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Self-reported parental abuse relates to autobiographical memory style in patients with eating disorders

Tim Dalgleish

Medical Research Council Cognition and Brain Sciences Unit

Kate Tchanturia

Lucy Serpell

Saskia Hems

University of London

Jenny Yiend

Medical Research Council Cognition and Brain Sciences Unit

Padmal de Silva

Janet Treasure

University of London

Abstract

Previous research has shown a relationship between levels of self-reported childhood abuse and overgeneral memory style. This relationship was further clarified in patients with an eating disorder (ED). Patients and healthy controls completed a task in which they had to generate specific autobiographical memories to emotional cue words. The results showed that: firstly, the ED group, relative to the controls, produced more first memories that were 'overgeneral' and fewer first memories that were specific. Secondly, in the ED group, the level of self-reported parental abuse was positively correlated with the tendency to produce overgeneral memories to negative cues. This effect remained significant even after levels of depressed mood were controlled for.

KEYWORDS: eating disorder, anorexia, bulimia, autobiographical memory, child abuse, cognitive bias.

Introduction

When asked to generate detailed personal memories in response to single cue words, people sometimes produce overly general responses. So, the cue "holiday" might prompt the recollection "I enjoyed all of the holidays that I went on as a child", instead of the more specific "I remember the day that we went to Disneyland on a trip to Florida". Williams and Broadbent (1986) serendipitously found that this tendency to produce overgeneral memories was more common in their group of depressed parasuicide patients than in a matched control sample. Since this initial study, overgenerality has been found to be a characteristic of autobiographical memory performance on the cue word task in individuals suffering from depression (e.g. Brewin, Reynolds & Tata, 1999; Brittlebank, Scott, Williams & Ferrier, 1993, Dalgleish, Spinks, Yiend & Kuyken, 2001; Kuyken & Dalgleish, 1995; Wessel, Meeren, Peeters, Arntz & Merckelbach, 2001; Williams & Scott, 1988), Posttraumatic Stress Disorder (PTSD; McNally, Litz, Prassas, Shin & Weathers, 1994; McNally, Lasko, Macklin & Pitman, 1995), Acute Stress Disorder (Harvey, Bryant & Dang, 1998), and Borderline Personality Disorder (Startup et al., 2001). All of these clinical groups are characterized either by significant levels of depression or by a history of trauma or both. Indeed, there is some evidence that in individuals without a history of trauma or depression, the overgenerality effect is absent. For example, Wilhelm, McNally, Baer and Florin (1997) found that in individuals with obsessive compulsive disorder, only those with concurrent depression had difficulty producing specific memories. Similarly, Burke and Mathews (1992) found no evidence of overgeneral memory in patients with Generalized Anxiety Disorder. These findings indicate that overgeneral memory is not merely a marker of psychopathology generally but relates to specific disorders/constellations of symptoms.

Despite this prevalence of overgeneral memory effects across several different clinical conditions, it remains possible that the effect is nothing more than a cognitive epiphenomenon associated with particular symptom profiles. However, four further sets of key findings in the overgeneral memory literature suggest that this is not the case. The first key finding was reported by Brittlebank et al. (1993) who found that the tendency to produce overgeneral memories to positive cue words predicted clinical recovery in individuals with Major Depressive Disorder, over

and above initial levels of depressive symptoms. This longitudinal effect involving positive cues has been replicated in individuals with Seasonal Affective Disorder (Dalglish, et al., 2001) and post-natal depression (Mackinger, Loschin & Leibetseder, 2000) (though see Brewin et al., 1999, for a failure to replicate the effect in MDD patients using a different outcome measure). Similarly, Harvey et al. (1998) found that the proportion of overgeneral memories generated post-trauma to both positive and negative cues in motor vehicle accident survivors predicted later levels of post-traumatic distress. The second key empirical finding was that in Brittlebank et al.'s (1993) recovered-depressed participants, overgeneral memory levels were still elevated, relative to controls, indicating that overgenerality is a trait marker in recovered/remitted clinical groups. This was demonstrated more systematically by Mackinger, Pachinger, Leibetseder and Fartacek (2000) who compared never-depressed and recovered depressed women on the cue word task and found relative overgenerality in the recovered sample, though this time only to negative cue words. Such effects are rare in the cognition and emotion literature where it is more usual for recovered participants to exhibit cognitive markers of this kind only following some form of stress/mood induction (Williams et al., 1997). The third key finding is that overgeneral memory is related to impoverished problem-solving ability with participants high on overgenerality finding it relatively more difficult to generate solutions on problem-solving tasks (e.g. Goddard, Dritschel & Burton, 1996). This fact, along with the related finding that overgenerality in memory is associated with a difficulty in generating specific simulations of the future (Williams, Ellis, Tyers, MacLeod & Rose, 1996), suggests that overgeneral memory is of potential clinical significance when considering impairments in day-to-day cognitive functioning in some clinical groups.

