

Emotions Are Salient in Prosocial Reminiscences

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This study uses an incidental memory paradigm to examine processing of emotional information in three types of reminiscence (narrative, transmissive, and integrative). Better memory of emotional contents in prosocial reminiscences (transmissive and narrative) was expected on the basis of their hypothesized role in emotional regulation. Eighty-four participants between the ages of 20 and 85 (age groups: 20-44, 45-64, and 65-85 years) were randomly assigned to read one of three short stories exemplifying either an integrative, narrative, or transmissive reminiscence containing comparable amounts of emotional elements. As expected, participants assigned to reading the transmissive or narrative reminiscence recalled significantly more emotional elements than those having read the integrative story. This finding provides evidence for preferential processing of emotional information in transmissive and narrative reminiscences, which is in line with the putative role of these reminiscences in emotional regulation.

Key Words: Emotional Processing, Incidental Memory, Reminiscence, Prosocial Reminiscences

A major line of research on reminiscence has adopted a functional perspective, i.e., focusing on why individuals recall personal memories. The prevalent taxonomy includes eight functions of reminiscence (Webster, 1993, 1997) which have been found to cluster into three distinct groups. This tripartite model of reminiscence functions (Cappeliez & O'Rourke, 2006; O'Rourke, Cappeliez & Claxton, 2011) comprises *self-positive functions*, *self-negative functions*, and *prosocial functions*. This model has been supported with English and French speaking Canadians (O'Rourke, King, & Cappeliez, 2017), older Spaniards (Ros et al., 2016), and Israeli Holocaust survivors (King, Cappeliez, Carmel, Bachner, & O'Rourke, 2015).

Self-positive functions of reminiscence, which include *identity* (using personal memories to find meaning in life), *death preparation* (personal memories used to come to terms with one's finitude), and *problem solving* (using memories to solve current problems) have been associated with mental health and well-being in several studies (Alea & Bluck, 2013; Cappeliez & O'Rourke, 2006; Hallford, Mellor, & Cummins, 2013; O'Rourke et al., 2011; Ros et al., 2016; Waters, 2014). Self-negative functions, which include *bitterness revival* (rehashing difficult life memories), *boredom reduction* (using memories to fill a void of stimulation or interest in the present), and *intimacy maintenance* (evoking memories of those who are now absent or deceased), are associated with lower well-being in later life, including depressive and anxious symptoms, lower perceived health, reduced life satisfaction, and

physical health conditions (Cappeliez & O'Rourke, 2006; Korte, Cappeliez, Bohlmeijer, & Westerhof, 2012; O'Rourke et al., 2011; Ros et al., 2016). Lastly, prosocial functions, including *conversation* (conveying personal memories with no evaluative or instructive intent) and *teach/inform others* (sharing memories to convey a life lesson) are associated with physical health and psychological well-being indirectly, i.e. via self-positive and self-negative functions (Cappeliez & O'Rourke, 2006; O'Rourke et al., 2015). Emotion regulation has been proposed as the mediating variable. Prosocial reminiscences would regulate emotion by optimizing opportunities to experience positive emotions in social relations (Cappeliez & O'Rourke, 2006; O'Rourke et al., 2011).

There is indirect evidence that prosocial reminiscences may be involved in emotion regulation. Webster and McCall (1999) reported that reminiscences for conversation and to teach/inform others are typically associated with positive emotions. Older adults with a higher degree of extraversion, which is the tendency to seek social contacts and experience positive affect, report a higher frequency of reminiscence for conversation (Cappeliez & O'Rourke, 2002; Cully, LaVoie, & Gfeller, 2001; Quackenbush & Barnett, 1995; Webster, 1993). Additionally, in a study on reminiscences in a natural context, conversational reminiscence was found, most often, to trigger and enhance positive emotions (Cappeliez, Guindon, & Robitaille, 2008). The recently demonstrated temporal variability of the prosocial functions (in contrast to the stability of self functions) provides tangential support for the idea that prosocial reminiscences are influenced by the context at the time of evocation, both social and emotional (O'Rourke et al., 2017).

