

Autobiographical Memories and PTSD

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Abstract

PTSD has long been associated with alterations in autobiographical memory. In addition to those memory-related symptoms of PTSD found in the diagnostic criteria, such as intrusive memories and flashbacks, researchers have found that individuals with PTSD tend to have difficulty recalling specific moments from their past, a phenomenon referred to as overgeneralized autobiographical memory. Since the original findings were presented two and half decades ago, there now exists a considerable body of work examining the mechanisms underlying overgeneralization. This chapter summarizes the findings on overgeneral memory to date, including the paradigms employed to study this phenomenon, as well as the theories, research outcomes, and implications for vulnerability to and recovery from traumatic stress.

List of Abbreviations

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| AMT | Autobiographical Memory Test |
| ASD | Acute Stress Disorder |
| MEST | Memory Specificity Training |
| OGAM | Overgeneralized Autobiographical Memory |
| PTSD | Posttraumatic Stress Disorder |
| SMS | Self-Memory-System |

Introduction

Referred to by some as a “disorder of forgetting” (Ursano et al. 2007, p. 203), memory has always played a vital part in the conversation surrounding Posttraumatic Stress Disorder (PTSD). Indeed, it is the reoccurrence of intrusive, intense, and distressing memories of the traumatic event, in the form of flashbacks or unwanted thoughts, which distinctly characterizes this disorder (American Psychiatric Association 1994). Even beyond these hallmark symptoms of PTSD there is another, and in some ways almost counter, posttrauma effect on individuals’ voluntary autobiographical recall as a whole. Autobiographical memory, a type of episodic memory, is our memory of our personal experience, the retention of the events of our lives as we directly experienced them in time and place (Rubin 1986). However, in PTSD autobiographical remembering is often marked by an absence of specific episodic detail. Individuals with PTSD seem to have difficulty recalling unique memories, discrete experiences that took place on a specific time and day. They tend to produce memories along the lines of “it was very cold during my trip to Denver last winter,” instead of, “when I stepped out of the airport in Denver and suddenly realized how much colder the air was than at home.”

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This phenomenon, referred to as overgeneral autobiographical memory (OGAM), only formally emerged in the field in the last 30 years, but in this time it has become integral to our understanding of the pathogenesis of PTSD. This chapter will present a brief outline of the phenomenon and theory of OGAM in PTSD and discuss significant aspects of and approaches to the study of OGAM in PTSD that has emerged in the literature in recent years.

Background of OGAM Research

The phenomenon of OGAM was first identified in a study intending to look at mood biases in memory in individuals who had attempted suicide. Williams and Broadbent (1986) used a “cue-word paradigm” in which subjects were presented with single, emotionally valenced words (“happy,” “sorry,” etc.) and asked to recall related memories. Compared to controls, suicidal subjects had difficulty retrieving specific personal memories, responding instead with general memories of time periods or geographical locations.

This study drew initial attention to the importance of altered autobiographical memory in emotional disorders. It stimulated a line of research narrowing down the link between overgeneralization and psychopathology to specific conditions, namely Major Depressive Disorder and trauma-related anxiety disorders (Williams et al. 2007). However, the majority of that early work focused on depression, making it unclear whether the connection to PTSD was independent, or due to concurrent depression symptoms in the population (van Vreeswijk and de Wild 2004). For instance, if it was related, was the clinical diagnosis, or actual trauma exposure preceding it, the key underlying variable for OGAM?

Williams’ (1996) affect regulation theory viewed overgeneral recall as a trait that developed in response to early exposure to traumatic events. He suggested that trauma-exposed children learn to regulate painful emotions by avoiding memories of specific events and that, over time, this tendency generalizes, leading to a pervasive overgeneral retrieval style. The idea was prominent in the literature (e.g., de Decker et al. 2003), but the empirical evidence itself was mixed (for example, Kuyken and Brewin 1995; Wessel et al. 2001).

