The effects of acculturation strategies on mental health in refugees seeking treatment

Master thesis by D. W. van Alten

Daphne van Alten, student number: 5928303
Department of Clinical Psychology
Social and behavioural Sciences, Utrecht University
Foundation Centrum '45
Supervisor: dr. M. Sleijpen
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Utrecht University

Stichting Centrum'45

Abstract

Background: Certain factors predict which acculturation strategy an individual is likely to adopt. It is presumable that certain acculturation strategies could buffer the effect of trauma on mental health. **Objective:** The aim of the study was to test whether age, length of stay, gender and region of origin could be used as predictors for acculturation strategies. Furthermore, it was tested whether the effect of the number of potentially traumatic events on mental health could be buffered by certain acculturation strategies. **Method:** Intake data of 252 treatment-seeking refugees were used. The intake data consisted of the Harvard Trauma Questionnaire, to measure the number of different potentially traumatic events and posttraumatic stress disorder symptoms, the Hopkins Symptom Checklist 25, to measure depressive- and anxiety symptoms, and the Language and Cultural Index to estimate which acculturation strategy an individual had adopted. **Results:** In the sample only individuals who had either integrated or assimilated were found, therefore no conclusions can be drawn regarding marginalisation and separation. Older individuals appeared to be more likely to adopt an integration strategy than younger individuals. There was a significant association between the number of potentially traumatic events and mental health. No significant effect of the acculturation strategies on the relation between the number of potentially traumatic events and mental health was found. **Conclusion:** Considering the absence of marginalisation and separation, one cannot conclusively state that neither integration, nor assimilation has a buffering effect on the relation between the number of traumatic events and mental health. Further research should be carried out to understand the role of acculturation strategies on the mental health of refugees.

Keywords: acculturation strategies, refugees, traumatic events, PTSD, mental health.

Introduction

The world is facing the most disastrous refugee and displacement crisis since World War II. By the end of 2015, 65.3 million people had been forced to leave their houses due to human right violations, generalized violence, persecution and conflict (UNHCR, 2016). Refugees and asylum seekers are thought to be at serious risk for psychiatric disorders, as a result of potentially traumatic events and stressors that they might encounter prior, during or posterior to their flight. According to a meta-analysis of Fazel, Wheeler, and Danesh (2005) one in ten adult refugees can been diagnosed with post-traumatic stress disorder (PTSD). Other disorders that affect refugees are major depression disorder (MDD), affecting approximately one in 20, and generalised anxiety disorder (GAD), affecting approximately one in 25 (Fazel et al., 2005). However, there is a lot of contradicting evidence regarding the number of refugees that suffer from one or multiple mental health disorders (Steel et al., 2009). Steel and colleagues concluded that torture and the number of exposures to potentially traumatic events (PTEs), could account for a considerable portion of the variance in depression and PTSD rates in refugees and displaced individuals across studies (Steel et al., 2009).

Moreover, PTSD in refugees should be recognized as being more than simply a result of exposure to life-threatening events in the country of origin. Both pre- and postdisplacement stressors influence PTSD symptom levels (Miller, & Rasmussen, 2010), as well as other mental health complaints in refugees and displaced persons (Porter, & Haslam, 2005; Miller, & Rasmussen, 2010). Postdisplacement stressors that have found to be associated with mental health problems are socioeconomic disadvantage, social isolation, acculturative stress, poor housing conditions and being undocumented (Porter, & Haslam, 2005; Miller, & Rasmussen, 2010; Sleijpen et al., 2016; Perera et al., 2013). The mechanisms underlying the influences of postdisplacement stressors on mental health issues are not entirely understood. It could be that certain postdisplacement stressors are daily stressors, posing a chronic threat on psychological wellbeing. Therefore, these daily stressors might undermine someone's ability to cope effectively and consequently erode mental health (Miller, & Rasmusen, 2010). Lack of control over these stressor could also contribute to worsening of mental health. Moreover, it is important to acknowledge that postdisplacement stressors can be traumatic as well (Miller, & Rasmussen, 2010).

