



Autobiographical memory in older adults with and without depressive symptoms

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ABSTRACT. The aim of this experiment was to examine the overgenerality of autobiographical memory in older adults with depressive symptoms in comparison to nondepressed older adults. 95 older adults with clinically significant depressive symptomatology and 90 nondepressed older adults were asked to generate specific memories in response to a series of positive, negative and neutral cue-words, using the Autobiographical Memory Test (AMT). Evidence for greater overgenerality among those with depressive symptoms was only found for negative cues, while all participants provided far more general than specific memories. Latencies were greater for participants with depressive symptoms than for nondepressed participants, but this finding was not limited to specific memories. There was a strong positivity bias, with more positive memories than negative memories retrieved, across cues. Latency did not differ by valence, but negative cues were more likely than positive cues to lead to failure to retrieve any memory. These positivity effects were markedly stronger for nondepressed respondents than for those with depressive symptomatology. Aged related changes in memory function are suggested as a possible explanation for the overall pattern of findings.

KEYWORDS. Autobiographical memory. Overgenerality. Depressive symptoms. Mood. Experiment.

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RESUMEN. El objetivo de este experimento fue examinar el recuerdo autobiográfico en mayores con sintomatología depresiva en comparación con mayores no depresivos. 95 mayores con síntomas clínicos depresivos y 90 mayores no depresivos fueron inducidos a generar recuerdos específicos como respuesta a series de palabras clave positivas, negativas y neutras a partir del Test de Memoria Autobiográfica (AMT). Evidencia de una mayor sobregeneralización de aquellos que presentaban síntomas depresivos, sólo fue encontrada para palabras clave negativas, mientras que todos los participantes ofrecieron más recuerdos generales que específicos. Los tiempos de latencia fueron mayores para los participantes con síntomas depresivos que para los no depresivos, pero estos resultados no fueron sólo para los recuerdos específicos. Hubo un fuerte sesgo positivo, con mayor número de recuerdos positivos que negativos, a través de las palabras clave. Los tiempos de latencia no difieren en cuanto a las valencias, pero ante las palabras clave negativas había mayor número de no recuerdo que ante las positivas. Los efectos positivos eran mayores para las persona no depresivas que para aquellos que presentaban síntomas depresivos. Los cambios en el funcionamiento de la memoria relacionados con la edad son presentados como explicación para el patrón de resultados obtenido.

PALABRAS CLAVE. Memoria autobiográfica. Sobregeneralidad. Síntomas depresivos. Estado de ánimo. Experimento.

RESUMO. O objectivo desta experiência foi analisar a memória autobiográfica em idosos com sintomatologia depressiva em comparação com idosos não depressivos. Noventa e cinco idosos com sintomas clínicos depressivos e 90 idosos não depressivos foram induzidos a gerar recordações específicas como resposta a séries de palavras-chave positivas, negativas e neutras a partir do Teste de Memoria Autobiográfica (AMT). Foi encontrada evidência de uma maior sobregeneralização, daqueles que apresentavam sintomas depressivos, para palavras negativas, sendo que todos os participantes ofereceram mais recordações gerais que específicas. Os tempos de latência foram maiores para os participantes com sintomas depressivos do que para os não depressivos, mas estes resultados não foram apenas para as recordações específicas. Houve um forte desvio positivo, com maior número de recordações positivas do que negativas, através das palavras-chave. Os tempos de latência não diferiram quanto às valências, mas face às palavras-chave negativas havia maior número de não recordação do que face às positivas. Os efeitos positivos eram maiores para as pessoas não deprimidas do que para aqueles que apresentavam sintomas depressivos. As mudanças no funcionamento da memória relacionadas com a idade são apresentadas como explicação para o padrão de resultados obtidos.

PALAVRAS CHAVE. Memória autobiográfica. Sobregeneralidade. Sintomas depressivos. Estado de ânimo. Experiencia.

