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## The relationship between health care needs and accessibility to health care services in Botosani county- Romania

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### Abstract

The population's access to health care services is conditioned by the offer of medical services, which, being unevenly distributed in the country and in Botosani County, determine limited access of the population, especially in rural areas. This paper focuses on the assessing and interpretation of the population's accessibility indicators to health services and health care needs index in Botosani, in the period 2000-2013, in order to highlight the relationship between the health care needs and the accessibility to health care services. The methodology of the research consists of collecting statistical data from existing statistical online databases, as provided by the Public Health Department of Botosani, which was analyzed, processed and converted into relevant indices in order to highlight the spatial and temporal dynamics of the population's accessibility to Botosani county health resources (the health services index), to highlight the dependence of the population on health services (the health care needs index) and the population's accessibility to health resources (spatial and temporal accessibility indicators). The spatial analyse was used for mapping calculated indicators using ArcGIS software, to emphasize spatial inequalities in Botosani County. The spatial distribution of health resources, shows that the rural Botosani area is poorly covered by health services, compared to the urban area, causing a limited access of rural population to health services. The health needs index also shows that the population's dependence on health services is higher in rural areas and lower in urban areas. This outlines an inverse relationship between the two indices: the higher the health care needs are the poorer the health care services. The spatial accessibility of public health services was analyzed taking into account the average distance that the patient has to cover up to the nearest medical unit and the temporal accessibility according to the time that the patient needs in order to cover the distance to the nearest medical unit (travel time). The low accessibility of the population to health care services overlaps with urgent health care needs areas and high deprivation areas, which is reflecting on the population's health outcomes. The outlined inequalities in people's access to health services have serious consequences on the health status of population of Botosani County.

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## 1. Introduction

The accessibility to health services is a major concern of the Ministry of Health in Romania, for which the main objective is to improve the access to health care services, especially for the rural population. The accessibility to health care is a multidimensional concept and can be defined as the ability of a population to obtain health care services. It varies across space because neither health professionals nor residents are uniformly distributed [1]. Access to health services is a pre-requisite for active participation in the activities of the society.

According to the European Observatory glossary produced on Health Systems and Policies, availability of healthcare is defined by the World Health Organisation (WHO) in 1998, "measuring the proportion of the population has access to medical services." The optimum access to health care means a state of affairs characterized by the provision of care and timely intervention of medical staff or paramedical authorized in situations that require the presence of the provider of health services to the home or place in which the patient. At EU level there are two approaches to the development of universal access: addressing "basic needs" and addressing "equality" [2]. Ideally, all citizens should have equal access to quality health care services. Such equal access has come to be acknowledged as essential to public health as individual health status [3, 4, 5].

Geographical accessibility to health services measures the extent to which health services are available and accessible to the population, being linked to the distribution of health infrastructure in a region and the actual offer of services and facilities. Inequalities in spatial accessibility to health care are pronounced in many developing countries but also persist in developed countries where medically underserved areas are often encountered in rural areas [6].

The recent evaluations of the Romanian health system shows that "it has all the rankings red flashlight in European public health systems" [7], which is underfunded, as well as the health systems in Eastern European countries. A growing number of people cannot afford to call the health services provided by private medical units and sometimes even to travel to the general practitioner offices if they are located at long distances. In the last years the standard of living of the population has decreased continuously which is reflected in healthcare outcomes. The inequalities in socio-economic development of the regions of Romania also influences health sector [8]. The limited state budget for health is responsible for the poor quality of health services system in Romania and also Botosani county. The differences between the richer regions and poorer, rural and urban, but also between people with high incomes compared with those with lower incomes are quite obvious for highlighting access to saniatre [9,10,11].

The accessibility, after Penchansky and Thomas (1981) as cited in Black M. et al. (2005) and updated by Oliver and Mossialos (2004) as cited in Black M. et al. (2005), it is measured by availability, acceptability and addressability (socio-economic, ethnic, age, sex, costs) and geographical or spatial and physical accessibility. The geographical accessibility measuring the level to which services are available and accessible to the population, being linked to the distribution of health care infrastructure in a specific region and the actual offer of the services and facilities.

