

Exploring nursing students' awareness, utilization, and satisfaction with barangay health services in the Philippines: Implications for public health and technological advancements in healthcare delivery

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Abstract: This study explores nursing students' awareness, utilization, and satisfaction with Barangay Health Services in the Philippines during the COVID-19 pandemic. A barangay, the smallest administrative unit in the country, functions as a neighborhood or village providing essential public health services. The objective was to assess how demographic factors influenced students' interaction with health services such as childhood immunizations, prenatal and postnatal care, and affordable medicine programs. A cross-sectional design was employed, using a structured survey to gather data from 240 nursing students across different year levels. Statistical analysis using Chi-square tests revealed that while nearly 90% of students were aware of these services, less than 20% regularly used them, indicating a significant gap between awareness and actual utilization. The study found that gender and marital status were significant factors influencing the utilization of maternal healthcare services, and year level was associated with increased infant vaccination. The findings underscore the need for improved strategies to enhance access to and utilization of Barangay Health Services. This research suggests that technological advancements and interdisciplinary collaboration among healthcare providers and educators could bridge the gap between awareness and utilization, ensuring more effective healthcare delivery and improved public health outcomes, especially in resource-constrained settings.

Keywords: Community health, COVID-19 impact, Awareness; Satisfaction, Healthcare access, Nursing students, Health service utilization, Technological advancements in healthcare.

1. Introduction

The COVID-19 pandemic has significantly disrupted global healthcare systems, including those in the Philippines. As the pandemic intensified, healthcare systems faced immense challenges in maintaining the delivery of essential services due to overwhelmed medical professionals and a shift in priorities to combat COVID-19 [1]. While the primary focus shifted to managing the virus, it became crucial to maintain preventive and curative services, particularly for vulnerable groups such as children, the elderly, and individuals with chronic illnesses [2, 3]. In the Philippines, these services are often provided at the barangay health centers, which are the primary healthcare units within the smallest administrative divisions in the country, known as barangays [4]. A barangay is the basic political unit in the Philippines, typically consisting of a community, neighborhood, or village [5]. These centers serve as the frontline for primary healthcare, offering essential health services such as immunizations, maternal care, and disease prevention programs [6].

Despite the critical role barangay health centers play in healthcare delivery, many individuals may not be fully aware of the full range of services available [7]. This lack of awareness can hinder the utilization of important health services, affecting public health outcomes. Furthermore, the COVID-19 pandemic has amplified the need for accessible health services at the community level, highlighting gaps in universal healthcare access and the importance of client satisfaction in improving service delivery [8]. Satisfaction when measured effectively, can help identify areas for improvement, especially when service expectations exceed what is currently available [9]. As future healthcare professionals, nursing students need to be aware of the health services offered by barangay health centers so they can educate the communities they serve. However, nursing students themselves may lack awareness or fail to utilize these services, which could be due to insufficient integration of community health resources in their education. This study explores the reasons behind the limited awareness and utilization of barangay health services among nursing students, with potential implications for nursing curricula and public health practice.

More specifically, this study aims to explore the relationships between nursing students' awareness, utilization, and satisfaction with barangay health services during the COVID-19 pandemic. Specifically, it seeks to answer the following research questions:

- Is there a relationship between nursing students' awareness of barangay health services and their demographic profile?
- Is there a relationship between the utilization of barangay health services and participants' demographic profile?
- Is there a relationship between nursing students' level of satisfaction with barangay health services and their demographic profile?

This study is significant to various stakeholders in both healthcare and education. For the Department of Health (DOH) Officers, the findings may reveal gaps in public awareness and satisfaction with DOH-approved programs, which could guide targeted improvements in service delivery. Local Government Officials can use the results to assess the effectiveness of COVID-19 responses at the barangay level and identify opportunities for enhancing healthcare services within their communities. Barangay Officials will benefit by understanding which services are underutilized, allowing them to promote better access and awareness of available health programs. Nurse Educators will gain insights into the need for incorporating community health services into nursing curricula, helping future nurses better educate communities about accessible healthcare options. Barangay Health Workers will be empowered with knowledge about the services that need more attention, aiding them in advocating for these services through information campaigns. For Nursing Students, the results will provide valuable knowledge about the health services available within their communities, allowing them to effectively incorporate this information into their community health nursing practice. Finally, Future Researchers may find this study useful as a foundation for further research on the awareness, utilization, and satisfaction with barangay health services, contributing to the broader field of public health service delivery.

