

Situational health diagnosis in the rural parish of Noboa, Ecuador: a descriptive cross-sectional study on the mixed burden of disease and access barriers

Diagnóstico situacional de salud en la parroquia rural de Noboa, Ecuador: estudio descriptivo transversal sobre la carga mixta de enfermedades y barreras de acceso

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ABSTRACT

This study aimed to comprehensively characterize the health situation of Noboa parish, Manabí, Ecuador, during 2024. An observational, descriptive, cross-sectional study was conducted with 90 inhabitants selected through non-probabilistic convenience sampling, using a structured questionnaire and reviewing local health facility records. Descriptive statistics were applied for analysis. A total of 28 communicable disease cases were identified, with coronavirus (34.5%) and dengue (27.6%) predominating; among non-communicable chronic conditions (11 cases), arterial hypertension (27.3%) and diabetes mellitus (18.2%) were most frequent. Over half of the population (55.6%) lacked access to prevention programs, while alcohol consumption (38.9%) and a history of tobacco use (33.3%) were reported. Problem prioritization ranked acute respiratory infections in children and geographical access barriers as leading health issues. Noboa parish faces a mixed burden of communicable and chronic diseases, compounded by behavioral risk factors and limited preventive access, underscoring the need to strengthen primary care through health education, epidemiological surveillance, and expanded preventive coverage.

Keywords: health situation diagnosis, rural health, communicable diseases, noncommunicable diseases, primary health care.

RESUMEN

El objetivo de este trabajo fue caracterizar integralmente la situación de salud de la parroquia Noboa, Manabí, Ecuador, durante 2024. Se realizó un estudio observacional, descriptivo y transversal con 90 habitantes seleccionados por muestreo no probabilístico por conveniencia, aplicando un cuestionario estructurado y revisando registros del centro de salud local. El análisis se efectuó mediante estadística descriptiva. Se identificaron 28 casos de enfermedades transmisibles, predominando coronavirus (34,5 %) y dengue (27,6 %); entre las crónicas no transmisibles (11 casos), destacaron hipertensión arterial (27,3 %) y diabetes mellitus (18,2 %). El 55,6 % carecía de acceso a programas de prevención, y se reportó consumo de alcohol (38,9 %) y antecedente de tabaquismo (33,3 %). La jerarquización de problemas priorizó las enfermedades respiratorias agudas en niños y las barreras geográficas de acceso. La parroquia Noboa presenta una carga mixta de enfermedades transmisibles y crónicas, agravada por factores de riesgo conductuales y el limitado acceso a la prevención, lo que exige fortalecer el primer nivel de atención mediante educación sanitaria, vigilancia epidemiológica y ampliación de la cobertura preventiva.

Palabras clave: diagnóstico de la situación de salud, salud rural, enfermedades transmisibles, enfermedades no transmisibles, atención primaria de salud.

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INTRODUCTION

Assessing the health situation is central to understanding the health conditions of a population and guiding the planning of primary care actions. This approach integrates social, environmental, occupational, and organizational aspects that shape the health-disease process, offering a structured view of the community context in which health interventions are carried out (Ghaderi et al., 2023).

Situational diagnosis is particularly relevant in rural communities, where limitations in infrastructure, service access, and the availability of human health resources often persist. International literature emphasizes that knowledge of the local environment and its associated risks is essential for clinical and community decision-making, as it enables the prioritization of needs and the design of intervention strategies tailored to the local reality (Khamraev et al., 2021).

The working and organizational conditions of health personnel directly influence the quality of care provided to the population. Previous studies have shown that exposure to workplace violence, excessive workloads, and lack of institutional support impair the performance of healthcare staff, particularly in high-demand, resource-limited settings (Kumari et al., 2022). These factors also take a toll on workers' mental health, which can, in turn, compromise the continuity and effectiveness of the health services offered to the community (García-Iglesias et al., 2023).