It was apparent that overgeneralization was a feature of posttrauma autobiographical remembering, but the mechanisms remained unclear until OGAM was examined directly within posttraumatic pathology. McNally and colleagues (1994, 1995) conducted the first studies, finding that Vietnam War veterans with PTSD exhibited less specificity in autobiographical recall than veterans without PTSD. Shortly afterwards, Harvey, Bryant and Dang (1998) demonstrated that OGAM was not only more prevalent in trauma survivors with Acute Stress Disorder (ASD), but overgenerality was also predictive of subsequent PTSD. Importantly, these results came from entirely trauma-exposed groups and remained after controlling for depression, suggesting evidence for an independent connection between OGAM and PTSD. Evaluating and synthesizing this initial literature, a comprehensive review in Moore and Zoellner (2007) highlighted a consistent connection to psychopathology and showed it was not trauma exposure alone, but an individual’s psychological response to it that was the key link to overgeneralization.

The remainder of this chapter will focus on providing a picture of OGAM PTSD research, its methodologies, theoretical approaches, complications and contributions, since that time. There is little question now that this relationship exists, and research has focused on characterizing, explaining, and exploring the phenomenon.

Methods of Memory Assessment

OGAM is measured through the administration of a replication or variation of the same cue-word paradigm employed by Williams and Broadbent (1986), the Autobiographical Memory Test (AMT). The task consists of presenting each subject with a series of cue words although results from Schönfeld and Ehlers (2006) suggest that the association between specificity and posttraumatic pathology is not unique to lexical stimuli. Following the earlier depression literature, most research employs an even distribution of positive and negative stimuli. Some studies have found that OGAM is found primarily in response to positive cues (e.g., Harvey et al. 1998). However, some work has explicitly reported finding no differences between positive and negative cues (e.g., Moradi et al. 2014), and others have successfully demonstrated the relationship with an entirely neutral cue list (Brown et al. 2013).

Cue presentation may be either visual, verbal, or simultaneous combination of the two, and after each cue subjects are instructed to respond with a memory of a specific, discrete, related event within a set space of time. Typically, this is either 30 or 60 s. While Bunnell and Greenhoot (2012) argued that response time could be a causal factor of OGAM phenomenon, other examinations involving unlimited timing (Brown et al. 2013) and cognitive load (Moradi et al. 2012, 2013) imply this is not the case in PTSD. Responses are usually verbal, with transcription either live or from recording, but some procedures instead require subjects to make entirely written responses (e.g., Crane et al. 2014).

Participants' responses are each classified based upon their specificity. A response is defined as specific if it is a memory of an event or experience that occurred at a particular time and place and lasted less than one day. Responses that fail to meet these criteria can do so for a number of reasons, and studies have varied in their approach to counting and categorizing them. If the response is a memory, but is unspecific, classification may end there (e.g., Boelen et al. 2010), or it may be further classified (e.g., Moradi et al. 2012) as overgeneral because it describes either a whole class of events ("categorical") or an event occurring over more than one day ("extended"). Some studies also specifically identify "omissions," which can be nonmemory thoughts, total lack of response, or both (e.g., Humphries and Jobson 2012). In the subsequent analysis, researchers have variously focused on proportion (e.g., Harvey et al. 1998) or number (e.g., Moradi et al. 2012) of specific responses, or amount of general responses (e.g., Schönfeld et al. 2007).

In addition to the AMT, other studies have employed the Autobiographical Memory Interview, (e.g., Abdollahi et al. 2012; Moradi et al. 2012). Through a structured interview, the task assesses both semantic and episodic recall across childhood, early adult life, and recent events. It tests subjects' recall of factual information about their past and often acts as a point of reference or comparison for the AMT.

Methods of coding have varied across studies as well, such as studies examining disorganization (Jelinek et al. 2009), internal vs. external event details (Brown et al. 2014), and trauma relatedness (e.g., Sutherland and Bryant 2008a).

Expanding Populations of Study

The initial suggestion that overgeneralization occurred in PTSD came from investigations of autobiographical memory in military veterans (McNally et al. 1994, 1995) and civilian trauma survivors (Harvey et al. 1998). As research on the phenomenon has grown, it has also expanded, and now suggests that OGAM in PTSD generalizes to a wide range of trauma-exposed populations.

