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## Modification and Psychometric Testing of the Reminiscence Functions Scale

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This article describes the psychometric evaluation of the Modified Reminiscence Functions Scale (MRFS). The 39-item MRFS was validated on a sample of 271 racially diverse older adults. Psychometric analysis included content validity, item analysis, principal component analysis with varimax rotation, test-retest reliability, and internal consistency reliability using Cronbach's alpha. The model's structure supports a seven-factor, 39-item scale. Test-retest and Cronbach's alpha for the instrument were .82 and .94, respectively. The seven-factor scale: self-regard, death, bitterness, intimacy, teach-inform, boredom, and conversation accounted for 61% of variance. Evidence indicates the self-report Likert instrument is a reliable and valid measure of reminiscence functions. Cross-validation with other populations and further research is needed to identify other reminiscence dimensions-functions.

**Keywords:** psychological adaptation; reminiscence; instrument development

For the older adult, age-related changes, chronic conditions, and multiple physiological, psychological, social, and role adjustments occur, requiring adaptive functions and abilities. Consequently, the older adult is challenged in a dynamic environment to adjust and maintain a sense of identity (Quackenbush & Barnett, 1995). The purposeful recall of past experiences and events can provide a reservoir of memories that can be used to maintain a sense of identity, make sense of reality, confirm existence, and assist with adaptation to the present. However, remorse or lamentation over lost chances or missed opportunities can result in maladaptation (Roy, 1997).

Reminiscence, the recall of past experiences, has been found to be purposeful and to serve a particular function for an individual (Fry, 1995; Quackenbush & Barnett, 1995; Webster, 1993). The function differs from person to person and may be uniquely influenced by variables such as personality, age, gender, and ethnicity (Romaniuk & Romaniuk, 1981; Webster, 1993). The purposeful recall of past experiences, accomplishments, and failures can have an adaptive function by validating the past as unchangeable and worthwhile, or a maladaptive function when there is lamentation and depression over regrets and missed opportunities (Bachar, Kindler, Scheler, & Lerer, 1991; Kovach, 1990).

If used appropriately, reminiscence is a natural, self-healing process that contributes to adaptive processes for persons in the second half of life (Bachar et al., 1991). It would therefore be beneficial to know the function reminiscence serves for a person prior to encouraging the person to engage in the process. A reliable and valid instrument to identify adaptive and maladaptive recall through self-reported introspection is needed

to delineate why persons reminisce. The Reminiscence Functions Scale (Webster, 1993) was developed to identify adaptive and maladaptive recall; however, it was developed and tested primarily in well-educated Whites drawn from a college population. The purpose of this article is to describe the modification and psychometric evaluation of the Modified Reminiscence Functions Scale (MRFS) to assess reminiscence functions in ethnically diverse older adult community residents.

## **DEVELOPMENT OF THE ORIGINAL REMINISCENCE FUNCTIONS SCALE**

Developed by Webster (1993), the items of the Reminiscence Functions Scale were generated in two stages. First, 40 adult, predominately White, community college students were asked to write statements that identified why they or other persons might reminisce. This resulted in 115 statements. As part of the second stage of item generation and reduction-selection, Webster used a group of 116 predominately White and Chinese community college students. The participants were asked to rank each item, on a 6-point Likert scale, as to how often they reminisced with the stated purpose in mind. Subsequently, a 54-item, 6-point (1 = never to 6 = very frequently) Likert-type questionnaire was developed and named the Reminiscence Functions Scale prototype (RFS-p).

The prototype was administered to a convenience sample of 710 participants. The sample, consistent with Webster's previous samples, was comprised of primarily educated Whites, with mean education level of 12.6 years and mean age of 45.8 years. Although a self-esteem factor emerged, factor analysis supported a seven-factor solution, with 43-items, and the emergence of subscales similar to those obtained in earlier work on the Reminiscence Functions Scale (Romaniuk & Romaniuk, 1981). These subscales included: (a) boredom reduction, (b) death preparation, (c) identity-problem solving, (d) conversation, (e) intimacy maintenance, (f) bitterness revival, and (g) teach-inform.

