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PSYCHOMETRIC PROPERTIES OF THE *REMINISCENCE FUNCTIONS SCALE* FOR THE PORTUGUESE POPULATION: A PRELIMINARY REPORT*

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ABSTRACT

The aim of the present study was to assess the psychometric properties of a version in Portuguese of the *Reminiscence Functions Scale*. Total sample was composed of 628 participants aged between 18 and 92 years, divided into three groups according to their age (18-24 years, $n = 249$; 26-54 years, $n = 174$; 55 and older, $n = 205$). Results indicated a five-factor solution for the Portuguese version of the *Reminiscence Functions Scale*, which accounted

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for 54% of the variance with good internal consistency (mean $\alpha = 0.86$). Age and gender differences emerged regarding reminiscence functions. These results demonstrate that, while significant cultural differences exist, the psychometric properties of the *Reminiscence Functions Scale* are adequate for the Portuguese population.

INTRODUCTION

Reminiscence is a universal and normative process of recalling past events or facts (Bohlmeijer, Roemer, Cuijpers, & Smit, 2007). The retrieval of personal memories (i.e., autobiographical memory), can lead an individual to pursue distinct goals, such as making decisions, acquiring knowledge, communicating with others, adapting to transitions, and promoting self-image (Bluck, 2003; Conway & Pleydell-Pearce, 2000). Notwithstanding the rapid growth verified in the field of reminiscence, there are still gaps regarding its theoretical framework and empirical procedures (Bluck & Levine, 1998), and these limitations are partially explained by the scarceness of suitable methods, which would allow for the implementation of high quality experimental and clinical research. One exception to the scarceness of methods is the Reminiscence Functions Scale (RFS; Webster, 1993).

The *Reminiscence Functions Scale* (Webster, 1993) is a 43-item scale developed to measure reminiscence functions across adulthood. Each item begins with a general proposition ("*When I reminiscence it is . . .*"), followed by a specific sentence in which the participant is required to quantify how often he or she uses reminiscence for that goal. For example, item number 22 completes the item stem with "to create a common bond between old and new friends." The 43 items initially clustered around seven factors (Webster, 1993), although a subsequent psychometric study established an eight-factor solution (Webster, 1997).

The scale was originally constituted of seven factors, namely *Boredom Reduction*, *Death Preparation*, *Identity & Problem Solving*, *Conversation*, *Intimacy Maintenance*, *Bitterness Revival*, and *Teach/Inform*. The first factor *Boredom Reduction* refers to reminiscing when one lacks stimulation from the surrounding environment. The second factor *Death Preparation* centers on using memories to deal with thoughts of one's own death. The third factor was made up of both *Identity* that refers to establishing and maintaining a coherent self-image and *Problem Solving* which focuses on recalling past solutions to similar present problems. The fourth factor *Conversation* refers to the utilization of memories to bond with significant others. The fifth factor *Intimacy Maintenance* is about keeping contacts with departed significant others through the evocation of cognitive and emotional features of the interaction. The sixth factor *Bitterness Revival* is the resurgence of past unresolved conflicts. Finally, the seventh factor

Teach/Inform relates to the transmission of relevant information (Webster, 1997). Internal consistency as measured by Cronbach's alpha ranged from 0.74 for Teach/Inform up to 0.86 for Identity and average correlation among factors was 0.30 (Webster, 1997), results which have been replicated since (Cappeliez & O'Rourke, 2002).

