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Autobiographical Memory Specificity and the Role of Defensiveness, Brooding, Executive Control, and Family Functioning

Lina Carvalho Schlachter
University of Tennessee - Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by Lina Carvalho Schlachter entitled "Autobiographical Memory Specificity and the Role of Defensiveness, Brooding, Executive Control, and Family Functioning." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Michael R. Nash, Major Professor

We have read this dissertation and recommend its acceptance:

Priscilla Blanton, Wesley Morgan, John Lounsbury

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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AUTOBIOGRAPHICAL MEMORY SPECIFICITY AND THE ROLE OF DEFENSIVENESS, BROODING, EXECUTIVE CONTROL AND FAMILY FUNCTIONING

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Lina Carvalho Schlachter

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ABSTRACT

The aim of this study was to examine the importance of defensiveness, tendency to brood, cognitive complaints and family functioning in the generation of specific autobiographical memories among a clinical sample of diagnostically diverse adult outpatients. Adults who report more defensiveness, more proneness to brood, more cognitive complaints and were raised by more dysfunctional families were hypothesized to elicit fewer specific memories. Further, trauma history and depressed mood were also explored. To explore these questions, I use data collected from eighty-eight adults. Pearson correlation is used to analyze the relationship between memory specificity and defensiveness, likelihood to brood, cognitive complaints and family functionality. Multiple regression analysis is used to explore whether the relationship between the previously mentioned variables depends on depressed mood. The results indicate:(1) patients who are more defensive have fewer specific memories, (2) the relationship between proneness to brood and memory specificity depends on mood; whereas non-depressed ruminators retrieve more specific memories, depressed ruminators retrieve fewer negative specific memories, (3) the relationship between cognitive complaints and memory specificity also depends on mood; whereas non-depressed patients who report more cognitive complaints retrieve more specific memories, depressed patients who report more cognitive complaints retrieve fewer specific memories, and (4) patients raised in less dysfunctional families retrieved more negatively overloaded specific memories. Further, there is no difference in memory specificity retrieval between traumatized and non-traumatized groups. In conclusion, being in contact with emotions allow patients to retrieve more specific memories. However, when the patient is depressed, an increased difficulty in controlling affect by being "stuck" in rumination or by feeling unable to think or concentrate impairs the ability of retrieving specific memories.

PREFACE

"We shall not cease from exploring
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time."

- T.S. Eliot (1936)

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LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactive Disorder
AMT	Autobiographical Memory Test
AMT-R	AMT with reversed instructions
ASD	Acute Stress Disorder
COG	Cognitive Complaints
CSA	Childhood sexual abuse
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
ED	Eating Disorder
ESK	Event-Specific Knowledge
FAD	The General Functioning subscale of the Mc Master Family Assessment Device
GAF	Global Assessment of Functioning Scale
L-r	Uncommon Virtues Scale
MDD	Major Depressive Disorder
MMPI-2	Minnesota Multiphasic Personality Inventory -2
MMPI-2-RF	Minnesota Multiphasic Personality Inventory - 2 Restructured Form
OCD	Obsessive Compulsive Disorder
PD	Personality Disorder
PTSD	Posttraumatic Stress Disorder
RC2	Low Positive Emotions Scale
RCd	Demoralization Scale
SAMT	Semantic Autobiographical Memory Test
TEC	Trauma Experiences Checklist
WAIS-III	Wechsler Adult Intelligence Scale - III

CHAPTER 1

INTRODUCTION

It has been argued that difficulty in retrieving specific memories is associated with major depressive disorder (MDD), acute stress disorder (ASD), and posttraumatic stress disorder (PTSD; Harvey, Bryant, & Dang, 1998; Kangas, Henry, & Bryant, 2005**;** McNally, Lasko, Macklin, & Pitman, 1995; Wessel, Merckelbach, & Dekkers, 2002). Some theorists go further, positing that certain specific types of traumatic events engender anomalies in autobiographical memory specificity whether or not the individual has a diagnosable disorder. Childhood sexual abuse (CSA; e.g., Kuyken & Brewin, 1995; Burnside, Startup, Byatt, Rollinson, & Hill, 2004; Henderson, Hargreaves, Gregory, & Williams, 2002), parental abuse (e.g., Dalgleish, Yiend, Tchanturia, et al., 2003), combat-related traumas (e.g., McNally et al., 1995), exposition to war atrocities (e.g., Wessel et al., 2002), burn injury (e.g., Stokes, Dritschel, & Bekerian, 2004), and cancer (e.g., Kangas et al., 2005) have all been cited as examples of events precipitating impaired memory specificity. Why (and to what extent) these disorders and pathogenic events are associated with an underproduction of well-articulated (i.e., specific) autobiographical memories remains unclear.

The Autobiographical Memory Test and Its History

The Autobiographical Memory Test (AMT) was based on Francis Galton's cue-word method as adapted by Baxter, Yamada and Washburn (1917), Morgan, Mull, and Washburn (1919), Lloyd and Lishman (1975), Crovitz (1973) and Robinson (1976).

The cue-word method was first used by Galton (1879) to gauge how long it took him to retrieve memories in response to cue-words (e.g., carriage, avenue, box). He also registered the

distribution of his memories across his life span and hypothesized that the ability to associate to cue-words was related to intelligence.

Inspired by the work of Galton, Jung (1918/1969) also investigated word associations. He was interested in the associations people had for certain cue-words as well as in the delay between stimulus and response. Jung hypothesized that the elicited associations were related to unconscious mental processes and that people would have difficulty in associating due to repression.

In the study by Baxter et al. (1917), participants were exposed to a practice series in free associations. First, participants practiced free associations using the first thirty words of the Kent-Rosanoff series (a list of one hundred words that elicit similar reactions in most people). Then, participants were informed that two more word series would be given. To the first word series, they were instructed to tap on a table as soon as the stimulus word elicited recollection of an unpleasant personal experience. To the second word series, subjects were instructed to tap on the table as soon as a stimulus word elicited recollection of a pleasant personal experience. Baxter and his colleagues found that people with a cheerful temperament were slower to recall unpleasant ideas. In a later study, Morgan et al. (1919) asked participants to report the first idea that occurred to them after a stimulus word was spoken as well as whether the idea was pleasant or unpleasant. In this study, they found that subjects judged as optimistic more frequently free associated to pleasant memories than did subjects judged to be pessimistic.

Interested in examining the effect of depression on the association between readiness of recall and pleasantness or unpleasantness of the memory, Lloyd and Lishman (1975) tracked the time participants required to recall a memory to each cue-word of a list that had both positively and negatively loaded emotional valence words. Participants gave a memory associated with

each cue-word of the list. This study found that less depressed patients recalled pleasant memories faster than unpleasant memories whereas severely depressed patients recalled unpleasant memories faster than pleasant memories.

Crovitz (as cited in Robinson, 1976) replicated Galton's observation that associations are frequently recollections of experiences. In addition to the replication, Crovitz found that instructing subjects to recover personal and specific experiences in response to stimulus words substantially increased the number of recollections elicited. Crovitz also confirmed that these associations tapped a wide range of time periods in people's lives.

Inspired by Crovitz's study, Robinson believed that "if the conditions for eliciting such [specific personal] recollections are suitably controlled, and if the various aspects of the memory reports are carefully assessed, we should be able to probe autobiographical memory in a systematic and objective manner" (1976, p. 580). For this reason, Robinson's study accessed: (1) whether stimulus words designating objects, activities, or feelings would elicit different types of specific memories with different latencies; (2) age of the subject at the time of the remembered episode; (3) degree of memory specificity, and (4) type or class of experience reported.

Robinson's study required two sessions. In the first session, three different sets of words (one set with 16 terms for common objects, another set with 16 terms for common activities, and the other set with 16 terms referring to various affective states) were presented as prompts for retrieval of specific life-memories. In their response to each stimulus word, participants were instructed to report an experience from their own lives. After participants were given all 48 prompt-words, instructions for dating each reported memory were given. Subjects returned a week later and again dated each memory reported during the previous session. Three results of general interest were obtained in this study: (1) affect prompted memories were more recent and

required more time for recollection than object or activity prompted memories, (2) there was a curvilinear relationship of response time to event age, with a peak in response time for memories from intermediate years (5.62 to 8.09 years of age), and (3) females gave more recent memories and responded more quickly for object and activity prompts than males.

Finally, Williams and Broadbent (1986) studied patterns of recall in personal memories of suicide attempters by examining their responses to the newly created Autobiographical Memory Test (AMT). Ten of Robinson's emotional cue words were used in their study, five pleasant words (happy, safe, interested, successful, and surprised) and five unpleasant words (sorry, angry, clumsy, hurt (emotional), and lonely), and subjects were given one minute to retrieve a specific personal memory in response to each cue-word. If subjects did not retrieve a memory that was specific, they were prompted to do so ("Can you think of a specific time—one particular episode?"). If subjects did not retrieve any specific memory in the time available, the experimenter proceeded to the next item. Subjects dated the memory as accurately as possible after all 10 cue words were presented. Williams and Broadbent found that suicide attempters retrieved positive memories slower than the control group (patients that were hospitalized for physical investigations) and were more likely to access nonspecific memories, mainly to positive cue-words, than the control group.

Since then, the AMT has been used as a method of assessing autobiographical memory specificity. It has been a growing interest in connecting the phenomenon of reduced memory specificity to a history of depression and trauma, and definite explanations of why people have difficulty in retrieving specific memory as well as how this phenomenon occurs are still needed.

The Phenomenon of Reduced Autobiographical Memory Specificity and Trauma

Early Trauma and Autobiographical Memory Specificity

Kuyken and Brewin (1995) were the first to investigate the role of early adversities in the development of general autobiographical memories with depressed patients. In a sample of depressed women, they found that those who reported being sexually abused as children retrieved fewer specific autobiographical memories than those who did not report childhood sexual abuse (CSA). In addition, they found that those who reported high levels of avoidance of spontaneous memories of abuse in the previous week of the study retrieved fewer specific autobiographical memories. Henderson, Hargreaves, Gregory, and Williams (2002) replicated this finding when investigating female college students with and without a story of CSA. They found that those who reported CSA were less specific when retrieving autobiographical memories, more depressed, angry, anxious and held more dysfunctional beliefs than those who did not report CSA. Further, they found that, within the CSA group, memory specificity was independent of current mood.

Meesters, Merkelbach, Muris, and Wessel (2000) investigated the effect of trauma on memory with adolescent residents of an urban institution for youth care. However, they used the semantic autobiographical memory test (SAMT), a test inspired by the AMT that does not require recollection of affective autobiographical memories, but instead neutral and personal memories such as "the name of the street you lived on." Adolescents with an alleged story of trauma (physical maltreatment, neglect, and sexual abuse) performed more poorly when reporting autobiographical facts than non-traumatized adolescents. Interestingly, the SAMT scores were not related to depression.

Wessel, Merckelbach and Dekkers (2002) examined a Dutch-Indonesian sample of adults who were exposed to World War II events as young children. They used the AMT and found that those with a psychiatric diagnosis retrieved fewer specific memories than those without a psychiatric diagnosis. Further, they verified that intrusive memories and avoidance of reminders of trauma were related to fewer specific memories. This study, therefore, indicates that trauma experience may be not a sufficient explanation for the phenomenon of reduced memory specificity.

De Decker, Hermans, Raes, and Eelen (2003) explored the relationship between different types of trauma (emotional neglect, emotional abuse, physical abuse, sexual approach and sexual abuse) and memory specificity using adolescent inpatients. They found that general trauma, emotional abuse, physical abuse and sexual abuse were associated with fewer specific memories. In addition, they found that higher levels of trauma – in terms of closeness of the relation to the abuser, the age of onset, the duration of the abuse, and how disturbing it was for the individual – were associated with reduced autobiographical memory specificity. Further, in this study, depression, anxiety, worry, hopelessness and subjective stress were not related to the retrieval of specific memories.

