Individual differences in posttraumatic stress symptoms in relation to a compromised autobiographical memory, in severely traumatized refugees.

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Abstract

A number of studies suggest that posttraumatic stress disorder (PTSD) is associated with autobiographical memory deficits, notably overgeneral memory (OGM). Instead of being able to recall specific autobiographical memories, people with PTSD seem to mainly retrieve general events. Fifty-six severely traumatized patients completed the trauma questionnaire PCL-5, the Brief Symptom Inventory (BSI), and the Autobiographical Memory Test (AMT) in the present study. Contrary to the expectations, PTSD severity was not associated with more overgeneral memory retrievals on the AMT. Next to this, the role of cue words valence was investigated in the relationship between symptom clusters of PTSD and OGM. Also in contrast with the expectations, high avoidance tendencies could not predict more autobiographical overgenerality in response to the negative cue words of the AMT (Zheng, & Gray, 2018). Neither did a high score on depressive symptoms, predict more OGM in response to positive cues words (Mood Congruence Effects: Bower, 1983). These findings suggests that, regardless of the difference in symptom severity or affective valence of a preceding trigger, OGM was substantial. It may be that individual differences in PTSD and depressive symptoms in clinical patients are poorly associated with differences in memory specificity. The compromised specificity could only be evident when clinical patients are compared with control patients. It is, however, hard to differentiate in AM complaints in a group that is this severely traumatized. Future research could engage in more diverse diagnostic groups so that the transdiagnosticity of OGM can be further examined.

Introduction

Over the past two decades, it has become increasingly more evident that there is a relationship between autobiographical memory (AM) and Posttraumatic Stress Disorder (PTSD) (Conway, & Rubin, 2019). A lack of AM specificity, otherwise known as an Overgeneral Memory (OGM), seems to be a relatively stable factor that has implications for the onset as well as the maintenance of PTSD (Sumner, Griffith, & Mineka, 2010). AM can be defined as the entire recollection of ones personally experienced past events, and is therefore, a central concept to one's sense of self and human functioning in general (Rubin, 1999). Interestingly, in contrast with the chronic prominence of hot trauma memories, people who suffer from PTSD often have difficulties with autobiographical cold context (Brewin, 2007). Instead of recalling detailed personal memories, mainly general memories are recalled (Baddeley, Eysenck, & Anderson, 2010).

Autobiographical Memory

Autobiographical knowledge can be divided into three levels of specificity and is organized hierarchically. The first layer involves prolonged periods of time (e.g.,''During my childhood'') and is called *lifetime periods*. The second layer involves *general events*, which are categorical and thematic memories that include repeated events (e.g., ''Every time we got into a fight') or single events (e.g. During summer break). The lowest level of representation, *event-specific knowledge* (ESK), is personal information narrowed down to specific events. ESK is normally embedded into the higher-level representations, and functions as an essential structure of the self (Guler, & Mackovichova, 2019). For people with PTSD, as well as depression, the embedding of ESK often seems to be distorted to the extent where one can speak of an OGM (Williams et al., 2007). In most of documents, people with PTSD indeed show weak performances in comparison to a control group on the Autobiographical Memory Test (AM), a test designed to measure OGM (McNally, Lasko, Macklin, & Pitman, 1995; McNally, Litz, Prassas, Shin, & Weathers, 1994; Sutherland, & Bryant, 2007).

CaRFAX model

There are certain client-related factors that might contribute to OGM. These factors regard an individual's age (Barry, Hallford, & Takano, 2020), gender (Young, Bellgowan, Bodurka, & Drevets, 2013), and education level (Boelen, Huntjes, van Deursen, & van den Hout, 2010). Next to this, the differences in the severity of certain clusters of PTSD symptoms, have also been found to may be important factors (Liu, Li, Xiao, Yang, & Jiang,

