

## Evoking Reminiscence in Nursing Home Residents with Indirect Cues

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Reminiscing about the past can occur deliberately or spontaneously in response to either direct or indirect cues. The purpose of this study was to examine instances of reminiscence evoked by relatively indirect cues in interviews of older adult nursing home residents with varying levels of cognitive impairment and with young adults. Interview questions were based on structured themes drawn from models of functions of autobiographical memories (social/conversation, advice, historical reflection, identity). The interview offered opportunities for, but did not require, discussion of one's autobiographical memories. Differences were examined between young and older adults in how often and when they reminisced as well as the content and qualities of their evoked memories. Results demonstrated more frequent indirectly-cued reminiscence by older adults than by young adults, with the greatest frequency of reminiscence occurring during a conversation task. Reminiscences tended to be direct responses to questions rather than tangential thoughts, contained more semantic than episodic content, and were more general than specific; however, specific reminiscences were indeed evoked. Based on these findings, we suggest that providing nursing home residents with opportunities to engage in casual conversations with specific yet indirect prompts may increase the frequency of reminiscence and provide an enhancement to more structured reminiscence activities and therapies.

*Key Words:* Reminiscence; Involuntary Memory; Autobiographical Memory; Aging and Memory; Functions of Reminiscence

When people reminisce about events from their personal past, sometimes they do this deliberately and other times spontaneously, without any conscious intent to recall memories about their life experiences (Bluck & Levine, 1998; Westerhof, Bohlmeijer, & Webster, 2010). In everyday life, voluntary recall of autobiographical memories can occur in a range of settings and in response to a variety of social, environmental, or self-initiated cues. For example, a query of "Where would you like to go on vacation this year?" may spark recollections of previous vacations in order to evaluate them and make a decision. Viewing an ad of a family at a tropical resort might prompt a search for memories about a long-ago trip at a similar site. In laboratory studies of voluntarily retrieved autobiographical memories, people typically are asked to

retrieve and report on memories, either on demand or in response to a cue such as a word or a picture (e.g., Crovitz & Schiffman, 1974; Humphreys, Bain, & Pike, 1989; Peterson, Baker-Ward, & Grovenstein, 2016; Schönfeld & Ehlers, 2006; Uzer, 2016; Williams et al., 2007).

Such deliberate retrieval of autobiographical memories is at the heart of many therapeutic reminiscence activities for older adults living in nursing homes. For example, older adults may participate in conversational reminiscence groups or in individualized or group reminiscence therapy in which memories are intentionally retrieved for discussion or writing exercises. Select nursing homes encourage reminiscence by designing individualized life story books for residents (Subramaniam, Woods, & Whitaker, 2014) or by displaying nostalgia-evoking objects (Gudex, Horsted, Jensen, Kjer, & Sprensen, 2010; Miles, Fischer-Mogensen, Nielsen, Hermansen, & Berntsen, 2013). However, deliberate retrieval in response to relatively direct verbal prompts ("Tell me about a time in your life when..."; "What memories does this object conjure up for you?") can be challenging for older adults, especially those suffering from cognitive impairments or frontal lobe decline (Zacks & Hasher, 2006; Zacks, Hasher, & Li, 2000). These difficulties may in turn limit some of the physical, mental health, and cognitive benefits associated with reminiscence activities.

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In order to maximize the benefits of reminiscence interventions, is there a way to encourage reminiscence in older adults, without requiring the cognitive demands associated with explicit memory recall? A promising avenue to explore is the use of less direct cues that can induce autobiographical memory retrieval without explicitly demanding the respondent produce a specific personal experience. For example, a relatively indirect prompt might ask an older adult to give advice to the younger generations facing political unrest. Such a prompt might elicit some respondents to refer to their own personal past experiences with detail and specificity (“When I was your age, I remember feeling much the same. One time I painted a sign and went to a protest and...”) or to refer to broader, more general experiences (“I was always very politically active and used to attend rallies quite often.”). Importantly, the prompt does not explicitly require recollection of events from one’s personal past (one could just as appropriately have responded, “The current generation needs to understand that it takes time to change people’s minds and that revolution doesn’t happen overnight...”). Indirect cues may be particularly valuable for older adults who have trouble deliberately bringing to mind personal memories in response to direct prompts, such as “recount in detail an event in your life that comes to mind after listening to this song” (El Haj, Fasotti, & Allain, 2012).

Indirect cues can include social, environmental, or self-initiated cues; and the cognitive processes triggered by indirect cues can involve intentional, deliberate memory retrieval as well as more spontaneous, involuntary memory retrieval. For example, the advice prompt discussed above could elicit strategic, effortful retrieval of one’s personal experiences (“Political unrest? – What was that sign I painted for the No Nukes rally when I was a teenager?”). Alternatively, the prompt could instead elicit the recollection of that sign and the rally without any conscious intent, with an image or thought that comes to mind unbidden in response to the probe. Intentional or involuntary retrieval can also be prompted by environmental cues (e.g., seeing photos of protests in the news) or self-initiated ones (e.g., thinking about an old high school friend, which then activates the rally memory). Involuntary autobiographical memories (IAMs) are memories of personal events that come to mind spontaneously, without any deliberate attempt to remember them (Berntsen, 1998, 2009; Mace, 2007), and they occur frequently in everyday life (Gardner, Vogel, Mainetti, & Ascoli, 2012; Rasmussen & Berntsen, 2011; Rasmussen, Ramsgaard, & Berntsen, 2015). They are more typically triggered by external cues, such as auditory or visual cues in the environment, than by internal cues, such as one’s own thoughts or feelings (Berntsen, 1998, 2009; Berntsen & Hall, 2004). Importantly, although older adults show deficits in intentionally retrieving memories relative to young adults, no age-related impairment has been found in involuntary memories (Berntsen, Rasmussen, Miles, Nielsen, & Ramsgaard, 2017; Schlagman, Kliegel, Schulz, & Kvavilashvili, 2009;

although see Maillet & Schacter, 2016, for some exceptions).