The RFS factors are related to personality and developmental variables and differ in function of gender and age (Webster, 1993). Gender differences were found in a sample of 268 adults ($M = 40.02$, 63% female), where women scored higher in *Identity* and men in *Bitterness Revival* (Webster & McCall, 1999). A study with two samples of younger ($n = 96$, $M = 22.5$ years) and older adults ($n = 99$, $M = 65.9$ years) (Webster, 1998) showed that age was a significant variable, with younger adults scoring higher on *Bitterness Revival*, *Identity*, and *Problem Solving*, and older adults reporting higher scores on *Death Preparation*, *Intimacy Maintenance*, and *Teach/Inform* (Webster, 1998). A later study ($N = 268$, $M = 40.02$) also assessed age differences in RFS functions with slightly different results, as participants on their first and second life decade scored higher than middle-aged adults and older adults in *Boredom Reduction*, and there was no age differences in *Intimacy Maintenance* (Webster & McCall, 1999). However, it is possible that disparity between studies is partially due to differences in method, once the former study assessed age differences between younger ($M = 22.5$ years) and older adults ($M = 65.9$ years), whereas the later considered eight age groups. Cappeliez and colleagues (2001) also compared the use of reminiscence between younger ($n = 76$, $M = 22$ years) and older adults ($n = 83$, $M = 67$), finding that *Boredom Reduction*, *Problem Solving*, and *Identity* were the most frequent uses of reminiscence for younger adults, as opposed to the function of *Teach/Inform* reported by older adults. A more recent study with 198 adults found similar results (Webster & Gould, 2007), as once again younger adults scored higher than their older counterparts on *Bitterness Revival*, *Identity*, and *Problem Solving*, whereas older adults reported higher use of reminiscence for *Death Preparation*, *Teach/Inform*, and *Intimacy Maintenance*.

Research on external validation of the RFS, using constructs such as attachment, happiness, personality and life attitudes, and life satisfaction, has also been attempted. Attachment styles appear to be related with distinct RFS factors, namely participants rated as secure have lower scores on *Bitterness Revival*, *Identity*, and *Problem Solving*, whereas higher scores on *Teach/Inform* emerged in insecure individuals (Webster, 1998). Happiness has been found to be negatively correlated with *Bitterness Revival*, *Boredom Reduction*, *Problem Solving*, and *Identity*, and positively with *Teach/Inform* and *Conversation* (Webster, 1998). The author postulated that people with an insecure attachment style might engage in reminiscence as a way of ruminating about past regret, in a circular revision process which aims to attain meaning. These results were later replicated, although the negative relation between *Identity* and happiness did not achieve statistically significant results (Webster & McCall, 1999).

Cully, LaVoie, and Gfeller (2001) explored the relation between reminiscence, personality styles, and psychological functioning in a sample of 77 cognitively intact older adults ($M = 81$ years old). Results indicated that the personality trait of Neuroticism as well as anxiety and depression scores displayed significant positive correlations with *Boredom Reduction*, *Bitterness Revival*, *Death Preparation*, and total reminiscence score. On the other hand, Extroversion was positively correlated with *Conversation* and *Teach/Inform*. Using a sample of 89 older adults ($M = 66.7$ years, 66% female), Cappeliez and O'Rourke (2002) explored to which extent personality traits could predict the profile of reminiscence functions. The highest predictive values were attained by neuroticism, which alone explained 18% of variance in bitterness revival, and in combination with openness to experience explained 27% of variance in *Identity*. Life attitudes were also significantly related with distinct reminiscence functions, for example lower goal seeking explained 14% of the variance in *Boredom Reduction*. A recent study (Cappeliez, O'Rourke, & Chaudhury, 2005) assessed the amount of variance in life satisfaction and psychiatric distress explained by reminiscence functions, using a sample of 420 older adults ($M = 61.06$ years, 60% female). Both *Bitterness Revival* and *Boredom Reduction* held inverse significant relations with life satisfaction, whereas *Death Preparation* and *Conversation* were positively related with life satisfaction.

In an attempt to integrate previous findings, Cappeliez and O'Rourke (2006) further developed the model of reminiscence functions, suggesting a tripartite model composed by positive self-functions (*Identity*, *Death Preparation*, and *Problem Solving*), negative self-functions (*Bitterness Revival*, *Boredom Reduction*, *Intimacy Maintenance*), and prosocial functions (*Conversation*, *Teach/Inform*). The authors empirically tested this model using a sample of 412 older adults ($M = 61$ years old), finding that positive and negative self-functions were directly associated with well-being, respectively in positive and negative directions. No direct association was found between prosocial functions and well-being.

