

## Determinants of healthcare service utilization among enrolled residents of the negros occidental comprehensive health program

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**Abstract:** This study explored the extent of healthcare service utilization among residents enrolled in the Negros Occidental Comprehensive Health Program (NOCHP), focusing on seven key indicators: predisposing factors, enabling factors, perceived need, accessibility, continuity, comprehensiveness, and coordination. Anchored in Andersen and Newman's Behavioral Model and Starfield's Primary Care dimensions, a quantitative descriptive design was used, with data collected from 315 volunteer participants. A modified version of the Primary Care Assessment Tool guided the evaluation of the indicators. Findings revealed that predisposing factors, perceived need, continuity, comprehensiveness, and coordination were strong indicators of utilization, while accessibility and enabling factors were moderate. Significant differences in utilization were observed across age, gender, education, income, and occupation, but not by marital status. These results highlight the complex interplay of demographic and systemic factors influencing healthcare access and use. The study provides evidence-based insights to support improvements in provincial health programs and serves as a reference for policymakers, administrators, and researchers aiming to strengthen public healthcare delivery for insured populations.

**Keywords:** Behavioral health model, Healthcare utilization, Health service access, Public health programs, Primary care indicators.

### 1. Introduction

Healthcare services differ from other sectors due to their unique characteristics of intangibility, heterogeneity, and simultaneity, which make them difficult to define and measure [1]. As an intangible product, healthcare cannot be seen or touched like manufactured goods; instead, it is shaped by the interaction between the provider and the patient throughout the service process [2]. In reality, quality healthcare is achieved when it effectively and efficiently meets patient needs and expectations, resulting in satisfaction [3, 4]. Numerous studies have explored healthcare service utilization across various contexts and variables, identifying key indicators such as perceived health status [6, 7], geographic accessibility [8], access to medicines [9] and the presence of acute or chronic illnesses [10]. However, many of these studies do not sufficiently examine the utilization patterns of populations enrolled in local health insurance programs.

In response to this gap, several countries have implemented National Health Insurance Schemes to enhance access to healthcare by pooling funds to finance services [11]. These schemes vary in structure and scope, with the common goal of achieving universal healthcare coverage [12]. Both high-income and low-income countries have shown increases in healthcare service utilization as a result [13, 14]. For instance cases in different countries such as, in China, insurance for the elderly significantly

increased utilization rates compared to the uninsured, particularly among middle- and high-income groups [6]. In Vietnam, healthcare utilization among the insured ranged from 40.9% to 46.3%, nearly double that of the uninsured population [15]. Similarly, in Taiwan, elderly individuals with national insurance and co-existing conditions utilized services more frequently than their relatively healthier peers [5]. In some instances, the impact of having national insurances can affect an individuals' decisions towards healthcare [16, 17].

In the Philippines, there are always some hesitations in terms of healthcare issues, may it be vaccinations or even birth control [18, 19]. PhilHealth serves as the national social health insurance program and has achieved a reported 92% population coverage, contributing to increased access to primary care through various benefit packages [20, 21]. Despite this, utilization has been more concentrated on inpatient care, with members reporting low satisfaction in terms of usefulness and accessibility [22]. While some studies have noted improvements in both inpatient and outpatient utilization [23], others suggest that PhilHealth still struggles to enhance service accessibility and benefit management [24]. At the local level, the Negros Occidental Comprehensive Health Program (NOCHP) was developed to complement PhilHealth by covering services not included in the national program [25]. With the issues of healthcare accessibility [26], NOCHP which initially supports both inpatient and outpatient care, the program shifted under several memorandum orders, to expand and also focus on outpatient services and discharged medicines (including casual and permanent employees) [27].

Although the literature identifies various factors influencing healthcare utilization, there remains a lack of studies examining the patterns and indicators specific to insured populations under localized programs like NOCHP. Addressing this research gap is essential for developing a shared understanding among stakeholders, guiding program improvements, and supporting evidence-based decision-making in public health policy and nursing practice.

### 1.1. Research Objective

This study aimed to assess the extent of healthcare service utilization among residents enrolled in the NOCHP. Specifically, it sought to:

- ✧ Describe the demographic profile of enrolled residents based on age, gender, marital status, educational attainment, income, and employment status.
- ✧ Determine the extent of healthcare service utilization in terms of predisposing, enabling, need, accessibility, continuity, comprehensiveness, and coordination factors.
- ✧ Identify whether there are significant differences in the extent of these utilization indicators when grouped according to the participants' demographic profiles.

### 1.2. Significance of the Study

The findings of this study may be valuable to various sectors involved in the planning and delivery of healthcare services in Negros Occidental. For the *provincial administrator*, the results can inform policy development aimed at enhancing the provincial health insurance program, especially in addressing the needs of indigent populations. Realigning healthcare service priorities based on the study's findings may also lead to more effective and equitable healthcare delivery. For *hospital administrators*, the insights may support improvements in service utilization by fostering a shared understanding of healthcare priorities across NOCHP satellite offices. This can lead to more coordinated efforts in enhancing service delivery. *Local government unit officials* may likewise benefit from the study by using its findings to improve program implementation, facilitate effective information dissemination, and assist residents in navigating procedures for availing government healthcare services. For the local *community residents*, especially the indigent beneficiaries of NOCHP, the study emphasizes the importance of their experiences and perceptions in evaluating service utilization. Their feedback can help tailor the program to better meet their healthcare needs. Lastly, *future researchers* may

use this study as a reference for exploring related topics, applying different variables or methodologies to further investigate healthcare service utilization in the context of local health insurance programs.

### 1.3. Scope and Limitations of the Study

This quantitative descriptive study is focused on assessing the extent of healthcare service utilization among residents enrolled in the NOCHP, specifically within one city in the province. Conducted from August 2 to 31, 2022, it included 315 NOCHP-enrolled participants who were residents of the selected city and had availed of healthcare services during the study period. Data were collected using a modified standardized questionnaire and analyzed through a descriptive quantitative approach. The study examined participants' demographic profiles, such as: age, gender, marital status, educational attainment, income, and employment status, and explored the extent of utilization based on key indicators: predisposing, enabling, need, accessibility, continuity, comprehensiveness, and coordination. Furthermore, the current study was limited to one government-owned hospital and excluded other NOCHP satellite offices due to time and financial constraints. Although participants were selected using stratified random sampling from different barangays (*which is the smallest administrative division in the Philippines and functions as the basic political unit within a city or municipality*), the city itself was chosen through convenience sampling. Additionally, since the research was conducted during the COVID-19 pandemic, the findings may not fully reflect utilization patterns under normal conditions or across the entire province. As such, results should be interpreted with caution when generalizing to other settings.