Of particular note is evidence of cross-cultural coherence in the phenomenon coming from research like Graham et al. (2014) which demonstrated, in a study of asylum seekers and refugees, that the connection between OGAM and PTSD is apparent even among individuals from within and across different cultural

backgrounds. Further, cultural differences in conception of the self are known extend to memory. Specifically, in individualist cultures, where the self is perceived as unique and autonomous with particular internal attributes and goals, individuals are much more likely to provide specific autobiographical memories than those from collectivist cultures, which conceive of the self as interdependent, fitting into and belonging to social context (Wang 2009). However, when Humphries and Jobson (2012) directly compared Chinese (collectivist) and British (individualist) subjects on the AMT, the latter group provided more specific memories compared to the former overall, but those with higher levels of trauma *still* produced significantly fewer specific memories than those with less exposure, despite preexisting differences in the way the self and specificity are regarded.

Another notable expansion is use of nonclinical populations, separated by levels of traumatic symptoms or exposure as opposed to diagnostic status. For example, Crane and colleagues (2014) utilized a sample of over five thousand adolescents to look at OGAM and trauma exposure history across a wide socio-demographic range of basically healthy individuals. Results indicated that exposure to a trauma in middle childhood was associated with a 60 % increase in the likelihood of OGAM in adolescence. Other nonclinical research on former political prisoners (Kleim et al. 2013), found it was neither level of trauma nor subsequent psychopathology but rather characteristics of experience following release that related to recall specificity.

Similarly, recent work has also examined the impact of postbereavement reactions on memory specificity. The concept of postbereavement pathology, termed Complicated Grief, is very closely related to that of PTSD. Both have the distinct feature of being directly linked to the occurrence of a precipitating, external event, as well as characteristics of rumination, negative self-views, and repeated intrusive memories (Prigerson et al. 2009). To date, studies considering both trauma and grief conditions have produced interesting, if not entirely consistent, results. Within bereaved individuals, Boelen et al. (2010) found that specificity correlated with symptom severity for Complicated Grief, but not for Depression or PTSD, while the degree to which individuals' specific memories were more related than unrelated to the loss was significantly associated with levels for all three. In addition, research (Neshat-Doost et al. 2014) comparing Afghani adolescents with and without childhood bereavement demonstrated the typical pattern of fewer specific memories and longer recall latency in those with exposure to the distressing event than those without. However, within bereaved individuals, Depression symptoms correlated with specificity, while PTSD did not.

Overall the implications of these different approaches and demonstrations of the OGAM phenomenon is not merely to contradict or confirm one another, but to suggest that the connection between trauma and autobiographical memory is intricate and nuanced.

The CaRFAX and Self-Memory-System Models of Memory

The dominant theoretical explanation of OGAM is the CaRFAX model (Williams et al. 2007) which explains the phenomenon within the context of the Self-Memory-System (SMS) account of autobiographical memory. Proposed by Conway and Pleydell-Pearce (2000), this basic theory proposes that memories are mentally constructed from representations contained in an underlying autobiographical knowledge base. This base is organized as a continuous hierarchy, with representations of broad themes or periods in our life story (e.g., *when I was in kindergarten*) at the highest level, followed by more narrowed ones of general events (e.g., *playing on the jungle gym*), and finally, those of discrete individual events (e.g., *the first time I made it across the monkey bars*), containing unique, sensory-perceptual details (e.g., *the textured plastic bars, faces of classmates watching, feelings of anxiety, triumph, etc.*) which characterize specificity, at the lowest level. While distinct, the levels of specificity are not divided in this

structure: the details (termed “event-specific knowledge”) are contextualized within a class of general events, which in turn is associated with lifetime periods. It thereby locates specific knowledge within an individual’s autobiographical memory as a whole, and the retrieval of a specific autobiographical memory is the activation of the connected representations of an event across all the levels of the knowledge base.

The SMS also provides a sense of how this construction of a memory operates as a specific pattern of activation. It maintains that memory retrieval is directed and coordinated by a central control process, termed the “working self” (Conway and Pleydell-Pearce 2000). An individual’s recall of their past is effectively driven by their current notion of self, a dynamic conception of self-image, goals, and expectations drawn from and grounded in the autobiographical knowledge base. Within this system, autobiographical memories may be constructed through either generative or direct retrieval. The latter occurs when something in the outside environment (through association, similarity, etc.) cues activation of lowest level, event-specific knowledge and, if that activation connects upwards, unintentionally recalls a memory. In contrast, generative retrieval is a top-down process, involving active mental search for a particular, desired memory. The activation of representations begins at a higher point in the hierarchy, and retrieval involves reaching down from intermediate, general representations in order to access the correct event-specific knowledge.