Webster (1997) conducted a replication and validation study of the Reminiscence Functions Scale. The sample consisted of 399 participants, who were 1st and 2nd year psychology students at a Canadian junior college (157 males, 242 females), ages 17 to 45 years (mean age = 22.7 years), with a mean educational level of 13.1 years. This replication of the scale supported separating the identity-problem-solving factor, resulting in eight factors. The eight factors (a) boredom reduction, (b) death preparation, (c) identity, (d) problem solving, (e) conversation, (f) intimacy maintenance, (g) bitterness revival, and (h) teach-inform, accounted for 59.83% of the scale variance. Again, a self-esteem factor emerged, but did not meet the factor inclusion criteria. Since the eight-factor solution did not account for increased variability, Webster suggested continued inclusion of a self-esteem factor in future instrument refinement.

## **ASSESSMENT OF THE REMINISCENCE FUNCTIONS SCALE IN OLDER AFRICAN AMERICANS**

To assess administrative procedures, utility, and feasibility of the 43-item Reminiscence Functions Scale in a different population, Washington (2000) conducted a pilot study using

a convenience sample of 17 African Americans. Participants' ages ranged from 59 to 91 years (mean = 73.5 years) and educational level ranged from 5 to 14 years (mean = 8.5 years). Findings from the pilot study indicated that participants had difficulty reading and understanding the directions. The participants considered many items to be ambiguous and redundant. In addition, the instrument proved to be cumbersome because statements were separate from scale responses. Although an average of 20 minutes was anticipated for administration, an average of 45 minutes was actually needed. Additionally, as determined by Fry's (1977) readability level formula, the scale required at least a 9th grade reading level. Finally, scoring of the scale was problematic because a total scale score, rather than subscales scores, was used. This made interpretation burdensome because subscales specify the function of reminiscence.

### MODIFICATIONS OF THE REMINISCENCE FUNCTIONS SCALE

Modifications in the scale were made to address the findings. The scale's readability level was lowered to 5th grade. An African American, with a PhD in reading, who was fluent in Spanish, and an Hispanic reader, fluent in English, evaluated the scale for readability, word clarity, and overall meaning specific to these ethnic groups (Burns & Grove, 2005; Yu, Lee, & Woo, 2004). A panel of five experts from four geographic regions was used to compute a content validity index (CVI). All five experts were doctorally prepared educators with research in reminiscence and gerontological research and outcomes. A CVI of 0.80 or better was considered an acceptable level of validity and was the level used for this study (Lynn, 1986; Polit & Hungler, 1999). Any item that did not meet the criterion was rewritten.

Suggestions were made to increase understanding and decrease cultural bias. Although clarity and relevancy was assessed, representativeness of the item as an indicator of the dimension was used for scoring (Lynn, 1986). Of the 48 items, only one item, "relieve depression," had a CVI of less than .80. This item was revised to read, "relieve sadness." Seven additional items were revised due to comments and recommendations from the experts. For example, "filling the gap when I have too much time" was changed to "pass the time."

Ambiguous wording and or statements were changed to more familiar wording and phrases. For example, "put my house in order" was replaced with "take care of important business before I die." The 6-point Likert scale was changed to a 5-point scale to provide more equal intervals among responses (DeVellis, 1991). For example, "rarely" versus "seldom" was confusing for participants. The scale responses were changed from never, rarely, seldom, occasionally, often, and very frequently to never, rarely, sometimes, often, and very often. For convenience and ease of administration, the response scale was placed immediately following each statement. Because a self-esteem factor continued to emerge in replication studies, Webster (1997) recommended that future research include a self-esteem factor. Therefore, additional items were written to address this.

The Modified Reminiscence Functions Scale (MRFS) contained 48 items divided among nine subscales, including the eight original subscales, and five items that comprised a self-esteem factor, as recommended by Webster (1997). Adding subscale scores and dividing by the number of items in the subscale can determine the frequency of a person's

remembrance for a particular function when all subscale scores are added and divided by the number of subscales, a total scale score is produced.

### CONCEPTUAL FRAMEWORK: REMINISCENCE FUNCTIONS

Since Webster's conceptual model for development of the Reminiscence Functions Scale was not stated, Washington's conceptual framework provides a schematic of related concepts, and provides a structure for understanding the multidimensionality of reminiscence (Figure 1). The conceptual framework was derived, in part or totally, from the work of Eysenck (1991), Costa and McCrae (1992), Caruso and Spurrison (1994), Roy (1997), and Wong and Watt (1991).