The geographical accessibility varies according to local conditions of transport, as local topography. Geographical accessibility is calculated as physical distance, in kilometers, between the residence and the nearest available medical service, but also to the nearest hospital or ambulance station. The calculation of these distances is done either in line, or in the existing line access routes (roads, highways, paths etc) and is the time used to accede to a medical facility. There is no consensus on what constitutes "away" for a health care service, but usually it is considered that an optimal distance from a primary health care service should not be more than 5-7 km and a larger hospital 25-35 km [12]. It is considered a great distance to a medical facility may adversely affect directly health status. (Guagliardo 2004, cited Black M. et al., 2000).

Access to health services is also determined by the supply and the demand for health services. The demand affects access by an individual's attitude towards the disease, their knowledge of available services and the financial and cultural aspects of community members. Moreover, access is also affected by timing and outcomes, and the receipt of good quality service when an individual needs it. Finally, equity in access needs to be considered for all

groups in society, which may differ in terms of need, socio-economic status, culture, language, and religion [13].

The health care needs are divided into needs, demand and supply. Need, demand, and supply overlap, and this relation is important to consider when assessing health care needs. “The healthcare needs are those that can benefit from health care (health education, disease prevention, diagnosis, treatment, rehabilitation, terminal care). Most doctors will consider needs in terms of healthcare services that they can supply. Patients, however, may have a different view of what would make them healthier—for example, a job, a bus route to the hospital or health centre, or decent housing”. [14]

The health needs incorporate the wider social and environmental determinants of health, such as deprivation, housing, diet, education, employment, so that we can say that the health care needs of a population are constantly changing according to the determinants of health. Romania's health care system responds inefficiently to the major health problems of the population, the current model being based on curative health care provided mainly by hospitals, at the expense of outpatient and primary health care. Given that half of the population lives in rural areas, where hospitals are practically nonexistent, there are major problems in accessibility to basic health care services.

According to the principle of equity in health, people should have equal access to health services, which in practice is not achieved, due to inequalities in the distribution of health resources such as health facilities and medical staff. This paper aims to study the health care needs of the population in Botosani county and identify whether there is a link between the health care needs and the population's access to health care services, these geographical issues have not been studied before by other authors, for the Botosani area.

In this paper we analyze the population's geographical accessibility to health care services in Botosani County according to the health care needs of the population and also according to the geographical distribution of health services.

Botosani County is located in the northeastern part of the Romania country and has a population of 412626 inhabitants (2.1% of the total population) distributed in 78 administrative units, including 7 towns and 71 communes. It is the subject of this study because is located in one of the most disadvantaged regions of the country: the NE region. Material deprivation is a reality in Botosani County as also in the northeastern part of the country [15] and determines the population's uneven access to health services. The low level of economic development and unemployment are barriers in access to health care facilities. The county's health resources are the four hospitals, 164 general practician offices, 1 ambulance station and emergency unit, 1 doctor per 679 inhabitants (3.2 doctors/1000 inhabitants), 1 nurse per 195 inhabitants (5.08 nurses/1000 inhabitants).

The unequal distribution of health resources and the poor quality of transport network in Botosani county (with only 56% of the transport network in good condition) influence the population's unequal access to health services. Identifying the link between the health care needs of the population and accessibility is important for local and national authorities in order to find solutions to improve access to health care services and for health infrastructure development especially in rural areas, where it is poor. Studying the public accessibility to health services leads to the outlining of some disadvantaged or underserved areas of health services in Botosani county. The highlighting of the inequalities in people's access to health services can be for the local authorities a starting point or a premise for development and modernization of transport network that would provide an easy access to health care facilities.

This study opens the perspectives for a more extensive research of population access to health services, considering not only the spatial and temporal conditions, but also the other perspectives, such as availability of human resources, the population structure, the existence and endowment of health care providers, the socio economic and local conditions or specific aspects of morbidity.