## 2. Literature Review

### 2.1. Theoretical Framework of the Study

To establish a strong foundation for this study, two established models were integrated: the Anderson [28] and Starfield [29]. These frameworks provide a comprehensive lens through which to understand the complex factors influencing healthcare service utilization. The Andersen and Newman Behavioral Model [28, 30]. Explains the determinants of healthcare service use by identifying three key categories: *predisposing factors*, which include individual characteristics that influence the likelihood of seeking care; *enabling factors*, which refer to the logistical means and resources that facilitate or hinder access to care; and *need factors*, which represent an individual's perceived or evaluated health status that drives the decision to utilize services. This model highlights the interaction between personal, social, and systemic variables in determining healthcare behavior [31, 32].

Complementing Andersen and Newman Behavioral Model is the Starfield's Four-Dimensional Approach, which conceptualizes healthcare service utilization as a multidimensional and integrated process [33]. It identifies four key indicators: *accessibility*, which refers to the ease with which healthcare services can be obtained; *continuity*, or the degree to which care is consistently delivered over time; *comprehensiveness*, which measures the breadth of services available to meet a wide range of health needs; and *coordination*, which assesses the integration and linkage of care across different providers and services [34]. This model allows for a more holistic view of healthcare beyond simple usage metrics.

In the context of the NOCHP, this study applies both the Andersen and Newman Behavioral Model and Starfield's Four-Dimensional Approach to understand the multifaceted nature of healthcare utilization. The Andersen and Newman Model informs the analysis of factors such as health attitudes, prior healthcare experiences (predisposing), insurance coverage, income, and waiting times (enabling), as well as general health status, symptoms, and chronic conditions (need). Meanwhile, Starfield's framework guides the assessment of service availability, ease of first contact, same-day consultations, and after-hours care (accessibility); continuity of care through consistent providers and management (continuity); the range of services from promotion to rehabilitation (comprehensiveness); and the integration of specialists, referral systems, and multidisciplinary care teams (coordination). By integrating these two theoretical perspectives, the study aims to comprehensively assess the extent of healthcare service utilization among NOCHP-enrolled residents. This conceptual framework supports

the study's objectives of analyzing key indicators across demographic profiles and identifying meaningful differences in utilization patterns, thereby informing improvements in healthcare delivery and policy for local health insurance programs.

## 2.2. Healthcare Services

Quality healthcare service is a critical component of the healthcare system [3, 35]. As a service-oriented sector, healthcare is inherently intangible and subjective, often assessed through patient perceptions [36]. It is influenced by factors such as timeliness, consistency, and accuracy—dimensions that are difficult to quantify beyond verbal feedback [37]. According to Mosadeghrad [1], achieving quality healthcare involves meeting multiple criteria: *availability, accessibility, affordability, acceptability, appropriateness, competence, timeliness, privacy, confidentiality, attentiveness, responsiveness, accountability, accuracy, reliability, comprehensiveness, continuity, equity*, and the *presence of adequate amenities and facilities*.

Since the adoption of the Alma-Ata Declaration in September 1978, global awareness of the need for equitable healthcare has increased [38]. The declaration emphasized the goal of “health for all” and underscored the importance of promoting public health and achieving Universal Health Care (UHC), where every individual can access quality services without financial hardship [39]. UHC has been shown to not only improve health outcomes, but also yield broader socio-economic benefits [40, 41]. Based on the World Health Organization and World Bank's threshold metric, 10% to 25% of total health expenditure as out-of-pocket cost are spent on low class and middle class income countries, which are identified as having relatively high health spending burdens [42].

In terms of UHC service coverage, high-income regions such as North America, Europe, and Central Asia typically offer double the service coverage compared to low-income regions like Sub-Saharan Africa and South Asia [43]. However, protection from out-of-pocket expenses is not necessarily linked to income levels or UHC coverage alone, but rather to the structure of healthcare financing [44]. Countries relying on public social insurance tend to report lower health expenditures compared to those dependent on private health insurance systems [45]. For instance, while the United States is a high-income country, it remains the only one without full UHC despite spending approximately 15% of its GDP on health [46]. In contrast, Japan; another high-income nation, achieved significant health gains such as increased life expectancy through UHC, though its health expenditures rose from 8% in 2008 to 11% in 2017 [47, 48].

According to the World Health Organization [42], one key indicator of UHC progress is the proportion of the population with access to essential health services. WHO identifies 16 essential health services grouped into four categories: *reproductive, maternal, newborn, and child health; infectious diseases; non-communicable diseases*; and *health service capacity and access*. In the Philippines, the UHC Act was officially signed into law in 2017, extending health coverage to the entire population under the National Health Insurance Program [49, 50]. While this marked a major step toward UHC, challenges remain; particularly in improving financial protection and expanding the range of benefit coverage, despite notable reforms in population enrollment and service access [22].

These issues underscore the global and national efforts toward achieving UHC, with emphasis on accessibility, quality, and financial protection. However, despite national reforms and insurance coverage expansion, actual healthcare service utilization; especially among those enrolled in local health insurance programs, remains underexplored. This study builds on these insights by examining the extent to which key indicators influence healthcare utilization among residents enrolled in the NOCHP. In doing so, it contributes localized, evidence-based data that can inform improvements in healthcare delivery, policy, and insurance program implementation.

## 2.3. Healthcare Service Utilization

According to Starfield [29], *utilization* refers to the extent and type of healthcare services used, either initiated by the patient or upon the recommendation of a health professional. Patterns of healthcare utilization vary widely across countries and income levels [43]. In low-income countries

such as Ghana and the Republic of Congo, the majority of healthcare utilization occurs in public facilities, while high-income countries tend to have more balanced utilization between public and private sectors [51, 52]. Interestingly, Switzerland, despite being a high-income country, shows a higher rate of public facility utilization compared to private [53]. Out-of-pocket spending also differs significantly; on average, 45% of healthcare costs are spent on outpatient services such as consultations, medicines, and diagnostics, with extreme variations ranging from less than 10% in countries like Guatemala and Malawi to more than 95% in China [51].

Healthcare service utilization is also shaped by demographic and socioeconomic factors. In high-income countries, increased utilization is often attributed to an aging population and a higher prevalence of chronic illnesses [54]. In Nepal, although many households are aware of health insurance, utilization remains low due to high out-of-pocket costs, with more than half of household expenditures going to healthcare [55]. In India, public facility utilization is generally low across most provinces; except Assam and Caste, due to long waiting times and perceptions of poor service quality [56]. In Korea, utilization of National Health Insurance alone is lower compared to private insurance, but combined public-private coverage results in higher overall service use [57].