Burnside, Startup, Byatt, Rollinson, and Hill (2004) also investigated the relation between some characteristics of the sexual abuse and memory specificity. They studied women who were sexually abused as children and found that those who experienced abuse at a younger age and over a longer duration retrieved fewer specific memories. In addition, they found that those who had a history of major depressive disorder (MDD) had more difficulty in retrieving specific memories than those who did not have.

However, some studies failed to find the association between early trauma and reduced memory specificity. Wilhelm, McNally, Baer, and Florin (1997) investigated the presence of physical and sexual trauma in patients with obsessive compulsive disorder (OCD) and healthy controls. They found that difficulty in retrieving specific events was not associated with OCD per se, but was related to a comorbid diagnosis of MDD. Further, they found that memory specificity was only marginally associated with childhood abuse history, but in the opposite direction: *more* specific memories were retrieved by the abused group.

Wessel, Meeren, Peeters, Arntz, and Merckelbach (2001) examined the role of childhood trauma (emotional neglect, emotional abuse, physical abuse, physical neglect, and sexual abuse), major depressive disorder, and anxiety disorders in memory specificity. They found that the diagnosis of MDD predicted fewer specific memories whereas depression severity and anxiety disorders did not. They also found that the educational level predicted memory specificity. However, none of the types of childhood trauma predicted diminished autobiographical memory specificity, which may be explained by the relatively mild and infrequent reports of trauma.

Arntz, Meeren, and Wessel (2002) also failed to find an association between memory specificity and early trauma. They found in a mixed sample of thirty-nine psychiatric inpatients that MDD and personality disorder (PD) predicted number of specific memories. MDD was associated with fewer specific memories, and PD was associated with more specific memories. Borderline personality disorder and anxiety disorders were not associated with memory specificity. Furthermore, they found that the questionnaire utilized in their study, the Childhood Trauma Questionnaire, had its total score and its sexual abuse subscale total score not associated with retrieval of fewer specific memories. This study does not offer details about the presence of childhood trauma in their patient groups.

Hermans et al. (2004) replicated the associations between physical abuse and reduced memory specificity, but failed to replicate the association between CSA and memory specificity. They used 28 adult inpatients who met the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) criteria for MDD to explore the impact of different types of early trauma (emotional neglect, emotional abuse, physical abuse, sexual approach and sexual abuse) on memory. The only type of trauma found to be connected to memory specificity was physical abuse. Here, the higher the score on the physical abuse scale, the less specific participants were for both positive and negative cue-words. Further, in this study, severity of depression, avoidance, intrusion, and neuroticism were not associated with autobiographical memory specificity.

Finally, Kuyken, Howell, and Dalgleish (2006) investigated depressed adolescents and found that depressed adolescents with no history of trauma were less specific than never-depressed who did not report trauma. Further, they found that depressed adolescents with a history of trauma were more specific than depressed adolescents who did not report a history of trauma. In addition, they found that higher level of trauma-related avoidance was associated with more specific memories.

Trauma in Adulthood and Autobiographical Memory Specificity

Some studies investigated the effect of trauma experienced in adulthood on the phenomenon of memory specificity. McNally, Litz, Prassas, Shin and Weathers (1994) investigated Vietnam combat veterans with posttraumatic stress disorder (PTSD), with other psychiatric disorder, or with no disorder. They found that PTSD subjects retrieved fewer specific autobiographical memories, especially to emotionally positive cues, than did health subjects.

Further, they also concluded that reduced memory specificity was related to PTSD symptoms, depression and anxiety.

Willebrand et al. (2002) used eighteen post-burn adult patients in their study and found that those patients did not retrieve fewer specific autobiographical memories than healthy controls. They also verified that their post-burn patients, however, were as depressed and anxious as their healthy controls.

Harvey, Bryant and Dang (1998) explored the relationship of acute stress disorder (ASD) and memory specificity on motor vehicle accidents survivors. They observed that subjects who had ASD had higher scores on acute stress severity and depression. Further, ASD subjects retrieved fewer specific memories, and depression was a mediator of this relationship. Six months after testing, they observed PTSD symptoms in the same subjects and concluded that reduced memory specificity predicted PTSD symptoms.

Kangas, Henry and Bryant (2005) investigated cancer patients who met criteria for ASD. They found that cancer subjects who had ASD retrieved fewer specific memories than cancer patients without ASD. Six months after testing, the same subjects were assessed and, in contrast to Harvey, Bryant and Dang's study, they verified that reduced memory specificity did not predict diagnosis of PTSD.

In conclusion, results concerning trauma are mixed, but overall they indicate that trauma has an effect on reduced memory specificity. However, trauma per se is not a sufficient explanation for the phenomenon of autobiographical memory specificity.

A Hypothesis about the Phenomenon of Autobiographical Memory Specificity

Williams (1996) speculated that when a subject is asked to report a specific memory associated with a cue-word (such as "sad"), first there is an activation of intermediate categoric descriptions (such as "I never had friends") and then there is the recollection of a specific event (such as "The day John told me he didn't want to be my friend"). Hence, there are hierarchies in which encoded events are organized (see figure 1, all figures and tables are in the appendix). However, Williams posits that the search for a specific memory may be aborted, probably because specific memories elicit more affect than categoric memories, and an extreme negative affect is to be avoided. As a consequence, an intermediate description will activate other self-descriptions, and the retrieval of a specific memory will be impaired. This is a phenomenon known as "mnemonic interlock" (Williams, 1996, p. 261).

Conway and Pleydell-Pearce (2000) offer a different explanation for the phenomenon of autobiographical memory specificity, which may complement Williams' hypothesis. In their model, there are three levels of specificity: lifetime periods, general events, and event-specific knowledge (ESK) (see Figure 2). In lifetime periods, there is a thematic and a temporal knowledge about common features of a given period. General events are more specific and consist of repeated events (e.g. visiting my cousin) or single events (e.g. my summer in Charleston). Event-specific knowledge refers to more concrete sensory-perceptual aspects of unique events. The retrieval of memories is regulated, according to Conway and Pleydell-Pearce, by a working-self whose one of its main goals is to avoid affective disturbance, and hence regulate affect. Therefore, a failure to recollect specific memories is believed to occur when the searched memories are not related to the working-self's goals.

Another possible explanation for the reason why people may have difficulty in retrieving memories, not necessarily specific ones, is, as Jung hypothesized, repression. Repression, as formulated by Freud (1915/1982), is an impediment that a thought advances to the consciousness or stays there. There is, hence, an incompatible idea that is repressed by the ego, and one wants (consciously or unconsciously) to no longer know about the repressed experience. Lacan, however, understood the repression slightly differently and proposed that we do not repress a drive, but the role of a signifier. According to Lacan, we repress what "could have been articulated (and then can't be articulated because it is repressed)" (Lacan, 1957). Therefore, connecting psychoanalysis to the Conway and Pleydell-Pearce's hypothesis as well as Williams' hypothesis, repression is conducted by "the working-self," and people report fewer specific memories because they are avoiding being in contact with traumatic experiences or negative affect. Further, Raes, Hermans, Williams and Eelen (2006) associated reduced memory specificity with "repressive coping," and Hermans, Raes and Williams (2006) supported my hypothesis when suggesting that the phenomenon of autobiographical memory specificity may be connected to the repression concept.

Later, Williams et al. (2007) suggested that there are three mechanisms that underlie the phenomenon of autobiographical memory specificity, alone or in combination: (1) functional avoidance, (2) capture and rumination, and (3) impaired executive control. Functional avoidance is based on the idea that recollection of general memories may elicit less affect than recollection of specific memories and that people abort the search for specific memories to avoid aversive consequences. Capture and rumination is related to the phenomenon of "memory interlock," in which people are captured by the intermediate description level and are not able to progress to the retrieval of specific autobiographical memories. Finally, impaired executive control is related

to the difficulty in performing cognitive tasks, which happens when depressed and traumatized people have difficulty in inhibiting interfering cognitive material.

The role of rumination on memory specificity has been investigated by numerous researchers. For example, Lyubomirsky and Caldwell (1998) investigated how self-focused rumination and distraction have an effect on the retrieval of autobiographical memories (i.e. definite and specific experiences) on dysphoric and non-dysphoric students. They hypothesized that dysphoric individuals who induced to ruminate would have an impaired problem-solving and would also have the availability of negative thoughts and memories about the self increased. To test their hypotheses, they instructed students to first engage in either a ruminative or a distracting task and then spend five minutes recalling autobiographical memories. Overall, they confirmed their hypothesis that rumination in dysphoric mood elicits the retrieval of more negative autobiographical memories.

Using members of a volunteer panel, Teasdale and Green (2004) investigated whether a ruminative and a reflective dispositional self-focus would elicit different numbers of autobiographical memories. In their study, they instructed participants to retrieve an autobiographical memory of a specific personal event. Further, they also measured how "at-one with things" the participants felt at the time of the experience. They found that more rumination was related to the recall of more specific memories low in at-oneness and of more unhappy memories. Reflection, however, was not associated with number of memories recalled.

Watkins and Teasdale (2004) explored whether reflective self-focus elicited more specific memory recall compared to ruminative self-focus. They used volunteers who met the criteria for a current major depressive disorder and instructed them to either engage in a

ruminative or in a reflective task. They found that participants in a reflective task retrieved more specific memories after manipulation than participants in a ruminative group.

Also using depressed patients, Raes et al. (2005) investigated whether memory specificity mediated the relationship between rumination and poor-problem solving. They found that all their variables (rumination, memory specificity and problem solving) were significantly related (more rumination was associated with fewer specific memories), and confirmed their hypothesis that memory specificity mediated the relationship between rumination and poor-problem solving. Further, Raes et al. (2006) replicated their finding that reduced memory specificity is associated with rumination in a depressed sample and found that rumination was a mediator in the relationship between depression severity and memory specificity.

Sutherland and Bryant (2007), using a non-clinical sample, instructed participants to retrieve specific memories after participating in a rumination or a distraction task. They replicated the finding that a negative valence rumination impaired specific memory retrieval in participants reporting more depression. Further, they claimed that the same did not happen in the non-depressed group because they may have more adaptive strategies that may be associated with less emotional avoidance.

Crane, Barnhofer, Visser, Nightingale and Williams (2007) attempted to replicate the findings in participants who had a history of depression but no depression at the moment of the study. They found that participants allocated in a ruminative manipulation recovered fewer specific memories than participants allocated in a reflective manipulation, but this result was found only in those who reported high trait tendencies towards depressive rumination.

Finally, Raes, Watkins, Williams and Hermans (2008), using a non-clinical student sample and a sentence completion procedure (the Sentence Completion for Events from the Past

Test) to assess memory specificity, had their participants divided into two groups (ruminative and reflective) and found that those allocated in the ruminative group retrieved fewer specific memories than those allocated in the reflective group. However, this result was mainly due to "the non-ruminative mode reducing overgenerality (or increasing specificity), rather than to the ruminative mode increasing overgenerality (or decreasing specificity)" (p.754). Further, they suggested that a reflective thinking mode may be the habitual mode of processing in a nonclinical group.

Therefore, studies generally suggest that rumination maintain or impair the number of specific memories retrieved whereas reflection elicit more specific memories in depressed or recovered depressed patients. Studies that did not control for diagnosis (i.e., used the cut-off scores of scales such as the Beck Depression Inventory or used no scale to measure mood), though, had mixed findings. Two studies (Lyubomirsky & Caldwell, 1998; Teasdale & Green, 2004) found that more rumination was associated with more negative specific autobiographical memories, one study (Sutherland & Bryant, 2007) found that rumination with negative affect content impaired memory specificity retrieval in participants reporting more depression, and another one (Raes, Watkins, Williams & Hermans, 2008) found that reflection elicited increased memory specificity and rumination maintained the number of specific memories.