Eysenck (1991) and Costa and McCrae (1992) agree on two basic dimensions of personality, extraversion, and neuroticism. Caruso and Spurrison's (1994) research also supports the relationship between memory recall and two dimensions of personality. Persons have several modes of response that can be adaptative or maladaptive (Roy, 1997). Integrative and instrumental reminiscence functions such as: death preparation, identity, self-esteem, boredom reduction, conversation, intimacy, problem solving, and teach-inform provide persons with adaptive functions that are necessary to move a person forward in a positive direction. High scores on items associated with these adaptive types of reminiscence are associated with positive mood and positive outcomes such as lower depression, lower anxiety and decreased hostility. On the other hand, neuroticism, associated with obsessive and bitterness revival types of reminiscence, is a maladaptive reminiscence function. High scores can be associated with increased depression and hostility and decreased mood. Washington's conceptual model (2000) is conducive to both quantitative as well as qualitative methodology to increase understanding and meaning gained through personal introspection obtained with self-report data.

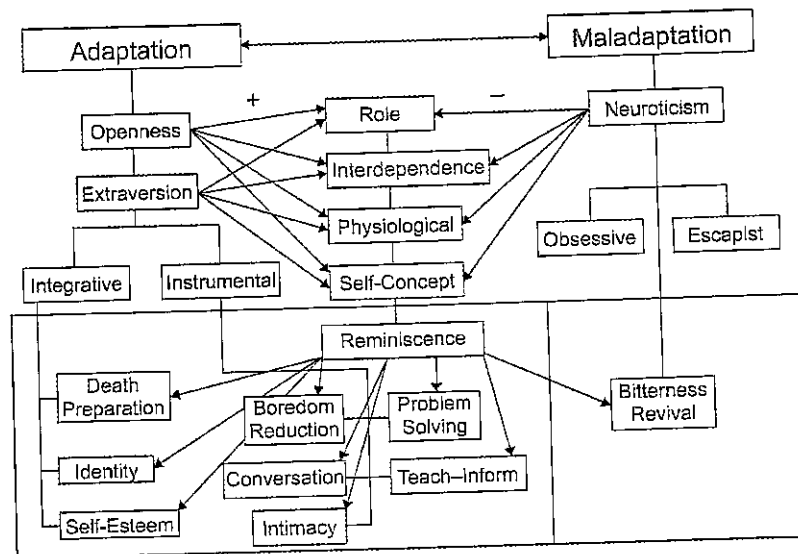


Figure 1. Washington's (2000) conceptual model.

## METHODS

The Institutional Review Board at the Health Science Center of Louisiana State University in New Orleans approved this study. Using a descriptive design, a psychometric evaluation of the MRFS was conducted.

An empirical analysis of the merit of the instrument was conducted. A convenience quota sample of ethnically diverse southern California community residents, 65 years of age and older was recruited from a major senior citizen center. A poster advertising the study was placed at the entryway of the center to allow participants to self-select for inclusion in the study.

### Procedures

Quota sampling was used, with ethnicity as a stratifying variable. The researcher sought 80 participants from each of the following ethnic groups: White, African American, and Hispanic. The researcher administered the MRFS to participants individually and in groups. To assess test-retest reliability, a nonstratified subsample of 50 subjects was given the MRFS to take home and, after 2 weeks, was asked to fill out the questionnaire again and return it in the self-addressed stamped envelope.

### Data Analysis

The descriptive and inferential statistical procedures in the Statistical Package for the Social Sciences, Version 11.5 (SPSS, 2002) were used. Principal components analysis with varimax rotation was used for the factor analysis procedure.

## RESULTS

The sample had approximately equal numbers in three groups of participants, with African Americans slightly more represented than Whites and Hispanics. Sample adequacy was determined by examining the Kaiser-Myer-Olkin (KMO) index (.89) and the Bartlett's test (BTS) chi square = 5486.42, determinant = .001 (Strickland, 2003). Demographic characteristics are displayed using frequencies and percentages in Table 1.

### Reliability Assessment

Of the 50 retests, 32 (64%) were returned. Cronbach's alpha for the 48-item total scale was .95. The Pearson product moment correlation for the test-retest was .82. Correlations for each test-retest subscale ranged from .68 (intimacy) to .82 (death preparation). Cronbach's alphas for each of the following subscales were calculated: boredom (.76), death (.84), identity (.80), problem solving (.80), conversation (.74), intimacy (.84), bitterness (.79), teach-inform (.79), and self-esteem (.80). Using Pearson *r* correlations, item-item correlations ranged from .23 to .69. Item-subscale correlations ranged from .38 to .74 and item-total correlations ranged from .62 to .82. Item-item correlations ranged from .28 to .69; item to subscale correlations ranged from .38 to .77, and item-to-total scale correlations were .61 to .85 (Table 2).

