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Diabetes is responsible for a high burden of disease, yet there is a great potential for prevention. Physical inactivity is one of the major risk factors for type 2 diabetes which can be tackled by increasing area-level walkability. That said, there are still few population-based studies exploring the association between area-level walkability and objective measures of diabetes. The aim of this study is therefore to estimate the association between area-level walkability and individual levels of glycated haemoglobin in the Portuguese adult population. Area-level data required to estimate walkability was obtained from the 2011 census and an updated street map. The walkability index was constructed using measure of residential density, land-use mix and street connectivity. Individual-level health data was obtained from The National Health Examination Survey (INSEF) 2015, a population-based survey representative of Portuguese adult population. We used gamma regression to estimate associations. The regression coefficients showed that living in medium walkable areas reduced the average glycated haemoglobin ( $\text{Exp}(\beta) = 0.906$ ; 95%CI: 0.821, 0.999) in a statistically significant way when compared with least walkable areas. The association was smaller, and not significant, for the third tercile of walkability ( $\text{Exp}(\beta) = 0.919$ ; 95%CI: 0.822, 1.028). Our findings suggest a non-linear protective association of walkability on glycated haemoglobin. These findings could have important policy implications for urban planning, with a goal of preventing diabetes and promoting health by increasing walkability.

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