In addition, demographic variables such as gender, age, and education also significantly influence healthcare utilization. Studies show that men are more likely to seek treatment for injuries, while individuals aged 50 and above use healthcare more frequently for chronic conditions [58]. Meanwhile, those aged 18 to 34 tend to use services more often for acute issues or injuries [54]. Education plays a vital role as well; individuals with lower literacy levels often show higher healthcare utilization, potentially due to a lack of preventive care or understanding of health information [59]. Marital status has also been identified as a factor, with married individuals more likely to access healthcare services due to shared resources and mutual caregiving, a concept referred to as “spare capacity” [60].

From a theoretical standpoint, Andersen and Newman’s Behavioral Model suggests that enabling factors, such as income, insurance, and availability of services, have a much stronger influence on healthcare utilization than predisposing or need factors [61, 62]. Furthermore, access to medicines increases the likelihood of healthcare utilization and ensures service accessibility [9, 63]. Additionally, it is also noted that accessibility directly influences continuity and comprehensiveness of care, while coordination is closely associated with continuity and is linked to improved outcomes in health promotion and preventive care, as highlighted by Starfield [64].

These literature highlights the multidimensional nature of healthcare utilization, shaped by demographic factors, health system characteristics, and accessibility of services. While many studies explore these variables globally, there is limited research focusing on populations enrolled in localized health insurance programs. This study addresses that gap by examining the extent and variation of healthcare service utilization among residents enrolled in the NOCHP, using both Andersen and Newman’s and Starfield’s frameworks to assess individual and system-level indicators.

#### 2.4. National Health Insurance Program

Health insurance serves as a critical mechanism for countries to finance the healthcare needs of their populations [65]. According to the World Health Organization, when out-of-pocket health expenditures reach 15–20% of total health spending, individuals may experience financial hardship or delay seeking medical care, potentially worsening their health outcomes [42]. Various countries have adopted different health insurance schemes that differ in payment methods, service coverage, and levels of out-of-pocket expenses. Health insurance is generally categorized into three types: *national* or *social health insurance*, *voluntary* or *private health insurance*, and *community-based health insurance* [66]. Among these, national health insurance systems rely on financial pooling, primarily funded through general taxation or nonprofit insurance schemes, to provide equitable access to healthcare services [67].

Historically, models such as Germany’s *Bismarck Social Health Insurance* and the United Kingdom’s *Beveridge National Health Service* have served as benchmarks for many national systems [68]. However, despite sharing foundational goals, national health insurance models vary significantly across countries.

Ho [68] further shared for instance, Italy operates a single-payer system, while Germany has multiple competing funds. In Australia, health funds are administered by the public sector, whereas Switzerland and the Netherlands rely on private sector administration, and Japan employs a hybrid model involving both public and private sectors. Importantly, contributions to these systems are typically not adjusted based on individual health needs, allowing financial risk to be shared across the population. In Asia, Taiwan and Thailand offer broader coverage: Taiwan includes dental care and prescription medications, while Thailand covers HIV treatment, primary care, and hospitalization [68]. In Sri Lanka, the presence of national health insurance has been shown to significantly increase healthcare service utilization [69].

In the Philippines, as noted earlier, the National Health Insurance Program, known as PhilHealth, launched its Indigent Program in 1997 to extend coverage to low-income populations. Although population coverage has expanded significantly, actual utilization of healthcare services remains a challenge [20]. Financial barriers and geographical inaccessibility continue to hinder access to care, demonstrating that having insurance coverage does not automatically equate to increased service use [70]. Overall, national health insurance systems reveal that while coverage expansion is crucial, actual utilization of services depends on multiple structural and contextual factors. In the Philippine setting, localized programs such as the NOCHP were established to complement PhilHealth by addressing coverage gaps. This study builds on the existing discourse by examining the extent of healthcare service utilization specifically among NOCHP-enrolled residents. It seeks to generate insights that can inform local policy, support service delivery enhancements, and contribute to a more inclusive and responsive health insurance framework at the provincial level.

## 2.5. Synthesis

In sum, the literature reviewed highlights the complex and multifaceted nature of healthcare service delivery and utilization. Quality healthcare is recognized as more than just the availability of services, it involves a wide range of dimensions such as accessibility, affordability, responsiveness, and continuity. The global shift toward UHC emphasizes the need for equitable access to health services without financial burden. However, despite expanded coverage in many countries, actual utilization of services remains uneven due to persistent barriers such as cost, geographic inaccessibility, and fragmented delivery systems. Healthcare service utilization is further influenced by a combination of individual and systemic factors. Demographic characteristics like age, gender, education, and marital status play a role in shaping how and when people seek care. Equally important are enabling conditions such as income, insurance coverage, and ease of access. Utilization patterns also vary between acute and chronic conditions and between public and private healthcare settings. Notably, enabling factors are often more influential in determining service use than predisposing or health-need factors alone, highlighting the importance of systemic support in facilitating access.

The examination of national health insurance programs shows that different countries adopt diverse models depending on their political, economic, and cultural contexts. While population coverage has improved globally, many programs still struggle with service gaps, financial sustainability, and unequal access. In the Philippines, although PhilHealth has expanded coverage through national initiatives, challenges remain in ensuring service utilization across all sectors. This has led to the development of local initiatives like the NOCHP, designed to fill the gaps left by national programs. Overall, this study draws on the *Andersen and Newman Behavioral Model* and *Starfield's Four-Dimensional Approach* to understand healthcare service utilization among NOCHP-enrolled residents. These frameworks provide a comprehensive lens to assess both individual-level determinants (such as predisposing, enabling, and need factors) and system-level indicators (including accessibility, continuity, comprehensiveness, and coordination). Aligned with the study's objectives, this integrated approach aims to describe the demographic profile of NOCHP beneficiaries, measure the extent of service utilization based on key indicators, and explore how these patterns vary across population groups. Ultimately, this study responds to a critical gap in the literature by focusing on a localized health insurance initiative within

the Philippine context. It aims to generate practical insights that can inform policy-making, improve service delivery, and contribute to the broader goal of equitable and effective healthcare access for all.

### 3. Materials and Method

#### 3.1. Study Design

This study employed a descriptive quantitative research design to examine the profile and healthcare service utilization patterns of residents enrolled in the NOCHP. The purpose of using a descriptive approach was to systematically describe the characteristics of the participants and to quantify the extent of healthcare service utilization based on specific indicators [71]. This design allowed the researcher to gather measurable data and identify relationships between utilization indicators and demographic variables. Descriptive research is primarily concerned with identifying, classifying, and clarifying characteristics of a phenomenon [72]. It helps outline what is known about a given subject and lays the groundwork for further analysis [73]. In this study, the descriptive method was used to gather data on the participants' demographic profile, including age, gender, marital status, highest educational attainment, income, and employment status [74–78].

