



Short communication

Restrained eating and memory specificity

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ARTICLE INFO

Article history:

Received 25 August 2009

Received in revised form 20 May 2010

Accepted 1 June 2010

Keywords:

Restrained eating

Dieting

Autobiographical memory

Memory specificity

Over-general memory

ABSTRACT

Autobiographical memories are personal experiences that we store across our life-span. A reduced ability to retrieve specific autobiographical experiences has been reported for a number of clinical populations. Previous research has found that the size of the memory specificity effect can predict disorder occurrence, severity, and treatment success. The current research examined whether a similar relationship could be found between memory specificity and restrained eating in a female college student population. Participants retrieved autobiographical memories that related to cue-words associated with dieting and body image. Individual differences in restrained eating were measured with the Restraint Scale (RS). Participants who scored higher on the concern-with-dieting sub-scale of the RS retrieved fewer specific autobiographical memories regardless of their current dieting activity. The memory specificity effect has the potential to serve as a predictor of eating disorder occurrence and treatment success, and may also assist with the development of interventions targeting such disorders.

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Introduction

Autobiographical memory is the storehouse for personal experiences that help shape our lives. These experiences can range from mundane daily activities, such as having a meal, to highly distinctive and important life experiences, such as getting married or losing a loved one. Williams, Conway, and Cohen (2008) suggest that autobiographical memory serves three important functions: (1) social: the sharing of memories facilitates social interactions, (2) directive: memories of past events assist in problem solving and predicting behavior, and (3) self: autobiographical memory is the personal history from which the self is constructed. Autobiographical memory may also play a role in the development and maintenance of some behavioral pathologies.

Recent research has found that patients from a variety of clinical populations have difficulty retrieving specific, affect-related experiences from autobiographical memory. The “memory specificity” or “over-general memory” effect has now been reported for affective disorders (Brittlebank, Scott, Williams, & Ferrier, 1993; Dalgleish, Spinks, Yiend, & Kuylen, 2001; Kleim & Ehlers, 2008; Mackinger, Pachinger, Leibetseder, & Fartacek, 2000; Raes et al., 2006), anxiety and stress related disorders (Bryant, Sutherland, & Guthrie, 2007; Kleim & Ehlers, 2008), memory disorders (Moses, Culpin, Lowe, & McWilliam, 2004), schizophrenia (Warren & Haslam, 2007; Wood, Brewin, & McLeod, 2006), and eating disorders (Dalgleish et al.,

2003; Laberg & Andersson, 2004; Nandrino, Doba, Annick, Christophe, & Pezard, 2006). In addition, research with depressed individuals has revealed that the size of the memory specificity effect can predict symptom severity, illness duration, and treatment success (Brittlebank et al., 1993; Dalgleish et al., 2001; Gibbs & Rude, 2004; Kleim & Ehlers, 2008; Mackinger et al., 2000; Raes et al., 2006; van Minnen, Wessel, Verhaak, & Smeenk, 2005).

It is unclear whether autobiographical memory plays a causal role in the development of a disorder (Williams et al., 2007), but there is now enough empirical evidence to suggest that its measurement can play an important role in the diagnosis, assessment, and treatment of some disorders. Of particular interest to the authors of the current paper is the role that autobiographical memory may play in the development of eating disorders. Restrained eating is often identified as a precursor to eating disorders, and measures of restrained eating can predict the intensity of eating disorder symptoms (Johnson & Wardle, 2005; Killen et al., 1996; Neumark-Sztainer et al., 2006; Stice, Killen, Hayward, & Taylor, 1998; Stice, 2001; Wertheim, Koerner, & Paxton, 2001). Previous research has already identified a memory specificity effect with eating disorder patients when using affect-based cues for retrieving autobiographical memories (Dalgleish et al., 2003; Laberg & Andersson, 2004; Nandrino et al., 2006). Laberg and Andersson (2004) also reported the memory specificity effect with bulimia patients who were in remission at the time of testing. This finding suggests that restrained eating in its less pathological form could also show the memory specificity effect.

Williams et al. (2007) recently provided the CaR-FA-X model to explain the memory specificity effect in clinical populations. This

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model assumes that autobiographical memories are organized hierarchically from general life themes down to general extended memory descriptions and finally down to detailed fragments of specific events. This model also assumes that autobiographical memories are closely linked to the individual's self-representation and self-directed goals. Readers should refer to the self-memory model proposed by Conway and Pleydell-Pearce (2000) for a more detailed description of these assumptions.

