Barriers to Timely Access to Specialized Healthcare in a Geographically Isolated Municipality: Evidence from Mapun, Tawi-Tawi

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ABSTRACT

Timely access to specialized healthcare remains one of the most pressing challenges in geographically isolated and disadvantaged areas (GIDAs), contributing to preventable morbidity, premature mortality, and a diminished quality of life. This study examined the barriers to specialized healthcare in Mapun, Tawi-Tawi, a remote island municipality in the Philippines, and explored how these barriers affect patient outcomes. A cross-sectional descriptive–correlational design was adopted to capture both the profile and perceptions of the community. Using snowball sampling, 218 respondents with personal or familial experience in seeking healthcare within Mapun or at referral centers outside the island were recruited. Data were gathered through a validated researcher-developed questionnaire consisting of three sections, which captured demographic information, levels of awareness of healthcare barriers, and perceived impacts on morbidity, mortality, quality of life, and satisfaction. Descriptive statistics were used to summarize demographic characteristics, while Pearson's correlation coefficient and one-way analysis of variance (ANOVA) were employed to test associations between demographic factors and levels of awareness.

Results revealed that the respondents were predominantly female and economically disadvantaged, with 68 percent reporting a household monthly income below ₱12,500, underscoring the economic vulnerability of the population. All respondents relied exclusively on sea transport, with boat travel times ranging from 14 to 30 hours to reach the nearest referral hospital. The most frequently identified barriers were geographical isolation (92%), financial constraints (85%), lack of specialists (81%), and shortage of healthcare professionals (78%). These factors were significantly correlated with negative outcomes, including heightened morbidity ($M = 3.21$), preventable mortality ($M = 3.09$), diminished quality of life ($M = 3.12$), and high dissatisfaction with healthcare services ($M = 3.34$). Older respondents and those with lower incomes exhibited higher levels of awareness, suggesting that they are disproportionately affected by these barriers ($p < 0.05$).

The study concludes that delayed access to specialized healthcare in Mapun significantly worsens health outcomes and exacerbates inequalities, particularly among older adults and low-income households. Addressing these challenges requires a comprehensive policy response that includes investment in transport infrastructure, deployment and retention of healthcare professionals, expansion of local facilities, integration of telehealth services, and enhancement of financial risk protection mechanisms such as PhilHealth coverage and targeted subsidies. These interventions are crucial not only for improving health outcomes in Mapun but also for advancing the Philippines' commitment to universal health coverage and the Sustainable Development Goals on health equity.

INTRODUCTION

Healthcare is universally recognized as a fundamental human right, but in practice, access to timely and specialized services remains unevenly distributed, particularly in remote areas classified as geographically isolated and disadvantaged areas (GIDAs). The World Health Organization (WHO, 2024) has emphasized that structural determinants such as distance from health facilities, poverty, and a shortage of trained healthcare professionals create persistent gaps in service coverage and contribute to preventable morbidity and mortality.

These barriers undermine the global movement toward universal health coverage (UHC), which aims to ensure that all people receive the health services they need without suffering financial hardship.

In the Philippine context, these disparities are especially evident. Healthcare resources, including specialists, diagnostic equipment, and tertiary hospitals, are heavily concentrated in major cities such as Manila, Cebu, and Davao, leaving rural provinces and remote island municipalities underserved. This imbalance creates a situation where residents of GIDAs experience delayed diagnoses and treatment, which results in complications, prolonged recovery periods, and in many cases, avoidable deaths (Guinto et al., 2021). The inequities undermine the spirit of the Universal Health Care Act (Republic Act No. 11223), which was enacted to guarantee equitable access to health services nationwide.

Mapun, Tawi-Tawi, is one of the most geographically isolated municipalities in the Philippines. Its location, closer to Sabah, Malaysia than to mainland Mindanao, creates a unique logistical challenge for healthcare access. The municipality has only one hospital, a 25-bed infirmary with limited equipment and no resident specialists. Patients requiring specialized treatment must travel by boat for 14 to 30 hours to reach referral hospitals in Palawan or Zamboanga City, journeys that can be dangerous and, for critically ill patients, life-threatening. Similar conditions have been reported in other rural and island municipalities where socioeconomic inequities and limited transportation infrastructure compound the problem (Collado, 2024; Wibisbono, 2024).

