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Painting a Pretty Picture: The Role of Social Desirability in the Memory Self-Efficacy of Young and Older Adults

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PAINTING A PRETTY PICTURE: THE ROLE OF SOCIAL DESIRABILITY IN THE MEMORY SELF-EFFICACY OF YOUNG AND OLDER ADULTS

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Abstract

This study examined the relationships between social desirability, depression, memory self-efficacy, and objective memory in both young- and older adult populations. The study was designed to replicate the findings of Lineweaver and Brolsma (2014) and to determine whether these findings would generalize to individuals in later adulthood. Participants were 45 young adults (88% female, 80% White) and 47 older adults (42% female, 100% White) and completed measures of depression, objective memory, memory self-efficacy, and social desirability. As predicted, older adults were higher in levels of social desirability than were young adults, but the memory self-efficacy of young adults was more closely related to social desirability than was that of the older age group. Although social desirability did not mediate the relationship between depression and memory self-efficacy, significant support was found for the mediation of social desirability on the relationship between objective memory and memory self-efficacy in both young- and older adult populations. Together, these results indicate that social desirability exerts influence on the memory self-perceptions of both young- and older adult populations and that taking social desirability into account may improve the accuracy of memory self-reports in healthcare settings.

Within the field of memory, many factors may affect an individual's memory performance. One such factor is subjective beliefs about memory, or memory self-efficacy (Cook & Marsiske, 2007; Pearman & Trujillo, 2013). Self-efficacy is broadly defined as the opinions individuals hold about their own capabilities and potential for performing and completing a specific task or goal (West & Berry, 1994). In the context of memory, individuals' personal beliefs about their memory abilities may inform their actual memory performance (Cook & Marsiske, 2007; Pearman & Trujillo, 2013). In addition to acting as a possible predictor of performance, memory self-efficacy may also influence the likelihood that older adults seek help for memory problems. In a 2011 study, Hurt and

colleagues examined a population of older adults with documented subjective memory complaints. Results showed that despite similar levels of memory performance, older adults with lower memory self-efficacy were more likely to report memory deficits and to seek help than were those with higher self-efficacy (Hurt et al., 2011).

Interestingly, measures of memory self-efficacy often do not accurately reflect objective memory performance. For example, a study by Mendes et al. (2008) assessed a large group of adults of varying ages on both subjective memory complaints and objective memory performance. This study documented no correlation between the two. These findings suggest that although memory self-efficacy may inform memory performance, additional variables beyond underlying memory abilities may, in turn, influence memory self-efficacy. For example, memory self-efficacy itself is vulnerable to the effects of aging. That is, memory performance generally declines with age (Lineweaver & Hertzog, 1998; Wells & Esopenko, 2008), and memory errors resulting from this decline, combined with negative stereotypes surrounding aging, reinforce negative self-beliefs about memory, which leads to decreased memory self-efficacy (West & Berry, 1994).

Several studies to date have also examined the effects of depression on memory self-efficacy, generally concluding that depression levels correspond with more negative memory self-perceptions (Cipolli et al., 1996; Tillema et al., 2001). For example, a study from Cipolli and colleagues (1996) investigated the memory self-efficacy of depressed older adults. Overall, results showed that highly depressed individuals were more likely to rate themselves as poor performers on memory tasks, demonstrating lowered self-efficacy. The relationship between depression and subjective memory may be rooted in self-beliefs about one's potential to perform well. A variety of factors affect the origins of depression but create the same outcome: highly depressed individuals are more likely to have unrealistic standards and thus consistently rate themselves as inept in their performance (Tillema et al., 2001).