Another hypothesis explaining difficulty in retrieving specific memories is that reduced memory specificity occurs due to an impaired executive control, an idea that was first investigated by Dalgleish et al. (2007). In their study, the authors conducted eight different experiments and concluded that the AMT is related to diverse executive control measures (e.g. Thustone verbal fluency test, block design of the Wechsler Adult Intelligence Scale –III, Cattel's Culture Fair Test of fluid intelligence) and that executive control mediates the relationship

between depressed mood and AMT performance. The mediator role of the executive control was verified by an AMT with reversed instructions (AMT-R), which was conducted by the experimenters requesting the subjects to remember *overgeneral* (non-specific) memories instead of specific memories. As predicted, more depressed subjects retrieved more specific memories than less depressed subjects. Here, depressive symptoms were indexed by a self-report questionnaire (the Beck Depression Inventory). These results have a major impact because they reveal that more depressed subjects retrieve fewer specific memories on the AMT mostly due to impaired executive control and not to functional avoidance.

Dalgleish et al. (2008) extended this study and investigated the role of executive control and affective regulation on autobiographical memory specificity in subjects with posttraumatic stress disorder. They used the AMT-R as one of the study measures, and verified that individuals who had more PTSD symptoms retrieved fewer specific memories. They concluded that subjects who experience posttraumatic stress symptoms retrieve fewer specific memories mostly due to functional avoidance and not to impaired executive control (in contrast to what was observed in subjects who experience depressed mood).

In conclusion, people may have difficulties recollecting specific autobiographical memories for three reasons. First, people may seek to avoid memories due to a painful affect that those experiences may elicit. This is related both to the functional avoidance hypothesis, which states that people may abort the search for specific memories because they may elicit intense affect, and also to the working-self hypothesis by Conway and Pleydell-Pearce (and hence also to the repression theory). Second, some people may tend to be "captured" by thoughts or mnemonic material. Finally, these effortful attempts to control affective experiences may lead to a diminution of executive resources required for general adaptation (Williams et al., 2007).

Further, Williams (1996) proposed that acquiring an intermediate description inhibition (i.e., ability to inhibit overgeneral memories and remember specific memories) during memory search is a function of early development. Early experiences may affect the establishment of inhibition processes, and hence may play a central role in the development of a difficulty in retrieving specific memories. Therefore, childhood experiences are very important to the acquisition of intermediate descriptions inhibition. Here, I suggest that if autobiographical memory specificity is a function of early development, early environment has a role in it. Therefore, family functioning would play a very important role in the phenomenon of memory specificity.

Studies Examining Family Functioning and Memory

Dalgleish et al. (2003) were the first to investigate the role of parenting style on memory specificity. They used eating disorder (ED) patients and healthy controls to examine if ED and parenting style (parental overcontrol, parental indifference, and parental abuse) predicted memory specificity. They found that ED patients retrieved fewer specific memories, and, in the ED group, only the level of parental abuse was correlated with the tendency to have reduced memory specificity to negative cues. The parental abuse effect continued to be statistically significant when depressed mood levels, anxiety levels and other adversive parenting were controlled for. In the control group, none of the parenting styles was found to be correlated with memory specificity.

Schlachter, Weiner and Nash (in press) investigated the role of childhood sexual abuse and family functioning on memory specificity using a non-clinical sample of undergraduate students. They found that abused males retrieved fewer specific memories than non-abused

males, abused females, and non-abused females, and that after accounting for family functioning, there were no group differences regarding memory specificity.

Other researchers studied the effect of family functioning on children's ability to recollect the traumatic experiences, but never on their ability to recollect specific autobiographical memories. For example, Eisen and Goodman (1998) reported, in a literature review about factors that affect children's memory for traumatic events, that supportive adults can help children retain trauma memories more accurately and coherently, whereas Fivush (1998) emphasized in a literature review about children's recollections of traumatic and nontraumatic events that when children lack adult guidance in discussing traumatic experiences, they may not be able to integrate negative experiences, and thus are left with recurring fragments of memory that are associated with highly negative affect that cannot be resolved. Hence, those two ideas support my hypothesis that family functioning may be another important variable to the acquisition of a specific retrieval style.

Proposed Study

Given that retrieval of specific memories may be hindered by phenomena such as functional avoidance, rumination and impaired executive control (Williams, 2007), this study investigates whether and how autobiographical memory specificity is associated with those mechanisms. Because most of the studies investigating the relationship between those variables were conducted in a depressed sample (e.g. Watkins & Teasdale, 2004, Raes et al., 2005, Dalgleish et al., 2007), differences between a "depressed group" and a "non-depressed group" are also explored. The following hypotheses are tested:

Hypothesis 1: Given that Williams (1996) defends that a specific memory may elicit more affect than categoric memories, and people avoid extreme negative affect by not retrieving specific memories, I investigate to what extent defensiveness (which may be related to functional avoidance or repression) impairs memory specificity retrieval such that high scores on the uncommon virtues (L-r) scale of the Minnesota Multiphasic Personality Inventory - 2 Restructured Form (MMPI-2-RF) will be associated with fewer specific memories in the whole sample. For this, Pearson's correlation is used, and a significant association at an alpha level of .05 rejects the null hypothesis. Moreover, because higher L-r scores are commonly associated with individuals being purposefully unwilling to disclose unfavorable characteristics, the data of court-ordered intake patients will be filtered out and I test whether the association between memory specificity and defensiveness is still significant. For this, Pearson's correlation is used, and a significant association at an alpha level of .05 indicates that the null hypothesis must be rejected.

Furthermore, I test whether the relationship between memory specificity and defensiveness depends on depressed mood. All patients diagnosed with depressed mood who have a t-score equal or greater than 65 on the RC2 (low positive emotions) scale in the MMPI-2-RF will meet the criteria for being included in the depressed group. I hypothesize that more defensiveness is related to reduced memory specificity independently of mood. For this, multiple regression analysis is used, and an interaction between depressed mood and the uncommon virtues scale at an alpha level of .05 is used to reject my research hypothesis.

Hypothesis 2: Given that studies frequently find that rumination in depressed people maintain or impair memory specificity retrieval (e.g. Watkins & Teasdale, 2004; Raes et al., 2005; Raes et al., 2006), I investigate to what extent tendency to brood impairs memory specificity retrieval

such that high scores on the demoralization (RCd) scale of the MMPI-2-RF, that is, more proneness to brooding, will be associated with fewer specific memories in the whole sample. Pearson's correlation will be used, and any association at an alpha level of 0.05 is used to reject the null hypothesis.

In addition, I test whether the relationship between memory specificity and brooding depends on depressed mood. All patients diagnosed with depressed mood who have a t-score equal or greater than 65 on the RC2 (low positive emotions) scale in the MMPI-2-RF will meet the criteria for being included in the depressed group. I hypothesize that more brooding is related to reduced memory specificity independently of mood. For this, multiple regression analysis is used, and an interaction between depressed mood and the demoralization scale at an alpha level of .05 is used to reject my research hypothesis.

Hypothesis 3: Given that Dalgleish et al. (2007) states that impaired executive control is an important variable explaining reduced memory specificity in depressed patients, I investigate to what extent cognitive complaints is related to fewer specific memories such that high scores on cognitive complaints (COG) scale of the MMPI-2-RF, that is, more cognitive complaints, will be associated with fewer specific memories on the AMT. For this, Pearson's correlation will be used, and any association at an alpha level of 0.05 is used to reject the null hypothesis.

In addition, I test whether the relationship between memory specificity and cognitive complaints depends on depressed mood. All patients diagnosed with depressed mood who have a t-score equal or greater than 65 on the RC2 (low positive emotions) scale in the MMPI-2-RF will meet the criteria for being included in the depressed group. I hypothesize that more cognitive complaints is related to reduced memory specificity independently of mood. For this, multiple

regression analysis is used, and an interaction between depressed mood and the cognitive complaints scale at an alpha level of .05 is used to reject my research hypothesis.

Hypothesis 4: Given that Dalgleish et al. (2003) found that a history of parental abuse was related to fewer specific memories in an eating disordered group, and Schlachter, Weiner and Nash (in press) found that male undergraduate students who were raised in more dysfunctional families retrieved fewer specific memories, I hypothesize that family dysfunction (i.e. high scores on the General Functioning subscale of the Mc Master Family Assessment Device Family Assessment Device) will be associated with fewer specific memories on the AMT. For this, Pearson's correlation will be used, and any association at an alpha level of 0.05 is used to reject the null hypothesis.

In addition, I test whether the relationship between memory specificity and family functioning depends on depressed mood. All patients diagnosed with depressed mood who have a t-score equal or greater than 65 on the RC2 (low positive emotions) scale in the MMPI-2-RF will meet the criteria for being included in the depressed group. I hypothesize that higher levels of family dysfunction will be associated to fewer specific memories independently of mood. For this, multiple regression analysis is used, and an interaction between depressed mood and the family functioning at an alpha level of .05 is used to reject my research hypothesis.

Hypothesis 5 (Exploratory): Given that a history of trauma has controversially found to engender reduced autobiographical memory specificity whether or not the individual has a diagnosable disorder (e.g., Kuyken & Brewin, 1995; Henderson et al., 2002; Burnside et al., 2004, Dalgleish et al., 2003, McNally et al., 1995), this study investigates whether a history of trauma (emotional neglect, emotional abuse, physical abuse, sexual harassment and sexual abuse) explains reduced memory specificity. A 2 (gender: male vs. female) x 2 (abuse status: abused vs. non-abused)

between-subjects analysis of variance (ANOVA) will be carried out for the following traumas: emotional neglect, emotional abuse, physical abuse, sexual harassment, sexual abuse. Difference between means found to be statistically significant at a two-tailed alpha-level of 0.01 (as suggested by the Bonferroni correction) is used to reject the null hypothesis.

CHAPTER 2

METHODOLOGY

Research Design

The present study involved a clinical sample of patients who presented for intake at the Psychological Clinic at the University of Tennessee. In the clinic, patients filled out the written version of the Autobiographical Memory Test (AMT) and also completed questionnaires concerning their personality, their current symptoms, and trauma history.

Participants

Ninety-two adult patients who were doing an intake at the Psychological Clinic at the University of Tennessee were tested. The questionnaires used in this study were incorporated into the intake packet.

Procedures

Patients who came for intake in the Psychological Clinic at the University of Tennessee from May of 2008 to February of 2009 and were 18 years old or older were eligible for this study. Upon arrival in the clinic, they received a packet containing a client information form, policies and procedures information sheet, a fee agreement, HIPAA policies, either the Minnesota Multiphasic Personality Inventory -2 (MMPI-2) or the Minnesota Multiphasic Personality Inventory -2-Restructured Form (MMPI-2-RF), the Symptom Checklist-90 (SCL-90), the written version of the AMT, the Trauma Events Checklist (TEC), and the General Functioning (GF) subscale of the Mc Master Family Assessment Device (FAD). All the forms

were filled out in the waiting area in the Psychological Clinic, and completion of the packet lasted in average two to three hours. After completing the forms and the questionnaires, patients were interviewed by a therapist for forty-five minutes.

Measures

The measures present in my study were: the Minnesota Multiphasic Personality Inventory -2 (MMPI-2), the Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF), the Autobiographical Memory Test, the Traumatic Experiences Checklist (TEC), and the Family Assessment Device (FAD).

Description of the measures

Demographic details (age, education and marital status)

The Autobiographical Memory Test (AMT): This study used the written version of the AMT (Williams & Broadbent, 1986). This version has a similar overall pattern of AMT scores to that found in the interviewer-administrated version (Henderson et al., 2002). In this study, participants were given 10 affectively overloaded cue words: 5 positive (happy, relieved, excited, lucky, and relaxed) and 5 negative (bored, hopeless, failure, lonely, and sad).

Responses were coded according to whether they were specific, extended, categoric or a semantic associate (see Figure 3), which followed a hierarchical model of memory retrieval. A specific memory is an event that occurred on a particular day, lasting less than a day ("the day my cat died"), and a score of 4 was given to each specific memory retrieved. An extended memory refers to extended periods ("I felt very peaceful last Summer"), and a score of 3 was given to each extended memory retrieved. A categoric memory refers to repeated activities ("Going to the church with my family"), and a score of 2 was given to each categoric memory

retrieved; and a semantic associate refers to responses such as "my dog" to cue-words such as "happy," a score of 1 was given to each semantic associate retrieved.