A quantitative approach was used to measure the extent of healthcare service utilization and to examine significant differences across various demographic groups. As defined by Paltridge and Phakiti [79], quantitative research investigates characteristics of a population by analyzing numerical data, often using averages, percentages, or rankings. This method allows for objective analysis and comparison, and is appropriate for studies that aim to generalize findings from a sample to a larger population. To collect data efficiently, the study utilized a survey method with standardized questions, ensuring uniformity and comparability of responses. Surveys are effective tools for collecting large amounts of data from a defined population within a limited timeframe [80]. In this study, the survey instrument was a modified standardized questionnaire designed to capture both demographic information and data related to the seven indicators of healthcare service utilization. Overall, this research design was selected to provide a structured and data-driven understanding of how NOCHP-enrolled residents utilize healthcare services and how their utilization patterns relate to their demographic characteristics.

#### 3.2. Participants and Recruitment Criteria

The participants of this study were enrolled members of the NOCHP who had utilized healthcare services. All participants were residents of Escalante City, one of the district cities in the province of Negros Occidental. They were categorized as indigents based on their presentation of a barangay certificate of indigency (*a term referring to a condition of extreme poverty or financial hardship*) at the time of enrollment. Eligibility was verified through the NOCHP master list, which was obtained from the NOCHP information technology (*database*) section. Participants were contacted through the address or phone number provided in their enrollment records. The study employed *stratified random sampling* [81] to ensure proportional representation from all 21 barangays of Escalante City. From a total population of 1,719 NOCHP-enrolled residents in the city, a minimum sample size of **315** participants was calculated using a modified Cochran formula [82], ensuring a 95% confidence level and a 5% margin of error. The number of participants selected from each barangay was based on the proportion of enrolled residents per barangay relative to the total population. This approach ensured fair representation across the city's barangays.

*Inclusion criteria* for participation were as follows: (1) must be 21 years old or above, (2) must be a current resident of Escalante City, (3) must be officially enrolled in NOCHP, and (4) must be categorized as either indigent or a senior citizen at the time of enrollment. *Exclusion criteria* included individuals who (1) were not residents of Escalante City, (2) were not included in the NOCHP enrollment master list, (3) declined to participate, or (4) were unavailable during the data collection period. Data collection was carried out through household surveys conducted over the course of one month. Participants were reached through home visits based on their recorded address and were invited



to participate at their convenience. Research assistants and trained enumerators conducted the surveys and provided support for participants with disabilities or limited literacy. Before participation, each respondent was informed of the study's purpose and procedures. Informed consent was obtained prior to administering the questionnaire, and all participants were assured that their involvement was voluntary and that they could withdraw at any time without any impact on their eligibility or access to the NOCHP services. More importantly, as the data collection stage was done during COVID-19. To ensure safety during the data collection, public health protocols were strictly observed in compliance with COVID-19 guidelines. These included the use of face masks, physical distancing, and hand sanitation measures during in-person interactions.

With regards to the first study objective, table 1 shows that a total of 315 NOCHP-enrolled residents from Escalante City participated in the study. The majority of respondents were aged 55 and above (61.0%), followed by those aged 25–34 (15.9%). Smaller age groups included 45–54 (9.8%), 35–44 (7.6%), and 18–24 (5.7%). These results align with the findings of Atella et al. [54], which indicate that aging is a strong risk factor for chronic disease and is associated with higher healthcare utilization. Similarly, Jiang et al. [83] noted that this age group often experiences comorbidities and adverse treatment effects. However, the findings contrast with those of Doherty et al. [59], who observed higher healthcare utilization among younger individuals (ages 15–24) due to acute conditions such as flu and injuries. In terms of gender, the sample was predominantly female (64.8%), with males comprising 35.2%. This higher female representation in healthcare utilization supports the findings of Carretero et al. [84], who stated that women consistently report higher morbidity and healthcare use across all age groups. Jiang et al. [83] also found that females are more likely to use outpatient services due to both physical and psychological vulnerabilities. Conversely, Doherty et al. [59] reported that males showed increased healthcare utilization in response to injuries, challenging the consistent trend seen in this study.

Regarding marital status, most participants were married (60.6%), followed by divorced/widowed (22.5%), single (15.9%), and separated (1.0%). This distribution supports the findings of Pandey et al. [60], who emphasized that marriage facilitates better healthcare access by creating “spare capacity,” which allows individuals to dedicate time and resources to their health. Married individuals are also more likely to receive support and encouragement from their spouses, contributing to improved healthcare-seeking behavior. However, the low number of separated respondents in this study contradicts some other study findings [84, 85], who noted that previously married individuals are more likely to seek mental health services.

In terms of educational attainment, the highest proportion of participants completed elementary education (36.9%), followed by junior high school (33.4%), college (17.5%), senior high school (10.5%), and a small group who never attended school (1.6%). These findings are in agreement with Du et al. [86], who found that individuals with lower educational levels tend to use healthcare services more frequently, particularly public ones. However, the relatively lower utilization among those with college education contradicts Doherty et al. [59], who observed higher utilization among more educated groups. However, this outcome supports Saeed et al. [87], who noted that individuals with higher education levels often prefer private healthcare services over public ones, thus appearing less frequently in studies focused on public service use.



**Table 1.**  
Background demographics of the participants (N=315).

Variable	Category	f	Percentage
Age	18-24	18	5.7
	25-34	50	15.9
	35-44	24	7.6
	45-54	31	9.8
	55 and up	192	61.0
Gender	Male	111	35.2
	Female	204	64.8
Marital status	Single	50	15.9
	Married	191	60.6
	Divorced/Widowed	71	22.5
	Separated	3	1.0
Educational attainment	Never attended school	5	1.6
	Elementary	116	36.9
	Junior high school	105	33.4
	Senior high school	33	10.5
	College	55	17.5
Monthly income (in PHP)	Below 5,000	178	56.5
	5,001 to 8,000	78	24.8
	8,001 to 12,000	30	9.5
	Above 12,000	29	9.2
Occupation	Employed full-time	11	3.5
	Employed part-time	50	15.9
	Casual or contractual	34	10.8
	Unemployed	220	68.8

With regard to monthly income, a majority of respondents (56.5%) reported earnings below PHP 5,000, while smaller proportions earned between PHP 5,001–8,000 (24.8%), PHP 8,001–12,000 (9.5%), and above PHP 12,000 (9.2%). This income distribution contrasts with Fujita et al. [88], who reported lower healthcare utilization among low-income groups, particularly in government health services. On the other hand, the small proportion of high-income earners in this study contradicts Agerholm et al. [89], who found significantly higher healthcare utilization rates among high-income individuals, especially those with chronic illnesses. Lastly, in terms of employment status, the majority of respondents were unemployed (68.8%), while others were employed part-time (15.9%), engaged in casual or contractual work (10.8%), or employed full-time (3.5%). This supports the findings of Saeed et al. [87], who noted that unemployed individuals tend to utilize public healthcare services less, often due to perceived inconvenience or limited availability of resources, favoring more accessible or familiar alternatives.