Introduction

Autobiographical memory is one's life story based on the collected recalled events in one's life (Birren and Schroots, 2006). These recollections comprise both content and affect, with the encoding and retrieval of autobiographical memories helping to maintain

the self (Conway and Pleydell-Pearce, 2000). In studies of affect in adults of different ages, it has been found that emotional regulation generally improves with age (Carstensen, Fung, and Charles, 2003; Matud, Guerrero, and Matías, 2006). As a part of emotion regulation, older adults tend to focus their memory resources on the sorts of events that will maintain a positive mood, called a positivity effect (Carstensen and Mikels, 2005). When older adults are asked to describe events in their lives, generally it has been found that more positive than negative memories are retrieved (Kennedy, Mather, and Carstensen, 2004; Martin and Smyer, 1990). Supporting the role of positivity in maintaining the self, one study reported that the tendency to retrieve more positive than negative memories was less prominent among depressed than among non-depressed elderly (Yang and Rehm, 1993).

A number of studies indicate that autobiographical memory is organized hierarchically (*e.g.*, Conway and Bekerian 1987; Linton, 1986; Schooler and Hermann, 1992). Conway and Rubin (1993) describe the levels of autobiographical knowledge: lifetime periods, general events, and event-specific knowledge. The lifetime level corresponds to long periods of life measured in years or decades; the general level corresponds to general experiences, such as repeated events distributed in time, measured in days, weeks or years; and the specific level refers to specific events, measured in minutes, hours or one day (Conway and Bekerian, 1987). When attempting to recall events from their past, people first access higher level, more general descriptions, using these as intermediate steps to prompt lower level, specific event representations (Reiser, Black, and Abelson, 1985; Rubin, 1996). Studies of autobiographical memories show that whereas nondepressed individuals are able to respond with specific memories, depressed patients retrieve fewer specific and more general memories, and they have a higher latency to produce responses. The phenomenon of overgeneral recall in autobiographical memory was originally studied in suicidal patients (Williams and Broadbent, 1986; Williams and Dritschel, 1988). Subsequent research found overgenerality to be a characteristic of depression (Brittlebank, Scott, Williams, and Ferrier, 1993; Williams and Scott, 1988). The phenomenon of overgenerality of autobiographical memory in depressed individuals has also been related to ruminative processes (Watkins and Teasdale, 2001; Watkins, Teasdale, and Williams, 2000).

Williams and Broadbent (1986) introduced the Autobiographical Memory Test (AMT) as a standardized method to study the phenomenon of overgeneral autobiographical memory. The AMT required participants to retrieve personal memories in response to cue-words. In this initial work the authors used five positive cues (happy, surprised, interested, successful and safe), and five negative cues (clumsy, hurt, angry, lonely and sorry). Participants were instructed to describe a specific event – something that happened at a particular place and time and took no longer than a day. Practice words were then used, and the experiment did not start until the subject had retrieved a specific memory. During the autobiographical testing, subjects were allowed 60 seconds to retrieve a memory. If their response was inappropriately general, they were prompted with the words, “Can you think of a specific time – one particular event?” Experimenters recorded

latencies between cues and the first word of each separate response. Several studies using the AMT have replicated the results of Williams and Broadbent (1986) in patients with depression (Goddard, Dritschel, and Burton, 1996; Kremers, Spinhoven, and Van der Does, 2004; Kuyken and Dalgleish, 1995; Nandrino, Pezard, Poste, and Reveillere, 2002; Scott, Stanton, Garland, and Ferrier, 2000; Wessel, Meeren, Peeters, Arntz, and Merkelbach, 2001). Moreover, severity or chronicity of depression has sometimes been found to relate to degree of reduction of specificity in autobiographical memory (Brittlebank *et al.*, 1993; Nandrino *et al.*, 2002).

There are some inconsistencies in how the phenomenon is manifest. Among participants with clinically diagnosed depression, most studies find patients less specific in response to positive than to negative cues (Puffet, Jehin-Marchot, Timsit-Berthier, and Timsit, 1991; Williams and Broadbent, 1986; Williams and Dritschel, 1988; Williams and Scott, 1988), while normal controls did not show differences in how they responded to negative as opposed to positive cues. On the other hand, Mackinger, Packhinger, Leibetseder, and Fartacek (2000) reported that, compared to women who had never been depressed, women in remission from major depression retrieved significantly more general memories in response to negative than in response to positive cue words. Similar results have been reported for latency, again without consistency across studies. Williams and Broadbent (1986) and also Williams and Scott (1988) found longer latencies to positive cues than to negative cues for depressed patients, whereas the reverse was true for control subjects. Others, however, did not find significant differences in response latencies, nor interactions with valence (Kuyken and Dalgleish, 1995).