2. Literature Review

2.1. Theoretical Concepts

This study is grounded in King [10] Goal Attainment Theory, which emphasizes the achievement of life goals through collaboration between patients and healthcare providers. Goal attainment theory proposes that there are three interrelated systems: the *personal*, *interpersonal*, and *social systems*. The personal system involves concepts such as perception, self, growth and development, body image, space, and time. The interpersonal system includes role, stress, interaction, communication, and transaction, while the social system focuses on authority, status, power, organization, and decision-making [11]. According to the theory, patients and healthcare providers must work together to set goals and take actions to achieve those goals. In the context of this study, the researcher examines how various factors

influence nursing students' awareness and satisfaction with Barangay Health Services during the COVID-19 pandemic. The interdependence of the systems in goal attainment theory aligns with how healthcare providers, as the frontline workers in barangay health programs, can influence students' experiences and satisfaction with these services.

Additionally, the Arde [12] Consonance Theory complements goal attainment theory framework by focusing on the satisfaction that results from the alignment between a patient's expectations and the actual care received from healthcare providers. This theory emphasizes the importance of collaboration between patients and healthcare providers to achieve the shared goal of patient satisfaction. For the current study, nursing students' awareness and utilization of barangay health services are examined, along with the degree to which their expectations align with the care they receive. The consonance theory helps provide a structure for understanding how the interaction between nursing students and healthcare providers impacts their satisfaction with the services offered during the pandemic. Together, these theoretical perspectives form a comprehensive framework for exploring the complex relationship between nursing students' awareness, utilization, and satisfaction with barangay health services. The combination of goal attainment theory and consonance theory offers a robust lens through which the study can analyze how collaborative efforts between nursing students and healthcare providers influence students' experiences with barangay health services during a critical period.

2.2. Government Health Services during the Pandemic

During the COVID-19 pandemic, many faced challenges in accessing essential government health services that would ensure the well-being of the population. The pandemic significantly impacted the capacity of the government to deliver health services, especially as the focus shifted to mitigating the virus itself [13]. One of the indirect consequences of the pandemic was the prioritization of COVID-19-related care, leading to a disruption in routine health services [14]. The lockdowns implemented during the early stages of the pandemic, while effective in reducing the spread of COVID-19, also made many health services inaccessible to the public [15]. For individuals in lower socioeconomic brackets, transportation to healthcare facilities became a barrier, while others feared exposure to the virus at medical facilities, further exacerbating the problem. Additionally, they also note the unreliability of primary healthcare providers in delivering regular care added to the challenges faced by the population. As a result, the utilization of primary healthcare services, including routine vaccinations, declined significantly. More important, the study also reported a 70% drop in routine vaccinations due to the disruption of services and COVID-19 restrictions, with significant declines in immunizations for other diseases like measles, mumps, and many others, particularly for countries in Europe and the United States. This decline in routine vaccinations has heightened the risk of other preventable diseases.

Beyond infectious diseases, the pandemic's effects on non-communicable diseases (NCDs) have been largely overlooked, though their impact will become more evident in the coming years [16]. During the pandemic, individuals with NCDs such as diabetes, heart disease, cancer, and chronic respiratory disorders struggled to access their prescribed medications due to disruptions in the manufacturing, sourcing, and distribution of pharmaceuticals. In the Philippines, government initiatives like Republic Act 9502, the Universally Accessible Cheaper and Quality Medicines Act of 2008 (for additional information with regards to the details of the provision, see https://lawphil.net/statutes/repacts/ra2008/pdf/ra_9502_2008.pdf), aim to improve the accessibility and affordability of medicines by promoting market competition and regulating prices [17]. The government has also worked to balance public health safety with economic considerations, especially when considering various new COVID-19 variants, emphasizing the need to avoid another nationwide lockdown. Furthermore, the pandemic created barriers to breastfeeding and maternal health, especially for children under two years old. The community lockdowns and social distancing measures disrupted access to maternal healthcare services and the necessary support for breastfeeding, leading to challenges in both initiating breastfeeding and maintaining ongoing support for healthy nutrition [18]. Despite these challenges, the data collected during the pandemic indicated that 84.5% of pregnant women had

prenatal checkups, slightly higher than the 82.7% recorded in 2019 [19]. This increase may be attributed to efforts made by health workers and midwives in providing services at the village level, which remained an important source of healthcare access for pregnant women during the pandemic.

