

Relationship Among Cognitive Performance, Physical Activity (PA), Demographic, and Individual Lifestyle Characteristics Among Aging Hispanic Population

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ABSTRACT

PURPOSE: To investigate the association among different intensity and duration of physical activity (PA), cognitive domains (executive function, processing speed, and memory), and demographic and lifestyle characteristics of aging Hispanic population. PA has been identified as a promising non-pharmaceutical preventative intervention for Alzheimer disease and other dementias. This study aims to provide a better understanding of the effects of different intensities of PA on cognitive performances of aging Hispanic population. **METHODS:** For this study, 441 Hispanic (age ≥ 60) participants' data from NHANES (2011-2014) were analyzed. The NCHS Research Ethics Review Board approved the protocol, and all data collection performed by NHANES. Participants self-reported demographic, lifestyle, and health characteristics. The Global Physical Activity Questionnaire (GPAQ) was used for PA pattern, the frequency and duration of moderate intensity PA (MPA) and vigorous intensity PA (VPA) in a typical week, weekly PA was calculated from the product of the number of days by minutes per day and reported as minutes per week. American College of Sports Medicine (ACSM) guidelines were used for both VPA and MPA and for defining inactive, insufficiently active, sufficiently active categories for each intensity level. Participants completed cognitive performance assessment in verbal learning and memory (immediate/delayed), verbal fluency (animal fluency test (AFT)), and processing speed, sustained attention, and working memory (the Digit Symbol Substitution (DSS)) domains. **RESULTS:** Out of 441 participants, 225 were female (age = 66.83 ± 5.49 yr.) and 216 were male (age = 66.62 ± 5.81 yr.). Based on reported total minutes of PA in a typical week, 83% and 37% of participants were placed in a physically inactive category for VPA and MPA, respectively. There was no significant difference in immediate recall and DSS assessment between VPA and MPA groups. VPA's sufficiently active subgroup showed a trend to improve delayed recall scores/ delayed memory domain ($p < 0.1$). MPA's sufficiently active subgroup showed significantly improved scores in the AFT/executive function domain ($p < 0.01$), compared to the physically inactive group. Gender and education level were positively correlated, and age and depression state were negatively correlated with cognitive performances. There was a positive relationship between HDL and immediate/delayed, AFT, and DSS tests. **CONCLUSIONS:** This study indicated that the degree of impact, and association between PA intensities and cognitive domains may vary. Many aging Hispanic individuals reported that they are physically inactive, with more than two-thirds of the participants not engaging in enough vigorous activity. Variations in VPA, and the positive relationship between HDL levels and immediate/delayed, AFT, and DSS tests may be unique for the Hispanic population and demand further attention and caution when interpreting current and future data.