The present study constitutes a test of the theoretical point that emotions are particularly salient in prosocial reminiscences. Specifically, we will use an incidental

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memory paradigm for a more direct test of the facilitated processing of emotional information in prosocial reminiscences. In such a paradigm, participants are typically presented a text to read, with no instruction to remember it. Then, after spending some time on a distraction task, they are asked to recall the information despite the lack of prior effort made to memorize the information. The incidental memory paradigm is suitable for examining the processing of emotional information across age groups for different types of text materials. It presents the advantages of more closely resembling memory requirements in everyday life and reducing the influence of performance motivation and demand characteristics of the experimenter (Carstensen & Turk-Charles, 1994; Comblain, D'Argembeau, Van der Linden, & Addenhoff, 2004).

Until now, evidence in support of the hypothesis that prosocial reminiscences are involved in emotional regulation has been gathered exclusively with samples of older adults. In this study we test the generalizability of this phenomenon across three age groups: young, middle-aged, and older adults.

From this point onward, we will use the terms coined by Wong (1995), referring to reminiscence 1) for conversation and 2) to teach/inform as narrative and transmissive reminiscence, respectively. To raise the bar for narrative and transmissive reminiscences we will compare them not to a control condition of text passages but rather to another complex type of reminiscence, reminiscence for identity, also called integrative reminiscence (Wong, 1995).

Based on previous research and theory, we hypothesized that: 1) younger participants and middle-aged participants would recall a greater amount of overall information (neutral and emotional combined) than older participants, for all three types of reminiscence without distinction and 2) all three age groups would show greater recall of emotional information in the transmissive and narrative reminiscence compared to the integrative reminiscence.

Method

Participants

Eighty-four adults between 20 and 85 years of age participated in the study. Seventy percent were male and 30% were female. Thirty-six (42.9%) were married, 23 (27.4%) were single, 11 (13.1%) were divorced or separated, 8 (9.5%) were widowed, and 6 (7.1%) were in a free union. The vast majority (94%) lived in their own dwelling and the remainder (6%) in nursing homes. Forty-five percent were retired, 32.1% were working full-time, 20.2% were students, 1.2% were working part-time, and 1.2% were unemployed.

The overall sample consisted of three age groups: 30 young adults between 20 and 44 years of age ($M = 28.13$, $SD = 5.41$), 25 middle-aged adults between 45 and 64 years of age ($M = 53.89$, $SD = 6.87$), and 29 older adults between 65 and 85 years of age ($M = 73.28$; $SD = 6.36$). Perceived health was assessed by asking participants "How do you consider your current health status" on a scale from 1 (really bad) to 7 (excellent). There was no difference among the three age groups in perceived health, being rated as good to very good, or in years of education (respectively, $M = 17.6$; 15.5 ; 13.9).

The younger participants were recruited on a university campus through advertisements on bulletin boards. Middle-aged participants were recruited among the administrative staff of the university and among staff members from institutions for the elderly. Older participants were recruited through community agencies, such as cultural centers, senior associations, and retirement and nursing homes. Participants were all interviewed individually in a conference room at the university, in a private room in the institution where they were recruited, or in their own home. Participants were each paid \$10 for their participation.

Materials

Short stories. Three short texts exemplifying integrative, narrative, and transmissive reminiscences were developed¹ (See footnote). The three stories were developed on the basis of descriptions of the three types of reminiscence provided by Wong (1995). To ensure that the stories were indeed exemplifying the reminiscences they were developed to represent, they were tested with three people who were blindly asked to identify which type of reminiscence each story represented. Minor adjustments were made to the stories until perfect agreement between the raters was reached. Each story was approximately 500 words long. An example of a neutral segment is "To break the ice with other people I had to take some alcohol." An example of an emotional segment is "After taking a few drinks, I felt courageous." The three stories contained similar numbers of segments, with similar proportions of emotional and neutral segments. The transmissive story contained a total of 26 segments, 9 (35%) emotional and 17 (65%) neutral. The integrative story contained a total of 27 segments, 9 emotional (33%) and 18 (67%) neutral. The narrative story contained 28 elements, 9 (32%) emotional and 19 (68%) neutral.

