CORRELATION OF PRIMARY DISEASE CASES WITH BASIC SANITATION IN THE MUNICIPALITY OF ANÁPOLIS, GOIÁS

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ABSTRACT
This paper presents the 'State of the Art' scheduled for the preparation of a Master's Dissertation currently being developed in the Stricto Sensu Postgraduate Programme in Environmental Sciences at the Evangelical University of Goiás (UniEVANGÉLICA). The study explores the relationship between the incidence of primary diseases and the lack of or inadequate provision of basic sanitation services in the municipality of Anápolis, highlighting the impacts on public health and possible mitigation measures. For basic sanitation, access to drinking water services, sewage collection and treatment, solid waste management, and urban drainage were considered in association with the occurrence or prevention of diseases such as diarrhea, hepatitis A, cholera, schistosomiasis, and leptospirosis. Addressed in the dissertation, the work includes the provision of. The dissertation analyzes existing public policies and health education programs implemented to reduce hospital admissions due to lack of basic sanitation, proposing recommendations for the development of future research to be carried out. A deductive approach was used to support the study and due to the relevance of the topic, with documentary analysis and bibliographic review procedures. However, in order to ensure the reliability of the statistical data, secondary sources available on government health and sanitation websites were used, as well as the possible investments that have been made to universalize access to sanitation and the costs of consultations and hospitalizations in the municipality of this research, enabling the Research Project that will serve as the basis for writing the Final Paper of the Program.

Keywords: geoprocessing; spatial analysis; environmental indicator; socioeconomic indicator.

INTRODUCTION

The association between primary diseases such as infections and diarrhea, and access to basic sanitation services such as treated water, sewage and solid waste collection and treatment, and hygiene, are important factors related to health and have often been studied in various regions around the world.

Diseases and infections related to the lack of sanitation are among the leading causes of morbidity and mortality worldwide. Differences in access to basic sanitation services between countries and within countries demonstrate how much this access affects the health and quality of life indicators of the population. Currently, sub-Saharan

1

Africa has the worst indicators worldwide regarding access to basic sanitation services and related mortality.

Brazil is a country of continental dimensions and has several regional differences in access to basic sanitation services when comparing regions, especially between the north and northeast regions and the south and southeast regions.

There is a significant deficit in the sewage sector in Brazil, with greater shortages in the outskirts of urban centers and rural areas, especially in regions where the poorest populations are concentrated. Sewage treatment is characterized by high costs, which hinder the universalization of the service, and ensuring access to and expansion of sanitation services requires the definition of public policies and investments necessary to meet demand and infrastructure needs.

The study will use basic sanitation and health data from the population of Anápolis over a number of years, and the results obtained may assist government officials in making decisions on specific interventions to reduce diseases related to the research.

DEVELOPMENT

Recent case studies are widely documented in Brazilian and international academic literature, demonstrating that basic sanitation is a relevant factor in public health, especially in the incidence of diseases such as diarrhea, cholera, hepatitis A, and intestinal parasites. According to the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), inadequate access to basic sanitation is one of the main risk factors for infectious and parasitic diseases.

The WHO estimates that for every dollar invested in sanitation, there is a return of four dollars in health savings and increased productivity (WHO, 2012). The literature presents several public policy initiatives and interventions to improve sanitation in Brazil. However, studies point to the need for physical improvements in infrastructure, highlighting the importance of health education to change behaviors and sanitary practices, as well as awareness campaigns on the importance of personal hygiene and water treatment.

This research will verify the possible correlations between cases of related primary diseases and access to basic sanitation services available in the municipality of Anápolis, identifying the main sectoral and socioeconomic disparities that exist.

The research will be based on public sanitation policies Law No. 11,445 of 2007, Basic Health - Law No. 8,080 of 1990, in the City Statute and Master Plan Law No. 128 of 2006 and information from public domains found on the websites of official agencies, public health data in DATASUS (http://www.datasus.gov.br); basic sanitation conditions (sewage, water supply, solid waste collection) will be accessed via SANEAGO (http://www.saneago.com.br) and SNIS (https://www.gov.br/cidades/pt-br/acesso-a-informacao/acoes-e-programas/saneamento/snis); and socioeconomic data (population, income, and education) will be obtained from *the National Household Sample Survey* (PNAD) (http://www.sidra.ibge.gov.br) and (http://www.censu 2022.ibge.gov.br).

After obtaining the data, the sanitation infrastructure will be surveyed, areas with the greatest deficiencies in service provision over the years of the study will be identified, health units that provide primary care will be mapped, and finally, a spatial analysis will be conducted to indicate possible correlations between the variables studied.

METHODS

The methodology that will be applied in the development of this research is defined as deductive, using secondary data of a descriptive and exploratory nature, with a quantitative approach, comparing health and basic sanitation conditions in the municipality of Anápolis.

Anápolis is a municipality located in the state of Goiás, with the third largest population, totaling 398,869 inhabitants according to the 2022 census by the Brazilian Institute of Geography and Statistics (IBGE). Access rates to treated water, sewage collection and treatment are 98.63% and 80.97%, respectively, and solid waste has collection and sanitary landfill coverage, according to sources from the National Sanitation Information System (SNIS) of 2022.

Document analysis and bibliographic review, as well as the use of theses, dissertations, and scientific articles published in relevant journals will help validate the research.

RESULTS

Finally, with a multifaceted approach, the research will enable UniEVANGÉLICA to prepare a Master's Dissertation, which will be defended at a future date in the *stricto sensu* Postgraduate Program in Environmental Sciences at UniEVANGÉLICA. Upon completion of this dissertation, it is expected to have mapped the current basic sanitation scenario in the municipality of Anápolis, as well as the direct and indirect impacts on public health.

Spatial analyses may reveal relationships beyond common sense and shed light on unanswered questions such as:

- What are the mechanisms by which water contamination due to the lack of basic sanitation can increase antimicrobial resistance in vulnerable communities?
- What are the relationships between basic sanitation infrastructure and the occurrence of chronic noncommunicable diseases (NCDs) that are not usually directly associated with environmental factors, such as hypertension and diabetes?
- How can the lack of basic sanitation affect the ability of primary health care networks to provide preventive care and effective treatment, especially in rural and remote areas?

Considering that the population of Anápolis has a high rate of access to basic sanitation compared to national and state rates, it is expected that the numbers of morbidity, mortality, and care for primary diseases such as diarrhea, cholera, hepatitis A, and intestinal parasites will be lower.

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