Trauma Experiences Checklist (TEC): This checklist inquires about 25 types of trauma, such as emotional neglect, emotional abuse, physical abuse, sexual harassment, and sexual abuse. Before every item, there is a question "Did this happen to you?" Subjects should answer "yes" or "no" and also give information about their age at the time of the trauma as well as about the impact of trauma (in a scale from 1 to 5, a score of 1 for no impact, and a score of 5 for an extreme amount of impact). Examples given of emotional neglect were being left alone and insufficient affection, and of emotional abuse were being belittled, teased, called names, threatened verbally, or unjustly punished. Further, examples of physical abuse were being hit, tortured, or wounded. Sexual harassment was defined as acts of a sexual nature that do not involve physical contact, and sexual abuse was defined as unwanted sexual acts involving physical contact. Examples of items found in the TEC would be: "Sexual harassment by more distant members of your family" or "Threat to life from illness, an operation, or an accident" (Nijenhuis, 1999).

Family Assessment Device: The 12-item General Functioning (GF) subscale of the Mc Master Family Assessment Device (FAD), a device designed to measure family functioning, was used. This scale focuses on six dimensions of family functioning: Problem Solving, Communication, Roles, Affective Responsiveness, Affective Involvement, and Behavior Control. The GF subscale consists of 12 statements, such as "in times of trouble we can turn to each other for support," with response categories of: strongly agree, agree, disagree and strongly disagree. The categories are given scores of 1 to 4, and the sum of the scores is divided by 12. Hence, the final score ranges from 1 to 4, and the higher the score, the greater the family

dysfunctionality. The cut-off score is 2, which means that everything equal or above 2 indicates a family dysfunctionality. The internal consistency of the GF subscale was found to be .86 (Cronbach's alpha) and the split-half coefficient (Gutman) was .83 (Byles et al., 1988).

Minnesota Multiphasic Personality Inventory - 2 (MMPI-2): This inventory has ten different clinical scales: (1) hypochondriasis, (2) depression, (3) hysteria, (4) psychopathic deviate, (5) masculine-feminine interests, (6) paranoia, (7) psychastenia, (8) schizophrenia, (9) hypomania, and (10) social introversion. The MMPI-2 is composed of 567 statements that subjects mark true or false. Some examples of items on the MMPI-2 are: "I'm afraid of losing my mind," "I have very few quarrels with members of my family," and "I don't seem to care what happens to me." The MMPI-2 must be administered to adults age 18 and older, and takes 40 to 90 minutes to complete. The reliability analysis of the MMPI-2 clinical scales was conducted from test-retest data on 82 males and 111 females (1-week interval). Coefficients ranged from .67 to .92 for males (median r = .82), and from .58 to .91 for the females (median r = .79) (Hathaway & McKinley, 1989, p. 88).

During the data collection stage of my research, this inventory was updated and replaced by the Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF). All MMPI-2 reports generated were converted to a MMPI-2-RF report.

Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF): This inventory has nine different clinical scales: (RCd) demoralization, (RC1) somatic complaints, (RC2) low positive emotions, (RC3) cynicism, (RC4) antisocial behavior, (RC6) ideas of persecution, (RC7) dysfunctional negative emotions, (RC8) aberrant experiences and (RC9) hypomanic activation. The MMPI-2-RF is composed of 338 statements that subjects mark true or

false. Some examples of items on the MMPI-2-RF are: "I brood a great deal," "I have difficulty in starting to do things," and "There is something wrong with my mind." The MMPI-2-RF must be administered to adults age 18 and older, and takes 35 to 50 minutes to complete. Internal consistency of the higher-order and restructured clinical scales in the MMPI-2-RF normative sample range between .63 and .94 (men) and .63 and .95 (women) in various clinical samples. Test–retest reliability in a subset of the MMPI-2-RF normative sample ranges between .71 and .90 (Tellegen & Ben-Porath, 2008).

In this study, the following subscales were used: (1) to test the hypothesis related to functional avoidance, the Uncommon Virtues (L-r) scale. Internal consistency of this scale is .65 (men) and .64 (women) in a clinical sample of outpatients, community mental health. Test–retest reliability in a subset of the MMPI-2-RF normative sample is .79; (2) to test the hypothesis related to brooding, the Demoralization (RCd) scale. The RCd (demoralization) scale is the highest correlated scale with the D5 (brooding) scale in the MMPI-2, r (410) = .90 in males and r (610) = .89 in females. Internal consistency of the RCd scale is .93 (men and women) in a clinical sample of outpatients, community mental health. Test–retest reliability in a subset of the MMPI-2-RF normative sample is .88; (3) to test the hypothesis related to cognitive complaints, the Cognitive Complaints (COG) scale. Internal consistency of the COG scale is .81 (men) and .83 (women) in a clinical sample of outpatients, community mental health. Test–retest reliability in a subset of the MMPI-2-RF normative sample is .74 (Tellegen & Ben-Porath, 2008).

CHAPTER 3

RESULTS

Ninety-two intake outpatients participated in my study. Of those, thirty-four were seeking therapy and fifty-eight were seeking a psychological evaluation (ten court-ordered evaluations, thirty-eight disability evaluations and ten therapeutic evaluations). Four protocols were eliminated because no diagnosis was provided by the interviewer. Therefore, my final sample size was eighty-eight intake outpatients.

An inter-rater reliability of .96 was found on a sample of 11.36% (n = 100) of responses given to the Autobiographical Memory Test. This reliability rate was similar to that found by Williams and Broadbent's study (1986), in which two judges categorized a random 10% sample of the 750 responses obtained, and found 87% and 93% agreement with the experimenter's categories.

Before testing my hypotheses, the characteristics of my sample, incidence and nature of reported traumas, average AMT scores as well as characteristics of the reported memories, average FAD scores as well as reported incidence of dysfunctional and functional families, and number of valid MMPI-2-RF reports are reported. I then explore whether (1) more defensiveness (high scores on L-r) is related to fewer specific memories, (2) more tendency to brood (high scores on RCd) is related to fewer specific memories, (3) more reports of cognitive impairment (high scores on COG) are related to fewer specific memories, (4) more family dysfunctionality (high scores on the FAD) is related to fewer specific memories, and whether (5) different types of trauma (emotional neglect, emotional abuse, physical abuse, sexual harassment and sexual

abuse) are connected to autobiographical memory specificity. Further, whether the relationship between the variables depends on depressed mood is also tested.

Characteristics of the Sample

Demographics

The final sample size was eighty-eight intake patients (46 females and 42 males) with a mean age of 30.51 (SD = 12.25, range = 18-78). Fifty-nine of those patients were single, twenty-one were married, one was separated, six were divorced and one was widowed.

Further, concerning education, one patient finished elementary school, fourteen finished high school, fifty-seven were in college or graduated from college, twelve were in graduate school or graduated from graduate school, and four patients did not provide this information (See Table 1 for details).

Diagnosis

My sample was diagnostically heterogeneous with the majority of participants meeting diagnostic criteria for mood, anxiety and attention deficit hyperactive disorders. More specifically, one patient was diagnosed with psychotic disorder NOS in remission, seventeen with mood disorder, eight with anxiety disorders, two with adjustment disorder with depressed mood, five with learning disorder, thirteen with attention deficit hyperactive disorder (ADHD), one with asperger disorder, twenty-nine with comorbid disorders, and one with unspecified mental disorder (see Table 2 for details). Eleven patients did not meet criteria for any mental disorder. Further, a score (0 through 100) on the Global Assessment of Functioning Scale (GAF)

was given to seventy-eight patients, and its mean was 61.08 (SD = 10.79, range = 38-85) (see Table 3).

All patients diagnosed with depressed mood who had a t-score equal or greater than 65 on the RC2 (low positive emotions) scale in the MMPI-2-RF met the criteria for being included in the depressed group, following criteria recommended by the MMPI-2-RF manual (Tellegen & Ben-Porath, 2008). A t-score equal or greater than 65 on the RC2 scale in the MMPI-2-RF is indicative that the patient displays vegetative symptoms of depression. Overall, 23 patients were included in the "depressed group" whereas 55 patients were included in the "non-depressed group."

Autobiographical Memory Specificity

All eighty-eight patients filled out the Autobiographical Memory Test. The mean proportion of responses to cues in the AMT in the sample was: 47.61% (n = 419) specific, 21.7% (n = 191) extended, 15.9% (n = 140) categoric, 2.04% (n = 18) semantic associates, and 12.73% (n = 112) no memory. The average of the AMT scores was 28.94 (SD = 8.35, range = 10- 40).

Incidence and nature of reported traumas

Out of eighty-eight participants in the study, 33% (n = 29) reported having being emotionally neglected by family members, 39.8% (n = 35) reported having being emotionally abused by family members, 23.9% (n = 21) reported having being physically abused, 14.8% (n = 13) reported having being sexually harassed, and 26.1% (n = 23) reported having being sexually abused. Two patients failed to answer questions regarding emotional neglect and emotional abuse. Dividing the sample by gender, 32.6% of the females (n = 15) and 19% (n = 08) of the males reported sexual abuse.

The average age of the victim was 6.43 (n = 23, SD = 5.375, range 1- 17) years old at the time of the onset of the emotional neglect (see Table 4), six patients did not provide this information regarding their report of emotional neglect; 8.8 (n = 25, SD = 6.58, range 1- 28) years old at the time of the onset of the emotional abuse, ten patients did not provide this information; 4.2 (n = 10, SD = 3.615, range 1- 10) years old at the time of the onset of the physical abuse by family members, eight (n = 01) years old at the time of the physical abuse by more distant members of the family, 11.2 (n = 10, SD = 7.84, range 1- 21) years old at the time of the physical abuse by non-family members, and five patients did not provide this information; 25.5 (n = 02, SD = 4.95, range 22- 29) years old at the time of the sexual harassment by family members, 18.5 (n = 02, SD = .71, range 18- 19) years old at the time of the sexual harassment by more distant members of the family, 12.88 (n = 08, SD = 8.25, range 1 - 29) years old at the time of the sexual harassment by non-family members, one patient did not provide this information; ten (n = 03, SD = 5.3, range 6 - 16) years old at the time of the sexual abuse by family members, 9.6 (n = 05, SD = 4.67, range 3 - 16) years old at the time of the sexual abuse by more distant members of the family, and 11.07 (n = 14, SD = 6.23, range 1 - 25) years old at the time of the sexual abuse by non-family members, and six patients did not provide this information.

On my sample, four patients stated having being physically abused by both family member and non-family member, and one stated having being physically abused by both family member and more distant family member; two patients stated having being sexually harassed by both family member and non-family member, and one stated having being sexually harassed by both more distant family member and non-family member; one patient stated having being sexually abused by both more distant family member and non-family member, one stated having

being sexually abused by family member, more distant family member, and non-family member, and two stated having being sexually abused by both family member and more distant family member.

Family functioning

Out of eighty-eight participants, 94.3% (n = 83) entirely filled out the Family Assessment Device. Using the cut-off score, 1.1% (n = 01) of the participants perceived their families as functional whereas 98.9% (n = 86) as dysfunctional. The average of the FAD scores was 2.43 (SD = 0.28, range = 1.08 – 3.08).

Minnesota Multiphasic Personality Inventory

Out of eighty-eight participants, thirty-six patients filled out the MMPI-2 whose reports were converted to a MMPI-2-RF report. Therefore, fifty-two patients filled out the MMPI-2-RF. Only one patient failed to entirely complete the MMPI-2-RF. Four MMPI-2-RF profiles were excluded based on: (1) 18 or more unscorable responses; (2) a T-score 80 or higher on VRIN-r (Variable Response Inconsistency) or TRIN-r (True Response Inconsistency); (3) a T-score of 120 on F-r; (4) a T-score of 100 or higher on Fp-r (Infrequent Psychopathology Responses). This resulted in a final sample of 83 MMPI-2-RF profiles. Further, the average of the L-r (uncommon virtues) t-scores was 51.52 (SD = 11.27, range = 37 – 95), of the RCd (demoralization) t-scores was 59.81 (SD = 12.34, range = 37 – 83), and of the COG (cognitive complaints) t-scores was 62.51 (SD = 15.02, range = 40 – 91).