## 2. Data and methodology

The research methodology is based on quantitative analysis, consisting of the analysis of statistical data from INSSE databases, and data provided by the Public Health Department of Botosani in the period between 2000-2013, on which we calculated by standardization and aggregation the health care services index and health care needs index.

To calculate the health care services index we used a total of 10 indicators which refer to the number and type of health facilities in Botosani county (eg. :number of hospitals / 1000 inhabitants, number of general practician offices / 1000 inhabitants, number of dental offices/ 1000 inhabitants), and the number and types of health staff (eg: number of doctors / 1000 inhabitants, number of nurses/ 1000 inhabitants, number of pharmacists / 1000 inhabitants, number of dentists / 1000 inhabitants) and wich have been combined using simple additive techniques. This index

was calculated at the national level [16] and has values between 0 and 1, the values close to 1 showing better health services and the values close to 0 indicating poor health services.

For the health care needs index were taken into account variables such as: the ratio of young population (under 5 years of age), the ratio of elderly population (over 65 years old), the number of consultations per inhabitant, chronic morbidity per 1,000 inhabitants (hypertension, diabetes, cancers, arthritis).

These indices of health care needs and health care services were not calculated for Botosani county by other authors, such as the calculation method used is built according to available statistics data. They are important to highlight the inequalities between the health care needs of the population in the county and for correlation the health care needs to the offer of health care services available in the county.

The accessibility indicators to health care services were calculated based on distances and travel/driving times estimated using the computer of Romania's road map available on Google in 2015, and they were verified on the field works with a personal car. In calculating the travel/driving times we took into account the quality of the road infrastructure and the weather conditions, which in winter increase the time necessary for a patient to access the health facilities. Also, often has been considered the type of health care services sought by patients the type of transport available to patients (car, means of transportation, or without transportation) and the average speed of transport in optimal weather or bad weather (blizzards, ice, fog). The distances travel to the general practitioner offices were calculated from the house of patients to the general practitioner office, located usually in the center of the administrative unit. The distances travel to the nearest hospital were calculated like average distances from the center of the administrative units to the nearest hospital. But, it does not always express the real distance because the patients may find themselves closer to or further from health care provider or it is not always located just in the center of the commune. Therefore we took into account the patients' average distance travel to an administrative unit.

A limitation of this study is the lack of statistical data relating to health and health care at micro-territorial level (like chronic morbidity, number of hospitalization's days) that reduces the possibility of building a comprehensive index of health care needs.

From another point of view the limits appear in the measurement of temporal accessibility, because we can not measure the waiting time of a patient who needs health care. Sometimes, this waiting time has a major impact on the individual's health status. To establish the relationship between the health care needs index and health services index we calculated the bivariate Person correlation coefficient using the SPSS programme.

Another method used was the spatial analysis data, consisting of mapping the spatial and temporal accessibility indicators, health care services index and health care needs index to highlight the poorly areas served by health services in Botosani. For this type of analysis we have used the GIS technique: SIGEP ©, which assumes that the rural population uses the same health care unit [17]. GIS has made it possible to measure the access to health care services of the population with health care needs [18, 19] and to map the calculated indices.

### **3. Results and discussion**

The higher the dependence of the population on health care services, the higher the needs of the population of health care services. A number of demographic and health variables used to assess the needs of health services reveal worrying aspects of Botosani county regarding the demographic situation, the health status of the population and the consumption of health care services.

The aging of the population is a factor which is known to increase the needs and therefore the demand for health care services [20]. The need for health care varies strongly with age. Small children, women of child-bearing age and the elderly are more likely to need to access the health-care system than other age groups. As a consequence, age structure is an important predictor of a population's need for primary health care.

From a demographic point of view, the age groups in the year 2013 indicate an already aging population, with a percentage of 26.12% of people over 65 of the total population, compared to the age group of young people (0-5 years) of 5.15%.

Table 1. Indicators of needs of health services.

