

Beliefs about Memory in a National Sample: Who is Accurate about their Abilities?

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Abstract

Studies have shown that subjective evaluations of memory are often inaccurate. We were interested in identifying factors that contribute to individual differences in accuracy regarding memory abilities. We used data from the second wave of the Midlife in the United States (MIDUS) survey, with 3,352 participants between 32 and 84 years of age. Consistent with past work we found a low correlation ($r = .11$) between ratings of perceived memory ability and actual memory performance on a word list. We examined subjective views of memory, which were rated in comparison to others one's age, in relation to actual episodic memory performance relative to others in the same age group. On this basis, we formed four groups: underestimation (18.85%), low-accurate (people who are accurate while performing poorly- 25.24%), high-accurate (people who are accurate while performing well- 28.16%) and overestimation (27.74%). Analyses revealed that the four groups correspond to different socio-demographic profiles. We also investigated what factors differentiated these groups using multivariate general linear models including cognitive performance, the Big Five personality traits, subjective and objective health, sense of control, perceived age, perceived stability of memory, negative affect, depression, stress reactivity, and life satisfaction, while controlling for age, level of education, and gender. Low-accurate and high-accurate appear to be two different profiles in terms of affective, cognitive and socio-cognitive functioning. Low-accurate seems to be the most psychologically vulnerable group, followed by the group that underestimates their good memory performance.

Method

Participants MIDUS

Midlife in the United States (MIDUS) survey
N = 3352 adults (53.4% women) 32 to 84 years old
M age = 55.45, SD age = 12.44, M education = 14.21 years.
Exclusion criteria: history of stroke, neurological problems, and Parkinson's disease

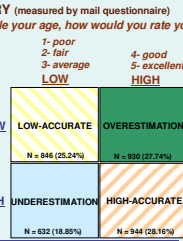
Accuracy measure



(personal mean <= mean of the corresponding age group) **LOW**

OBJECTIVE MEMORY (measured several months later by telephone)
Episodic verbal memory (mean of immediate and delayed recall of a word list; possible range 0 to 15)

(personal mean > mean of the corresponding age group) **HIGH**



*6 age groups: 32-39 years (M = 7.59); 40-49 years, (M = 7.26); 50-59 years, (M = 7.08); 60-69 years, (M = 6.45); 70-79 years, (M = 5.30); 80-84 years (M = 4.94).
Example for a participant from the first age group: if episodic memory score <= 7.59, objective memory = LOW

Analyses & Results

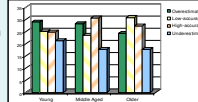
Subjective memory: $M = 3.56$, $SD = .88$; 55.7% participants in the high subjective memory group. In line with previous research (e.g., Schmidt, Berg, & Deelman, 1999), a majority of people consider their memory to be better than that of their age mates.
Objective memory: $M = 5.66$, $SD = 2.31$; 45.8% participants in the high objective memory group

Consistent with previous research, our results reveal a small correlation between subjective and objective memory measures: $r(3350) = .11$, $p < .001$. Moreover, our four accuracy groups appear to be valid; the corresponding subjective-objective correlations were significant for the two accurate groups [low-accurate- $r(844) = .07$, $p = .034$ and high-accurate- $r(942) = .10$, $p = .002$] but not for the underestimation [$r(630) = -.02$, $p = .547$] and overestimation [$r(928) = .001$, $p = .972$] groups.

Question 1.

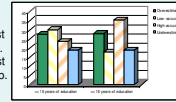
Age differences

Younger people are more likely to be in the overestimation group, middle aged in the high-accurate group, and older people in the low-accurate group.



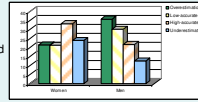
Education differences

People with lower education are most likely to be in the low-accurate group. Those with higher education are most likely to be in the high-accurate group.



Sex differences

Women are more likely to be in the high-accurate and underestimation group.

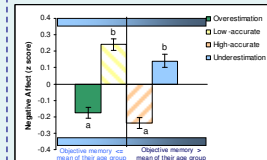


Question 2.

Accuracy itself is not generally related to a better adaptive functioning. This seems true only for high-accurate group members. Another category tied to better functioning is overestimation. It appears that irrespective of objective memory performance, positive memory self-assessments are more adaptive. Overestimating or being accurate (while performing well) are associated with better affective, cognitive, and socio-cognitive functioning.

Means* estimated using MANCOVA, with Accuracy as IV, and controlling for age, sex, and education

Affect and health-related variables



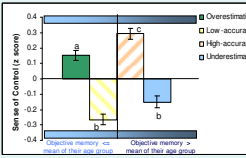
Irrespective of objective memory performance, positive memory self-assessments (either overestimated or accurate) are tied to less negative affect.