Against this backdrop, the present study sought to systematically explore the barriers to specialized healthcare in Mapun and their effects on patient outcomes. Drawing upon Andersen's Behavioral Model of Health Service Utilization, which examines how predisposing factors, enabling resources, and health needs shape care-seeking behavior (Alkwaldeh et al., 2023), and the WHO Social Determinants of Health framework (WHO, 2024), this research aimed to provide evidence-based insights that could inform local and national policy responses. Specifically, the objectives were to describe the demographic profile of respondents, assess their level of awareness of healthcare barriers, examine the perceived impact of these barriers on morbidity, mortality, quality of life, and satisfaction, and determine whether demographic characteristics such as age, gender, and income are significantly related to levels of awareness.

METHODOLOGY

A quantitative descriptive–correlational design was employed to capture the current state of healthcare access in Mapun and explore the relationships between demographic characteristics and awareness of barriers. The study was conducted from January to May 2025 in Mapun, Tawi-Tawi. The municipality's unique geographical position—accessible only by sea travel—necessitated the use of snowball sampling, a non-probability sampling technique suitable for reaching hidden or hard-to-reach populations where a complete sampling frame is unavailable. The process began by identifying initial participants—patients or family members who had sought healthcare locally or outside the island within the past two years—who then referred other eligible individuals in their social networks. The process continued until 218 respondents were recruited, a sample size determined using Slovin's formula at a 95% confidence level with a 5% margin of error, ensuring representativeness.

Data were collected through a structured questionnaire developed by the researcher and divided into three sections. The first section collected demographic data, including age, sex, household income, mode of transportation, and type of medical case experienced. The second section measured awareness of healthcare barriers, focusing on geographical isolation, financial constraints, availability of specialized services, and adequacy of medical workforce. The third section assessed the perceived impact of these barriers on health outcomes such as morbidity, mortality, quality of life, and satisfaction, using a four-point Likert scale ranging from strongly disagree (1) to strongly agree (4). This scale was selected to eliminate a neutral midpoint and encourage respondents to take a clear stance, facilitating more precise interpretation of results.

To ensure validity and reliability, the instrument underwent review by a panel of experts in public health and health research methodology, who confirmed its content and construct validity. A pilot test involving 20 participants from a population similar to the target group but excluded from the final sample was conducted,

and feedback from the pilot test led to refinements in wording and formatting to improve clarity and reduce ambiguity.

The researcher personally conducted data collection, distributing questionnaires at locations and times convenient for respondents. Assistance was provided to those with limited literacy to ensure comprehension without influencing responses. Participation was voluntary, informed consent was obtained from all respondents, and anonymity was preserved by assigning codes to questionnaires and allowing respondents to leave identifying fields blank.

Frequency distribution and percentage were used to describe demographic variables, while mean and standard deviation were used to determine levels of awareness and perceived impacts. Pearson's correlation coefficient was used to test associations between demographic variables and awareness, and one-way ANOVA was applied to determine significant differences in perception across demographic groups. The study adhered to ethical principles of respect, beneficence, and justice, and confidentiality was strictly maintained throughout the research process. For publication, explicit mention of institutional ethics review board (IRB) or local health authority approval is recommended to meet international journal requirements.

RESULTS AND DISCUSSION

The findings present a nuanced understanding of the challenges faced by residents of Mapun. The demographic profile revealed that respondents ranged from 14 to 64 years old, with the largest proportion between 37 and 40 years of age. More than half of the respondents were female, consistent with studies indicating that women are more proactive in participating in health surveys and seeking medical care (Garcia et al., 2023). Income data revealed stark economic vulnerability: a significant portion reported earning below the Philippine monthly poverty threshold, underscoring the economic fragility of households in Mapun and their limited ability to finance health-related expenses.

