The Built Environment and Metabolic Syndrome in Urban Algiers: A Cross-Sectional Intervention Study of Walkability and Green Space Access

T, h, a, n, d, i, w, e, N, k, o, s, i

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Abstract

Urbanisation in Africa is linked to increasing prevalence of metabolic syndrome (MetS). The role of modifiable built environment features, such as neighbourhood walkability and green space access, in MetS risk within African urban contexts remains inadequately understood. This study investigated the association between built environment attributes—specifically a walkability index and access to green space—and the prevalence of MetS among middle-aged adults in urban Algiers. A cross-sectional study was conducted. Adults aged 40-65 years were recruited from neighbourhoods stratified by a validated walkability index and green space proximity. Data collection included anthropometric measurements, biochemical assays for MetS components, and questionnaires. The built environment was assessed using geographic information systems. Multivariable logistic regression, adjusting for sociodemographic and lifestyle factors, determined associations. Higher neighbourhood walkability was significantly associated with a lower prevalence of MetS. Participants in the highest walkability quartile had 30% lower odds of MetS compared to those in the lowest quartile. Improved access to green space showed a non-significant trend towards reduced MetS prevalence. Neighbourhood walkability is independently associated with a lower prevalence of metabolic syndrome in this urban Algerian population. Urban design promoting walkability may be a relevant public health

strategy for MetS prevention. Urban health policies in comparable settings should prioritise developing walkable neighbourhoods. Further longitudinal and interventional research is required to establish causality and clarify the role of green space. Metabolic syndrome, built environment, walkability, green space, urban health, Algeria, cross-sectional study This study provides novel evidence from North Africa on the link between the built environment and metabolic syndrome, highlighting walkability as a potential modifiable factor for public health intervention.