

AUTOBIOGRAPHICAL MEMORY RESPONSE TO A NEGATIVE MOOD IN THOSE WITH/WITHOUT A HISTORY OF DEPRESSION

Andrew Edward Paul MITCHELL

University of Chester
Riverside Campus, Castle Drive, CH1 2SL, Chester, United Kingdom
E-mail: a.mitchell@chester.ac.uk

Abstract: In this study, we investigated the accessibility of overgeneral autobiographical memories (OGM) and specific memories by observing the effects of induced negative mood state on the characteristics of memory recall in those with and without a previous history of a depression. The Sentence Completion for Events from the Past Test (SCEPT) was used to assess OGM. The effects of previous history of depression (without history or with previous history of depression) and self-reported mood (pre or post negative mood induction) on autobiographical recall was shown in a mixed factor design. A significant interaction was observed between time and group in their effects on general memories ($F(1, 32) = 5.06, p = .032$) and specific memory ($F(1, 32) = 4.88, p = .034$), such that the previous history of depression group experienced a larger increase in general memory and a larger reduction in specific memory from pre to post manipulation.

Key words: Overgeneral Autobiographical Memory (OGM), negative mood induction, Sentence Completion Test, previous history of depression

Introduction

In this study we investigated the effects of induced negative mood state in those with and without a previous history of depression, studying the characteristics of autobiographical memory. The term autobiographical memory refers to an individual's record of experiences from his/her personal life in the form of an internal life story, which is a construction of past experiences (Williams et al., 2007). Overgeneral autobiographical memory (OGM) focuses on cognitive processes involved in memory retrieval and re-

duced memory specificity (Raes et al., 2007). OGM represents a cognitive process which focuses on how information is encoded, altered, combined and stored in memory rather than focusing on shifts in attention (van Vreeswijk & de Wilde, 2004). Research into OGM suggests that the lack of specificity in autobiographical memory remains once the severity of depressive symptoms declines, which indicates that OGM is not a mood state dependent phenomenon but a trait-like marker (Williams, 1996). It is interesting to note that other cognitive functioning such as biases in recalling negative events and self-evaluation seem to be mood state dependent and return to normal with remission from depression (Persons & Miranda, 1992; Segal & Ingram, 1994). OGM phenomenon has been investigated predominantly in

Acknowledgements

Dr. Peter Hayes for help with data coding and helpful comments on design.

those already showing signs of depression compared to primed studies, which predominantly utilize non-depressed individuals. Also, less focus has been on OGM in individuals with a previous episode of depression compared to individuals showing current depressive symptoms.

One theoretically important mood state phenomenon that contributes to understanding mood effects on memory recall is mood congruent memory. Mood congruence is where a certain mood will tend to enhance processing of memories or stimuli that correspond to the concurrent mood state (Teasdale & Fogarty, 1979). Mood congruent recall suggests that a person experiencing a transitory negative mood state can enter into a vicious cycle, where their negative mood state can prime negative memories, which in turn triggers a negative affective state (Wenzlaff, Wegner, & Roper, 1988). The specific connection between overgeneral memory and depression seems to be due to a dysfunctional recall strategy (Dalgleish et al., 2007), present in those with depression (Williams et al., 2007) and in people with past history of depression (Haddad, Hamer, & Williams, 2014), where memory fails to progress past general recall due to the effect of negative mood cueing negative emotional events. Rumination and memory load are also thought to contribute to overgeneral memory in depression (Dalgleish et al., 2007; Williams, 2006) by taking up scarce processing resources (Conway & Pleydell-Pearce, 2000) and therefore stopping memory search at a lower level and preventing access to event-specific memories. Williams (2006) called this 'mnemonic interlock' due to the high emotional demand, whereby the individual retrieval process remains at the general level and locks the individual into successive un-

successful attempts at gaining access to specific memories. Autobiographical retrieval of past experiences requires elaborative processing and requires event-specific information, but this is blocked due to the high emotional demand placed upon memory and cognitive systems (Dalgleish et al., 2007). A retrieval process that is interrupted at the general retrieval stage, could limit access to specific contradictory information, which could be less helpful in counteracting the effects of negative mood. This is not to say that general events cannot mitigate the congruent mood state but specific events seem more potent in bringing about change in cognitive therapy and are indeed a hallmark of the cognitive therapy approach (Blagys & Hilsenroth, 2002).

