Geojournal of Tourism and Geosites
ISSN 2065-0817, E-ISSN 2065-1198

Year XVIII, vol. 58, no. 1, 2025, p.119-127
DOI 10.30892/gtg.58110-1395

EVALUATION OF ACCESSIBILITY TO HEALTH CENTERS IN THE URBAN AREA OF THE CITY OF VILLAVICENCIO, COLOMBIA

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Citation: Neira, A.E., Escobar, D.A., & Moncada, C.A. (2025). Evaluation of accessibility to health centers in the urban area of the city of Villavicencio, Colombia. *Geojournal of Tourism and Geosites*, 58(1), 119–127. https://doi.org/10.30892/gtg.58110-1395

Abstract: The objective of this research is to evaluate the accessibility to health centers located in the urban area of the city of Villavicencio, taking as reference the indicators of accessibility to health services established by the Organization for Economic Cooperation and Development (OECD). To do this, the necessary basic information is collected, which consists of the population census, the geolocation of the medical care points along with the number of beds - stretchers and doctors available in each of them, and the travel speeds of the health care network. traffic, the information is subsequently analyzed from a geostatistical point of view, to finally apply the improved floating catchment area methodology in two steps (E2SFCA). Regarding the information on health centers, we work with the classification of these activity nodes divided into two groups, on the one hand, public health centers that deal with those categorized within the State Social Enterprise (ESE), and, on the other hand, private health centers which provide a particular service; regarding the latter, it was identified during the development of the research, that the department of Meta presents a high level of affectations generated by affectivity and anxiety disorders, which is why a large part of the private health centers correspond to specialized centers focused on mental health care and rehabilitation services, which was identified as a particular panorama, which is why these health centers were excluded from the accessibility analysis, in order not to obtain inaccurate results. With the above, accessibility indicators were identified for all health centers located in the urban area of the city of Villavicencio, excluding those focused on mental health care and rehabilitation services, finding that the results of the indicators obtained show that there is acceptable behavior in terms of accessibility to beds - available stretchers, however, in relation to doctors, it is evident that there is currently no adequate coverage as established in the aforementioned document. By carrying out a comparative exercise of the results with other intermediate cities in Colombia such as Armenia, the Central Western Metropolitan Area (Pereira) and the Manizales – Villamaría Conurbation Area, it is possible to conclude that this behavior is maintained in all cases, which is why the recommendation is to strengthen the medical staff in intermediate cities of Colombia.

Keywords: Accessibility, health centers, E2SFCA, urban analysis, OECD, geostatistics

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INTRODUCTION

Health, itself, represents a vital aspect through which the quality of life of people is measured, therefore, it is appropriate to establish that good care in health services represents a factor of wide importance for different societies; given that, by guaranteeing optimal levels of health for populations, there is higher personal and collective development. An important aspect to review from this perspective is related to the correct distribution of the medical goods that a society has access to, becoming a challenge for any social structure to establish equitable access to health care services, understanding access as a broad term to determine the degree to which the population obtains the services it requires from the available health care system (Institute of Medicine (US) Committee on Monitoring Access to Personal Health Care Services & Millman, 1993). From this overview it is possible to establish that one of the ways to evaluate the level of medical care existing in a society, among other things, is from the degree of accessibility between the population and the health centers located in a certain area, finding with this that health planners and those responsible for public policies are more frequently concerned with the evaluation of access (Aday & Andersen, 1974). By carrying out these types of evaluations, possible deficiencies can be identified as a result of differential access to social determinants of health, such as access to medical care (Whitehead et al., 2020). Given this, accessibility indicators could constitute an important ingredient in a social report and could also help to reorient transport policy formulation in directions more consistent with national and regional objectives for the provision of equal opportunities (Levine, 2020).

Historically, conducting a study with the stated objectives has had several difficulties because the evaluation of general access to health care has proven to be difficult due to the multifaceted nature of the concept and the complex set of

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interactions that occur between populations and services (Pan et al., 2015). However, the advancement of technologies in terms of automatic location systems has allowed the development of geographic information systems (hereinafter referred to as GIS) through which it was increasingly feasible to observe, measure and monitor real-time access, in addition to mathematical calculations that became increasingly more precise, through the use of digitally represented travel models (Levinson & Wu, 2020). The above facilitated the tools through which it was possible to carry out accessibility studies that included those variables required for this type of analysis, taking into account that access to healthcare depends on the characteristics of both the system and the population that receives them needs (Pan et al., 2015).

In response to the above, location-assignment models have been used for this type of analysis, which vary from non-spatially restricted models, where supply and demand interact in straight lines, representing trips that remain constant, to more discrete that are integrated within a network of lines, where each segment and intersection contributes individual constraint parameters to the model (Radke & Mu, 2000). In this context, the term accessibility is related, in terms of proximity measures, to the potential of opportunities for interaction between a point and other points (Hansen, 1959).