The fourth key empirical finding, and the focus of the present paper, was reported by Kuyken and Brewin (1995) in their study of autobiographical memory in depressed women with and without a history of childhood abuse, as determined by semi-structured clinical interview. Their results revealed that depressed women who had been physically and/or sexually abused generated significantly more overgeneral memories to both positive and negative cue words than those who had not been abused, indicating a clear relationship between early self-reported abuse and difficulty in generating specific memories. This finding represents the first evidence of a distinct

cognitive signature of early abuse. The main caveat is that the abused-depressed group and the non-abused-depressed group differed on their levels of depressive symptomatology and the authors did not originally control for this in their analyses. However, reanalysis of the Kuyken and Brewin (1995) data set reveals that the finding of more overgeneral memories in abused versus non-abused participants remains even when depressed mood is covaried out, $F(2,52) = 3.23$, $p < .05$ (Kuyken, personal communication). A further minor caveat concerning this study is the absence of a never-depressed, non-abused control sample. This would have permitted the authors to know whether their non-abused, depressed group exhibited the standard overgeneral memory effect.

The finding of Kuyken & Brewin (1995) relating self-reported abuse to overgeneral memory has since been replicated in a non-clinical community sample of abuse victims using a self-report questionnaire measure of abuse (Henderson, Hargreaves, Gregory & Williams, 2002). However, another study has failed to replicate the finding using a questionnaire methodology. Wessel et al. (2001) tested a large group of psychiatric outpatients on the autobiographical memory task. The authors found no relationship between self-reports of childhood trauma and overgenerality, despite finding the robust MDD-overgenerality association.

Before we can make any further progress in understanding what is a potentially important aspect of memory style it seems essential to try to clarify empirically the relationship between adverse psychological experiences such as abuse, overgeneral memory, and psychopathology in the light of these discrepant findings. The present study therefore sought to investigate these relationships in a new clinical group – patients with eating disorders. There were two reasons for focusing on this particular clinical presentation. Firstly, autobiographical memory style has not been reported in this population before and so the study represents the first published report of overgeneral memory in eating disorders. Secondly, the presence of eating disorders has been linked to the existence of adverse early experiences, including abuse of various kinds (e.g. Grilo & Masheb, 2001; Schwartz & Cohn, 1996; Steiger & Zankor, 1990; Zlotnick et al., 1996)¹. This is important because a consideration of the methodological differences between the Wessel et al.

(2001) study, that reported no relationship between early trauma and overgenerality, and the studies of Kuyken and Brewin (1995) and Henderson et al. (2002), which did report such a relationship, reveals that a major difference between them was the low-levels of reported abuse in the Wessel et al. sample. It may therefore be that abuse was not sufficiently prevalent in the sample to detect a relationship with overgeneral memory. Consequently, selecting a clinical group for the purposes of the present study for whom the level of reported abuse was likely to be elevated (relative to a general outpatient sample), was an attempt to avoid this potential methodological difficulty.

The hypotheses of the present study were therefore as follows:

- 1) Patients with an eating disorder would find it more difficult to retrieve specific autobiographical memories to emotional cue words relative to controls. This would be reflected in a number of inter-related variables derived from the extant autobiographical memory literature; principally: more overgeneral first memories retrieved; and, fewer specific first memories retrieved, in the patients relative to the controls.

- 2) There would be a positive correlation between increased self-reports of early childhood abuse and difficulty in retrieving specific memories in patients with an eating disorder that would remain significant even when depression levels were controlled for.

Method

Participants

The clinical participants comprised 39 patients suffering with a primary diagnosis (American Psychiatric Association [APA], 1994) of eating disorder. Twenty were diagnosed with anorexia nervosa (restricting subtype, $n = 15$; binge/purge subtype, $n = 5$) and 19 were diagnosed with bulimia nervosa according to the DSM-IV criteria (APA, 1994). The patients with anorexia nervosa had a Body Mass Index (weight in kilograms/height in metres) less than 17.5. Participants were excluded if they: 1) did not speak English as a first language; 2) had a history of psychotic episodes; 3) suffered from any organic brain conditions; or 4) were aged over 65. Clinical

participants were recruited from inpatient and outpatient populations at the Eating Disorders Unit of the Maudsley Hospital, London a tertiary referral centre in the U.K. Clinical diagnosis was carried out according to the DSM-IV criteria via clinical interview by two medically qualified diagnosticians who were blind to the hypotheses of the study. Diagnosis was consensual across both diagnosticians in all cases. The healthy control group comprised 21 participants recruited through an established participant pool at the Institute of Psychiatry in London. Controls had no self-reported history of psychiatric or eating problems and were comparable with the clinical participants on age, education level and sex ratio (see Results).