The present study takes an experimental approach to examine indirect cues that might be beneficial in producing reminiscence in older adults. We note that our use of the term “indirect cues” is relativistic – we use the term to contrast with more direct prompts often used to evoke reminiscence in lab and field settings (e.g., recall your first memory of an automobile; Anderson & Weber, 2015). We consider indirect cues to be ones that do not directly require or demand retrieval of autobiographical memories for events from one’s past but that may nonetheless do so.

Our main research questions were: To what extent do older adults engage in reminiscence in response to indirect cues, and in what contexts are they more or less likely to do so? A limited number of prior studies have investigated indirectly-cued reminiscences in older adults. In one study, community-dwelling older adults were interviewed in a manner that did not explicitly ask them to produce autobiographical memories (Coleman, 1974). Rather they were asked about topics that might invite spontaneous recollections of their life experiences. For instance, they were asked about their views of the past and the present, whether they found they thought more about the past as they aged, and what they tend to think about. Content analysis of their responses showed instances of two distinct kinds of reminiscence: *informative reminiscence* and *life reviewing reminiscence*. Informative reminiscence included instances in which older adults referred to past experiences “to convey matters of general importance” (p. 287). Life reviewing reminiscence referred to when they mentioned past experiences in the context of reflecting on and explaining “the kind of person the individual had been” and why the individual “had done the things [they] had” (p. 286). However, it was not clearly established how often this occurred or how many of the older adults engaged in it, as the focus of the research was on different kinds of reminiscence and their relation to well-being. In another study, nursing home residents were asked to describe their impressions of the nursing home experience, with no specific prompts to generate autobiographical memories given (Puentes, 2001). This was an effective task, but the small sample size ( $n=4$ ) limits the ability to draw generalizable conclusions.

In addition to the above-mentioned studies on indirectly-cued reminiscence, Miles et al. (2013) tested older adults diagnosed with dementia ( $n=12$ ) and found that the physical context made a difference in terms of the frequency and qualities of indirectly-cued reminiscence. In that study, the older adults were interviewed once in a modern-day setting filled with contemporary objects and once in a setting designed to resemble their childhood, filled with objects from that time period. They were given objects in the modern or childhood setting (e.g., a cell phone; a rotary phone) and asked if they could tell the interviewer about the object. The modern-day setting was not as conducive to eliciting personal autobiographical memories as was the childhood setting. The memories evoked in the old-time setting were recalled more

spontaneously without prompting and had more episodic detail than in the modern-day setting.

Taken together, these previous findings suggest that both conversational and immersive sensory experiences are promising methods that can reliably produce reminiscences in older adults. The present study seeks to extend this work by addressing specifically how often older adults report autobiographical experiences in response to indirect cues and by exploring the content and qualities of the elicited memories. We focused on older adults with varying degrees of cognitive decline residing in nursing homes, because this understudied population is one that might especially benefit from a better understanding of indirectly-cued reminiscence. We also included a sample of young adults in order to examine age-differences in the frequency of indirectly-cued reminiscences. To address these questions, we used an interview task that allowed for the possibility of people bringing up recollections of their past experiences without explicitly requesting or requiring them to do so. The interview centered around themes drawn from subscales of the Reminiscence Functions Scale (Webster, 1993, 1997). This allowed us to determine whether probes related to particular functions of reminiscence were more likely to produce instances of indirectly-cued reminiscences than other types of probes.

In this effort to understand the context in which indirect cues elicit reminiscence, we found it important to examine whether instances of reminiscence were offered as direct responses to the interview probes or were instead tangents that were not directly related to interview questions. Consider, for example, an interview prompt asking you to reflect on changes in technology that have occurred in your lifetime. A direct (nontangential) reminiscence might include noting that when you were young the television had not yet been invented and that you remember the day you first saw one at the department store. Conversely, a tangential response would include if you started talking about not having had a television and then continued to state that your family was very poor and that you remember when your father lost his job and you were scared you would have to move.

Direct versus tangential responses are important to examine because previous work has shown that when older adults recall stories, they are more likely than young adults to go off target by offering information not directly relevant (e.g., Arbuckle & Gold, 1993), and this age-related tendency is related to inhibitory deficits (Zacks & Hasher, 1994). However, Bluck and colleagues astutely observe that communication style may also play a role in off-target tangents during story telling (Bluck, Alea, Baron-Lee, & Davies, 2016), and they report evidence that older adults include more “story asides”—optional elements that are related tangentially to the story that convey world knowledge, biographical facts, and life story coherence—than do young adults when recounting stories based on their autobiographical experiences, but both age groups offered similar amounts of story asides when remembering a recently learned fictional story. Our study

will therefore allow us to address whether older adults not only differed from young adults in the amount of indirectly-cued reminiscences but if the manner in which those reminiscences were discussed differed as well.

A second goal of our study was to examine the content and qualities of people’s indirectly-cued reminiscences. Prior work has examined the content of people’s reminiscences, but in most studies the reminiscences were evoked deliberately. For instance, in a one-on-one interview about their life and experiences, the interviewer explicitly indicated they were interested in hearing about the participant’s specific life experiences (Kovach, 1991, 1993). Direct cues were also used when people were asked to produce written narratives about autobiographical memories relevant to the theme for a session of an ongoing reminiscence group meeting (Alea, Vick, & Hyatt, 2010) or as verbal contributions to reminiscence group therapy sessions (Burnside, 1993).

