

# Do Older Adults Change Their Eyewitness Reports When Re-Questioned?

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**Objectives.** This study examined how older adults responded to different types of pressure to change their responses when questioned a second time about their memory for a crime.

**Method.** After watching a video of a crime and answering questions about remembered details, younger (18–22 years) and older adults (64–91 years) were either given negative feedback about their memory performance, were told that most people their age did poorly on the memory test (stereotype threat), or were simply asked to answer the questions again. This was done regardless of their actual accuracy, and the questions were then repeated.

**Results.** Results showed that both younger and older adults changed significantly more responses following negative feedback and changed more responses on misleading than on nonleading questions. Among older adults, as age increased, accuracy decreased and rate of response change increased. People were moderately confident overall about both their correct and incorrect responses.

**Discussion.** These results highlight the dangers of repeatedly questioning older witnesses with misleading questions and suggest that the responses that are changed may come to be remembered confidently—regardless of whether they are correct or incorrect.

**Key Words:** Aging—Compliance—Eyewitness suggestibility—Interrogative pressure—Negative feedback.

WHEN people remember their experiences, what they report on one occasion is not always consistent with what they report on other occasions. Sometimes people shape their memory reports to meet certain needs, such as when entertaining people with a humorous tale (Dudukovic, Marsh, & Tversky, 2004). Sometimes their opinions or views have changed or they have been exposed to additional information after the original experience (e.g., through reading accounts provided by other witnesses; from suggestive questioning), which they incorporate into their memory report (Zaragoza, Belli, & Payment, 2007). Research has shown that, like young adults, older adults are susceptible to leading questions and misinformation (Coxon & Valentine, 1997; Gabbert, Memon, & Allan, 2003), and often times are even *more* suggestible (Bartlett & Memon, 2007; Holliday et al., 2012; Mitchell, Johnson, & Mather, 2003; Mueller-Johnson & Ceci, 2007). However, such studies typically measure memory once, after exposure to leading questions or misinformation, and do not look at changes in memory reports at different times. To what extent do people change what they claim to remember from one occasion to another?

Witnesses and victims are typically interviewed numerous times, with questions repeated within and across interviews, and research with young adults has found that they report contradictory and inconsistent information across multiple interviews (Fisher & Cutler, 1995; Smeets, Candel, & Merckelbach, 2004). Inconsistencies in young adults' memory reports on different occasions have been observed across a range of traumatic and emotional events

(e.g., sexual and physical abuse; exposure to war) and in flashbulb memories in which they learned of an unexpected and emotionally important event (van Giezen, Arensman, Spinhoven, & Wolters, 2005).

Much less is known about changes in older adults' memory reports. One study showed that older adults' final memory reports were disproportionately influenced by exposure to misinformation and suggestive questions over the course of repeated interviews about a massage/relaxation treatment (Mueller-Johnson & Ceci, 2004), and in studies of flashbulb memories, older adults have shown as much and sometimes even more inconsistency in their recollections relative to younger adults (Cohen, Conway, & Maylor, 1994; Kvavilashvili, Mirani, Schlagman, Erskine, & Kornbrot, 2010; Tekcan & Peynircioglu, 2002). Unfortunately, not much is known at this point about whether older adults change their memory reports upon repeated questioning for crimes they have witnessed, and this is essential to study for several reasons. Older adults are often targeted by criminals, and because they tend to remember less overall relative to younger adults, they may be especially vulnerable to social pressure to remember more or different information when being questioned repeatedly (Henkel, *in press*). Past research has shown that older adults exhibit impaired memory performance when age-related stereotype threat is invoked (Chasteen, Bhattacharyya, Horhota, Tam, & Hasher, 2005; Chasteen, Kang, & Remedios, 2012; Hess, Auman, Colcombe, & Rahhal, 2003; Meisner, 2012), and this takes on added

importance in the context of eyewitness interviews where negative stereotypes and assumptions about cognitive decline in older adults may be implicitly activated in either the interviewer or the elderly witness, consistent with a general negative bias against older witnesses (Brimacombe, Quinton, Nance, & Garrioch, 1997; Kwong, Hoffman, & Wood, 2001).

The Gudjonsson Suggestibility Scales (GSS; Gudjonsson, 1992, 2003) are a psychometric tool used in both clinical and research settings to assess the extent to which an individual yields to misleading questions and changes their responses when questioned a second time. In the GSS, people recall details from a story they heard earlier and then are asked a series of questions, most of which are misleading because they ask about details that were not mentioned in the story. People are then told to answer the questions again because they got a lot wrong. Several different measures of *interrogative suggestibility* are derived, such as how often the respondent yields to misleading questions by choosing one of the two provided—but wrong—response options (*Yield score*) and how often he or she changes responses from the first to second test following the negative feedback (*Shift score*).

