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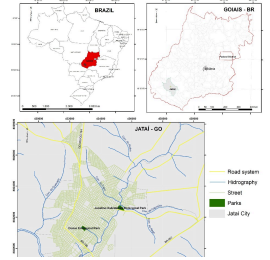# 🌐 Spatial index of urban environment for health

📖 PLOS One

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Abstract

Purpose: The objective was to design an urban index for the identification of urban environment propensity for physical activity (PA).
Methods
Geographic contextualization
Determine social and demographical features. For the present study, the municipality of Jataí is located in the southwest region of the state of Goiás, Brazil, has an area of 7,174.225 km², and an estimated population in 2017 of 98,128 people (IBGE, 2017). Its relief is flat and mildly undulating, with an altimetric variation between 500 and 1,100 m. Depicted localization area Figure.
Data sampling
Determine the local. For the present study, field data collection was carried out in urban public environments that showed the highest attendance rates of PA practitioners and with suitable structures such as walking/running tracks and outdoor gyms.
To identify the spatial urban health index (SUHI), data on demographic, environmental, and urban structure were collected. For the present study were consider number of residents (IBGE, 2011), parameters regarding road connectivity and land use and vegetation cover (SIEG, 2018), and the urban area slope parameter generated by the Shuttle Radar Topography Mission (MDE – SRTM), with a spatial resolution of 30 m (EMBRAPA, 1979).
Use GIS. For the presente study, a geographic database was prepared with GIS ArcGis 10.5.1 (ESRI v. 2018) for the composition of the physical and demographic analysis parameters and mapping of the SUHI by using the weighted multi-criteria overlay method.

Attachments

PDF

Paper_parks_Methods...

421KB

Guidelines

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To identify the spatial urban health index (SUHI), data on demographic, environmental, and urban structure were collected. For the present study were consider number of residents (IBGE, 2011), parameters regarding road connectivity and land use and vegetation cover (SIEG, 2018), and the urban area slope parameter generated by the Shuttle Radar Topography Mission (MDE – SRTM), with a spatial resolution of 30 m (EMBRAPA, 1979). Table 1 describes the parameters and indicators used in the definition of the SUHI (Equation 1), as well as the weighting of these indicators ranging from 1 to 10. Figure 2 depicts all products generated from these data by using Geographical information system (GIS).

Use GIS. For the presente study, a geographic database was prepared with GIS ArcGis 10.5.1 (ESRI v. 2018) for the composition of the physical and demographic analysis parameters (Table 1) and mapping of the SUHI by using the weighted multi-criteria overlay method (Equation 1), which allowed to obtain a representativeness index (km2), classified by applying the quantile method, into four gradation levels ranging from unfavorable to very favorable to PA

Materials

Number of people per sector
Urban green space per people
Relief
Connectivity roads

Troubleshooting