Materials and measures

The Autobiographical Memory Test (AMT)

The AMT was as described by Kuyken and Dalgleish (1995). Ten emotional words (from Williams & Broadbent, 1986) were used to cue memories: five pleasant (*happy, safe, interested, successful, and surprised*) and five unpleasant (*sorry, angry, clumsy, hurt and lonely*). Participants were given one minute in each case to retrieve a specific autobiographical memory (a specific time and place when something happened to them). The recall instructions emphasised that the memories should be specific and were printed out for the participants to read. Cue words were presented on 12.5 cm x 7.5 cm cards and were written in black ink in capital letters 3.5 cm high. Words were presented in pseudo-random order with positive and negative words alternating. The latency to the first word of each recalled memory was recorded.

If participants did not retrieve a specific memory straightaway, but instead retrieved an overgeneral memory, the time rounded to the nearest second to this first memory was recorded (using a stopwatch accurate to 0.1 of a second) and they were then given a single verbal prompt (“can you think of a specific time – one particular event”) to see if they could then retrieve a specific memory. In these instances, if participants went on to retrieve a specific memory, the time to retrieve this memory was recorded. This time included the time to generate the initial overgeneral memory and to prompt the participant. If participants did not retrieve a specific memory in the time available, a conservative time of 60 seconds was recorded in line with previous studies (e.g.

Kuyken & Dalgleish, 1995) and the experimenter proceeded to the next cue word. To ensure that participants understood the instructions, two practice cues were given (*relieved* and *tired*).

In line with previous research that has examined the relationship of overgenerality to prior adverse experiences (Brewin et al., 1999; Kuyken & Brewin, 1995; Harvey et al., 1998), tape-recorded memories were transcribed and coded as either general or specific². Inter-rater agreement on 50% of the retrieved memories (n = 305) indicated good reliability, $\kappa = .78$, comparable with previous studies.

Early experience

Perception of early family experience was assessed using the Measure of Parenting Style (MOPS; Parker et al., 1997). The MOPS is a 15 item self-report measure with scales assessing Parental Over-Control, Parental Indifference, and Parental Abuse. The measure can be administered separately with respect to each care figure in the individual's early life. In the present study, the MOPS was completed with reference to both mother and father and the scores summed (Parker et al., 1997). The MOPS was developed from the Parental Bonding Instrument (PBI) and included an Abuse scale in response to a widely reported need for a self-report instrument to assess abusive experiences (e.g. Thompson & Kaplan, 1996). Items on the scale are in the form of statements for which the respondent has to make a judgement of veracity on a four point scale (scored 0,1,2,3) ranging from "not true at all" to "extremely true". Sample statements are: "physically violent or abusive of me" (abuse); "overprotective of me" (over-control); and, "ignored me" (indifference). The scores for each subscale therefore range from 0-15 for each caregiver. The psychometric properties of the measure are acceptable. Cronbach's alphas for the subscales ranging from .76 to .93.

With respect to the present study it is important to say something more about how the abuse subscale was originally validated. Research psychiatrists conducted a lengthy semi-structured clinical interview that included questions on physical, emotional, and sexual abuse, on all 152 participants on whom the MOPS was validated. Participants' interview responses were

categorically rated for a number of aspects of abuse (e.g. “parental sexual abuse of the patient”) using the categories “no abuse”, “possible abuse”, and “definite abuse”. MOPS abuse scores for subsets of participants classified into each category were significantly different from each other, with higher scores being associated with greater exposure to abuse (all P s < .001). It is important to note that the MOPS has therefore only been validated against another self-report measure of abuse (clinical interview) and not against independently corroborated abuse histories.

Procedure

Participants were tested individually and face-to-face in a quiet testing environment. All testing was carried out by the same experimenter (KT). The clinical participants received an additional diagnostic assessment in a separate session a few days prior to the experimental session. Participants also completed the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983), a self-report measure of experienced anxiety and depression, immediately prior to the AMT. The HADS has sound psychometric properties, generating a reliable two-factor (anxiety, depression) solution, with mean Cronbach's Alphas of .82 and .83, respectively, across studies. It has caseness sensitivity and specificity of 0.80 for both subscales with a score of 8 as the cut-off, and acceptable correlations (.49 - .83) with other, similar, commonly-used questionnaires (Bjelland, Haug & Neckelmann, 2002).

Results

Participant characteristics

The presented analyses involve a combined eating disorders (ED) group consisting of participants with either anorexia nervosa or bulimia nervosa. Additional analyses treating the two groups separately revealed no reliable differences between the groups on the critical measures of autobiographical memory reported here (numbers of specific and overgeneral memories to cue words, latencies to specific memories), hence the use of a combined group.

Descriptive statistics and the results of statistical tests for age, education level, depression and anxiety levels and the subscores of the MOPS, across the two groups – ED and controls – are presented in Table 1. As one might expect, the ED group evidenced higher levels of self-reported

depression, anxiety and self-reported adverse parenting than the controls. The mean subscores on the MOPS-Abuse scale for the ED group are comparable with those of individuals classified into the “possible”/“definite” history of abuse categories derived from clinical interview in the original validation study (Parker et al., 1997).