The current study focused on one of the alleged postdisplacement stressors, namely acculturation. Acculturation can be defined as the dual process of psychological and cultural change that is elicited by continuous contact between two or more cultural groups (Berry, 2005). Resettled refugees are forced to make decisions about the maintenance of their own cultural-heritage and participation in the dominant culture. These decisions can be experienced as stressful. The term acculturative stress refers to the stress that is rooted in the process of

acculturation. However, acculturation does not necessarily result in high levels of acculturative stress. The level of stress that is experienced by an individual is thought to be dependent on a number of factors. Probably one of the most important factors is the acculturation strategy an individual adopts. In general the highest levels of stress are experienced by those adopt an marginalisation strategy (Williams, & Berry, 1991; Lincoln et al., 2016) and those who try to remain separated (Williams, & Berry, 1991). A marginalisation strategy can be defined when individuals shed their own cultural identity and do not attempt to participate in the dominant culture. When individuals avoid interaction with the dominant culture and solely value their heritage culture, one can speak about separation. To the contrary, when individuals do not attempt to maintain their own cultural identity, while fully adapting to the dominant culture, this can be termed as assimilation. Lastly, integration is defined when individuals attempt to interact daily with the dominant culture while at the same time maintaining their own heritage culture. These four acculturation strategies can be distinguished from the non-dominant group's view point (Berry, 2005).

The acculturation strategy individuals adopt can affect their mental health. In a meta-analysis concerning studies that included either or both refugees and immigrants, integration was found to be most positively related to overall wellbeing (Nguyen, & Benet-Martínez, 2012). Moreover, involvement in any culture appeared to have a positive effect (Nguyen, & Benet-Martínez, 2012). This is in line with evidence that shows that integration is the acculturation strategy associated with the highest level of wellbeing in both refugees and immigrants. Furthermore, the lowest levels of wellbeing was experienced by those who adopted a marginalisation strategy (Berry, & Hou, 2016). A study focusing on the impact of acculturation on mental health in Somali adolescent refugees, demonstrated that those individuals adopting a marginalisation strategy showed the strongest association between PTSD symptoms and acculturative hassles (Lincoln et al., 2016). However, in a study concerning refugees from Sudan and Eritrea, the highest level of depression was found among those who adopted an assimilation strategy (Nakash et al., 2015). Between the other three acculturation strategies no significant differences were found. Anxiety levels did not appear to be influenced by the acculturation strategy an individual adopted (Nakash et al., 2015). Findings of a study focusing on mental health in North Korean refugee youth showed that current acculturation stress and prior trauma exposure had harmful effects on mental health (Kim et al., 2015). In another study a moderating role of acculturation on the relation between possibly traumatic events and mental health in refugees was found. Successful adjustment to the host society tended to buffer the effects of prior trauma on the development of depressive symptoms (Ngo et al., 2000).

A factor that could possibly influence which acculturation an individual adopts is region of origin. Region of origin was found to be associated with acculturative stress and depressive

symptoms in an elderly American-Arab sample (Wrobel, Hymes, & Farrag, 2009). However, in this sample the effect of region of origin was linked to the reason for migration. Considering that Iraqi refugees suffered more from acculturative stress and mental health symptoms, than immigrants with an economical immigration background. In another American study acculturative stress was lower among Iraqi refugees who were Christian, than among those who were Muslim (Yako, & Biswas, 2014). Along similar lines, a significant association was found between mental health and region of origin in a meta-analysis concerning pre- and postdisplacement factors in refugees (Porter, & Haslam, 2005). Moreover, immigrant youth in Canada whose culture of origin was more similar to the host culture were found to be in better mental health than those whose culture of origin was more dissimilar (Beiser et al., 2015). It could be that those individuals whose culture is more similar to the host culture can adapt more easily to the host culture.

Other factors that might be associated with acculturation are length of stay in the host country, age, and gender. Length of stay was found to affect the degree in which resettlement and premigration stressors were experienced in African refugees (Perera et al., 2013). Generally, higher rates of premigration and resettlement stressors were reported by those who had more recently migrated to the United States. However, this was inconsistent with another study which states that there is no association between resettlement and length of stay (Papadopoulos et al., 2004). The majority of the Ethiopian refugees in Papadopoulos and colleagues sample reported that they did not feel a sense of belonging, even after having spent a considerable amount of time in the United Kingdom. They felt excluded and marginalized by the British society. This illustrates the fact that acculturation is more than an individual process. The host society plays an import role in the acculturation process as well. An individual can only integrate successfully if the host society is open and inclusive towards cultural diversity (Berry, 2005).

Regarding the role of gender in acculturation there is some inconsistency. In one study concerning African refugees in the United States, women reported more difficulties with adjusting to the host culture and learning the language than men (Perera et al., 2013). However, in another study that focused on Ethiopian refugees in the United Kingdom, Ethiopian men reported more difficulties with adapting to the host culture than women (Papadopoulos et al., 2004). There is considerably more agreement about the associations between age and acculturation. Papadopoulos (2004) and Perera (2013), both demonstrated an association between age and acculturative stress, with younger refugees reporting lower acculturative stress.

