

Physical Activity and Disability (jointly hosted by the Disability Section)

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Abstract

Joint association of physical activity and BMI with functional limitations among older adults in US

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Introduction and Objectives: Loss of the ability to perform basic functional tasks such as activities of daily living (ADLs) increases with age. This study aimed to examine the joint association of physical activity and body mass index (BMI) with functional limitations among US older adults.

Methods: This study used the longitudinal data from the Health and Retirement Study (2004–2018 waves), a nationally representative sample of US adults. The analysis included adults aged 60 years or older, with at least 2 follow-up assessments. The main outcome measures were physical functioning summary score and the combined activities of daily living - instrumental activities of daily living (ADL-IADL) index. The associations of the physical activity and BMI with the functional limitations were estimated using generalized estimating equations (GEE) models with negative binomial distribution.

Results: Thirteen thousand nine hundred fifty-one participants contributed 77,016 observations, with mean (SD) follow-up of 9.0 (4.2) years. Participants had a mean (SD) age of 70.9 (8.0) years at baseline, 56.6% were women, 74.3% were non-Hispanic white, and 15.1% were non-Hispanic black. In covariate-adjusted model, compared to normal weight with physically inactive, the expected number of physical functioning limitations were lower among normal weight with active (IRR=0.73, 95% CI: 0.72-0.75), overweight with active (IRR=0.79, 95% CI: 0.78-0.81), and obese with active (IRR=0.95, 95% CI: 0.93-0.98). In covariate-adjusted model, compared to normal weight with physically inactive, the expected number of limitations on ADL-IADL were lower among normal weight with active (IRR=0.39, 95% CI: 0.37-0.41), overweight with active (IRR=0.39, 95% CI: 0.36-0.41), and obese with active (IRR=0.54, 95% CI: 0.50-0.58).

Discussion: Engagement in moderate/vigorous activities at least once per week is associated with lower numbers of functional limitations, regardless of weight. Physical activity is likely to be beneficial for functional activities among older adults.

Abstract

Patterns in walking behaviors among mobility-disabled adults in the US: analyses of the 2017 National Household Travel Survey

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In the US, individuals with disabilities often report less physical activity relative to those without disabilities. This study used data from the 2017 National Household Travel Survey, representative of the US at the national-level, to preliminarily analyze patterns in general walking behavior, a common form of physical activity, among mobility-disabled adults (18+). Included individuals reported having “a handicap or condition affecting their ability to travel outside the home and at least one outdoor walking trip in the past week

(unweighted N=12,824.) I hypothesized that individuals of lower socioeconomic status, with worse self-rated health, from urban areas, from carless households, and who reported no safety or infrastructure concerns affecting their walking behaviors, would report more walking. I conducted weighted logistic regression analyses (controlling for age, sex, race/ethnicity, employment status, use of mobility aids, general physical activity levels, and driving ability) with the binary outcome of reporting weekly walking trips above the median of 5 walks. Findings did not support these hypotheses. Male gender (OR: 1.29, 95%CI 1.08-1.54), reporting at least 30-minutes of physical activity within the past week (OR:2.02, 95%CI 1.63-2.51) and reporting either safety or infrastructure concerns (OR:1.24, 95%CI 1.04-1.48) were significantly correlated with higher walking counts. Men reporting more walking aligns with findings from previous studies with findings that women use active transportation modes of less frequently due to safety concerns; women with disabilities may need additional support to regularly engage in walking. More walking among physically active individuals could reflect confounding effects of severity of disability; additional disability indicators should be factored into future analyses. More walking among those who reported neighborhood safety and infrastructure concerns could highlight higher exposure to these concerns among those who walk more. Future studies should assess alternative operationalizations of the walking outcome, how more specific built environment and social determinants affect walking behaviors (e.g., destination density, sidewalk quality, neighborhood cohesion) among mobility-disabled populations, and whether results vary by walking purpose (e.g., exercise, transportation.) In conjunction with this study's findings, results could inform program and policy changes promoting physical activity, advancing health equity among disabled adults in the US.

Abstract

Active Transportation and Physical Activity Accumulation Among a National Sample of People with Disabilities

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Background: People with disabilities have higher rates of physical inactivity, obesity, and other chronic conditions than people without disabilities. In the general population, active transportation(e.g., walking to public transit or nearby destinations) is a recommended approach to increasing physical activity but its transferability to people with disabilities is unknown. To address this gap, we examined active transportation among a nationally representative sample of people with disabilities.

Methods: Using the 2017 National Household Travel Survey (NHTS), we summarized counts, duration, and purpose of walking/wheeling trips using survey weights where applicable. We tested differences among people with travel-limiting disabilities who did and did not engage in active transportation. Disability, types of assistive device, and active transportation were self-reported.

Results: 14.5%(n=2,767) of people with disabilities took an average of 2.54 active transportation trips (SD=0.07). The count and duration of trips varied by assistive device used as white cane users took the most trips (M=3.0 min.(SD=0.5 min.)), while ambulatory device users took the longest trips((M=18.0 min. (SD=1.0 min.)). Walking/wheeling trips to shopping were longest(M=9.4 min.(SD=0.66min.) and to work were shortest(M=1.3 min.(SD=0.2 min.)) Engagers in active transportation (compared to non-engagers), were more often an immigrant, Black, Hispanic, more educated, working, without access to a car, without a driver's license, low income, and living alone (all significant at p<0.001).

Discussion: Interventions to promote active transportation may increase physical activity among people with disabilities. Understanding the intersectionality of disability and other identities in relation to active transportation can inform the target of and implementation factors for future interventions.

Abstract

Addressing the Exercise Accessibility Gap: Future Fitness and Healthcare Professionals' Willingness and Interest to Work with People with Disabilities in a Fitness Setting

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Background: People living with disabilities (PLWD) experience barriers to exercise, including environmental accessibility of buildings, inaccessible exercise equipment, and limited access to trainers with formal education, training, or experience working with PLWD in a fitness setting. To address this gap, faculty from two northwest Pennsylvania universities collaborated with a community adapted exercise program serving PLWD to create an 8-week, interprofessional, hands-on educational experience for allied health students. The goals of the experience were for students to (1) apply knowledge learned in the classroom, (2) provide access to exercise opportunities for PLWD, (3) facilitate communication and collaboration between exercise science (knowledgeable in exercise prescriptions) and occupational therapy students (knowledgeable in disabilities). The purpose of this qualitative case study was to determine if participating in this interprofessional education experience influenced future fitness and healthcare professionals' interest and willingness to work with PLWD in a fitness setting.

Method: A qualitative case study was conducted after IRB approval was obtained. Students who participated in the 8-week program were recruited and asked to participate in a semi-structured, audio-recorded interview; 11 occupational therapy and exercise science students participated.

Data Analysis: A categorical aggregation analysis approach will be used to identify patterns, emerging themes, and to develop naturalistic generalizations of future fitness and healthcare professionals' willingness and interest to work with PLWD in a fitness setting

Conclusion: Providing allied health students with an interdisciplinary collaborative opportunity to work with PLWD in a fitness setting could improve access to exercise opportunities for PLWD in the future.

