Reviewer’s report

Title: Older adults with lower autobiographical memory abilities report less age-related decline in everyday cognitive function

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Manuscript: "Older adults with lower autobiographical memory abilities report less age-related decline in everyday cognitive function"

Authors: Fan, C., Romero, K., & Levine, B.

The reviewed manuscript examines the relation between episodic autobiographical memory, age, and everyday function. The authors identify an interaction among these variables, where the relation between age and declines in everyday function was greater in participants with higher episodic autobiographical memory ability. This is my second time seeing this manuscript, having reviewed it for another journal previously, and I continue to be enthusiastic about the question and potential implications of the findings. I also thank the authors for addressing so many of the comments raised by myself and the other reviewers.

Despite these strengths, I continue to have difficulty comprehending the authors primary argument based on their findings. According to my understanding of the authors' argument, individuals with low SAM cannot rely on episodic processes for everyday tasks, and must, therefore, rely on alternate strategies to remain successful. These strategies (whatever they may be—perhaps gist-related processing) do not decline with age and, accordingly, these individuals do not show declines in everyday function. In contrast, individuals with high SAM rely on episodic processes for everyday tasks. Because these episodic processes decline with age, they experience greater effects in everyday function. I believe that I have a grasp on this argument, but am stuck on what the authors are arguing in regards to the way that "episodic processes" are used to support everyday functions. I can think of two potential explanations:

A. Explanation A: Everyday functions tend to rely on standard episodic memory processes that show age-related declines. Individuals with high SAM, who are accustomed to relying on these episodic processes, show declines in everyday function with age (as the standard episodic memory processes decline). In contrast, individuals with low SAM are never able to rely on these standard episodic memory processes, and therefore develop and rely on these alternate processes that don't show age-related decline. The issue that I have with this argument is that it is based on the idea that high SAM is associated with greater standard episodic memory ability and low SAM is associated with reduced standard episodic memory ability, which I believe is not the case. If there is no relation between SAM and this episodic ability, then why are high SAM able to rely on these processes more while low SAM are not?

B. Explanation B: Everyday functions tend to rely on the sort of episodic processing seen in AM tasks—the processes that support high episodic AM in the high SAM individuals. This
explanation is more in line than the explanation above with the data showing that high SAM is associated with greater everyday function than low SAM in general and in younger individuals. However, if everyday function depends on episodic AM processes, and those processes do not decline over time, then it is unclear why individuals with high SAM cannot continue to rely on these processes as they age.

I suspect that my difficulty following this logic stems from the use of "episodic processes" for two different processes (i.e., one age-variant, one not; one related to real-world memory, one laboratory memory). It would be very helpful if the authors could clarify which episodic processes are being used to support everyday functions and:
A. If more standard episodic processes (Explanation A), why high SAM would generally be able to rely on these more than low SAM OR
B. If episodic AM processes (Explanation B), why high SAM individuals would then show a decline with age.

I encourage the authors to provide more clarity regarding their main argument and how their various data points support it.

In addition, I had a couple of smaller concerns:
1. In the introduction, the authors present two alternate hypotheses for the interaction of age and SAM on CFQ, with no clear explanation of why one might be more likely than the other. However, by the end of the introduction the authors stand firmly by the second hypothesis and refer to this pattern as the hypothesized pattern throughout the rest of the manuscript. This phrasing suggests that this was the a priori hypothesis going into the study, rather than one of two potential (and opposite) findings. If this is the case, the authors should present this motivation more clearly when introducing the hypotheses. If this finding was exploratory, this should be addressed throughout the manuscript.

2. The authors do not provide an explanation for the rather counter-intuitive finding that age was associated with an increase in everyday function in the low SAM group. They argue that the sample (n=98) was too small to interpret. In fact, this effect was larger than the (very small) effect in the high SAM group, which may mean that the low SAM group was driving the interaction. How much confidence do the authors have in this effect as a whole?

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

Yes

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