The content of indirectly-cued reminiscences in older adults has not been well studied. In one study that examined involuntary autobiographical memories, young adults and community-dwelling older adults kept diaries of involuntary autobiographical memories (i.e., memories of personal events that come to mind spontaneously, without any deliberate attempt to remember them) (Schlagman, Schulz, & Kvavilashvili, 2006). Participants reported the involuntary memory itself and also provided quantitative ratings of things such as their mood, the emotional valence of the event, the specificity of the memory, and its triggers. Young and older adults reported similar rates of involuntary autobiographical memories over the one-week period. For both age groups, the majority of involuntary memories were positive rather than negative in their valence, though older adults reported relatively few involuntary negative memories overall and thus showed a stronger positivity bias. This paucity of research on the content of indirectly-cued reminiscences in older adults makes the present study especially valuable.

Lastly, the third main goal of the present study was to examine the relationship between how often an individual reminisced in response to the indirect prompts and how often they stated that they engaged in reminiscence in their daily lives on standardized self-report questionnaires. This is an important issue because people’s behaviors are not always congruent with what they report their behaviors to be. Older adults that exhibit some degree of cognitive impairment may not fully understand the survey questions or the response scale, or they may be responding in what they believe are socially desirable ways. Another possibility is that what they consider to be instances of reminiscing when completing a self-report questionnaire includes only past memories they can consciously access, and they may not consider, be aware of, or have access to the everyday spontaneous reminiscences they involuntarily experience in their daily lives.

To evaluate this third aim, we used two widely used self-report measures: the Reminiscence Functions Scale (RFS) (Webster, 1993, 1997) and the Thinking About Life Experiences Scale (TALE) (Bluck & Alea, 2009, 2011).

Past research using these measures to address the frequency and functions of reminiscence in older adults generally tested only cognitively intact, community dwelling older adults, or it focused on subsets of older adults with particular disorders, such as depression (e.g., Alea & Vick, 2010; Alea, Arneaud, & Ali, 2013; Bluck & Alea, 2009; Webster & Gould, 2007; Webster & McCall, 1999). Hence, results may not be applicable to other segments of the aging population, such as our target population of older adults with some degree of cognitive decline living in nursing homes.

Related to our third aim, a recent study from our lab asked older adult nursing home residents to complete a battery of self-report measures about the frequency, value, and functions of reminiscence as well as measures of well-being and mental health (Henkel, Kris, Birney, & Krauss, 2017). The residents reported reminiscence to be both enjoyable and valuable. The majority reported that they think about their past alone and with friends or family relatively often, consistent with prior nursing home studies (Fry, 1991; McKee et al., 2005), though overall rates of reminiscence were lower than in community-dwelling older adults (see Bluck & Alea, 2009). Although many of the nursing home residents reported that they rarely reminisced with fellow residents or staff, a subset (~25%) expressed a desire to do so more often with staff, and this was especially true for those with lower morale, greater depression, and greater loneliness. The primary functions reminiscence served, in descending order, were to maintain intimacy and connection to deceased loved ones, to teach and inform others, to better understand the present, to reduce boredom, and to bond with other people through conversation. This present study seeks to add to these self-report findings by comparing the frequency of self-reported reminiscence with the frequency of indirectly-cued reminiscence during an interview. We are not alone in noting the limits of self-report and advocating for additional ways to assess the frequency, functions, and value that reminiscence has for older adults (see, e.g., Pillemer, 2009; Waters, Bauer, & Fivush; 2014; Westerhof & Bohlmeijer, 2014). Thus, we will address the degree to which older adult nursing home residents do or do not accurately report on how often they reminisce.

## Method

### *Participants*

A total of 40 people participated. Twenty were older adults (15 women, 5 men) who were volunteers. Fourteen were residents from two different nursing homes, and 6 were from an assisted living facility associated with the

nursing homes in Fairfield, CT, USA. Their ages ranged from 79 to 94 years old ( $M = 87.69$ ,  $SD = 4.02$ , Median = 89.5); 24% were 90-94 years old, 41% were 85-90, 29% were 80-84, and 6% were 79 years old. Scores on the Mini Mental Status Exam (MMSE), which is an index of overall cognitive functioning, ranged from 12 to 29 ( $M = 23.72$ ,  $SD = 4.93$ , Median = 24.5). Fifty percent of older adults ( $n = 10$ ) scored in the normal range (scores of 26 or higher), 25% ( $n = 5$ ) scored in the “mildly impaired” range, and 25% ( $n = 5$ ) scored in the “significantly impaired” range.

The other 20 participants were young adults (16 women, 4 men) who were undergraduates from a private liberal arts college in southeastern CT. They participated to partially fulfill psychology course requirements, and their ages ranged from 18 to 21 years ( $M = 19.25$ ,  $SD = 1.07$ ).<sup>1</sup> Young adults’ scores on a measure of cognitive function (the MMSE) were all in the normal range (range 26-30,  $M = 28.50$ ,  $SD = 1.22$ ).

### *Materials*

#### *Interview Task*

The interview task consisted of four sets of prompts. For the *Conversation* task, participants were asked three separate questions: “Can you tell me a little bit about your life before you came here?”, “Can you tell me what your life is like here at the nursing home (or college)?”, and “Have you had any visitors recently?”. For the *Advice* task, participants were prompted to provide three pieces of advice they think would be valuable for young adults today. For the *Identity* task, they were asked: “We are interested in looking at how you define yourself as an individual. Can you tell me three things about yourself that you would say describe you best?” For the *Historical Reflection* task, they were asked, “What are three ways in which technology or electronics has changed over the years?”

The first three tasks were drawn from functions denoted in subscales of the Reminiscence Functions Scale (Webster, 1993, 1997) that measured, respectively, people’s tendency to reminisce to connect or reconnect with other people as a form of bonding during informal social interactions (Conversation), to provide examples and lessons from their past experiences to others in an instructional, educational fashion (Teach/Inform), and to enhance their sense of self and personal identity (Identity). The fourth task was included to provide a broad opportunity to think about their lives from childhood through older adulthood in the context of changes in the world.

<sup>1</sup> A second sample of 20 young adults from the same population was also tested, and the results from Sample 2 replicated those of Sample 1. To allow for comparison between the young and older adults, only the results from Sample 1 of the young adults are reported here.