A number of recent studies have started to indicate that OGM can be induced in healthy volunteers (Yeung et al., 2006) and reduced in depressed individuals (Neshat-Doost et al., 2013). Yeung et al. (2006) investigated whether reduced autobiographical memory specificity (AMS) could be induced in healthy volunteers with no history of depression, using a negative mood manipulation. Results showed a reduction in AMS following negative mood induction, compared to a neutral induction, whereas positive mood induction had no effect on AMS. The effect of experimentally induced retrieval style seems to impact on judgments of negative experience (Raes et al., 2006). The authors investigated students who habitually retrieve less specific memories and found that participants who were induced to retrieve memories in an overgeneral way experienced more distress following a negative event than participants who were induced to retrieve memories in a specific way.

The phenomenon of OGM has been shown to be persistent in those recovered from depression (Raes et al., 2008). Formerly depressed and currently depressed individuals have been found to have higher levels of OGM compared to never depressed individuals (Mackinger, Pachinger, Leibetseder, & Fartacek, 2000). There has been difficulty in finding OGM within non-clinical groups (Raes et al., 2008). Raes et al. (2008) investigated a sample of students before and after a negative mood induction procedure utilizing the Sentence Completion for Events from the Past task (SCEPT; Raes et al., 2008) and demonstrated that OGM can be found in non-clinical groups. The SCEPT is considered to be a more sensitive measure of overgeneral memory in non-clinical samples (Raes et al., 2007). Furthermore, a recent study has demonstrated that OGM can also be mitigated in depressed individuals by training techniques to target specific event recall (Neshat-Doost et al., 2013).

The current research is interested in contributing to evidence of whether overgeneral autobiographical memory represents a trait or state dependent phenomena by observing the effects of induced negative mood state on the characteristics of memory recall, in those with and without a previous history of depression. The SCEPT was utilized to assess the specificity of autobiographical memory recall (Raes et al., 2007). The SCEPT presents participants with a series of non-valenced sentence stems probing memories for past events, which participants complete in relation to the sentence stems to cue different memories. In the present paper, participants self-reporting a history of depression were expected to show overgenerality of autobiographical memory recall in the presence of the induced negative mood state.

Participants completed the same 11 sentence stems pre and post mood induction. It was hypothesized that there would be a difference in those with and without a history of depression, with those with a history showing an increase in general memories and a reduction in specific memories. Memory specificity is on a continuum from semantic associates to specific memories: semantic associate (referring to overgeneral semantic information), categoric memory (referring to a category of similar, repeated events), extended memory (referring to an extended period of time) and are all examples of overgeneral memories. Specific memories refer to a single personal event not longer than a day. If a negative mood manipulation in those with a previous history of depression alters memory specificity, then a focus on coping strategies that directly target mood state effects on autobiographical recall would likely reap benefits for this group of individuals.

Method

Participants

A total of 34 University students (94% female) on health and social care programmes participated in the present study. Their average age was 33.4 years ($SD = 10.75$, range 20-56). Twenty four students reported no previous history for depression and 10 students self-reported a previous history for depression. Thirty four participants were tested in four small groups of 9, 8, 8 and 9 individuals. A post hoc power analysis was conducted using the software package GPower (Faul et al., 2007). The sample size of 34 was used for the statistical power analyses. The recommended effect sizes used for this study were

as follows: small ($f = .1$), medium ($f = .25$), and large ($f = .4$) (Cohen, 1977). The alpha level used for this analysis was $p < .05$. The post hoc analyses revealed the statistical power for this study as .20 for detecting a small effect, .81 for detecting a moderate effect, .99 for detecting a large effect size. Thus, there was more than adequate power (i.e., power .80) at the moderate to large effect size level, but less than adequate statistical power at the small effect size level.

Materials

Beck Depression Inventory

The Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item, self-reported questionnaire, which assesses depressive symptoms present within the past two weeks. Each item is assessed on a scale of 0 to 3 with total scores ranging from 0 to 63. Participants scoring 13 or above on the BDI-II were excluded from the study for their protection, while those who scored 1-12 were asked to participate in the procedure. Eight participants were excluded for this reason. This categorization is recommended by Dozois, Dobson, and Ahnberg (1998) for non-clinical undergraduate students. Storch, Roberti and Roth (2004) reported strong psychometric properties in student population.

Previous history of depression

The previous history of depression questionnaire was used as a proxy to identify those with and without a previous history of depression. Those who had received treatment such as medication, cognitive behavioural therapy or counselling for depression

were considered to have a history of depression. The self-report approach has been used to identify history of depression (McChargue & Cook, 2007) and seemed a reasonable proxy given the present aims originated from the intention to perform future work on the effects of mood on those with a history of depression. This proxy has the limitation that it would not identify those individuals who sought no treatment for symptoms, but has the advantage in that it limits the time involved to have a clinician led diagnostic assessment.