In summary, the demographic profile of NOCHP-enrolled residents revealed a predominantly older, female, married, low-income, and unemployed population with generally low to moderate levels of educational attainment. These characteristics provide crucial context for interpreting patterns of healthcare service utilization among participants. Understanding the socio-demographic distribution is essential, as it directly relates to the study's objective of determining how individual factors such as age, gender, education, income, and employment status influence the extent and variation of healthcare service utilization. This foundational profile sets the stage for analyzing the relevance and effectiveness of the NOCHP program in meeting the healthcare needs of its target population and identifying areas for improvement in both policy and service delivery.

### 3.3. Study Instrument

To assess the extent of healthcare service utilization, the study utilized a structured questionnaire adapted from the Primary Care Assessment Tool [34]. The instrument was designed to measure indicators aligned with both the Andersen and Newman Behavioral Model and Starfield's Four-

Dimensional Approach. Participants were instructed to evaluate each indicator by selecting one response per item using a 4-point Likert [90] scale, with the following response options: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, and 4 – Strongly Agree. The questionnaire was professionally translated into Hiligaynon to ensure cultural and linguistic appropriateness, especially for participants more comfortable with the local language. Translation was carried out by an educator fluent in both English and Hiligaynon. The tool was administered during household visits, allowing participants to respond in their preferred language. Responses were manually recorded and encoded into the Statistical Package for the Social Sciences (SPSS) for analysis.

The instrument was composed of two main parts. Part I of the instrument gathered the demographic profile of the participants. This section included six variables: *age*, *gender*, *marital status*, *highest educational attainment*, *monthly income*, and *employment status*. These variables were used to examine patterns and differences in healthcare service utilization across socio-demographic groups. Part II of the instrument measured the indicators of healthcare service utilization through 22 items, distributed across seven domains. These domains are based on the conceptual frameworks and were grouped as follows:

- Predisposing Factors: Items related to health attitudes, previous healthcare experiences, and general perception of health.
- Enabling Factors: Items focused on income, insurance coverage, and barriers such as waiting time.
- Need Factors: Items measuring the presence of symptoms, chronic or acute illness, and self-assessed health status.
- Accessibility: Items assessing the ease of accessing services, including first-contact care, same-day consultations, and after-hours availability.
- Continuity: Items measuring the consistency of care from the same provider and relational aspects of care over time.
- Comprehensiveness: Items addressing the range of services accessed, including health promotion, prevention, curative, and rehabilitative care.
- Coordination: Items evaluating the integration of services, including referrals and collaborative care among providers.

The structure of the instrument was designed to provide a multidimensional understanding of how participants interact with and experience healthcare services under the NOCHP program.

A pilot test was subsequently conducted with 50 participants in Sagay City; a neighboring locality, to assess the reliability of the instrument. The internal consistency of the questionnaire was evaluated using Cronbach's [91] alpha; a statistical measure widely used to determine reliability in Likert-scale instruments. Based on SPSS analysis, the instrument yielded a Cronbach's alpha coefficient of 0.73, indicating an acceptable reliability [72]. This result was based on 22 items, with a total item variance of 5.67 and a total score variance of 18.71. As established in social science research, an alpha value of 0.60 or higher is generally considered acceptable, confirming the reliability of the instrument for the purposes of this study [72].

### 3.4. Data Analysis Method

This study employed both descriptive and inferential statistical methods to analyze the data in line with the study's research objectives. After data collection, all responses were reviewed for completeness and accuracy. Any omissions or inconsistencies were clarified with participants when feasible. Validated data were coded and entered into the SPSS for analysis. To address the *first* research objective, which was to determine the demographic profile of NOCHP-enrolled residents, descriptive statistics were used. Frequency counts and percentage values summarized participants' age, gender, marital status, educational attainment, monthly income, and employment status.

For the *second* research objective, which aimed to assess the extent of healthcare service utilization indicators, the mean and standard deviation were computed. These statistics provided a measure of

central tendency and variability across the seven key utilization indicators: predisposing, enabling, need, accessibility, continuity, comprehensiveness, and coordination. To achieve the *third* research objective, which sought to determine whether there were significant differences in healthcare service utilization indicators when grouped according to participants' demographic profiles, nonparametric tests were employed. These tests were selected based on the ordinal nature of the data and the lack of normal distribution:

- The *Mann-Whitney U* test [92] was used to compare two independent groups, specifically for the variable gender.
- The *Kruskal-Wallis H* test [93] was used for comparing three or more groups for variables such as age, marital status, educational attainment, monthly income, and employment status.

Both tests are appropriate for ordinal data and are not constrained by the assumption of normality, making them ideal for skewed data [94]. The Mann-Whitney test serves as a nonparametric equivalent of the independent sample t-test, while the Kruskal-Wallis test functions similarly to one-way ANOVA.

In addition, an independent sample t-test was also used to compare means between two groups, such as gender, on continuous indicators where assumptions for parametric testing were met [71]. To further investigate the source of significant group differences, appropriate post hoc tests were applied:

- The *Dwass-Steel-Critchlow-Fligner* test [95], a nonparametric post hoc procedure, was used following significant Kruskal-Wallis results. This test helped identify specific group differences for variables such as marital status, income, and employment status [96].
- Additional post hoc comparisons were conducted to determine specific differences among groups defined by age and educational attainment [97].

These statistical methods provided a rigorous analytical framework to meet the research objectives and to draw meaningful insights into healthcare service utilization among NOCHP-enrolled residents.

### 3.5. Ethical Guidelines

Following approval from the *University of St. La Salle Graduate School Panel*, the study was submitted to the *Research Ethics Review Office* for evaluation and received formal ethical clearance. This approval emphasized the importance of obtaining informed consent, which was provided to all participants in both English and Hiligaynon (local dialect) to ensure full comprehension. The study adhered strictly to the *National Ethical Guidelines for Health Research* and the provisions of the *Data Privacy Act*. In terms of social value, the research aimed to contribute to a broader understanding of how the province-run NOCHP program influences healthcare service utilization, with the potential to inform evidence-based policymaking and strengthen health service delivery in Negros Occidental.