2.3. Awareness of Government Health Services

Several studies have examined the awareness of health services, particularly government-provided services, among different populations. Muduru [20] conducted a study on the awareness and utilization of school health services among students at Isa Kaita College of Education in Nigeria. The results indicated a direct link between the students' awareness and their use of the available health services. Gender differences were minimal in terms of awareness and utilization, suggesting that both male and female students had similar knowledge and usage patterns regarding school health services. A study by Keil, et al. [21] explored gender differences in health care service utilization, noting that women were generally more likely to be aware of and utilize health promotion programs and services, including seeing general practitioners. This contrasts with the study by Sabando and Alo [22], which found that individuals in higher levels of tertiary education, particularly those with more knowledge, were more aware of the services provided by health facilities, including government health services. The importance of ensuring awareness, especially among vulnerable populations, is emphasized in the findings by Okunogbe, et al. [23] which highlighted that, while awareness of health services might have been present, actual use declined during the pandemic due to barriers like accessibility and mental health challenges. This study highlights how education and gender can influence awareness and utilization of health services, pointing to the need for continued public health education.

2.4. Experience with Government Health Services

As noted earlier, the pandemic severely affected the delivery of healthcare services globally. A general decline in vaccination rates was particularly pronounced in the South-East Asia region, where a significant decrease in vaccine administration was reported [24]. These were typically caused by the lockdowns, coupled with a shortage of health workers and disruptions to supply chains, severely impacted routine vaccination sessions. On a positive note, efforts to recover from these disruptions began in mid-2020, although vaccination rates did not immediately return to pre-pandemic levels. Despite these setbacks, governments and healthcare systems implemented strategies to ensure the continuity of essential health services. For example, mobile vaccination units and community health workers were mobilized to deliver vaccines in hard-to-reach areas, while public health campaigns aimed to educate the population about the importance of vaccinations, even during a global health crisis [25]. These efforts helped to mitigate some of the negative consequences of the pandemic on routine immunizations. However, the long-term effects of the disruption on vaccine-preventable diseases are still being assessed, as the delays in immunization could lead to outbreaks in the years to come.

2.5. Satisfaction with Government Health Services

In general, satisfaction is a critical indicator of healthcare service quality and has been shown to correlate with various factors, including age, income, health status, and the type of service received. In addition, the effectiveness of these services are linked to the quality of life of individuals living within the immediate community [26, 27]. For instance, Mihailovic, et al. [28] identified key factors influencing patient satisfaction, such as the *quality of communication with healthcare staff*, the *type of service* (public versus private), and the *physical environment of the healthcare facility*. In addition, the study found that satisfaction was often associated with the perceived quality of care, with patients' expectations aligning with the care they received. Further research by Stepurko, et al. [29] revealed notable variations in satisfaction levels across countries, with Lithuanian patients expressing high dissatisfaction (16.4%) with access to outpatient services, while patients in Poland reported lower levels of dissatisfaction. The role of informal payments and the inability to pay were also identified as significant factors contributing to dissatisfaction in various health systems. Understanding the factors

influencing patient satisfaction is essential to improving healthcare service delivery, especially in government-run systems where responsiveness to patient needs is crucial for ensuring long-term sustainability and public trust in health services.

Overall, the literature reveals the COVID-19 pandemic has highlighted critical challenges in the delivery and utilization of government health services, impacting vaccination rates, routine care, and overall healthcare access, more specifically for vulnerable populations. Grounded in *Goal Attainment Theory* and *Consonance Theory*, this study explores the interconnectedness of personal, interpersonal, and social systems within healthcare delivery, particularly the awareness and satisfaction of nursing students with barangay health services during the pandemic. The goal attainment theory framework emphasizes collaboration between healthcare providers and patients in achieving health goals, while the consonance theory underscores the importance of aligning patient expectations with the care received, a concept particularly relevant in the context of this study. More important, despite disruptions in healthcare services, efforts like mobile vaccination units, the use of community health workers, and telemedicine have been pivotal in addressing service delivery gaps. With these having said, this study reflects how healthcare providers and nursing students can collaborate to improve awareness and satisfaction with available health services. Moreover, while awareness of government health services was present among some demographic groups, access and utilization remained impeded due to factors such as socio-economic status, education, and mental health challenges. In essence, the current study, highlights the importance of targeted public health education, equitable access, and patient-provider collaboration to enhance satisfaction and ensure healthcare resilience during future crises.