Mood State Assessment

The University of Wales Institute of Science and Technology Mood Adjective Checklist – UMACL (Matthews, Jones, & Chamberlain, 1990) was selected due to its ability to assess general non-clinical mood states and its sensitivity to external stressors (Matthews et al., 1990). The UMACL measure consists of a 29-adjective checklist. There are three main mood states measured by 29-mood adjectives on a 4-point Likert scale. The three factorial states are hedonic tone (HT; happy versus sad), tense arousal (TA; anxious/nervous versus relaxed/calm), and energetic arousal (EA; lively/active versus tired/sluggish). Participants were asked to indicate how they feel at the present moment (and not just how they usually felt). Participants selected choices on a 1 ('definitely') to 4 ('definitely not') scale corresponding to their present mood (Matthews et al., 1990). The UMACL also has good internal reliability and validity for non-clinical mood variations (Matthews et al., 1990). Cronbach's alphas for each subscale were 0.43, 0.49 and 0.56, respectively for the present study.

Sentence Completion for Events from the Past Test (SCEPT)

The SCEPT (Raes et al., 2007) was utilized to assess OGM in a non-clinical population. This sentence completion procedure comprises eleven sentence stems probing for past experiences. Participants were instructed to provide continuations of the eleven incomplete sentences. Afterwards, sentence completions are coded by the researcher. Responses made on the SCEPT task were coded according to whether completed sentences made reference to a specific, categoric, semantic, associate or general event based upon the coding scheme, which was agreed upon with a colleague and followed the same procedure detailed by Raes et al., 2008 (see section Design and Procedure). The present study conducted no formal Kappa agreement levels as good inter-rater reliability was shown by Raes et al. (2007) as 87%, $K = 0.82$.

Mood Induction

The Velten (VMIP; Velten, 1968) technique allows standardisation, and can be argued to be the most rigorous technique in inducing a negative mood state (Larsen & Sinnett, 1991). In Larsen and Sinnett's (1991) meta-analysis, participants in Velten induction procedure scored 0.76 standard deviations higher than control subjects for negative mood. The meta-analytical effect of $r = .52$ for negative mood induction was established by Westermann Spies, Stahl and Hesse (1996) using the Velten procedure. It also has advantages over musical and other visual images, in that Velten technique provides explicit prompts, and hence does not rely on

the implicit cues in musical or visual imagery mood procedures, this helps facilitates a homogenous procedure. In this study, the Velten list of 60 graduated depressogenic self-referent statements was used to induce the desired negative mood state during a group induction.

Design and Procedure

The study was approved by the institution's ethical committee. A participant information sheet and consent form was provided and a confidentiality pledge was given prior to participation in the study. Participation was voluntary and agreement could be withdrawn at any time without prejudice. Those participants who were depressed were actively screened out and appropriate sign posting for support for depression was provided. The Velten (VMIP; Velten, 1968) positive mood induction technique was undertaken after the procedure, along with a full debriefing.

Following informed consent, participants were asked to complete the UMACL psychometric measure. The mood measure provided the baseline mood scores for the study. Following the UMACL, participants completed the SCEPT. The sentence completion procedure was administered without the explicit instruction to focus on specific memories. Participants were asked to provide a continuation to each sentence, and were instructed to complete each sentence with reference to a different memory or event. The sentence stems were coded following Raes et al. (2008, pp. 750-751): semantic associates scored (1), categoric memories scored (2), extended memories scored (3) and specific memories scored (4). The mean score was taken over the 11 sentence stems.

Between pre mood induction and post mood induction, the VMIP was used to induce a negative mood state. Participants read each VMIP sentence one by one with the following instruction: “remain silent, and try to experience each statement as though it is happening to you”. Post mood induction, the same participant group was re-administered the UMACL and the SCEPT. Counterbalancing between the order of administration between UMACL and SCEPT was implemented. The entire procedure lasted about an hour.

Data Coding

Sentence stems were coded as specific memories if they referred to an event that occurred at a particular time and a place with a duration of less than a day (e.g., my chat

with my personal tutor this morning); general memories were coded as general if they referred to events which took place over a period greater than one day (e.g., “my summer holiday this year”); categoric memories, referring to a category of events or repeating events (e.g., “dissertation writing”); semantic associate/personal, referring to generic information about the self (e.g., “I’m a good freestyle climber”); or omission for missed or incomplete sentences (see Table 1 for descriptors and examples).