Procedure

Following informed consent, participants were randomly assigned to read one of three short texts exemplifying integrative, narrative, or transmissive reminiscence¹. Overall, 27 participants were assigned to

¹ The texts that exemplify integrative, narrative, and transmissive reminiscence (in French) are available from the author.

read the integrative reminiscence text, 28 the narrative story, and 29 the transmissive reminiscence text. The participants were given the following instructions based on those used by Carstensen and Turk-Charles (1994): “While reading this story try to identify yourself with the main character of the story. After having read the story, I will ask you some questions about the story.” Participants were given five minutes to read the short text. After having read the story, participants were asked to do cross-word puzzles for 20 minutes as a distraction task. Following these 20 minutes, participants were asked to recall all that they could about the passage. The following instructions were used: “Now tell me everything you can remember about the story that you have read 20 minutes ago. The order does not have any importance. I am only interested in what you remember.”

All responses were audiotaped and later transcribed verbatim. Two raters, ignorant of the identity of the participants and of the purpose of the study, identified the emotional and neutral segments (portions of phrases) in each verbatim. Because this study focused on memory, only the segments, both emotional and neutral, that matched the ones in the original story were coded. Other contents mentioned by participants that did not match those contained in the original story were not considered. Interrater reliability was assessed by having a third independent coder categorize five randomly chosen percent of the recalled information. The level of agreement between both coders on the identification of contents from the original story and categorization of segments as emotional and neutral was found to be 81%. Differences between the two raters were resolved by the third coder.

Two scores were calculated. First, as a test of memory of the original text, we calculated the proportion of recalled segments, emotional and neutral combined, over the total number of segments in the original story. Means for each age group and each type of reminiscence were then computed. Second, as a test of memory for emotional information, controlling for memory performance, we calculated the proportion of emotional segments over the total number of elements recalled. Means for each age group and each reminiscence type were computed. Given that we used proportional scores, resulting in variance proportional to the mean, they were submitted to arcsin transformations (Howell, 2005).

Results

Overall Memory Performance

A 3 (age group) x 3 (reminiscence type) between-subjects univariate analysis of variance was performed on the arcsin transformation of the proportion of recalled segments. No interaction effect between age and reminiscence type was found. No main effect for

reminiscence type was found. There was a significant main effect for age [$F(2, 75) = 8.53, p < .001, MSE = .02$], with participants from the 20-44 age group remembering proportionally more elements ($M = .40, SD = .20$) than those from the 45-64 ($M = .28, SD = .09$) and 65+ ($M = .25, SD = .11$) age groups. No significant difference was found between the 45-64 and 65+ age groups. Results with the non-transformed data are presented in Figure 1.

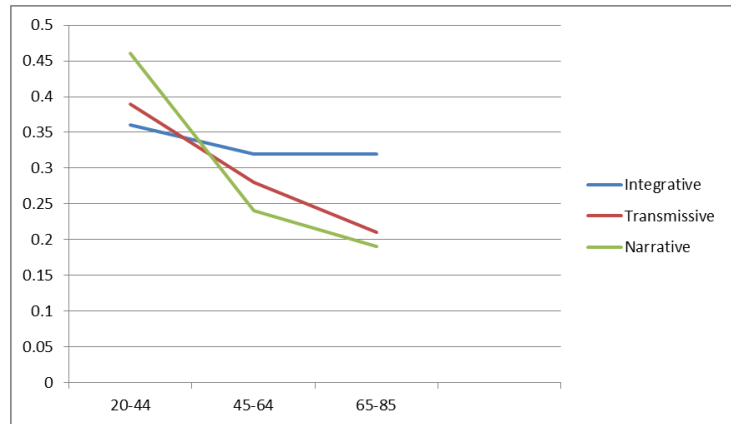


Figure 1. Mean proportional recall of emotional and neutral information combined as a function of age and reminiscence type.