Among the types of accessibility measurement, the potential accessibility method, based on a gravity model, is the most popular method to measure the ease with which residents of a given area can reach medical services and facilities (Ni et al., 2019). Floating catchment area methods (called FCA) were presented in a more sophisticated way, being a family of measures used to quantify accessibility based on a gravity model (Bryant & Delamater, 2019) defining a certain service area, an established travel time threshold, and taking into account the availability of doctors by health centers (Luo & Wang, 2003). The enhanced two-step floating catchment area (E2SFCA) methodology is initially supported by the two-step floating catchment area (2SFCA) method , which corresponds to a model of severity that offers its intrinsic advantages, but which, additionally, is presented as an intuitive solution in its interpretation based on a direct doctor-population relationship (Luo & Qi, 2009), determining in a first step the population that It is within the scope of each provider and in a second step assigning the available services to the populations determining which services fall within the scope of each population (McGrail & Humphreys, 2009). An analysis such as the one described above has not been carried out in the city of Villavicencio, the main city of the Colombian eastern plains and capital of the department of Meta, in which there is a total population of 552,010 pop (National Administrative Department of Statistics [DANE], 2018).

The object of this study is then focused on applying the E2SFCA methodology to study the current accessibility conditions of the Villavicense population to the health centers located in the urban area of the city, a location that can be seen in Figure 1, requiring as fundamental information three factors that must be taken into account. Taking into account which are the supply of medical services, the demand for services by the population and the travel costs between the demanding populations and the medical sites (Wan et al., 2012), processing the data through the use of the GIS tool called ArcGIS. With this, the accessibility indicators are obtained both to the beds - stretchers, and to the available doctors, which, when compared with what is determined in the document "Health Panorama: Latin America and the Caribbean 2020" (OECD & The World Bank, 2020), define whether there is adequate or inadequate accessibility to the city's medical centers.

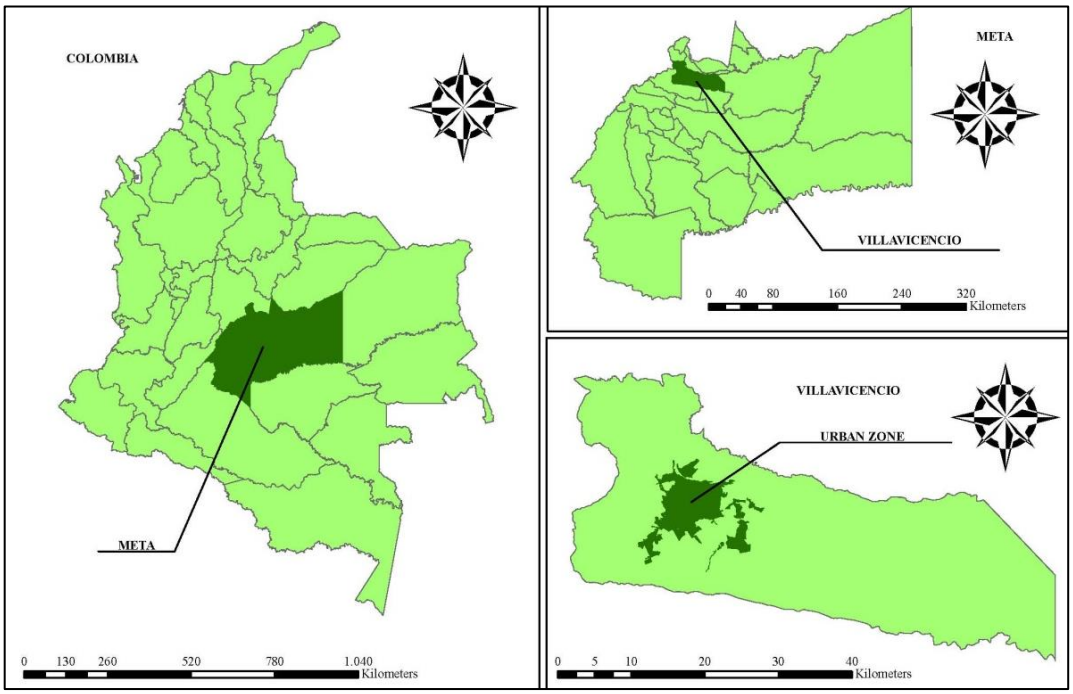

Figure 1. Location Urban Area Villavicencio – Dept. Meta – Colombia

METHODOLOGY

The research methodology of this study can be observed in Figure 2, and focuses on four phases which are based on a. Information collection, b. Geostatistical analysis of information, c. Application of the E2SFCA method, and d. Results and discussion.

Information Collection

The information required for the accessibility evaluation focuses on i) Population of Villavicencio, ii) Health Centers, and iii) Transportation Infrastructure Network.

i) Population of Villavicencio: Identified as the demand, it refers to the number of people living in the urban area of Villavicencio, this information is obtained from the data of the population census carried out in the territory (DANE, 2018) downloaded by through your Geoportal the shapefile files with the amount of population distributed by blocks.

ii) Health Centers: Identified as supply, it refers to the availability of health services in the urban area of the city of Villavicencio. The data related to their geolocation, as well as their installed capacity (beds – stretchers), are obtained from government and official information (Ministry of Health and Social Protection, sf) through the web portal Special Registry of Health Providers, identified by its acronym as REPS. Given the absence of official data regarding the number of doctors available in each health center, the results obtained for the work carried out in the city of Manizales - Caldas called " *Evaluation of geographical accessibility to health care services of the capital of the department of Caldas: focus on geospatial equity according to the level of care"* (Leal, 2022). Taking into account the similarities with the city of Villavicencio regarding its population, extension and population density, it is determined that it is possible to apply the results obtained in the aforementioned work to the present study. From the above, there is a coefficient of relationship between doctors and beds of 0.225 for low complexity levels that correspond to levels of care 1 and 2. The information from the health centers was obtained in two groups, one on the public health centers which are within the categorization of State Social Enterprise (ESE), and another on private health centers which are recognized as clinics that provide a particular service.