Another factor that has the potential to influence memory self-efficacy is social-desirability bias, which is the tendency to deny or underreport socially unacceptable actions while highlighting socially attractive behaviors in self-reports (Latkin et al., 2017). More importantly, social desirability has the power to distort individuals' self-descriptions to the extent that they present only what they believe to be acceptable in the wider social sphere, in an effort to maintain their own self-concept or others' positive opinions of them. This bias is critical to understand in health-related matters because social desirability can render health histories and

patients' symptom reports inaccurate (Burke & Carman, 2017; Latkin et al., 2017). For example, a descriptive study by Latkin and colleagues (2017) demonstrated this effect within a drug rehabilitation clinic setting. Drug users high in social desirability rated themselves as less-frequent users than they actually were, in addition to rating themselves higher on a measure of subjective health status. Taken together, these results reflect the problematic nature of inaccurate self-reports as a result of the influence of social desirability.

Less is known about how social desirability may influence memory self-efficacy, self-reported memory complaints, and the help-seeking behaviors of older adults. Past research has documented an upward trend of social-desirability levels with increased age (Soubelet & Salthouse, 2011), but only one study to date has measured the specific effects of social desirability on memory self-efficacy. In this study, a sample of young adults completed measures of social desirability, memory self-efficacy, and current affect before taking a short memory test aimed at assessing their actual memory abilities (Lineweaver & Brolsma, 2014). The study documented a significant correlation between negative affect and memory self-efficacy, consistent with past research (Cipolli et al., 1996; Tillema et al., 2001). When social desirability was controlled for, however, the relationship between negative affect and memory self-efficacy weakened considerably, whereas the relationship between memory self-efficacy and participants' performance on the memory test was strengthened (Lineweaver & Brolsma, 2014). These findings suggest that social desirability may strongly contribute to the correlation between measures of self-reported negative affect and memory self-efficacy, and that taking social desirability into account in future research may increase the accuracy of memory self-reports from participants.

The current study was designed to build on the research of Lineweaver and Brolsma (2014) by expanding the scope to older as well as young adults. The current study examined the relationships between social desirability, depression, memory self-efficacy, and objective memory in both young and older adult populations to determine whether the previous findings can be replicated and whether they generalize to individuals in later adulthood. The first aim of the current study was to determine whether levels of social desirability differ with age. Consistent with prior research (Soubelet & Salthouse, 2011), we predicted age differences in social desirability, such that older adults would evidence more social desirability than their younger peers. The second goal of this study was to explore how social desirability affects the memory self-efficacy of both young and older adults. We hypothesized that although social desirability would be higher in the

older adult population, social desirability would have a larger effect on the memory self-efficacy of young adult participants. Although this may seem counterintuitive, we suspected that the more normative nature of experiencing memory problems with advanced age would allow older adults to more readily admit to memory difficulties than it would young adults, even if they are high in social desirability. The third goal of this study was to explore the potential mediating effects of social desirability on the relationships between depression and memory self-efficacy and between memory self-efficacy and objective memory. We expected to find results paralleling those of Lineweaver and Brolsma (2014) in this broader age sample. Specifically, we hypothesized that depression scores and memory self-efficacy would become less related and that memory self-efficacy and actual memory performance would become more related in both young and older adults when social desirability was controlled for.

Method

This study is retrospective and thus centered on data previously collected.

Participants

Participants included 92 individuals: 45 young adults (M = 20.02 years of age, SD = 1.19) and 47 older adults (M = 76.72 years of age, SD = 9.24). The young-adult group included Butler University undergraduate psychology students, who were recruited via the online Sona research participant management system. Older adults were recruited through senior centers (Hendricks County Senior Center and the Social of Greenwood) and senior living communities (Robin Run, Marquette Manor, and Cambridge Square) within the Indianapolis area. Demographic characteristics of both age groups are summarized in Table 1.

Table 1. Demographic Characteristics of Participants in Younger Adult and Older Adult Age Groups

	Young Adults (n = 45)	Older Adults (n = 47)
Age*	20.02 (1.19)	76.72 (9.24)
Years of Education*	13.71 (1.14)	15.00 (3.41)
Gender (% female)*	88.24%	42.66%
Race (% White)*	80.00%	100.00%
Depressive Affect	0.75 (0.44)	0.57 (0.44)
Social Desirability*	0.52 (0.22)	0.72 (0.20)
Memory Self-Efficacy*	3.65 (0.48)	3.42 (0.50)
Total Memory Score*	19.56 (5.10)	9.38 (4.23)

*A statistically significant difference existed between the two age groups.

