity of PTSD related symptoms described in the sample of a refugees group. A cluster analysis was conducted on PTSD symptoms, which yielded support for a two cluster analysis. As expected, the two clusters reflect a high and low pathology cluster. A cluster analyses was conducted between the variables of the subscales fear and depression of the HSCL-25 and PTSD symptoms (HTQ). All the participants in this study were diagnosed with PTSD (as defined by DSM-IV-TR) but the cases assigned to cluster 1 scored significantly higher on the level of posttraumatic distress than cases in cluster 2. In earlier studies (Miller et al., 2003; 2004) the low pathology group showed less psychiatric comorbidity than the group of internalizers and externalizers. The low pathology group had the highest GAF scores compared to the internalizers and externalizers. The clusters of internalizers and externalizers differ in regard to the form in which psychological distress is expressed. Surprisingly enough the internalizing exhibited greater PTSD severity (Miller et al., 2004). Empirical support for this conclusion shows that there is simply greater construct overlap between PTSD and the psychopathology of the internalizing cluster than the externalizing cluster (Miller et al., 2004).

The first cluster, the high pathology cluster, in this study is defined by more reported traumatic events and more avoidant coping compared to the second cluster, the low pathology cluster. The findings of Finklestein, Laufer, and Solomon (2012) show that avoidance was the only coping strategy associated with PTSD, regardless of immigration group and traumatic events. Avoidance coping may be an effective response shortly following an event, however avoidance denies one the benefits of warm responsive supportive relationships and may impede the natural recovery process. Participants in the second cluster seek more social support. Seeking social support may decrease PTSD symptoms or even the likelihood of developing PTSD (Finklestein et al., 2012; Johnson & Thompson, 2006; Schweitzer, Melville, Steel & Lacherez, 2006). However, active coping did not significantly differ in both clusters. This is consistent with earlier findings (Finkelstein et al., 2012; Matheson et al., 2008). Individuals who experienced multiple traumas were less likely to use active coping and were more likely to endorse avoidant coping efforts.

The results of this study contribute to the growing recognition (Taylor et al., 2006) that there is more than the core features as defined by DSM-IV-TR (American Psychiatric Association, 2000). Miller (2003) and Herman (1992, 1997) examined earlier whether it's useful to distinguish among subtypes of PTSD as defined by DSM-IV-TR. Miller (2003) discusses cluster analytic studies of the personality profiles of individuals with PTSD symptoms. Cluster analyses partitioned a sample of Vietnam veterans with combat-related PTSD into a low pathology cluster, an externalizing cluster and an internalizing cluster (Miller, 2003; Miller et al., 2004). Herman (1992, 1997) on the other hand

proposed a distinction between simple and complex PTSD. These findings (Herman 1992, 1997; Miller, 2003, 2004) together with findings of this study raise questions about the current split between Axis I and II as defined by the DSM-IV-TR (American Psychiatric Association, 2000). Therefore it may be more valid to group disorders on the basis of their common elements (high and low pathology group) rather than to artificially separate them on different axes. Moreau and Zisook (2002) plead for a dimensional conceptualization to understand PTSD. Symptom severity, the nature of the stressor and responses of the trauma are three important spectra of the dimensional conceptualization (Moreau & Zisook, 2002). The overall severity of PTSD is considerably greater if PTSD is associated with other psychiatric illness. The different models of cluster analysing may be relevant to our understanding of the heterogeneity of psychopathology and comorbidity within PTSD.

Study limitations and directions for future research

Limitations of this study include it's cross-sectional design which makes it difficult to draw conclusions about the direction of the various relationships. The influences of language and cultural differences on the data cannot be ruled out, even though the participants were relatively fluent in Dutch.