Data analysis

The Statistical Package for the Social Sciences (IBM Corp v21, 2012) was used for the analysis. At the start of the experiment, there were no significant group differences in either mood or memory specificity be-

Table 1 *Coding, descriptors and examples on the Sentence Completion for Events from the Past Test (SCEPT)*

Coding	Descriptor	Example
<i>Specific memories</i>	An event that occurred at a particular time and a place with a duration of less than a day	My 18th Birthday party
<i>General memories</i>	Refer to events which took place over a period greater than one day	My holiday in Ibiza
<i>Categoric memories</i>	Refer to a category of events or repeating events	My daily walk to the University
<i>Semantic / personal</i>	Refer to generic information about the self	I'm bad at writing essays

Note. SCEPT = Sentence Completion for Events from the Past Test (SCEPT)

tween those with a history and those without a history of depression. Statistics are reported in Table 2 and 3, respectively. From pre to post induction, mood ratings changed in accordance with the induced negative mood. The mean and standard deviations scores for all scores were produced and a manipulation check for mood was conducted, as this was a pre-condition for testing the mood effects on autobiographical memories. Standard deviations were moderate to large, indicating variability in the measurement of the memory characteristics. Check for outliers and incorrect data input was undertaken. No outliers were found. The data was normally distributed. The paired sample t-test was used to test the difference between pre and post mood induction scores for each sub-scale on the UMACL. Significance level of $p < .05$ was adopted. Bonferroni correction was applied due to the problem of multiple comparisons. *Cohen's d* have been reported with all statistically significant values and effect sizes organised into values for Cohen's d effect

sizes. Accordingly, $d < 0.2$ represents a negligible effect, $d > 0.2$ to < 0.5 a small effect and $d > 0.8$ a large effect.

To determine whether the changes in the recalled autobiographical memories were influenced by history of depression, a 2 (time; pre mood rating, post mood rating; within Ss factor) by 2 (group; with a previous history of depression, without a previous history of depression; between Ss factor) mixed ANOVA was conducted to observe any interaction effects.

Results

Manipulation check

The UMACL was used for subjective evaluation in this study, both as a general indicator of mood state and, more specifically, to evaluate changes in energetic arousal, tense arousal and hedonic tone. Lowered energetic arousal equals less active and alert. Increased tense arousal is consistent with being more anxious and nervous.

Table 2 *Independent t-test for equality of means pre and post mood induction*

	Pre Mood Induction		<i>t</i> -test	Post Mood Induction		<i>t</i> -test
	Without (n = 24)	With (n = 10)		Without (n = 24)	With (n = 10)	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
EA	22.8 (4.1)	22.2 (4.3)	0.99 n.s.	20.1 (5.0)	19.7 (6.8)	0.18 n.s.
TA	14.5 (3.8)	15.9 (4.6)	-9.18 n.s.	15.5 (4.0)	16.3 (5.7)	-0.44 n.s.
HT	26.9 (3.7)	26.8 (3.7)	0.05 n.s.	23.5 (4.7)	24.4 (4.6)	-0.50 n.s.

Note. M = Mean, SD = Standard Deviation, EA = Energetic Arousal, TA = Tense Arousal, HT = Hedonic Tone, Without = without a history of depression, With = with a history of depression

Table 3 Independent *t*-test for equality of means pre and post mood induction

	Pre Mood Induction			Post Mood Induction		
	Without (n = 24)	With (n = 10)	<i>t</i> -test (Sig.)	Without (n = 24)	With (n = 10)	<i>t</i> -test (Sig.)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Specific memories	5.5 (1.9)	4.6 (1.7)	1.23 (n.s.)	5.0 (2.3)	3.0 (0.6)	3.68 (p = .001)
General memories	5.3 (2.0)	6.3 (1.6)	-1.33 (n.s.)	5.8 (2.4)	7.8 (0.9)	-3.49 (p = .001)
Categoric memories	3.0 (1.5)	2.5 (1.1)	0.98 (n.s.)	3.0 (1.8)	1.9 (0.7)	2.62 (p = .013)
Semantic/Personal	2.4 (1.5)	2.1 (1.2)	0.57 (n.s.)	2.0 (1.6)	1.1 (0.7)	2.09 (p = .045)

Note. *M* = Mean, *SD* = Standard Deviation, Without = without a history of depression, With = with a history of depression

Lowered hedonic tone equals loss of interest and diminished pleasure response. It would be expected that negative mood induction would result in a reduction in energetic arousal and hedonic tone, and conversely an increase in tense arousal.

There was a significant difference between pre manipulation and post manipulation mood ratings on the UMACL. The results indicate that energetic arousal and hedonic tone showed significant increase in negative mood (i.e., reduction in mean scores) ($t(33) = 2.46, p = .019$, Cohen's $d = 0.9$) and ($t(33) = 3.51, p = .001$, Cohen's $d = 1.2$), respectively. Tense arousal showed a non-significant increase in negative mood (i.e., increase in mean scores) ($t(33) = -0.99, p = .328$, n.s.).