INSERT TABLE 1 ABOUT HERE

Autobiographical memory task (AMT) performance

The AMT data are presented in Table 2. These data are comparable to those from other studies (e.g. Kuyken & Brewin, 1995; Kuyken & Dalgleish, 1995). Separate data for positive and negative cue conditions are reported as a number of studies have found differences as a function of valence (e.g. Brittlebank et al., 1993).

INSERT TABLE 2 ABOUT HERE

The control participants produced very few overgeneral memories and both the numbers of general memories and the latency data violated the assumptions of normality. This was not the case for the ED data. Therefore, separate analyses to those presented below were performed with log transformed data in the case of the number of overgeneral memories and reciprocal root transformation in the case of the latencies whenever the control data were included. Appropriate transformations were derived from spread vs. level plots of the data. Transforming the data made no difference to the patterns of results so the analyses on untransformed data are reported here.

Latencies to first memories across groups

A 2 (Group: eating disorder, control) by 2 (Valence: pleasant, unpleasant) ANOVA examining latency to retrieve first memories revealed a main effect of Group, $F(1, 58) = 4.68, p < .05$, with ED patients being slower than controls, though no main effect of Valence, nor an interaction, $F_s < 1$.

Numbers of first memories that were general across groups

To test whether the ED participants would retrieve more first memories that were general (hypothesis 1), a Group by Valence ANOVA on the number of first memories that were general to positive and negative cues was performed. The ANOVA revealed a highly significant effect of Group, $F(1,58) = 8.77$, $p < .005$, with the ED participants retrieving more overgeneral first memories than the controls. There was no main effect of valence, $F < 1$, nor an interaction, $F(1,58) = 1.83$, ns. Separate non-parametric analysis of the Group effect was also carried out (for comparability with previous studies, e.g. Kuyken & Brewin, 1995). A Mann-Whitney test revealed a similar pattern of findings to the ANOVA, $U=221.5$, $p < .005$.

Numbers of first memories that were specific across groups

To test whether the ED participants would retrieve fewer first memories that were specific (hypothesis 1), a Group by Valence ANOVA on the number of first memories that were specific to positive and negative cues was performed. The ANOVA revealed a highly significant effect of Group, $F(1,58) = 18.83$, $p < .001$, with the ED participants retrieving fewer specific first memories than the controls. There was no main effect of valence, $F(1, 58) = 3.41$, $p = .07$, < 1 , nor an interaction, $F < 1$.

Latencies to specific memories across groups

In order to examine whether the ED participants would be slower to retrieve specific memories relative to the controls (hypothesis 1), a Group by Valence ANOVA on the latency to retrieve specific memories to positive and negative cues was performed. The ANOVA revealed a highly significant effect of Group, $F(1,58) = 15.99$, $p < .0001$, with the ED participants being slower to retrieve specific memories than the controls. There was also a main effect of Valence, $F(1,58) = 7.65$, $p < .01$, with participants being slower overall to retrieve specific memories to positive cue words. The interaction was not significant, $F < 1$. It is important to note that, on trials where the first response is a general memory, the latencies to specific memories include this initial response time. Consequently, the mean latency to specific memories in the ED group would have been relatively inflated due to the greater number of first memories that were general in this group.

A further Group by Valence ANOVA was carried out examining the latencies to first memories only that were specific across groups (see Table 2). Neither the main effects of Group and Valence, $F_s < 1$, nor the interaction, $F(1, 54) = 2.41, P > .1$, were significant.

Overall numbers of memories retrieved

The ED participants retrieved fewer memories in total than the controls, $t(55.92) = 3.68, p < .001$. This raises the possibility that the controls were putting in more effort on the task and that this was why they generated more specific memories in line with task instructions. If this was the case, one might expect that the ED participants would produce overgeneral memories more quickly, relative to the controls, reflecting reduced effort to be specific. In other words, the larger number of overgeneral memories produced by the ED participants might be because they were responding with the first things that came to mind because they were not trying as hard on the task and hence the latency to these memories would be relatively low. In contrast, the overgeneral memories in the controls would be more often be a function of a failure to locate a specific memory localised in time and place after an effortful memory search. The mean latencies to first memories that were overgeneral are shown in Table 2. As is clear, the ED patients were actually slower to generate such memories, relative to controls (though these differences were not statistically significant, $P_s > .1$) Furthermore, the ED group were no different to controls in their speed to come up with first memories that were specific, and were slower overall to generate any memory (see above and Table 2). These findings taken together render an effort-based explanation unlikely.