### *Reminiscence Self-Report Measures*

Two standardized self-report questionnaires about reminiscence and autobiographical memory functions were administered. The Reminiscence Functions Scale (RFS) examines the frequency of social functions of reminiscence (e.g., bonding with others through conversation, maintaining feelings of intimacy with deceased friends and family; teaching others) and non-social functions (e.g., using past experiences to solve current problems, facing mortality, and reducing boredom (Webster, 1993, 1997). The RFS: Brief Version has been used with older adults (O'Rourke, Carmel, Choudhury, Polchenko, & Bachner, 2013; Robitaille, Cappeliez, Coulombe, & Webster, 2010) and consists of 28 items that ask people to rate how frequently they think back on and/or share their past personal experiences with others for various purposes. Ratings were made on a 7-point scale ranging from 1 (*never*) to 6 (*very frequently*).

The Thinking About Life Experience Scale-Revised (TALE) has 17 items in which people rate on a 5-point scale (*almost never* to *very frequently*) how often they think back or talk about their life with others for various reasons, including how often people use their autobiographical memories to foster social bonds (Social function); to guide choices, behaviors, and decisions about current problems (Directive function); to enhance a sense of self-continuity, self-coherence, and self-view (Self function) (see Bluck & Alea, 2011). The scale has been used in prior research with older adults (e.g., Alea, Bluck, & Ali, 2015; Bluck & Alea, 2009).

### *Mental Health and Well-Being Measures*

The Life Orientation Test (LOT-R; Scheier, Carver, & Bridges, 1994) is a 10-item self-report questionnaire that measures optimism, with questions such as "I'm always optimistic about my future" and "Overall, I expect more good things to happen to me than bad." The questions were rated on a 5-point agreement scale (strongly disagree, disagree, neutral, agree, and strongly agree). Current mood was assessed on a 7-point scale (1 = *very unpleasant* to 7 = *very good*).

Three widely used and well-validated measures of mental health and well-being based on self-report in older adults were also administered. The UCLA Loneliness Scale (Version 3) uses a 4-point scale (never, rarely, sometimes, often) for people to rate their feelings of loneliness, isolation, and social disconnectedness across 20 questions (e.g., "How often do you feel that there is no one you can turn to?", and "How often do you feel close to people?" (Russell, 1996). The Geriatric Depression Scale (GDS) uses self-report to assess the number of depressive symptoms that older adults have experienced over the past week (Sheikh & Yesavage, 1986). There are 15 questions, such as "Do you feel that your life is empty?", and "Do you feel that your situation is hopeless?" Response options are "yes" or "no." The Philadelphia Geriatric Center Morale

Scale (PGCMS) has 17 yes-no items dealing with overall morale, such as "Things keep getting worse as I get older," and "As you get older, you are less useful" (Lawton, 1975).

### *Cognitive Functioning Measure*

The Mini Mental State Exam (MMSE) was used to measure general cognitive functioning across several domains including attention, memory, orientation to time and location, and language (Folstein, Folstein, & McHugh, 1975). Residents also answered demographic questions and questions about the frequency of social interactions with friends, family, and people at the facility.

### *Procedure*

Participants were tested individually by a female research assistant in her early 20s. Older adults were tested either in their own rooms or in another private area in the residential care facility, and young adults were tested in a lab room at the university. After a brief overview of the study, participants rated their current mood and then were told that the next task was an interview about their life and their opinions. The interview consisted of four parts (conversation, advice, historical reflection, identity), and the order of the four parts was counterbalanced across subjects. The questions were asked one at a time, and participants made their responses out loud while the interviewer sat across from them with a tape recorder to record their responses. Typically, the interview was completed in a single session, but in two cases, due to older adults' schedules or fatigue, the interview was conducted in two sessions.

To keep participants engaged and the task naturalistic, the interview was socially interactive. The interviewer used nonverbal communication, smiling and nodding as the participant spoke, as well as verbal prompts, such as "yeah," "mmm hmm", "ok," or "oh." Where appropriate the interviewer would react in a socially meaningful manner, such as laughing when the participant said something humorous, saying "I'm sorry" or "oh" in a sympathetic manner when the participant mentioned the death of a loved one, or reacting to and repeating something interesting the participant stated (e.g., after a participant stated that all seven of her kids were delivered by the same doctor, the interviewer said, "Wow, all seven kids delivered by the same doctor"; after a participant said that it was very hard after losing his job, the interviewer said "yeah, that sounds difficult."). When necessary, the interviewer would repeat a question, rephrase it, or ask if they might come up with one more example if they were short of the required number of instances for a given task. If the participant expressed concern that they could not come up with a response or their response was inadequate in some way, the interviewer gave supportive feedback such as "You are doing fine" or "that's ok."

The interview lasted about 12 minutes on average for older adults, and approximately five minutes on average

for younger adults. After the four parts of the interview, participants rated their mood again, completed the LOT, and provided demographic information and information about the frequency of their social interactions. In a separate session, participants completed the following measures in a randomized order: MMSE, TALE, RFS, GDS, UCLA Loneliness scale, PCGCS.<sup>2</sup>

### Coding

Many different scoring systems exist for coding various aspects of deliberately retrieved memories. We drew from several of these in order to code relevant aspects of indirectly-cued reminiscences. Levine's Autobiographical Interview examines both the semantic and episodic elements of people's recollections of their personal past (Levine, Svoboda, Hay, Winocur, & Moscovitz, 2002; see also Renoult, Davidson, Palumbo, Moscovitch, & Levine, 2012). It draws a distinction between *episodic autobiographical content* and *semantic autobiographical content*. In episodic autobiographical content people recall specific details about an episode almost as if they are re-experiencing it by mentally travelling back to the past (e.g., "I remember standing at Niagara Falls holding my husband's hand on our honeymoon and looking at all the colorful lights on the water and just feeling so content"). In semantic autobiographical content, people report factual autobiographical information (e.g., "I used to be a school teacher"; "I grew up in Connecticut") in similar fashion to how they recall non-personal, non-autobiographical semantic information ("Albany is the capitol of New York"; "Zucchini is a type of vegetable").

