Can Physical Activity Decrease Excessive Daytime Sleepiness in Older Adults? Insights from NHANES 2015-2018

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Citation:
Mofidi SA, Rajai Firouzabadi S, Mohammadi I. Can Physical Activity Decrease Excessive Daytime Sleepiness in Older Adults? Insights from NHANES 2015-2018. *Iranian biomedical journal*. Supplementary (12-2024): 11.

ABSTRACT

Introduction: Poor sleep quality and excessive daytime sleepiness are common issues among older adults, adversely affecting their quality of life. This study investigated the potential role of physical activity in reducing excessive daytime sleepiness.

Methods and Materials: This post-hoc analysis used data from the National Health and Nutrition Examination Survey (NHANES). We included participants aged 65 years or older with available data on daytime sleepiness and physical activity. Independent variables were age, gender, race, education, income, work status, and physical activity levels. Race was categorized as Hispanic, White, African American, and other. Education levels were grouped into less than high school, high school, and more than high school. Income was classified as below or above poverty, and work status as unemployed or employed. Physical activity levels (low, moderate, high, and very high) were defined using the 2018 American Physical Activity Guidelines. We assessed the impact of these variables on excessive daytime sleepiness using univariate and multivariate analyses. Daytime sleepiness was defined as experiencing self-reported sleepiness five or more times per month. Additionally, we conducted two subgroup analyses to exclude the effects of sleep deprivation (sleeping less than five hours) and sleep disorders.

Results: Our study included 2,848 participants, with 1,424 males. Univariate analysis showed that race (p = 0.0119) and physical activity (p = 0.0001) significantly influenced excessive daytime sleepiness, while age, education level, work status, and income did not. Logistic regression analysis revealed that moderate (p = 0.003) and high physical activity (p = 0.001) significantly reduced excessive daytime sleepiness, but very high levels of physical activity (p = 0.096) did not have the same effect. These results were consistent in multivariate analysis. In the linearized logistic regression model, the impact of physical activity remained significant in both univariate (p = 0.024) and multivariate (p = 0.047) analyses. In the subgroup with sleep disorders, only moderate physical activity remained significant in both univariate (p = 0.047) and multivariate (p = 0.048) analyses. However, in the subgroup with sleep deprivation, both moderate and high physical activity levels significantly impacted daytime sleepiness in both analyses.

Conclusion and Discussion: Moderate and high physical activity levels may help reduce daytime sleepiness in older adults. Nonetheless, due to the cross-sectional nature of this study, causality cannot be confirmed, and further research is needed.

Keywords: Geriatrics, Physical Activity, Sedentary behavior, Sleepiness

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[DOI: 10.61186/ibj.25th-11th-IACRTIMSS]