The phenomenon of OGAM, therefore, can be accounted for by SMS as a byproduct of truncation of this generative retrieval process. As Conway and Pleydell-Pearce explain, when the initial activation of event-specific knowledge is distressing, causing emotional disturbance or challenging current priorities of the working self, the process will be terminated before it’s able to fully retrieve those representations, resulting in the lack of specific details that characterizes overgeneral memories.

Building directly on this, the CaRFAX model from Williams et al. (2007) provides a conceptualization of the actual mechanisms underlying Conway and Pleydell-Pearce’s *dysfacilitation* of specific recall. OGAM is proposed to be the result of one or more of three mechanisms, each describing different means by which retrieval may be disrupted (Williams et al. 2007; see also Sumner 2012). Capture and Rumination refers to the potential for the retrieval process to be “derailed” at the general level. At the start of recall, initial activation of conceptual event representations may prompt the individual to think of other, related, conceptual thoughts about the self, becoming trapped in circular, general contemplation rather than progressing to specifics. Functional Avoidance is similar to the SMS explanation and, in many ways, restatement of the “affect regulation hypothesis” (Williams 1996). It describes how OGAM can result from a kind of maladaptive coping strategy: failure to retrieve specific details of traumatic or unpleasant memories means avoiding distressing feelings associated with them. Third, impairment in executive functions refers to a primarily cognitive, rather than affective, pathway to OGAM. The generative retrieval described by the SMS is a distinctly effortful task: recalling a single, specific memory requires an individual not only to initiate the effort for activation and inhibit irrelevant or intrusive thoughts, but also to maintain awareness of search criteria online so that each successive representation can be evaluated in comparison to the desired goal.

Theoretical Approaches in the Literature

Other theories have been proposed to explain the relationship between OGAM and PTSD. For example, a closely related suggestion that *thought suppression*, the discrete mental activity of attempting to stop thinking about a particular thought, has a causal role in posttraumatic OGAM (Neufeind et al. 2009). Indeed, in an experimental manipulation of suppression in assault survivors (Schönfeld et al. 2007), PTSD subjects retrieved fewer and more general memories than survivors without PTSD when explicitly instructed to suppress any thoughts of their trauma, but not when given control instructions. However,

while this implies thought suppression does have an impact on recall, further work is needed to clarify if it is in fact an underlying mechanism of OGAM in its own right. It is also possible the presence of intrusive memories in PTSD may contribute OGAM. In the autobiographical memory account of PTSD (Ehlers and Clark 2000) these sudden, involuntary recollections, usually of sensory impressions and associated emotions that correspond closely to the most distressing moments of the trauma, are explained as due to the trauma memory itself being poorly elaborated. Recent examination of memory in assault survivors (Kleim et al. 2008) found that when listening to the worst moment in a description of their trauma, survivors with PTSD had significant deficits in recall of autobiographical information, but not when listening to a nontraumatic negative life event from the same period.

However, the SMS and CaRFAX theories offer the most comprehensive account of OGAM and have acted as the theoretical framework for much of the subsequent research on its occurrence in PTSD. In addition to this general prominence, direct empirical investigations comparing perceptions of self to autobiographical recall in PTSD have found that both difficulty providing self-statements (Abdollahi et al. 2012) and discrepancies within self descriptions (Sutherland and Byrant 2008a) are associated with reduced specificity and trauma related memories on the AMT. In fact, evidence of the relation between altered memory and self-concept in PTSD goes as far back as McNally et al. (1995), which observed that PTSD veterans who still wore military regalia showed greater memory deficits than those who did not. The combined account of CaRFAX and SMS provides a way of directly conceptualizing this reciprocal relationship. That is, if the experience of trauma does indeed have a redefining effect on self-concept in those with PTSD, then the “working self” of memory will be altered, presumably resulting in a search process far more likely to activate distressing, trauma-related representations which call for premature truncation of recall.

Advances in Recent Literature

As theoretical and empirical approaches to OGAM research have expanded and evolved, new aspects of the phenomenon have begun to emerge, resolve, and become key to our understanding of autobiographical memory and PTSD.