It is not established whether overgenerality characterizes older adults with depression. The research using this paradigm has by and large not included older adults. Episodic memory, which relates to personally experienced events situated in their temporal-spatial context, is particularly sensitive to the effect of age (Nyberg and Tulving, 1996). Autobiographical memory is not only episodic, but consists of a collection of information as well as memories particular to an individual, which the individual has accumulated since his or her birth. One study of autobiographical memory, not using the AMT, showed that older adults had difficulties being specific in autobiographical memory (Winthorpe and Rabbitt, 1988). Using the AMT, Phillips and Williams (1997) found greater overgenerality in older adults with cognitive impairment, but no relationship between current severity of depression and overgenerality.

The aim of this experiment (Montero and León, 2005; Ramos-Álvarez, Valdés-Conroy, and Catena, 2006) was to examine autobiographical memory in older adults. a) We predicted that we would find a positivity bias, in which older adults would retrieve more positive than negative memories, and would be more likely to fail to produce a memory to a negative than to a positive cue. We further expected that the bias would be less among those with clinical levels of depressive symptoms than among nondepressed older adults. b) Based on the weight of evidence with adult samples, we predicted greater overgenerality in older adults with depressive symptoms in comparison to nondepressed older adults, and we tested whether overgenerality was more prominent

in response to positive or to negative memory cues. c) We predicted that latencies would be relatively shorter for positive than for negative cues, consistent with a positivity bias; that older adults with depressive symptoms would have a longer latency for positive and shorter latency for negative cues compared to nondepressed older adults, reflecting relative availability of memories; and that older adults with depressive symptoms would have a longer latency for specific memories compared to nondepressed older adults.

Method

Participants

A total of 185 participants aged 60 and older were recruited from three cities in the La Mancha area of Spain. One group of older adults was recruited from Social Services in Almansa ($n = 44$). Mean age was 76.54 ($SD = 8.26$); 34 (77%) were women and 10 (22%) were men. The educational levels were read and write (18%) completed elementary school (50%), completed secondary school (30%) and attended university (2%). Following usual practice, a cut-off score 16 was used to identify depressed symptoms. In this sample, all scored at or above the clinical cut-off of 16 on the CES-D.

A second group was recruited from retirement communities for active older adults in Cuenca. We invited all interested people to participate in the study. After verbal consent was given, they were screened using the CES-D but everyone was included regardless of CES-D score. From this recruitment effort, 60 older adults were included, with mean age of 71.60 ($SD = 7.55$); 22 (37%) were women and 38 (63%) were men. The educational levels were unable to read and write (2%), able to read and write (2%), completed elementary school (88%), and completed secondary school (8%). In this sample, 35% scored at or above the clinical cut-off of 16 on the CES-D.

The third group was from a Center for Healthy Aging in Albacete, recruited using the same procedures as in Cuenca. There were 81 older adults, with mean age of 70.32 ($SD = 6.20$); 52 (64%) were women and 29 (36%) were men. The educational levels were unable to read and write (12%), able to read and write (14%), completed elementary school (65%), completed secondary school (4%) and attended university (5%). In this group, 37% scored at or above the clinical cut-off of 16 on the CES-D.

Criteria for inclusion included that the individual had to show no evidence of dementia (as determined by a score of 28 or higher on the mini-Mental State Examination (Spanish version by Lobo, Ezquerra, Gómez Burgada, Sala, and Seva-Díaz, 1979) and no pharmacological treatment for depression. Sex ratio and level of education differed across sites. Level of education was not significantly related to depressive symptom scores. Men and women did differ on depressive symptom scores; therefore, sex was included as a variable in the analyses.

