A Cross-National Comparison of Reminiscence Functions Between Canadian and Israeli Older Adults

Norm O’Rourke,1 Sara Carmel,2 Habib Chaudhury,1 Natalia Polchenko,1 and Yaacov G. Bachner3

1Department of Gerontology, Simon Fraser University, Vancouver (BC), Canada.
2Center for Multidisciplinary Research in Aging and Health
3Department of Sociology of Health, Ben-Gurion University of the Negev, Be’er Sheva, Israel.

Objectives. Recently, a model of reminiscence and well-being has emerged in which reminiscence functions have been shown to predict both the mental and physical health of middle-aged and older adults. Yet this model has thus far been verified only with North American, Western European, and Australian participants. This study was undertaken to compare the latent structure of responses between Canadian and Israeli older adults to ascertain if 8 distinct reminiscence functions map onto 3 second-order factors which, in turn, contribute significantly to measurement of an overarching reminiscence latent construct.

Method. For this study, 336 English Canadian and 206 Jewish Israeli adults more than 49 years of age provided responses for this study via an Internet website constructed specifically for this study.

Results. Our findings demonstrate the psychometric equivalence as well as various cross-cultural differences in the relative strength of association between latent constructs (boredom reduction, bitterness revival, identity, and the overall contribution of self-negative functions to overall reminiscence).

Discussion. We discuss various historical and geo-political factors that may account for these differences. For instance, recurrent war, ongoing terror, and regional instability make living and aging in Israel distinct from Canada. This model of reminiscence functions would appear sufficiently sensitive to capture cross-national differences.

Key Words: Cross-cultural differences—Invariance analyses—Older adults—Reminiscence functions.

BACKGROUND

The specific purposes or functions of reminiscence have long been a central question in gerontological theory and research. In the footsteps of Erikson (1959, 1998), whose life-span developmental theory emphasized acceptance of one’s past as integral to well-being in later life, Butler (1963) described the benefits of coming to terms with life as lived to foster coping with the vicissitudes of advancing age. According to Butler (1963), reminiscence enables older adults to come to terms with unresolved conflicts, vulnerability, and death. As defined by Bluck and Levine (1998, p. 188):

Reminiscence is the volitional and non-volitional act or process of recollecting memories of one’s self in the past. It may involve the recall of particular or generic episodes that may, or may not have been previously forgotten, and that are accompanied by the sense that the remembered episodes are veridical accounts of the original experiences. This recollection of autobiographical memory may be private or shared with others.

Implicit in this definition is the assumption that reminiscence is a universal human function. Reminiscence can be spontaneous or purposeful, solitary or social, accurate or reconstructed, or mood deflating or affect enhancing (Westerhof, Bohlmeijer, & Webster, 2010). Though apparent that various reminiscence types serve distinct functions, little concurrence existed across the first generation of studies (cf. Kovach, 1995; Merriam, 1993). More recently, various taxonomies have emerged developed using contemporary statistical procedures and informed by early research (Webster, 2003; Wong & Watt, 1991). It had once been assumed that dwelling on earlier life memories was the result of cognitive decline; instead, reminiscence functions and frequency delineate specific personality traits (Cappeliez & O’Rourke 2002).

Nor is reminiscence specific to any one cohort or age group (Bluck, Alea, Habermas, & Rubin, 2005; Cappeliez, Lavallée, & O’Rourke, 2001; Webster, 2002). Those who live in different corners of the world recall their respective life histories within distinct geo-political contexts. Moreover, recall of the past is determined by one’s life history as well as current life circumstances (Rubinstein, 2002). That is, interpretation of one’s past is understood in the present. This observation is in accord with Bluck and Levine’s (1998) definition of reminiscence. Memories are reconstructed in relation to existing self-schemas; thus, the present is a filter through which the past is understood (Neisser & Winograd, 1988). In accord with contemporary understanding of autobiographical memory, reminiscence is believed to vary as both a function of distinct life experiences and one’s understanding of the present.
REMINISCENCE FUNCTIONS

One criticism of existing reminiscence research has been an inordinate emphasis on the life experiences of persons living in North America and Western Europe. Though less true today than decades past, the empirical foundation for much of the theory in reminiscence research is based on samples of Caucasian participants in western nations (Webster & Haight, 2002).