3. Materials and Method

3.1. Study Design

The current study employed a quantitative correlational research design, which aims to examine the relationships between variables without manipulating them [30]. A correlational design seeks to identify associations between variables, allowing researchers to determine how they are related without introducing any changes to the variables themselves [31]. This design is suitable for research that are focused on understanding the nature, characteristics, components, or aspects of a phenomenon or issue [30]. In this study, the design was used to explore the correlations between nursing students' age, year level, marital status, gender, level of awareness, and level of satisfaction with regards to barangay health services during the COVID-19 pandemic in the Philippines. Additionally, a survey method was employed to collect the data for the study. The survey method involves gathering data from a sample by asking participants a series of structured questions [30]. It allows for flexible data collection, offering a variety of ways to recruit participants, gather responses, and analyze the data [32]. In this study, a survey was used to assess nursing students' awareness and satisfaction with barangay health services.

3.2. Participants and Procedure

The participants in this study were Level I, Level II, and Level III nursing students from a state college of nursing in Sagay City; a local city in the province of Negros Occidental, aged 18 years and above, and enrolled during the second semester of the *Academic Year 2021-2022*. These students were selected because they have minimal to no exposure to community health nursing, which is integral to their education. The college is the only nursing school located in a rural area of the province, where health facilities are limited and mostly focused on primary care. Many nursing students at this institution reside in rural areas, where barangay health centers are often the primary healthcare providers for their communities. The study was conducted during the COVID-19 pandemic, a period during which health consultations in private clinics and hospitals were impacted by strict COVID-19 health protocols. To determine the sample size, the total population of nursing students at the college, which exceeds 1,000, was considered. Using the Raosoft [33] software, the required sample size was calculated to be 240 participants. A simple random sampling technique was employed to ensure that

every nursing student had an equal chance of being selected, making the study results generalizable to the broader population [34]. This sampling method strengthens the internal and external validity of the study [35] ensuring accurate representation of the nursing students' awareness, utilization, and satisfaction with barangay health services during the COVID-19 pandemic. The study design and instrument were reviewed and approved by the panel of evaluators from the University of St. La Salle Graduate Program prior to the administration of the survey questionnaire.

After securing the ethics approval from the university, informed consent was obtained from the participants. The informed consent form was the first section of the Google Form. Once consent was given, participants proceeded to complete the online survey questionnaire. To minimize any potential bias from the presence of the Clinical Instructor, who also served as the researcher, an assistant researcher was hired to oversee the entire data collection process. The assistant researchers were responsible for distributing the Google Forms to the respondents. A Facebook Messenger group chat was created to ensure continuous communication throughout the study, with the research assistant managing the group and sending the survey link via the said chat group. Participants' profiles remained anonymous, and providing their name was optional. The questionnaire was created using Google Forms, and the link was shared with the target participants via the group chat. Responses were collected and stored in a Microsoft Excel spreadsheet for analysis, with a receipt of their answers sent to participants via email. The rights of the participants and the confidentiality of their profiles were strictly upheld. Participation was voluntary, and the respondents freely provided their answers without any coercion from the researchers. Lastly, participants were also informed that they could withdraw from the study at any time, should they choose to do so.

Table 1.
Demographic background of participants.

Demographic	n	%
Age		
18-20 years old	132	55.0
21-24 years old	105	43.8
25-32 years old	3	1.3
Gender		
Male	49	20.4
Female	191	79.6
Year level		
BSN 1	67	27.9
BSN 2	54	22.5
BSN 3	119	49.6
Marital status		
Single	239	99.6
Married	1	0.4

Table 1 provides an overview of the demographic background of the study participants, which includes age, gender, year level, and marital status. A total of 240 participants were included in the study. Most participants were between 18 to 20 years old (55.0%, $n = 132$), followed by those aged 21 to 24 years (43.8%, $n = 105$). Only a small portion of the participants were aged 25 to 32 years (1.3%, $n = 3$). Regarding gender, the study predominantly involved female participants, making up 79.6% ($n = 191$), while 20.4% ($n = 49$) were male. In terms of year level, most participants were from the third-year nursing students (49.6%, $n = 119$), followed by first-year students (27.9%, $n = 67$) and second-year students (22.5%, $n = 54$). Nearly all participants were single, comprising 99.6% ($n = 239$), with only 0.4% ($n = 1$) being married.