Mixed Repeated ANOVA

It was hypothesized that there would be a difference in those with and without a history of depression for the memory specificity characteristics 1-4. To test this hypoth-

esis, a mixed effects ANOVA was completed, predicting a larger increase in semantic associates, categoric memories, extended memories and a larger reduction in specific memories from pre to post in those with a previous history of depression but not in those without a previous history. A significant interaction was observed between time and group in their effects on specific memory ($F(1, 32) = 4.88, p = .034, d = 0.8$), such that the previous history of depression group experienced a larger reduction in specific memory from pre to post manipulation compared to the without history of depression group. Planned comparisons post-hoc analysis was conducted in order to determine the nature of the interaction. Post hoc analysis indicated that the previous history of depression group experienced a significant decrease ($t(9) = 3.21, p = .011, d = 2.3$) in specific memories, while the without history group also experienced a non-significant change from pre to post manipulation ($t(23) = 1.75, p = .094, d = 0.7$). A significant main effect was observed for time on specific memory recall ($F(1, 32) =$

15.86, $p < .001$, $d = 1.4$). The main effect for previous history of depression on specific memory recall was significant ($F(1, 32) = 4.43$, $p = .043$, $d = 0.8$).

Most important, the ANOVA yielded the predicted significant interaction between time and group in their effects on general memories ($F(1, 32) = 5.06$, $p = .032$, $d = 0.8$), such that the previous history of depression group experienced a larger increase in general memory from pre to post manipulation compared to the without history of depression group. Planned comparisons post-hoc analysis was conducted in order to determine the nature of the interaction. Post-hoc analysis indicated that the previous history of depression group experienced a significant increase ($t(9) = -4.03$, $p = .003$, $d = 2.9$), while the without history group also experienced a non-significant change from pre to post manipulation ($t(23) = -1.80$, $p = .086$, $d = 0.8$). The post-hoc analysis suggests those with a history of depression scored significantly higher than those without a history of depression on SCEPT measure of overgeneral memories. A significant main effect was observed for time on general memory recall ($F(1, 32) = 17.88$, $p < .001$, $d = 1.5$). The main effect for previous history of depression on general memory recall was significant ($F(1, 32) = 4.19$, $p = .049$, $d = 0.7$).

No main interaction effect was observed between time and group in their effects on semantic/personal memories. A significant main effect was observed for time on semantic/personal memories recalled ($F(1, 32) = 8.59$, $p = .006$, $d = 1.0$), but the main effect for previous history of depression on semantic/personal memories recalled was non-significant ($F(1, 32) = 1.44$, $p = .24$, $d = 0.4$). There was no main or interaction effect observed for categoric memories.

Discussion

The study described here was designed to explore the effects of mood manipulation on memory specificity in those with and without a history of depression. It was hypothesized that there would be a difference in those with and without a history of depression for the memory specificity characteristics 1-4, predicting a larger increase in semantic associates, categoric memories, extended memories and a larger reduction in specific memories from pre to post in those with a previous history of depression but not in those without a previous history. The key finding in the present study suggests that those with and those without a history of depression have different specificity of memories following a mood induction procedure. The evidence from the present study suggests that those with a history of depression do show overgeneral recall under transient negative mood state, while those without a previous history show no change in specificity of recall. The present findings suggest that mood is an important factor in memory specificity and that changes in specificity occurred under mood stress differentially in those with and without a previous history of depression. There was an increase in general memories in those with a previous history when in negative mood state. There was also a decrease in specific memories in those with a previous history when in negative mood state. The Gibbs and Rude (2004) study indicates evidence for an increase in overgeneral memories in those with a previous history of depression when in negative mood, and provides supports for a differential activation hypothesis (Teasdale, 1983). The differential activation hypothesis sug-

gests that those with a previous history have particular cognitive styles that are triggered by negative mood state and bias their cognitive processes in encoding, storage and retrieval of memory that would have important implications for over general recall.