Memory Specificity and Defensiveness

Using Pearson correlation, AMT scores were found to correlate with L-r (uncommon virtues) scores, r (83) = -.35, p = .001 (see Table 5). The negative partial correlation between L-r and AMT scores means that higher number of specific memories was associated with low scores on the L-r scale, that is, less defensiveness. Next, the data of court-ordered intake patients were filtered out, and the relationship between L-r and AMT scores was still significant, r (74) = -.33, p = .004.

Differences between Depressed and Non-depressed groups

Group was dummy coded where depressed group = 1 and non-depressed group = 0. The interaction between depressed mood and L-r, β = .66, t (83) = 1.42, p = .16, was not significant. Therefore, the relationship between defensiveness and memory specificity does not depend on depressed mood.

Memory Specificity and Tendency to Brood

Using Pearson correlation, AMT scores significantly correlated with RCd (demoralization) scores, r (83) = .27, p = .015 (see Table 5). Surprisingly, they were related in the opposite direction to that proposed by Williams (2007): I found that *more* brooding is associated with *more* memory specificity.

Differences between Depressed and Non-depressed groups

The interaction between depressed mood and RCd, β = -2.61, t (83) = -3.05, p = .003, was significant, which indicates that the relationship between tendency to engage in brooding and memory specificity depends on depressed mood (see Table 6). Explained variance of the

regression model was 16.6%, F (3, 78) = 5.18, p =.003. Therefore, whereas brooding impairs the recollection of specific memories in depressed patients, brooding facilitates the retrieval of specific memories among non-depressed patients (see Figure 4).

Memory Specificity and Cognitive Complaints

Using Pearson correlation, AMT scores were found to be non-significantly correlated with COG scores, r (83) = .20, p = .07(see Table 5). Further, the results indicate that greater amount of cognitive complaints is associated with greater amount of specific memories, which is the inverse of the expected result.

Differences between Depressed and Non-depressed groups

The interaction between depressed mood and COG, β = -1.93, t (83) = -3.63, p < .001, was significant, which indicates that the relationship between cognitive complaints and memory specificity depends on depressed mood (see Table 7). Explained variance of the regression model was 18.5%, F (3, 79) = 5.95, p =.001. Therefore, whereas a higher level of cognitive complaints impairs the recollection of specific memories in depressed patients, a higher level of cognitive complaints facilitates the retrieval of specific memories among non-depressed patients (see Figure 5).

Memory Specificity and Family Functionality

Using Pearson correlation, AMT scores were found to correlate significantly with FAD scores, r (83) = -.23, p = .034 (see Table 5). This negative correlation means that high scores of AMT, i.e. higher memory specificity, were associated with low scores of FAD, i.e. greater family functionality.

Differences between Depressed and Non-depressed groups

The interaction between depressed mood and FAD scores, $\beta = .67$, $t(83) = .56$, $p = .58$, was not significant, which indicates that the relationship between family functioning and memory specificity do not depend on depressed mood.

Memory Specificity and Trauma (Exploratory)

Participants were divided into groups of traumatized and non-traumatized, and of male and female. Overall differences in responses to autobiographical memory specificity were investigated in a 2 (gender: male vs. female) x 2 (trauma status: traumatized vs. non-traumatized) between-subjects ANOVA.

Emotional Neglect

A 2 (gender) x 2 (emotional neglect status) between subjects ANOVA (see Table 8) of memory specificity yielded no significant effect for gender, $F(1, 82) = .36$, $p = .55$, or emotional neglect status, $F(1, 82) = .87$, $p = .35$. There was no significant interaction between gender and emotional neglect, $F(1, 82) = 1.23$, $p = .27$.

Emotional Abuse

A 2 (gender) x 2 (emotional abuse status) between subjects ANOVA (see Table 9) of memory specificity yielded no significant effect for gender, $F(1, 82) = .00$, $p = .99$, or emotional abuse status, $F(1, 82) = .18$, $p = .67$. There was no significant interaction between gender and emotional abuse, $F(1, 82) = .50$, $p = .48$.

Physical Abuse

A 2 (gender) x 2 (physical abuse status) between subjects ANOVA (see Table 10) of memory specificity yielded no significant effect for gender, F (1, 84) = .9, p = .76, or physical abuse status, F (1, 84) = .03, p = .86. There was no significant interaction between gender and physical abuse, F (1, 84) = .05, p = .82.

Sexual Harassment

A 2 (gender) x 2 (sexual harassment status) between subjects ANOVA (see Table 11) of memory specificity yielded no significant effect for gender, F (1, 84) = 2.49, p = .12, or sexual harassment status, F (1, 84) = .04, p = .83. There was, however, a trend for an interaction between gender and sexual harassment, F (1, 84) = 3.89, p = .05. However, this trend did not meet the criterion of an alpha at .01.

Sexual Abuse

A 2 (gender) x 2 (sexual abuse status) between subjects ANOVA (see Table 12) of memory specificity yielded no significant effect for gender, F (1, 84) = 1.18, p = .28, or sexual abuse status, F (1, 84) = 1.75, p = .19. There was no significant interaction between gender and sexual abuse, F (1, 84) = 2.10, p = .15.

Supplemental Analysis

Correlation of Memory Specificity with the Perceptual Reasoning Index of the Wechsler Adult Intelligence Scale - III (WAIS-III) (Exploratory)

Having as goal to test the role of executive control on autobiographical memory specificity, I used the data of the WAIS-III conducted on twenty-three patients (eight females and fifteen males) who came for psychological evaluation (two court-ordered evaluations, sixteen disability evaluations and five therapeutic assessments). The mean time elapsed between the intake and the administration of the WAIS-III was of 50.39 (SD = 31.27, range = 9 - 118) days. More specifically, I sought to replicate and extend the findings of Dalgleish et al. (2007) in which the WAIS-III Block Design scores were positively correlated to autobiographical memory specificity (e.g. higher scores on the Block Design subtest were related to greater amount of specific memories). Instead of solely using the Block Design scores, I attempted to extend the result to the whole perceptual reasoning index. Using Pearson correlation, interaction between AMT scores and perceptual reasoning scores were not significant, r (23) = .39, p = .06 (see Table 13 for correlations between AMT scores and WAIS-III IQ and Index Scores). However, results still indicate that higher scores on the perceptual reasoning index (e.g. the more able the person is to perceptually examine a problem, organize thoughts, and test solutions) are associated with more memory specificity.

Differences between Depressed and Non-depressed groups

The interaction between depressed mood and perceptual reasoning index scores, β = -.05, t (22) = -.04, p = .97, was not significant. Therefore, the relationship between perceptual reasoning and memory specificity do not depend on depressed mood.

Correlations of MMPI-2-RF subscales, Family Functioning and Perceptual Reasoning with Memory Specificity According to Valence (Exploratory)

Curious about the relationship between memory specificity and the variables investigated in this study, I decided to go a little further and explore how the valences of memory specificity relate to each of the variables (L-r, RCd, COG, FAD and perceptual reasoning index). Considering the whole sample, an interesting result was obtained: defensiveness (L-r) was the only variable to significantly relate both to negative, r (83) = -.28, p = .012, and positive, r (83) = -.37, p = .001, overloaded memories.

The number of negatively overloaded specific memories was related to RCd scores, r (83) = .31, p = .004 (more brooding is related to more negative specific memories), COG scores, r (83) = .21, p = .05 (more cognitive complaints is related to more negative specific memories), and family functioning, r (83) = -.23, p = .035 (higher level of family functionality is related to more negative specific memory). The number of positively overloaded specific memories was positively related only to the perceptual reasoning index, r (23) = .5, p = .015 (more perceptual reasoning is related to more positive specific memories), of the WAIS-III.

However, analyzing those associations depending on depressed mood, the non-depressed group had brooding significantly relating to both positive specific memories, r (60) = .25, p = .05, and negative specific memories, r (60) = .42, p = .001 (more brooding is related to more specific memories). Curiously, the depressed group had its brooding significantly associated only with negative specific memories, r (23) = -.50, p = .015 (more brooding is related to fewer negative specific memories). Concerning cognitive complaints, the non-depressed group had this variable significantly associated with both positive specific memories, r (60) = .30, p = .02, and negative specific memories, r (60) = .35, p = .005 (more cognitive complaints is related to more

specific memories). Likewise, the depressed group had also its cognitive complaints significantly connected to both negative specific memories, r (23) = -.55, p = .006, and positive specific memories, r (23) = -.48, p = .02 (more cognitive complaints is related to more specific memories) (see Table 14).

CHAPTER 4

DISCUSSION

Overall Findings

The reason why some people report fewer specific memories (e.g. an event that occurred on a particular day, lasting less than a day) is yet to be fully understood. Williams et al. (2007) hypothesize that there are three mechanisms explaining a deficit in autobiographical memory. Operating alone or in combination, they are: (1) functional avoidance, (2) capture and rumination, and (3) impaired executive control. Functional avoidance is explained by the strong affect the recollection of specific memories is believed to elicit, so people avoid being in contact with those memories by defending themselves against those emotions. Capture and rumination is explained by the phenomenon of "memory interlock" in which people are not able to progress to the retrieval of specific autobiographical memories because they are "stuck" in their ruminations. Lastly, impaired executive control is connected to a deficit in cognitive ability.

Memory Specificity and Defensiveness

Functional avoidance is one of the mechanisms found to contribute to reduced memory specificity retrieval. Williams (1996) posits that specific memories are more affectively overloaded, and people retrieve fewer specific memories when they are avoiding affect. This hypothesis is in line with Freud's and Jung's idea that people have difficulty in remembering experiences because of repression, a defense mechanism explained by affect avoidance. Further, Conway and Pleydell-Pearce (2000) state that retrieval of memories is "managed" by a working-self that has as its goal avoidance of affective disturbance.

In my study, I confirmed previous studies' findings such as people who are defensive have difficulty in retrieving specific memories. More specifically, I found that higher scores on the Uncommon Virtues scale (a scale related to defensiveness) of the MMPI-2-RF were related to fewer specific memories independently of depressed mood. Therefore, the more defensive the person is, the fewer specific memories he or she will retrieve in the AMT.

Memory Specificity and Tendency to Brood

The role of rumination in memory specificity retrieval has been investigated for many years. Studies generally find that rumination in depressed people maintain or impair memory specificity retrieval (e.g. Watkins & Teasdale, 2004; Raes et al., 2005; Raes et al., 2006). However, results are mixed when not controlling for diagnosis. For example, Teasdale and Green (2004) found that more rumination is associated with more negatively overloaded specific memories, Sutherland an Bryant (2007) concluded that rumination with negative affect elicits fewer specific memories in participants reporting more depression, and Raes, Watkins, Williams and Hermans (2008) defended that rumination maintains the number of specific memories.

My result regarding the relationship between memory specificity and tendency to ruminate was surprising: I found that whereas depressed ruminators are more likely to experience difficulty in retrieving specific memories, non-depressed ruminators are more prone to retrieve *more* specific memories.

Therefore, depressed patients have difficulty in retrieving specific memories, particularly memories with a negative valence, when ruminating more, which is consistent with Williams (2007) hypothesis that depressed patients are "stuck" in a "memory interlock," probably due to negative feelings elicited by the negatively overloaded cue-word, and are not able to progress to

the retrieval of specific autobiographical memories. Further, this result replicates findings by Watkins and Teasdale (2004), Raes et al. (2005) and Raes et al. (2006).

However, non-depressed ruminators are prone to retrieve *more* specific memories, which replicates the finding by Teasdale and Green (2004) and Lyubomirky and Caldwell (1998). Non-depressed ruminators retrieve more specific memories possibly because they are in contact with negative feelings and are probably defending less against negative experiences.