Correlational analyses

Planned zero-order Pearson correlational analyses were carried out for the ED participants between the self-report measures of depression and parental abuse and the mean latencies to retrieve specific memories to positive and negative cue words, the mean numbers of first memories that were general to positive and negative cue words, and the mean numbers of first memories that were specific to positive and negative cue words. This was to investigate whether, firstly, high levels of self-reported parental abuse (hypothesis 2) would be associated with greater numbers of first memories that were general, lower numbers of first memories that were specific, and longer

latencies to retrieve specific memories. Correlations (not directly addressing the hypotheses) involving the other measures of parental style and with self-reported anxiety and depression were also computed. A conservative level of alpha of .01 was used for these latter correlations. The correlations are presented in Table 3.

The only significant correlations were between self-reported levels of parental abuse and both the number of first memories that were general following a negative cue and the latency to retrieve specific memories to negative cues. In addition there was a non-significant trend ($r = -.33$, $P = .07$) for a correlation between the mean number of first memories that were specific to negative words and self-reported levels of parental abuse. The direction of these correlations was such that higher levels of self-reported parental abuse were associated with more overgeneral memories, fewer specific memories and slower retrieval of specific memories to negative cue words.

In order to investigate whether these relationships between self-reported abuse and autobiographical memory to negative cues would remain when levels of depression were controlled for (hypothesis 2), the correlations were repeated with HAD-depression scores partialled out. The correlations between levels of parental abuse and the mean number of first memories that were general and the latency to retrieve specific memories to negative cues remained significant. The correlation between self-reported parental abuse and the mean number of first memories that were specific now reached statistical significance (see Table 3). More conservative analyses with both self-reported depression and self-reported anxiety, as well as the other parental style measures, partialled out produced comparable findings.

INSERT TABLE 3 ABOUT HERE

Similar correlational analyses were carried out for the control participants only. There were no significant correlations (P set liberally at .05). There was a trend for MOPS-Abuse scores to be correlated with the number of first memories that were general to positive cues, $r(20) = -.41$, $P = .07^3$. However, this was in the counterintuitive direction with higher levels of reported parental abuse being associated with fewer overgeneral memories.

Discussion

The present study examined autobiographical memory style in participants with a diagnosis of an eating disorder (ED) and healthy controls. The specific hypotheses were, firstly, that ED patients, when compared to controls, would generate more overgeneral and fewer specific memories, and would exhibit a longer latency to retrieve specific memories, to cue words on the autobiographical memory test (Williams & Broadbent, 1986). Secondly, that there would be a positive correlation between increased self-reports of early childhood abuse and difficulty in retrieving specific memories in ED patients and that this would remain statistically significant even when self-reported levels of depression were controlled for.

Beginning with the first hypothesis, the results revealed that, relative to healthy controls, eating disorder patients produced more first memories that were overgeneral, and fewer first memories that were specific. This result extends the finding of an overgenerality effect in autobiographical memory to a new clinical group that does not have a primary diagnosis of mood disorder and therefore supports the notion that this particular memory pattern is present across a broad range of psychopathologies.

However, as with previous group effects in this literature, a number of factors could be responsible for this finding. The case and control groups in the present study differed on the mood and parenting measures that were used, as well as in their psychiatric status, and probably also in terms of general cognitive and motivational factors⁴. Any (or all) of these variables could have been an important factor contributing to a group difference on overgeneral memory. Furthermore, formal (comorbid) diagnoses were not established for the participants, other than the primary diagnosis of eating disorder. It is therefore possible that a proportion of the ED participants, who were in-patients, also suffered from Major Depressive Disorder (MDD). As an estimation of this, a cut-off score of 8 on the HADS depression subscale was used as a guide to the possible number of depression cases in each group. This cut-off has been shown to have a sensitivity and specificity of .80 for depression caseness across studies (Bjelland et al., 2002). The data revealed that 28/39 (72%) patients in the eating disorder group scored above cut-off compared to none of

the control participants. Differences between the case and control groups in overgeneral memory may therefore in part be due to differences in levels of MDD, rather than anything relating to an ED diagnosis. These difficulties associated with interpreting case-control effects that are present across a range of clinical disorders highlight the need to focus on aspects of psychopathology that are not disorder-specific and that may underlie the effects. This brings us to the correlational data from the present study, relating to hypothesis 2.

The correlational data revealed that in ED patients the tendency, in response to negative cues only, to produce more overgeneral memories and to be slower to generate specific memories were both positively correlated with self-reported experiences of abusive parenting. There was also a trend for a significant positive correlation between self-reported abuse and the tendency to produce fewer specific memories to negative cues. The effects were all statistically significant when depressed mood levels (and also anxiety along with other measures of self-reported adverse parenting) were controlled for, and indeed depressed mood did not independently correlate with self-reported abuse. It is important to note that these findings relate to reported abuse on the behalf of the patient and do not imply independently corroborated abuse histories. An important aim of future research is to replicate these effects in patients with independently corroborated reports of abuse.