Year	Areas	Ratio of young population (up to 5 years)- %	Ratio of elderly population (65 years)-%	Number of consultations per inhabitant	Chronic morbidity per 1,000 inhabitants	Health care needs index in Botosani county
<b>2010</b>	<b>Overall county</b>	5,547	26,221	2,298	190,622	<b>0,578</b>
	Urban	5,347	18,097	2,623	187,241	<b>0,654</b>
	Rural	5,566	27,022	2,265	190,965	<b>0,570</b>
<b>2013</b>	<b>Overall county</b>	5,152	26,126	2,826	213,979	<b>0,587</b>
	Urban	5,015	19,131	1,366	218,782	<b>0,721</b>
	Rural	5,165	26,815	2,974	213,492	<b>0,574</b>

Source: Indicators calculated using statistical data from INSEE, 2013

The number of consultations per inhabitant also show the needs of health care services and its vary depending on origin's area of the patients. In rural areas the number of consultations in the year 2013 was 2.9 consultations per inhabitant, but in urban areas there were 1.3 consultations per inhabitant, explained by the fact that the elderly population in rural areas goes to the general practician offices more frequently than the people from urban areas. The higher number of consultations is the higher the health care needs are.

The general morbidity of the population has had an increasing trend over the last 10 years. The evolution of disease types and new cases of morbidity show that between 2000 and 2009 there was an increase in the number of new cases of diseases of the circulatory, musculoskeletal, nervous system and the sense organs, as well as endocrine and nutrition diseases. Also, worrying are the cases of chronic diseases which create dependence on medical services: diabetes, cardiovascular diseases, cancer, obesity, pulmonary diseases.

The chronic morbidity differs in the two areas of life, in the year 2013 it was higher in urban areas (218 cases per 1,000 inhabitants) and lower (213 cases per 1,000 inhabitants) in rural areas. In urban areas, the greater morbidity can be explained by unhealthy population's diet based on processed foods or unhealthy practices like smoking, consumption of alcohol. In rural areas the unhealthy practices are less common and the population's diet is healthier, so that the chronic diseases are lower.

Based on the indicators presented in the above table we calculated the health care needs index. The higher the ratio of elderly population, the number of consultations per inhabitant and the number of illnesses, the higher the health care needs of the population are. The lower the ratio of elderly population, the number of consultations per inhabitant and the number of illnesses, the lower the health care needs of the population are.

The values obtained for health care needs index in Botosani county averaged to 0.587 in the year 2013, which means a slight decrease in the dependence of the population on health care services, compared to year 2010 (0.578). In the two areas of life, the basic health care needs of the urban population are lower, so the value of the health care needs index is closer to 1, which is explained by the lower proportion of young and old population in urban areas compared to rural areas.

The urgent health care needs of the rural population is determined by the higher percentage of young people and old people in rural areas and the higher number of consultations per inhabitant and on the larger number of chronic diseases. In the year 2013, the distribution of health care needs index reveals the following situations (figure no.1):

- communes with urgent health care needs (the values of the health care needs index below 0.400): Cosula, Ştiubieni, Unteni;
- communes with average health care needs (values between 0.401 to 0.600 of health care needs) in 35 communes;
- communes and cities with basic health needs (the values of health care needs index above 0.600) in 38 administrative units of the county.

In order to demonstrate the importance of health care needs of the population we correlate below the health care needs index with the health services index, to find out if there is a link between the two indices. Statistical analysis indicates a Pearson coefficient of 0.295 (close to 3), which means a low positive correlation. Sig coefficient of 0.010 is less than 0.05., which indicates that the statistical hypothesis is invalid. Consequently, the research hypothesis is true: there is a low correlation between the two indices.