2013). A much-supported view on OGM by Williams (2006) suggests that specific autobiographical memories are not forgotten, they are just difficult to retrieve. There would be three processes through which this reduced autobiographical specificity could come to be, explained by the CaRFAX model. The first process, Capture and Rumination, accounts for the general inability to retrieve specific AM, independent of the perceived stimuli. People with trauma-related symptoms are often 'captured' in a state of highly activated emotion-related conceptual self-representation. (Williams, 2006). The absence of a personally meaningful state will elicit self-ruminative thinking in general and will be followed by abortive attempts of retrieval (Treynor, Gonzalez, & Nolen-Hoeksema, 2003; Williams, 2006). The second process is the Executive Control process, which states that the ability to maintain memory, and the ability to inhibit irrelevant information, makes it more difficult for individuals to maintain focused on the goal of retrieving a specific event. This would result in a general inability to retrieve specific AM (Williams, 2006). The third process, Functional Avoidance, explains how an overgeneral retrieval style can functionally develop over time, as the avoidance of specific details of negative experiences is repeatedly reinforced due to its affect regulating properties (Williams et al., 2007). Whenever the retrieval of certain memories leads to too much negative affect, they will eventually be terminated early on and not recollected anymore (Hallford, Austin, Raes, & Takano, 2018). These three processes of the CaRFAX model work in interaction with one another, and in that way, have provided the foundation of the onset and maintenance of PTSD and other emotional disorders through reduced autobiographical memory specificity. However, trauma exposure has turned out not to be the primary mechanism responsible for OGM, nor does symptom severity appear to always accurately predict a more compromised autobiographical memory (Moradi, Herlihy, Yasseri, Shahraray, Turner, & Dalgleish, 2008). Even though a substantial difference in AM memory is found between a clinical group suffering from PTSD and a healthy control group (Barry, Lenaert, Hermans, Raes, & Griffith, 2018), it is not yet established whether PTSD symptom severity always correlates with a more severely compromised AM.

Functional Avoidance

The above also suggests that there might be potential mediators in the trauma-OGM relationship (Dalgeish et al., 2007; Dalgeishet al., 2008; Moore & Zoellner, 2007). Zheng, & Gray (2018), for instance, found not so much symptom severity, but the type of trigger or stimuli that precedes the recollection of a memory, to be of importance for an overgeneral retrieval style. The trauma survivors in their study presented fewer specific memories in

response to the negative cue words, than in response to the positive or neutral cue words. These results might suggest that it depends on the preceding triggers whether an overgeneral retrieval style is evoked (Dalgleish, Rolfe, Golden, Dunn, & Barnard, 2008). A related negative consequence of the tendency to avoid negative thoughts, is the fact that attempts to suppress a thought will often eventually lead to an increase in the frequency with which it occurs. Only now the thought is perceived as an intrusion instead of an ordinary thought or memory (Michael, Ehlers, Halligan, & Clark, 2005). In this way, paradoxically, individuals that suppress memories against negative affect will experience their recollections as more intrusive, as they involuntarily come into consciousness (Grey, & Holmes, 2008). As a consequence of the unpleasant intrusions, cognitive avoidance can be used again to protect against the negative affect of intrusions, leading to the vicious circle between thought suppression, intrusions, and OGM (Kuyken, & Brewin, 1995). People suffering from PTSD that excessively avoid thoughts therefore might exhibit more severe OGM in response to negative cues.

Depressive symptoms

The ability to retrieve specific memories has also been found to be impaired in people suffering from depression, often even more clearly than in a standalone PTSD diagnosis (Hitchcock, Mueller, Hammond, Rees, Werner-Seidler, & Dalgleish, 2016). Stimuli is processed in an emotional context, meaning that stimuli that is more congruent with current mood state (i.e. mood congruent effects), will be more easily recognized (Bower, 1983). This means that pleasant moods lead to the retrieval of positive memories and unpleasant moods lead to the retrieval of negative memories (Quigley, Horne, & Dobson, 2021). This suggest that people that score high in depressive symptoms, might specifically exhibit OGM in reaction to positive cues, as these stimuli are too incongruent with the current mood state. In the study of Williams, & Scott (1988) as well as well as in the meta-analysis of Burt, Zembar, & Niederehe (1995) it was indeed established that patients with depression were less specific in their response, but only to positive words or sentiments. A high state of a depressive mood in people with PTSD, could potentially make it more difficult to retrieve specific memories to positive cue words.