The present pattern of correlational data therefore mirrors the original finding of Kuyken and Brewin (1995), using an abused group vs non-abused group comparison, and also confirms that the relationship between self-reported early abuse and overgeneral memories is reliable over both interview (Kuyken & Brewin, 1995) and questionnaire (Henderson et al., 2002; present study) measures of self-reported abuse. The present data also extend this earlier work by suggesting that the relationship between overgeneral memory and early adverse psychological experience seems to be a particular function of self-reported abuse, as opposed to parental over-control or indifference.

An important question concerns why the present study (and those of Kuyken and Brewin, 1995, and Henderson et al., 2002) revealed a relationship between self-reported abuse and overgenerality whereas no such association was found in the study by Wessel et al. (2001). The most obvious candidate explanation involves the relatively low level of reported abuse in the Wessel et al. sample. It may be that the relationship between abuse and overgenerality only emerges when significant levels of abuse are involved (see below). Indeed, in the data from the present study, when the controls (who reported very low levels of parental abuse) were considered separately the correlation between levels of self-reported abuse and overgenerality was negative, with lower-levels of abuse being associated with greater overgenerality, although this did not reach statistical significance.

A further important issue concerns valence effects. The autobiographical memory task sometimes produces effects related to positive cue words only, sometimes to negative cues only, and sometimes to cues of both types. The present data are a good example of this, with groups differing on levels of overgenerality to both positive and negative cue words, but with self-reported abuse only correlating with memory performance involving negative cue words in the ED group. This contrasts with the findings of the Kuyken and Brewin (1995) study where the critical effects involving level of abuse related to both positive and negative cues (however, these were group data and correlational data were not reported). It is unclear why valence effects are so mixed and also so unreliable on the task. However, the most likely explanation is that valence here refers to the cue word, not the memory itself. For example, the positive word "friend", in comparison to many negative words, may be more likely to cue the same memory as the negative word "lonely". In other words, it may be the case that overgeneral memories are elicited by cues reflecting particular autobiographical themes rather than by cues of differing valence. Valence effects would therefore differ across different studies as a function of how closely cue word valence mapped onto the relevant thematic dimensions in memory (see below).

This issue brings us to the key theoretical question generated by the present findings: Why is self-reported early abuse associated with overgeneral memory at all? Williams (e.g. Healy &

Williams, 1999; Williams et al., 1997) has argued that retrieving autobiographical memories in the cue word task involves searching memory using a series of general descriptions of the mnemonic material that fit with the task instruction and the cue word. These general descriptions are then recursively refined until a specific memory, located in time and place, is retrieved. Williams (see also Conway & Pleydell-Pearce, 2000) proposes that for some individuals the retrieval process is more prone to becoming 'stuck' at a categorical descriptor stage, increasing the likelihood of a categorical, overgeneral memory to the cue word. In order to progress beyond this categorical descriptor stage during memory search, Williams proposes that the categorical descriptors need to be inhibited in some way and that acquiring this inhibition is a function of early development. Traumatic life circumstances during this critical developmental period have the capacity to impair the establishment of these inhibition processes. The reason for this might be that specific emotional information is too painful and so is defended against by remaining at a categorical level of analysis. Consequently, individuals with a history of childhood adversity will be less likely to inhibit categorical descriptors during memory search and will therefore produce overgeneral responses on the cue word task, in line with the present data.

One problematic aspect of the Williams model is its dependence on a disruption to the normal development of the memory system in childhood. It is difficult to see how this can easily account for greater overgeneral memory in motor vehicle accident survivors who go on to develop Acute Stress Disorder (ASD; Harvey et al., 1998), relative to those who do not develop the disorder. One could, of course, argue that these individuals are vulnerable to ASD because they have a childhood history of trauma (see Brewin, Andrews & Valentine, 2000). However, this would be a strong assumption. One might also think that a developmentally disrupted memory system would lead to a high incidence of overgeneral memories on the cue word task. However, the percentage of first memories recalled that are appropriately specific always exceeds 50% and often 75% across studies. Lapses into overgenerality are therefore the exception rather than the rule. An alternative theoretical analysis of the overgenerality effect might therefore be that the memory system is developmentally normal but that individuals 'fail' on the task on a relatively small number of trials because the memory system is temporarily disrupted for some reason.

A possible source of such temporary disruption to the memory system is the presence in some individuals of coherent, higher-order mental representations (e.g. schemas, Beck, Rush, Shaw, & Emery, 1979; or schematic models, Power & Dalgleish, 1997; Teasdale & Barnard, 1993) conflating across negative aspects of past experience and thereby coding negative, generic aspects of the self (negative self-schemas). It is possible that certain cue words on the autobiographical memory task map closely onto the content of such self-schemas thereby causing them both to become (further) activated and to attract processing resources. This suggests two possible routes to the generation of overgeneral memories. Firstly, participants' responses on the cue word task could amount to a propositional 'read off' of the activated self-schemas. Such a read off would essentially look like a categorical autobiographical memory. Alternatively, the draining of processing resources away from the memory search process could mean that it is more likely to be aborted at the categorical stage either because there are no resources to search further or because, when the categorical-level descriptor is checked against the task demands, the lack of resources increases the chances that it is rejected as an unsuitable response.