Very few studies using the GSS have tested older adults, and those that have do not necessarily examine age differences or patterns (Drake & Bull, 2011; Mueller-Johnson & Ceci, 2004). Only two studies specifically address similarities and differences in GSS scores of younger and older adults. One study found that older adults provided answers to more of the misleading questions (*Yield*) but did not change more responses from Test 1 to Test 2 following negative feedback about their accuracy (*Shift*; Polczyk et al., 2004). In the other study, an experimental manipulation was included in which the interviewer administering the GSS behaved in either an abrupt/unfriendly manner or a friendly one (Dukala & Polczyk, 2013). As in the earlier study, older adults had higher *Yield* scores than did younger adults and similar *Shift* scores when the interviewer was friendly. However, when the interviewer behaved in an abrupt/unfriendly manner, older adults changed more responses from Test 1 to Test 2 (higher *Shift* scores) relative to younger adults. The authors attribute this to increased uncertainty and reduced quality of memory brought about in the older adults by the unfriendly interviewer's behavior. A related possibility is that older adults are more sensitive to the increased psychological distance brought about by the abrupt/unfriendly interviewer, which past work has suggested motivates witnesses to focus on managing the social dynamics and relationship with the interviewer rather than focusing on giving accurate answers (Bain & Baxter, 2000).

Taken together, these findings suggest that like younger adults, older adults change their responses when questioned a second time following negative feedback, and in some situations may be even more likely to do. However, there are several limitations to be considered. In both studies, a relatively young sample of older adults was tested, with an

average age of mid-60s. In addition, several researchers have raised issues about the GSS's construct validity and subscores (Gignac & Powell, 2009; Marche, Brainerd, & Reyna, 2010; Schooler & Loftus, 1986). Other researchers have raised more general concerns that the term "suggestibility" has been used too broadly "in a vague and over-generalized manner" (Eisen, Gomes, Lorber, Perez, & Uchishiba, 2013, p. 2). Furthermore, although the GSS has been a valuable clinical and research tool, to the best of my knowledge there are no data testing its validity and reliability with adults older than their 60s. Lastly, because the GSS involves a sizeable proportion of leading questions (75%) and all participants receive negative feedback prior to the second memory test, findings are necessarily limited by that context (Henkel, in press). Thus, studies using the GSS do not allow us to determine the extent to which the mere repetition of questions—rather than the negative feedback per se—contributes to response change, nor do they tell us what response change rates would be like when the majority of questions are nonleading.

A series of studies using a simulated forensic interview has begun to answer these questions, at least for young adults (Baxter, Boon, & Marley, 2006). Using more complex and forensically relevant stimuli than the GSS, participants were interviewed about what they witnessed in a video of a nonviolent crime. After recalling details about the event, they were given a series of closed-ended (e.g., "Was he wearing a jacket?") and open-ended questions (e.g., "What did he say?"). The questions did not contain misinformation and were not inherently misleading. After the first round of questions, participants received either negative feedback about their performance (they were told that other people did better than them so they were going to be asked the questions again to see if they could do better) or neutral feedback (they were told that they would be asked the questions again to be sure their responses were recorded correctly). This is an essential control feature that allows conclusions to be drawn about the impact of the negative feedback per se versus simply being asked the questions again. The feedback was given regardless of how well or poorly they actually did on the questions. The same questions were then repeated, and the proportion of responses changed from Test 1 to Test 2 was measured. Response changes were counted only when the second answer was markedly different from the first (e.g., from "yes" to "no"; from "left" to "right"). Results showed that young adults changed significantly more responses following negative feedback than following neutral feedback (McGroarty & Baxter, 2007), especially when the interviewer was stern and abrupt rather than friendly (McGroarty & Baxter, 2009).

Only one study in this series has included older adults (McMurtrie, Baxter, Obonsawin, & Hunter, 2012). The primary focus was on the relationship between subjective memory beliefs, compliance, and response change in adults

across the life span, and hence there are many questions that were not addressed. Age was not found to be a significant predictor of response change scores, though the authors proposed that the relation between age and response change was suppressed by differences in participants' knowledge of basic memory processes and functions. As age increased, knowledge about memory processes decreased, and as knowledge about memory processes decreased, response change scores increased. In their analysis on the relationship between subjective memory beliefs, event memory accuracy, compliance, and response change, only partial correlations controlling for age are reported. Thus, it is not clear if there were age differences in overall retention of the details from the video, which could have influenced response change rates (e.g., if older adults remembered fewer details, they have fewer responses to change).