OGM in Refugees

Deficits in autobiographical memory has proven to be an important factor for many mood -and anxiety disorders. However, more research is warranted to further explore the

contribution of CaRFAX variables, and the contribution of individual differences in PTSD symptoms/symptom severity and OGM. This is especially true for research in underrepresented diagnostic groups, such as refugees and asylum-seeking people suffering from PTSD. Mass conflict and violence affects a large portion of the world's population every year, leading to a massive stream of refugee people seeking safety in the western world (Khan, Kuhn, & Haque, 2021. This population deals with cumulative traumatization as their post-migration life starts full of challenges as they face insecure and unstable conditions in the recipient countries. It is important to examine through which processes and underlying mechanisms the onset and maintenance of PTSD is realized within this group of severely traumatized refugees. AM has mostly been studied in homogenous western populations, which demands carefulness in generalizations of the findings of many of the studies conducted concerning OGM to non-western populations, specifically, non-western refugees (Takano, Mori, Nishiguchi, Moriya, & Raes, 2017). It is vital to gain more insight into the workings of AM for this often severely traumatized group to effectively administer proper therapeutic interventions.

Aim of the study

In the present study, the role of an OGM shall be examined in a sample of severely traumatized refugees. Recent findings in a study regarding Iranian trauma survivors with PTSD, do suggest that reduced memory flexibility could be an important transdiagnostic marker of emotional disturbance that transcends culture (Piltan, Moradi, Choobin, Azadfallah, Eskandari & Hitchcock, 2021). To further explore this, the relationship between OGM and PTSD shall be examined in a population of non-western refugees suffering from PTSD. The aim of this study is to investigate whether refugees show OGM when retrieving memories to cue words on the Autobiographical Memory Test (AMT). It is first hypothesized that PTSD severity can predict a more severe overgeneral retrieval style. Next to this, there shall be examined which subscales of PTSD are most associated with OGM, and whether there is a correlation between trauma related memories and the display of OGM. Derived from the Mood Congruence Theory, it is also hypothesized that a higher score on depressive mood can predict OGM when presented with positive cue words. Lastly, it is suggested that OGM reflects avoidant tendencies to reduce negative affect. In that way, OGM would only lead to more intrusions as recollections come to consciousness involuntary. It is therefore hypothesized that a higher score on avoidance, as well as intrusions, can predict OGM when presented with negative cue words.

Methods

The data used in the current paper has been collected in context of a larger research project at Psychotrauma Center 'Centrum 45'. This project aims to measure the effects of Memory Specificity Training (MeST) for refugees with complex PTSD. The main goal of the study is to assess the effectivity of the MEST in enhancing the retrieval of specific memories, and whether NET in combination with MEST has additional value on top of the NET alone. Only relevant data for the current research paper will be mentioned below.

Participants

The study includes individuals who entered treatment at the psycho-trauma treatment center 'Centrum '45'. The participants enrolled in a trauma-oriented treatment program, which includes group psychotherapy, MEST and NET. The data for the current study has been collected after the initial intake, before participants enrolled in NET. This study contains 60 participants ($M = 46.22$, $SD = 9.44$) including 11 women (18.3%) and 49 men (81.7%).

Procedure

At the first assessment patients filled out several questionnaires, including the BSI and PCL-5. The AMT was administered by therapists and employees of the clinic. Patients followed the MEST during 12 weeks in groups, alternating each week from online to on location. In the first phase patients had to practice the retrieval of AM, as a homework assignment as well as face to face with a therapist who conducted the AMT. Every week, the patients were offered NET. Due to language barriers, it was anticipated that participants could experience difficulties in retrieving specific memories that was not due to OGM. To minimalize the effect of this, a translation of the questionnaire was used whenever necessary. Next to the Dutch translations by Williams & Broadbent (1986) that were used, there was a second translated list of the synonyms in English, as well as Farsi, Arabic and Bosnian. Participants were given the possibility to write down their answers in their native language before they would speak about them in Dutch.