The methods and technology employed in the study of memory have changed considerably since research on OGAM began, such as the focus on the role of biological processes in cognition and psychopathology. Recently researchers have begun to bring advances in neuroscience to bear on the topic of OGAM in PTSD. Reduced levels of basal cortisol in the Hypothalamic-Pituitary-Adrenal axis are a known feature of PTSD. Wingenfeld and colleagues (2012) have demonstrated that hydrocortisone increases autobiographical specificity and improves declarative recall in PTSD, while causing opposite, impairing effects in healthy controls. At the same time, work directed by St. Jacques and others (2011) has begun to adapt the AMT to imaging and use fMRI to delineate the actual neural activity occurring during cued posttraumatic recall. Although they have yet to study specificity directly, this work has already begun to suggest neural alterations linked to retrieval. Ongoing research examining biological alterations in autobiographical memory in PTSD will likely compliment current cognitive models.

Relationship to Future Thinking and Problem Solving

One recent research development that has distinctly changed the understanding of the OGAM PTSD phenomenon is that overgenerality appears not only in posttraumatic individuals' recall of the past but also their imagining of the future.

In principle, the concept of such correspondence between past and future is not a new one. Tulving (1985) proposed a single human cognitive capacity for “mental time travel,” hypothesizing that our ability to flexibly construct episodic mental representations is used both to relive episodes from the past we have already experienced, and to envision ones that could occur in the future. Moreover, this idea’s logical extension – that ability or lack of ability in autobiographical memory would also occur in future thinking and vice versa – has been demonstrated in a number of memory deficit or disturbed populations, including amnesia, schizophrenia, and depression (see Schacter et al. 2012). Even within PTSD, “future foreshortening” – negative evaluation of what is anticipated from the future and inability to imagine having a normal lifespan – is a long associated and symptomizing characteristic of the condition (Ratcliffe et al. 2014). In fact, going back to the initial study of OGAM in PTSD, researchers proposed the phenomenon was a reflection of the veterans with PTSD being in a way “psychologically stuck” in Vietnam, making the suggestion that “inability to remember the past may be related to an inability to envision the future; the magnitude of future foreshortening may be related to the severity of deficits in retrieving specific autobiographical memories” (McNally et al. 1995, p. 629).

Despite these many antecedents, systematic investigation and focused discussion of this concept in PTSD has only just begun. This is in part due to the very recent, strong interest the field of memory as a whole has taken in the unity of not only past and future thinking, but also theory of mind, scene construction, etc. as all mental representations in which the self is mentally projected into another time or perspective (see Schacter et al. 2012 for review). The *constructive episodic simulation hypothesis* (Schacter and Addis 2007) maintains that all these, and especially imagining future episodic events, engage a constructive memory system that facilitates the flexible recombination of elements from past events in order to project and simulate novel events in the future.

Following this hypothesis, two studies sought to examine directly the presence of this principle in OGAM disturbance of PTSD by measuring the amount of specificity in individuals’ cued description of the future, as well as the past. Brown et al. (2013) did this by asking veterans, with and without PTSD, to respond to cues with description of a related, specific event that was either remembered or anticipated and either recent (1 month) or remote (5–20 years). Performance on this modified task showed significantly less specificity from PTSD subjects in both past and future description, and also, for *all* participants a significant correlation between specificity in autobiographical memory and in future thinking. Shortly before, a study by Blix and Brennen (2011) looking at women with and without trauma exposure produced more mixed results. Contrary to the general direction of the literature, they found no overall relationship between subjects’ past and future specificity, only in terms of positive cues. While posttraumatic symptoms were related to memory specificity in the exposure group, this was not true of future thinking. Since then, however, other research (Kleim et al. 2014) not only demonstrated an association between PTSD and overgeneral future thinking across a large, mixed trauma sample but also found that sense of foreshortened future and perceived permanent change since the trauma are correlates of future event specificity.

Together these results provide growing support for the association between posttraumatic reactions and changes to future thinking that has long been entertained by the literature; however, the implications this carries for the condition as a whole may extend well beyond temporal projections. There is evidence that OGAM is related to the impairments in social problem solving seen in PTSD (Sutherland and Bryant 2008b). As the constructive episodic simulation hypothesis connects not only the ability for past and future thinking but also for perspective taking, scene construction, and mental stimulation as a whole, it also stands as a promising, logical explanation for this aspect of PTSD that carries such important implications for quality of life and functioning in the disorder.