The current refugee and displacement crisis is pressing; questions about migration, adjustment and integration rule political debates (e.g., NOS, 2016). A standpoint that has repeatedly been uttered is that refugees, asylum seekers and immigrants should totally adjust to

the dominant culture (e.g., Berger, 2017; Travis, 2017). However, this might not be the most beneficial strategy for the refugees themselves. Our knowledge concerning acculturation strategies and its relation with mental health in refugees is still limited. To the author's knowledge, this is the first study that considered the possible buffering effect of certain acculturation strategies in the relation between cumulative trauma and mental health. Therefore, it could expand our current knowledge on acculturation strategies, traumatic experiences and mental health in refugees. A better understanding of acculturation could foster implications for treatment as well as for settlement and integration policies regarding refugees.

The current study included a sample consisting exclusively of refugees. They originated from a great scope of countries, which made it possible to study the association between region of origin and acculturation. Other factors that were incorporated in the study were age, length of stay and gender. They were all used to study which factors could influence the acculturation strategy an individual adopts. Moreover, this study examined whether acculturation strategies could buffer the effect of cumulative trauma on mental health. Considering earlier research (Nguyen, & Benet-Martínez, 2012; Berry, & Hou, 2016), it was hypothesized that integration would have the most positive effect. Moreover, marginalisation (Nguyen, & Benet-Martínez, 2012; Berry, & Hou, 2016) was thought to influence the relationship most negatively.

Method

Sample and procedure

In the current study intake data of 392 refugees were used. The data concerned refugees who had been referred to Foundation Centrum '45 for treatment between 2003 and 2011. Foundation Centrum '45 is a Dutch centre specialized in the assessment and treatment of individuals with psychotrauma complaints as a consequence of violence, war, and persecution. Participants signed an informed consent at the intake, in which they granted permission for the use of their data for research.

The study included only the data of those who filled out the Language and Cultural Index (TECI). Of the 392 participants, 140 had to be excluded from analysis because they did not fill out one or both subscales of the TECI. On both subscales one missing item was allowed.

The mean age of the remaining 252 participants was 42.48 (SD = 8.46) and the mean length of stay was 13.36 years (SD = 4.88). The sample included 72 women and 180 men, which indicates that there were significantly more men than women in the sample (t = 23.73, p < .001). Participants came from many different countries, which were categorised in three main regions and a rest group. The categories were the Middle-East in a broad sense (Afghanistan, Iraq, Iraq Kurdistan, Iran, Lebanon, Pakistan, Palestine, Syria, Turkey, Armenia, Azerbaijan, Algeria, Sudan, Georgie), the Balkan (Bosnia, Bosnia-Herzegovina, ex-Yugoslavia, Yugoslavia, Kosovo, Croatia,

Montenegro, Preijdor-Bosnia, Servia), Sub-Saharan Africa (Burundi, Congo, Eritrea, Kinshasa, Rwanda, Sierra Leone and Somalia) and the rest group (Vietnam, Cambodia, Sri Lanka, Chili, El Salvador, Kazakhstan and Kuwait). The rest group was later excluded for further analyses, due to its small sample size. The demographic characteristics for the complete sample are displayed in Table 1.

Table 1
Descriptive statistics of groups based on region of origin

	Balkan	Middle East	Sub-Saharan Africa	Rest group	Total
	n = 82	n = 138	n = 21	n = 11	n = 252
Males (%)	49 (59.8)	110 (79.6)	12 (57.1)	9 (81.8)	180 (71.43)
Age	43.47 (8.02)	42.29 (8.29)	37.23 (8.44)	47.16 (9.97)	42.48 (8.46)
Length of stay	13.66 (4.70)	12.86 (4.35)	13.41 (7.54)	18.11 (4.40)	13.36 (4.88)

Note. Mean and standard deviation (*Sd*) were given for age and length of stay in the Netherlands.

Measures

The Harvard Questionnaire (HTQ; Mollica et al., 1996) was used to assess the exposure to different traumatic experiences and the severity of PTSD symptoms as defined by the DSM-IV (American Psychiatric Association, 2000). This self-report checklist is a cross cultural instrument, that consists of four parts from which the first and fourth were included in this study. Part one, includes 20 items measuring traumatic events. Participants could indicate whether they had 'experienced', 'witnessed', 'heard about' or had not encountered the event in any of those ways. Since only self-experienced and witnessed traumas were of relevance for the current study, scores were redefined before analysing. One could either score 1 on an item, indicating that one had experienced or witnessed the event or 0, indicating that one had heard about it or had not encountered it at all. Total scores ranged from 0 to 20. The fourth part of the HTQ consists of 30 items assessing symptoms that have been associated with overwhelming environmental stress and PTSD symptoms. The first 16 items were derived from the DSM-IV criteria for PTSD (American Psychiatric Association, 2000) and were used in the current study. Responses could be given on a 4-point scale, ranging from 1, 'not at all' to 4, 'extremely'. Total scores were computed by calculating the means, resulting in an overall mean item score for PTSD symptoms which ranged from 1 to 4. Higher scores indicated higher PTSD symptom levels. Individuals scoring above 2.5 are thought to be symptomatic for PTSD. The HTQ has been found to be a reliable and valid instrument for assessing traumatic experiences and PTSD symptoms in refugee populations (Hollifield et al., 2002). In the current study, the internal consistency was high for the fourth part (Cronbach's $\alpha = .88$).