Although this study provides valuable data, clearly additional research is needed to examine the extent to which older adults change their responses across repeated questioning and the factors that can contribute to this. This study seeks to further examine the extent to which older adults change their responses across repeated questioning. An experimental manipulation modeled after the GSS was used to determine whether social pressure could lead older adults to change their responses about remembered details of a crime when questioned a second time. Participants viewed a video of a crime and were asked a series of questions about what they witnessed, after which they received one of three different types of feedback. Regardless of actual accuracy, they were either given negative feedback about their memory performance, were told that most people their age did poorly on the memory test (stereotype threat), or were simply asked to answer the questions again. In all three conditions, they also rated their confidence in each response on the second set of questions, which has not been studied yet in relation to response change.

There are several other important methodological differences between this study and related prior work. The video used in this study depicted a violent rather than a nonviolent crime, as it is important to explore memory distrust in emotionally arousing situations as well. Prior research with children has found greater response change on forced choice than on open-ended questions (Poole & White, 1991), thus here younger and older adults were asked a series of closed-ended questions about what they witnessed, including non-leading and misleading questions so that response change rates for both types could be directly compared. To control for possible age differences in overall retention rates, older adults were tested shortly after the video and younger adults were tested 24–48 hr later. This procedure of differing retention intervals for the two age groups has been used in prior studies so that the key variables of interest (here the impact of feedback on response change) can be examined without being confounded with age-related differences in retention rates (Dodson & Krueger, 2006; Henkel, Johnson, &

DeLeonardis, 1998; Kensinger, Garoff-Eaton, & Schacter, 2007), and the specific delay interval used in this study was based on a pilot study. The inclusion of the stereotype threat condition will allow us to determine whether negative feedback about one's specific memory performance is necessary to produce response change, or whether less direct, less personalized pressure to change responses may be sufficient.

This study sought to add to the small body of research examining whether social pressure influences older adults to change their responses when questioned a second time about an event by determining whether negative feedback or other less personalized pressure to change responses would indeed lead to response change, and whether older adults would be similarly or disproportionately affected by this. On the one hand, as people age, they may show less response change because they remember less overall, and what they do remember tends to be remembered confidently, regardless of whether it is remembered accurately (Aizpurua, Garcia-Bajos, & Migueles, 2011; Dodson & Krueger, 2006; Mueller-Johnson & Ceci, 2004). On the other hand, as noted earlier, older witnesses sometimes show greater vulnerability to suggestive questioning and misinformation and make more memory errors relative to young adults (Mitchell et al., 2003), and hence might be expected to show even greater response change.

## METHOD

### Participants

Older adult participants were 57 community-dwelling people (18 men, 39 women) from Fairfield county Connecticut. Ages ranged from 64 to 91 years ( $M = 78.19$ ,  $SD = 7.16$ , median = 78). Young adults were 43 undergraduates from Fairfield University (10 men, 33 women) aged 18–22 ( $M = 19.56$ ,  $SD = 1.14$ , median = 20). As seen in Table 1, older adults had significantly more years of formal education and higher vocabulary scores than younger adults. Younger and older adults did not differ in their self-reported physical health, emotional well-being, or self-esteem ratings, nor in their self-perceptions of cognitive failures in everyday life. Thus, as in many studies with community-dwelling volunteers, this sample was relatively high functioning and viewed themselves favorably.

### Materials

Twenty forced-choice questions with two response options asked about details depicted in an 11-min video clip from the 2006 season of the television series *24* in which a rogue agent kidnapped a suspected terrorist. Four questions were fillers with ostensibly obvious answers (e.g., "Was the pilot a man or a woman?"). Eight were *nonleading questions* in which one response option was correct and one was incorrect (e.g., "Did they land near an abandoned printing press or a storage unit?"). Eight were *misleading questions* in

Table 1. Demographic Variables and Individual Differences Measures as a Function of Age Group