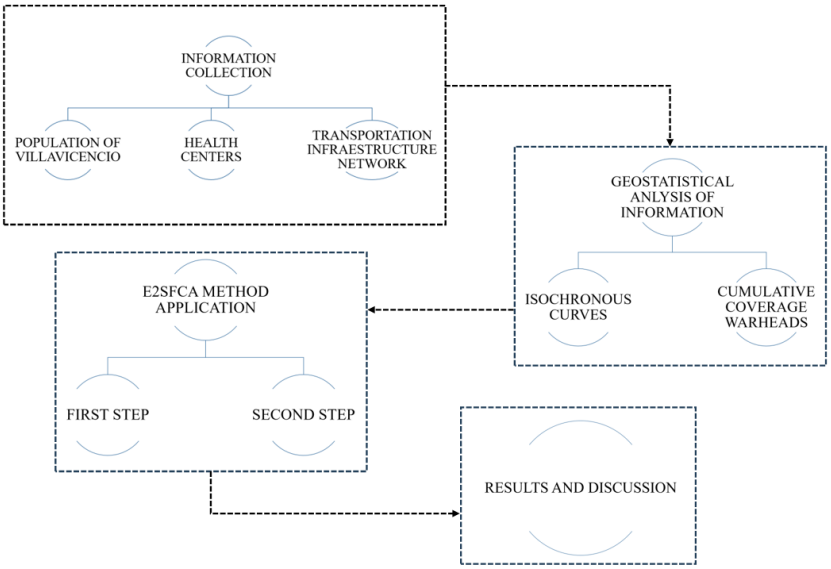

Figure 2. Investigation methodology

iii) Transportation Infrastructure Network: Refers to the city's road network, which includes information related to travel speed, this is obtained from its construction in a shapefile through the use of the ArcGIS tool, in which generates a network composed of interconnected lines with a direction defined by the direction in which vehicles move in the city according to the city's mobility regulations. The constructed network includes the network travel speeds, from which it is possible to calculate travel times; These are estimated as those shortest times through road networks, between a place of residence and a doctor's office (Wang & Luo, 2005), which are required for the analysis of accessibility to health centers. health, taking into account that travel time and distance are generally treated as impedance in access measures (Wu & Levinson, 2020). It is important to emphasize that both travel speeds and travel times are associated with the private transport mode, under which an analysis of accessibility over the entire territory is allowed.

Geostatistical Analysis of Information

Once the information is obtained, it is processed by calculating the integral average accessibility, from which the isochronous curves and the accumulated coverage ogives are obtained.

i) Isochronous curves: With them, the aim is to identify the travel time to each of the health centers analyzed taking into account equation (1), with which the cost of travelling in each case is identified, based on the length between one point and another; and the network travel speed (Escobar et al., 2020).

$$d_{ij} = \frac{L_{ij}}{V_{ij}} \quad (1)$$

Where d_{ij}: travel time to each health center; L_{ij}: length between points i and j; V_{ij}: network travel speed.

Using the ArcGIS Network Analyst tool, which has a function called New Closest Facility, it is possible to process the information and obtain travel times from the transportation infrastructure network to each of the identified health centers, based on the aforementioned equation. By obtaining the matrix with the travel times between all points of the network and taking as a starting point the concept of the least path algorithm, it is possible to identify the shortest path

between each point of origin and the health centers to be analyzed, thereby which proceeds to calculate using the average or arithmetic mean equation (2) (Escobar et al., 2020).

$$\overline{d_{ij}} = \frac{\sum d_{ij}}{(n-1)} \quad (2)$$

Where $\overline{d_{ij}}$: average travel time to each health center; n: number of points analyzed.

Subsequently, the Kriging model is used, which executes geostatistical analyzes based on data correlated between space and time (Simpson et al., 2001) through an interpolation process on the information on average travel times, what is obtained is a matrix with all the consolidated information, allowing the generation of a map of isochronous curves, which identifies travel times in ranges of 5 minutes for each health center.

ii) Cumulative coverage warheads: Subsequently, it is possible to calculate the cumulative population and area coverage ogives for each health center through a process of intersection between the travel times obtained and the population of Villavicencio, in order to identify the population located in zones of ranges of trip every 5 minutes. This information is processed through the use of a Microsoft Excel dynamic table.