We also measured memory specificity, based on the Autobiographical Memory Task (AMT), where people are asked to recollect a specific memory evoked by a cue word (Williams & Broadbent, 1986; Williams et al., 2007). Responses were categorized as either *specific* (referring to a single event that occurred in a time period lasting less than 24 hours, e.g., my 30<sup>th</sup> birthday party), *extended* (referring to a single event that occurred over a period of time longer than a day; e.g., my 7-day trip to Iceland), or *general* (referring to a broader period of time in a person's life [e.g., when I was in college] or to events that occurred repeatedly [e.g., "Halloween was a big celebration for my family. We always decked the whole house out."]).

Interview responses in our study were reviewed by two independent raters, who tallied instances of indirectly-cued reminiscences and then separately coded each instance in terms of (a) its episodic content (semantic or episodic autobiographical content), (b) the directness of the comments (whether it was a tangential or non-tangential response to the interview probe), and (c) the specificity of the memory (general, extended, specific).

The two raters agreed on 94% of their categorizations, and the remainder were resolved by one of the authors (L.H.).

## Results

### *How Often and When did People Reminisce in Response to the Indirect Cues?*

The interview prompts were designed to allow for the possibility of discussing one's autobiographical memories but did not specifically require it; accordingly, many of the comments to the interview prompts were not categorized as instances of reminiscences. For example, during the conversation task, when asked about what their life was like before living in the nursing home, one respondent replied, "Well I had a good life. My children, my grandchildren. Now I hardly ever see them." Another one offered, "I'm old now, but I used to be more active before, but like I said, I got older now so I put it in my head that this is it." When asked to describe their lives in the nursing home, some offered fairly short responses such as, "Boring. Inactive" and "It's pleasant. The people are pleasant. I can't complain. I'd like to have a little more activity." However, responses could be relatively lengthy but still not have content that would be categorized as representing instances of reminiscence. For instance, for the task where participants were asked to give advice to young people, one older adult replied,

The first thing would be do not be dictatorial. Answer the questions in a very loving way. And don't pinpoint. Don't make it seem like you're directing the answers to the individual person. That's very important. That's enough because that covers the whole thing. They don't want to be intimidated, and they don't want to be afraid. Don't be so consumed with getting everything in your dossier by the time you're 21. There's a long life ahead, and you don't have to finish everything all at once. Do it gradually. And don't ever do it for the sake of doing it just to show off. Because you'll learn to regret it. Not now, but for a time later down the road.

A total of 97 instances of indirectly-cued reminiscence by the 20 older adult participants were observed during the interview task. The number of responses categorized as instances of reminiscences by an individual ranged from a low of 0 to a high of 19 ( $M = 4.85$ ,  $SD = 4.72$ , Median = 3.5). Most of the older adults (60%,  $n = 12$ ) offered between 1 and 5 evoked memories during the interview, and 20% ( $n = 4$ ) offered between 6 and 10. Only 10% ( $n = 2$ ) offered more than 11 instances, and 10% ( $n = 2$ ) offered none.

<sup>2</sup> Fourteen of the older adults had been in a previous study where they completed several of these measures several months prior, and six completed the measures in a separate session a few days after the interview task.

A chi-square test examining the frequency of indirectly-cued reminiscence in older adults showed significant differences across the different interview prompts,  $\chi^2(3, n = 20) = 115.66, p < .001$ , with the vast majority (72%,  $n = 70$ ) of the evoked memories occurring in the conversation task and far fewer in the historical reflection task (12%,  $n = 12$ ), the identity task (8%,  $n = 8$ ), and the advice task (7%,  $n = 7$ ). Because of the low observed values in some of the conditions, a non-parametric repeated-measures Friedman test was also conducted, and it too showed significant differences among the conditions,  $\chi^2(3, n = 20) = 26.05, p < .001$ .

In contrast to the older adults, only 33 instances of reminiscence across the 20 young adult participants were observed. The total number of instances by individuals ranged from 0 to 3 ( $M = 1.65, SD = 0.93, \text{Median} = 1.5$ ). Most of the young adults (70%) offered either 1 ( $n = 7$ ) or 2 ( $n = 7$ ) reminiscences during the interview, and 20% ( $n = 4$ ) offered 3 instances. Only 10% ( $n = 2$ ) offered none.

A chi-square test examining the frequency of evoked memories in young adults across the four different tasks likewise showed significant differences across the tasks,  $\chi^2(1, n = 20) = 18.93, p < .001$ , with 88% ( $n = 29$ ) of the evoked memories in the conversation task, 12% ( $n = 4$ ) in the historical reflection task, and 0% in both the identity task and the advice task. Because there were no instances of reminiscence in two of the conditions, a non-parametric repeated-measures Friedman test was also conducted, and it too showed significant differences among the conditions,  $\chi^2(3, n = 20) = 47.49, p < .001$ .

Unequal variances in the frequencies of young and older adults' reminiscences required a Mann-Whitney U test to examine age differences. Results showed that the number of instances of indirectly-cued reminiscences was significantly higher for older adults ( $M = 4.80, SD = 4.72, \text{Median} = 3.5$ ) than for younger adults ( $M = 1.65, SD = 0.93, \text{Median} = 2$ ),  $U = 95.50, p = .005$ . Because the number of instances of reminiscences and their distributions differed substantially among young and older adults, the remaining analyses are reported separately for each of the two age groups, focusing primarily on older adults.