Similar patterns were observed for depression, stress reactivity, and reverse coded life satisfaction, subjective and objective health.

* Means with the same letter are not significantly different.

Sense of Control, Perceived Memory Stability, and Subjective Age

In both low and high objective memory groups, positive memory self-assessments are associated with a higher sense of control. Similarly, our results reveal that people who think they have a good memory, regardless of objective performance, also estimate themselves to be younger than their actual age, and are less likely to think that their memory decreased with age.



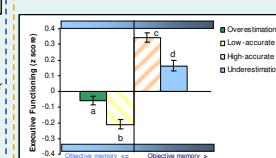
Personality Traits

People who are less conscientious are more likely to underestimate their memory performance or to be in the low-accurate group. Yet, those who overestimate their performance are high in conscientiousness, even though their performance is below average.

Similar patterns were obtained for Extraversion, Openness, Agreeableness, and the reverse coded scores of Neuroticism.

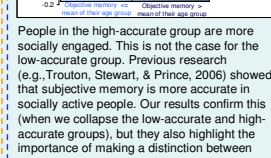
Executive Functioning

People who objectively have higher memory than the mean of their age group, also have good scores on the executive functioning tasks. People with the highest executive functioning scores are more likely to be in the high-accurate group. They not only perform well but they have good metamemory skills. Moreover, those who perform poorly but think they have a good memory have poor executive functioning.



Social Activity

People in the high-accurate group are more socially engaged. This is not the case for the low-accurate group. Previous research (e.g., Trouton, Stewart, & Prince, 2006) showed that subjective memory is more accurate in socially active people. Our results confirm this (when we collapse the low-accurate and high-accurate groups), but they also highlight the importance of making a distinction between these two categories of accuracy.



Background

Accuracy of subjective memory has important clinical relevance in terms of the credibility professionals can give to self-reports. Memory appraisals also can affect persistence and effective strategy use in challenging tasks (Lachman, 2006).

Cognitive aging and metamemory researchers have focused on two main indicators of this concept: the correlation and the difference between objective and subjective memory scores (e.g., Connor, Dunlosky, & Hertzog, 1997).

Using general (e.g., memory complaints, temporal comparison, social comparison) and specific (e.g., task predictions) subjective measures of memory, studies generally reveal a weak relationship between subjective and objective assessments (e.g., Pearman & Storandt, 2005). For instance, memory self-efficacy appears to be slightly correlated (e.g., Berry, West, & Dennehey, 1989; Valentijn, Hill, Van Hooren, Bosma, Van Boxtel, Jolles, et al., 2006; Zelinski & Gilewski, 2004) or not associated with memory performance (Dellefelle & McDougall, 1996; Neupert & McDonald-Miszczak, 2004; Rebok & Balcerak, 1989).

Several authors attributed the small correlations between subjective and objective measures to individual differences (e.g., age; Cavanaugh & Poon, 1989). Other studies (e.g., Hertzog, Park, Morrell, & Martin, 2000) found that the relationship between subjective and objective measures varied as a function of specific task-related characteristics.

Moreover, most of the authors focused on task-specific memory self-evaluations in relation to test specific performance rather than on generalized personal estimations of memory capacities.

Present Study

We aimed to identify the factors that are associated with individual differences in accuracy, in a national representative sample, using a general memory self-assessment based on social comparison. Using the performance mean of the corresponding age group, we obtained for each participant an age-specific assessment of above- versus below- average memory performance. This information, along with the person's self-evaluation, formed our indicator of accuracy. We examined whether accuracy was associated with better functioning in multiple domains.

Research Questions

Question 1. How do the socio-demographic profiles vary for those who are accurate and inaccurate in their memory self-assessments?

Question 2. Does belonging to different accuracy groups make a difference in terms of adaptive functioning?

- 2a. To what extent is the accurate group homogeneous (i.e., does it matter if performance is above average or below average) ?
- 2b. Is overestimation (as positive illusion or better-than-average effect) adaptive?

Conclusions

- Low-accurate and high-accurate appear to be two different profiles in terms of affective, cognitive and socio-cognitive functioning.
- Irrespective of objective memory level, positive self-assessments are associated with better functioning. Overestimation appears to be effective in terms of adaptive functioning in multiple domains.
- Low-accurate appears to be the most psychologically vulnerable group, followed by those who perform well but do not acknowledge it.

Limitations: Our design does not allow us to examine cause - effect relationships; we only examined one type of memory performance.