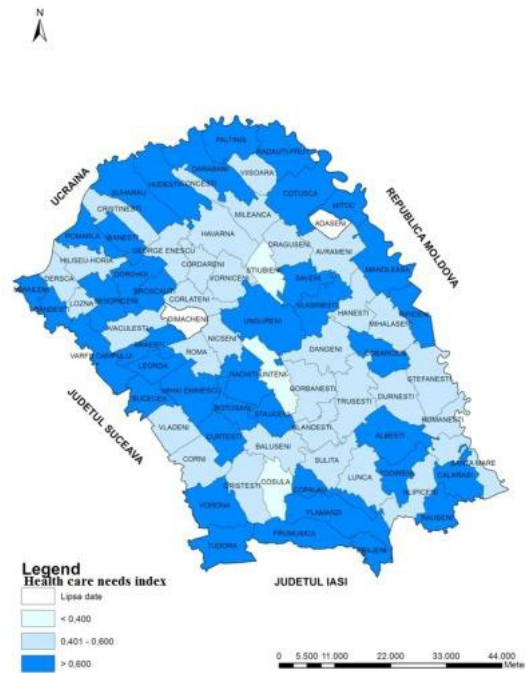


Fig. 1 The health care needs index in Botosani county, in the year 2013

Table 2. Correlation between the health services index and health care needs index

		<i>The health services index</i>	<i>The health care needs index</i>
<i>health services index</i>	Pearson Correlation	1	.295**
	Sig. (2-tailed)		.010
	N	78	76
<i>health care needs index</i>	Pearson Correlation	.295**	1
	Sig. (2-tailed)	.010	
	N	76	76

\*\* Correlation is significant at the 0.01 level (2-tailed).  
Processing performed in IBM SPSS Statistics 2.0.

This relationship shows that the need and demand for health services of the population is higher than the supply of health services in the county of Botosani, which is also highlighted by the average values of two indices: the health services index with an average value of 0.138 and the health care needs index with an average value 0.587, in the county, in the year 2013. Furthermore, the correlation suggests that there is an inverse relationship between the two indices: the higher the health care needs are, the poorer the health services are [21] (inverse healthcare law, T. Hart, 1971), which states that those who have greater needs benefit least.

**The accessibility of the population to health care services**

The population’s access to health services cannot be granted equally for all patients, according to the equity principle and to their needs, due to several factors such as the unequal distribution of health resources, the poor quality of transport infrastructure and the lack of income.

*Spatial accessibility* to health service locations is usually measured by taking into account the geographical barriers such as travel distance or time [22]. Most existing measurements of spatial accessibility are based on the potential interaction between health care providers (e.g., primary care physicians, cancer treatment centers, hospitals) and the population in need of health care, or on demand and supply of such services [23, 24, 25].

A basic method is to measure the average travel distance to the nearest health care providers [26, 27]. This method applies the straight line distance between the patient's location and that of the health care provider. However, travel routes are rarely straight lines in reality. Also, the method cannot fully represent clusters of health care providers in urban areas and ignores the availability dimension of access. Another study by Arcury et al. (2005) shows that a shorter distance between patients and physicians can increase the frequency of regular family physical exams. Other studies also confirm that early detection of disease and treatment is negatively associated with the spatial separation between medical services and patients [28, 29, 30, 31].

In measuring the spatial accessibility to health services, a main role is played by transport infrastructure development. Most times, a long distance can be corrected or adjusted by the existence of a well-developed transport infrastructure (eg. a paved road between the two points or a communication network through which emergency services can reach a certain place). So far as the quality of roads is concerned, it must be said that in many administrative units of the Botosani county the roads are not paved, and in a quarter of the communes the distance to the nearest paved road is of over 5 km. So, from the 650 km of county roads, only 56% are in good condition. The spatial accessibility of public health services was analyzed by taking into account the average distance that the patient has to cover in order to reach the nearest medical unit (general practician office, hospital, permanent center, emergency unit). In order to calculate the distances we considered the straight line distance between the nearest health care provider (which usually in the Botosani county is located in the center of administrative units) and the house of the patient who has health care needs. But, it does not always express the real distance because the patients may find themselves closer to or further from health care provider or it is not always located just in the center of the commune. So, from this point of view the study has some gaps, for which we took into account the patients' average distance from an administrative unit.

**The average distance from general practician office** is 4.8 km, which is above the average value recorded in Romania (4.2 km) [32], situated over the median value recorded in Romania (4 km). In Botosani county, the inequalities appear because of the distribution of the general practician offices, the distance varying between 4 and 6 km. The 23 communes where the patients travel a longer distance than 6 km from the general practician office can be considered disadvantaged in terms of accessibility to primary health care.