The Hopkins Symptom Checklist 25 (HSCL-25; Mollica et al., 1987), was used to assess anxiety and depressive symptoms. The HSCL-25 consists of 10 questions considering anxiety symptoms and 15 questions considering depressive symptoms. Responses could be given by rating the degree to which they were experienced in the past week on a 4-point scale, ranging from 1, 'not at all', to 4, 'extremely'. The anxiety and depression score can be calculated by respectively adding up the first 10 or last 15 questions and dividing them by the number of questions. In a comparable manner, the overall score can be measured. Mean scores on all subscales ranged from 1 to 4, with higher scores indicating higher symptoms levels. The HSCL-25 has been found to be a reliable and valid instrument for assessing anxiety and depressive symptoms in refugee populations (Hollifield et al., 2002). In the current study, the internal consistency was high, for both the anxiety subscale (Cronbach's $\alpha = .90$) and the depression subscale (Cronbach's $\alpha = .89$).

The Language and Cultural Index (Taal en Cultuur Index , TECI; Kleijn, Verboom, Warmelink, Gijsen, & Draaisma, 2004) was used to determine which acculturation strategy an individual employs. This questionnaire measures two dimensions for acculturation, 'Cultural Identity' (CI) and 'Cultural Distance' (CD). The dimension of CI consist of three subscales and 12 questions, which consider the heritage culture by looking at cultural activities, social interactions and language possibilities. Responses could be given on a 4-point scale, with 1 indicating 'never' and 4 indicating 'often'. The dimension of CD, consist of two subscales and 8 questions, which consider Dutch language ability and social distance. Responses could be given on a 4-point scale, with 1 indicating 'do not agree' and 4 indicating 'agree'. By combining these two dimension one can determine the acculturation strategy an individual adopts. Cut-off scores were used to identify whether someone scored high on CI, CI ≥ 25, and/or high on CD, CD ≥ 17. When someone scored above the cut-off on both CI and CD, he or she is identified as adopting an integration strategy. On the contrary, someone who scores below the cut-off on both CI and CD is identified as adopting a marginalisation strategy. An individual, who scores above the cut-off on CI but below the cut-off on CD, is identified as adopting a segregation strategy and an individual who scores above the cut-off on CD, but below the cut-off on CI is identified as adopting an assimilation strategy. So far no studies have been conducted considering the validity or reliability of this questionnaire. In the current study the internal consistency of this measure was high (Cronbach's $\alpha = .83$). The internal consistency of the CI subscale was high (Cronbach's $\alpha = .86$) and the internal consistency of CD was sufficient (Cronbach's $\alpha = .76$).

Statistical Analyses

The first analyses of this study were performed with SPSS version 23. Based on the cut-off scores of the TECI acculturation strategy groups were created. There was a strong

asymmetry in the distribution of the individuals in these strategies. With 103 individuals in the integration group, 141 in the assimilation group, 2 in the separation group and 6 in the marginalisation group. Therefore, the separation and marginalisation strategy groups were excluded for further analysis. Before conducting the analysis assumptions were tested, two appeared to be violated. Multicollinearity was found between age and length of stay in the Netherlands. The correlation between these variables was significant ($r = .45$, $p < .001$). It was decided to maintain both variables, but to add them to the model within the same step. Two outliers were found within the length of stay variable. However, they posed no threat to representativeness of the sample. Missing's were excluded from the analyses. Seven cases were excluded from the first analysis due to missing's on predictive factors and 226 cases remained. In the second analysis 15 individuals were excluded due to missing either one or multiple of the mental health measures and 218 individuals remained.

A stepwise binary logistic regression was conducted to test whether age, length of stay in the Netherlands, gender and region of origin could predict whether someone would adopt either an integration or assimilation strategy. In the first step age and length of stay were added. In the second step gender was added and in the final step, the dummy variables for region of origin were added. Dummies were created for the Middle East and Sub-Saharan Africa, in which the Balkan was used as reference group.