TABLE 1. Demographics ( $N = 271$ )

Variable	Frequency	Percentage
Ethnicity	78	29.9
White	90	34.5
African American	76	29.1
Hispanic Missing data	27	6.5
Age		
65–74 (early old age)	154	59.0
75–84 (middle old age)	80	30.5
>84 (late old age)	27	10.4
Missing data	10	0.1
Gender		
Female	164	62.8
Male	97	37.2
Education		
1–6 (elementary)	36	13.7
7–12 (high school)	128	49.3
>12 (post-secondary)	84	32.1
Missing data	23	4.9
Self-rated health status		
Poor/Fair	89	34.0
Good/Excellent	172	65.9
Missing data	10	0.1
Personality		
Extraversion	218	77.6
Neuroticism	30	13.1
Ambiguous	23	9.3

### Construct Validity Assessment

Exploratory factor analysis with orthogonal (Varimax) rotation was used since theoretically, factors were presumed to be unrelated and Varimax rotation will extract uncorrelated orthogonal factors. Varimax rotation maximizes high correlations and minimizes small ones, allows for maximum factor and variable correlations, provides better data interpretation, and finally Varimax rotation maximizes variance (Ferketich, 1991). Double loadings occurred with item numbers 31, 2, 42, 3, 13, 4, 14, 5, 15, 17, 27, 38, 48, and 19. Factors with eigenvalues equal to or greater than 1.0 were considered useful and were used to make a decision about retention (Green, Salkind, & Akey, 2000; Tabachnick & Fidell, 1996). All factors, however, had eigenvalues >1.0 and ranged from 13.91–1.26. The Scree



TABLE 2. Item-Total Correlations and Alpha if Item Deleted ( $N = 271$ )

Item #	Description	Item-Total Correlation	Alpha if Item Deleted	Factor Loading
1.	Boredom	.469	.728	.572
2.	Death	.501	.829	.572
3.	<b>Identity</b>	<b>.478</b>	<b>.799</b>	<b>.419</b>
4.	<b>Problem solving</b>	<b>.512</b>	<b>.788</b>	<b>.400</b>
5.	<b>Conversation</b>	<b>.515</b>	<b>.705</b>	<b>.444</b>
6.	Intimacy	.664	.818	.766
7.	Bitterness	.541	.785	.599
8.	Teach-inform	.615	.746	.743
9.	Self-esteem	.605	.756	.625
10.	Boredom	.515	.716	.645
11.	Boredom	.562	.705	.737
12.	Death	.537	.822	.584
13.	<b>Identity</b>	<b>.452</b>	<b>.806</b>	<b>.545</b>
14.	<b>Problem solving</b>	<b>.562</b>	<b>.774</b>	<b>.352</b>
15.	<b>Conversation</b>	<b>.411</b>	<b>.742</b>	<b>.359</b>
16.	Intimacy	.714	.797	.728
17.	Bitterness	.459	.809	.421
18.	Teach-inform	.569	.726	.649
19.	Self-esteem	.575	.765	.495
20.	Death	.682	.793	.775
21.	Boredom	.597	.693	.590
22.	Death	.743	.780	.784
23.	Identity	.653	.761	.668
24.	Problem solving	.578	.770	.742
25.	Conversation	.543	.696	.681
26.	Intimacy	.768	.774	.782
27.	Bitterness	.613	.763	.643
28.	Teach-inform	.649	.735	.696
29.	Self-esteem	.602	.757	.551
30.	Identity	.578	.778	.621
31.	<b>Boredom</b>	<b>.463</b>	<b>.730</b>	<b>.348</b>
32.	Death	.612	.806	.631
33.	Identity	.694	.750	.621
34.	Problem solving	.584	.770	.631

(Continued)

TABLE 2. (Continued)

Item #	Description	Item-Total Correlation	Alpha if Item Deleted	Factor Loading
35.	Conversation	.356	.705	.581
36.	Intimacy	.611	.839	.671
37.	Bitterness	.652	.752	.782
38.	Teach-inform	.460	.795	.482
39.	Self-esteem	.605	.756	.660
40.	<b>Problem solving</b>	<b>.485</b>	<b>.792</b>	<b>.483</b>
41.	<b>Boredom</b>	<b>.384</b>	<b>.752</b>	<b>.390</b>
42.	Death	.585	.812	.632
43.	Identity	.565	.781	.689
44.	Problem solving	.672	.749	.683
45.	Conversation	.954	.676	.683
46.	Self-esteem	.530	.779	.569
47.	Bitterness	.707	.732	.813
48.	Teach-inform	.605	.750	.616

Note. Bold items indicate deletion.

test, considered accurate within two factors supported five factors and ultimately a seven-factor solution for the MRFS (Table 3; Hogarty, Hines, Kromrey, Ferron, & Mumford, 2005).