This study was undertaken to compare reminiscence functions between older adults living in Canada and Israel, two countries with distinct political systems, geography, histories, racial, and ethnic composition. First, we set out to establish the psychometric equivalence of English and Hebrew versions of the 28-item Reminiscence Functions Scale (RFS; Robitaille, Cappeliez, Coulombe, & Webster, 2010). A four-level latent model of reminiscence functions was next computed separately with responses from English Canadian and Jewish Israeli participants (O’Rourke, Polchenko, Bachner, Carmel, & Cappeliez, 2011); finally, we then compared the structure of models to identify similarities and differences that might indicate how reminiscence functions vary in later life between these respective countries.

Reminiscence Functions in Later Life

Reminiscence research has advanced in recent years with the development of Webster’s (1993, 1997) empirically validated taxonomy of reminiscence functions. As noted by Coleman (2005), this taxonomy has fostered studies examining the role of reminiscence in later life. To date, however, little research has been undertaken examining the adaptive value of reminiscence. One recent advance is an empirical model demonstrating links between various forms of reminiscence and well-being (Cappeliez & O’Rourke, 2006; O’Rourke, Cappeliez, & Claxton, 2011). Three latent constructs subsume the eight functions of reminiscence: self-positive (i.e., identity, problem-solving, and death preparation); self-negative (i.e., bitterness revival, boredom reduction, and intimacy maintenance); and pro-social (i.e., conversation and teach/inform others; Cappeliez & O’Rourke, 2006).

In cross-sectional research with older adults, self-negative functions were determined to have a direct and negative association with well-being, whereas positive self-functions demonstrated a direct and positive association (Cappeliez & O’Rourke, 2006). These findings suggest that apathy, absence of purpose, and dwelling on unresolved conflicts and losses are associated with lower levels of psychological wellness in later life. In contrast, use of memory to foster identity and self-continuity to achieve a sense of coherence and meaning in life appears to have a positive and direct link to well-being. No direct association between pro-social reminiscences and well-being has been identified; instead, these modes of reminiscence appear to have an indirect association with well-being via association with self-positive and self-negative functions.

Although first reported with cross-sectional data (Cappeliez & O’Rourke, 2006), empirical support has since been demonstrated with longitudinal responses collected at 8 months (O’Rourke, 2007) and 16 months after initial participant recruitment (O’Rourke, Cappeliez et al., 2011). Most recently, a more nuanced model of reminiscence functions has been proposed in which each of the eight first-order functions maps onto their respective higher-order groupings (self-positive, self-negative, pro-social functions), and each of the three significantly contributes to measurement of an overarching reminiscence construct (O’Rourke, Polchenko et al., 2011).

To date, this research has been undertaken exclusively with Australian, Western European, and North American participants (mostly English and French Canadians; Cappeliez & O’Rourke, 2006; O’Rourke, Cappeliez et al., 2011). The question remains, does this multi-tiered model of reminiscence functions apply to those living in other nations and distinct cultures? And in what way might cross-national differences in reminiscence functions reflect distinct political, socio-cultural, and historical differences? This study addresses these questions by comparing reminiscence functions between English Canadian and Jewish Israeli older adults.

Both Canada and Israel are active democracies more than 6,000 miles apart in different corners of the planet. War has not waged on Canadian soil since 1814, whereas Israel has fought seven wars since 1948 and has been invaded by each of its neighbors. Living and aging in these countries provide us with distinct samples to compare reminiscence functions. First, we translated and validated an abridged Hebrew version of Webster’s RFS (Robitaille et al., 2010). Next, we set out to ascertain if reminiscence functions exist within eight separate groupings if these factors significantly contribute to measurement of their respective latent constructs, and if each maps onto an overarching reminiscence factor for both samples. Finally, we compared the latent structure of models to identify any cross-national differences in the structure of reminiscence functions between Canadian and Israeli older adults.