Furthermore, health situation analysis must consider populations in conditions of greater social vulnerability. Evidence indicates that factors such as social exclusion, stigma, and structural barriers shape both access to and quality of healthcare, reinforcing the need for comprehensive diagnoses that can identify existing inequities within the territory (Pantoja et al., 2025).

In this context, the use of technological tools for data collection and analysis has gained increasing relevance in public health and community studies. The application of monitoring systems and communication technologies facilitates the timely collection of data on health and environmental conditions, thereby strengthening evaluation and planning processes across diverse population settings (Bonilla et al., 2023).

The present study aimed to conduct a comprehensive situational health diagnosis in a rural parish of Manabí province, Ecuador, during 2024, to describe sociodemographic conditions, the

main health problems, and the factors influencing access to health services. The information generated is intended to serve as a foundation for planning community-based actions and strengthening primary health care at the local level (Ghaderi et al., 2023).

METHODOLOGY

A descriptive cross-sectional study was conducted to characterize the health situation of the rural parish of Noboa, located in the 24 de Mayo canton (Manabí, Ecuador), over the period from April to September 2024. This design was selected as it allowed for the description of sociodemographic conditions, the leading health problems, and the factors influencing access to health services at a single, well-defined point in time. The study population comprised residents of Noboa parish. Individuals of both sexes and across all age groups were eligible for inclusion if they had resided in the community for at least six months and provided voluntary consent to participate. A total of 90 participants were included, selected through non-probabilistic convenience sampling based on their availability and accessibility during the fieldwork phase. Records with incomplete or inconsistent data were excluded from the final analysis to ensure data quality and reliability.

The study variables encompassed a broad range of dimensions. Sociodemographic characteristics included age, sex, educational level, and occupation. Additionally, housing conditions and access to basic sanitation services were assessed, along with healthcare service utilization and self-reported morbidity. Time of residence in the community and age group were treated as control variables to adjust for potential confounding effects in the descriptive analysis. Data were collected using a structured questionnaire specifically designed for situational health diagnosis, which was administered to all participants. This primary instrument was complemented by a systematic review of clinical and epidemiological records available at the local health facility, allowing for cross-verification of self-reported conditions and identification of notifiable communicable and non-communicable diseases.

All questionnaires were applied through face-to-face interviews, conducted after participants had signed written informed consent forms. Simultaneously, institutional morbidity and mortality registries were reviewed to capture the main health events reported in the parish during the study period. The gathered information was subsequently coded, organized, and entered

into a database for systematic handling. Data analysis relied exclusively on descriptive statistics, including absolute frequencies, relative percentages, and summary measures appropriate to each variable type (e.g., means or medians for quantitative variables, and proportions for categorical data). The results were structured into tables and graphs to facilitate clear interpretation and visualization of the community's health profile, supporting the subsequent prioritization of health problems.

The study strictly adhered to the ethical principles outlined in the Declaration of Helsinki for research involving human subjects. Participation was entirely voluntary, and all participants were informed of their right to withdraw from the study at any time without consequence. Informed consent was obtained from every participant before their inclusion. Confidentiality and anonymity of all collected data were rigorously guaranteed, with personal identifiers removed during the coding process. Information was used exclusively for academic and research purposes. Furthermore, the study received formal authorization from the corresponding local health authority before fieldwork commenced, ensuring institutional oversight and compliance with local research regulations.

RESULTS AND DISCUSSION

The results of the comprehensive situational health assessment of the Noboa parish reveal the presence of communicable diseases, chronic non-communicable diseases, and risk factors affecting the population during 2024. The findings are presented in tables that allow for the identification of the main health problems and guide the prioritization of community interventions.

Table 1 shows the distribution of communicable disease cases identified in the Noboa parish. Coronavirus was the most prevalent disease, representing 34.48% of registered cases, followed by dengue fever at 27.59%. These diseases reflect the persistence of respiratory and vector-borne infectious risks in the community. Malaria accounted for 10.34%, while leptospirosis and conjunctivitis each reached 6.90%. Other pathologies, such as acute respiratory infections (ARI), HIV, and typhoid fever, had lower incidences, each representing 3.45%.