Materials

- Center for Epidemiologic Studies-Depression (CES-D; Radloff, 1977). The Spanish translation by Latorre and Montañés (1997) was used in screening the participants. The CES-D is a short self-report scale designed to measure depressive symptomatology in the general population. It consists of 20 items assessing depressed mood, feelings of guilt and worthlessness, helplessness, hopelessness, and psychomotor retardation. The CES-D scale is widely used in research with adults of all ages (Radloff, 1977; Radloff and Teri, 1986) with high internal consistency reliability, discriminant and construct validity (Radloff and Teri, 1986). In the present sample, Cronbach's alpha was .91. Following usual practice, a cut-off score of 16 was used to identify those with clinically significant symptoms. There were 90 in the group scoring below the cut-off ($M = 7.50$, $SD = 4.64$, range 0 to 15), and 95 in the group scoring above the cut-off ($M = 26.05$, $SD = 7.4$, range 16 to 49). The relative equivalence of the sizes of the two groups was due to oversampling those who were depressed. Validity studies find that with a CES-D cut-off of 16, there are few false negatives although not everyone above the cut-off qualifies for major depression (Turvey, Wallace, and Herzog, 1999).
- Mini-Mental Status Examination (MMSE; Folstein, Folstein, and McHugh, 1975). The Spanish version developed by Lobo *et al.*, (1979) consists of eleven items grouped into eight categories representing different cognitive domains of function. The maximum score is 35 with a cut-off 28 reflecting cognitive impairment. The instrument obtained a sensitivity of 92% and a specificity of 90% in medical patients, and 96% and 100% respectively in inpatient psychiatric patients, when those with cognitive impairment were compared with non demented participants (Lobo *et al.*, 1979). All participants in the present study scored above the cut-off.
- Autobiographical Memory Test (AMT; Williams and Broadbent, 1986). This test measures respondents' ability to retrieve a specific memory under timed conditions in response to a cue word. We generated cue words for the Spanish version of the test by presenting a list of 30 words to a focus group, who identified which were more familiar positive, negative, and neutral words. These words were presented orally to the respondent. In this experiment, we used five positive (funny, lucky, passionate, happy, hopeful), five negative (unsuccessful, unhappy, sad, abandoned, gloomy), and five neutral words (work, city, home, shoes, family). Words were presented in a fixed alternating order. To ensure that participants understood the instructions, there were examples of a general memory (*e.g.*, summers in the city) and specific memory (*e.g.*, the day I got married). Instructions asked for a specific memory of which the cue word reminded participants. It was explained that a specific memory refers to a personally experienced event, that happened at a particular place and time, that lasted no longer than one day, and usually does not occur repeatedly. If a response did not

satisfy these criteria, it was coded as a general memory. The interview's question for the positive and negative words was: "Try to remember a day or situation in the past when you felt...Can you describe it?" For neutral words the question was: "Try to remember a special day with /in your" Participants were given 30-seconds to produce a memory. Response latencies were recorded using a stopwatch. If no memory was recalled in 30-seconds, this was coded as an omission. Response latency was defined as the time included between the experimenter's question and the first word of the participant's answer. The participant was not prompted. Each memory was coded whether it was positive, negative, or neutral, and whether it was general or specific. If the recalled event lasted no longer than a day, it was coded as specific. If the memory happened on a number occasions, it was coded as general. Since the total number of stimulus words was 15, the maximum score for either general or specific was 15, and the sum of general plus specific could not exceed 15. Interrater reliability for general versus specific was .89. Average latencies for all responses were calculated (latencies for omissions could not be included with general or specific, respectively). Positivity was indexed by subtracting total negative memories retrieved from total positive memories retrieved.

Procedure

Participants were told that the study was investigating effects of mood on memory recall and that the interviews were designed to evoke memories. The participants who gave consent were included in the study. In the first week they were orally administered a demographic questionnaire and completed the CES-D and the MMSE. These measures were administered by two psychologists blind to the purpose of the study. In the second week, participants completed the AMT. Assessment sessions were tape recorded and were scored by three raters blind to the purpose of the study. Each response was coded as positive, negative, or neutral, and as specific or general. The coders also determined that each prompting question was administered to each participant.