Method

Recruitment

Participant responses were acquired via a bilingual English/Hebrew website constructed specifically for this study; participants initially accessed a splash page on which they selected a language format. Questionnaires were the same for both English and Hebrew versions aside from country-specific differences in the socio-demographics questionnaire (e.g., religion and ethnicity). This website was hosted on a secure university https server so that responses were encrypted when transmitted. In addition to fluency in either English or Hebrew, the only other inclusion criterion required that participants were more than 49 years of age. To facilitate data collection, a $500 response incentive was awarded to one randomly selected participant.
Canadian and Israeli participants were both asked to describe episodes of significant life trauma. Responses from one Holocaust survivor were identified and excluded prior to analyses. In accord with the arousal-biased competition theory (Mather & Sutherland, 2011), this was done as we assumed that significant trauma affects associative memory and reminiscence functions (Coleman, Hautamaki, & Podolskj, 2002; Nashiro, Sakaki, Huffman, & Mather, 2012). This assertion is supported by imaging research which indicates structural and functional brain changes resulting due to experiences of repeated or traumatic stress (Kolassa & Elbert, 2007).

Various aging facts were interspersed between questionnaires (e.g., The United Nations estimates that one quarter of Europe’s population will be older than 60 years of age by 2020). According to participants in prior studies, these aging facts help maintain interest as they preceded through study questionnaires (feedback received in final open-ended question).

According to Granello and Wheaton (2004), one limitation of web-based research has been higher rates of item nonresponse compared with other self-selection recruitment methods. To redress this limitation, our website was constructed to ask participants if they, in fact, intended to skip items before they proceeded to the next questionnaire (skipped items listed within a pop-up JavaScript box). Although participants were allowed to skip questions in accord with ethics requirements, this procedure reduced if not eliminated inadvertent missing data from both Canadian and Israeli participants (less than 0.1%; missing data at random). This feature is a significant advance in web-based data collection.

Prior research with older adults suggests few differences between data obtained via the Internet and more traditional self-report research methodologies (O’Rourke & Chou, 2008). A similar conclusion was reached by Gosling and colleagues (2004) who compared responses and participant socio-demographic characteristics from studies published in the Journal of Personality and Social Psychology (2002; n = 102,959) to data obtained from two large research websites (n = 361,703 and n = 132,515). Contrary to common misconceptions, participants recruited via the Internet are more demographically diverse and equally motivated to solve; conversation; intimacy maintenance; bitterness removal; and teach/inform others. Internal consistency as measured by Cronbach’s alpha ranges from \( \alpha = 0.74 \) to \( \alpha = 0.89 \) (Webster, 1993, 1997). Reminiscence functions as measured by the RFS have been shown to predict both the physical and mental health of older adults (Cappeliez & O’Rourke, 2006; Cappeliez, O’Rourke, & Chaudhury, 2005). Although other reminiscence scales have been developed (e.g., Thinking About Life Experiences; Bluck et al., 2005), Westerhof and colleagues (2010) contend that the RFS may be the best scale to measure reminiscence functions.

More recently, Robitaille and colleagues (2010) have proposed a brief 28-item RFS measuring each of the eight factors of the original scale. This factor structure emerged as gender invariant. Internal consistency of responses across subscales has been reported as \( 0.76 \leq \alpha \leq 0.87 \) (Robitaille et al., 2010). The factor structure of this 28-item (English) RFS has been supported in subsequent research (O’Rourke, Polchenko et al., 2011).

We translated the abridged 28-item RFS for a larger study of reminiscence and health of Holocaust survivors living in Israel. One bilingual Israeli-Canadian translated all items into Hebrew along with the first author to capture
the meaning of idioms and nuance of meaning. Another Israeli-Canadian independently translated items back into English. In the few instances of discrepancy, these were resolved by translators and the first author.