Unsurprisingly, these two groups differed significantly in age, $F(1, 90) = 1665.33$, $p < .01$, $\eta_p^2 = .95$. Groups also differed in their gender and ethnicity distributions, with the older adult group having more gender diversity than the young adult group, $\chi^2(n = 92) = 11.52$, $p < .01$. In contrast, the adults in the young adult group were more ethnically diverse than were their older adult counterparts, $\chi^2(n = 92) = 10.42$, $p = .03$. The two age groups also differed in their educational achievement [$F(1, 90) = 5.81$, $p = .02$, $\eta_p^2 = .06$], with older adults having completed more years of education than the younger adults, although this difference

is likely because many of the young adults were still attending school at the time of data collection and had not yet finished their degrees. Younger adults also significantly outperformed older adults in a task of memory recall [$F(1, 90) = 108.89$, $p < .01$, $\eta_p^2 = .55$] and perceived their memories more positively on a measure of memory self-efficacy [$F(1, 90) = 5.32$, $p = .023$, $\eta_p^2 = .06$]. The two groups were statistically equivalent in depressive affect [$F(1, 90) = 3.77$, $p = .06$, $\eta_p^2 = .04$], although there was a trend toward younger adults endorsing more depressive affect than their older peers did.

Materials

Center for Epidemiological Studies Depression Scale

The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) assessed participants' recent depressive affect. Participants indicated the number of times during the past week that they had felt or behaved according to the questionnaire's statements. Example items included "I was bothered by things that don't usually bother me" and "I had trouble keeping my mind on what I was doing." This 20-item questionnaire used a 4-point Likert-type scale ranging from 0 ("rarely or less than 1 day") to 3 ("all of the time or 5–7 days of the week"). Higher scores indicated higher levels of depression.

Memory Self-Efficacy Questionnaire

Participants' memory self-efficacy was measured using a version of the Memory Assessment Clinics Self-Rating Scale (MAC-S; Crook & Larabee, 1990) adapted by Lineweaver and Brolsma (2014). This adapted questionnaire consisted of 27 items from the original MAC-S, all of which evaluated participants' beliefs about their memory abilities. Statements such as "I am bad at remembering who I was with at major events months ago" and "I never miss the point someone else is trying to make during a conversation" were rated by participants on a Likert-type scale from 1 ("Strongly Agree") to 5 ("Strongly Disagree"). When applicable, responses to items were recoded such that higher scores on this measure represented better memory self-efficacy.

Memory Task

Participants' memory abilities were assessed via an objective memory test (Lineweaver & Hertzog, 1998). Each participant spent three minutes studying a list

of 40 unrelated words, with the goal of remembering as many as possible. They then had two minutes to write down as many words as they could recall. Participants made predictions and postdictions concerning the number of words they believed they would be able to remember or had remembered.

Marlowe-Crowne Social Desirability-Short Form C

A shortened version of the original Marlowe-Crowne Social Desirability Scale (Reynolds, 1982) included 13 items measuring participants' tendencies to answer questions in a socially desirable manner. Examples of statements included "It is sometimes hard for me to go on with my work if I am not encouraged" and "I sometimes feel resentful if I don't get my way." Participants rated each statement as either true or false. Higher scores reflected greater social desirability.

Demographic Questionnaire

The demographic questionnaire gathered general descriptive information from participants, including age, gender, years of education, highest degree earned, and ethnicity.

Procedure

All participants gave informed consent before completing the packet of questionnaires in a fixed order. Participants were tested in small groups and were offered extra credit or payment as an incentive for participation.