Analyses

Hypotheses comparing numbers of memories generated in different response categories (*e.g.*, whether there were more positive memories retrieved than negative memories), were evaluated with matched *t*-tests. Hypotheses comparing groups (*e.g.*, older adults with clinically significant depressive symptoms versus nondepressed older adults), were evaluated with independent groups *t*-tests. Predictions that one group would differ from another on different response categories (*e.g.*, whether overgenerality would be relatively more apparent in response to positive cues than negative cues among those with depressive symptoms but not different by cue valence among those without depressive symptoms), were evaluated with repeated measures analysis of variance. The between groups variable was "group" (those with clinically significant depressive symptoms *versus* those without). The repeated measure was "valence" (positive *versus*

negative memories). The dependent variable was the number of answers within the response category. The GroupxValence interaction tested whether groups differed in their response patterns. The analyses of variance included sex and age as covariates, because there were sex differences on the CES-D, with women scoring on average higher ($M = 24.02$, $SD = 10.82$) than men ($M = 12.35$, $SD = 9.22$) ($F_{(1, 184)} = 21.74$, $p < .0001$), and a modest correlation between age and CES-D scores ($r_{(185)} = .21$, $p < .01$).

Results

Positivity bias

Tables 1 and 2 provide mean scores and standard deviations for all of the AMT variables for non-depressed, and for those with clinically significant depressive symptoms, respectively. We predicted that older adults who were nondepressed would retrieve more positive memories than negative memories. This prediction was supported; total positive memories retrieved in response to all fifteen cues was greater than total negative memories retrieved in response to all fifteen cues ($t_{(89)} = 10.50$, $p < .0001$). Older adults who were nondepressed were also significantly more likely to fail to respond to a cue word within 30 seconds if the cue word were negative compared to positive cue words ($t_{(89)} = -10.29$, $p < .0001$).

TABLE 1. Mean (and standard deviation) number of memories retrieved, categorized as positive, negative, or neutral, and as general or specific, in response to positive, negative, and neutral cue words, by nondepressed older adults.

<i>Memory</i>		<i>Cue</i>			<i>Total</i>
		<i>Positive word</i>	<i>Negative word</i>	<i>Neutral word</i>	
Positive	General	3.16 (1.34)	.19 (.47)	1.78 (1.19)	6.46 (1.95)
	Specific	.92 (1.12)	0 (-)	.41 (.82)	
Negative	General	.09 (.29)	1.99 (1.29)	.34 (.60)	3.38 (1.86)
	Specific	.09 (.29)	.59 (.95)	.29 (.55)	
Neutral	General	.16 (.39)	.10 (.34)	1.14 (1.18)	1.61 (1.41)
	Specific	.02 (.15)	.02 (.15)	.17 (.40)	
No response		.57 (.96)	2.11 (1.39)	.87 (1.09)	

TABLE 2. Mean (and standard deviation) number of memories retrieved, categorized as positive, negative, or neutral, and as general or specific, in response to positive, negative, and neutral cue words, by older adults with clinically significant depressive symptoms.

<i>Memory</i>		<i>Cue</i>			<i>Total</i>
		<i>Positive word</i>	<i>Negative word</i>	<i>Neutral word</i>	
Positive	General	2.78 (1.33)	.15 (.41)	1.72 (1.17)	6.19 (2.22)
	Specific	.99 (1.33)	0 (-)	.56 (.98)	
Negative	General	.19 (.51)	2.39 (1.26)	.55 (.80)	4.19 (1.94)
	Specific	.07 (.26)	.76 (1.00)	.23 (.47)	
Neutral	General	.07 (.36)	.09 (.49)	.91 (.99)	1.23 (1.24)
	Specific	.01 (.10)	0 (-)	.15 (.39)	
No response		.88 (.09)	1.61 (1.25)	.89 (1.10)	