Role in the Emergence and Course of the Condition

Another topic, which has been explored in the recent OGAM research and which is of central importance to any sustained discussion of PTSD, is the question of what and how different factors could potentially contribute to individual variation in the occurrence, maintenance, and course of the condition.

The idea that OGAM might be among those factors is originally drawn from discussion of that same possibility existing with depression (see Sumner et al. 2010 for review) and has received particularly consistent attention throughout the literature. Harvey et al. (1998) and Kangas et al. (2005) both investigated whether lack of specificity in posttrauma memory was associated with maintenance of an individual's severe, pathological reactions following trauma. They assessed autobiographical specificity in individuals with and without ASD who had recently been exposed to trauma (motor vehicle accident and cancer diagnosis, respectively), and then again 6 months after that event. At the first time point, both found that those with ASD recalled significantly fewer specific memories. In contrast, initial posttrauma specificity showed no connection to subsequent PTSD in cancer patients, presumably due to their not being truly "post" the traumatic experience of having their diagnosis. However, in the earlier study OGAM was the *only* significant predictor of PTSD and accounted for 25 % of the variance in symptom severity. This pattern of results was subsequently replicated across a substantially larger sample (Kleim and Ehlers 2008).

Together these suggest that even beyond the regularly demonstrated association of OGAM to PTSD, the phenomenon may also reflect a cognitive vulnerability to PTSD. To date, only one study (Bryant et al. 2007) has explicitly examined subjects' memory specificity completely prior to exposure to traumatic experience. In a longitudinal examination of trainee firefighters, comparison of pretrauma, done while subjects were still in class-based instruction, memory specificity to an evaluation of posttraumatic and depressive symptoms after a full 3 years of exposure to work related traumatic events, showed that the former was indeed predictive of the latter. Specifically, pretrauma presence of deficits in retrieval of specific autobiographical memories to positive cues accounted for 19 % of the variance in level of posttrauma symptoms. These results not only suggest the possibility that OGAM could be among the highly sought after risk factors of PTSD, they also point toward the importance of considering overgenerality not *just* as a result of having trauma memories but also as something that can also occur independently of and influence an individual's response to trauma.

In addition, research by Sutherland and Bryant (2007) investigated if changes to PTSD symptoms would have any influence or impact on autobiographical recall. The memory specificity of individuals with PTSD was assessed prior to and again after 6 months of Cognitive Behavioral Therapy treatment. At follow up, they found a significant positive correlation between change in participants' symptom severity and in retrieval of categorical memories to positive cues, suggesting that as PTSD symptoms reduced during treatment there was greater access to specific memories of positive experiences. Interestingly, unlike the previous study's implications of OGAM having a predicative quality, this research found no relationship at all between the specificity of pretreatment recall and differences in participant's response to treatment.

Most recently, Moradi et al. (2014) conducted a preliminary investigation into the possibility that memory specificity is not only related to the course of the condition, but could potentially even be used to change that course. MEmory Specificity Training (MEST), originally introduced (Raes et al. 2009) and implemented (Neshat-Doost et al. 2013) in work on individuals with depression, is a brief, group-based intervention designed to actively increase specificity in autobiographical recall. The program consists of 4 weekly psychologist led group sessions in which individuals are guided through activities and given take home assignments that prompted them to exercise specific episodic recall. For example, one task asks the individual to "recall two memories that were quite different from one another," while "pay[ing] close

attention to those memory aspects or elements that made each memory specific and unique” as a way of moving them away from the focus on prototypical or generic details which is a typical facilitator of overgeneral recall. To examine the efficacy and potential impact of such an intervention for PTSD, war veterans with PTSD, separated into MEST training and no-contact control groups, were assessed on memory specificity and posttraumatic and depressive symptoms at pretraining, immediately posttraining, and at a 3-month follow up. Compared to both the control group and their own pretraining baselines, those who received MEST training showed strong improvement in their specific recall and also a significant reduction in PTSD symptoms and severity, in particular intrusion and avoidance. Although all participants were still within the clinical range, these changes continued to hold and were still in place at follow up assessment 3 months later.

