

Review of “Does our cognitive empathy diminish with age? The moderator role of educational level” by Gutierrez-Cobo et al.

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Three highlighted points:

1. The association between age and cognitive empathy exhibited an inverted U-shaped pattern, indicating younger and older adults had lower cognitive empathy than middle-aged adults.
2. A higher educational level mitigated the age-related decline in cognitive empathy but only among participants aged 35 and above.
3. Regarding cognitive empathy, women scored higher than men, and participants with a college education scored higher than those with primary studies or high school education.

Healthy brain aging may affect individuals' cognitive and emotional processing and cause adverse changes (Beadle & De la Vega, 2019; Gutiérrez-Cobo et al., 2023). Cognitive empathy, the ability to recognize the thoughts or feelings of others, is of great importance in various psychological disorders, such as schizophrenia, autism, social anxiety, and dementia (Gutiérrez-Cobo et al., 2023). Previous research indicates that cognitive empathy varies with age, and this relationship may be mitigated by the effect of educational level, an active component of cognitive reserve (Beadle & De la Vega, 2019; Li et al., 2012). However, less is known about the pattern of changes in cognitive empathy across the lifespan due to discontinuous samples and a lack of non-linear analyses in the current literature (Gutiérrez-Cobo et al., 2023). Although an inverted U-shaped curve has been confirmed with a self-report instrument of cognitive empathy in a prior study (O'Brien et al., 2013), more evidence with well-validated performance-based tests is needed to better support this finding, given the complexity of cognitive empathy.

To address these limitations, Gutierrez-Cobo et al. (2023) examined the linear or non-linear pattern of cognitive empathy changes across the age span as a function of cognitive reserve in a sample with large age ranges and using the validated Spanish version of the “Reading the mind in the Eyes,” a well-validated performance-based test of cognitive empathy (Fernández-Abascal et al., 2013). A sample of 902 Spanish adults aged between 18 and 79 ($M = 43.53$, $SD = 11.86$) were recruited through various social networking and informal advertising channels (female: 57.6%; male: 42.4%). Cognitive reserve was measured by the educational level: 2.5% with primary-level studies, 10.8% with a high school education, and 86.8% with a college education.

Four-step hierarchical multiple regressions have been employed in this study to examine the effects of gender, age, educational level, and interaction terms between age and educational level on cognitive empathy. Four main findings were reported accordingly. First, consistent with H1, women had significantly higher cognitive empathy than men ($\beta = .12$, $SE = 1.52$, $p < .01$). Second, the relationship between age and cognitive empathy fitted an inverted U-shaped curve pattern, and the peak of cognitive empathy was achieved at age 30.5. This is in accordance with

H3 that younger and older adults had lower scores on the Eye test than middle-aged adults and is consistent with previous studies with self-reported measures of cognitive empathy. Third, educational level was positively associated with cognitive empathy ($\beta = .22, SE = .29, p < .01$), which supported H2. More specifically, post hoc analyses revealed that participants with a college education reported significantly higher scores of cognitive empathy than those with primary studies and those with a high school education. In addition, zero-order correlation ($r = .26, p < .01$) and semi-partial correlation ($r = .22, p < .01$) both revealed that educational level was a better predictor of cognitive empathy than age and gender.

The most important finding of this study is the significant interaction term between age and educational level ($\beta = .68, SE = .03, p < .05$), which is in line with H4 that age-related decreases in Eyes test scores were more pronounced in adults with lower educational levels. The Johnson-Neyman technique showed that 34.84 was the critical value above which the interaction term was statistically significant ($t = 1.96, p < .05, CI [.00-2.00]$). This result revealed that age-related decrease in cognitive empathy was more pronounced among those with a lower educational level (i.e., primary studies or a high school education) than those with a college education but only when they were 35 and older.

Given the association between cognitive empathy and mental health, having a better understanding of age-related decline in cognitive empathy and factors that may mitigate this relationship is of great importance. This study by Dutierrez-Cobo et al. (2023) has both theoretical and practical contributions. Theoretically, it brings in-depth insights into the current cognitive empathy literature by validating its inverted U-shaped pattern across the age span with a performance-based measure. It also sheds light on the cognitive reserve literature by showing the mitigating effect of cognitive reserve on declines in age-related cognitive empathy throughout adulthood. Thus, practically, clinical interventions to promote cognitive empathy need to be more focused on less educated individuals aged 35 and older.

Despite its strengths and contributions, this study has several limitations. First, the cognitive reserve was measured through the educational level in this study. As a multifaceted construct, cognitive reserve, including positive and negative components, can be assessed through both brain and cognitive measures. Future studies employing measures of the cognitive reserve from both perspectives may generate more interesting findings about the effects on cognitive empathy. Similarly, alternative measures of cognitive empathy, together with measures of emotional empathy, are encouraged to be used in future studies to address the complexity of this construct and generate more comprehensive findings. Second, the cross-sectional nature of this study cannot rule out the possibility of cohort effect as for the findings of this study.

In conclusion, despite age-related declines in cognitive empathy, cognitive reserve, measured through the educational level in this study, serves as a protective factor. More specifically, a higher educational level buffers against age-related declines in cognitive empathy for those aged 35 and older. On the one hand, more interventions that promote cognitive empathy should be provided to low-educated adults aged 35 and over. On the other hand, given the protective effect of cognitive reserve, this study may inspire more future research to investigate promoting cognitive reserve to slow down declines in cognitive empathy.

References

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