Table 1. Distribution of communicable diseases in the Noboa parish, 2024

Disease	Number of cases	Incidence (%)
Coronavirus	10	34.48
Dengue	8	27.59
Malaria	3	10.34
Leptospirosis	2	6.9
Conjunctivitis	2	6.9
Infections respiratory acute	1	3.45
HIV	1	3.45
Typhoid	1	3.45
Total	28	100

The presence of infectious diseases coincides with what has been described in the literature regarding communities with structural limitations and exposure to environmental and social factors that favor the transmission of infectious agents, especially in rural contexts (García-Iglesias et al., 2021).

Table 2 shows the distribution of the identified chronic non-communicable diseases. Hypertension was the most frequent pathology, with an incidence of 27.27%, followed by diabetes, bronchial asthma, and osteoarthritis, each with 18.18%. Cancer and kidney failure represented 9.09% each.

Table 2. Distribution of chronic non-communicable diseases in the Noboa parish, 2024

Disease	Number of cases	Incidence (%)
Blood pressure	3	27.27
Diabetes mellitus	2	18,18
Bronchial asthma	2	18,18
Osteoarthritis	2	18,18
Cancer	1	9.09
Kidney failure	1	9.09
Total	11	100

These results are consistent with studies describing a growing burden of chronic diseases in rural populations, associated with lifestyle, family history, and limited access to preventive programs (García-Iglesias et al., 2021).

The high prevalence of non-communicable chronic diseases identified in the community, particularly hypertension and diabetes mellitus, highlights the importance of considering lifestyle and dietary factors as determinants of population health. In this regard, diet quality, the nutritional composition of consumed foods, and the energy density of traditional dishes can influence metabolic risk and the development of chronic conditions. Studies conducted in the Ecuadorian population have demonstrated the relevance of evaluating the energy density and nutritional characteristics of typical local dishes as part of a comprehensive analysis of dietary habits and their relationship to health (Alvarado et al., 2021).

In addition to factors associated with energy intake, the functional quality of the diet is a relevant component in the prevention of chronic diseases. The total antioxidant capacity of food and diet can contribute to the body's redox balance, due to the action of bioactive compounds capable of modulating processes related to oxidative stress and inflammation—mechanisms implicated in various metabolic diseases. Previous research has highlighted the importance of estimating the antioxidant quality of the diet as a tool for assessing the relationship between diet and health status in different population groups (Forbes-Hernández et al., 2020; Forbes-Hernández et al., 2021).

In addition to the overall quality of the diet, adequate hydration is an essential component for maintaining physiological balance and promoting bodily performance. In this regard, isotonic drinks represent a formulated alternative to contribute to the replenishment of water and electrolytes, especially in situations of increased fluid and mineral losses associated with physical activity or conditions of high physiological demand. Ruiz and García (2022) pointed out that the formulation of these beverages should consider the appropriate concentration of carbohydrates and minerals to optimize their effect on the recovery of water and electrolyte balance, highlighting the importance of analyzing their consumption within a comprehensive approach to nutrition and the promotion of healthy lifestyles.

Table 3 presents the main risk indicators reported by the population. It was observed that 33.33% of respondents did not report any chronic diseases, while diabetes (22.22%) and hypertension (16.67%) were the most frequently mentioned conditions. Regarding harmful habits, 33.33% reported having smoked at some point, and 38.89% consumed alcohol occasionally or

frequently. Furthermore, 55.56% indicated a lack of access to health prevention programs, which limits early detection and disease control.

