**Title**: Sleep quality mediates the association between broad autism phenotype traits and subjective memory in mothers of autistic children

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**Introduction**: Emerging evidence suggests that mothers of children with disabilities are at risk for accelerated age-related cognitive decline1. Mothers of autistic children may be at heightened risk for atypical cognitive decline for two reasons. First, there may be a genetic component. Autism is heritable, and some research suggests atypical cognitive decline and higher rates of dementia among autistic probands2,3. Moreover, people who have broad autism phenotype (BAP) traits, which include subclinical features that mirror the core characteristics of autism such as pragmatic differences, exhibit more memory problems relative to those without the BAP4,5,6. Second, mothers of autistic children are more likely to experience key risk factors for atypical aging, such as poor sleep quality7. Poor sleep quality in mothers is often impacted by their environment (e.g., child sleep disturbances), though there is evidence that people with the BAP in the general population also report poor sleep, regardless of whether they have a first-degree autistic relative4. The present study had two aims. First, we assessed whether mothers of autistic children and control mothers differed in their subjective memory complaints. Second, within the sample of mothers of autistic children, we examined the association between BAP traits, sleep, and memory, and also tested whether sleep mediated the effect of BAP traits on memory.

**Method**: The sample included 56 mothers of autistic children and 19 mothers of nonautistic children between the ages of 55 and 72 years (*M*=62.35). Groups were matched on age (*p*=.114), education (*p*=.415) and race (*p*=.598). Mothers completed the Memory Functioning Questionnaire, which is a 64-item survey that assesses everyday remembering and forgetting. Mothers also filled out the Broad Autism Phenotype Questionnaire and the Pittsburgh Sleep Quality Index questionnaire. Group differences on subjective memory were examined using an independent samples *t*-test. Linear regression models examined the effects of BAP traits and sleep quality on memory scores within mothers of autistic children. The “mediation” package in R, which employed bootstrapping with 1,000 resamples, was used to assess whether sleep quality mediated the relationship between BAP and memory. Age was added as a covariate in the mediation analysis.

**Results**: Mothers of autistic children reported worse subjective memory compared to control mothers (*p*=.034, *ηp2*=.06). Within mothers of autistic children, elevated BAP traits (*p*=.027, *ηp2*=.09) and poor sleep quality (*p*<.001, *ηp2*=.22) were each associated with worse subjective memory. We found a significant indirect effect of BAP traits on subjective memory through sleep quality (a’=-11.81, *p*=.030), which suggests that BAP traits are associated with worse memory partly because these traits lead to poorer sleep. Additionally, a significant direct effect remained (b’=-36.58, *p*=.012), suggesting that BAP traits affected subjective memory independent of sleep. Sleep quality accounted for 24% of the total effect (ab=0.24, *p*=.030).

**Discussion:** This research builds on findings that mothers of autistic children may be at risk for atypical cognitive aging, and that this risk is potentially heightened by a genetic predisposition to autism. Poor sleep quality is a significant mechanism through which BAP traits negatively impact subjective memory. Focus on improving sleep may help reduce cognitive difficulties in individuals exhibiting BAP traits. Additionally, the significant direct effect of BAP symptoms on memory suggests that beyond sleep, genetic liability for autism may directly contribute to memory challenges. Given that these mothers are often lifelong caregivers for their autistic children, addressing both cognitive difficulties and sleep is vital not only for their personal well-being but also for their ability to provide continued care.

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