

# IMPACTS OF NEIGHBORHOOD BUILT ENVIRONMENT FACTORS ON SENIOR CITIZENS' PHYSICAL ACTIVITY LEVEL IN WUHAN, CHINA

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## 1 ABSTRACT

*The impact of built environment on the well-being of senior citizens has received increased research attention in recent years. In light of the fact that senior citizens often rely on open spaces within their neighborhoods for physical activity, many studies have been conducted on ways to improve outdoor environments to benefit physical and mental health for seniors. However, the impacts of specific built environment factors on senior citizens' physical activity level have yet to be fully investigated in a quantitative way. This study examined associations between the neighborhood environment factors and physical activity level of senior citizens in a large city in China; specifically durations of physical for 655 senior citizens from 16 residential neighborhoods were studied through questionnaires conducted in Wuhan, China. Neighborhood built environment attributes were classified into four categories: physical activity facilities, neighborhood open space characteristics, residential density, and surrounding built environment characteristics. A multivariable linear regression model was developed to examine the association. The results indicated that hard-surface exercise ground area ratio, floor area ratio, residential household density, and nearby public open space accessibility, correlated to higher level of senior citizens' physical activity, while other attributes of the built environment, including aesthetics, green area ratio, light condition of hard-surface exercise ground area, are not. In addition, differences between male and female residents were observed: Generally, the influence of built environment factors on female seniors were more significant than that on males and nearby public open space accessibility was only significantly correlated to female participants' physical activity ( $t=-3.864$ ,  $P=0.005$ ), but not related to male's. This research contributes to the existing studies of impacts of neighborhood built environment on levels of physical activity. The findings can assist urban planners and landscape architects to create better senior-friendly residential neighborhood design guidelines.*

### 1.1 Keywords

neighborhood built environment, physical activity, senior citizens, environment characteristics