3.3. Survey Instrument

The researcher employed a modified, structured, standardized questionnaire as the primary instrument for data collection in this study. The questionnaire was adapted from the Department of the Interior and Local Government (DILG) [36]. A copy of the study was obtained from one of the researchers, and relevant health determinants from the study were extracted and translated into a Google Form. The health-related items from the CSIS were utilized as indicators in the survey, with a specific focus on health services, which were tailored to fit the profile of the respondents. The standardized questionnaire ensured that all participants were asked the same questions in a consistent format, and responses were recorded uniformly [37]. The data were collected using the structured questionnaire, which was distributed via Google Form to the selected participants, and subsequently analyzed for interpretation.

The survey questionnaire consisted of four parts. Part One collected the demographic information from the participants, including name, age, gender, year level, and marital status. Part Two assessed the participants' awareness of various barangay health services. Data is collected with a Yes/No answer denoting the awareness to each of the health services offered in the barangay. Part Three focused on the specific barangay health services utilized by nursing students. Data is collected using a five (5) point Likert [38] type scale signifying the frequency of usage of services with 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. While, Part Four evaluated the level of satisfaction with the health services availed, with this section applicable only to those who had utilized barangay health services. Data is collected using a five (5) point Likert type scale signifying the level of satisfaction in the health services with 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, and 5 = very satisfied.

To ensure the validity of the questionnaire, the instrument was reviewed by experts in the field of community health nursing and underwent a pre-test at a different nursing school with similar characteristics to the target institution, located in a rural area. The pre-test followed the same procedure and informed consent process as the main study. Reliability was assessed using [39] Alpha coefficient with a pilot test conducted on 30 respondents. A formal letter requesting permission was sent to the Dean of the College of Nursing, and after receiving approval, the Google Form was distributed to the respondents. The completed responses were analyzed by the researcher's statistician to calculate Cronbach's Alpha, yielding a score of .88, which indicates good internal consistency [30].

4. Results and Discussions

4.1. Awareness of Health Services

Table 2 shows the participants' awareness of various barangay health services. The "Total" column represents the number of participants in each demographic group, while the "Yes" column indicates the number of participants who are aware of each specific health service. The services assessed include *vaccinations*, *childbirth services*, *general consultations*, *basic medicine*, and *prevention and management of communicable and non-communicable diseases*.

Vaccinations: Results show that most participants, across all demographic groups, demonstrated a high level of awareness of the vaccination services provided by barangay health centers. Specifically, 97.7% of participants aged 18-20 years were aware of vaccination services, followed by 99.0% in the 21-24 years age group. Even in the smaller 25-32 years old category, awareness remained high at 100%. Gender differences were minimal, with both male (100%) and female (97.9%) participants showing significant awareness. In terms of year level, awareness was consistently high, with third-year nursing students exhibiting the highest awareness at 99.2%. These findings suggest that the participants, regardless of their age, gender, or year level, were highly informed about vaccination services available at the barangay health centers.

Table 2.
Participants' awareness of health services (In percentage %).

Demographic	Total		Vaccinations		Childbirth		Consultations		Medicine		Prevention	
	n	%	Yes	%	Yes	%	Yes	%	Yes	%	Yes	%
Age												
18-20 years old	132	55.0	129	97.7	120	90.9	115	87.1	108	81.8	123	93.2
21-24 years old	105	43.8	104	99.0	100	95.2	87	82.9	90	85.7	99	94.3
25-32 years old	3	1.3	3	100	3	100	3	100	3	100	3	100
Gender												
Male	49	20.4	49	100	46	93.9	42	85.7	41	83.7	44	89.8
Female	191	79.6	187	97.9	177	92.7	163	85.3	160	73.8	181	94.8
Year level												
BSN 1	67	27.9	65	97.0	59	88.1	56	83.6	53	79.1	62	92.5
BSN 2	54	22.5	53	98.1	51	94.4	45	83.3	44	81.5	49	90.7
BSN 3	119	49.6	118	99.2	113	95.0	104	87.4	104	87.4	114	95.8
Marital status												
Single	239	99.6	235	98.3	222	92.9	204	85.4	200	83.7	224	93.7
Married	1	0.4	1	100	1	100	1	100	1	100	1	100
Overall	240	100	236	98.3	223	92.9	205	85.14	201	83.8	225	93.8