	Young adults	Older adults	<i>t</i> test
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	
Age (number of years)	78.19 (7.16)	19.56 (1.14)	
Education (number of years)	<b>14.00</b> (1.05)	<b>15.40</b> (2.26)	<i>t</i> (98) = 3.78, <i>p</i> < .001
Salthouse Vocabulary test (% correct)	<b>47.44</b> (16.70)	<b>78.00</b> (22.81)	<i>t</i> (98) = 7.26, <i>p</i> < .001
Self-rated physical well-being (1 = <i>excellent</i> to 5 = <i>poor</i> )	1.86 (0.71)	2.11 (0.88)	<i>t</i> (98) = 1.49, <i>p</i> = .14
Self-rated emotional well-being (1 = <i>excellent</i> to 5 = <i>poor</i> )	2.05 (0.87)	2.18 (0.84)	<i>t</i> (98) = 0.74, <i>p</i> = .46
Gudjonsson Compliance Scale (20 points maximum, higher scores indicate greater compliance)	10.56 (3.50)	9.51 (3.30)	<i>t</i> (98) = 1.53, <i>p</i> = .13
Rosenberg Self-Esteem Scale (40 points maximum, higher scores indicate greater self-esteem)	34.28 (4.63)	33.65 (5.09)	<i>t</i> (98) = 0.64, <i>p</i> = .53
Cognitive Failures (100 points maximum, higher scores indicate more memory problems in everyday life)	37.12 (12.81)	37.47 (11.29)	<i>t</i> (98) = 0.14, <i>p</i> = .38

Note. Values in bold indicate a significant difference in scores between younger and older adults.

which both response options were incorrect. The questions and response options used for the nonleading and misleading conditions were counterbalanced across two versions of the memory test. Questionnaires included the Synonym/Antonym Test (Salthouse, 1996), Gudjonsson Compliance Scale (Gudjonsson, 1989), Rosenberg Self-Esteem Scale (Rosenberg, 1965), and Cognitive Failures Questionnaire (Broadbent, Cooper, Fitzgerald, & Parkes, 1982).

### Procedure

Participants were instructed to watch a video that would be discussed later. After watching, young adults were dismissed and returned 24–48 hr later, at which time they were given the memory test. Older adults were tested in a single session and immediately following the video were given the memory test. All participants were asked to answer each question by circling one of the two options, after which they engaged in a 10-min filler task and then received one of three types of feedback about their earlier performance on the memory test. In the *negative feedback condition*, they were told that they made a number of errors and would have to go through the questions again and to try to be more accurate. In the *stereotype-threat condition*, they were told that people of their age group tended to get a lot of the answers wrong and that they should go through the questions again, trying to be as accurate as possible. In the *no-feedback (control) condition*, they were told that now that some time has passed, they would be asked the questions again as a delayed recall task.

All participants then received the memory test a second time, with the additional task of rating their confidence in each response (1 = *not at all confident* and 5 = *very confident*), followed by the individual differences questionnaires.

## RESULTS

### Response Change Rates

The proportion of responses changed from Test 1 to Test 2 was calculated for each of the two types of questions:

misleading and nonleading. This measure is analogous to the *Shift* score from the GSS. Response change rates were examined in a three-way mixed-factorial analysis of variance (ANOVA), with type of question (nonleading, misleading) as a within-subjects factor, and feedback condition (control, stereotype threat, negative feedback) and age group (younger, older) as between-subjects factors. As seen in Figure 1, the main effect of question type was significant,  $F(1, 94) = 18.28, p < .001$ , with more responses changed for misleading questions (0.16) than for nonleading questions (0.09). The main effect for condition was also significant,  $F(2, 94) = 9.75, p < .001$ , and post hoc Sheffe tests showed greater response change for the negative feedback condition (0.20) than for either the stereotype-threat (0.09) or control condition (0.09). Younger and older adults exhibited similar rates of response change (0.12 and 0.13, respectively),  $F(1, 94) < 1, p = .68$ . None of the interactions were significant, all  $F_s > 1.39$ , all  $ps > .10$ .

### Yield Scores and Overall Accuracy

Both options for the misleading questions were wrong, thus any time a subject chose one, they were incorrect. The proportion of times they do so on the GSS is the basis of their *Yield* score, with one score computed for Test 1 and one for Test 2. In this study, it was found that the proportion of times participants choose one of the two provided erroneous options did not differ as a function of age group or feedback condition, all  $F_s > 2.02, ps > .14$ , with participants yielding to more than 90% of the questions on average.