The main goal of this study is to validate the RFS for a Portuguese population. We proceed through several steps. The first step was to translate the RFS to Portuguese, paying special attention to cultural idiosyncrasies. The second step was to administrate the RFS to a large sample of adults of various ages. The third step was to assess the psychometric properties of the RFS for the Portuguese population.

METHODS

Participants

To be included in the study, participants had to be 18 years or older and have the ability to understand the questions posed. Participants were 628 adults (66% females), with ages ranging from 18 to 92 years old (18-24 years, $n = 249$;

26-54 years, n = 174; 55 and older, n = 205). At the time of the study, all participants lived in the north of Portugal.

Procedure

First step was to translate the RFS from English to Portuguese, based on the guidelines for adaptation of psychological tests (Hambleton, 1994). The scale was then translated back to English by a professional translator with no prior knowledge of the English version. The Portuguese version was assessed by the researchers, the translator, and an external advisor, to reach an agreement on semantic, idiomatic, experiential, and conceptual equivalence between both versions of the scale (Beaton, Bombardier, Guillemin, & Ferraz, 2000). A focus group with seven older adults (M = 73 years old) from a senior's community center was conducted to assess to what extent the scale was comprehensible. Seniors commented on items, length, and structure of the scale. Based on suggestions some minor changes were made, such as the addition of words to provide more clarity to sentences, a normative strategy when performing cross-cultural adaptation (Weeks, Swerissen, & Belfrage, 2007).

Data were collected with the assistance of undergraduate psychology students who received course credits. All students had previously completed a compulsory course on human development and aging, and received specific training to collect data in this study.

Before the administration of the questionnaire, participants were given information on the goals of the study, as well as on the confidential and voluntary nature of participating. After the informed consent was obtained, the scale was administrated. Younger participants were recruited from several tertiary institutions. Data concerning adults and older adults were primarily collected through convenience sampling, consisting of students' neighbors, relatives, and work colleagues. A number of older participants resided in institutions, therefore formal contacts were established with the administration board to obtain authorization. Subjects older than 65 years old also completed the *Mini-Mental State Examination* (Folstein, Folstein, & McHugh, 1975, Portuguese version by Guerreiro et al., 1994), in order to briefly assess their cognitive status and being ruled out in case of cognitive decline (adopted cut-off point was <24/30).

Data Analyses

Distinct analyses procedures were undertaken in order to examine the psychometric properties of RFS. Normality assumptions of the data were assessed using skewness and kurtosis analyses and logarithmic transformations used when necessary. Data reduction was obtained through principal component analysis with oblimin rotation with Kaiser Normalization. The consistency of each of the resulting factors was calculated. Gender and age differences were assessed using Student's t-test and analysis of variance, whereas relation between continuous

variables was ascertained through Pearson's correlation. Data analyses were performed using SPSS (2006).

RESULTS

Logarithmic transformations were used in six items that displayed severely skewed distributions (items number 2, 21, 29, 33, 37, and 38). Data proved to be suitable for factor analysis, as displayed by the presence of several coefficients of 0.3 and above on the correlation matrix, a Kaiser–Meyer–Olkin value of 0.94, exceeding the recommended 0.6 cut-off point (Kaiser, 1970), and statistical significance in Bartlett's of sphericity ($\chi^2 = 14201$, $p < 0.0001$).

RFS dimensions were defined using principal component analysis. The first analysis was performed without establishing the number of factors, with a loading cut-off point of 0.32 (Tabachnick & Fidell, 2007). Using Kaiser's (1960) criterion (eigenvalue greater than 1.0) eight factors were selected, with eigenvalues ranging from 1.11 to 13.26. Although an eight-factor solution would correspond to the original RFS structure, it proved to be an inadequate solution in the current study for several reasons. In the first place, only three items loaded in one of the factors. Second, results from parallel analysis indicated that only five components had eigenvalues that exceeded the corresponding criterion for a randomly similar data matrix of 43 variables × 628 cases and 100 replications (Pallant, 2007). Finally, an inspection of the scree plot of eigenvalues suggested that five factors would more accurately account for the data.