The reported medical cases illustrated the burden of preventable and treatable diseases, including acute gastroenteritis, bronchopneumonia, and urinary tract infections, conditions that can escalate quickly if care is delayed. The heavy prevalence of these illnesses points to gaps in preventive health services, sanitation, and timely treatment (Torres & Jimenez, 2020; Villanueva et al., 2023).

Geographical isolation was one of the most striking findings. All respondents reported exclusive reliance on boat travel to access referral hospitals, with trips lasting from 14 hours to Palawan to as long as 30 hours to Zamboanga City. This dependence on sea transport highlights a critical gap in emergency response capacity, as such travel is unsafe for patients requiring urgent care.

Awareness of healthcare barriers was consistently high across respondents. Most agreed that distance, transportation costs, hospital fees, and medication expenses influenced their decision to seek care. The shortage of specialists and medical staff in the local infirmary was also widely recognized, reflecting direct community experience with an overburdened and under-resourced health system. These findings are aligned with national and international evidence showing that geographic isolation and human resource shortages are key determinants of inequitable health access (WHO, 2021; Cano et al., 2021).

Perceived impacts on health outcomes were significant. Respondents reported that delays in receiving care frequently resulted in worsened illness severity, with some citing preventable deaths due to the absence of timely interventions (Nathaniel, 2018). Quality of life was perceived as compromised not only due to physical suffering but also due to emotional stress and financial hardship arising from the cost of seeking care outside the island (Siaba et al., 2024). Dissatisfaction with health services was pronounced, with participants expressing frustration at the necessity of long journeys, high expenses, and lack of local capacity.

Statistical analysis strengthened these observations. Pearson's correlation results indicated significant associations between age and income and the level of awareness of barriers, suggesting that older adults and poorer households are more attuned to the consequences of delayed access, likely because they are disproportionately affected. Sex was not found to be a significant factor, indicating that men and women face

similar levels of difficulty in accessing care. ANOVA results revealed significant differences in perception when respondents were grouped by income, confirming that socioeconomic status is a critical determinant of how healthcare barriers are experienced.

These findings echo the principles of Andersen's Behavioral Model, which holds that predisposing characteristics (such as age), enabling resources (such as income and transportation), and need factors (such as presence of illness) interact to influence health service utilization (Alkwaldeh et al., 2023). They also resonate with the WHO Social Determinants of Health framework, which recognizes that structural inequalities—such as poverty, inadequate infrastructure, and limited health workforce distribution—drive health disparities (WHO, 2024).

CONCLUSION

This study provides robust evidence that delayed access to specialized healthcare in Mapun, Tawi-Tawi, has significant consequences for health outcomes, leading to increased morbidity, preventable mortality, reduced quality of life, and dissatisfaction with the healthcare system. The findings indicate that barriers such as geographical isolation, economic hardship, shortage of health professionals, and lack of local specialized services disproportionately impact older adults and low-income households.

Addressing these challenges requires comprehensive and multi-layered interventions. Improving transport infrastructure is paramount, including investment in safer and faster sea vessels and the potential development of air evacuation services for emergency cases. Local health facilities must be strengthened and upgraded to provide a wider range of services, reducing the need for long-distance referrals. Human resource strategies should focus on incentivizing the deployment and retention of healthcare professionals in remote areas through competitive compensation, training opportunities, and career support. Telehealth services offer an innovative approach to bridging the gap in specialist care, providing consultations and diagnostic support without requiring travel. Financial risk protection mechanisms, including expanded PhilHealth coverage and targeted government subsidies, must be scaled up to ensure that households are not forced to choose between healthcare and other basic necessities.

Ultimately, ensuring equitable healthcare access in Mapun and similar GIDAs is a necessary step toward achieving the goals of universal health coverage in the Philippines. The findings contribute to the growing global literature on health equity in remote and underserved populations and underscore the need for policies that address both structural and social determinants of health.

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