Prior to data collection, participants were briefed on the purpose and procedures of the study, and informed that their participation was voluntary and that they could withdraw at any time without consequence. *Anonymity and confidentiality* were strictly observed: participant identities were coded, personal information was excluded from data presentation, and both electronic and physical data were securely stored; password-protected and encrypted in digital format, and physically locked for hard copies. Only authorized personnel had access to the data. After two years, all confidential records will be securely destroyed. Although the study involved minimal risk and offered no direct benefit to participants, it may contribute indirectly by informing future health interventions and policies. In the interest of transparency, aggregated results will be shared with participants and stakeholders, ensuring that no individual can be identified in any reports or publications.

## 4. Results and Discussion

This section presents the results of the study based on the research objectives, followed by a discussion of the findings in relation to relevant literature and the conceptual framework. The demographic profile of the participants, as stated in *Research Objective 1*, has already been described in the preceding section. The current section focuses on addressing *Research Objective 2*, which aims to

determine the extent of healthcare service utilization among NOCHP-enrolled residents, and *Research Objective 3*, which examines whether significant differences exist in these utilization indicators when grouped according to selected demographic variables.

#### 4.1. Extent of Healthcare Service Utilization among NOCHP-enrolled Residents

Table 2 presents the extent of healthcare service utilization as perceived by the 315 NOCHP-enrolled residents, measured across seven indicators. The results show that predisposing factors had the highest mean score ( $M = 3.75$ ,  $SD = 0.42$ ), followed closely by comprehensiveness ( $M = 3.73$ ,  $SD = 0.43$ ), continuity ( $M = 3.71$ ,  $SD = 0.45$ ), coordination ( $M = 3.71$ ,  $SD = 0.48$ ), and need factors ( $M = 3.63$ ,  $SD = 0.55$ ). All of these were interpreted as strong indicators of healthcare service utilization. Accessibility ( $M = 3.45$ ,  $SD = 0.67$ ) was also near the threshold of strong, but was classified as a moderate indicator, while enabling factors had the lowest mean score ( $M = 2.99$ ,  $SD = 1.10$ ), also interpreted as a moderate indicator.

**Table 2.**

Extent of healthcare service utilization (N=315).

Indicators	Mean	Standard Deviation	Interpretation
Predisposing	3.75	0.42	Strong Indicator
Enabling	2.99	1.10	Moderate Indicator
Need	3.63	0.55	Strong Indicator
Accessibility	3.45	0.67	Moderate Indicator
Continuity	3.71	0.45	Strong Indicator
Comprehensiveness	3.73	0.43	Strong Indicator
Coordination	3.71	0.48	Strong Indicator

The finding that *predisposing* factors served as a strong indicator supports the study of Okedo-Alex et al. [98], which highlighted that individuals who are aware of symptoms requiring immediate care and possess a positive attitude toward seeking treatment are more likely to utilize healthcare services. This suggests that a favorable disposition, shaped by knowledge, prior experience, and beliefs, encourages prompt and appropriate healthcare-seeking behavior. However, this contradicts the findings of Li et al. [99], which argued that mental factors such as attitude, experience, and health knowledge exert only a minor influence compared to need and enabling factors. Furthermore, the *need* factors, which also emerged as a strong indicator, affirm existing literature that links perceived or actual illness with higher healthcare utilization. Studies have noted that individuals with chronic diseases or worsening health symptoms were more inclined to seek medical attention [83, 99]. Likewise, some have found that those who evaluated their health as poor or fair demonstrated higher utilization rates than those who considered themselves in excellent health, highlighting the perceived severity of illness as a driver of care-seeking behavior [65].

On the other hand, *accessibility* was rated as a moderate indicator, echoing previous study that emphasized that the availability of healthcare personnel, same-day consultations, and proximity of facilities influence healthcare utilization [100]. Similarly, some observed that income levels and access barriers negatively affected service use, especially in lower-income populations [88]. In addition, a study also explained that individuals with lower education levels may experience distrust or misinformation regarding the health system, which diminishes their motivation to seek services, thus affecting overall accessibility [86]. As for the *enabling* factors, such as financial resources and transportation, were also rated as moderate, and notably had the highest standard deviation ( $SD = 1.10$ ), suggesting greater variability in participant responses. This finding is contrary to some that argued enabling resources were the strongest determinant of healthcare utilization, particularly in systems where access is heavily tied to financial capacity [61]. While, other also noted that individuals who rely on unstable financial sources, such as support from extended networks or informal work, are

often unable to afford hospitalization and instead rely on limited outpatient care or avoid seeking services altogether [83].

Within the local context of Negros Occidental, some observed that the implementation of mental health strategies remains limited, with mental health services yet to be fully integrated into the province's primary care framework [101]. While, further report noted that Level 1 hospitals in Northern Negros Occidental are perceived to offer high-quality care, the overwhelming patient load; often driven by health-seeking behavior for manageable conditions, stretches hospital resources due to the underutilization of barangay health stations and rural health units [102]. This misalignment suggests the need to reinforce the capacity and perception of primary healthcare as an accessible and reliable point of care.

In summary, the results indicate that predisposing, need, continuity, comprehensiveness, and coordination are strong indicators of healthcare service utilization among NOCHP-enrolled residents, while accessibility and enabling factors emerged as moderate indicators. These findings align with the Andersen and Newman Behavioral Model, which emphasizes the importance of predisposing characteristics (e.g., health attitudes and experiences), enabling resources (e.g., income and transportation), and perceived need in influencing an individual's decision to seek healthcare. At the same time, the results affirm Starfield's Four-Dimensional Approach, which highlights the importance of system-level qualities, such as accessibility, continuity, comprehensiveness, and coordination, in delivering effective and patient-centered primary care. The strong performance of need-related and service quality indicators suggests that both individual perception of illness and the structural features of healthcare delivery contribute significantly to utilization. However, the lower scores on enabling and accessibility factors point to persistent systemic barriers that may hinder equitable access to care. Strengthening these areas may enhance the overall effectiveness of the NOCHP program and support a more integrated and inclusive primary healthcare system for indigent populations in Negros Occidental.