How does this idea of the role of negative self-schemas in the generation of autobiographical memories fit with the present empirical findings and the other key data outlined in the Introduction? Firstly, the presence of active negative self-schemas is likely to be associated with a history of adverse life events (e.g. Beck et al., 1979) Consequently, one might expect individuals with such a history to produce more overgeneral memories. This is in line with the present data and those of Kuyken and Brewin (1995) and Henderson et al. (2002), though it is important to note that the relationship between adverse history and the presence of active negative self schemas was not examined in these studies⁵. Secondly, negative self-schemas will influence processing during periods both of acute distress and of remission (e.g. Teasdale & Dent, 1987), consistent with the data that suggest that overgeneral memory style is a trait effect (Brittlebank et al., 1993; Mackinger et al., 2000). Thirdly, such active negative self-schemas are likely to be the source of cognitive intrusions that reflect their thematic content. This is consistent with the data relating intrusion and avoidance of emotional autobiographical memories with overgenerality

(Brewin et al., 1999; Kuyken & Brewin, 1995). Fourthly, the existence of negative self-schemas is associated with chronic vulnerability to psychopathology (e.g. Beck et al., 1979). Consequently, any empirical marker of such schemas (such as overgenerality of memories or frequency of intrusions) will also be a good predictor of future distress (e.g. Brittlebank et al., 1993; Dalgleish et al., 2001, Harvey et al., 1998)⁶.

Finally, an account predicated on negative self-schemas might explain why some forms of anxiety are not associated with increased overgeneral memories (e.g. Burke & Mathews, 1992). The schematic representations in anxiety are conceptualized as coding generic aspects of the world as threatening (e.g. Beck, Emery & Greenberg, 1985), rather than the self as negative. It may therefore be that cognitive tasks that encourage anxious individuals to generate specific information about the threat content of the world would lead to analogous overgeneral errors in this group. It is important to note, however, that few studies have demonstrated the absence of overgeneral memory effects in anxiety and the initial finding is in need of replication.

In summary, the present data clarify and extend the findings concerning the relationship between self-reported early abuse and autobiographical memory style in a new clinical group. Overgeneral memory to negative cues seems to be related to perceived early abuse but not to other aspects of childhood adversity measured in the present study (perceived parental overcontrol and indifference). This relationship between overgenerality to negative cues and self-reported abuse remains even when levels of depressed mood are controlled for but seems specific to clinical participants in the present data set. An important area for future research, however, is to establish that these findings hold up in cases of verified, as opposed to self-reported, abuse. For example, it may be the case that possession of an overgeneral memory style is biasing self-reports of abuse in the present data, rather than the other way round. Research on verified abuse will eliminate such a confound.

Author note

Tim Dalgleish and Jenny Yiend, Emotion Research Group. Kate Tchanturia, Lucy Serpell, Saskia Hems and Janet Treasure, Eating Disorders Unit, Institute of Psychiatry, Kings College. Padmal de Silva, Department of Psychology, Institute of Psychiatry, Kings College.

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Correspondence concerning this article should be addressed to Tim Dalgleish, Medical Research Council, Cognition and Brain Sciences Unit, 15 Chaucer Road, Cambridge CB2 2EF, U.K.. Electronic mail: tim.dalgleish@mrc-cbu.cam.ac.uk

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Table 1

Descriptive statistics for the eating disorder and healthy control groups

	Eating disorder (N=39)		Controls (N= 21)		t	p
	M	SD	M	SD		
Sex (F:M) ^a	36:3	-	20:1	-	--	-
Age (years)	27.26	8.75	27.71	5.76	< 1	ns
Educational level ^{bc}	3 (1-4)		4 (2-4)			
MOPS-abu ^d	7.22	5.93	2.05	2.69	4.30	<.001
MOPS-ind ^d	10.03	7.37	2.19	3.57	4.53	<.001
MOPS-ovc ^d	9.94	4.79	5.95	3.34	3.31	<.001
HAD-anx	14.08	4.16	3.71	2.31	10.54	< .001
HAD-dep ^e	11.49	4.76	2.00	1.82	11.38	<.001

Note

HAD-anx and HAD-dep = Hospital Anxiety and Depression Scale, anxiety and depression scores respectively. MOPS-abu, MOPS-ind and MOPS-ovc = Measure of Parental Style, Abuse, Indifference and Over-Control subscale scores respectively, summed across mother and father.

a = groups do not differ on male/female ratio (Fisher's exact test).

b = Educational level was assessed on a four point scale with respect to the UK educational system: 1 = no qualifications; 2 = General Certificate of Secondary Education; 3 = Advanced Level; 4 = degree level and above. Data are the median with the range in parentheses.

c = groups do not differ on educational level (Mann Whitney test)

d = only 32/39 participants with eating disorders completed the MOPS.

e = variance for the HAD-dep scores was heterogeneous across groups (with significance on the Levene test at $p < .01$) and normality assumptions of the scores in the controls were violated.