E2SFCA Method Application

This method is based on the 2SFCA methodology; however, it represents an improvement by applying weights to differentiate travel time zones, both in the first and second steps, thus taking into account the decrease in distance (Luo & Qi, 2009). The value of these weights obtained from equation (3) is defined as the weight of the distance of each time zone defined in the study; This was calculated from the Gaussian function that captures the drop in the access distance to each health facility (Luo & Qi, 2009).

$$W_r = f(d_{ij}) = \exp(-\frac{{d_{ij}}^2}{\beta}) \quad (3)$$

Where W_r: weight of the distance of each time zone; β: distance weight coefficient.

i) First step: With the data obtained from the accumulated population ogives, it is possible to find that population located in areas with travel time periods of 5 – 10 – 15 minutes. With this information, the calculation of the supply - demand relationship of each health center is carried out (both for beds - stretchers, and for doctors), using equation (4), which takes into account the distance weights. calculated in equation (1) for each defined time zone. At this point it is important to emphasize that the calculated impedance values are decisive in the evaluation of accessibility, due to the level of detail of the spatial data required for the analysis and because perceived distances differ from physical distances (Vale & Pereira, 2017).

$$R_j = \frac{Sj}{\sum_{k\in(d_{kj}\in D_r)} P_k W_r} = \frac{Sj}{\sum_{k\in\{d_{kj}\in D_1\}} P_k W_1 + \sum_{k\in\{d_{kj}\in D_2\}} P_k W_2 + \sum_{k\in\{d_{kj}\in D_3\}} P_k W_3} \quad (4)$$

Where R_j: supply – demand relationship; Sj: number of beds – stretchers and doctors for each health center; P_k: population located in each area with a travel time period of 5 – 10 – 15 minutes.

ii) Second step: Subsequently, an origin - destination matrix is generated that contains the travel times to each health center from each block of the urban area of the city of Villavicencio, which is carried out using the "New" function. OD Cost Matrix" from the Network Analyst tool available in ArcGIS. This matrix is used in order to identify "block" areas with travel time periods of 5 – 10 – 15 minutes. Again, each one is assigned a weight which is given by equation (1). Finally, to identify the accessibility to the beds - stretchers and to the doctors of each health center, the calculated weights are multiplied by the supply - demand relationship determined for each case in the first step, then making a sum with the information of each apple, taking into account what is established in equation (5) (Luo & Wang, 2003).

$$A_i^F = \sum_{j\in\{d_{ij}\in D_r\}} R_j W_r = \sum_{j\in\{d_{ij}\in D_1\}} R_1 W_1 + \sum_{j\in\{d_{ij}\in D_2\}} R_2 W_2 + \sum_{j\in\{d_{ij}\in D_3\}} R_3 W_3 \quad (5)$$

Where A_i^F: accessibility to beds – stretchers and doctors in each health center. By processing the information as indicated above, the results of the average number of beds – stretchers and doctors per 1,000 pop are obtained.

The results obtained in relation to the indicators of accessibility to beds - stretchers and doctors are compared with what was determined in the document "Health Panorama: Latin America and the Caribbean 2020" (OECD & The World Bank, 2020), in order to identify possible deficiencies in accessibility in the current scenario, and from there formulate proposals for improvement in a future scenario. Subsequently, equation (6) is used in order to calculate the variation gradient obtained between the current scenario and the future scenario (Escobar et al., 2020).

$$Gv = \frac{{A_i}^F{}_f - {A_i}^F{}_a}{{A_i}^F{}_f} * 100 \quad (6)$$

Where Gv: variation gradient; ${A_i}^F{}_f$: accessibility to beds – stretchers and doctors in each health center – future scenario; ${A_i}^F{}_a$: accessibility to beds – stretchers and doctors in each health center – current scenario.

RESULTS AND DISCUSSION

Accessibility measures generally use the impedance effect of distance, time or generalized transportation costs, and the spatial distribution of urban opportunities to produce numerical indices of accessibility for each location in a study area (Kwan, 1998), therefore, once the process mentioned in the research methodology is carried out, the accessibility indicators are obtained in quantitative terms of the number of beds – stretchers and doctors per 1,000 pop. These indicators are compared with what is determined in the document "Health at a Glance: Latin America and the Caribbean 2020" (OECD & The World Bank, 2020). This document establishes health coverage and services indicators for Latin American countries, with references for Colombia shown in Table 1.

Current Scenario

An analysis of the results of the current accessibility scenario is carried out in both public and private health centers. Once these two panoramas have been analyzed, the analysis of the set of health centers located in Villavicencio is carried out.

i) Public health centers: In relation to the indicators of accessibility to public health centers, there are indicators of 1.39 beds - stretchers * 1000 pop and 0.33 doctors * 1000 pop, which allows identifying a deficiency with respect to the number of doctors available. It is available in every public health center in the city. On the other hand, if the indicator recommended by the OECD for the number of beds – stretchers is observed, it is evident that public health centers do not meet this indicator; If you want to comply with the parameter, it is proposed to include 4 additional beds - stretchers for each health center, and in the case of the Departmental Hospital increase the amount to a total of 445 beds - stretchers.