#### 4.2. Differences in Healthcare Service Utilization across Demographic Variables

##### Demographic Variable 1: Age group

Using the Kruskal-Wallis H test, results revealed a statistically significant difference in healthcare service utilization across age groups in terms of *predisposing* factors and *need* factors ( $p < .05$ ). To identify where the differences occurred, Tukey post hoc tests were conducted. For *predisposing* factors, a significant mean difference was found between participants aged 35–44 and those aged 55 and above, with a mean difference of  $-0.29$  and a  $p$ -value of  $.04$ . Similarly, for *need* factors, a significant difference was observed between the 18–24 and 55 and above age groups ( $p = .001$ ), indicating that older adults reported higher levels of healthcare need. These findings suggest that older participants, particularly those aged 55 and above, tend to exhibit stronger predisposing and need-related indicators for healthcare utilization. This result is consistent with studies that reported that older adults, especially those with comorbidities, are more likely to utilize healthcare services due to greater perceived health needs [103–105]. However, the result contradicts some findings who noted that there is no significant difference in predisposing factors between the 35–44 and 55 and above age groups [65]. The current study's findings reinforce the role of age-related health conditions in shaping healthcare-seeking behavior, particularly among elderly populations enrolled in a local health insurance program such as NOCHP.

##### Demographic Variable 2: Gender

Using the Mann-Whitney U test, results showed statistically significant differences between *male* and *female* participants in four indicators of healthcare utilization: *predisposing* ( $p = .009$ ), *need* ( $p = .011$ ), *accessibility* ( $p = .035$ ), and *continuity* ( $p = .009$ ). In all four indicators, male respondents reported *higher* mean scores than females, suggesting a greater likelihood of healthcare service utilization among men in these domains. No significant differences were found in *enabling*, *comprehensiveness*, and *coordination* factors. These findings are consistent with previous findings wherein in certain households, especially in patriarchal contexts, male health needs are often prioritized over those of females, resulting in greater

access and utilization of healthcare services by men [106]. Furthermore, the results also contradict with some findings, which found that women exhibited a higher need for healthcare services due to more sedentary lifestyles and poorer physical and mental health status [107]. The present study also revealed significant differences in *predisposing* and *continuity* factors by gender, which have not been widely reported in previous literature. Interestingly, some study reported that continuity of care tends to decrease healthcare utilization among individuals with chronic diseases, which may provide some insight into the observed gender differences in this domain [108]. Overall, the findings suggest that gender plays a role in shaping healthcare-seeking behavior, particularly in perceptions of health needs, access, and care continuity. These results further support the utility of the Andersen and Newman Behavioral Model, which emphasizes the influence of demographic and social characteristics (such as gender) on healthcare utilization patterns.

#### Demographic Variable 3: Marital status

Using the Kruskal-Wallis H test, the results revealed that *marital status* did not show a statistically significant difference in any of the healthcare service utilization indicators, including predisposing, enabling, need, accessibility, continuity, comprehensiveness, and coordination ( $p > .05$  for all). This suggests that marital status had no discernible impact on how NOCHP-enrolled residents perceived or utilized healthcare services within the measured domains. These findings contrast with previous finding, which reported that widowed and separated individuals were more likely to access healthcare services, particularly mental health services, compared to their married counterparts [109]. In addition, divorced, separated, or single individuals were more likely to seek care, especially psychiatric treatment, than those who were married [85]. In essence, the lack of significant differences in the present study may reflect the inclusive design of the NOCHP program or a more uniform level of healthcare access across civil status groups within the local setting.

#### Demographic Variable 4: Educational attainment

The Kruskal-Wallis H test was used to determine whether there were significant differences in healthcare service utilization across levels of *educational attainment*. The results revealed a statistically significant difference in the *enabling* factor ( $p = .001$ ), while no significant differences were found across the other six indicators, including *predisposing*, *need*, *accessibility*, *continuity*, *comprehensiveness*, and *coordination* ( $p > .05$  for all). To identify where the significant differences occurred in the *enabling* factor, post hoc analysis was conducted. Results indicated that participants who had attained college education reported significantly *higher* enabling scores compared to those who never attended school ( $p = .027$ ), as well as those who completed only elementary ( $p < .001$ ) and junior high school ( $p < .001$ ). This suggests that individuals with higher education levels are more likely to experience or perceive better enabling conditions for healthcare access, such as financial resources, insurance awareness, or logistical capabilities like transportation and time management.

These findings contrast with previous findings, who found that individuals with higher educational attainment were less likely to utilize public healthcare services, often seeking care from private providers due to perceived differences in quality [110]. In the context of NOCHP, however, the results suggest that college-educated participants may be more aware of and confident in accessing available public health resources, or may face fewer barriers in doing so. Overall, while most healthcare utilization indicators did not vary significantly across education levels, the notable difference in enabling factors underscores the role of education in shaping individuals' capacity to access care. This finding aligns with the Andersen and Newman Behavioral Model, which posits that enabling resources, such as education and income, play a key role in facilitating or hindering healthcare utilization. Higher educational attainment may enhance individuals' health literacy, navigation skills, and ability to mobilize the resources necessary to seek care under programs like NOCHP.

#### Demographic Variable 5: Monthly income

The results of the Kruskal-Wallis H test revealed statistically significant differences in *predisposing* ( $p = .006$ ), *enabling* ( $p = .001$ ), and *accessibility* ( $p = .002$ ) indicators of healthcare service utilization when grouped according to monthly income levels. No significant differences were found for *need*, *continuity*,

*comprehensiveness*, or *coordination* indicators ( $p > 0.05$  for all). To further identify the sources of significant differences in accessibility, the Dwass-Steel-Critchlow-Fligner post hoc test was used. Results showed a significant mean difference between participants earning PHP 5,001–8,000 and those earning PHP 8,001–12,000 ( $p = .020$ ). A marginally significant difference was also noted between those earning PHP 5,001–8,000 and above PHP 12,000 ( $p = .050$ ), with higher-income groups generally reporting greater accessibility.

These findings suggest that higher income levels are associated with improved perceptions of predisposing, enabling, and accessibility-related factors that facilitate healthcare utilization. Individuals with greater financial resources may have better access to transportation, fewer logistical constraints, and increased confidence in navigating the healthcare system—factors that enhance their overall healthcare-seeking behavior. However, these results stand in contrast previous studies, which noted that accessibility as a stronger indicator among higher-income groups, but did not find significant differences across predisposing or enabling indicators [65]. In addition, some concluded that individuals with higher income were more likely to utilize healthcare services due to their ability to absorb costs associated with treatment, medications, and facility visits [111]. While this aligns with the accessibility findings in the present study, the additional differences in predisposing and enabling factors reflect the specific context of the NOCHP program, where access and perceptions may be shaped by income-related disparities in awareness, experience, or support systems.

All together, these results are also consistent with the Andersen and Newman Behavioral Model, which considers income a critical enabling factor that affects access to care. Higher-income individuals often possess greater capacity to overcome structural and financial barriers, thereby increasing their likelihood of engaging with healthcare services. In the context of NOCHP, these findings emphasize the need to ensure equitable access to healthcare services regardless of socioeconomic status, particularly for indigent populations.