For the second part of this study analyses were performed with Mplus version 7.3 (Muthén, & Muthén, 1998-2012). A multiple group path model was conducted to test whether acculturation strategy had a moderating role in the relation between the number of potentially traumatic events and PTSD-, anxiety and depressive symptoms. The basic model included regression coefficients for both groups. Subsequently, models were made in which one of the regression coefficients was set equal for the integration and assimilation group. This was consecutively done for depressive-, anxiety and PTSD symptoms. Goodness of fits were computed for the created models, to test whether excluding the effect of acculturation strategies had a significant effect. Subsequently, models were computed in which one of the regression coefficients was set at zero to test whether the number of potentially traumatic events did have significant effect on mental health. In these models the coefficients were set equal for both groups, thus no distinction was made between individuals who assimilated or integrated. Goodness of fits were computed for the created model, to test whether the number of potentially traumatic events did influence mental health significantly.

Results

In table 2 the descriptive statistics are displayed for each acculturation strategy. Only assimilation and integration were included in the analyses. After exclusion of the

marginalisation and separation group, a chi-square test of independence was conducted, which showed that there was no significant difference in the distribution of men and women over the two remaining acculturation strategies (χ^2 (1, N = 233) = 2.13, p = .145).

Table 2
Descriptive statistics of groups based on acculturation strategy

Acculturation Strategy		n	Percentages	Mean (*Sd*)
Integration				
	Total group	96		
	Balkan	36	37.5	
	Middle East	54	56.3	
	Sub-Saharan Africa	6	6.3	
	Males	63	65.6	
	Age			44.11 (8.15)
	Length of stay			13.70 (5.67)
	Anx. Symptoms			2.81 (0.68)
	Dep. Symptoms			2.69 (0.58)
	Total THE			13.58 (4.95)
	PTSD symptoms			3.05 (0.53)
Separation				
	Total group	2		
	Balkan	1	50	
	Middle East	1	50	
	Sub-Saharan Africa	-	-	
	Males	1	50	
	Age			48.41 (8.22)
	Length of stay			13.5 (2.12)
	Anx. Symptoms			3.05 (0.21)
	Dep. Symptoms			3.47 (0.09)
	Total THE			10.50(9.19)
	PTSD symptoms			3.13 (0.62)
Assimilation				
	Total group	137		
	Balkan	45	32.8	
	Middle East	77	56.2	
	Sub-Saharan Africa	15	10.9	
	Males	102	74.5	
	Age			40.73 (8.28)
	Length of stay			12.84 (4.21)
	Anx. Symptoms			2.96 (0.69)
	Dep. Symptoms			2.91 (0.62)
	Total THE			14.50 (4.90)
	PTSD symptoms			3.15 (0.52)
Marginalisation				
	Total group	6		
	Balkan	-	-	
	Middle East	6	100	
	Sub-Saharan Africa	-	-	
	Males	5	83.3	
	Age			45.15 (6.81)
	Length of stay			12.67 (3.67)

Anx. symptoms	3.22 (0.29)
Dep. symptoms	3.34 (0.25)
Total THE	13.32 (5.80)
PTSD symptoms	3.57 (0.35)

Note. Percentages = percentage of the acculturation strategy; Length of stay in years; Anx. symptoms = mean score on HSCL-25; Dep. symptoms = mean score on HSCL-25; Total HTE = total score on first part of the HTQ; PTSD symptoms = mean score on fourth part of the HTQ; – indicates that no individuals with these characteristics were included in the sample

Table 3
Stepwise binary logistic regression models of predictors of acculturation strategy

	B	S.E.	Beta	χ^2	P
Step 1				8.087	0.018*
Constant	-2.358	0.745	0.095		
Age	0.049	0.019	1.050		
Length of stay	-.004	0.031	0.996		
Step 2				2.266	0.132
Constant	-2.003	0.778	0.135		
Age	0.049	0.019	1.050		
Length of stay	-0.008	0.032	0.992		
Gender	-0.452	0.300	0.636		
Step 3				0.100	0.751
Constant	-1.919	0.822	0.147		
Age	0.028	0.020	1.049		
Length of stay	-0.007	0.032	0.993		
Gender	-0.442	0.302	0.643		
Region of origin	-0.074	0.232	0.929		

Notes. Integration was used as the reference group therefore the models in this table predict the chance that someone will integrate; χ^2 is given for each step, together with the *p*-value; * = significant by a $p < 0.05$

A stepwise binary logistic regression was conducted to predict whether someone would either integrate or assimilate. The results of these regression models are displayed in Table 3. Age, length of stay, gender and region of origin were used as predictors. In step 1 age and length of stay were added, which significantly improved the model. In step 2, gender was added, which did not significantly improve the model in comparison to the model with only age and length of stay as predictors. In the final step region of origin was added, this was done by adding the dummy variables for the Middle East and Sub-Saharan Africa. Adding these dummies did not significantly improve the model in comparison to the model with only age, length of stay and gender as predictors. There was a significant difference between the complete model and constant only model (χ^2 (5, N = 226) = 10.96, p = .052). The only factor that made a significant contribution to the prediction was age (p = .020). This effect was, however, relatively small, with an increase of one year being associated with the odds of adopting an integrating strategy increasing by a multiplicative factor of 1.047.