### *What Were the Content and Qualities of Older Adults' Indirectly-Cued Reminiscences?*

Of the 97 instances of indirectly-cued reminiscences in older adults, 80% were categorized as having semantic autobiographical content, and 20% were categorized as having episodic autobiographical content. This pattern of more semantic than episodic content instances was similar in all four tasks, as shown by a nonsignificant test for independence,  $\chi^2(3, n = 20) = 6.21, p = .10$  (see Table 1). Instances of episodic content varied in length and detail. For example, one older adult in the conversation task stated:

When my daughter and granddaughter visited, we went in that room and played games. We play cards, Chinese checkers. Yesterday we were laughing like crazy. I was finally feeling good. Oh, it's awful to be sick.

Another older adult offered a much more detailed and lengthy response:

I had a wild party [for my 90th birthday].... And everyone that I have known my entire life was at this party! It was wonderful. They, my two granddaughters, handled the party. They contacted everybody. And everybody came! I walked into this place. I thought I was in sort of a place where, I had to go find my way. And these were all the people that were invited. There must have been hundreds of people that I've known through the years. And everybody came! Only one person couldn't make it and he had to be with his wife, because his wife, she had to rush to the hospital because she was having a baby. So I forgave him. [Laughs.] I forgave him. I called him and I said, 'oh, I forgive you.' ... Yeah, so he was laughing. He was hysterical. He says, 'Oh, I gotta tell my wife that'. But, tell her that that's what it was. I said, I'm proud of you, that you thought of her first. You could have thought of me a little bit, but that's okay!' So he says, 'Frankly, I do think of you now and then, because you're a nice person to know.' I says, 'I know, I like you too'. So it was very pleasant, very pleasant. Yeah.

Elicited memories that had semantic content likewise varied in their length and amount of detail. One older adult noted when describing her pre-residence life,

I enjoyed my job very much, which was taking care of people who were ill and who couldn't move by themselves. And I was thankful that I could do the walking for them. To take them to their doctor or take them to a park or whatever. I was their feet.

Another offered a much shorter reply: "I used to be a bowler. I was on a bowling team."

Of the 97 instances of reminiscences, 68% were categorized as non-tangential responses to interview probes, and 32% were categorized as tangential responses. This pattern of more non-tangential than tangential responses was seen in three of the four tasks (conversation, historical reflection, identity) but not in the advice task,  $\chi^2(3, n = 20) = 10.24, p = .02$  (see Table 1).

The specificity of the memories evoked was also examined. Memories categorized as *general* covered events from older adults' childhood as well as events that were more recent. For example, one older adult reminisced about their childhood by noting, "When I was a kid I had a bed and it was near the window. I used to lay there and

look up and see the beautiful sky. It was nice.” Another older adult commented, “[My earlier years were] beautiful. I lived on a farm. I loved it. And I could do everything and anything I wanted.” Another older adult spoke of their adult life:

My husband passed away when he was 59. We wanted to travel... I said I didn't want to leave the kids, I said in case something happens and we're not here, we're wherever. I said and we can't get there in time. I said I'd rather give up the good time and stay home with the children. I love kids.

Other evoked memories were categorized as *extended*. For example, one older adult recounted a relatively positive time in his life:

I met some people, and they asked me to join them in, they were taking a vacation in, where the heck did we go? In Europe. And they asked me to come along. And I had a wonderful time, enjoying the parts of Europe that I had never seen before.

Another participant talked about a more negative time in their life:

I was sick for a good 2 months or more. I didn't feel good at all. I lost a lot of weight, look it. A lot of weight. But I'm bett... I'm getting better now.

Memories that were categorized as *specific* in that they referred to a single event that occurred on a particular day included relatively brief responses, such as:

The last [visit] was about 2 weeks ago. My youngest daughter and her husband, and my youngest son and his wife and one of my grandsons. We went out to dinner. It was very nice.

But longer *specific* memories were also evoked, such as:

And then the foreman one night after work had me in the office and wanted me to take over the whole shipping department. Because that's what our department was. Shipping, inspection, and I was a lead lady and I didn't think I could handle the night shift. Because of the section all shipping was on, a bad street. So, my husband and I decided not to take it.

As seen in Table 1, most instances of reminiscence by older adults were general in nature (70%), and there were much fewer extended (13%) and specific memories (16%) recalled. Although in the conversation task, a greater range of specificities were evoked, the majority of evoked memories were general rather than extended or specific, and this was true across all four tasks types, as evidenced

by a nonsignificant two-way chi-square test of independence,  $\chi^2(6, n = 20) = 11.10, p = .09$ .

### *What Were the Content and Qualities of Young Adults' Indirectly-Cued Reminiscences?*

Although younger adults offered far fewer reminiscences than did older adults, the patterns seen in their responses mirrored those of older adults. As seen in the lower section of Table 1, of the 33 instances of indirectly-cued reminiscences in young adults, 73% were categorized as semantic memories, and 27% were categorized as episodic. This pattern of greater semantic than episodic memories was similar in all four tasks,  $\chi^2(1, n = 20) = 0.01, p = .91$ . 97% of the 33 instances were categorized as non-tangential responses to interview probes, and 3% were categorized as tangential responses. Most instances of reminiscence were general in nature (67%), and there were much fewer extended (9%) and specific memories (24%) recalled. Although in the conversation task, a greater range of specificities were evoked, the majority of evoked memories were general rather than extended or specific, and this was true across all four tasks types, as evidenced by a nonsignificant two-way chi-square test of independence,  $\chi^2(2, n = 20) = 2.28, p = .33$ .