By indicating and evidencing the potential of autobiographical memory specificity as an active, contributing factor for vulnerability, recovery, and perhaps even intervention in PTSD, this work is of particular importance because it speaks so directly to central questions of PTSD research. To date, these results have given us clues, but they are not concrete answers. We have yet to see if the connection to the course of the disease over time can be traced as a whole within the same group of individuals, or if the correlations between specificity and symptoms at these different time points are actually generalizable characteristics of the phenomenon. Nevertheless, their impact on how we understand memory, self, and posttraumatic pathology has been profound, and there is great promise that the very near future of OGAM research will be able to replicate and unify this converging evidence and firmly elaborate and establish these exciting possibilities.

Practice and Procedures

Research on autobiographical memory in PTSD has typically focused on examining overgenerality in individuals exposed to traumatic events. The standard measure of degree or lack of an individual’s memory specificity is the Autobiographical Memory Test, originally employed by Williams and Broadbent (1986).

Some studies, especially if they intend to use the above measure in combination with a more distinct or novel paradigm may look *only* at individuals with PTSD, sometimes in comparison to those with no diagnosis or trauma exposure (although the use of such a control group is by no means exclusive to this approach). Other work has instead drawn subjects from nonclinical populations with no overt diagnosis who are then assessed and considered in terms of trauma history and symptom levels. However, it is most common for studies to compare individuals with and without PTSD exposed to similar types of traumatic events. In this case, subjects may be drawn from a specific exposure population (i.e., veterans from a particular war) which may help to ensure valid comparability between groups, or it may be a “mixed-trauma sample,” which may produce more generalizable results.

Within this variety of approaches, a number of different trauma types have been examined, although not all to the same degree. Although some work does not report the exact experiences making up subjects’ trauma histories, the major portion of studies done to date has been with either military combat exposure or experience of a discrete life-threatening event, specifically assault (both sexual and nonsexual) or motor vehicle accidents. In addition to this, the literature has also reported (especially in recent years) a number of other trauma types in its subjects, including the experiences of refugees and prisoners, those with severe illness, and even those without directly threatening events, such as bereavement or care giving.

Furthermore, whereas the majority of these studies are conducted at the same, single time point – after the trauma has ended and PTSD is diagnosed – a small, but growing portion of the research has been longitudinal. Such work has provided the opportunity to measure subjects’ overgenerality prior to and

after any trauma exposure, immediately and several months after a traumatic event, and over the course of disorder management and treatment. More research is needed to replicate these findings and examine the predictive, protective, and treatment possibilities they suggest for autobiographical memory specificity in PTSD.

Key Facts of Human Memory

- Contrary to the popular description of it as a file cabinet, memory is fundamentally *associative* and *constructive*. Every time we remember something, we actively *reconstruct* it from the separately stored, elements (conceptual and sensory information, etc.).
- The term “memory” refers to both *long-term memory*, large amounts of information we retain for long (sometimes indefinite) periods, or to *sensory* and *short-term memory*, which holds onto limited amounts of recent information for brief spans of time.
- Long-term memories take two forms: *explicit memory* (sometimes called “declarative”) is our conscious recollection of things and information, and *implicit memory*, recalled automatically and involving “nondeclarative” things like procedural memory.
- Our conscious, explicit recollections are further divided into *semantic*, memory of concepts, words, facts, etc. and *episodic*, memory of personal experiences and specific events, places, people, etc.
- Though they work together in recall, the above are distinct: you remember the name of the author of your favorite childhood book (*semantic*), but you also remember the night you hid under the covers with a flashlight because you had to find out how it ended (*episodic*).

Summary Points

- PTSD has been associated with Overgeneralized Autobiographical Memory (OGAM), a phenomenon in which individuals have difficulty recalling specific memories of their past.
- The standard measurement of OGAM is to present a series of single word cues to which subjects recall related memories.
- The relationship of OGAM to PTSD has been documented in a variety of trauma populations and at different time points in the course of the condition.
- A growing body of work has found that individuals with OGAM also imagine future events in an overgeneralized manner, which may contribute to the onset or maintenance of the disorder.
- OGAM is a factor believed to be associated with both vulnerability and maintenance of PTSD, and there is some evidence to suggest that memory specificity increases as individuals with PTSD recover from treatment.

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