Results

Age Differences in Social Desirability

To address our first hypothesis—specifically, whether older adults differed from young adults in levels of social desirability—we ran a one-way between-subjects ANOVA in IBM SPSS Statistics. In alignment with the hypothesis and previous research, the two age groups differed significantly in their level of social desirability, $F(1, 90) = 21.46$, $p < .01$, $\eta_p^2 = .19$. Older adults ($M = .72$, $SD = .19$) scored more highly in social desirability than did young adults ($M = .52$, $SD = .22$).

Relationship Between Social Desirability and Memory Self-Efficacy

For our second hypothesis, we investigated the individual relationships between social desirability and memory self-efficacy for young adults and older adults in two separate correlational analyses. Consistent with the second hypothesis, social desirability was more strongly related to memory self-efficacy in young adults ($r = .427$, $p = .003$) than in older adults ($r = .364$, $p = .012$), although a Fisher r-to-z transformation indicated that the strength of the two correlations did not differ from each other significantly ($z = 0.35$, $p = .36$).

Mediating Effects of Social Desirability

Before examining the mediating effects of social desirability on the relationships among depression, actual memory abilities, and memory self-efficacy, we calculated the univariate correlations between the study's four primary outcome variables. Overall, depression was significantly related to both social desirability and memory self-efficacy, signifying a possible opportunity for mediation. Social desirability also possessed significant relationships with the variables of objective memory and memory self-efficacy. The relationships between objective memory and depression and between objective memory and memory self-efficacy did not reach significance (Table 2).

Table 2. Relationships Between Outcome Variables

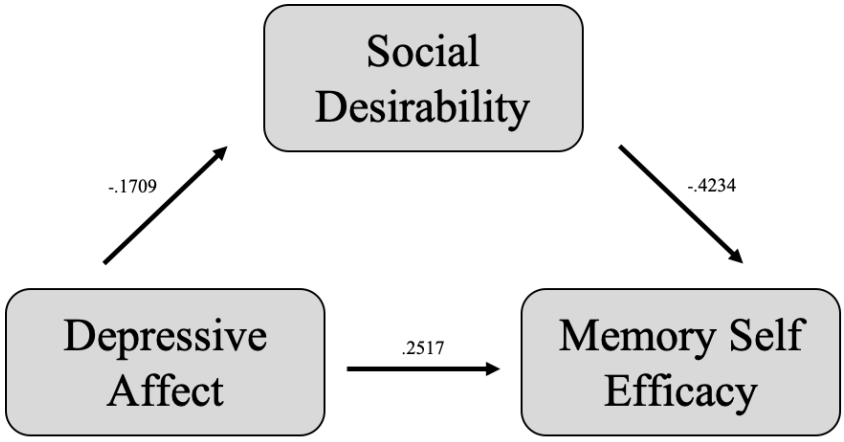
	Social Desirability	Memory Self-Efficacy	Memory Ability
Depression	–.330*	–.417*	.121
Social Desirability		.241*	–.213*
Memory Self-Efficacy			.179

To accurately measure any potential mediation effects, a bootstrap analysis was run in SPSS using the PROCESS macro, version 3.5 (Hayes, 2017). Five

thousand bootstrap samples were run in the analysis of Models 1 and 2, respectively.

Model 1 examined the possible mediating effects of social desirability on the relationship between depression and memory self-efficacy (Figure 1). The overall model with both predictors was significant, $R^2 = .186$, $F(2, 89) = 10.15$, $p = .0001$. The relationship between depression and social desirability was highly significant [$t(90) = –3.32$, $p = .001$], demonstrating a strong relationship between social desirability and depression. In the mediation model, the direct effect of depression on memory self-efficacy was significant (95% CI [–0.65, –0.20]), but the indirect effect through social desirability did not reach significance (95% CI [–0.14, 0.04]). Thus, social desirability did not mediate the relationship between depression and memory self-efficacy.