### *Were There Relations Between Indirectly-Cued Reminiscences and Other Measures?*

As seen in the top panel of Table 2, no significant correlations for either older adults or young adults were found between the total number of instances of indirectly-cued reminiscence and the self-report measures of how often people thought about the past or shared past recollections with others. We were specifically interested in discovering whether there were reliable relationships between how frequently one engaged in indirectly-cued reminiscence on the individual interview tasks (conversation, advice, and identity) and how frequently one self-reported engaging in reminiscence for similar functions on the TALE and RFS. The number of instances of reminiscences exhibited during the conversation interview task was not significantly correlated with scores on the RFS Conversation subscale,  $r = .18, p = .44$ , or on the TALE's Social Bonding subscale,  $r = -.03, p = .91$ . In addition, how frequently participants engaged in reminiscence on the identity interview task was not significantly correlated with how frequently they self-reported engaging in reminiscence for identity functions on the RFS,  $r = -.25, p = .27$ , or for self-continuity on the TALE,  $r = .14, p = .57$ . However, the number of instances of reminiscences exhibited on the advice interview task was significantly correlated with scores on the RFS Teach/Inform subscale,  $r = .60, p = .005$ , and with the Directing Behavior subscale on the TALE,  $r = .45, p = .048$ . These analyses suggest that in some situations, how often people report reminiscing on self-report measures is



Table 1

*Episodic Content, Directness, and Specificity of Spontaneously Evoked Autobiographical Memories Across the Four Interview Prompts for Older and Younger Adults*

Older Adults								
Interview Task	Content		Directness		Specificity			Total
	Semantic	Episodic	Direct	Tangential	General	Extended	Specific	
Conversation	53	17	51	19	44	12	14	70 (72%)
Advice	5	2	1	2	4	1	2	7 (7%)
Historical reflection	12	0	8	6	12	0	0	12 (12%)
Identity	8	0	6	4	8	0	0	8 (8%)
<b>Total</b>	78 (80%)	19 (20%)	66 (68%)	31(32%)	68 (70%)	13 (13%)	16 (16%)	97 (100%)

  

Young Adults								
Interview Task	Content		Directness		Specificity			Total
	Semantic	Episodic	Direct	Tangential	General	Extended	Specific	
Conversation	21	8	29	0	18	3	8	29 (88%)
Advice	0	0	0	0	0	0	0	0 (0%)
Historical reflection	3	1	3	1	4	0	0	4 (12%)
Identity	0	0	0	0	0	0	0	0 (0%)
<b>Total</b>	28 (73%)	9 (27%)	32 (97%)	1 (3%)	22 (67%)	3 (9%)	8 (24%)	33 (100%)

Table 2

*Relationship Between the Number of Instances of Spontaneous Reminiscence and Self-Reported Reminiscence Frequency and Functions, Cognitive Functions, and Well Being*

Reminiscence Self-Report Measures	Older Adults				Younger Adults			
	M	SD	r with Number of Spontaneous Rem.	Cronbach's alpha	M	SD	r with Number of Spontaneous Rem.	Cronbach's Alpha
Reminiscence Frequency	3.50	0.89	$r = .09, p = .68$	---	3.65	0.59	$r = .05, p = .85$	---
Frequency of Sharing with Others	3.00	0.92	$r = .10, p = .68$	---	3.35	0.75	$r = -.19, p = .42$	---
Enjoyment of Reminiscence	3.48	0.92	$r = .35, p = .13$	---	3.53	0.54	$r = .41, p = .07$	---
Value of Reminiscence	3.35	1.03	$r = .36, p = .12$	---	3.53	0.56	$r = .51, p = .02^*$	---

  

Cog. Function and Well-Being Measures	Older Adults				Younger Adults			
	M	SD	r with Number of Spontaneous Rem.	Cronbach's alpha	M	SD	r with Number of Spontaneous Rem.	Cronbach's Alpha
Cognitive Function (MMSE)	23.72	4.93	$r = .13, p = .59$	.761	28.85	1.22	$r = .23, p = .33$	---
Depression (GDS)	2.50	3.89	$r = -.20, p = .40$	.923	1.50	1.96	$r = .22, p = .36$	.735
Loneliness (UCLA Loneliness)	40.05	11.15	$r = -.04, p = .86$	.913	36.75	10.44	$r = .22, p = .36$	.929
Morale (PGCMS)	12.70	4.58	$r = .31, p = .19$	.910	12.85	3.62	$r = .02, p = .95$	.823
Optimism (LOT)	3.89	0.61	$r = .05, p = .84$	.683	3.58	.071	$r = .21, p = .37$	.874

*Note:* Reminiscence frequency and the frequency of sharing memories with others were measured on the Thinking About Life Experiences scale (TALE). MMSE = Mini Mental State Exam; GDS = Geriatric Depression Scale; PGCMS = Philadelphia Center Geriatric Morale Scale; LOT = Life Orientation Test.

incongruent with how often they actually reminisce, but in other situations their self-report and behavior are congruent. But these analyses are no doubt limited by the low number of instances of reminiscence in some of the

specific interview tasks and by the sample size, and they are offered here as food for thought for future research rather than for the purpose of drawing definitive conclusions.

The number of instances of indirectly-cued reminiscences was not related to any of the measures of cognitive function or well-being in either age group (see Table 2 bottom panel). A significant positive correlation was found for young adults between the number of instances of spontaneous reminiscence and how valuable they reported reminiscence to be for them. Although not significant, some of the effect sizes were not trivial (e.g., for both young and older adults, the relationship between frequency of indirectly-cued reminiscence and how much one enjoys reminiscing had  $r^2$  values of .122 and .168, respectively; the relationship between frequency of reminiscence and how much one values reminiscence had  $r^2$  values of .130 and .260). However, although almost all the scales themselves showed good reliability (see Table 2 for Cronbach's alpha values), caution is warranted in drawing firm conclusions due to the relatively low power associated with the sample size. We present the data here because they point to the need for future research.

Differences between the two age groups on the various self-report measures were assessed via  $t$  tests (see Table 2 for  $M$ s and  $SD$ s). Young and older adults were comparable on all measures but one. Not surprisingly, older adults had significantly lower MMSE scores than did younger adults,  $t(38) = 4.51, p < .001$ .