Williams and colleagues hypothesized that three factors underlie the memory specificity effect, which we argue also apply to the non-clinical population of restrained eaters. The first factor, capture and rumination (CaR), refers to the fact that many clinical populations have difficulty retrieving specific autobiographical events because their memory searches are "captured" at a higher, more general level of the memory hierarchy. The capture results because highly activated self-schemas (abstract memory frameworks for organizing self-related information) operate at this general level of memory organization and because these individuals often ruminate about self-related information also stored at this level of memory organization. In fact, the more closely the retrieval cue maps on to a self-related concern, the more likely a general memory will be retrieved (Crane, Barnhofer, & Williams, 2007). In parallel, restrained eaters have highly activated self-schemas that relate to their eating behavior, body image, and exercising behavior (Morris, Goldsmith, Roll, & Smith, 2001), and restrained eaters chronically ruminate about body image and weight loss (Polivy & Herman, 1985). The second factor, functional avoidance (FA), refers to the avoidance of recollecting specific episodes of trauma and adversity, resulting in truncated searches of autobiographical memory (Conway & Pleydell-Pearce, 2000). Similarly, restrained eaters avoid food and eating memories in an effort to control the hunger they may be experiencing (Herman & Polivy, 1993). The final factor, impaired executive capacity and control (X), refers to a reduction in executive resources that leads to difficulty controlling the search through autobiographical memory needed for retrieving specific event information. Executive functions are higher-order cognitive processes that are involved in the control and regulation of memory encoding and retrieval. Similarly, chronic dieting can deplete the cognitive resources of restrained eaters (Polivy & Herman, 1985) and has been shown to lead to decrements in the performance of cognitive tasks relying on executive control resources (Green & Rogers, 1995; Green et al., 2003; Green, Rogers, Elliman, & Gatenby, 1994; Jones & Rogers, 2003; Kemps & Tiggemann, 2005; Rogers & Green, 1993; Shaw & Tiggemann, 2004; Vneugdenburg, Bryan, & Kemps, 2003). Consequently, the CaR-FA-X model provides strong theoretical grounds for expecting memory specificity to be related to chronic restrained eating in our study.

For the current study, we used cue-words associated with eating and dieting to prompt the retrieval of specific autobiographical memories. The Restraint Scale (RS) developed by Herman, Polivy, Plimer, Threlkeld, and Munie (1978) was used to measure individual differences in restrained eating. Analogous to previous research with clinical populations, we expected to find a significant negative relationship between scores on the restrained eating scale and the number of specific memories retrieved by non-clinical participants.

Methods

Participants

Sixty female undergraduate college students with a mean age of 19.1 years participated in this study. Participants received course credit for their participation. Five participants were deemed to possibly have an eating disorder, as indicated by their score on the

SCOFF eating disorder screening test (Morgan, Reid, and Lacey, 1999), and thus were excluded from the analyses. The mean Body Mass Index (BMI) for the remaining sample of 55 participants was 23.54 ($SD = 3.81$), and 29% of these women were on a diet to lose weight at the time of the experiment.

Materials

Autobiographical memory task

Each participant was required to retrieve specific personal experiences (i.e., an event that took less than a day to complete) that related to cue-words presented by the experimenter. Nine cue-words were presented to participants: "restaurant", "hungry", "exercise", "weigh", "bikini", "chocolate", "diet", "mirror", and "celebrate". The participant wrote a brief description for each memory recalled. For each memory retrieved, the participant also answered the following two questions: "When did this event happen (e.g., 1 day ago, 1 year ago)?" and "When the memory came to mind—was it of a specific episode or a general category of related events?". Two independent judges also read the memory descriptions provided by participants and classified the memories as specific or general. The percentage of agreement between the two judges was 92%, and the agreement between the classifications (for one judge) and the participants' own classifications approached 100%. In the few cases of discrepancy, the participants' own classification was used.

Restraint Scale (RS)

The Restraint Scale measures individual differences in dietary restraint (Herman et al., 1978). It consists of 10 questions that measure different aspects of restrained eating. Factor analysis of the RS suggests a two-factor structure for this scale: concern-with-dieting (RS-CD) and weight-fluctuation (RS-WF) (Van Strien, Breteler, & Ouwens, 2002). The RS-CD measures the individual's preoccupation with weight control and body shape, and an example item is "Do you give too much time and thought to food?". The RS-WF measures the amount and frequency of weight changes the individual has typically experienced in the past, and an example item is "In a typical week, how much does your weight fluctuate?". Scores range from 0 to 16 for the RS-CD and from 0 to 9 for the RS-WF, with higher scores indicating greater dietary restraint. Cronbach's alpha was 0.80 for the RS-CD and 0.66 for the RS-WF.

SCOFF eating disorder screening test (SCOFF)

The SCOFF is a brief screening test for eating disorders developed by Morgan et al. (1999). The SCOFF is made up of five questions, e.g., "Do you make yourself sick because you feel uncomfortably full?". The authors of the test suggest that an individual who answers yes to two or more of these questions may have an eating disorder. Cotton, Ball, and Robinson (2003) suggest this cut-off is too liberal, and consequently, we removed participants from the data analysis if they answered yes to three or more questions.

Procedure

Participants carried out the autobiographical memory task first and then completed the RS questionnaire. Participants then provided their demographic and dieting information. Two questions addressed their dieting behavior. The first question asked if they were currently on a diet to maintain their weight and the second question asked if they were currently on a diet to lose weight. Only the participant's response to the second question was used to determine their dieting status for data analysis. Finally, participants completed the SCOFF screening test.

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