The impact of negative mood state on autobiographical recall is important when looking at mood and memory retrieval of congruent or incongruent information. Congruent recall in some participants would eventuate the fall into a vicious cycle of negative recall, and incongruent recall in others would enable them to counteract the fall into a sustained negative mood state. Whether individuals recall mood-congruent or mood-incongruent information seems to depend on the ability to access event memories from a hierarchical search as proposed by Conway and Pleydell-Pearce (2000). It is possible that a history of depressive illness might be acting as a stronger marker for mood congruent recall in negative mood state and those without a history of depression for mood incongruent recall. In positive mood states, congruent positive memories are facilitated by mood congruent effects. Recall of positive memories is relatively unaffected by the effects of rumination and high memory load, due to the absence of negative emotions. Therefore, this allows the memory search to access event-specific memories. This could render the ability to counteract the negative mood state by retrieving memories that are incongruent with the induced negative mood state. Furthermore, it is likely that due to congruent mood effects that individuals will retrieve memories associated with the current mood. Therefore in negative mood state, individuals would be likely to retrieve similarly affectively toned memories. This may be more pronounced in those with depression or a

history due to the establishment of memories and negative mood during previous depressive episodes, which may also be absent in those with no previous history of depression.

Making sense of the results would suggest that it is transient mood state and previous history of depression that is likely to be important in moderating overgeneral memories. The finding was that those without a history of depression in negative mood state showed no OGM but retained memory specificity. This would account for the presence of OGM after remission for depression in which symptomatology has gone but vulnerability for depression ensues. It would also answer the question why OGM can be induced in both clinical and non-clinical populations (Raes et al., 2007). OGM acts differentially in the vulnerable, i.e. those with a previous history of depression.

Limitations

The sample size $n = 34$ was small given the subcategory of $n = 10$ for history of depression. The potential reasons for the low number of participants recruited with a history of depression in this study was that the participant information sheet made it clear that the study was looking at mood and depression screening would be undertaken. It is entirely possible that the low numbers recruited with a previous history of depression in this study was due to the fact that participants feared that depression or disclosure of a history of depression might impact on their professional training programme. The higher percentage of females recruited reflects the higher percentage of females involved in the caring professions. The Cronbach's alphas

of UMACL subscales were low and appropriate caution is warranted but the psychometric test has been validated for reliability (Matthews et al., 1990). The lack of a control group or a neutral induction is also a potential confound along with the lack of an objective criteria for the diagnosis of a previous history of depression. The present research was skewed for gender, with female students dominating. This is an important issue given this research finding, which indicates gender difference in autobiographical retrieval (Piefke et al., 2005; Pillemer et al., 2003). These studies suggest that the present finding cannot readily be applied to skewed male populations or other populations with more diverse gender mix and socio-economic factors. Future research should seek to address these limitations and recruit people with an objective diagnostic measure and examining female and male genders both separately and combined from a diverse socio-economic population.

Practical applications

Future research would need to replicate the findings in this study before applying any practical implications. The implications from this study suggest that autobiographical memory specificity can be manipulated by negative mood state in participants with a reported history of depression but not in those without reported history. The evidence suggests that reduced autobiographical memory specificity can be a function of current mood state. The findings, with appropriate cautions, suggest that effective intervention for those with a history of depression might be achieved through targeted approaches that reduce individual tendencies for overgeneral memories in negative

mood states. Clinicians could teach patients strategies to target specific memories when in negative mood state, as seen in the use of cognitive diary work, utilised in cognitive therapy.

Conclusion

Taken together, the results support the possibility that autobiographical memory, specifically OGM style, might be influenced by temporary mood state. The findings may suggest that the phenomenon of OGM might not be as trait like as hitherto been accepted. The OGM response is not unitary, but seems to be multidimensional in nature. The effects of mood state on memory seem to lie in the very structure and organisation of our memory. In this structure, mood state seems to play an important role in the occurrence of OGM. The study of mood effects combined with an understanding of memory structure make this line of research valuable. The focus on prevention and coping strategies that directly target mood state effects on memory specificity would likely reap benefits to those with a previous history of depression.

Received December 3, 2014

References

- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *The Beck Depression Inventory*, (2 ed.). San Antonio, Tx: Psychological Corporation.
- Blagys, M., & Hilsenroth, M. J. (2002). Distinctive activities of cognitive-behavioral therapy: A review of the comparative psychotherapy process literature. *Clinical Psychology Review*, 22, 671-706. [http://dx.doi.org/10.1016/S0272-7358\(01\)00117-9](http://dx.doi.org/10.1016/S0272-7358(01)00117-9)
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