RESULTS

The order of both Hebrew and English language questionnaires was randomly counterbalanced between two formats. RFS response levels did not differ, indicating no order effects. In other words, the order in which questionnaires were completed did not affect mean response levels to RFS subscales. On average, Israeli participants took 37 min to complete study questionnaires, and Canadian participants took 38 min.

Baseline Confirmatory Factor Analytic Models

Confirmatory factor analytic (CFA) models were computed separately for Hebrew and English RFS responses. The CFA model was first computed with responses from Canadian participants to reaffirm the factorial viability of the four-level model of reminiscence functions (O’Rourke, Polchenko et al., 2011). Each of the 28 items loaded significantly upon their respective factors (i.e., t values >1.96) and, in turn, these eight latent constructs loaded significantly upon their hypothesized second-order constructs (self-positive, self-negative, and pro-social reminiscence functions). Finally, these second-order constructs each loaded significantly upon a higher-order reminiscence construct (Figure 1).

Model fit was calculated subsequent to correcting for error between 23 of 810 possible error terms, \( \chi^2(df = 317) = 418.08, p < .01 \). Using the formula provided by MacCallum and colleagues (1996), statistic power for this model was estimated at 0.99. The Comparative Fit Index (CFI ≥ 0.95; CFI = 0.98), the Standardized Root Mean Square Residual (SRMR ≤ 0.05; SRMR = 0.043), and the Root Mean Square Error of Approximation are each within ideal parameters for this model (RMSEA ≤ 0.05; RMSEA = 0.031; Hu & Bentler, 1999). Also, the full 90% confidence limits for the RMSEA are within ideal limits (0.021 < RMSEA CL90 < 0.040). Support is found for this eight-factor model of reminiscence functions with two additional levels of latent structure as previously reported (O’Rourke, Polchenko et al., 2011). These results are noteworthy given the complexity of this four-level model.

Similar results emerged for Hebrew responses to the RFS with each item loading significantly upon its hypothesized factor. Correction was again made for 23 correlated error terms. As with the English CFA model, CFI (=0.97), SRMR (=0.054), RMSEA (=0.036), and 90% confidence limits for the RMSEA are each within ideal parameters (0.023 < RMSEA CL90 < 0.047). Statistical power was again estimated at 0.99 (Figure 2).

Invariance Analyses

CFA models, initially run separately, were next computed simultaneously; elements of these models were then anchored in sequence to ascertain if and where significant differences might exist between the two (i.e., significant change in the chi-square statistic). These invariance analyses allowed us to first confirm the overall structure of models then the psychometric equivalence of responses to English and Hebrew versions of the RFS. Finally, responses by Canadian and Israeli participants were compared to identify any cross-national differences in the latent structure of reminiscence functions between the two (Table 1).

As described previously, we first computed a baseline invariance model to allow us to determine if the four-level model of reminiscence functions is viable for both English and Hebrew models; goodness-of-fit indices support this conclusion, \( \chi^2(df = 635) = 830.69, p < .01 \). More precisely, CFI (=0.98), SRMR (=0.043), RMSEA (=0.024), and 90% confidence limits for the RMSEA are each within ideal parameters, 0.020 < RMSEA CL90 < 0.029. These findings indicate that the four-level model of reminiscence functions effectively describes the latent structure of RFS responses for both Canadian and Israeli participants. For both, scale responses are subsumed by eight first-order factors which map onto self-positive, self-negative, and pro-social groupings of functions; these, in turn, significantly contributed to measurement of an overarching reminiscence construct.

Linguistic Equivalence of Scale Responses.—With support found for the overall structure, we next examined each of the four levels in sequence beginning with RFS item responses. These analyses were undertaken to confirm the accuracy of translation of the Hebrew RFS vis-à-vis the original English version (i.e., linguistic reliability); this result emerged. More precisely, responses to each of the RFS items upon their respective eight first-order factors were statistically indistinguishable between samples. These findings suggest that Canadian and Israeli participants interpreted and responded to RFS items in similar ways indicating that the steps taken in the translation process effectively captured the meaning of the original English scale. With linguistic equivalence of scales determined, this allowed us to next compare the latent structure of responses between English and Hebrew CFA models.