Nine items were reviewed and evaluated for deletion based on at least two of the following criteria: item-item correlations  $\leq .30$  or  $\geq .70$ ; factor loading  $\geq .50$  since this stringent criterion was used by Webster (1993) for development of the original scale; items with multiple loadings  $> .30$ ; and items when included, decreased the subscale alpha  $\geq .10$ . In addition, these items were ultimately evaluated based on conceptual importance and either retained, rewritten, or deleted (Green et al., 2000). All deleted items but two (items 13 and 40) had double loadings. And, based on previous criteria nine items (3, 4, 5, 13, 14, 15, 31, 40, and 41), were eliminated. Ultimately, a 39-item, seven-factor solution was ultimately retained (see Appendix).

## DISCUSSION

Three factors, self-esteem, identity, and problem solving, clustered together as factor one and included 12 items. To capture the interrelatedness of the attributes, the factor was renamed "self-regard" and accounted for 30% of the variance. Factor two (death preparation) with six items, accounted for 9% of the variance. Factors one and two are integrative types of reminiscence in which the past is recognized as worthwhile and meaningful and provides adaptive functions. Instrumental types of reminiscence also provide adaptive functions and include factors four, five, six, and seven. Factor four

TABLE 3. MRFS Seven-Factor Loadings (N = 271)

Item/Number/Factor	1	2	3	4	5	6	7
Skills to cope #24	.786						
Personal strengths #44	.724						
Understand self #43	.694						
Positive attitude #39	.675						
Who I am #23	.692						
Perspective #34	.678						
Self understanding #30	.656						
Personal worth #9	.626						
Who I am #33	.591						
Can do things #29	.578						
Satisfying life #46	.545						
Good qualities #19	.499						
Thoughts of death #20		.756					
Prepare for death #22		.743					
Accept death #42		.681					
Fearful of death #32		.638					
Feel whole #12		.597					
Resolve matters #2		.589					
Recall old hurts #47			.827				
Bitter memories #37			.784				
Treated unfairly #27			.738				
Painful memories #7			.557				
Lost chances #17			.498				
Lost loved one #26				.803			
Keep lost alive #6				.761			
Loyal to lost #16				.726			
Think of lost #36				.663			
Life when younger #8					.788		
Cultural values #28					.772		
Give knowledge #18					.645		
Family history #48					.681		
Pass time #1						.750	
Restless hours #11						.743	
Relieve boredom #21						.663	
Something to do #10						.639	

(Continued)

TABLE 3. (Continued)

Item/Number/Factor	1	2	3	4	5	6	7
Conversation #45							.714
Common bond #25							.704
People to talk #35							.647
Generation gap #38							.521

*Note.* Factor #1 Self-regard (items 24, 44, 43, 39, 23, 34, 30, 9, 33, 29, 46, 19); Factor #2 Death (items 20, 22, 42, 32, 12, 2); Factor #3 Bitterness (items 47, 37, 27, 7, 17); Factor #4 Intimacy (items 26, 6, 16, 36); Factor #5 Teach-Inform (items 8, 28, 18, 48); Factor #6 Boredom (items 1, 11, 21, 10); Factor #7 Conversation (items 45, 25, 35, 38).

(intimacy maintenance), with four items, accounted for 5% of the variance, factor five (teach-inform), with four items, accounted for 4% of the variance; factor six (boredom), with four items, accounted for 3.3% of the variance, and factor seven (conversation), with four items, accounted for 3.2% of the variance. In contrast, factor three (bitterness revival), with five items, is an obsessive type of reminiscence that causes lamentation and maladaptation (Kovach, 1990), accounted for 6% of the variance. Escapist reminiscence can be associated with any reminiscence function and may be adaptive or maladaptive depending on the use.

Item-item, item-subscale, and item-total scale correlations were substantial and the subscale or total scale alphas remained high with deletion of items. Cronbach's alpha for the 39-item total scale was .93. Cronbach's alphas for the seven subscales were as follows: self-regard (.91), death (.83), bitterness (.81), intimacy (.85), teach-inform (.79), boredom (.73), and conversation (.74).