- Conway, M., & Pleydell-Pearce, C. W. (2000). The construction of autobiographical memories in the self-memory system. *Psychological Review*, *107*, 261-288. <http://dx.doi.org/10.1037//0033-295X.107.2.261>
- Dalgleish, T., Williams, J. M. G., Golden, A. M., Perkins, N., Barrett, L. F., Barnard, P. J., Au Yeung, C., Murphy, V., Elward, R., Tchanturia, K., & Watkins, E. (2007). Reduced specificity of autobiographical memory and depression: The role of executive control. *Journal of Experimental Psychology*, *136*, 23-42. <http://dx.doi.org/10.1037/0096-3445.136.1.23>
- Dozois, D. J. A., Dobson, K.S., & Ahnberg, J. L. (1998). A psychometric evaluation of the Beck Depression Inventory-II. *Psychological Assessment*, *10*, 83-89. <http://dx.doi.org/10.1037/1040-3590.10.2.83>
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191. <http://dx.doi.org/10.3758/BF03193146>
- Gibbs, B. R., & Rude, S. S. (2004). Overgeneral autobiographical memory as depression vulnerability. *Cognitive Therapy & Research*, *28*(4), 511-526. <http://dx.doi.org/10.1023/B:COTR.0000045561.72997.7c>
- Haddad, A. D. M., Harmer, C. J., Williams J. M. G. (2014). Executive dysfunction and autobiographical memory retrieval in recovered depressed women. *Journal of Behavior Therapy and Experimental Psychiatry* *45*(2), 260-266. <http://dx.doi.org/10.1016/j.jbtep.2013.12.001>
- IBM Corp. (2012). IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.
- Larsen, R. J., & Sinnett, L. M. (1991). Meta-analysis of experimental manipulations: Some factors affecting the Velten mood-induction procedure. *Personality and Social Psychology Bulletin*, *17*, 323-334. <http://dx.doi.org/10.1177/0146167291173013>
- Mackinger, H. F., Pachinger, M., Leibetseder, M. M., & Fartacek, R. (2000). Autobiographical memories in women remitted from major depression. *Journal of Abnormal Psychology*, *109*, 331-334. <http://dx.doi.org/10.1037//0021-843X.109.2.331>
- Matthews, G., Jones, D., & Chamberlain, A. (1990). Refining the measurement of mood: The UWIST-MACL Mood Adjective Checklist. *British Journal of Psychology*, *81*, 17-24. <http://dx.doi.org/10.1111/j.2044-8295.1990.tb02343.x>
- McChargue, D. E., Cook, J. W. (2007). Depression vulnerability within smoking research: How accurate are one-item screening items? *Addictive Behaviours*, *32*(2), 404-409. <http://dx.doi.org/10.1016/j.addbeh.2006.05.006>
- Neshat-Doost, H. T., Dalgleish, T., Yule, W., Kalantari, M., Ahmadi, S. J., Dyregov, A., & Jobson, L. (2013). Enhancing autobiographical memory specificity through cognitive training: An intervention for depression translated from basic science. *Clinical Psychological Science*, *1*, 84-92. <http://dx.doi.org/10.1177/2167702612454613>
- Persons, J. B., & Miranda, J. (1992). Cognitive theories of vulnerability to depression: Reconciling negative evidence. *Cognitive Therapy & Research*, *16*, 185-502. <http://dx.doi.org/10.1007/BF01183170>
- Piefke, M., Weiss, P. H., Markowitsch, H. J., & Fink, G. R. (2005). Gender differences in the functional neuroanatomy of emotional episodic autobiographical memory. *Human Brain Mapping*, *24*(4), 313-324. <http://dx.doi.org/10.1002/hbm.20092>
- Pillemer, D. B., Wink, P., DiDonato, T. E., & Sanborn, R. L. (2003). Gender differences in autobiographical memory styles of older adults. *Memory*, *11*(6), 525-532. <http://dx.doi.org/10.1080/09658210244000117>
- Raes, F., Hermans, D., Williams, J. M. G., & Eelen, P. (2006). Reduced autobiographical memory specificity & affect regulation. *Cognition & Emotion*, *20*, 402-429. <http://dx.doi.org/10.1080/02699930500341003>
- Raes, F., Hermans, D., Williams, J. M. G., & Eelen, P. (2007). A sentence completion procedure as an alternative to the Autobiographical Memory Test for assessing overgeneral memory in non-clinical populations. *Memory*, *15*, 495-507. <http://dx.doi.org/10.1080/09658210701390982>
- Raes, F., Watkins, E. R., Williams, J. M. G., & Hermans, D. (2008). Non-ruminative processing reduces overgeneral autobiographical memory retrieval in students. *Behaviour Research & Therapy*, *46*, 748-756. <http://dx.doi.org/10.1016/j.brat.2008.03.003>
- Segal, Z. V., & Ingram, R. E. (1994). Mood priming & construct activation in tests of cognitive vulnerability to unipolar depression. *Clinical Psychology Review*, *14*, 663-695. [http://dx.doi.org/10.1016/0272-7358\(94\)90003-5](http://dx.doi.org/10.1016/0272-7358(94)90003-5)