A multi group path model was conducted for the assimilation group and the integration group. Comparison of goodness of fit between the multiple models that were computed,

indicated that there were no significant moderation effects for acculturation strategy on the relation between the number of potentially traumatic events and anxiety (χ^2 (1, N = 218) = 0.31, p = .579), depression (χ^2 (1, N = 218) = 0.35, p = .553) and PTSD (χ^2 (1, N = 218) = 0.02, p = .903). The number of potentially traumatic events did have a significant effect on anxiety (χ^2 (1, N = 218) = 20.96, p < .001), depression (χ^2 (1, N = 218) = 15.25, p < .001) and PTSD (χ^2 (1, N = 218) = 24.91, p < .001). Therefore, the most appropriate model appeared to be a model in which the regression coefficients for the integration and assimilation group were equal; this model was labelled the final model. Table 3 includes data for the models of each acculturation group and the final model.

Table 4
Regression models of cumulative trauma with regard to anxiety, depression and PTSD

	Assimilation group		Integration group		Final model	
	Constant	Traumatic experiences	Constant	Traumatic experiences	Constant	Traumatic experiences
Anxiety symptoms						
B	2.420	0.037	2.174	0.047	2.300	0.042
S.E.	0.188	0.012	0.193	0.013	0.135	0.009
Beta	12.902	3.031	11.275	3.539	17.015	4.692
p		0.002*		0.000*		0.000*
Depressive symptoms						
B	2.519	0.027	2.187	0.036	2.352	0.033
S.E.	0.170	0.011	0.171	0.012	0.123	0.008
Beta	14.804	2.408	12.820	3.085	19.143	3.976
p		0.016*		0.002*		0.000*
PTSD symptoms						
B	2.641	0.035	2.583	0.033	2.605	0.035
S.E.	0.135	0.009	0.156	0.011	0.102	0.007
Beta	19.592	3.692	16.509	3.070	25.480	5.131
p		0.000*		0.002*		0.000*

Note. * = significant by a p < 0.05

In the final model one additional trauma would cause an increase of 0.042 on the mean anxiety score of the HSCL-25, an increase of 0.033 on the mean depression score of the HSCL-25 and an increase of 0.035 on the mean score of the fourth part of the HTQ. Figure 1 illustrates the final model and includes the covariances between the dependent variables.

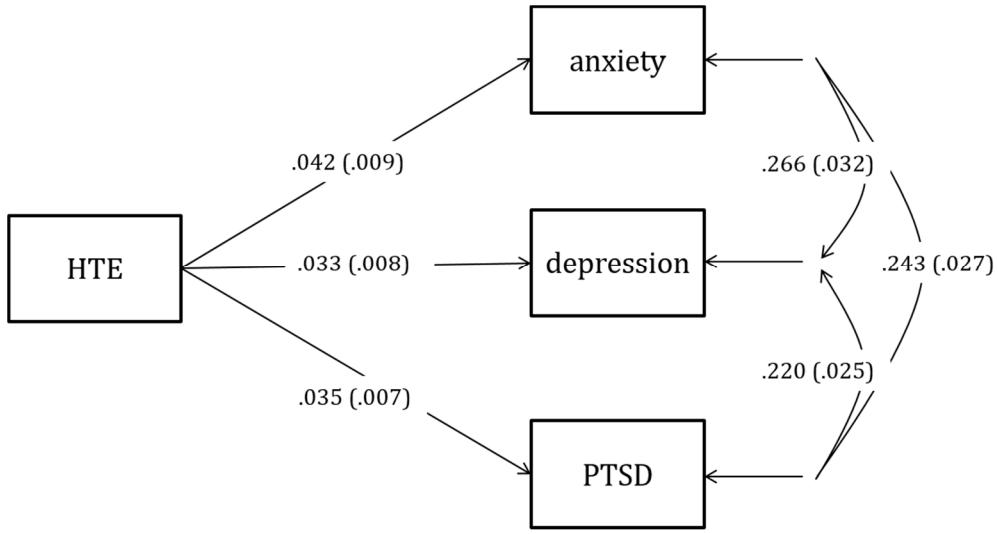

Figure 1. Final regression model of cumulative trauma exposure and mental health

Discussion

The current study was conducted in order to gain knowledge about acculturation in refugees who receive treatment for psychological complaints. Factors that might predict which acculturation strategy an individual adopts were tested. Moreover, it was investigated whether acculturation strategies moderate the relation between the number of exposures to potentially traumatic events and mental health.