Measurements

AMT. Memory specificity is measured with the Autobiographical Memory Test (AMT) by Williams & Broadbent (1986). The AMT requires individuals to retrieve AM in response to a series of emotionally-valenced cue words. It was used in a standard spoken format where respondents are presented with five pleasant words (i.e., happy, safe, interested,

successful, surprised) and five unpleasant words (i.e., sorry, angry, clumsy, hurt, lonely), with the positive and negative words alternating in sequence. Answers, as well as the therapist's questions, were written down. First, the meaning of, and difference between, specific and general memories was explained to the patients. Specific memories were defined as memories that refer to an event that happened at a particular time and place, that did not last longer than a day. Additional instructions were that the memories should not be used more than once. Participants were asked to produce personal memories in response to the cue words. After examples of correct and incorrect memories were given, participants were presented with eleven cue words, the first one being a practice word (park). The test did not start until a participant had given a specific memory to an example word. When a memory was not specific, the therapist could only ask once whether the patient could be more specific. Responses were codes as either specific, categoric (summarization of a series of similar events) or extended (a period that lasted longer than a day). When a participant failed to recall a memory, or did not share a memory, responses were also coded differently. The total score on the AMT, is the total sum of all specific answers that were retrieved. psychometric consensus in support of operationalising rAMS/OGM as the number of specific memories that participants retrieve (Griffith, Sumner, Raes, Barnhofer, Debeer, & Hermans, 2012; Takano, Mori, Nishiguchi, Moriya, & Raes, 2017). Next to recalling a specific memory, participants were asked to what extent participants had experienced either a positive emotion or a negative emotion because of the recollection. On the horizontal line of the Anxiety Visual Analogue Scale (VAS), patients could draw a line from the left side to the right side to rate their current levels of anxiety (Davey, Barratt, Butow, & Deeks, 2007). Next to this, memory responses were codes as either trauma related, or not trauma related. The memories were coded by two different people. A good interrater agreement was obtained for the coding of type of memory ($k = .73$), as well as for the coding whether a recollection was trauma related ($k = .68$).

PCL-5. The PCL-5 is a 20-item self-report inventory assessing the severity of PTSD symptoms for the past month (Blevins, Weathers, Davis, Witte, & Domino, 2015). The PCL-5 has 4 subscales, corresponding to the symptom clusters in the DSM-5, including re-experiencing, avoidance, negative cognition and mood, and hyperarousal. Respondents can describe how much a problem had bothered them on a 5-point Likert-scale from 0 (not at all), to 4 (extremely). Scores on the PCL-5 can range from 0-80, where the sum of the raw scores of all items can be used as a measurement for the disorder itself, or by obtaining cluster severity for the symptom clusters. Weathers, Litz, Hermans, & Huska, 1993) recommend that

a cut off score of 38 can be seen as an indicator of PTSD. The PCL-5 exhibits high internal consistency ($\alpha = .94$) and good test-retest reliability (.82). The PCL-5 intercorrelations are moderate to high, which suggest that although the constructs are similar, they are not interchangeable (Sven, Bondjers, & Willebrand, 2016). Next to this, evidence for convergent validity was found in the strong correlations between the PCL-5 and other PTSD measures (.85) (Blevins, Weathers, Davis, Witte, & Domino, 2015). As for the intrusion subscale, a satisfactory alpha (0.81) was found (Bressler, Erford, & Dean, 2018). This was also found for the avoidance subscale (0.80). The intercorrelations between intrusions and avoidance averaged r = .62 (Bressler, Erford, & Dean, 2018).

BSI. The Brief Symptom Inventory (BSI; Derogatis & Spencer, 1993) is the short form of the Symptom Checklist 90 that evaluates psychological distress and psychiatric disorders. The test is a 53-item self-report measure that uses a 5-point Likert scale to range each item from 0 (not at all) to 4 (extremely). The psychological symptomatology across nine symptom dimensions is measured, including: somatization, obsession-compulsion, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The authors report good internal consistency reliability for the nine dimensions, ranging from .71 on psychoticism to .85 on depression. Next to this the test-retest reliability ranges from .68 on somatization to .91 on phobic Anxiety (Aroian, & Patsdaughter, 1989. The convergent validity of the BSI has also been proven consistently in the literature, it has high correlations with analogous clinical scales of personality measurements (Loutsiou-Ladd, Panayiotou, & Kokkinos, 2008).