An oblimin rotation with Kaiser Normalization was employed for the five components. Table 1 summarizes results obtained from factor analysis, as well as the percentage of variance explained by each factor. The five components solution explained 54% of the variance. Validity of this five-factor solution was measured through internal consistency. Results are presented in Table 2. All factors presented a Cronbach's alpha above 0.80 and analysis of the reliability values indicated that no individual item was interfering significantly with the overall alpha. The intercorrelation matrix indicated the existence of positive significant relations between factors. When compared to the original RFS, the first factor is composed of items originally present in *Boredom Reduction* plus four items from *Bitterness Revival*; the second factor is a composite of *Identity* and *Problem Solving*, plus an item from *Bitterness Revival*; the third factor combines the *Intimacy Maintenance* subscale and four items from *Teach/Inform*; the fourth factor corresponds to *Death Preparation*; and the fifth factor contains *Conversation* subscale plus an item from *Teach/Inform*.

Considering sample's characteristics and theoretical developmental assumptions, participants were divided into three groups according to their age (Group 1: younger than 25 years, $n = 249$; Group 2: 25 or older and younger than 55, $n = 174$; Group 3: 55 years old or older, $n = 205$). As above mentioned, these cut-offs were selected not only on a convenience basis but also due to their overall association

Table 1. Five-Factor Solution Structure of *Reminiscence Functions Scale* (RFS)

	Factor				
	1	2	3	4	5
Item 11	0.811				
Item 37	0.803				
Item 16	0.778				
Item 21	0.761				
Item 3	0.705				
Item 40	0.681				
Item 13	0.628				
Item 43	0.614				
Item 19	0.611				
Item 17	0.501				
Item 32		0.765			
Item 39		0.682			
Item 31		0.682			
Item 26		0.666			
Item 18		0.642			
Item 36		0.626			
Item 10		0.599			
Item 42		0.595			
Item 24		0.573			
Item 15		0.566			
Item 8		0.560			
Item 4		0.542			
Item 12		0.517			
Item 25			0.815		
Item 14			0.790		
Item 5			0.762		
Item 41			0.727		
Item 23			0.660		
Item 1			0.636		
Item 20			0.624		
Item 30			0.542		
Item 29				0.778	
Item 2				0.759	
Item 38				0.755	
Item 9				0.741	
Item 35				0.728	
Item 33				0.629	
Item 22					0.693
Item 34					0.686
Item 7					0.663
Item 28					0.621
Item 6					0.610
Item 27					0.510
Eigenvalue	13.352	3.9254	2.385	1.919	1.516
% Variance accounted for	31.051	9.129	5.546	4.461	3.526
% Cumulative variance	30.830	40.180	45.726	50.188	53.715

Factor 1: Boredom Reduction & Bitterness Revival; Factor 2: Identity & Problem Solving; Factor 3: Intimacy Maintenance & Teach/Inform; Factor 4: Death Preparation; Factor 5: Conversation.

Table 2. Means, Standard Deviations, and Intercorrelations among RFS Five-Factor Solution

	Factors							
	1	2	3	4	5	*M*	(*SD*)	Cronbach's apha
1.	1					22.94	(8.7)	0.855
2.	0.494**	1				49.19	(10.6)	0.869
3.	0.589**	0.368**	1			29.85	(8.6)	0.872
4.	0.617**	0.402**	0.580**	1		14.08	(6.9)	0.883
5.	0.544**	0.547**	0.442**	0.480**	1	19.18	(5.8)	0.823

**$p < 0.01$

with life transitions. A one-way ANOVA between groups analysis of variance was performed to assess age differences on the overall score as well as the five above mentioned factors. Post hoc tests were performed through Sidak's test. The analysis of age differences on the overall scores indicated significant differences between groups, $F(2, 618) = 83.615$, $p < 0.001$. Sidak's post hoc test indicated that older adults scored significantly higher than younger and older adults, whereas the scores of these two groups did not attain statistically significant differences.