ii) Private health centers: Regarding the results of private health centers, there is a notable difference in coverage compared to public health centers, which is due to a particularity identified in the city of Villavicencio, which corresponds to the care of mental health diseases and rehabilitation services, finding that of the 12 private health centers analyzed, 7 specialize in mental health and rehabilitation. In this regard, it was found that, based on reports made by the Ministry of Health since 1993, during the following 20 years the department of Meta was always among the five in the country with the most affectivity and anxiety disorders, discovering that the Depression in Meta reached 57.4%, being the highest in the country and in terms of anxiety, Meta was the first with 34.1% (Llano Siete Días Editorial Office) (October 21, 2013). The worrying mental health of the people of *Metense*. The above represented an alert for the management of diseases related to mental health in the region of the country, which is why, among other things, in 2021 the "Renovar" Nervous System Clinic was inaugurated with the mental health center most modern in the country, constituting Villavicencio as a leader in mental health in the region.Based on the above, the second step procedure of the E2SFCA method is carried out, excluding the 7 identified private health centers, in order to obtain the results of the private health centers that do not specialize in mental health and rehabilitation, obtaining some indicators of 2.49 beds – stretchers * 1000 pop and 0.57 doctors * 1000 pop. These results show that the availability of doctors remains lower than the availability of beds – stretchers in the city's private health centers (as was found for public health centers).

Table 1. OECD accessibility indicators

Description	Beds and Stretchers *1000pop	Doctors *1000pop
Health at a Glance: Latin America and the Caribbean 2020	**1,70**	**2,20**

Table 2. Accessibility indicators to all health centers excluding those specialized in mental health

Description	Beds and Stretchers *1000pop	Doctors *1000pop
Health Centers excluding those specialized in Mental Health	**3,89**	**0,90**

iii) All Health Centers: In order to evaluate the behavior of accessibility to the health centers available in the city of Villavicencio, the analysis of the system as a whole is carried out, excluding health centers specialized in mental health. and rehabilitation, finding the results in Table 2. The processing of the information generates the following maps in which the accessibility to the beds is displayed – stretchers (Figure 3) and doctors (Figure 4) available in the health centers located in the urban area of the city of Villavicencio.

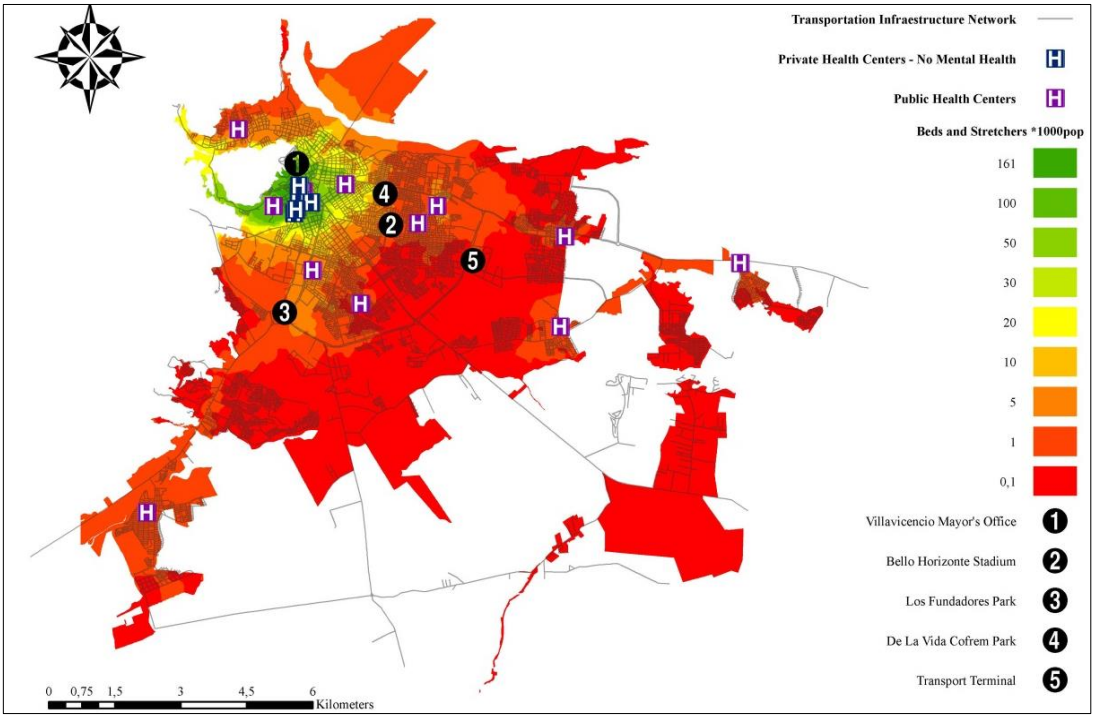

Figure 3. Accessibility to beds and stretchers in all health centers, excluding those specialized in mental health

As can be seen, the indicator shown in Table 2 for the availability of beds - stretchers complies with what is established in the OECD document, however, the availability of medical personnel is below the indicator, which is consistent with what found in the accessibility evaluation that was carried out independently for public health centers and for private health centers, which is why the proposal that is formulated to improve accessibility in the city in a future scenario focuses on strengthen the medical staff available throughout the city.