#### Demographic Variable 6: Occupation

The Kruskal-Wallis H test was conducted to determine whether healthcare utilization indicators differed significantly across employment status categories. Results revealed significant differences in three indicators: *predisposing* ( $p = .012$ ), *enabling* ( $p = .001$ ), and *continuity* ( $p = .029$ ). Post hoc comparisons using the Dwass-Steel-Critchlow-Fligner test showed that for the *predisposing* factor, there was a significant mean difference between part-time workers and the unemployed ( $p = .009$ ), with unemployed participants reporting *higher* scores. In terms of the *enabling* factor, significant differences were observed between part-time and casual/contractual workers ( $p = .011$ ), as well as between unemployed and casual/contractual workers ( $p < .001$ ), suggesting more favorable *enabling* conditions among casual or contractual workers. For the *continuity* factor, a significant difference was found between full-time employees and the unemployed ( $p = .041$ ), with the unemployed group again reporting *higher* scores.

These findings offer important insights into how employment status shapes healthcare-seeking behavior. The higher scores among unemployed participants for predisposing and continuity factors may reflect a greater perceived need and more consistent patterns of care-seeking among this group. This aligns with previous results, which reports that unemployed individuals often have a more positive perception of healthcare services and recognize the need for care but may still experience unmet health needs due to financial limitations or lack of social support [112]. However, the current findings diverge from other findings, which observed that unemployed individuals, particularly during times of economic downturn, were more likely than full-time workers to seek medical consultation; especially for mental health concerns [113].

Within the Andersen and Newman Behavioral Model, employment status is considered an important enabling factor, as it influences both access to resources and the likelihood of encountering or overcoming barriers to care. The results of this study demonstrate that employment type affects not only the structural means to access care (enabling factor) but also the individual's health-seeking behavior and relationship with the healthcare system (predisposing and continuity factors). These



findings suggest that even though unemployed individuals may have higher perceptions of healthcare needs and service continuity, they may still encounter limitations in accessing care due to financial instability or other social constraints. Conversely, those in part-time or casual work may face instability in access due to fluctuating work hours, lower income, or lack of formal health benefits. Strengthening primary healthcare outreach and designing flexible health access schemes under programs like NOCHP can help bridge these disparities and ensure equitable utilization regardless of employment status.

## 5. Conclusion and Recommendations

This study explored the extent and variation of healthcare service utilization among NOCHP-enrolled residents in one of the district cities of Negros Occidental. Most of the respondents were elderly, female, with low educational attainment, low income, and unemployed; demographics that align with the target beneficiaries of the program. While this affirms that the NOCHP remains focused on serving indigent populations, the inclusion of some members with higher income and full-time employment points to potential gaps in the indigency screening process, which currently relies heavily on barangay-issued certificates. This may open room for bias or inconsistencies in membership validation.

The findings revealed that the strongest indicators of healthcare utilization were predisposing factors, perceived need, continuity, comprehensiveness, and coordination. Accessibility and enabling factors, while still influential, were rated as moderate. These results align with the conceptual framework of the study, particularly the Andersen and Newman Behavioral Model, which explains healthcare service utilization as a function of individual characteristics; predisposing, enabling, and need factors. In parallel, Starfield's Four-Dimensional Approach illuminated the role of system-level components, such as accessibility and continuity, in shaping utilization. Notably, the study found significant differences between profile variables and certain utilization indicators: age was associated with predisposing and need factors; gender influenced predisposing, need, accessibility, and continuity; educational attainment affected enabling factors; income influenced predisposing, enabling, and accessibility; and occupation showed significant differences in predisposing, enabling, and continuity factors.

These results highlight both the behavioral and structural dimensions influencing healthcare utilization within NOCHP. On the one hand, positive healthcare experiences and perceived health needs strongly motivate service use, especially among older and unemployed individuals. On the other hand, barriers such as limited enabling resources and variable access across healthcare facilities continue to constrain full program utilization. Because NOCHP is delivered through various government hospitals, each with different service capacities, some members may experience inconsistencies in care, particularly when referrals to higher-level facilities are required. During the COVID-19 pandemic, such logistical and structural challenges may have been further magnified. These contextual limitations must be acknowledged in interpreting the study's results.

Based on the study's findings, several recommendations are proposed. First, it is important to strengthen the screening procedures for indigency by standardizing the guidelines and integrating more robust socio-economic assessments. Second, efforts should be made to improve both access and enabling support for healthcare service utilization. This may include enhancing patient navigation, public transportation options, and simplifying the availment process. Third, hospital and NOCHP administrators should work collaboratively to align services offered at each facility with the most needed care types identified in this study, such as continuity of care and comprehensive services. Fourth, strengthening referral systems and ensuring continuity of care across different levels of healthcare facilities should be prioritized to improve patient outcomes and reduce dropouts from the system. Fifth, targeted public education campaigns are needed to raise awareness about NOCHP benefits and access procedures, especially among populations with lower education levels. Sixth, further research should be conducted across other NOCHP sites to validate and expand on these findings, as the current study was

limited to one hospital setting during a pandemic. Finally, the provincial government and hospital administrators should use these findings to inform evidence-based policies, refine service delivery strategies, and address demographic-specific barriers to healthcare utilization—ensuring that NOCHP continues to meet its mandate of equitable, inclusive, and quality healthcare for all.

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### **Institutional Review Board Statement:**

This study was conducted in accordance with the ethical standards outlined in the Declaration of Helsinki. Ethical approval was obtained from the University of St. La Salle Research Ethics Review Office following a comprehensive review of the research protocol.

### **Transparency:**

The authors confirm that the manuscript is an honest, accurate and transparent account of the study that no vital features of the study have been omitted and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

### **Competing Interests:**

The authors declare that they have no competing interests.

### **Authors' Contributions:**

Conceptualization, J.T.R., L.A.A.C., and S.M.T.; methodology, J.T.R., L.A.A.C., and S.M.T.; software, G.S.C.; validation, J.T.R., L.A.A.C., S.M.T., and G.S.C.; formal analysis, J.T.R.; investigation, J.T.R., L.A.A.C., S.M.T., and G.S.C.; resources, J.T.R., L.A.A.C., S.M.T., and G.S.C.; data curation, J.T.R.; writing—original draft preparation, J.T.R.; writing—review and editing, J.T.R., L.A.A.C., S.M.T., and G.S.C.; visualization, G.S.C.; supervision, L.A.A.C. and S.M.T.; project administration, J.T.R., L.A.A.C., and S.M.T.; funding acquisition, J.T.R., L.A.A.C., S.M.T., and G.S.C. All authors have read and agreed to the published version of the manuscript.

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