There were also statistically significant differences between groups in all factors, except Factor 2. Post-hoc Sidak comparisons indicated that there were statistical significant differences between older participants and both younger and middle-aged participants in Factors 1, 3, 4, and 5, with older participants scoring always higher than their younger counterparts. Further analyses indicated that there were no significant differences between younger and middle-aged adults except in Factor 3, where younger adults scored significantly lower than middle-aged adult. Correlation analyses between factors' scores and age indicated that Factors 3 and 4 presented large positive correlations ($r = 0.67$, $p < 0.001$ and $r = 0.53$, $p < 0.001$, respectively), whereas Factor 1 had a moderate correlation ($r = 0.43$, $p < 0.001$) and Factor 5 registered a small correlation ($r = 0.24$, $p < 0.001$). There were no significant differences between participants in Factor 2, $F(2, 626) = 2.592$, $p > 0.05$), as there were no significant results when Pearson's correlation was performed ($r = 0.018$, $p > 0.05$). Additional analysis using age as a continuous variable found a positive significant correlation between age and the overall score ($r = 0.50$, $p < 0.001$).

An independent sample *t*-test was performed to assess differences in RFS according to gender. Results indicated that there were no statistically significant differences for overall score ($t(617) = 0.68$, $p > 0.05$), whereas in Factor 5 men scored higher than women, $t(618) = 2.25$, $p < 0.05$).

DISCUSSION

The goal of this study was to assess the psychometric properties of the RFS for a Portuguese population using a sample of 628 adults. Results support a five-factor solution, with good internal consistency for the subscales (mean $\alpha = 0.86$). These analyses on the psychometric properties of RFS with a Portuguese sample failed to replicate the original eight-factor structure (Webster, 1997). Both parallel analysis and the scree plot of the eigenvalues indicated that our data are best explained by a five-factor solution. All factors presented good internal reliability, with Cronbach's alpha ranging from 0.82 up to 0.88, thus making these results meaningful.

Although current findings differ from those on the original instrument, a closer inspection of the five factors indicates that they share features with previous work. Factor 1 is composed of *Boredom Reduction* and some items from

Bitterness Revival, and although these functions concern different goals, both have been related to negative outcomes, namely psychiatric distress and low life satisfaction (Cappeliez et al., 2005). Factor 2 is a composite of *Identity* and *Problem Solving*, which were originally one factor in seminal work on the RFS (Webster, 1993). The remaining item in this second factor (*Rehash lost opportunities*), although originally present in *Bitterness Revival,* seems to be consistent with this broader factor, as it is similar with other items, such as *Avoid repeating past mistakes*. Factor 3 includes items from *Intimacy Maintenance* and *Teach/Inform*. While these factors pursue different goals, the results should be interpreted within the Portuguese context, where the knowledge transmission associated with the *Teach/Inform* factor is often based in past experiences and anecdotal episodes that include deceased loved ones, thus bringing similarity to the goals of both factors. Factor 4 has the same loading as the original *Death Preparation* factor. Finally, Factor 5 has the same item loading as the Conversation subscale of the original RFS plus an item from *Teach/Inform* (*Bridging the "generation gap"*), which is fairly consistent with other items present in the scale that aim to promote common bonds and engage people in relations and conversations.

Regarding age differences, there was a statistically significant difference between age groups regarding the overall RFS score, $F(2, 618) = 83.615, p < 0.001$. When age was analyzed as a continuous variable there was also a significant correlation between age and overall score ($r = 0.495, p < 0.001$). The age differences obtained in Factor 1, here named *Boredom Reduction & Bitterness Revival*, are contradictory with previous research (Webster & McCall, 1999), where scores in *Boredom Reduction* decreased with age. However, not only previous studies postulated a U shape for *Boredom Reduction* (Webster, 1995), but also in the present study the factor loaded together with *Bitterness Revival*, thus rendering comparisons more complex. Additionally, these results should be taken into account within the Portuguese context, where loneliness is frequently referred by older adults, both in rural and urban contexts (Paúl, Fonseca, Martín, & Amado, 2003). In this way, older adults might engage more frequently in reminiscence as a way of decreasing their loneliness. Also relevant is the fact that educational attainment is pervasively low among Portuguese older adults. Data provided by the National Institute of Statistics indicated that in 2002 almost 65% of women and over 40% of men aged 65 and older had no formal education (INE, 2002). Previous studies highlighted how age and education might constrain decision criteria (Marquie & Baracat, 2000), thus biasing the results. Further studies are required in order to clarify if the results obtained are better explained by socio-cultural or educational characteristics.