Among older adults with clinically significant depressive symptoms, there was also evidence of a positivity bias ($t_{(94)} = 6.16, p < .0001$). However, as expected, the positivity bias was significantly less pronounced for those with depressive symptoms than for those without. This observation was supported by the results of the two-way repeated analysis of variance, comparing the two depression groups on their total positive and negative retrieved memories, controlling for sex and age. The interaction between group and valence was significant ($F_{(1, 181)} = 4.59, p < .05$), but there were no main effects for group, indicating that total number of memories was not different by group, or for valence. *Post-hoc* tests, controlling for sex and age, showed that nondepressed and depressed did not differ significantly on positive retrieved memories ($F_{(1, 181)} = .04, p > .05$) but they differed significantly from negative retrieved memories, with depressed retrieving significantly more negative memories compared to nondepressed ($F_{(1, 181)} = 8.56, p < .005$). Further, there was a negative linear relationship between positivity and CES-D score ($r_{(185)} = -.28, p < .0001$), indicating that with greater severity of depressive symptoms, there was a lessening of the tendency to retrieve more positive than negative memories. Finally, compared to nondepressed older adults, those with depressive symptoms both were more likely to fail to provide a memory to positive cues and less likely to fail to provide a memory to negative cues. In the two-way repeated ANCOVA, the interaction was statistically significant, ($F_{(1, 181)} = 9.15, p < .05$). There were no main effects for group, indicating that the total number of omissions was not different by group, or for valence. *Post-hoc* tests, controlling for sex and age, showed that nondepressed and depressed did not differ significantly on non-response to positive cues ($F_{(1, 181)} = 2.14, p > .05$) but did differ significantly on non-response to negative cues, with nondepressed significantly more likely to fail to provide a memory ($F_{(1, 181)} = 6.65, p = .01$).

Overgeneral memory

We predicted that older adults with depressive symptoms would recall more general memories than nondepressed older adults. We did not find support for overgenerality across cue words of different valences. Instead, older adults with depressive symptoms were more likely to recall general memories than nondepressed older adults only for negative cue words. For positive cue words, it was the nondepressed who more often retrieved general memories compared to those with depressive symptoms. This pattern was supported by a two-way repeated ANCOVA, where the interaction was statistically significant ($F_{(1, 181)} = 5.77, p < .05$). There were no main effects for group, indicating that the total number of general responses was not different by group, or for valence. A *post-hoc* analysis included only those who met criteria for depressive disorder. In response to negative cues, depressed older adults retrieved more general memories compared to nondepressed ($t_{(48)} = -3.03, p < .005$). No other significant differences were found for positive or neutral cues.

Latency

Means and standard deviations for responses latencies on the AMT for men and women are shown in Tables 3 and 4. We did not find support for the hypothesis that,

TABLE 3. Mean (and standard deviation) latency in seconds to retrieve a memory, with memories categorized as positive, negative, or neutral, and as general or specific, in response to positive, negative, and neutral cue words, by nondepressed older adults.

<i>Memory</i>		<i>Cue</i>		
		<i>Positive word</i>	<i>Negative word</i>	<i>Neutral word</i>
Positive	General	3.74 (2.13) <i>n</i> = 88	1.56 (.97) <i>n</i> = 14	3.38 (2.27) <i>n</i> = 75
	Specific	4.14 (2.76) <i>n</i> = 49	---	4.13 (2.07) <i>n</i> = 23
Negative	General	4.38 (3.42) <i>n</i> = 8	3.40 (1.76) <i>n</i> = 81	2.79 (1.83) <i>n</i> = 26
	Specific	3.88 (1.64) <i>n</i> = 8	3.48 (1.49) <i>n</i> = 31	5.14 (4.12) <i>n</i> = 22
Neutral	General	3.58 (2.21) <i>n</i> = 13	3.38 (1.90) <i>n</i> = 8	3.17 (1.72) <i>n</i> = 57
	Specific	5.50 (3.54) <i>n</i> = 2	5.50 (.70) <i>n</i> = 2	2.39 (1.38) <i>n</i> = 14
<i>Total by cue valence</i>		Positive	3.71 (1.83) <i>N</i> = 89	
		Negative	3.37 (1.64) <i>N</i> = 89	
<i>Total by generality</i>		General	3.43 (1.60) <i>N</i> = 89	
		Specific	3.87 (1.98) <i>N</i> = 69	

TABLE 4. Mean (and standard deviation) latency in seconds to retrieve a memory, with memories categorized as positive, negative, or neutral, and as general or specific, in response to positive, negative, and neutral cue words, by older adults with clinically significant depressive symptoms.