Measurement invariance of the reminiscence latent structure.—Invariance analyses were next undertaken to compare the strength of association between the eight factors upon their respective second-order factors (i.e., self-positive, self-negative, and pro-social functions). Although teach/inform others and the conversation first-order factors are equivalent in contribution to measurement of pro-social functions, the same is not true for the self-positive and self-negative second-order factors. More precisely, the relative contribution of identity to measurement of self-positive functions was significantly greater for Canadian
Figure 1. Confirmatory factor analytic model of Reminiscence Functions Scale Responses, English Canadians \( (n = 336) \). Note: Parameters expressed as maximum likelihood estimates (standardized solution). Asterisks (*) denote parameters initially fixed for scaling and statistical identification; significance levels cannot be computed for these 12 parameters. Parenthetical numbers indicate significance levels for parameter estimates (statistically significant \( t \) values >1.96).
Figure 2. Confirmatory factor analytic model of Reminiscence Functions Scale Responses, Hebrew/Israelis (n = 206). Note: Parameters expressed as maximum likelihood estimates (standardized solution). Asterisks (*) denote parameters initially fixed for scaling and statistical identification; significance levels cannot be computed for these 12 parameters. Parenthetical numbers indicate significance levels for parameter estimates (statistically significant \( t \) values >1.96).
Table 1: Summary Specifications and Invariance Analyses Between English and Hebrew Responses

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<th>df</th>
<th>$\Delta\chi^2$</th>
<th>$\Delta df$</th>
<th>SRMR</th>
<th>CFI</th>
<th>RMSEA (CL90)</th>
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<td>-</td>
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*Note. df = degrees of freedom; SRMR = Standardized Root Mean Square Residual; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; CL90 = 90% confidence limits.

*p < .05, **p < .01.

Participants, $\Delta \chi^2 (\Delta df = 1) = 5.90$, $p < .05$. Also significantly greater for Canadians was the relative contribution of boredom reduction to the self-negative second-order factor, $\Delta \chi^2 (\Delta df = 1) = 7.99$, $p < .01$. In contrast, the relative contribution of bitterness revival onto the self-negative factor was significantly greater for Israeli participants, $\Delta \chi^2 (\Delta df = 1) = 25.73$, $p < .01$. Finally, we compared the relative contribution of the three second-order factors upon the overarching reminiscence construct. Here, the strength of association between self-negative functions and the fourth-level reminiscence construct is significantly greater for Israeli older adults, $\Delta \chi^2 (\Delta df = 1) = 5.54$, $p < .05$.

The results of this study support the overall structure of this four-level model of reminiscence functions. Importantly, we effectively translated the RFS as demonstrated by results indicating that responses to this abridged measure are statistically indistinguishable between English and Hebrew versions of the RFS. Analyses also support the existence of a latent structure of eight factors mapping onto three second-order factors which, in turn, contribute significantly to measurement of an overarching reminiscence construct. Similarities of findings between English Canadians and Jewish Israelis are notable because of cross-national differences and the measurement complexity of this four-level model.

Discussion

Similar to the results reported by Robitaille and colleagues (2010), our findings support the psychometric
properties of English responses to an abridged 28-item version of the RFS. Also, results confirm the four-level model in which English and Hebrew responses load upon their respective first-level factors which, in turn, significantly contribute to measurement of self-positive, self-negative, and pro-social higher-order factors (O’Rourke, Polchenko et al., 2011); each of these contributes to measurement of an overarching reminiscence latent construct.

The multi-step method of translation we employed enabled us to obtain a new language format of the RFS. Invariance analyses suggest that we were able to capture the nuances of meaning of the original English instrument. This finding is notable given that there are not direct equivalents for many terms, including the word reminiscence (translated literally as, memory of oneself in the past). Between-language reliability of RFS responses enabled us to undertake subsequent analyses. In addition, we now have a new language version of the RFS for future cross-national research.