Consistent with earlier research (Steel et al., 2009; Knipscheer et al., 2015), a significant association was found between the number of potentially traumatic events and mental health. In general it appears that the severity of PTSD, depression and anxiety is higher in those who have experienced more potentially traumatic events. Concerning acculturation, the current sample included almost no one who used a marginalisation or separation strategy.

In the first part of the study it was investigated whether certain factors could predict an individual's acculturation strategy. In this study age was found to be a significant predictor as was expected, but the effect was relatively small and in a different direction than was expected. The chance that someone would adopt an integration strategy increased slightly with age. Earlier studies suggest that younger refugees are more able to adjust to the host culture (Papadopoulos et al., 2004; Perera et al., 2013). However, unlike these previous studies the current study focused on the age at which the tests were administered, instead of the age of immigration. Therefore, older age might be a consequence of a longer stay in the Netherlands. The multicollinearity that was found between age and length of stay supports this assumption and might also explain why length of stay was not a significant predictor for acculturation strategy. It is possible that a part of the effect found for age, is due to length of stay and that it was unfairly attributed to age.

Contrary to some previous studies (Papadopoulos et al., 2004; Perera et al., 2013), gender did not appear to be a significant predictor for acculturation strategy. In previous studies there has been an inconsistency in considering the role of gender. One study indicates that men adjust more readily to the host culture (Perera et al., 2013), whereas another study proclaims the opposite (Papadopoulos et al., 2004). The current and previous studies, underline that there is still ambiguity regarding the role of gender in acculturation.

Region of origin is surrounded by ambiguity as well. In the current study region of origin did not appear to predict acculturation strategy. This contradicts an earlier study that demonstrated an association between region of origin, acculturative stress and depressive symptoms (Wrobel, Hymes, & Farrag, 2009). However, Wrobel and colleagues (2009) linked the effect of region of origin to the reason for migration. Individuals, who had to flee as a consequence of war or political violence, experienced more acculturative stress and mental health complaints than those who migrated for economic reasons. Considering that all participants in the current sample were refugees, this might be the reason that no effect for region of origin was found. Another possible explanation is that the categorized regions might have been too broad and consequently overlooked the cultural differences between and within the countries and the individuals they included. One study showed that Iraqi refugees in United States who were Christian experienced less acculturative stress, than those who were Muslim (Yako, & Biswas, 2014). In another study were the effects of country of origin linked to multiple other factors, namely being able to speak English and being familiar with modern urban society (Weine et al., 2013). Being able to speak English and being familiar with modern urban society were all factors that predicted better adjustment. It is very likely that these factors varied greatly in the regions that were established for this study.

In the second part of this study the possibly moderating role of acculturation strategy in the relation between number of potentially traumatic events and mental health was tested. No moderating effect for acculturation strategy was found, meaning that in the current study neither integration, nor assimilation buffered the effects of the number of potentially traumatic events on mental health. To the authors knowledge this was the second study to look at the possibly moderating role of acculturation. In an earlier study better adjustment to the host culture was found to have a buffering effect (Ngo, et al., 2000). The current study did, however, not exclusively focus on adjustment to the host culture although both assimilation and integration require adjustment to the host culture. Previous studies have also shown that involvement in any culture might be beneficial for mental health (Berry, & Hou, 2016). Integration appears to be the most beneficial strategy for the refugee's mental health (Nguyen, & Benet-Marínez, 2012; Beiser et al., 2015; Berry, & Hou, 2016). Nevertheless, there is still some uncertainty concerning the effects of particular acculturation strategies, which can be illustrated

by a study in which assimilation appeared to be the strategy with the highest association with depressive symptoms (Nakash et al., 2015).

A possible explanation for the absence of an effect of acculturation on the relation between the number of potentially traumatic events and mental health is that the current study only included individuals who either assimilated or integrated. It is possible that these strategies influence the relation between trauma and mental health in a comparable manner. After all, in both strategies there is at least some involvement with the host culture. One could argue that if a sufficient amount of the sample had adopted a marginalisation strategy, this would have influenced the results. The same could be true for individuals who adopted a separation strategy. A possible explanation for the absence of individuals who separated and marginalized in the current sample, is that these individuals might be more excluded by society. Therefore, they might never reach the mental health sector were the participants of the current study were recruited. Tran, Nguyen and Chan (2014), brought forward a similar explanation. Moreover, they suggest that traumatic experiences and poor mental health could make it difficult for someone to adapt to the host culture and therefore reduce their access to mental health care. Nevertheless, the participants in the current study were able to adjust to the host culture even though they had mental health problems. Still, it is likely that other individuals were not and that this inability to adjust to the host culture has led them to be excluded from society and mental health care. It could also be that longer length of stay in the Netherlands has given people more time to integrate or assimilate and that this could explain the lack of variance in acculturation strategies since most of the individuals included in this study had been in the Netherlands for a considerable amount of time.

