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COMMENTARY

Putting memory complaints in context matters

Memory complaints become increasingly common as individuals grow older, which is often thought to reflect the normal aging process rather than a pathological process (Howieson *et al.*, 2015). However, there is also growing evidence that for a subset of these individuals, memory complaints may in fact be an early sign of cognitive changes due to Alzheimer's disease (AD) (Jessen *et al.*, 2014). Discerning the benign complaint from the more worrisome, particularly among individuals who are otherwise cognitively unimpaired, is a challenge. The context by which memory complaints are captured may be one method to improve our ability to discern the meaningfulness of the complaint.

Study setting has been previously shown to increase the likelihood that a complaint is prognostic of future clinical progression (Snitz *et al.*, 2018). Additionally, individual differences of study participants, such as personality, increase the likelihood of reporting memory complaints in the setting of elevated amyloid (Snitz *et al.*, 2015). Demographic factors, such as age and educational level, may modify the relationship between memory complaints and elevated amyloid. Specifically, in a study by Aghjayan *et al.* (2016), individuals with lower education reported higher memory complaints overall, but it was among individuals with higher education who showed a stronger association between amyloid burden and memory complaints. Mood and anxiety have been strongly correlated with memory complaints cross-sectionally; however, a recent longitudinal study (Hill *et al.*, 2020) reveals the complex relationship between memory complaints and depressive symptoms. While memory complaints and depressive symptoms showed concurrent associations longitudinally, there was less evidence for a temporal influence of memory complaints predicting depressive symptoms or vice versa across the entire sample.

Lesser known is the role of response bias or a tendency to over- or underreport symptoms as it relates to memory complaints, although a prior study by Consentino and colleagues (2018) found that subjective memory complaints were associated with subjective report of physical function, but not objective physical function, indicating that individuals' subjective report may reflect a broader perception about health than just cognitive functioning.

Goldberg and colleagues (2020) investigate multiple factors that could influence subjective report of memory complaints. Participants in this study (Goldberg *et al.*, 2020) were both from a community-based sample and a memory clinic sample and were administered the same subjective memory questionnaires and personality questionnaires. Associations between study setting, personality, and response bias were investigated. Greater neuroticism, depressive symptoms, and subjective memory complaints were found in the memory clinic sample, compared to the community-based sample, as well as lower extraversion and lower conscientiousness. Individuals in the memory clinic setting did not demonstrate higher overreporting than the community-based participants. By contrast, underreporting was higher in the community-based sample compared to the memory clinic sample. Underreporters were also more likely to have higher agreeableness scores.

When examining associations with response bias and personality and memory complaints, overreporting was associated with greater memory complaints, albeit on different questionnaires in the different samples. Underreporting showed a negative correlation with cognitive complaints. Further, neuroticism was associated with overreporting in the memory clinic sample and inversely associated with underreporting in the community-based sample. Extraversion also showed a divergence by sample, with a positive association with underreporting in the memory clinic sample and a negative relationship with overreporting in the community-based sample.

This paper highlights two important considerations when determining the significance of a memory complaint in an older person: (1) individual differences, such as personality and response bias, are associated with memory complaints, and it is possible that these constructs are overlapping and not entirely differentiated, which impacts the significance of a memory complaint. For example, it may be that for those with a longstanding history of concern about physical or mental health, a memory complaint becomes less prognostic of disease in this

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context, as it may represent a trait rather than an early symptom. (2) The strength of overlap between the constructs of personality, response bias, and memory complaint, however, appears to be modified by the study setting. Thus, while consideration of individual differences may be important, in a cognitively unimpaired community-based sample where memory complaints would be expected to be low, personality may play a larger role than those who were concerned enough to seek medical attention.

Limitations to this study include the multiple comparisons of different memory complaint assessments and personality assessments in two different samples, although this is noted by the authors. Further, this sample is also predominantly white, particularly among those from the memory clinic sample. It remains unclear how findings would generalize to a sample that is more culturally and ethnically diverse. Minorities are less likely to seek medical attention, but if they do, they typically present at more severe stages of disease than their non-Hispanic white counterparts (Barnes, 2014). Thus, there is a high likelihood that response bias and its association with memory complaints would differ in non-white samples.

Ultimately, response bias will need to be examined with additional knowledge about AD risk, such as genetic risk or biomarker risk to assess its added value. In studies that have the advantage of knowing whether someone is at greater risk for AD based on biomarker status, such as elevated amyloid burden, a memory complaint has been shown to stratify the rate of cognitive decline (Amariglio *et al.*, 2018). Additionally, longitudinal studies will further illuminate the interplay between memory complaints, personality, and response bias, as individuals serve as their own control, reducing the impact of baseline differences. Once personality traits are accounted for, it will become possible to observe whether memory complaints change over time, which may be our best chance of elucidating an underlying neurological process in individuals who are cognitively unimpaired.

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