Twelve items measured identity, self-esteem, and problem solving loaded as one factor and was named self-regard (eigenvalue 11.7, 30% variance). The loadings were not surprising since one's perception of self (identity) is closely related to self-value (self-esteem). It is not clear why problem solving loaded as it did, except the ability to problem solve increases self-worth (self-esteem). Other items loaded as expected a priori. Six items measure death preparation (Eigenvalue 3.6, 3.6% variance); 5 items measure bitterness revival (eigenvalue 2.4, 6% variance); 4 items measure intimacy (eigenvalue 1.8, 4.7% variance); 4 items measure teach-inform (eigenvalue 1.5, 3.9% variance); 4 items measure boredom reduction (eigenvalue 1.3, 3.3% variance); 4 items measure conversation (eigenvalue 1.3, 3.3% variance). The Modified Reminiscence Functions Scale accounts for 61% variance.

### Limitations and Recommendations

The findings of the study are limited by the use of a convenience sample with participants who self-selected for inclusion in the study. Those tested may not represent the multidimensionality of the phenomenon. The inclusion of adults, 65 years of age and older, also limits generalizability. Cross-validation with a dissimilar sample to support psychometric findings should be conducted. Psychometric properties can be further refined with confirmatory factor analysis.

## Conclusion

Washington's conceptual framework guided the modification and testing of an instrument to measure reminiscence functions in older adults that reflects adaptive and maladaptive responses in a single measure. This instrument was derived from Webster's (1993; 1997) Reminiscence Functions Scale. The final scale contains 39-items and uses a 5-point Likert-type scale to measure what function reminiscence serves for a person. The 39-items had acceptable internal consistency and construct validity.

Building on previous research, psychometric testing suggests that the 39-item MFS is a reliable and valid method to measure reminiscence functions in ethnically diverse older adult community residents. The MRFS can be used to facilitate cross-cultural knowledge, and direct appropriate use of reminiscence in a more meaningful and useful way. As a result, practice parameters will be strengthened, patient outcomes will improve, and quality of life will be enhanced through evidence-based practice. Moreover, such an instrument would facilitate a better understanding of the psychosocial process of aging.

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**APPENDIX: MODIFIED REMINISCENCE FUNCTIONS  
SCALE (MRFS) WITH DELETED ITEMS**

1. Pass time.
2. Help me take care of important matters before I die.
3. **Help me look at ways I changed and ways I stayed the same. (deleted)**
4. **Help me plan for the future. (deleted)**
5. **Bring me closer to new and old friends. (deleted)**
6. Keep alive the memories of a dead loved one.
7. Keep painful memories alive.
8. Teach younger family members what life was like when I was young.
9. Realize I am a person of worth.
10. Have something to do.
11. Pass the time during idle or restless hours.
12. Give me a sense of personal completion or wholeness as I near the end of life.
13. **See how the past affects my journey through life. (deleted)**
14. **Help settle a current problem. (deleted)**
15. **Promote fellowship and a sense of belonging. (deleted)**
16. Be loyal to a memory of someone close to me who has died.
17. Think about lost chances.
18. Give knowledge I have gained to someone else.
19. Identify all my good qualities.
20. Help me cope with thoughts of my own death.
21. Reduce boredom.
22. Help me prepare for death.
23. Give me a sense of who I am.
24. Remind me that I have skills to cope with present problems.
25. Establish a common bond between new friends and acquaintances.
26. Think of someone who has passed away.
27. Recall an earlier time when others treated me unfairly.
28. Teach younger persons about cultural values.
29. Prove that I can do things as well as the next person.
30. Provide understanding and growth.
31. **Relieve sadness. (deleted)**
32. Feel less fearful of death.
33. Recall my past to help me know who I am now.
34. Get current problems in perspective.
35. Get people to talk.
36. Think about people I was close to but are no longer a part of my life.
37. Bring back bitter memories.
38. Bridge the generation gap.
39. Keep a positive attitude about myself.
40. **Avoid repeating past mistakes. (deleted)**
41. **Provide mental stimulation. (deleted)**
42. Help me see that I have lived a full life and can now accept death more calmly.
43. Better understand myself.

44. See how my strengths can help solve a current problem.
45. Make conversation easier.
46. See how satisfying my life has been.
47. Keep memories of old hurt fresh in my mind.
48. Pass on family history.



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