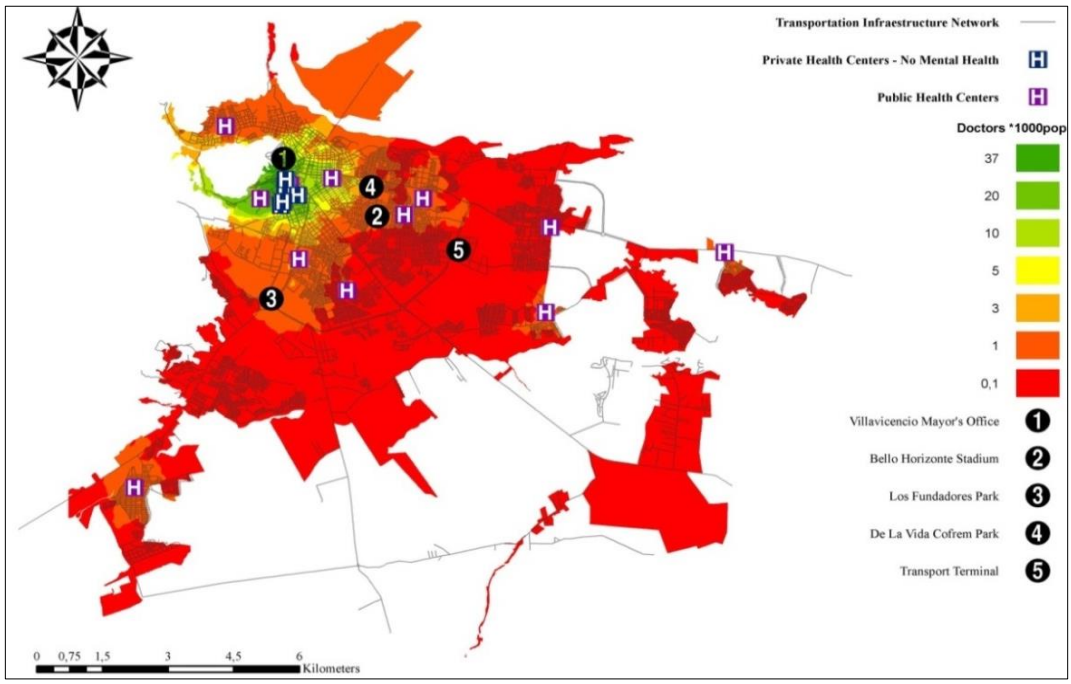

Figure 4. Accessibility to doctors in all health centers, excluding those specialized in mental health

Comparative Analysis with other intermediate cities

In order to determine the behavior in intermediate cities of Colombia, the results obtained in the studies "Evaluation of the geographical accessibility to medical care services of the capital of the department of Quindío and compare them with the conditions of the metropolitan areas of Colombia" are extracted. Manizales - Villamaría and the AMCO: focus on geospatial equity according to the level of care" (Barrios, 2022), "Evaluation of geographic accessibility to health care services in the Central Western Metropolitan Area" (Márquez, 2022) and "Evaluation of "geographic accessibility to health care services in the capital of the department of Caldas: focus on geospatial equity according to the level of care" (Leal, 2022), obtaining the information recorded in the following Table 3.

Table 3. Accessibility indicators Health Centers in Armenia, Pereira, Manizales and Villavicencio

Description	Beds and Stretchers *1000pop	Doctors *1000pop
Armenia Health Centers	**2,32**	**0,56**
Health Centers of the Central West Metropolitan Area	**1,86**	**0,59**
Health Centers of the Urban Area of Manizales and Villamaría	**3,17**	**0,96**
Villavicencio Health Centers	**3,89**	**0,90**

Performing a comparative analysis, it is observed that in all cities the indicator related to beds is met, as shown in Figure 5, however, the indicator of the availability of doctors is not met, as shown in Figure 6.