Factor 2 (here named *Identity & Problem Solving*) displayed no significant differences between groups. This is not a surprising result, as the underlying goals of this factor are frequent in all life stages. Additionally, it is now well established that reminiscence occurs throughout the life span and not only in old

age (Cohen & Taylor, 1998), in what Staundinger coined as life reflection, "a crucial and basic tool for developmental regulation" (Staudinger, 2001, p. 151). As for the remaining factors, participants older than 55 years scored higher than the other age groups. These results seem to be consistent both with developmental theories and previous psychometric results for the RFS, where higher scores for the factors *Death Preparation* and *Teach Inform* were associated with increasing age (Webster, 1993). Once again, in the present study correlation analysis indicated that scores in Factor 3 (here named *Intimacy Maintenance & Teach/Inform*) were significantly correlated with age. Scores in Factor 5 (*Conversation*) were also positively correlated with age, although displaying a lower correlation. Once again older participants scored significantly higher than their younger counterparts, apparently reiterating the pervasive idea that older adults spend more time reminiscing, partially because they have more free time (Cohen & Taylor, 1998).

As for gender differences, there were no significant results between men and women on the overall score, which is consistent with previous psychometric analysis (e.g., Webster, 1993). Regarding factors' comparison, there were only significant differences in Factor 5, *Conversation*, with men scoring higher than women. As before, this result is partially explained by social and cultural characteristics of the Portuguese context, where gender roles still follow considerably fixed patterns, where men are viewed as narrators and experts, with factual arguments and opinions, whereas women are more confined to the home setting and dependent positions (Neto & Silva, 2009). In this way, social interaction and conversation outside the household might be considered men's tasks, while women often control interactions within the family (Hollos & Leis, 1985).

Taking these results into account, it can be concluded that a five-factor solution provides an adequate description of psychometric properties of RFS for a Portuguese population, further supported by the high alpha values and the differentiated results according to age and gender. This failure in obtaining item equivalence indicates cultural specificities, which occur frequently when comparing cross-cultural results (Lee, Jones, Mineyama, & Zhang, 2002). A number of limitations should be noted when considering the current findings. First, it is necessary to consider the possible loss of meaning due to translation. Even when carefully controlling the translation and back translations processes, some tacit colloquialisms can go undetected (Weeks et al., 2007). Nevertheless, the procedure that we followed (Beaton et al., 2000) increases confidence in the adequacy of the translated document. The second limitation is that although covering a representative age span, older participants are underrepresented. Still, older participants were collected in different settings, increasing the representativeness of the sample, which is a strength of the study.

The goal of this study was to adapt RFS to Portuguese population. No additional variable was measured, as the first step was to address the suitability of this instrument for a cultural and socially distinct target. Further research is needed in

order to assess the clinical utility of this instrument, namely through correlation studies between the current RFS and measures of mood and anxiety (Cully et al., 2001), personality traits (Cappeliez & O'Rourke, 2002; Cully et al., 2001), quality of life (Cappeliez et al., 2005), and attachment (Webster, 1998) among others. Undoubtedly, this study represents a crucial step in the work to expand the use of the RFS. The adaptation of the RFS to a Portuguese population opens a new field of work with older adults, especially in the area of autobiographical memory functions (Bluck, Alea, Habermas, & Rubin, 2005; Webster & Gould, 2007). The RFS is also a useful tool for clinical research and practice, providing insight about the relationship between the personal and social use of memories of the past and several intra- and interpersonal variables (Cappeliez & O'Rourke, 2002; Cully et al., 2001; Webster, 1998).

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