Memory Specificity and Cognitive Complaints

Dalgleish et al. (2007) found that executive control is an important variable explaining reduced memory specificity in depressed patients. In my study, I found that whereas depressed patients recover *fewer* specific memories when having more cognitive complaints, non-depressed patients recover *more* specific memories when having more cognitive complaints.

Hence, depressed patients retrieve fewer specific memories when having more cognitive complaints, which is consistent with both Williams (2007) hypothesis that depressed people have difficulties inhibiting interfering cognitive material and Dalgleish et al.'s finding (2007) that depressed patients have reduced memory specificity retrieval due to an impaired executive control.

Surprisingly, non-depressed patients who have more cognitive complaints retrieve *more* both positive and negative overloaded specific memories. The cognitive complaints items comprised on the scale utilized in my study, the cognitive complaints scale of the MMPI-2-RF, are related to: "difficulty with memory, concentration, forgetfulness, reading comprehension, frustration, and poor tolerance for stress" (Gervais, Ben-Porath & Wygant, in press), but those difficulties "do not necessarily imply the presence of objective cognitive deficits" (Gervais, Ben-

Porath & Wygant, in press). Hence, reports of cognitive complaints on the MMPI-2-RF may be purely emotional and result of a stressor. Therefore, non-depressed patients retrieve more specific memories when having more cognitive complaints probably because they experience less emotional avoidance and are more in contact with emotional experiences.

Memory Specificity and Family Functionality

The role of family functioning on specific memories retrieval has been not deeply explored in the literature. Dalgleish et al. (2003) found that a history of parental abuse was related to fewer negatively overloaded specific memories in an eating disordered group, and Schlachter, Weiner and Nash (in press) found that male undergraduate students who were raised in more dysfunctional families retrieved fewer specific memories.

As expected, patients who were raised in less dysfunctional families retrieved more negatively overloaded specific memories than patients who were raised in more dysfunctional families independently of depressed mood. Hence, families can help children integrate and process negative experiences, increasing the accessibility of specific memories and minimizing the need for defenses such as repression, which explains the result that family functionality facilitates the retrieval of only negative memories.

Memory Specificity and Trauma

Studies investigating the effect of trauma on memory specificity have mixed results. There are some studies that have found that trauma is related to the retrieval of fewer specific memories (Meesters et al., 2000; De Decker et al., 2003; Burnside et al., 2004; McNally et al., 1994; Harvey, Bryant & Dang, 1998), some have concluded that trauma is related to more (not fewer) specific memories (Wilhelm et al., 1997; Kuyken et al., 2006), and others have failed to

find any association between trauma and memory specificity (Wessel et al., 2001; Arntz et al., 2002; Willebrand et al., 2002).

In my study, I found no differences of memory specificity between traumatized and non-traumatized patients, replicating the findings of Wessel et al. (2001), Arntz et al. (2002) and Willebrand et al. (2002). In this sample, however, only one patient met the criteria for Posttraumatic Stress Disorder (PTSD). None of the others met criteria for PTSD, Acute Stress Disorder, or Adjustment Disorder (following a trauma) which means that a history of trauma did not substantially affect most patients in this sample. Therefore, studies may have different results because a history of trauma may be not enough and a psychiatric diagnosis is required when explaining memory specificity.

Supplemental Analyses

Dalgleish et al. (2007) found that higher scores on the Block Design, a subtest that is part of the perceptual reasoning scale of the WAIS-III, were related to more autobiographical memory specificity. To my knowledge, that was the first and only study that investigated the relationship between a subtest of the WAIS-III and memory specificity. Due to a desire to extend Dalgleish et al.'s results (2007), instead of using solely the Block Design scores, I used the scores of the whole perceptual reasoning scale.

In my study, I found that the perceptual reasoning scale of the WAIS-III was related to memory specificity in that higher score on perceptual reasoning (e.g. more ability to solve imagery-based problems) indicates more memory specificity, which is consistent with Dalgleish et al.'s findings.

As Conway and Pleydell-Pearce (2000) suggests, event specific knowledge refers to more concrete sensory perceptual aspects of unique events, which explains why people who are more able to solve imagery-based problems are also more able to retrieve specific memories. However, this association was found to be significant only on positive overloaded memories.

Limitations and Implications for Future Research

My study was the first study, to my knowledge, to use a psychodiagnostically diverse sample to simultaneously investigate how functional avoidance, rumination, cognitive complaints and family functioning are related to memory specificity. The results of this study suggest that memory specificity is related, indeed, to functional avoidance, rumination, impaired executive control and family functioning. Moreover, my study provided important results on how rumination and cognitive complaints differently impact memory specificity retrieval depending on mood.

Further, my study attempted to solve inconsistencies in how to classify patients as depressed. Previous studies have either used a diagnostic interview or questionnaires to measure depression. In my study, I used both diagnostic interview and a questionnaire (the RC2 subscale of the MMPI-2-RF), so I had information on how the clinician perceived the level of depression of patients as well as how severe the patients reported their depressive symptoms were.

Several shortcomings of this research should be taken into consideration for future research. First, my study is limited in that its four dependent measures (defensiveness, tendency to engage in rumination, cognitive complaints and family functioning) are based on self-report questionnaires, which may not capture the complexity of those variables. Further, rumination was indirectly measured. Hence, future research may use a questionnaire specifically focused on

rumination, which may offer more details about the relationship between rumination and memory specificity (and not, as investigated in my present study, between a *tendency* trait to engage in rumination and memory specificity).

Second, the interaction between family functioning and memory specificity is yet to be fully understood. Due to time limits, a general family functioning scale comprising twelve items was utilized. However, a longer version of this scale (Family Assessment Device) could have informed what aspects of family functioning (affective responsiveness, affective involvement, behavior control, communication, role definition, and problem solving) are connected to memory specificity. Hence, I recommend that future studies utilize the 60-item version of the Family Assessment Device to more thoroughly investigate what aspects of family functioning are related to memory specificity.

Third, the association between the perceptual reasoning index of the WAIS-III and only positively overloaded specific memories deserves to be more consistently explored. My sample was relatively small, only twenty-two patients, and the time elapsed between the completion of the written version of the AMT and the WAIS-III administration varied, which may have affected my results. Therefore, future research should have a larger sample size in order to more accurately gauge how memory specificity and the perceptual reasoning index are connected to each other.

Finally, because my study focused on how defensiveness, tendency to engage in rumination, cognitive complaints and family functioning relate to autobiographical memory specificity depending on depressed mood, I have not explored how those variables are associated according to each specific diagnosis. Hence, future studies investigating how defensiveness, tendency to engage in rumination, cognitive complaints and family functioning are connected to

autobiographical memory specificity not only depending on depressed mood but also on different diagnosis are still needed.

Conclusion

My study investigates how defensiveness, tendency to ruminate, cognitive complaints and family functioning have an effect on memory specificity. My results suggest that there are two models for the understanding of memory specificity based on depressed mood. In the first model, which is applied to non-depressed patients, being in contact with negative emotions and experiences (e.g. reporting *more* demoralization and cognitive complaints) elicits *more* memory specificity. However, in my second model, which is applied to depressed patients, the inverse happens: emotional availability of negative overloaded thoughts (again, reporting *more* demoralization and cognitive complaints) elicits *fewer* specific memories. Therefore, in my second model, both mnemonic interlock and executive control impairment explain reduced memory specificity. In both models, having more functional avoidance as well as being raised in more dysfunctional families contribute to reduced autobiographical memory specificity.

Thus, my study has important clinical implications. When treating non-depressed patients, helping them to be in contact with emotions and process affective experiences allow patients to recover more specific memories. Consequently, in this case, being in contact with both negative and positive feelings is therapeutically relevant. However, when patients are depressed, the therapeutic treatment must be conducted differently. Although being in contact with feelings is related to more memory specificity in depressed patients, ruminating and feeling cognitively ineffective is connected to reduced memory specificity. Hence, the therapeutic focus

in depressed patients must be on mastery of this overwhelming and out-of-control affect, so patients can acquire more adaptive strategies in order to deal with their emotionality.

Moreover, probably the role of original family on the retrieval of specific memories is somewhat similar to that of a psychologist, in that being raised in more functional families help children process and master their internal experiences. As a result of being raised in such functional environment, children are more able to retrieve negatively overloaded specific memories.

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APPENDIX

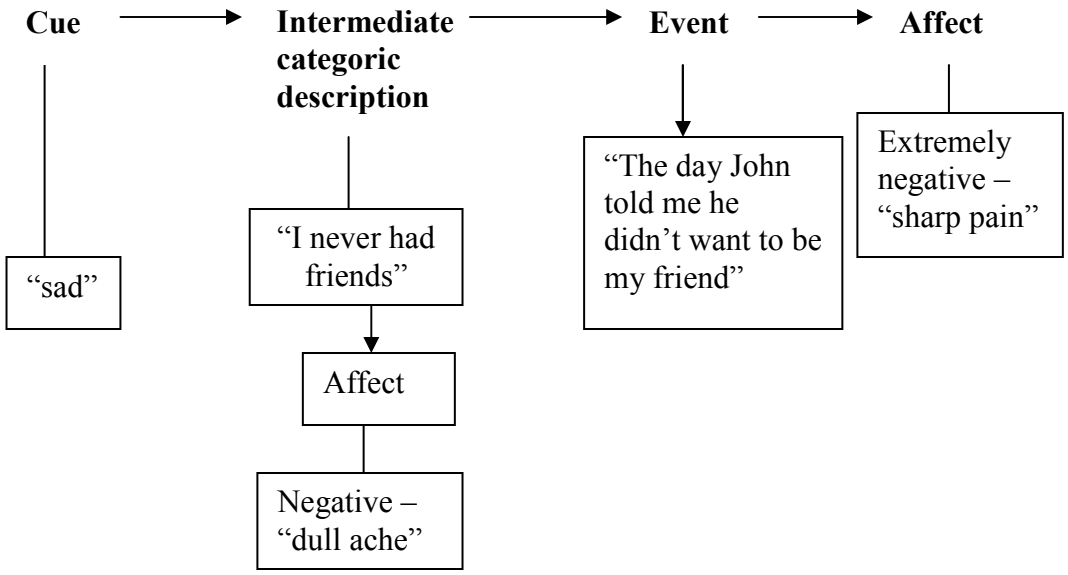

Figure 1. Hierarchical retrieval model[1]

[1] From "Depression and the Specificity of Autobiographical Memory," by J.M.G. Williams, 1996. In: *Remembering our Past: Studies in Autobiographical Memory.* Cambridge University Press, p.261. Adapted.