The proportion of correct responses that participants made on the nonleading questions was examined in a condition  $\times$  age group  $\times$  test time mixed-factorial ANOVA. None of the main effects or interactions were significant, all  $F_s < 2.5, ps > .11$ . Younger (0.71) and older adults (0.67) showed similar accuracy rates (0.71 and 0.67, respectively), with no significant drop in accuracy from Test 1 (0.69) to Test 2 (0.70), and no reliable impact of condition (control = 0.70, stereotype induction = 0.71, negative feedback = 0.67). When participants changed their responses on the nonleading



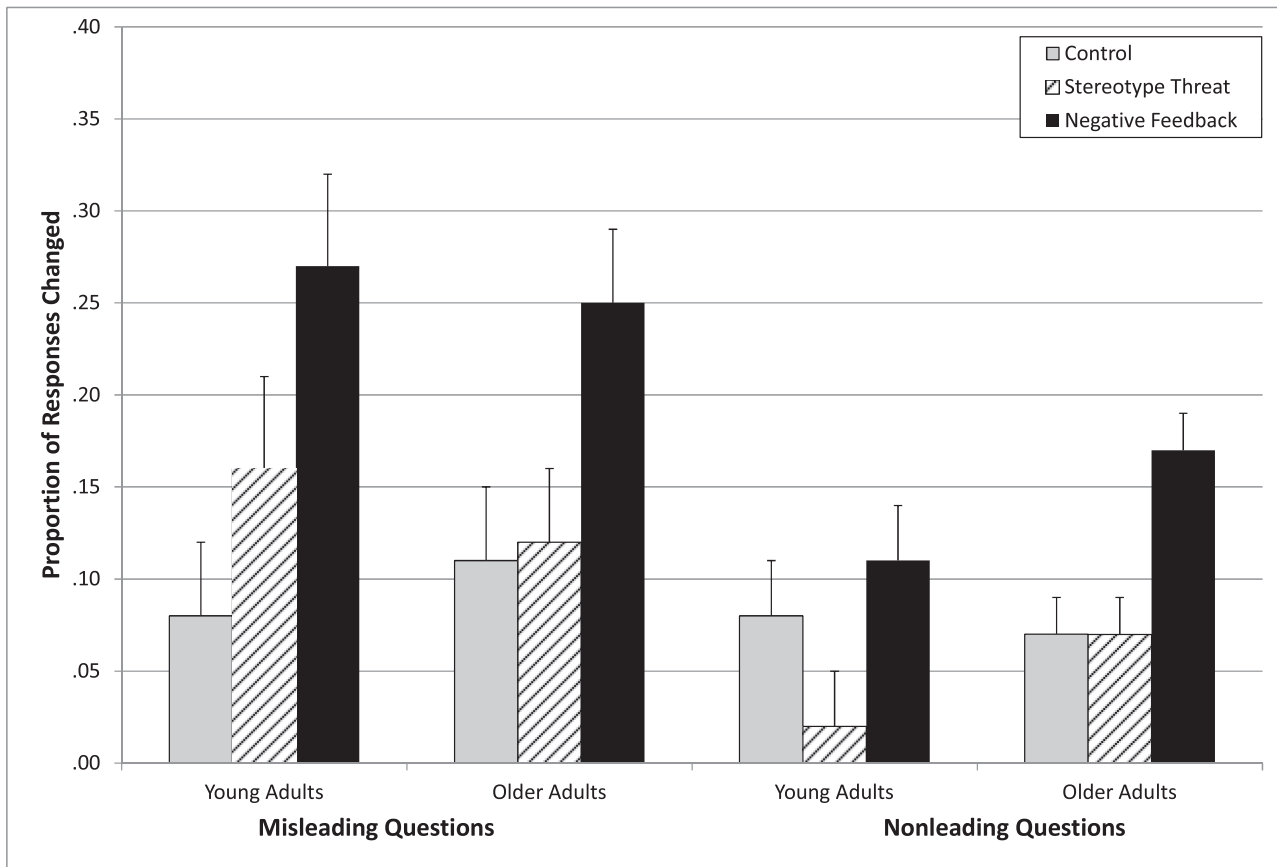


Figure 1. Response change on misleading and nonleading questions as a function of feedback condition for younger and older adults. Error bars indicate SE.

questions, did changing improve or hurt their accuracy? It was found that people changed roughly as many right answers to wrong answers (0.04) as they changed wrong answers to right answers (0.05),  $F(1, 94) = 1.43$ ,  $p = .24$ , and this was true for both age groups.