**The distance travelled by a patient to the nearest hospital** (the 4 hospitals existing in Botosani county) is an average of 21.9 km in Botosani county, which is close to the national average value calculated for this indicator in Romania (22 km) [idem 32, pg 30] but it varies between 10 km and 50 km. The patients from the 17 administrative units situated in the SE of the county (which represents 16.5% of the population's county) travel a longer distance to the nearest hospital, outlined a disadvantaged area in the county (figure no.2).

**The average distance traveled to the nearest ambulance station** (the only one ambulance station located in the Botosani city) has an average value of 39.5 km, well above the national average of 20 km, which means that the optimal access to this health service cannot be provided. The patients from 11 communes (8.79% of county's population) travel a longer distance of 60 km to the nearest ambulance, which outlines a disadvantaged area located in northeastern part of the county.

The long distance to the nearest ambulance station means a long travel time and some risks to the patients' health status. In traveling these distances should be considered not only the necessary means of transport (car, minibus), but also the costs of transport which increase with the distance, and depending on the costs of fuels (gasoline, diesel). Due to the unequal distribution of health care resources and different distances traveled by patients to health care providers, a part of the population can not get access to health services, which can have consequences on population's health status by the occurrence of diseases or even deaths.

**The temporal accessibility** was analysed according to the time that the patient needs in order to cover the distance to the nearest medical unit, which depends on the type of transport available. According to the studies conducted at European level an optimal temporal accesibility is characterized by an optimal time for intervention, generally within 30 minutes. The calculation of this parameter (**travel / drive time**) is difficult to do and should be individualized depending on local and specific conditions such as type of road access (paved road, gravel, unimproved etc.), condition of road access (dismantled, impractical in snowy or rainy conditions etc.), communication systems (telephony etc.), organization of ambulance, the type of transport (pedestrian travel, personal car or public transport), etc. [32 pg 96]. Travel time is influenced by type of health care sought; patients will travel further for specialty health care needs than for primary health care [33] and for complex medical cases than for simpler health problems.



Fig. 2 Distribution of administrative units in Botosani county by average distance to the nearest hospital

Some limits can be identified in assessing of travel times, because we can not quantify the patient's waiting time traveling to a medical unit. This can be materialized by waiting time of a means of transport needed to travel to the nearest medical facility or waiting time in front of the general practician office which can varies depending on the doctor's schedule or the number of patients.

Because the travel time is difficult to quantify in terms of actual data (requiring assessment on site), we tried an analysis in terms of the following indicators:

- travel time taken by the patient walking to the general practician office;
- travel time taken by the patient walking to the general practician office in winter;
- Driving time by car / means of urban public transport to the GP offices,
- Driving time by car / means of urban public transport to the hospital,
- Driving time by car / means of urban public transport to the hospital, in winter.

a. **Travel time by the patient walking to the general practician office** was calculated based on the distance to the GP offices and knowing that a patient walks 1km in 15 minutes.

The average walking time of transport to the general practician office is an average of 72 minutes per county, but varies between 45 and 90 minutes. In the winter the walking time necessary to cover the distance to the general practician office can double compared to the summer, due to impassable roads, which can be covered by snow, glazed frost or be blocked by snowstorms, all hampering walking. The average walking time to the GP office in winter is an average of 144 minutes. The patients from 51 administrative units travel the distance in 120 minutes, but in some cases, in more than 200 minutes.

b. **Travel time by car / means of public transport to the general practician office** was calculated taking into account the fact that 1 km is traveled by car at an average speed of 40 km / hour in 1.2 minutes.

The average driving time needed for the Botosani county's patients is 4.8 minutes, but can rise in some communes up to 8 minutes or longer. The patients from 13 administrative units driving the distance to the general practician office in more than 8 minutes.

c. **Travel/driving time to the nearest hospital** was calculated taking into account the transport networks, the quality of county roads and the weather conditions. Considering that hospital facilities are located only in urban areas, the patients from the rural areas are forced to use their personal car for transportation or the means of public



transport (bus, minibus). In summer the average driving time for patients who go to a hospital is 24.2 minutes, at the county level. In Botosani county this driving time varies between 24-50 minutes, longer for patients from communes situated in the SE part of the county, the farthest from Botosani County Hospital, where a disadvantaged area in this regard is outlined (figure no. 3). For patients who do not have a personal car the access to health care services can be prevented by waiting time for means of public transport needed to reach the hospital facilities.