Note: N=240. Services includes free vaccinations for infants and children, pre-natal, post-natal, and childbirth, general consultation, basic medicine, and prevention and management of communicable and non-communicable diseases.

Childbirth Services: Awareness of childbirth services (including pre-natal, post-natal, and childbirth) also showed a high level of recognition across all participant groups. For example, 90.9% of participants aged 18-20 years were aware of childbirth services, with awareness levels increasing slightly in the 21-24 years group (95.2%). This trend of high awareness was consistent across genders, with both male (93.9%) and female (92.7%) participants showing strong awareness. In terms of year level, third-year students again had the highest awareness rate at 95.0%, followed closely by second-year students at 94.4%. These results indicate that participants, particularly in the younger age brackets, were very aware of the childbirth-related services offered by barangay health centers.

Consultation Services: Awareness of general consultation services was also widespread, although slightly lower than that of vaccinations and childbirth services. A significant 87.1% of participants aged 18-20 years were aware of the consultation services, with awareness increasing to 82.9% in the 21-24 years group. While still high, awareness dropped to 100% in the 25-32 years group due to the small sample size. Gender-wise, male participants showed a slightly lower awareness rate (85.7%) compared to female participants (85.3%). Regarding year level, third-year students again demonstrated the highest awareness of consultation services at 87.4%. These findings suggest that most participants were familiar with consultation services, though slightly less so than other health services.

Medicine Services: Awareness of basic medicine services provided by the barangay health centers varied slightly across groups. Awareness was highest in the 18-20 years old group (81.8%) and remained strong in the 21-24 years group (85.7%). Interestingly, the 25-32 years group showed full awareness (100%). Female participants had slightly higher awareness (73.8%) compared to male participants (83.7%). Year level data showed a more varied pattern, with third-year students exhibiting the highest awareness at 87.4%, followed by second-year students at 81.5%. This suggests that while awareness of basic medicine services was generally high, it was slightly lower compared to services like vaccinations and childbirth.

Prevention and Management Services: The awareness of services related to the prevention and management of communicable and non-communicable diseases was the highest across all services evaluated in this study. 93.2% of participants aged 18-20 years were aware of these services, with awareness increasing to 94.3% in the 21-24 years group. Awareness remained at 100% for the 25-32 years group, although the small sample size may impact this result. Female participants showed higher awareness (94.8%) than male participants (89.8%), while year level differences were minimal, with third-year students exhibiting the highest awareness at 95.8%. These findings highlight that prevention and

management services were the most well-known among the participants, indicating a strong awareness of this critical health service.

Overall, the results from Table 2 indicates that participants demonstrated strong awareness of the various barangay health services, with high recognition of vaccination, childbirth, and prevention services. The awareness levels were generally high across different age groups, gender, and year levels, with third-year students exhibiting the highest awareness. These findings are consistent with the literature, which suggests that public health services, especially preventive and maternal health services, are well-known and accessed by community members, particularly in rural areas [15]. This study reinforces the need for continued public health education and greater emphasis on community health services in nursing curricula, which can be instrumental in bridging the gap between awareness and actual utilization of services.

In addition, Chi-Square Tests were conducted to examine the relationship between nursing students' demographic profiles (age, gender, year level, and marital status) and their awareness of various Barangay Health Services, including vaccination for infants and children, pre-natal/post-natal/childbirth services, free general consultations/access to secondary and/or tertiary healthcare, free basic medicine or low-cost medicine program, and prevention and management of communicable and non-communicable diseases. The results showed that none of the demographic factors had a statistically significant relationship with awareness of these services. These findings suggest that awareness of these health services does not vary considerably across demographic groups. It also appears that factors other than demographic characteristics—such as prior exposure to community health education, health outreach programs, and individual experiences—may be more influential in shaping awareness of these services (however is not included in the data collection).

