Examining Mediators to Physical Activity as a Link to Interventional Efforts Aimed at Increasing Activity Levels and Improving Physical Functioning in Older Adults

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Abstract – Study 1

Purpose. The purpose of this study was to determine whether awareness and utilization of fitness resources and overall physical activity engagement differed depending on residential distance from community-based fitness resources (CBFR). Methods. Four hundred and seventeen older adults (72.9 ± 7.7 years) were randomly recruited from three spatial tiers (≤1, >1 to ≤2, and >2 to 5 miles) surrounding seven senior centers, which housed CBFR. Participants were mailed and returned a health history questionnaire, a CBFR questionnaire and the CHAMPS physical activity questionnaire. Chi square tests were performed to examine if awareness and utilization of CBFR differed across spatial tiers. Kruskal-Wallis tests were performed to examine if engagement in moderate to vigorous physical activity (MVPA) differed across spatial tiers. Multinominal logistic regression analyses were performed to identify predictors to physical activity engagement, and binary logistic regression analyses to identify barriers to CBFR utilization. Results. There were no differences in awareness of CBFR across spatial tiers ($\chi^2=0.90$, df=2, $p=.637$), with 48.4% being aware of CBFR in ≤1 mile radius, 50.0% in the >1 to ≤2 mile radius, and 44.4% in the >2 to 5 mile radius. However, only 2.9% of all participants utilized CBFR, with no differences across spatial tiers ($\chi^2=2.37$, df=2, $p=.306$). Across
all sites, participants expended 1601±2293 kcals/wk. Engagement in MVPA differed across spatial tiers ($\chi^2=15.74$, df=2, $p<.001$), with the >2 to 5 mile radius having the highest mean energy expenditure. Across all sites, age ($\beta=-.04$, $p<.05$) and income level ($\beta=.92$, $p<.05$) were significant predictors of low and high amounts of MVPA, respectively, and current health status and lack of interest represented significant barriers to CBFR utilization ($p<.05$). **Conclusion.** Closer proximity to CBFR did not impact awareness or utilization rates of such resources. Physical activity levels marginally increased the further one resided from CBFR. Given the very low utilization rates of CBFR, despite awareness and close proximity to such resources, further work is warranted to investigate complimentary intervention strategies for older adults in an effort to increase physical activity levels.

**Abstract – Study 2**

**Purpose.** The purpose of this study was to examine whether an in-home, individually tailored intervention is efficacious in promoting increases in physical activity (PA) and improvements in physical functioning (PF) in low-active older adults. **Method.** This randomized controlled trial consisted of an 8 week in-home PA intervention. Individuals were randomized to either an enhanced physical activity (EPA) group, which received daily step goals increasing 10% each week, a resistance band and training program, and educational pamphlets in the mail, or a standard of care (SoC) group was given the goal to reach 10,000 steps/day by the final intervention week. Pre- and post-intervention measures were assessed in community senior centers, including choice step reaction time (CSRT), knee extension/flexion strength, hand grip strength, and 8ft up and go test completion time. Independent t-tests were performed to detect the presence of any
baseline differences in physical activity and physical functioning between groups. Mixed between-within ANOVAs were performed to assess changes in PA and PF between the EPA and SoC groups. **Results.** Forty participants completed in this study (74.7±6.4 years). Significant increases in steps/day were observed for both the EPA (1598) and SoC (502) groups ($p<.05$). However, when including only those who adhered to weekly step goals, the level of improvement was significantly higher in the EPA group (2943 steps/day) than the SoC (599 steps/day) group ($p<.05$). Both groups experienced significant gains in the physical functioning variables, with the EPA group exhibiting significantly greater improvements for the 8ft up and go test ($p=.000$) and knee extension strength ($p<.05$), compared to the SoC group. **Discussion.** The results from the current study indicate significant increases in physical activity and improvements in physical functioning via a cost effective intervention that is easily translatable to the broader older adult population. Future research is warranted in efforts to improve adherence to physical activity programs to achieve the highest degree of favorable outcomes.