<i>Memory</i>		<i>Cue</i>		
		<i>Positive word</i>	<i>Negative word</i>	<i>Neutral word</i>
Positive	General	5.30 (2.73) <i>n</i> = 89	4.05 (1.31) <i>n</i> = 11	3.87 (1.95) <i>n</i> = 77
	Specific	4.99 (2.47) <i>n</i> = 49	---	4.28 (1.93) <i>n</i> = 29
Negative	General	5.31 (2.54) <i>n</i> = 12	4.38 (2.27) <i>n</i> = 91	3.33 (1.88) <i>n</i> = 34
	Specific	6.14 (3.53) <i>n</i> = 7	5.39 (3.25) <i>n</i> = 41	5.38 (3.22) <i>n</i> = 20
Neutral	General	5.17 (2.93) <i>n</i> = 3	4.06 (2.61) <i>n</i> = 4	4.03 (1.83) <i>n</i> = 46
	Specific	1.00 (-) <i>n</i> = 1	---	4.30 (2.26) <i>n</i> = 10
<i>Total by cue valence</i>		Positive	5.33 (2.24) <i>N</i> = 95	
		Negative	4.51 (2.35) <i>N</i> = 95	
<i>Total by generality</i>		General	4.51 (1.67) <i>N</i> = 95	
		Specific	4.89 (2.06) <i>N</i> = 80	

in nondepressed individuals, latencies would be shorter for positive than for negative cues. We did find, consistent with our predictions, that for individuals with clinically significant depressive symptoms, latencies were significantly longer for positive than for negative cues ($t_{(94)} = 3.30, p < .01$). Across all response categories, individuals with depressive symptoms exhibited longer latencies than nondepressed individuals. In a two-way repeated ANCOVA, with latency for positive cues and latency for negative cues as the repeated measure, there was a significant main effect for group ($F_{(1, 179)} = 24.24, p < .0001$), but no significant effect for valence and no significant interaction.

With respect to latency to retrieve general *versus* specific memories, in a two-way repeated ANCOVA, with latency for general responses and latency for specific responses as the repeated measure, there was a significant main effect for group ($F_{(1, 145)} = 10.60, p < .0001$), again showing the greater latency of those with depressive symptoms

compared to nondepressed, but no main effect for valence, in other words, no greater latency for specific memories compared to general, and no significant interaction.

Discussion

The aim of this study was to compare the accessibility of autobiographical memory in older adults with depressive symptoms compared to nondepressed older adults. We expected to replicate the overgenerality phenomenon (*e.g.*, Williams and Scott, 1988) in older adults, in which depressed individuals produce more general memories and fewer specific memories than nondepressed. The hypothesized overgenerality pattern was supported only for negative cues, for which older adults with depressive symptoms retrieved more general memories when compared nondepressed older adults. The greater link between overgenerality and negative cues follows Mackinger *et al.* (2000) while most studies have reported that overgenerality is greater in response to positive cues (*e.g.*, Puffet *et al.*, 1991; Williams and Scott, 1988). Finding differences between depressed and nondepressed with respect to negative memories could be due to the affective-cognitive processes of rumination that occur among people with depression (Williams, 1996). Production of general memories would represent an extension of a chronic ruminative style, in which individuals cope with negativity affectivity through a focus on their emotional state. Studies demonstrating that overgenerality can be maintained by a ruminative intervention but overcome with use of decentring and distraction techniques as well as focusing on moment-to-moment experiences support this explanation (Watkins *et al.*, 2000).

Notably, both depressed and nondepressed older adults in this study tended to respond with general memories, despite being instructed to give specific memories. This finding contrasts with results found with adults of other ages, who retrieved more specific memories than participants in the present study (*e.g.*, Goddard *et al.*, 1996; Kremers *et al.*, 2004). There are several possible explanations. Relative to younger adults, older adults are impaired at retrieving episodic contextual details (McIntyre and Craik, 1987; Spencer and Raz, 1995), a phenomenon that could lead both depressed and nondepressed to recall fewer specific memories than general memories. Cognitive aging research has found that age related decline is greatest for explicit, effortful, and unstructured retrieval tasks (Zacks, Hasher, and Li, 2000), which have parallels with the AMT. Semantic information, such as general knowledge and understanding of narrative meaning, is preserved or even facilitated in older adults (Adams, Smith, Nyquist, and Perlmutter, 1997). For example, Levine, Svoboda, Hay, Winocur, and Moscovitch (2002) found that whereas younger adults were biased toward episodic details reflecting happenings, locations, perceptions, and thoughts, older adults preferred semantic memories not connected to a particular time and place. This pattern persisted after conditional structured probing for contextual details. A similar conclusion was obtained in an aging study where episodic and semantic aspects of autobiographical memory were probed using separate interviews (Piolino, Desgranges, Benali, and Esustache, 2002). Another possible