Initial invariance analyses indicated that the four-level model of reminiscence functions accurately describes the latent structure of responses to both language formats. At this initial juncture, however, we could not automatically conclude that component parts are equivalent between the two in terms of their relative contribution to measurement. This is because statistical significance of elements within models did not allow us to conclude without further verification that the relative significance between latent factors did not differ between English and Hebrew models. In fact, differences did emerge between parallel elements. Differences in the relative strength of association between latent constructs between Canadian and Hebrew models suggest certain cross-national differences.

For instance, the relative contribution to measurement of the identity reminiscence function upon the self-positive latent construct is significantly greater for Canadian participants. We speculate that this might be interpreted as reflecting comparatively greater importance of personal identity versus national identity for the current cohort of older Canadians versus Israelis. Most certainly, the personal, professional, and family lives of older persons in both countries have been eventful; and at points, personal life circumstances overshadow cross-national differences irrespective of one’s country of residence (e.g., marriage, birth of children, and professional achievements). Yet the totality of life lived and current life circumstances in Canada and Israel exist within distinct geographic, historical, and geo-political contexts.

The national identity of Canadians has historically been complicated by proximity to the United States (Brodie, 2002); rather esoteric factors such as universal healthcare (Redden, 2002), a national broadcaster, and professional hockey (Earl, 2002) are said to define what it means to be Canadian. In contrast, the current cohort of older Israelis witnessed the birth of their nation, and they and/or their children were combatants in seven wars over the past 60 years (compulsory military service, both men and women). In the relative absence of a strongly defined national identity, maybe Canadian older adults instead focus on their personal identity when dwelling on the past in the relative absence of fiercely defended and strongly defined national identity.

A related finding indicates that bitterness revival contributes to measurement of self-negative reminiscence functions significantly more for Israelis compared to their Canadian counterparts. In comparison to Canadians, Israelis have been repeatedly exposed to dramatic life events such as the ongoing threats to national existence and personal security. Terror and threats by neighboring dictators have become part of daily life, exposing Israeli older adults to ongoing negative life experiences upon which to reflect.

This may also account for comparatively greater reliance upon boredom reduction by older Canadians. The national context of life in Canada is relatively (and mercifully) uneventful compared to that in Israel for both young and old. Dwelling on the past to fill a void of current stimulation (boredom reduction) may be less frequent in a corner of the world where there is no shortage of current events upon which to focus. Given significant differences for both boredom reduction and bitterness revival, it is not surprising that the relative contribution of self-negative functions upon the overarching reminiscence construct is greater for Israeli older adults. It should be stressed, however, that these explanations are both speculative and preliminary. Future study is required to determine if our findings can be replicated or if these findings are specific to the current samples.

Both Canadian and Israeli samples were self-selected and unrepresentative of the populations of either nation (i.e., more educated and of higher socioeconomic status). Though Internet usage is widespread among the young–old (Turcotte & Schellenberg, 2006), this means of website recruitment and data collection derives comparatively few persons more than 85 years of age. A further limitation is the notable percentage of Israeli participants born abroad; sample size requirements prevented latent structure comparisons between domestic and foreign-born participants. It is likely that most are long-term residents of Israel as all are fluent in Hebrew (e.g., expelled from Arab countries after the founding of Israel in 1948); however, we did not ask duration of residency. Roughly, one third of the current cohort of older Canadians was also born abroad (Turcotte & Schellenberg, 2006).

Despite these limitations, this model of reminiscence functions would appear to apply to distinct samples of older adults. This model also appears sufficiently sensitive to capture cross-national differences. Future participants in reminiscence research should be randomly recruited from other nations with particular emphasis on the oldest old to enable cross-cultural comparisons between young and older age cohorts.

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Correspondence
Correspondence should be addressed to Norm O’Rourke, PhD, RPysch, Faculty of Arts and Social Sciences, Saywell Hall, Rm #10322, Simon Fraser University, 8888 University Drive, Burnaby (BC), V5A 1S6 Canada. E-mail: ORourke@sfu.ca.

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