Therefore, a cubed transformation of the data was used for the t-test and for the main analyses reported in the text.

Table 2

Autobiographical memory performance across the 2 groups

	Word cue type	Eating disorders (N = 39)		Controls (N=21)	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Latency to first* memory (secs)	Negative	10.00	5.26	8.55	3.86
	Positive	10.61	4.70	8.00	3.26
Latency to specific first memory (secs)	Negative	8.41	5.00	8.83	3.79
	Positive	10.17	5.98	8.18	3.37
Latency to first specific memory (secs)****a	Negative	24.69	15.18	11.95	6.82
	Positive	29.36	14.82	16.96	11.07
Latency to general first memory (secs)	Negative	12.33	9.41	6.69	4.73
	Positive	11.51	7.52	7.64	5.01
Number of first memories that were specific***	Negative	3.10	1.54	4.52	0.68
	Positive	2.84	1.46	4.14	1.06
Number of first memories that were general**	Negative	1.38	1.46	0.33	0.58
	Positive	1.31	1.30	0.62	0.65
Total number of memories retrieved***		8.63	1.25	9.61	0.80

Note

a = on occasions when the first memory retrieved was not specific and the participant had to be prompted, this latency includes the time to this original response.

* significant main effect of Group ($p < .05$). ** significant main effect of Group ($p < .01$).

*** significant main effect of Group ($p < .001$).

Table 3

Correlations between levels of self-reported mood, parental style and autobiographical memory performance in the participants with eating disorders (n = 32)

	No. of general first memories to +ve cues	No. of general first memories to -ve cues	No. of specific first memories to +ve cues	No. of specific first memories to -ve cues	Latency (secs) to first specific memory to +ve cues	Latency (secs) to first specific memory to -ve cues
HAD-anx	-.05	.10	.21	.27	.05	-.04
HAD-dep ^a	-.20	-.19	.22	.10	-.16	-.25
MOPS-abu	.13	.40*	-.12	-.33	.09	.48**
MOPS-ovc	.01	-.08	-.06	-.07	-.07	.06
MOPS-ind	-.04	.16	-.07	-.04	.10	.18
Partial MOPS-abu ^b	.18	.39*	.17	-.36*	-.02	.49**

Note

HAD-anx and HAD-dep = Hospital Anxiety and Depression Scale, anxiety and depression scores respectively. MOPS-abu, MOPS-ind and MOPS-ovc = Measure of Parental Style, Abuse, Indifference and Over-Control scores respectively.

a = HAD-dep correlations were repeated with MOPS-abu partialled out to see if there was an independent relationship between the memory measures and depression. There was not (highest $r = +/- .21$).

b = with HAD-dep partialled out.

* = significant at $p < .05$.

** = significant at $p < .01$.

Footnotes

¹ It is important to note that this is not meant to imply that abuse is a significant causal factor in the aetiology of eating disorders. Indeed, in the one prospective study that has investigated this issue, childhood sexual abuse was not a significant predictor of binge eating (Vogeltanz-Holm et al., 2000). Furthermore, not all retrospective studies report significantly elevated abuse in eating-disordered samples (e.g. Welch & Fairburn, 1994).

² Further sub-division of general memories into categorical and extended memories has been used in other studies (see Williams, Watts, MacLeod & Mathews, 1997), though the proportion of extended memories in the present data was too small to make this a useful distinction.

³ It should be noted that the magnitude of the correlation is similar to that between overgeneral memories to negative cues and reported abuse in the eating disorder group, albeit in the opposite direction. The correlation does not reach statistical significance in the control group due to the smaller sample size.

⁴ Although there was no statistically significant difference across groups on educational level, this is a fairly crude measure of cognitive competence.

⁵ It is important to note that such a schema-based account, unlike the Williams model, is agnostic to whether or not early trauma actually occurred. The crucial issue is that there are unresolved schematic representations centered on the person's early experiences. This is potentially important as the present data (and indeed those of Kuyken & Brewin, 1995, and Henderson et al., 2002) rest on self-reports of early childhood abuse rather than on the existence of independently corroborated events.

⁶ One prediction of this account would be that only overgeneral memories associated with the content of the active schemas would be related to psychopathology variables. This is consistent with the data of Harvey et al. (1998) that showed that only the tendency to produce overgeneral memories about the accident (and not about other events), in survivors of road traffic accidents, was predictive of later post-traumatic symptomatology.