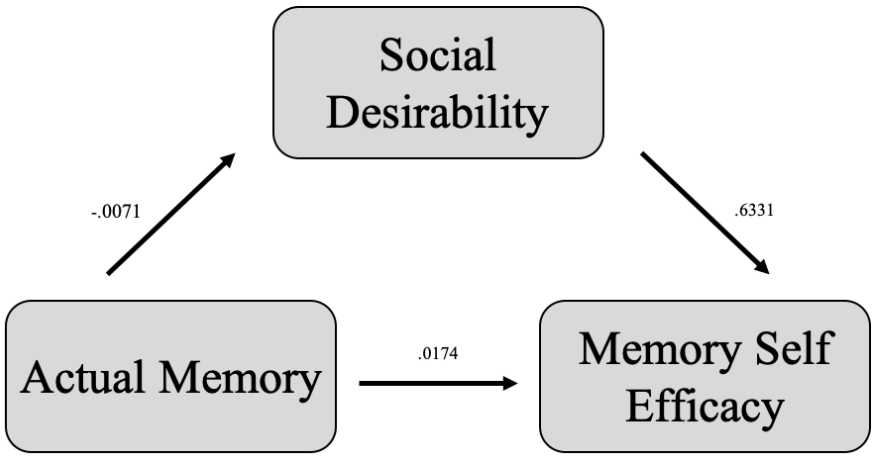
Figure 1. Proposed Mediation Model for the Influence of Social Desirability on the Relationship Between Depression and Memory Self-Efficacy



Model 2 was assessed for mediation, specifically for the mediating influence of social desirability on the relationship between objective memory and memory self-efficacy (Figure 2). The second overall model also reached significance [$R^2 = .113$, $F(2, 89) = 5.70$, $p = .0047$], and a significant relationship was identified between objective memory and social desirability [$t(90) = –2.06$, $p = .0418$]. The bootstrapping analysis identified significant mediation. Both the

direct effect of objective memory on memory self-efficacy (95% CI [0.0027, 0.0321]) and the indirect effect through social desirability (95% CI [–0.0113, –0.0002]) reached statistical significance. Taken together, these results suggest that social desirability serves as a mediator between actual memory and memory self-efficacy, strengthening the relationship between the two when social desirability is controlled for.

Figure 2. Proposed Mediation Model for the Influence of Social Desirability on the Relationship Between Objective Memory and Memory Self-Efficacy



Discussion

The current study aimed to answer three primary questions. The first goal was to determine if age-related differences in social desirability exist between young adults and older adults. We predicted that in comparison to the younger age group, older adults would be higher in their levels of social desirability. The study's second objective was to determine how levels of social desirability would affect the memory self-efficacy of both young and older adults; we predicted that social desirability would exert a larger influence on the memory self-efficacy of young adults, despite higher levels of social desirability in the older adult age group. Finally, the study aimed to replicate the findings of Lineweaver and Brolsma (2014)

with young adults and to expand on that work by examining similar relationships in older adults. More specifically, we hypothesized that social desirability would serve as a mediator in the relationship between depression and memory self-efficacy as well as in the relationship between objective memory and memory self-efficacy.

Considerable support was found for the first hypothesis. As predicted, young and older adults differed significantly in their levels of social desirability, with older adults exhibiting more social desirability than their younger peers. While this study observed social desirability as it relates to memory, this result demonstrates the need for social desirability to be taken into account in a clinical setting, especially for older adult patients. Past research has illustrated the ways in which social desirability can distort a patient's reports of symptoms (Burke & Carman, 2017; Latkin et al., 2017). If not controlled for, social desirability may affect the validity of older adults' self-reported concerns about their health and cognition, therefore affecting the overall efficacy of care and treatment planning they receive from their providers.

Similarly, support was also found for the second hypothesis, which stated that young adults' memory self-efficacy would be more affected by social desirability than would that of older adults. Because memory-performance declines are considered a part of the normal aging process (Lineweaver & Hertzog, 1998; Wells & Esopenko, 2008), we hypothesized that social desirability would actually present a more significant impact on the memory self-efficacy of young adults because impaired memory performance for this age group is more atypical. As predicted, our correlational analyses provided support for this hypothesis. This particular finding expands on past literature because no study to date has examined the interplay of social desirability, memory self-efficacy, and age.