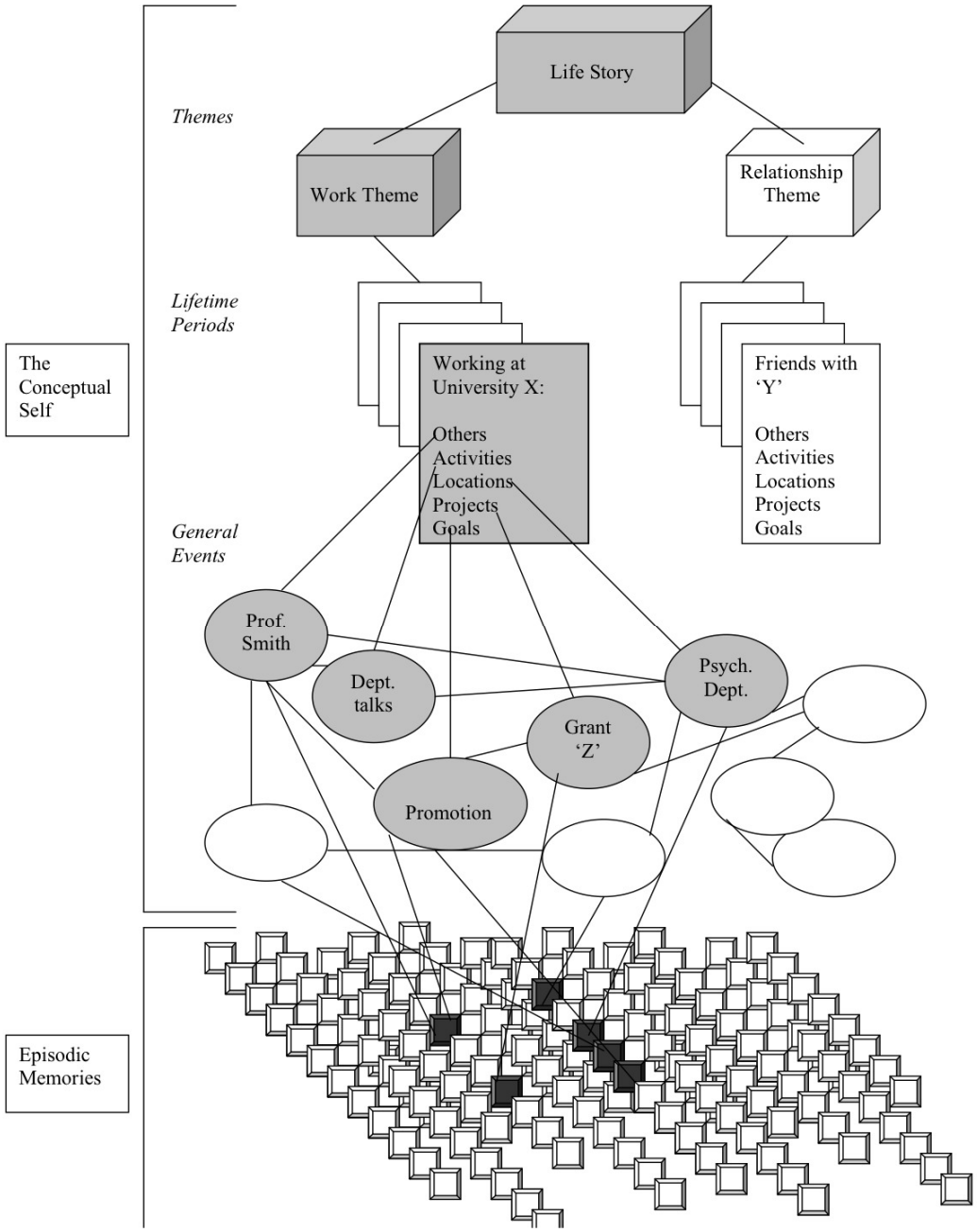

Figure 2. Self-memory system[2]

[2] From "Autobiographical memory specificity and emotional disorder," by J.M.G Williams et al., 2007, *Psychological Bulletin, 133,* p. 132.

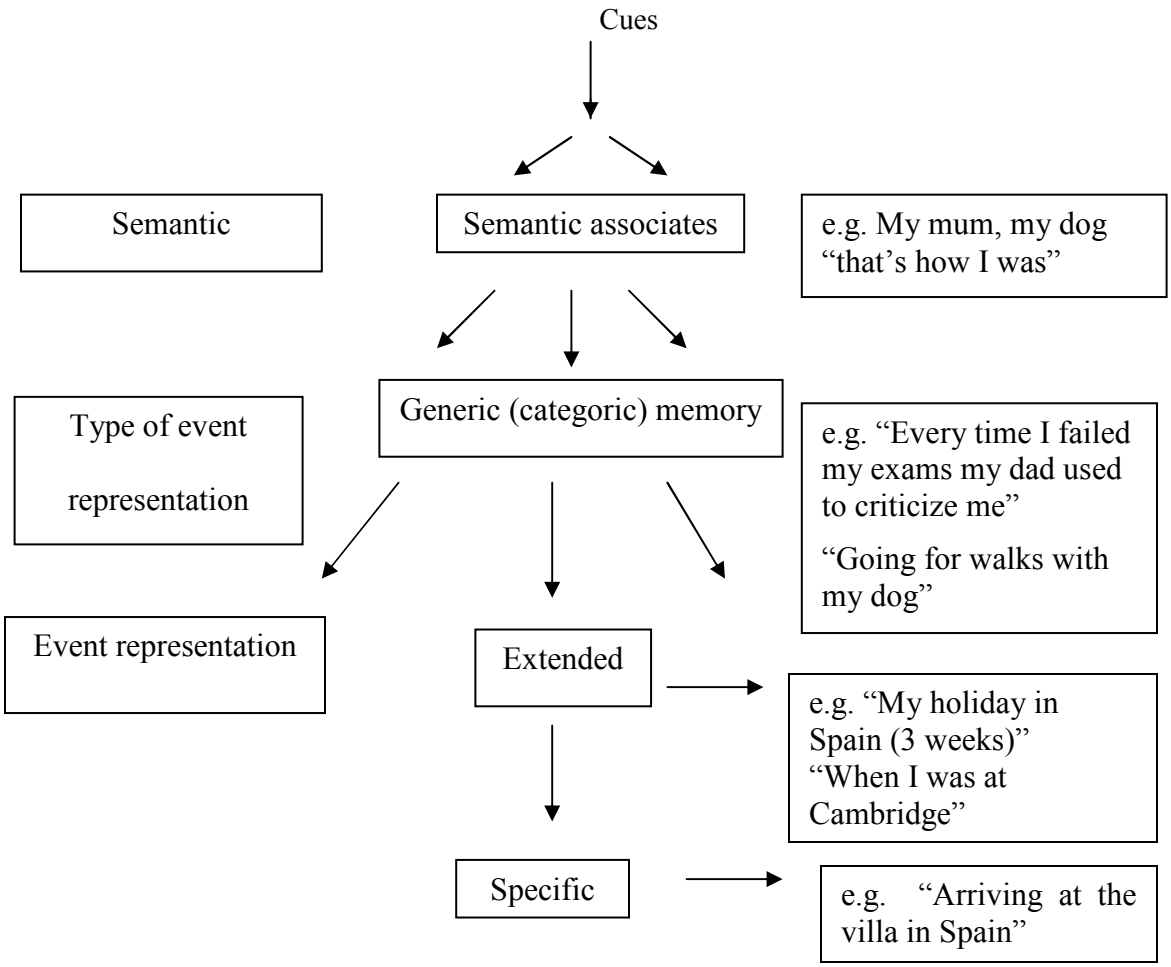

Figure 3. Hierarchy of memories[3]

[3] From "Autobiographical memory test," by J.M.G Williams, 2005, manuscript not published.

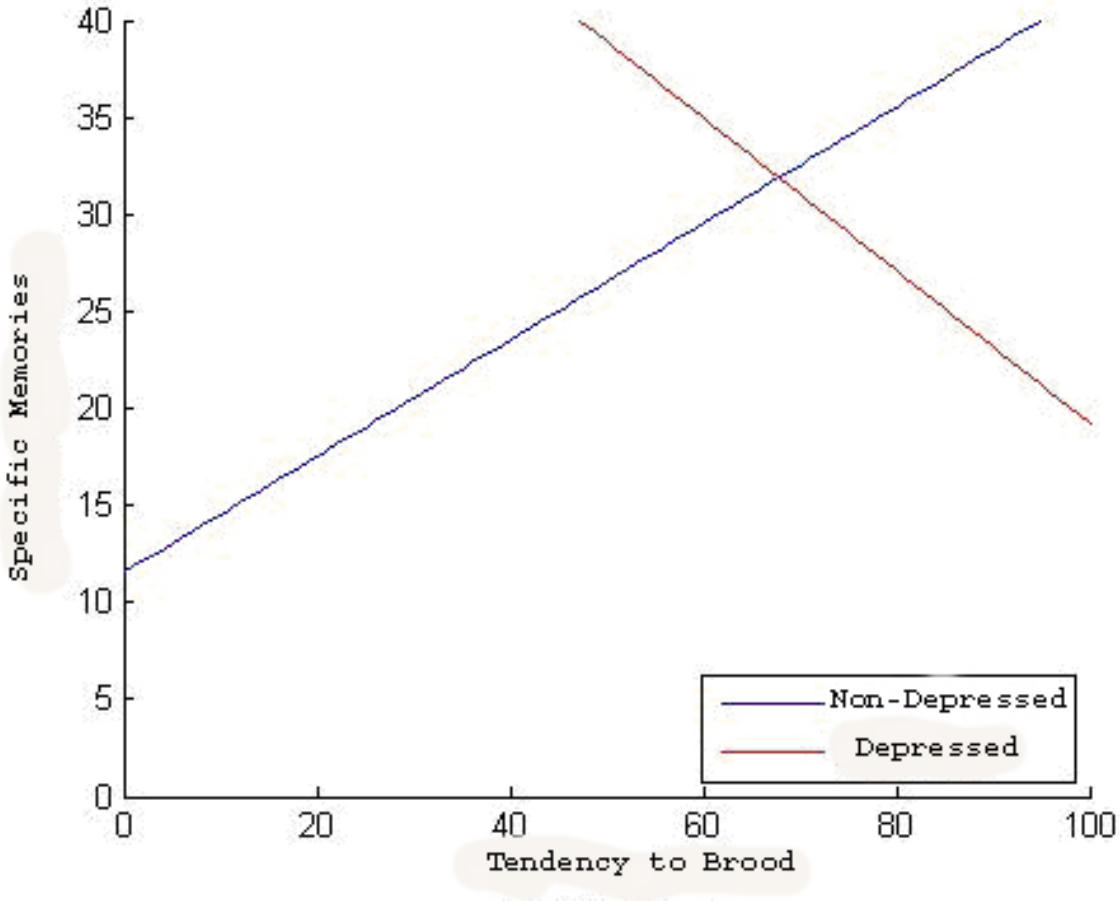

Figure 4. The Effect of Depression on the Relationship between Brooding and Memory Specificity

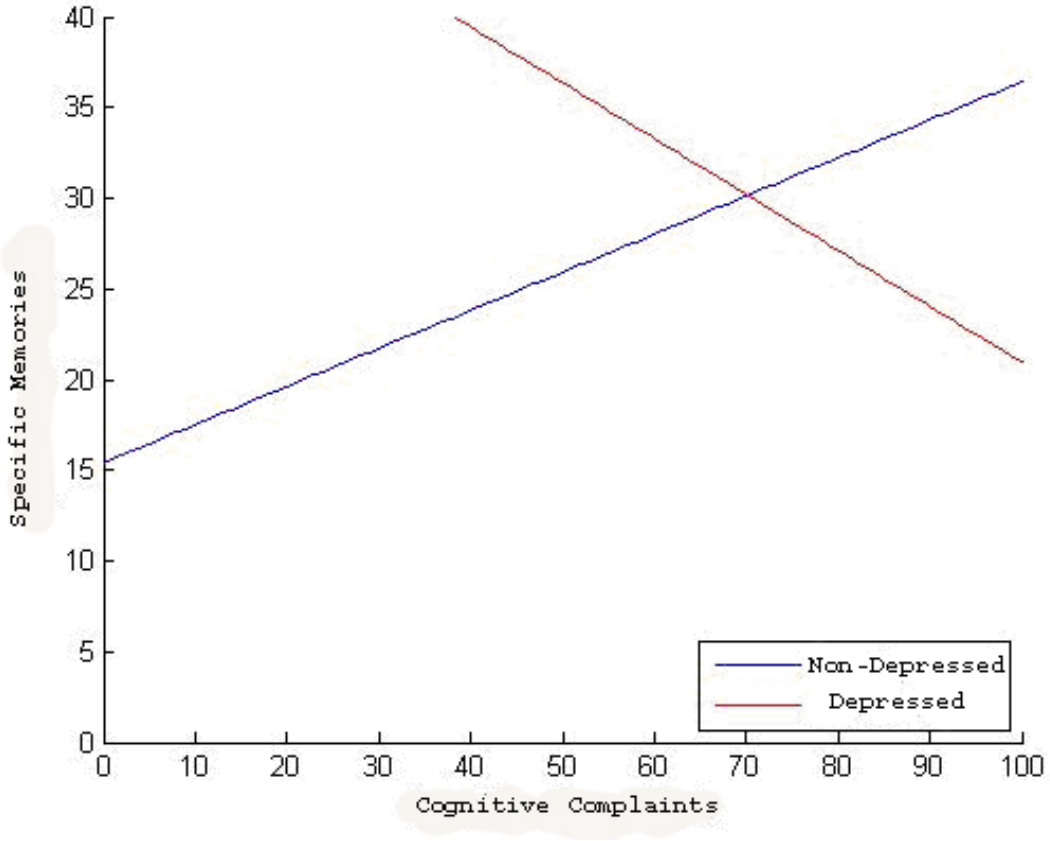

Figure 5. The Effect of Depression on the Relationship between Cognitive Complaints and Memory Specificity