Data-analysis

All analyses were conducted using SPSS, descriptive analyses were used to summarize the age and gender of the participants, as well to analyze the mean scores on the measurements. For every participant a sumscore shall be calculated for the AMT total score, the total score on positive cues and on negative cues. The scores are the number of specific answers given to the ten cue words (total AM) or five cue words (Pos/Neg cue words).

(1) To test the hypothesis that PTSD severity can predict OGM, a multiple regression analysis is conducted. As age (Barry et al., 2020) as well as gender (Young et al., 2013) could account for substantial variance, these variables are also considered.

(2) There shall be exploratively tested which subscales of PTSD are most associated with OGM by means of a Pearson correlation. It shall also be examined whether the retrieval of more trauma memories is correlated with OGM.

(3) To test whether a higher score on avoidance, as well as intrusions, can predict OGM when presented with negative cue words, a regression analysis shall be conducted for both variables. The total amount of specific memories that were recollected per cue valence situation, will function as the DV. To assess the different effects of cue words valence standardized coefficients shall be used for comparison.

(4) To test the hypothesis that a higher score on depressive mood can predict OGM, when presented with positive cue words, a regression analysis shall be conducted with age taken into account. Age has appeared to be an important mediator in the relationship between depressive mood and OGM (Ricarte, Latorre, Ros, Navarro, Aguilar, & Serrano, 2011; Ros, Latorre, & Serrano, 2009).

Results

Demographics and test scores

4 Participants were excluded from the analyses for the account of too many missing values (i.e., more than 5 items missing on the AMT/completely missing PCL-5 scores), leaving $N = 56$ participants in the sample (46 males and 10 females). Table 1 shows the group characteristics of the participants, as well as the mean scores on the BSI, PCL-5, and the AMT. The assumptions for linearity, homoscedasticity of errors, and normality of the residuals for the DV's were checked and were not violated.

Table 1

Demographic characteristics and test results

Sample characteristics	*Total sample* *N = 56*
Gender (N (Age (M))	
Female	10(44.2)
Male	46(46.8)
Test results (M(SD))	
PTSD symptom severity	58.6(9.2)
Reexperiencing	15.9(2.5)
Avoidance	6.0(1.7)
Negative Cognition and Mood	19.4(4.7)
Arousal	17.4(3.3)
Depression score BSI	2.7(0.7)
AMT score	19.8(5.0)
Specific answers	4.45(2.31)
For positive cues	2.32(1.35)
For negative cues	2.14(1.41)
Trauma related score	3.14(1.95)
For positive cues	1.13(0.90)
For negative cues	2.02(1.42)

Hypothesis 1: To test whether PTSD severity can predict AM specificity, a multiple regression analysis was conducted, considered the variance explained by gender and age. Neither gender, age nor PTSD severity were significant predictors for AM specificity (Table 2).

Table 2

Multiple regression with gender, age and PTSD severity predicting AM specificity

Model	B	SE	Std B	Sig.
Gender	1.43	.79	.24	.08
Age	-.02	.03	-.06	.64
PTSD severity	.05	.03	.20	.14

It was exploratively investigated which subscales of the PCL-5 are most associated with AM, by means of a Pearson correlation. Only the subscale of Avoidance of the PCL-5 correlated significantly, and so positively, showing that more specific answers were given on the AMT by people who scored higher on Avoidance, $r = .27$, $p = .05$. No correlations were found for PTSD symptom severity, Depressive Mood, Intrusions or whether a recollection was trauma related (Table 3).

Table 3

Correlation matrix with AM, PTSD symptom severity score, the subscales of the PCL-5, the depressive mood subscale of the BSI, and whether a memory was trauma related).