This is the first study to conduct a cluster analysis on PTSD symptoms in the sample of refugees. The current study highlights the need for future research to replicate and extend prior evidence of cluster analysis based on low and high pathology. Future research might investigate the efficacy of therapeutic interventions aimed at improving refugees' coping styles. The two clusters differed from coping strategies related to PTSD, which may provide evidence that the effectiveness for the purpose of reducing posttraumatic reactions is distinct between high and low pathology. The next step would be to conduct studies of other trauma populations to assess the generalizability of the findings. That is, to determine whether the findings can be replicated in different clinically-defined sub-populations, for instance refugees with comorbid PTSD and substance-use disorders as well as sub-populations defined by different cultural groups. Pre- and postmigration acculturative experiences may differ across countries (Liebkind & Jasinska-Lahti, 2000) and this makes the role of culture important as well. To be able to draw conclusions about causal relationship between the two clusters future studies should examine longitudinal designs that incorporate the assessment of personality and psychopathology pre- and posttrauma exposure. This study will hopefully advance the understanding and conceptualization of heterogeneous of trauma survivors.

Conclusion

A cluster analysis was conducted on PTSD symptoms, which yielded support for a two cluster analysis. As expected, the two clusters reflect a high and low pathology cluster. The high pathology cluster, in this study is defined by more reported traumatic events and more avoidant coping compared to the second cluster. Participants in the second cluster seek more social support. However, active coping did not significantly differ in both clusters. These results are consistent with earlier studies, individuals who experienced multiple traumas were less likely to use active coping and were more likely to endorse avoidant coping efforts. The results of this study contribute to the growing recognition that there is more than the core features as defined by DSM-IV-TR. This is the first study to conduct a cluster analysis on PTSD symptoms in the sample of refugees and will hopefully contribute to the well-being of this vulnerable group of trauma survivors.

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References

- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Ed., text revision). Washington DC: American Psychiatric Association.
- Bogic, M., Ajdukovic, D., Bremner, S., Franciskovic, T., Galeazzi, G. M., Kucukalic, A., & Priebe, S. (2012). Factors associated with mental disorders in long-settled war refugees: refugees from the former Yugoslavia in Germany, Italy and the UK. *The British Journal of Psychiatry*, *200*(3), 216-223.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of personality and social psychology*, *56*(2), 267.
- Clatworthy, J., Buick, D., Hankins, M., Weinman, J., & Horne, R. (2005). The use and reporting of cluster analysis in health psychology: A review. *British Journal of Health Psychology*, *10*(3), 329-358.
- Cohen, J. (1992). A power primer. *Psychological bulletin*, *112*(1), 155.
- Dinther, van H. A. (2013). PTSD, comorbid pathology and personality among Dutch veterans: a cluster analysis. Unpublished manuscript, *Utrecht University*.
- Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: a systematic review. *The Lancet*, *365*(9467), 1309-1314.
- Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics (4th Revised Edition)*. Sage Publications Ltd.
- Finklestein, M., Laufer, A., & Solomon, Z. (2012). Coping strategies of Ethiopian immigrants in Israel: Association with PTSD and dissociation. *Scandinavian journal of psychology*, *53*(6), 490-498.
- Forbes, D., Elhai, J. D., Miller, M. W., & Creamer, M. (2010). Internalizing and externalizing classes in posttraumatic stress disorder: A latent class analysis. *Journal of traumatic stress*, *23*(3), 340-349.
- Flood, A., Boyle, S.H., Calhoun, P.S., Dennis, M.F., Barefoot, J.C., Moore, S.D., Beckham, J.C. (2010) Prospective study of externalizing and internalizing subtypes of posttraumatic stress disorder and their relationship to mortality among Vietnam veterans. *Comprehensive psychiatry*, *51*(3), 236–242.
- Gerritsen, A. A., Bramsen, I., Devillé, W., van Willigen, L. H., Hovens, J. E., & van der Ploeg, H. M. (2006). Physical and mental health of Afghan, Iranian and Somali asylum seekers and refugees living in the Netherlands. *Social psychiatry and psychiatric epidemiology*, *41*(1), 18-26.
- Herman, J. L. (1992). Complex PTSD: A syndrome in survivors of prolonged and repeated trauma. *Journal of traumatic stress*, *5*(3), 377-391.