Another possible explanation for the absence of a moderating role of acculturation strategies is that the individuals in the current study had experienced so many traumatic events that acculturation strategies could simply not buffer the effects. Furthermore, it is possible that acculturation strategies only have a moderating role in those who have not, or have not yet developed mental health problems. Implicating that certain acculturation strategies can be a protective factor, which has been suggested by previous studies (Fazel, Reed, Panter-Brick, & Stein, 2012; Sleijpen et al., 2016). However, since the current study involved a sample consisting of treatment seeking individuals one cannot draw any conclusions concerning the role of acculturation strategies previous to the development of mental health disorders. Nevertheless, most previous studies concerning acculturation strategies and mental health did involve broader samples and included individuals without psychological disorders (Nguyen, & Benet-Martínez, 2012; Beiser et al., 2015; Kim et al., 2015; Berry, & Hou, 2016; Lincoln et al., 2016). The notation that these studies did find effects for acculturation strategies might imply that acculturation does have an effect before clinical significant mental health problems have developed. However,

one study including exclusively refugees with mental health problems demonstrated that adjustment to de host culture buffered the effect of potentially traumatic events on depression levels (Ngo et al., 2000). Therefore, the idea that acculturation strategies could have a buffering effect should not yet be abounded. Especially, since the current study included exclusively individuals who either assimilated or integrated.

Limitations

The fact that all refugees in the current sample were in treatment for psychological complaints, can be perceived as a limitation. Since only a minority of refugees develop psychological disorders (Fazel et al., 2005), the current sample might not represent the entire refugee population in the Netherlands. Consequently, an important effect of acculturation could be overlooked. As suggested before, it is possible that acculturation strategies influence mental health before clinical significant mental health problems develop. Another reason that might have influenced how representative the current sample was, is that most participants had spent a considerable amount of time in the Netherlands. Therefore, they might have been more able to adapt to the host culture than those who had immigrated more recently.

Perhaps one of the most important limitations of the current study is that the TECI has not yet been validated. Hence, the groups that were created might not represent the acculturation strategies the ought to represent. For instance we cannot be completely sure that those who appear to be integrated have actually adopted an integration strategy. Another limitation, which might be linked to the TECI as well, is that only two acculturation strategies were sufficiently represented in the sample. Consequently, no conclusions can be drawn about separation and marginalisation.

Another limitation might be that a cross-sectional design might not be the most appropriate design to test whether certain acculturation strategies buffer the effect of the number of potentially traumatic events on mental health (Wu, & Zumbo, 2008). No causal relation can be established between the number of potentially traumatic events and mental health. Consequently, one cannot make a conclusive statement regarding the role of acculturation strategies in the relation between trauma exposure and mental health.

Implications for further research

The current study underlines the importance of a validated instrument to measure acculturation strategies. To further study the effects of acculturation strategies in refugees in the Netherlands the TECI should be validated. Currently, most studies investigating the role of acculturation strategies use different questionnaires that they have either developed themselves

or adapted to match their sample (Ngo et al., 2000; Nakash et al., 2015; Berry, & Hou, 2016; Lincoln et al., 2016).

Another suggestion for further research is to address the possibility that acculturation strategies could play a role in the relation between trauma exposure and mental health before the development of clinically significant mental health problems. Hence, research involving a large sample of refugees who are not, or not yet, in treatment should be conducted. One should be especially alert to include those individuals at risk for social exclusion.

Moreover, it would be interesting for further research to investigate the role of acculturation strategies in treatment. Since an integration strategy has often been found to be the most beneficial acculturation strategy for mental health (Nguyen, & Benet-Marínez, 2012; Beiser et al., 2015; Berry, & Hou, 2016), one could suggest that interventions are more beneficial for those who are integrated.

Conclusion

In the current study a strong association was found between the severity of psychological disorders and the number of potentially traumatic events in treatment seeking refugees. In general it appears that an increase of the number of potentially traumatic events, led to an increase in severity. Whether someone integrated or assimilated did not influence this relation, neither integration nor assimilation had a buffering effect on mental health problems. It is notable that none of the participants in the current study adopted a marginalisation or separation strategy. Further research is necessary to reach a better understanding of the possibly buffering effect of acculturation strategies in mental health.

Older individuals appeared to be more prone to adopt an integration strategy than younger individuals. However, this effect was very small. The acculturation strategy an individual was likely to adopt, could not be predicted with length of stay in the host country, gender and region of origin.

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