#### Confidence Ratings

Participants rated their confidence for each answer on Memory Test 2. A mixed-factorial ANOVA of question type, feedback condition, and age group on confidence ratings was conducted, and a significant main effect of question type was found,  $F(1, 94) = 44.98$ ,  $p < .001$ , as was a question type  $\times$  age group interaction,  $F(1, 94) = 4.16$ ,  $p = .04$  (Figure 2). Both younger and older adults gave significantly lower confidence ratings to misleading questions than to nonleading questions, though the relative difference was greater for younger (0.54) than for older adults (0.29).

Confidence ratings for nonleading questions were examined separately to determine whether people's confidence differed for correctly versus incorrectly remembered details. Confidence ratings for correctly remembered details ( $M = 3.91$ ) were significantly higher than for incorrectly remembered details ( $M = 3.38$ ),  $F(1, 88) = 115.32$ ,

$p < .001$ . The main effects of age group and feedback condition were not significant, nor were any interactions, all  $F$ s  $< 2.02$ ,  $ps > .14$ , with both younger and older adults giving moderately high confidence ratings. An additional analysis compared confidence ratings for changed responses to unchanged responses and found that confidence ratings for unchanged responses did not differ significantly ( $M = 3.12$ ) from ratings for changed responses ( $M = 3.26$ ),  $F(1, 22) < 1$ ,  $p = .59$ , with no impact of, or interaction with, age group.

#### Individual Difference Measures

As seen in Table 1,  $t$  tests showed no significant age-related differences on measures of compliance, self-esteem, or concerns about cognitive failures in everyday life. Correlations between these individual difference measures and memory performance (accuracy and response change rates) were conducted separately for younger and older adults. Age was not included in the analyses for young adults due to the small range of ages.

As seen in Table 2, in older adults, age was negatively correlated with memory accuracy and was positively correlated with response change on misleading questions: The older the older adults were, the less accurately they remembered

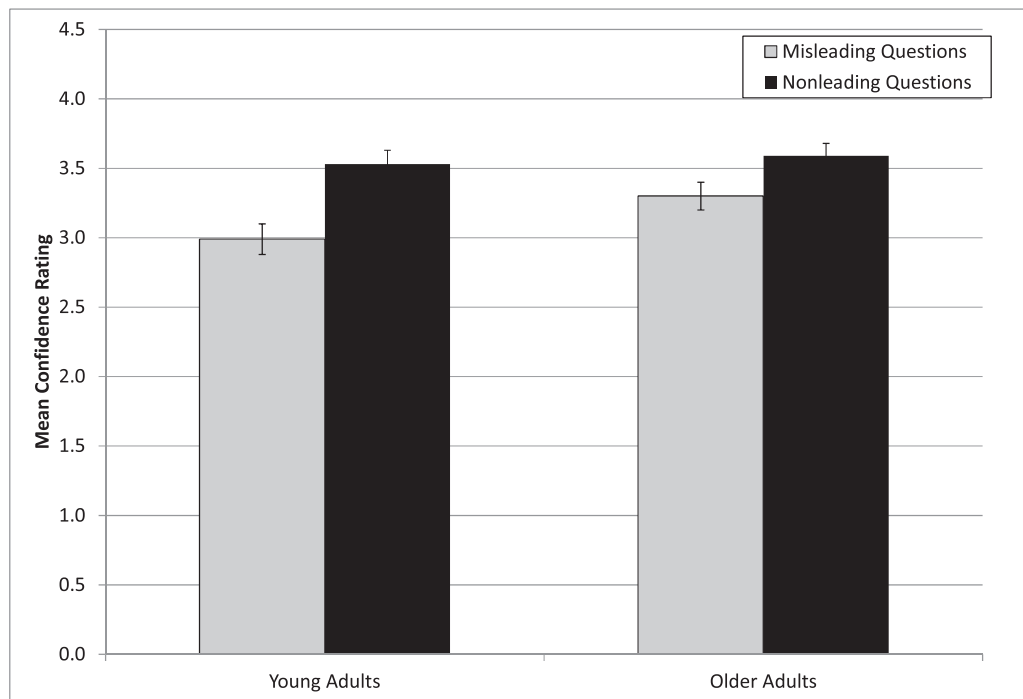


Figure 2. Confidence ratings (1 = *not at all confident*; 5 = *very confident*) for misleading and nonleading questions for younger and older adults. Error bars indicate SE.