Table 3. Risk indicators and access to prevention programs in the Noboa parish, 2024

Indicator	Frequency	Percentage (%)
Diabetes	20	22,22
Hypertension	15	16.67
Asthma	10	11,11
Heart disease	5	5.56
Others	10	11,11
No disease chronic	30	33.33
Current smoker	10	11,11
Smoker in the past	20	22,22
Frequent alcohol consumption	15	16.67
Occasional alcohol consumption	20	22,22
Access to prevention programs (Yes)	40	44.44
Access to prevention programs (No)	50	55.56

The presence of these factors is related to evidence indicating the influence of stress, unhealthy habits, and limited access to preventive services on the physical and mental health of populations (Craven et al., 2022). From a holistic perspective, community health promotion must also consider the interaction between diet, gut microbiota, and physical and mental well-being. Current evidence indicates that the gut microbiota participates in metabolic, immunological, and neurobiological processes, so alterations in its composition can be associated with different health conditions. In this context, incorporating preventive strategies aimed at improving dietary habits and promoting healthy lifestyles could contribute to a multidimensional approach to chronic diseases in rural communities (Barcia et al., 2024).

Table 4 presents the ranking of the main problems identified, considering vulnerability, severity, and frequency. The most pressing problem was the increase in acute respiratory illnesses in children, with a total score of 42, followed by the increase in childhood febrile illnesses and difficulty accessing health centers, both with 41 points. These results align with the literature highlighting how social, environmental, and structural determinants influence the emergence and persistence of priority health problems, especially in rural communities with limited access to services (Corchero-Falcón et al., 2023; García-Iglesias et al., 2021).

Table 4. Ranking of the main health problems in the Noboa parish, 2024

Problem	Vulnerability	Gravity	Frequency	Total
Acute respiratory illnesses in children	14	14	14	42
Diseases in febrile children	14	14	13	41
Difficulty accessing health centers	14	13	14	41
Increase in dengue cases	14	13	13	40
Prevalence of diabetes mellitus	13	13	13	39
Diseases diarrheal acute	13	12	13	38

The situational analysis of the Noboa parish reveals a coexistence of communicable and chronic diseases, as well as risk factors, requiring a comprehensive approach. Prioritizing these problems allows for the guidance of actions focused on health promotion, disease prevention, and strengthening primary healthcare.

CONCLUSIONS

Noboa parish faces a complex health situation, characterized by a relevant dual burden of communicable diseases —mainly coronavirus and dengue— and non-communicable chronic conditions, with arterial hypertension and diabetes mellitus being the most prevalent. This scenario is further exacerbated by a high prevalence of harmful habits such as alcohol consumption and tobacco use, limited coverage of prevention programs (55.6% without access), and geographical and organizational barriers to accessing healthcare services, all of which increase community vulnerability and hinder timely disease control. The prioritization of problems ranks acute respiratory and febrile illnesses in children, the increasing number of dengue cases, and restricted healthcare access as the top priorities, demanding a coordinated response from the primary care level. We recommend implementing community-based strategies for health education, vector and environmental control, and expanding the availability of preventive programs. Future research should further investigate the social determinants of health in this setting and evaluate the impact of the interventions carried out in this parish.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: María R. Delgado and Jorge A. Fernández. **Data curation:** Jorge A. Fernández and Nelson A. Cedeño. **Formal analysis:** María R. Delgado, Jorge A. Fernández, and Nelson A. Cedeño. **Investigation:** María R. Delgado, Jorge A. Fernández, Nelson A. Cedeño, and María A. Rivadeneira. **Methodology:** María R. Delgado and María A. Rivadeneira. **Resources:** María R. Delgado, Jorge A. Fernández, and Nelson A. Cedeño. **Software:** María A. Rivadeneira. **Supervision:** María R. Delgado and Jorge A. Fernández. **Validation:** Nelson A. Cedeño. **Visualization:** María R. Delgado and Nelson A. Cedeño. **Writing – original draft:** María R. Delgado, Jorge A. Fernández, Nelson A. Cedeño, and María A. Rivadeneira. **Writing – review & editing:** María R. Delgado.

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