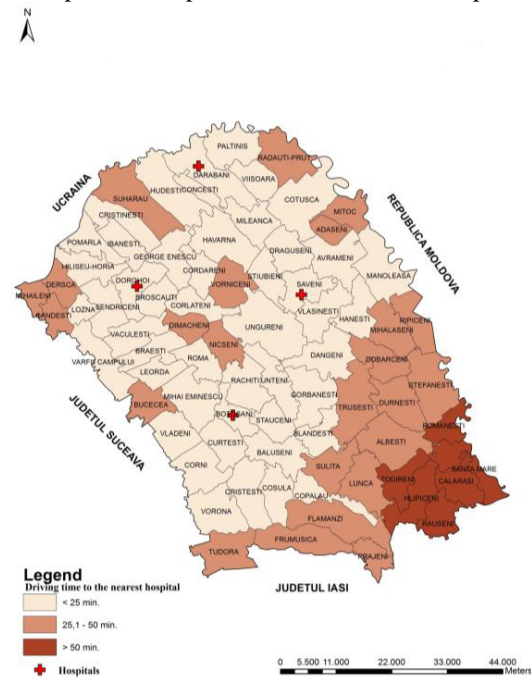


Fig. 3 Distribution of administrative units in Botosani county by average driving time to the nearest hospital

In the winter the driving time of patients to hospital units increases due to adverse weather conditions and difficult county roads, with an average travel time of transport of 40 minutes (at the county level), and for 14 administrative units from SE just over 60 minutes. In bad weather, the roads become impassable and inaccessible for cars and means of public transport, making it impossible to move patients from rural areas to the hospital.

**d. Travel time by car to the nearest ambulance station** is 42 minutes, a long time considering that there are patients suffering from chronic diseases who are dependent on medical services. For the communes situated in the SE part of the county the driving time required for patients to reach the ambulance station is 60 minutes. In these conditions, the access to emergency medical services is not provided in optimal time.

The long time access to health services is determined by the poor quality of county roads, 44% of which are in mediocre condition and poor functionality. The inequalities in travel time reflects on the population's health outcomes, that may occur through an worsening diseases if access to health services is not made in optimal time or badly these may cause even deaths.

## Conclusion

The accessibility to health services is determined by demand and supply of health services. In Botosani county the population's unequal access to health services is determined by: the unequal distribution of health care services and insufficient health care resources, which determines the long distance traveled by patients to the health care providers; the poor quality of transport networks of Botosani county, which causes long travel time to health care providers (even longer in winter); the health care needs that are in an inverse relationship with the health care services.

The access to health services is sometimes hindered by inadequate financial and material resources, which are

characterised by poverty and material deprivation, thus constituting a barrier to the public access to health care services. The relationship between the health care needs and health care services is highlighted on the one hand by the fact that the higher the health care needs are, the poorest the health services are, but also because the access of the population to health services is different in the two areas of life. The urgent health care needs of the rural population are inversely related with the poor and sometimes insufficient health care services. The basic health care needs of the urban population are in an inverse relationship with better health care services.

The long distances to health care provider units and the long time needed to benefit from health care services determine the low accessibility to health care services in Botosani county. The low accessibility of the population to health care services overlaps with urgent health care needs areas and high deprivation areas, which is reflecting on the population's health outcomes. There are strategies to improve the transport network in the Botosani county, but they should be correlate with the improvement of health infrastructure, so that these would reduce the inequalities in people's access to health services. Accessibility to health services can not be synthesized and characterized only by analyzing of spatial and temporal accessibility, but must be analyzed from different perspectives, such as availability of human resources, population structure, existence and endowment of medical offices, local conditions (including socio economic, cultural or specific aspects of morbidity).

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