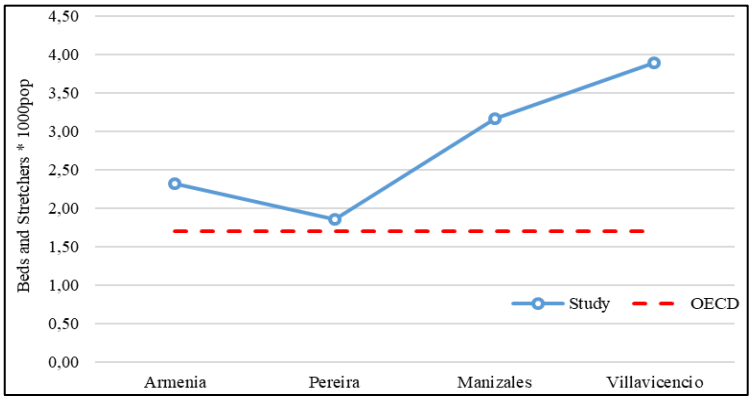

Figure 5. Comparison of bed accessibility in intermediate cities vs OECD 2020

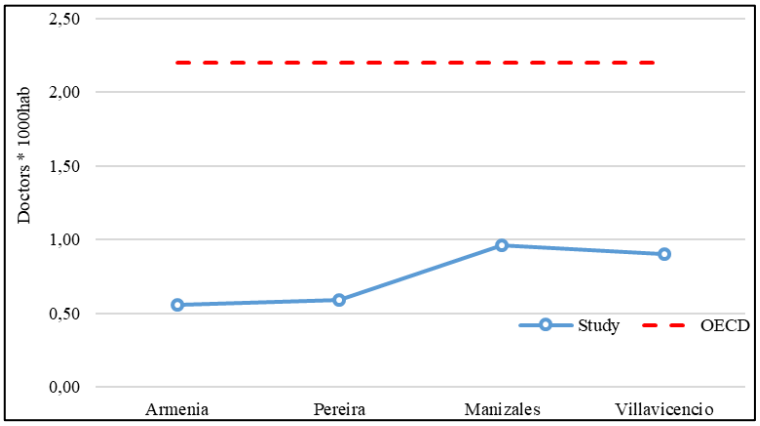

Figure 6. Comparison of accessibility to doctors in intermediate cities vs OECD 2020

Due to the above, it is possible to determine that the city of Villavicencio has a higher value for compliance with the indicator for beds and stretchers, and the second best value for the indicator for available doctors. In order to determine the reasons why this scenario is generated, the factors of available health centers, number of available beds, number of available doctors, population and length of the available road network of each city are analyzed.

Armenia: It has a smaller population compared to the city of Villavicencio by an approximate proportion of 48%, which is also reflected in having a shorter road network and a smaller number of health centers available. A figure of 1.66Km*1000 pop is calculated for Armenia and 1.69Km*1000 pop for Villavicencio, indicating that in both cases there are approximately the same lengths of road network per inhabitant; Likewise, a figure of 0.026 health centers *1000 pop is calculated for Armenia and for Villavicencio 0.033 health centers *1000 pop, from which it is possible to establish that for each inhabitant there is less availability of health centers in Armenia than in Villavicencio. The above results in a comparative improvement in the conditions of availability of health equipment for the city of Villavicencio.

Central Western Metropolitan Area: It has a larger population in relation to the city of Villavicencio in a proportion of 114%, also having a greater length of road network. A figure of 1.90Km*1000 pop is calculated for the Metropolitan Area of Central West, which, compared to the figure for Villavicencio (1.69Km*1000 pop), indicates that there are greater lengths of road network per inhabitant in the Metropolitan Area of Central West. On the other hand, it is observed that in both cases there are the same number of health centers available, and, making the respective calculation, a figure of 0.028 health centers *1000 pop is established in the Central Western Metropolitan Area, which means that for each inhabitant there is less availability of health centers than in the city of Villavicencio (0.033 health centers *1000 pop). The above results in a comparative improvement in the conditions of availability of health equipment for Villavicencio, despite the fact that the Central Western Metropolitan Area has a greater number of beds and doctors.

Manizales and Villamaría Conurbation Area: It has a population smaller than Villavicencio by a proportion of 82%, which is why it also has a shorter length of road network available and a smaller number of health centers. In this case, a figure of 1.35Km*1000 pop is calculated, which leads to shorter road network lengths per inhabitant compared to Villavicencio (1.69Km*1000 pop); and a data of 0.036 health centers *1000 pop, which indicates that for each inhabitant there is approximately the same availability of health centers in both cases (0.033 health centers *1000 pop for Villavicencio), with a slightly better performance for the Conurbation Area from Manizales and Villamaría. The above leads to an improvement in the conditions of availability of health equipment in relation to the previous scenarios analyzed, which is reflected in the accessibility indicators in comparison with the Central Western Metropolitan Area and the city of Armenia. However, in relation to the city of Villavicencio, a different behavior is evident in terms of beds - stretchers and doctors, which occurs when it is found that in both cases there are approximately the same number of beds (so it is allowed establish that the indicator of accessibility to beds in Villavicencio has a better behavior than in Manizales), contrary to the case of doctors having a much lower amount available for Villavicencio, which results in better conditions of accessibility to doctors in the Area Conurbation of Manizales and Villamaría.

Future Scenario

Once the results are compared, the proposal(s) that lead to improving accessibility conditions to the city's health centers are identified. Subsequently, the corresponding calculations are carried out in order to determine the accessibility indicators in the future scenario based on the defined proposals. Finally, the variation gradient between the current scenario and the future scenario is defined. As evidenced in the current scenario, the indicator of accessibility to beds – stretchers do not require improvement since it complies with the indicator proposed by the OECD; however, it is necessary to improve the indicator of accessibility to doctors in all healthcare centers. health of the city, for which the proposal is presented to strengthen the medical staff of all the health centers located in the city of Villavicencio. In accordance with the above, it is proposed to implement a ratio coefficient between doctors and beds of 0.56 (the current one corresponds to 0.25), thereby obtaining an increase in the number of doctors for each health center in the city, both public as well as private. With the new data, the E2SFCA methodology is applied again, obtaining as results for the future scenario those recorded in Table 4.