In an effort to replicate the findings of Lineweaver and Brolsma (2014), we predicted that social desirability would function as a mediator in the relationship between depression and memory self-efficacy. A goal of the current study was to expand upon the age demographic studied by Lineweaver and Brolsma (2014), so we hypothesized that this relationship would be observed in both young and older adults. Surprisingly, support was not found for this hypothesis in either age group. While significant relationships were identified between depression and social desirability, the indirect effect of social desirability on the relationship between depression and memory self-efficacy did not reach significance, signaling no mediating effects from social desirability.

A possible explanation for the lack of observed significance may be that the current study did not use a mood-state questionnaire but rather a measure of depression to measure current affect as it related to memory self-efficacy. Lineweaver and Brolsma (2014) included both the CES-D (administered a month prior to testing) and a mood-state questionnaire (administered during the testing session) as potential predictors of memory self-efficacy. They found that social desirability mediated the relationship between current mood state and memory self-efficacy but not the relationship between depression and memory self-efficacy. In designing this study, we utilized the standardized CES-D rather than a less-formal mood-state questionnaire, but we administered the CES-D concurrently with the other test measures. We observed a direct effect of depression on memory self-efficacy but no indirect effect of depression on memory self-efficacy via the influence of social desirability. Although this result is similar to Lineweaver and Brolsma's (2014) results, if this study were to be improved upon for the future, it would be beneficial to add a current-affect or mood-state questionnaire to determine the true possibility of any mediating effects of social desirability on memory self-efficacy.

Finally, we found support for the mediation of social desirability on the relationship between actual memory and memory self-efficacy, replicating the findings of Lineweaver and Brolsma (2014) across multiple age groups. This suggests that when social desirability is controlled for in the case of both young and older adults, the relationship between actual memory abilities and perceived memory abilities is stronger. This signals that social desirability plays a role in modulating the personal perceptions of one's own memory in both young and older adults. Support for this relationship remains practically relevant in a healthcare-related sense, such that social desirability may cause inconsistencies in an individual's self-reports to caretakers and primary care providers. In turn, such inaccurate self-reports may prevent the application of necessary treatment for memory difficulties.

Although we found statistical support for two of our original hypotheses as well as for the second proposed mediation model, several aspects of the study may limit the generalizability of its results. For example, data collection involved a relatively small sample size with little diversity among participants. Additionally, the young-adult sample was made up exclusively of college students, which could introduce confounding factors such as those associated with higher levels of education or expectancy effects. Levels of social desirability may vary between individuals with differing levels of education, but future research would be

necessary to address this question directly. Finally, the current study did not include middle-aged adult participants, so results cannot be generalized across all age groups.

In the case of future replications of this particular study, a measure of framing effects could be added to understand its influence on memory self-efficacy. In their 2014 study, Lineweaver and Brolsma also investigated item-framing, utilizing a memory self-efficacy questionnaire with positively, neutrally, and negatively worded items. As they predicted, the wording of the items was important and, when combined with mood state, influenced the memory self-perceptions of participants. Additionally, future research would benefit from the addition of a humility index. On the opposite end of the spectrum from social desirability, individuals who are high in levels of humility may be prone to rating themselves lower on their memory abilities, negatively influencing their perceptions of their memory abilities. By studying the possible effects of both item-framing and humility, a more holistic picture of social desirability as it relates to memory self-efficacy may form.

Despite the existing limitations, the results of this study present valuable insights on the study of memory self-efficacy and the variables that influence it. Results document that young adults tend to be lower in social desirability than do older adults but that social desirability has a larger influence on their memory self-efficacy. Although the true mediating effects of social desirability on the relationship between depression and memory self-efficacy are not fully known, we did find support for social desirability's role in reducing the accuracy of memory self-perceptions. This study adds to the body of literature on this topic by examining these relationships in older as well as younger adults and by focusing on the long-term relationship between depression and memory self-efficacy. Further research between these variables and their interactions with one another may serve as a valuable predictor of memory self-reports, especially in the healthcare sphere.

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