Table 1

Demographics

	Percentage	Sample Size
Age Groups		
18-24	38.6%	**34**
25-35	36.36%	**32**
36-50	15.9%	**14**
51-69	9.09%	**08**
70 +	1.1%	**01**
Marital Status		
Single	67%	**59**
Married	23.9%	**21**
Separated	1.1%	**01**
Divorced	6.8%	**06**
Widowed	1.1%	**01**
Education		
High School	16.7%	**14**
College	67.9%	**57**
Graduate School	14.3%	**12**
Not Provided	4.5%	**04**

Table 2

Diagnosis

	Percentage	Sample size
Psychotic Disorder	1.1%	**01**
Mood Disorders	19.3%	**17**
Major Depressive Disorder (MDD)	14.8%	13
Dysthymic Disorder	2.3%	02
Bipolar Disorder	1.1%	01
Mood Disorder NOS	1.1%	01
Anxiety Disorders	9.1%	**08**
Anxiety Disorder NOS	1.1%	01
Generalized Anxiety Disorder (GAD)	4.5%	04
Obsessive Compulsive Disorder (OCD)	1.1%	01
Panic Disorder	2.3%	02
Adjustment Disorder with Depressed Mood	2.3%	**02**
Learning Disorder	5.7%	**05**
Attention Deficit Hyperactive Disorder (ADHD)	14.8%	**13**
Asperger Disorder	1.1%	**01**
Comorbid Disorders	32.9%	**29**
Learning and Phobia	1.1%	01
Learning and ADHD	4.5%	04
Learning and Asperger	1.1%	01
Learning and Adj. with Depressed Mood	2.3%	02
MDD and PTSD	1.1%	01
MDD and Learning	2.3%	02
MDD and ADHD	2.3%	02
MDD and Dysthymia	4.5%	04
MDD and Bipolar	2.3%	02
MDD and Substance Abuse	1.1%	01
Bipolar and Substance Abuse	1.1%	01
Mood Disorder and Anxiety	1.1%	01
GAD and ADHD	1.1%	01
OCD and Eating Disorder	1.1%	01
OCD and Bipolar	1.1%	01
Anxiety NOS and Substance Abuse	1.1%	01
Anxiety NOS and Depressive NOS	1.1%	01
Adj. with Depressed Mood and ADHD	2.3%	02
Unspecified Mental Disorder (nonpsychotic)	1.1%	**01**
Deferred	12.5%	**11**

Table 3

Global Assessment of Functioning (GAF)

	Percentage	Sample Size
01-30	0%	**0**
31-40	9%	**07**
41-50	5.7%	**05**
51-60	29.5%	**26**
61-70	31.8%	**28**
71-80	12.5%	**11**
81-90	1.1%	**01**
91-100	0%	**0**
Not provided	11.4%	**10**

Table 4

Description of Trauma Experiences

	Percentage	Sample size
Emotional Neglect		
Number of Neglected Patients	33%	**29**
Emotional Abuse		
Number of Abused Patients	39.8%	**35**
Physical Abuse		
Number of Abused Patients	23.9%	**21**
By Family Member	13.6%	12
By Distant Family Member	1.1%	01
By Non-Family Member	14.8%	13
Sexual Harassment		
Number of Harassed Patients	14.8%	**13**
By Family Member	3.4%	03
By Distant Family Member	2.3%	02
By Non-Family Member	12.5%	11
Sexual Abuse		
Number of Abused Patients	26.1%	**23**
By Family Member	6.8%	06
By Distant Family Member	5.7%	05
By Non-Family Member	19.3%	17

Table 5

Correlations of AMT with MMPI-2-RF Variables and Family Functioning Scale

Variable	Correlation
Defensiveness	
L-r	-.35**
Tendency to Brood	
Whole Sample	.27*
Non-depressed Group	
RCd	.38**
Depressed Group	
RCd	-.43*
Cognitive Complaints	
Whole Sample	.20
Non-depressed Group	
COG	.37**
Depressed Group	
COG	-.54**
Family Functioning	
FAD	-.23*

Note. *$p < .05$, **$p < .01$

Table 6

Summary of Regression Analysis for Tendency to Brood and Depressed Mood Predicting Autobiographical Memory Specificity (n = 83)

Variable	*B*	*SE B*	β
Tendency to Brood	.30	.094	.43**
Depressed Mood	47.02	15.65	2.49**
Tendency to Brood X Depressed Mood	-.69	.23	-2.61**

Note. $R^2 = .12$

**$p < .01$

Table 7

Summary of Regression Analysis for Cognitive Complaints and Depressed Mood Predicting Autobiographical Memory Specificity (N = 83)

Variable	*B*	*SE B*	β
Cognitive Complaints	.21	.07	.38**
Depressed Mood	36.44	9.73	1.93**
Cognitive Complaints X Depressed Mood	-.52	.14	-1.93**

Note. $R^2 = .12$

**$p < .01$

Table 8

Means (M) and Standard Deviations (SD) for the AMT Scores for Reported Emotional Neglect and Non- neglected Groups

	Memory Specificity	
Group	Neglect	Non-Neglect
Women[4]		
M	28.95	29.30
SD	8.63	8.73
Men[5]		
M	32.3	28.30
SD	5.72	8.40
Total[6]		
M	30.1	28.77
SD	7.81	8.49

Note. The higher the score on memory specificity, the more specific the participants are.

[4] Neglected females (n = 19), non-neglected females (n = 27); for all females (n = 46): Mean total scores *M* = 29.15 (SD = 8.59).

[5] Neglected males (n = 10), non-neglected males (n = 30); for all males (n = 40): Mean total scores *M* = 29.30 (SD = 7.94).

[6] Neglected subjects (n = 29), non-neglected subjects (n = 57); for all subjects (n = 86): Mean total scores *M* = 29.22 (SD= 8.25).

Table 9

Means (M) and Standard Deviations (SD) for the AMT Scores for Reported Emotional Abuse and Non- abused Groups

	Memory Specificity	
Group	Abuse	Non-Abuse
Women[7]		
M	28.85	29.38
SD	7.1	9.72
Men[8]		
M	30.2	28.08
SD	7.3	8.72
Total[9]		
M	29.43	28.75
SD	7.11	9.17

Note. The higher the score on memory specificity, the more specific the participants are.

[7] Abused females (n = 20), non-abused females (n = 26); for all females (N= 46): Mean total scores *M* = 29.15 (SD= 8.59).
[8] Abused males (n = 15), non-abused males (n = 25); for all males (N= 40): Mean total scores *M* = 28.88 (SD=8.19).
[9] Abused subjects (n = 35), non-abused subjects (n = 51); for all subjects (n = 86): Mean total scores *M* = 29.02 (SD= 8.36).

Table 10

Means (M) and Standard Deviations (SD) for the AMT Scores for Reported Physical Abuse and Non- abused Groups

	Memory Specificity	
Group	Abuse	Non-Abuse
Women[10]		
M	29.77	28.91
SD	8.46	8.76
Men[11]		
M	28.63	28.74
SD	8.53	8.24
Total[12]		
M	29.33	28.82
SD	8.29	8.43

Note. The higher the score on memory specificity, the more specific the participants are.

[10] Abused females (n = 13), non-abused females (n = 33); for all females (N= 46): Mean total scores *M* = 29.15 (SD= 8.59).

[11] Abused males (n = 08), non-abused males (n = 34); for all males (N= 42): Mean total scores *M* = 28.71 (SD=8.19).

[12] Abused subjects (n = 21), non-abused subjects (n = 67); for all subjects (N= 88): Mean total scores *M* = 28.94 (SD= 8.36).

Table 11

Means (M) and Standard Deviations (SD) for the AMT Scores for Reported Sexual Harassment and Non- harassed Groups

	Memory Specificity	
Group	Harassment	Non-Harassment
Women[13]		
M	32.88	28.37
SD	9.26	8.36
Men[14]		
M	23.8	29.38
SD	10.33	7.79
Total[15]		
M	29.38	28.87
SD	10.33	8.05

Note. The higher the score on memory specificity, the more specific the participants are.

[13] Harassed females (n = 08), non-harassed females (n = 38); for all females (N= 46): Mean total scores *M* = 29.15 (SD= 8.59).

[14] Harassed males (n = 05), non-harassed males (n = 37); for all males (N= 42): Mean total scores *M* = 28.71 (SD=8.19).

[15] Harassed subjects (n = 13), non-harassed subjects (n = 75); for all subjects (N= 88): Mean total scores *M* = 28.94 (SD= 8.36).

Table 12

Means (M) and Standard Deviations (SD) for the AMT Scores for Reported Sexual Abuse and Non- abused Groups

	Memory Specificity	
Group	Abuse	Non-Abuse
Women[16]		
M	29.33	29.06
SD	9.07	8.50
Men[17]		
M	24.00	29.82
SD	10.47	7.30
Total[18]		
M	27.48	29.46
SD	9.69	7.85

Note. The higher the score on memory specificity, the more specific the participants are.

[16] Abused females (n = 15), non-abused females (n = 31); for all females (N= 46): Mean total scores *M* = 29.15 (SD= 8.59).

[17] Abused males (n = 08), non-abused males (n = 34); for all males (N= 42): Mean total scores *M* = 28.71 (SD=8.19).

[18] Abused females (n = 23), non-abused females (n = 65); for all subjects (N= 88): Mean total scores *M* = 28.94 (SD= 8.36).

Table 13

Correlation (r and p-value) between AMT Scores and WAIS-III IQ and Index Scores

	AMT	
WAIS - III	*r (23)*	*p-value*
IQ Scores		
Full Scale IQ	.26	.24
Verbal Scale IQ	.14	.57
Performance Scale IQ	.38	.07
Index Scores		
Verbal Comprehension	.02	.91
Perceptual Reasoning	.39	.06
Working Memory	.28	.19
Processing Speed	.28	.19

Table 14

Correlations of Number of Positive Memories and Negative Memories with MMPI-2-RF Scales, Family Functioning Scale and Perceptual Reasoning

Variable	Correlation with Positive Memories	Correlation with Negative Memories
Defensiveness		
L-r	-.37**	-.28**
Brooding		
Whole Sample	.16	.31**
Non-depressed Group		
RCd	.25*	.42**
Depressed Group		
RCd	-.32	-50*
Cognitive Complaints		
Whole Sample	.14	.22*
Non-depressed Group		
COG	.30*	.35**
Depressed Group		
COG	-.48*	-.55**
Family Functioning		
FAD	-.18	-.23*
Perceptual Reasoning	.50*	.23

Note. *$p < .05$; **$p < .01$

VITA

Lina Schlachter was born in 1979, in Fortaleza, Ceará, Brazil, where she grew up. She graduated from Universidade Federal do Ceará in 2002, with a B.A. in Psychology. In 2005, Lina completed her master's degree in psychoanalytic theory at the Universidade Federal do Rio de Janeiro. Still in 2005, she began her doctoral work in clinical psychology at the University of Tennessee, where her practice and research interests have included psychoanalytic theory, memory specificity, trauma, psychotherapy outcome and hypnosis. She has presented research and case studies at various annual conferences, including American Psychological Association, American Psychological Association's Division of Psychoanalysis (39), and the Society for Clinical and Experimental Hypnosis (SCEH). In 2009, she began her clinical internship at Pennsylvania Hospital.