

The Mediating Role of Age in the association between Estimated Pulse Wave Velocity and Cognitive Function

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Abstract

Background: Previous studies have independently examined the relationships between estimated pulse wave velocity (ePWV), age, and cognitive function; however, it remains unclear whether age plays a mediating role between ePWV and cognitive function. Therefore, this study aims to investigate the mediating effect of age in the relationship between ePWV and cognitive function. **Methods:** We analyzed data from 8,806 participants aged 45 and older in the China Health and Retirement Longitudinal Study (CHARLS) in 2015. Multivariate logistic regression models were used to examine the associations between ePWV, age, and cognitive function separately. Bootstrap mediation analysis was employed to assess the mediating role of age between ePWV and cognitive function. For nonlinear relationships, restricted cubic spline (RCS) regression analysis was applied. Additionally, threshold and subgroup analyses were conducted. **Results:** In fully adjusted models, both ePWV and age showed negative associations with cognitive function. RCS analysis confirmed that ePWV is nonlinearly associated with cognitive function, and age also shows a nonlinear relationship with cognitive function. Mediation analysis revealed that age partially mediated the association between ePWV and cognitive function, accounting for 57.97% of the effect. Subgroup analysis indicated that, in the association between ePWV and cognitive function, only marital status showed an interaction effect, whereas in the association between age and cognitive function, both residence and marital status showed interaction effects. **Conclusion:** This study found that both ePWV and age were negatively correlated with cognitive function, and that age played a mediating role in the relationship between ePWV and cognitive function.

Keywords

Estimated Pulse Wave Velocity, Age, Cognitive Function, CHARLS