Table 4. Accessibility indicators of private health centers – Future scenario

Description	Beds and Stretchers *1000pop	Doctors *1000pop
Health Centers excluding those specialized in Mental Health	**3,89**	**2,20**

The variation gradient between the current scenario and the future scenario is now calculated, which can be seen in Figure 7 and which reflects the improvement in percentage terms from one scenario to another.

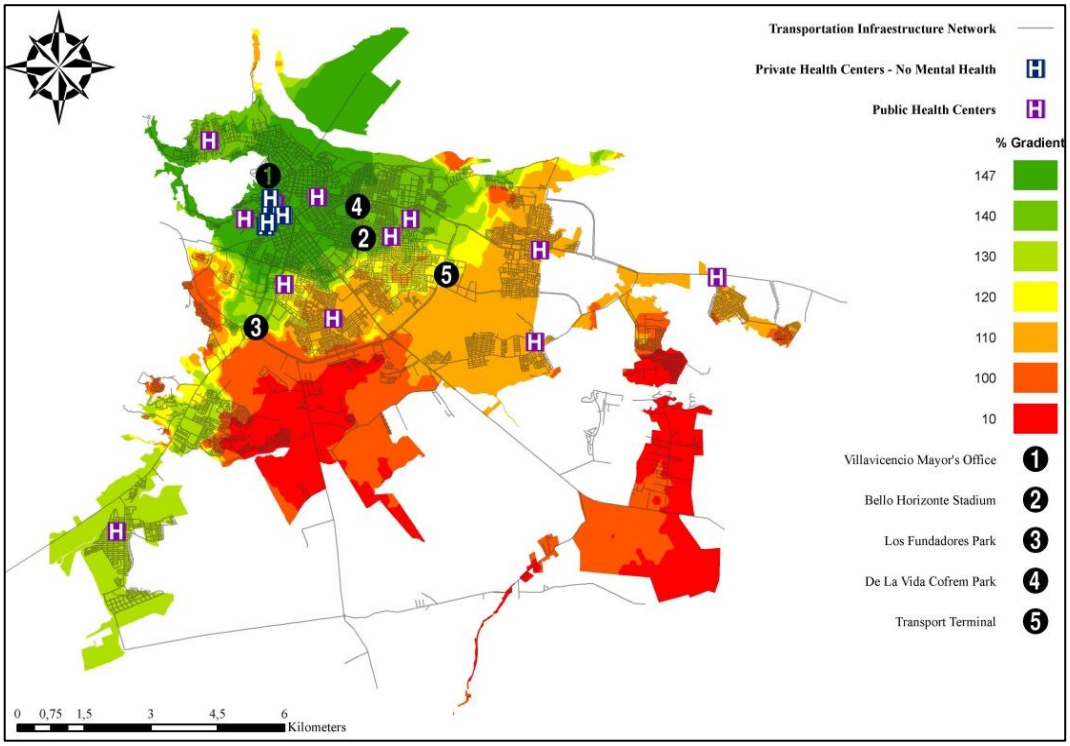

Figure 7. Variation gradient between the current scenario and the future scenario

CONCLUSION

With the development of this work, it is observed that the application of the E2SFCA method allows defining behaviors of accessibility to health services throughout the analyzed territory, taking into account aspects beyond the simple number of available health centers, analyzing factors such as capacity of transportation networks and capacity of each health center. Likewise, from the work carried out it is possible to conclude that in the city of Villavicencio there is acceptable behavior in terms of accessibility to beds - stretchers available in the city's health centers, however, it is evident that they do not exist in the city. current scenario, adequate coverage in relation to the supply of medical personnel, however, it is found that it is possible to improve the conditions of accessibility to doctors, by strengthening the supply of personnel in the health area, increasing the number of medical personnel available in each health center in the city. On the other hand, the development of the work allows us to identify that, when carrying out a comparative analysis, it is possible to establish that the behavior found in the city of Villavicencio corresponds to what is evidenced in other intermediate cities in the country, therefore, the proposal to strengthen the medical staff in health centers, represents an improvement in the conditions of accessibility to medical services in the intermediate cities of Colombia.

The limited access to information related to the real-time availability of doctors in each health center in the city, as well as the intrinsic dynamics of the practice of this profession, implies a limitation for the work carried out, represented in a possible inaccuracy in the results obtained. However, this represents a starting point for future research, in which it is possible to deepen the analysis carried out, confirming or rectifying the findings found here.

Author Contributions: Conceptualization, A.E.N., D.A.E. and C.A.M.; methodology, A.E.N. and D.A.E.; software, A.E.N.; validation, D.A.E. and C.A.M.; formal analysis, A.E.N. and D.A.E.; investigation, A.E.N.; writing - original draft preparation, A.E.N.; writing - review and editing, A.E.N., D.A.E. and C.A.M.; visualization, A.E.N.; supervision, D.A.E. and C.A.M.; project administration, D.A.E. and C.A.M. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: The authors express their sincere gratitude to the engineers Johnatan Barrios, Camila Márquez and Diana Leal, whose research work and results served as support to allow the identification of the conclusions of this research work.

Conflicts of Interest: The authors declare no conflict of interest.

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Article history: Received: 27.07.2024 Revised: 10.12.2024 Accepted: 08.01.2025 Available online: 03.02.2025