Table 2. Pearson Correlation Coefficients Between Individual Difference Measures and Memory Performance

	Test 1 accuracy, nonleading	Test 2 accuracy, nonleading	Response change, nonleading	Response change, misleading
Older adults				
Age	-.44***	-.45**	.25	.29*
Compliance <sup>a</sup>	-.16	-.15	.14	.04
Self-esteem	.16	.03	-.02	-.09
Cognitive failures	-.01	-.04	.04	.24
Younger adults				
Age <sup>b</sup>	—	—	—	—
Compliance	-.07	-.14	-.04	-.03
Self-esteem	.04	.05	-.04	.09
Cognitive failures	.04	.02	.12	.17

Notes. <sup>a</sup>Age and compliance were significantly correlated for older adults ( $r = .36, p < .01$ ), thus partial correlations for compliance scores were conducted to control for age.

<sup>b</sup>Correlations are not reported for young adults' ages because of the small age range sampled (18–22 years).

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

details about the event and the more they changed their responses from Test 1 to Test 2. The correlation between age and response change on the nonleading questions approached significance ( $p = .06$ ). None of the individual difference measures (compliance, self-esteem, cognitive failures) were correlated with response change rates or accuracy.

## DISCUSSION

This study was designed to extend and add to the small body of research examining whether social pressure influences older adults to change their responses when questioned a second time. Prior work using the GSS as a measure

of interrogative suggestibility found that older adults were more likely than younger adults to yield to suggestive questioning about a story they earlier read and that both age groups were just as likely to change their responses following negative feedback when the interview was administered in a neutral or friendly manner, though older adults did change more responses than younger adults when the interview was conducted in an abrupt, unfriendly manner (Dukala & Polczyk, 2013; Polczyk et al., 2004). Only one study has used a forensic-style interview to directly examine older adults' tendency to change their responses across repeated memory tests about a video of a crime, and those results showed that age was not a significant predictor of

response change scores, though the relation between age and response change may have been suppressed by differences in participants' knowledge of basic memory processes and functions (McMurtrie et al., 2012).

Results from this study revealed that older and younger adults showed similar rates of response change when questioned in a neutral manner, replicating and extending past work to include memory for a more violent crime and using a sample of older adults that was older by 10 years on average than in prior research (here, the mean age was 78, whereas in prior work using the GSS it was in the mid-60s). Because older adults ranged in age from 64 to 91, this study could examine the relationship between age and suggestibility more closely than in prior work, and results showed that as age increased in older adults, recall accuracy decreased and response change rates increased. Taken together, these findings suggest that although younger and older adults show similar overall rates of response change, the older the older adults are, the more vulnerable they are to change their responses when questioned a second time. This is an important issue because jurors have negative biases against older witnesses (Brimacombe et al., 1997) and discount testimony of witnesses who offer contradictory and inconsistent accounts (Berman & Cutler, 1996; Fisher & Cutler, 1995).

Younger and older adults were similarly affected by manipulated variables that affected the number of responses changed. Both age groups made significantly more response changes following explicit negative feedback about their performance compared with when they were simply asked to answer the questions a second time without any indication that their initial responses were unsatisfactory. This study included a third condition designed to induce stereotype threat in which it was stated that people of the subject's age group tend to get a lot of the answers wrong. Results showed that this did not produce response change rates comparable to when subjects had been given explicit negative feedback. It may be that because the older adults were a relatively high-functioning group, they did not internalize the general feedback that people of their age group tended to do poorly in the stereotype-threat condition. Indeed, past work shows that impaired memory performance in older adults is moderated by the extent of their perceived stereotype threat (Kang & Chasteen, 2009), and the extent to which they identify with being considered "old" (Chasteen et al., 2012; Levy, Zonderman, Slade, & Ferrucci, 2012).

The findings do show that negative feedback is of critical importance in eliciting response change for younger and older adults. Gudjonsson's (1992, 2003) model of interrogative pressure and suggestibility proposes that pressure from interviewers—be it indirect in the form of repeated questions or explicit negative feedback—can lead respondents to doubt their own memory and hence become vulnerable to changing their responses in order to provide the interviewer with responses they come to believe he or she is seeking. They may over-rely on cues given by the

interviewer when they distrust their own recollection. In addition, negative feedback increases the "psychological distance" between the interviewer and respondent such that the respondent focuses more on managing aspects of the social interaction instead of focusing on trying to actually remember the event, evoking a suggestible coping strategy (McGroarty & Baxter, 2007). Unlike the forensic interview procedure used in prior work with older witnesses where they made their responses out loud to the interviewer (McMurtrie et al., 2012), in this study participants made their responses by circling the response option on a sheet of paper. Hence, even in this somewhat more private setting, negative feedback can induce inconsistencies across memory reports. As in prior research, when participants did change their responses, the net effect does not necessarily reduce accuracy because they were just as likely to change from an initially right answer to a wrong answer as they were to change from a wrong to a right answer (McGroarty & Baxter, 2007).