Recall of Emotional Information

A 3 (age group) x 3 (reminiscence type) between-subjects univariate analysis of variance was performed on the arcsin of the total number of emotional elements recalled from the text over the total number of elements actually remembered. No interaction effect between age and reminiscence type was found [$F(2, 75) = .88, p = .48, MSE = .13$]. No main effect for age was found [$F(2, 75) = 1.75, p = .18, MSE = .13$]. There was a significant main effect for reminiscence type [$F(2, 75) = 8.45, p < .001, MSE = .13$], with participants assigned to reading the narrative ($M = .52, SD = .38$) and transmissive ($M = .68, SD = .39$) stories remembering more emotional elements from the original text than those who had read the integrative story ($M = .27, SD = .32$). No significant difference was found between the narrative and transmissive stories. Results using the non-transformed data are presented in Figure 2.

Discussion

Overall, the findings provide support for our research hypotheses. First, younger participants demonstrated better recall of contents from the stories they had read than older adults. However, that was not the case for middle-aged participants. Still, the results of this general test of memory for text are congruent with the expectation of lower memory capacity in older adulthood.

In support of the hypothesis that emotions are salient in prosocial reminiscences, overall, participants who read

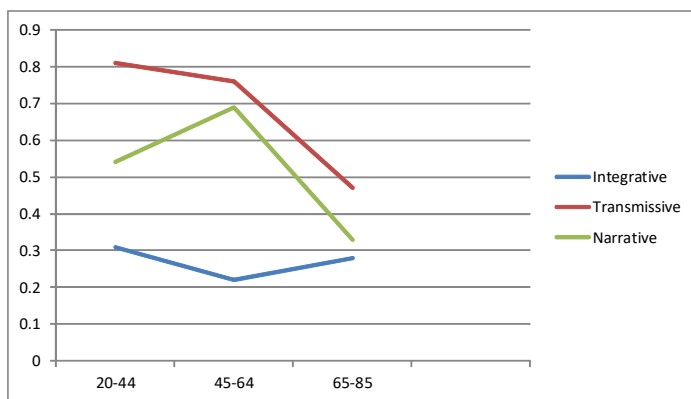


Figure 2. Mean proportional recall of emotional information as a function of age and reminiscence type, equalizing for memory performance.

the narrative or transmissive reminiscence texts remembered proportionally more emotional elements from the original story than did those who had read the text containing an integrative reminiscence. The age effect was not significant, lending support to the idea that this feature of prosocial reminiscences is common across the various periods of adulthood. That being said, as Figure 2 illustrates, this enhanced recall of emotional elements in prosocial reminiscences, compared to integrative reminiscence, was particularly marked in the younger groups and less so in the older group. This compression of recall performance for the three types of reminiscence may be due to overall reduced memory capacity in the older group.

These findings support the idea of preferential processing of emotional information in the prosocial types of reminiscence. This is consistent with previously reported findings that narrative reminiscence very frequently sets up or amplifies positive emotions in naturally occurring episodes of reminiscence, and it supports the general proposition that this prosocial function plays a significant role in the regulation of positive affect (Cappeliez et al., 2008). This form of reminiscing may provide the occasion and contents for experiencing positive mood in the company of others (Pasupathi, 2003; Pasupathi & Carstensen, 2003). This telling of positive, possibly self-enhancing memories, may be quite adaptive, leading to increased self-esteem and, in turn, to improved well-being and health (Cappeliez & O'Rourke 2006; Mather & Carstensen, 2005). Transmissive reminiscence entails communicating a fund of experiential knowledge in the form of an instructive story or a "lesson of life." Such reminiscence allows one to convey a representation of oneself as experienced, wise, and possibly self-enhanced (Cappeliez, Rivard, & Guindon, 2007). This process may positively influence mood by reinforcing a positive sense of self.

In the current study, no consideration was given to the valence (positive or negative) of the emotional information. Therefore, the potential bias in attention and

memory for positive emotions could not be tested (Charles et al., 2003; Mather, 2004; Pasupathi & Carstensen, 2003). It would be interesting to explore the differences between the functions of reminiscence for the recall of positive and negative emotional information. Following our hypothesis about pro-social reminiscences, one could hypothesize an age effect in terms of a recall advantage for older adults compared to younger adults for positive emotional information in prosocial reminiscences.

In summary, the results of the present study concur with other findings in supporting the notion that prosocial reminiscences play a role in emotional regulation.

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