	1	2	3	4	5	6	7
1. AM specificity							
2. PTSD symptom severity	.20						
3. Reexperiencing	.15	.61**					
4. Avoidance	.27*	.65**	.40**				
5. Negative cognition and Mood	.24	.89**	.34**	.56**			
6. Arousal	-.03	.73**	.25	.22	.52**		
7. Depressive mood BSI	.10	.45**	.28*	.28*	.37**	.38**	
8. Trauma related	-.03	.06	.19	-.07	.07	.74	-.11

* $p \leq .01$, ** $p < .05$

Hypothesis 2: To test whether a higher score on Avoidance as well as Intrusions can predict AM specificity when presented with negative cue words, a multiple regression was conducted for both variables. In all regression analyses described below, age was entered into the analysis to account for possible variance due to this participant characteristic, as overall working memory capacity as well as AM declines with the years (Ros et al., 2009; Ricarte et al., 2011). The regression coefficients for age were non-significant, however. To assess the predictive value each of the subscales have on AM specificity, divided by cue word valence, standardized coefficients can be used. The regression coefficients were not significant for Intrusions; a higher score on Intrusions did not lead to less specific answers on negative cues on the AMT. Next to this, a higher score on the Depression subscale of the BSI did not predict

less specificity on negative cues on the AMT. As for Avoidance, a statistically significant

effect was found in relation to positive cue words: a higher score on avoidance positively

predicted the number of specific memories to positive cues. No effect was found for negative

cue words (Table 5).

Table 5

Multiple regression, with age taken into account in each model

Model	Positive cues			Negative cues		
	B	p	Std. β	B	*p*	Std. β
Depression subscale	.42	.13	.21	-.10	.22	.22
Avoidance	.27	.03*	.33	-.04	.85	-.03
Intrusions	.09	.19	.18	.00	.99	.17

*p <.05

Discussion

Findings

      The current study investigated whether OGM shows in a sample of refugees suffering from PTSD, and to assess to which extend symptom severity can also predict a compromised autobiographical memory. Even though substantial OGM was found in the sample, the current study failed to find a correlation between PTSD symptom severity and OGM. This was expected as a substantial difference in AM memory was found between clinical groups suffering from PTSD and healthy control groups in a meta-analysis on the subject (Barry, Lenaert, Hermans, Raes, & Griffith, 2018). Even though trauma exposure has been found to be associated with OGM, this might only be in comparison to a control group. Moradi et al. (2008), for instance, also found that memory specificity in Bosnian refugees was not associated with overall PTSD symptom severity. It seemed that within that study, as well as in the sample of highly traumatized people in the current study, no distinction could be made in terms of memory specificity. After reaching a certain measure of severity of PTSD symptoms, there seems to be a threshold where OGM is substantial without any significant differences within a group. In other words: individual differences in PTSD and depressive symptoms in clinical patients seem to be poorly associated with differences in memory specificity. The compromised specificity could only be evident when clinical patients are compared with control patients, or when there is a greater range of symptom severity. Comparing the present sample to other studies, the participant present higher scores on the PCL-5 and BSI than most other clinical populations, with little variance in overall symptom severity (Wortmann, Jordan, Weathers, Resick, Dondanville, HallClark, & Mintz, 2016; Francis, Rajan, & Turner, 1990). The proportional AM specificity that the current sample displayed was also

considerably lower than in other studies, meaning the participants' OGM was substantial (Hermans, Van den Broeck, Belis, Raes, Pieters, & Eelen, 2004).

Next to this, the role of cue words valence was investigated in the relationship between symptom clusters of PTSD and OGM. Also contrary to the hypotheses, there was little-to-no clear evidence that individual differences in symptoms, contributed to variability in memory retrieval to cue words. The expectation that high scores on Intrusions and Avoidance would predict OGM to negative words, was hypothesized as suppression and Avoidance are often used as a coping mechanism against the negative affect of unpleasant memories. This would only lead to more Intrusions, reinforcing an overgeneral retrieval style (Williams et al., 2007). The fact that OGM was not exhibited any more in response to negative cues, could however be due to the fact that positive words might just as easily trigger negative memories that also need to be inhibited. Furthermore, the accounts of capture and rumination, and the accounts of Executive Control could also explain the overgenerality in AM regardless of cue words (Williams et al., 2007).