Prior studies have not directly compared response change rates on nonleading versus misleading questions. This study showed that people were more likely to change their responses on misleading questions (where neither option was correct) than on nonleading questions (where a correct and incorrect response option were provided). This highlights the danger of suggestive and leading questions in eyewitness interviews. Providing only wrong responses is inherently suggestive and can increase inconsistent memory reports.

Research has not yet addressed the subjective qualities of people's memories following pressure to change their responses, and therefore participants here rated their confidence in their responses on the second memory test. Although one might expect that negative feedback would lead to decreased confidence, in fact overall confidence ratings did not differ as a function of type of feedback. Furthermore, confidence ratings did not reliably differ between changed and unchanged responses. Thus, even when people had reason to doubt their memories, their self-reported confidence did not reflect this. Given that the negative feedback was successful in eliciting greater response change, this finding illustrates the incongruence between objective and subjective aspects of memory, and it supports the idea that people generally want to believe that what they remember is true. Research suggests that people's default assumption is (a) that their memory for an event is accurate and (b) the fact that they are able to recall an event implies that the event had been experienced, unless there is other evidence to the contrary (Arbuthnott, Kealy, & Ylloja, 2008; Scoboria, Mazzoni, Kirsch, & Relyea, 2004).

It was not the case that all aspects of subjective assessments of memory were misaligned with reality, however. Ratings were higher for correctly remembered than for incorrectly remembered details, and people were more confident overall when responding to the nonleading questions

than to the misleading questions. However, an important age-related difference did emerge: Older adults showed less difference in their confidence for nonleading versus misleading questions.

Future research should further investigate qualities of people's memories both in their original reports and in their later changed or unchanged reports. In addition, conclusions from the current findings are limited by the necessary methodology of using different retention intervals for the two age groups. Because suggestibility and susceptibility to misinformation increase as memory for an event declines over time (Belli, Windschitl, McCarthy, & Winfrey, 1992; Frost, Ingraham, & Wilson, 2002; Singh & Gudjonsson, 1984), additional research is needed to determine whether older and younger adults tested after the same delay would show similar rates of response change. A further consideration is that the older adults tested in this study were relatively well-educated and high-functioning, community-dwelling individuals. For instance, self-reported frequency of everyday cognitive problems did not increase with age (see also Knight, McMahon, Green, & Skeaff, 2004; Rabbitt & Abson, 1991). Studying response change in potentially more vulnerable older adults—such as in those with greater reported incidence of everyday memory failures, clinically significant cognitive impairment, depression, or other challenges that people often face as they age—would be valuable, as such factors may contribute to greater memory distrust.

In summary, several new findings have emerged from this study: Both younger and older adults were more likely to change their responses when questioned a second time after receiving explicit negative feedback about their accuracy. As age increased from mid-60s to early 90s, the fewer details people remembered correctly and the more they tended to change their responses. What does this change in responses reflect? Are older adults simply being more compliant and going along with the researchers' suggestion? Are they uncertain and just guessing when they change their response? Or might they be remembering the details differently when they change their response? This is an important issue to understand. Compliance and suggestibility are proposed to be distinct and dissociable constructs, and in young adults they typically are not correlated (Gudjonsson, 2003; Horselenberg, Merckelbach, & Josephs, 2003). In this study, increased age in older adults was associated with greater compliance, but partial correlations controlling for age showed no significant relation between compliance scores and response change rates. Likewise, there were neither significant correlations between self-esteem and response change nor between self-reported memory concerns and response change. In fact, people were moderately confident in their responses, and their confidence ratings did not reliably differ for responses that they changed compared with responses they did not change. Taken together, these findings suggest that responses

that are changed may come to be remembered confidently—regardless of whether they are correct or incorrect. This is dangerous when considering the reliability of eyewitnesses who are questioned multiple times, especially in light of research that has consistently shown that older eyewitnesses not only generally recall less information, but are also more susceptible to misinformation and to leading questions and tend to have high confidence and vividness for their memories regardless of their accuracy (Henkel, *in press*). Future research is needed to better understand the factors that might reduce older adults' vulnerabilities, especially people in their 70s, 80s, and 90s, who have not been studied much in this context.

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