reason for the low specificity of autobiographical memories in older adults is that older adults take a more integrative approach to the past that stresses social roles and generativity (Carstensen, 1995; Labouvie-Vief, and Blanchard-Fields, 1982). This approach to the past means that the content of episodic memory needs to be integrated with a sense of self-coherence and self-continuity; in this process, memories long on detail and short on integration lack relevance. Thus for older adults, the function of memory may be different, including use of memories and reflection on the past to inform and teach others (Webster and McCall, 1999).

As would follow from the role of memory in maintaining the self, we found support for the hypothesized positivity effect on the AMT, in which more positive than negative memories were retrieved. Further, as found by Yang and Rehm (1993) on another memory task, the positivity effect was less strong among those with depressive symptoms. The suggestion of Carstensen and Mikels (2005) that older adults regulate emotion by selecting only those things that are positive is further supported by our finding that negative cue words led to more failures to retrieve any memory than did positive cue words, again less strongly among those with depressive symptoms. We did not, however, find shorter latencies for positive than for negative cue words among the nondepressed. If participants did respond, latency was similar across positive and negative cues. Further evidence of the role of depression was seen in the generally longer latencies to respond among those with depressive symptoms. In short, they exhibited longer response times in retrieving any memories. This finding might reflect a general cognitive slowing due to depression. Tasks that make substantial demands on processing resources are more difficult when there are restrictions in working memory capacity, which may accompany depression (Nebes *et al.*, 2000; Williams, Watts, McLeod, and Matthews, 1997). Although we had hypothesized that a longer latency for specific than for general memories would in particular characterize those with depressive symptoms, we found no interaction between latency for different types of memories and whether the individuals reported depressive symptoms. In this regard, our results are consistent with the findings of Kuyken and Dalgleish (1995).

The present study has several limitations. First, the three samples of subjects were collected in diverse situations, with one sample including only individuals who scored above the cut-off for clinically significant depressive symptoms, and with the other two samples differing in the relative proportions of men and women. Participants were tested at different places: the Cuenca and Albacete samples at community centers, Almansa participants in their homes. We cannot separate potential effects of site from demographic factors. All data were collected by psychologists, following the same protocol. In the analyses, we controlled for both sex and age, and found that sex operated as a main effect, with women having higher CES-D scores than men, but that there was no modification of key interaction effects by sex or age. Second, not all respondents in the group scoring above the depressive symptom cut-off had diagnosed depression. It is possible that with a more severely depressed sample, there would have been more evidence of overgenerality of autobiographical memory. Further, there was

some suggestion that the positivity effect, which was evident in our sample, might still have been attenuated, as there was a linear relationship between positivity and severity of depressive symptoms. Third, there was no comparison group of younger participants. However, results can be compared to published findings on the AMT with other ages. Further, although Carstensen (Carstensen *et al.*, 2003; Carstensen and Mikels, 2005; Kennedy *et al.*, 2004) has provided many replications of the positivity effect with older adults compared to younger adults, this study makes a contribution by comparing older adults who are not depressed to older adults with clinically significant depressive symptoms.

In conclusion, this study provides mixed support for the hypothesis that, on the AMT, overgenerality would uniquely characterize the retrieved memories of depressed older adults. Overgenerality was evident for negative cues but not for positive cues, and response latencies tended to be longer for participants with depressive symptoms than for nondepressed, across both general and specific memories. More strikingly, the ability to be specific proved elusive among both those with depressive symptoms and those who scored below the depressive symptom cut-off. There was also a strong positivity bias, especially for older adults without clinically significant depressive symptoms. We suggest that changes in cognitive processing and in socioemotional functioning that accompany aging may attenuate findings of overgeneral memory in depressives found in younger adults.

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