Surprisingly, a higher score on Avoidance did seem to lead to more specific answers to positive cue words. These results suggest that the PTSD participants that tend to avoid excessively may process stimuli differently and are more likely to recall, or share recalls, of specific autobiographical memories to positive words. This is in line with earlier findings in a study where survivors listened back to the description of their trauma. They were significantly better in recalling specific information when listening to nontraumatic life events (Kleim, & Ehlers, 2008). Findings in the current study could reflect such tendency to only be specific in AM retrieval when it is not expected to result in too much negative affect.

Also no effect of cue word valence on memory specificity was found for Depressive Mood. These results are not in in line with earlier findings on the relation between memory impairment and Depression. A meta-analysis (Burt et al., 1995) as well as the study of

(Quigley et al., 2021) had established this connection: depressed subjects scored significantly impaired on recall of positive material, as the positive cues would be too incongruent with one's current mood. However, even though in the current study there was no difference in the amount of overgeneral memories per cue word valence, it could be that even though a positive cue word was given, a memory was retrieved of the opposing valence. When a person is in a somber mood, negative memories are more easily accessed and retrieved, independent of the valence of the stimuli (Sheldon, & Donahue, 2017). This is also In line with the CaRFAX model. The accounts of capture and rumination could explain the phenomenon of overgenerality in both positive and negative cues. Depressed people are as likely to have their attention captured by positive as by negative stimuli as long as the cue maps onto self-relevant information, which activates ruminative processes (Crane et al., 2007). Next to this, the executive account can explain why OGM showed equally in both positive and negative cue words as well. For example, Dalgeish et al. (2007) Found executive functioning abilities to be an explanation for differences in AM between participants high and low in depression scores. Impoverished executive control has been identified as a risk factor for the onset of traumatic stress disorders, and could lead to an overgeneral retrieval style.

Limitations

The fact that more severe PTSD related complaints did not lead to more severe OGM, could be due to a methodological artefact. The high homogeneity of symptom severity makes it difficult to detect significant effects, because of a lack of differentiation. This could especially be true in a limited sample size, as seen in the current study. As mentioned above, comparing the present sample to other studies, the participant did present higher scores on the PCL-5 and BSI than most other clinical populations. This could mean that individual differences in PTSD and depressive symptoms in clinical patients are poorly associated with differences in memory specificity. It is, however, hard to make comparisons with other

studies as procedures of administering the AMT, as well as the operationalization of the different categories, often differ tremendously between studies.

Few confounders were taken into account, like data on illness duration or onset of PTSD. There were also no data on educational level or cognitive/executive functioning while these variables have proven to be important factors in the OGM-PTSD relationship (Boelen, Huntjens, van Deursen, Van Den Hout, 2010; Farina, Barry, van Damme, van Hie, & Raes, 2019). Not controlling for individual differences may have affected the findings.

Future implications

Conclusively, deficits in autobiographical memory retrieval was evidenced amongst the participants. However, it could be hard to differentiate in AM complaints in a group that is as severely traumatized as this group of refugees, as there seems to be a threshold from where AM seems impaired regardless of symptom severity. It may be that individual differences in posttraumatic stress and depressive symptoms are poorly associated with differences in specificity, and that compromised specificity is only evident when people with diagnoses of PTSD are compared with control participants. An important goal for future research is mapping the psychological mechanisms and factors that moderate the relationship between trauma and overgeneral memory, as it was found in an extensive meta-analysis on OGM that there is no clear evidence yet for any steady moderator that explains group differences in OGM (Barry et al., 2020). Future research could also engage in more diverse diagnostic groups so that the transdiagnosticity of OGM can be further examined, by utilizing more diverse sampling of underrepresented groups and cultures. The lack of systematic reviews of research investigating the link between OGM and PTSD among refugees is worrying as their cumulative trauma causes more impairment to their mental health (Khan et al., 2021). This information could be extremely helpful in effectively administering interventions for refugees

suffering from PTSD. Besides this, AM retrieval is also crucial for establishing refugees'

asylum-seeking credibility, as well as their sense of connectedness with others through

reminiscing; a human need that is also taken away when detailed memories are lost.

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