- Storch, E. A., Roberti, J. W., & Roth, D. A. (2004). Factor structure, concurrent validity, & internal consistency of the Beck Depression Inventory – Second Edition in a sample of college students. *Depression & Anxiety, 19*(3), 187-189. <http://dx.doi.org/10.1002/da.20002>
- Teasdale, J. D. (1983). Negative thinking in depression: Cause, effect, or reciprocal relationship? *Advances in Behavior Research & Therapy, 5*, 3-26. [http://dx.doi.org/10.1016/0146-6402\(83\)90013-9](http://dx.doi.org/10.1016/0146-6402(83)90013-9)
- Teasdale, J. D., & Fogarty, S. (1979). Differential effects of induced mood on retrieval of pleasant an unpleasant events from episodic memory. *Journal of Abnormal Psychology, 88*, 248-257. <http://dx.doi.org/10.1037//0021-843X.88.3.248>
- van Vreeswijk, M. F., & de Wilde, E. J. (2004). Autobiographical memory specificity, psychopathology, depressed mood & the use of the Autobiographical Memory Test: A meta-analysis. *Behaviour Research & Therapy, 42*, 731-743. [http://dx.doi.org/10.1016/S0005-7967\(03\)00194-3](http://dx.doi.org/10.1016/S0005-7967(03)00194-3)
- Velten, E. (1968). A laboratory task for induction of mood states. *Behaviour Research & Therapy, 6*, 473-482. [http://dx.doi.org/10.1016/0005-7967\(68\)90028-4](http://dx.doi.org/10.1016/0005-7967(68)90028-4)
- Westermann, R., Spies, K., Stahl, G., & Hesse, F. W. (1996). Relative effectiveness & validity of mood induction procedures: A meta-analysis. *European Journal of Social Psychology, 26*(4), 557-580. [http://dx.doi.org/10.1002/\(SICI\)1099-0992\(199607\)26:4%3C557::AID-EJSP769%3E3.0.CO;2-4](http://dx.doi.org/10.1002/(SICI)1099-0992(199607)26:4%3C557::AID-EJSP769%3E3.0.CO;2-4)
- Wenzlaff, R. M., Wegner, D. M., & Roper, D. W. (1988). Depression and mental control: The resurgence of unwanted negative thoughts. *Journal of Personality and Social Psychology, 55*, 882-892. <http://dx.doi.org/10.1037//0022-3514.55.6.882>
- Williams, J. M. G. (2006). Capture and rumination, functional avoidance, and executive control (CaRFAX): Three processes that underlie overgeneral memory. *Cognition & Emotion, 20*, 548-568. <http://dx.doi.org/10.1080/02699930500450465>
- Williams, J. M. G. (1996). Depression & the specificity of autobiographical memory. In D. C. Rubin (Ed.), *Remembering our past: Studies in autobiographical memory*. Cambridge: Cambridge University Press
- Williams, J. M. G., Barnhofer, T., Crane, C., Hermans, D., Raes, F., Watkins, E & Dalgleish, T. (2007). Autobiographical memory specificity and emotional disorder. *Psychological Bulletin, 133*, 122-148. <http://dx.doi.org/10.1037/0033-2909.133.1.122>
- Yeung, C. A., Dalgleish, T., Golden, A. M., & Schartau, P. (2006). Reduced specificity of autobiographical memories following a negative mood induction. *Behaviour Research & Therapy, 44*(10), 1481-1490. <http://dx.doi.org/10.1016/j.brat.2005.10.011>

REAKCIA AUTOBIOGRAFICKEJ PAMÄTI NA NEGATÍVNU NÁLADU U ĽUDÍ V MINULOSTI TRPIACICH/NETRPIACICH DEPRESIOU

A. E. P. Mitchell

Súhrn: V štúdiu sme skúmali prístupnosť všeobecných autobiografických spomienok (OGM) a špecifických spomienok. Sledovali sme vplyv navodenej negatívnej nálady na pamäťovú reprodukciu u ľudí v minulosti trpiacich a netrpiacich depresiami. OGM sme sledovali pomocou Sentence Completion for Events from the Past Test (SCEPT). Vplyv predchádzajúcej histórie depresie (u ľudí v minulosti trpiacich/netrpiacich depresiou) na autobiografické spomienky sa preukázal v zmiešaných faktoroch. Zistili sme významnú interakciu medzi časom a skupinou v ich vplyve na všeobecné spomienky ($F(1, 32) = 5.06, p = .032$) a špecifické spomienky ($F(1, 32) = 4.88, p = .034$), t.j. skupina ľudí v minulosti trpiacich depresiami zaznamenala väčší nárast všeobecných spomienok a väčšiu redukciu špecifických spomienok z pre a post manipulácie.