## Discussion

This study examined how often older adults engaged in reminiscence in response to indirect cues and in what contexts they were more or less likely to do so. The indirect cues were in the form of interview questions designed to allow for the possibility that respondents might discuss autobiographical memories of past events and experiences. We refer to these as instances of *indirectly-cued reminiscence* because participants were not explicitly asked to produce such memories, though they were never discouraged from doing so. Each interview probe was modelled on a specific function established by empirical research to be served by engagement in reminiscence. Results showed that older adults produced three times as many spontaneous reminiscences as young adults did. This may reflect genuine developmental differences (e.g., as adults age, they are less able to inhibit these sorts of evoked memories; as people age, they have more life experiences from which they can draw on when responding to interview questions), or it may reflect contextual differences (the older adults were volunteers who may have been more interested in engaging with the researcher and were less rushed; the young adults were college students participating to fulfill course requirements and thus may have been focused on getting the task done and finishing as quickly as possible with minimal effort). This study was not designed to address why such reminiscences occur or what developmental or social factors impact their frequency, though it does allow us to note that age differences occurred and to explore the content and qualities of those reminiscences.

Both young and older adults engaged in reminiscence more often in the conversation task than in the other tasks. This seems sensible given the social nature of the interview probes in that task, and this finding is consistent with prior work showing that young and older adults report similar rates of reminiscing for social functions (Alea et al., 2010; Bluck & Alea, 2009). The vast majority of both young and older adults' reminiscences were categorized as nontangential (direct) responses to the interview questions rather than as tangential responses. This suggests that people were not just blurting out any recollection that came to mind but using their autobiographical memories in a strategic, task-appropriate way. Encouraging reminiscence during conversations that occur in social interactions with nursing home residents is a potentially low-cost, easy way to implement interventions that can be used in nursing home settings. Indeed, during morning care, nurses can and do use reminiscence to establish bonds with their residents. This type of reminiscence has been reported to be beneficial to both residents as well as nursing home staff (Kris, Henkel, Krauss, & Birney, 2017). Nurses also use reminiscence in therapeutic ways, such as to calm anxious residents. However, although both nurses and residents find engagement in reminiscence a valuable activity, it is clear that it is not used as frequently as it could be (Kris & Henkel, 2017). Providing nursing home residents opportunities to engage in casual conversations may increase the frequency of reminiscence and provide a beneficial alternative or supplement to more structured reminiscence therapies that rely on direct cues to deliberately retrieve autobiographical memories. Future research can look at what prompts may be especially useful and in what situations. Some prompts may be more effective when used in closer relationships such as family members and friends than when used by professional caregivers. For instance, reminiscence might occur more frequently when engaging with people one is close with or one has a shared personal history with, rather than while answering questions in a formal interview with an unfamiliar person.

The recollections older adults offered varied in length and the time period they were drawn from, and the majority were classified as semantic autobiographical memories rather than episodic autobiographical memories. The evoked memories overwhelmingly were of a more general rather than a specific nature. This may be due in part to the context of answering formal interview questions posed by an unfamiliar researcher. Nonetheless, a sizable number of spontaneous reminiscences for older adults were categorized as specific memories. We encourage researchers who look at memory phenomena such as overgeneralized memories in older adults, to consider the task demands involved in explicitly requiring people to search their memories and articulate a narrowly defined memory, as on the Autobiographical Memory Test. Different conclusions may be reached when using tasks that allow for people to more spontaneously generate personal memories or that do not require them to be deliberately retrieved. In fact, our findings might underestimate the frequency of indirectly-

cued reminiscences because our prompts were designed to be indirect. People could have responded with the literal interpretation (e.g., here are three pieces of advice) with no elaboration or personalization or even explanation as to why that is their advice. This tendency may have been magnified given the demand characteristics of being in a research study and being interviewed by a stranger.

In addition, it is important to consider that although we used an interview task that had a social component and invited conversation, there are many other ways to cue memories indirectly. For instance, past work has found spontaneous recollections when children re-encounter a novel set of objects or events (Krojgaard, Kingo, Dahl, & Berntsen, 2014) and when older adults with dementia visit a historically authentic environment that recreates elements of their childhood (Miles et al., 2013). Future work can examine different ways in which autobiographical memories can be spontaneously elicited, and drawing on the research on cues that trigger involuntary autobiographical memories (e.g., Ball & Little, 2006) could greatly inform such work.

Our findings also showed that instances of reminiscences were correlated with people's self-report measures of reminiscence frequency on only *one* of the tasks. This is important because it suggests that people's self-report does not necessarily align with their actual behaviors during the interview task. That does not mean to say that the self-report scales are not capturing something important and meaningful in older adults, but it suggests that there are limits in what they consider to be instances of reminiscing when providing ratings on the TALE or RFS in the context of past memories they can consciously access. These sorts of everyday indirectly-cued reminiscences may be difficult for them to be aware of and report on. However, we are cognizant that our correlational analyses are no doubt underpowered due to the relatively small sample size. In addition, especially for the older adults, the sample of people who were willing and interested to be in our study may not be representative of the population of older adults at large. They may not even be fully representative of older adults living in nursing homes. Although we had a wide range of levels of cognitive functioning, the older adults in our sample had levels of morale and well-being that were not differentiable from that of the young adults we tested. Future research with larger and more diverse samples is needed to draw stronger conclusions. In addition, our conclusions are limited by having used data collected a month prior for some of the self-report measures, which therefore may not be accurate measures of their state of mind at the time of the interview.

In summary, our study shows that older adults with varying amounts of cognitive impairment residing in nursing homes engage in reminiscence more often than young adults in response to indirect cues, and that they are especially likely to do so in response to a social/conversational cue. These findings are valuable in several important ways, especially if they draw practitioners' attention to the possibility of conversational reminiscence

as a low-cost, easy-to-implement therapeutic activity for this population and draw researchers' attention to the continued need to look at reminiscences "in the wild" to supplement our understanding of the many ways in which people reminisce about their personal pasts.

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