- Herman, J. L. (1997). *Trauma and recovery* (Rev. ed.). New York: Basic Books.
- Huijts, I., Kleijn, W. C., van Emmerik, A. A., Noordhof, A., & Smith, A. J. (2012). Dealing with man made trauma: The relationship between coping style, posttraumatic stress, and quality of life in resettled, traumatized refugees in the Netherlands. *Journal of traumatic stress, 25*(1), 71-78.
- Johnson, H., & Thompson, A. (2008). The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review. *Clinical psychology review, 28*(1), 36-47.
- Kallasmaa, T., & Pulver, A. (2000). The structure and properties of the Estonian COPE inventory. *Personality and Individual Differences, 29*(5), 881-894.
- Keane, T. M., Marshall, A. D., & Taft, C. T. (2006). Posttraumatic stress disorder: etiology, epidemiology, and treatment outcome. *Annu. Rev. Clin. Psychol., 2*, 161-197.
- Kleijn, W. C., Hovens, J. E., & Rodenburg, J. J. (2001). Posttraumatic stress symptoms in refugees: assessments with the Harvard Trauma Questionnaire and the Hopkins symptom Checklist-25 in different languages. *Psychological reports, 88*(2), 527-532.
- Khuon, F., & Lavelle, J. (1987). Indochinese versions of the Hopkins Symptom Checklist-25: a screening instrument for the psychiatric care of refugees. *Am J Psychiatry, 144*(4), 497-500.
- Liebkind, K., & Jasinskaja-Lahti, I. (2000). Acculturation and Psychological Well-Being among Immigrant Adolescents in Finland A Comparative Study of Adolescents From Different Cultural Backgrounds. *Journal of Adolescent Research, 15*(4), 446-469.
- Litman, J. A. (2006). The COPE inventory: Dimensionality and relationships with approach-and avoidance-motives and positive and negative traits. *Personality and Individual Differences, 41*(2), 273-284.
- Matheson, K., Jorden, S., & Anisman, H. (2008). Relations between trauma experiences and psychological, physical and neuroendocrine functioning among Somali refugees: Mediating role of coping with acculturation stressors. *Journal of Immigrant and Minority Health, 10*(4), 291-304.
- Miller, M. W. (2003). Personality and the etiology and expression of PTSD: A three-factor model perspective. *Clinical Psychology: Science and Practice, 10*(4), 373-393.
- Miller, M. W., Kaloupek, D. G., Dillon, A. L., & Keane, T. M. (2004). Externalizing and internalizing subtypes of combat-related PTSD: A replication and extension using the PSY-5 scales. *Journal of Abnormal Psychology, 113*(4), 636-645.
- Miller, M. W., Fogler, J. M., Wolf, E. J., Kaloupek, D. G., & Keane, T. M. (2008). The internalizing and externalizing structure of psychiatric comorbidity in combat veterans. *Journal of Traumatic Stress, 21*(1), 58-65.

- Mollica, R. F., Caspi-Yavin, Y., Bollini, P., Truong, T., Tor, S., & Lavelle, J. (1992). The Harvard Trauma Questionnaire: validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *The Journal of nervous and mental disease, 180*(2), 111-116.
- Moreau, C., & Zisook, S. (2002). Rationale for a posttraumatic stress spectrum disorder. *Psychiatric Clinics of North America, 25*(4), 775-790.
- Nicholl, C., & Thompson, A. (2004). The psychological treatment of posttraumatic stress disorder (PTSD) in adult refugees: A review of the current state of psychological therapies. *Journal of Mental Health, 13*(4), 351-362.
- Schweitzer, R., Melville, F., Steel, Z., & Lacherez, P. (2006). Trauma, post-migration living difficulties, and social support as predictors of psychological adjustment in resettled Sudanese refugees. *Australian and New Zealand Journal of Psychiatry, 40*(2), 179-188.
- Taylor, S., Asmundson, G. J., & Carleton, R. N. (2006). Simple versus complex PTSD: A cluster analytic investigation. *Journal of anxiety disorders, 20*(4), 459-472.
- Ward Jr, J. H. (1963). Hierarchical grouping to optimize an objective function. *Journal of the American statistical association, 58*(301), 236-244.
- Wolf, E. J., Miller, M. W., Harrington, K. M., & Reardon, A. (2012). Personality-based latent classes of posttraumatic psychopathology: Personality disorders and the internalizing/externalizing model. *Journal of abnormal psychology, 121*(1), 256.