Overall, this outcome aligns with studies like those by Muduru [20] and Keil, et al. [21] which suggest that while demographic factors can influence the utilization of health services, the primary drivers of awareness are likely related to educational initiatives, accessibility, and direct engagement with health programs. In essence, these findings emphasize the importance of exploring other factors that contribute to awareness, particularly the role of targeted educational interventions and community outreach programs, which may play a larger role in enhancing nursing students' knowledge of available health services.

4.2. Usage of Health Services

In terms of overall health service usage, Table 3 shows the mean score across all participants was 2.23 ($SD = 1.50$), indicating moderate engagement with health services among the nursing students. This average usage reflects a balance of responses, with some students utilizing the services more frequently than others, while some reported lower levels of engagement. Looking at age groups, participants aged 21-24 years old exhibited the highest overall usage with a mean of 2.38 ($SD = 1.53$), suggesting they were the most likely to utilize health services. This age group was followed closely by those in the 25-32 years old group, with a mean of 2.37 ($SD = 1.66$), reflecting slightly lower but still significant utilization. The 18-20 years old group had the lowest mean of 2.12 ($SD = 1.46$), indicating that younger students, on average, were less engaged with health services compared to their older peers. When examining gender, male participants reported a higher overall mean of 2.43 ($SD = 1.53$), indicating that they utilized health services slightly more than female participants, who had a mean of 2.18 ($SD = 1.49$). This difference may reflect varying health service needs and utilization patterns between genders, as noted in the literature [21], with males typically showing more engagement in certain health services, such as prevention.

Table 3.
Participants' Usage of Health Services (In mean frequency).

Demographic	Total		Vaccinations		Childbirth		Consultations		Medicine		Prevention	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age												
18-20 years old	2.12	1.46	2.42	1.68	1.66	1.28	1.98	1.38	2.11	1.40	2.41	1.57
21-24 years old	2.38	1.53	2.78	1.71	1.74	1.38	2.49	1.49	2.42	1.50	2.48	1.56
25-32 years old	2.37	1.66	2.00	1.41	2.75	1.79	2.33	1.89	2.00	1.41	2.75	1.78
Gender												
Male	2.43	1.53	2.76	1.65	2.14	1.54	2.39	1.51	2.35	1.46	2.49	1.49
Female	2.18	1.49	2.52	1.72	1.59	1.24	2.16	1.44	2.21	1.44	2.42	1.59
Year level												
BSN 1	2.22	1.51	2.70	1.78	1.94	1.46	1.94	1.38	2.12	1.39	2.40	1.55
BSN 2	2.12	1.46	2.37	1.70	1.61	1.28	2.13	1.41	2.26	1.40	2.24	1.53
BSN 3	2.28	1.50	2.59	1.65	1.60	1.24	2.39	1.51	2.29	1.49	2.54	1.59
Marital status												
Single	2.23	1.50	2.58	1.70	1.69	1.32	2.21	1.46	2.24	1.45	2.44	1.57
Married	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0	1.00	0
Overall	2.23	1.50	2.57	1.70	1.70	1.32	2.21	1.46	2.24	1.45	2.43	1.57

Note: N=240. Services includes free vaccinations for infants and children, pre-natal, post-natal, and childbirth, general consultation, basic medicine, and prevention and management of communicable and non-communicable diseases. Mean 1.00-1.79 = never, 1.80-2.60 = rarely, 2.61-3.40 = sometimes, 3.41-4.20 = often, and 4.21-5.00 = always.

Year level also played a role in service usage, with BSN 3 students showing the highest overall mean of 2.28 ($SD = 1.50$). This suggests that students in their third year, likely with more exposure to clinical practice, were more likely to utilize health services. BSN 1 students had a mean of 2.22 ($SD = 1.51$), and BSN 2 students had the lowest mean of 2.12 ($SD = 1.46$), which may reflect the varying levels of exposure to healthcare services at different stages in their nursing education. Finally, marital status did not significantly affect health service usage, with single participants having an overall mean of 2.23 ($SD = 1.50$) and the married participant reporting a mean of 1.00 ($SD = 0$), which reported no usage. Overall, these findings highlight the variations in health service usage among nursing students based on demographic factors. Age and year level appear to be the most influential factors, with older students and those further along in their education demonstrating higher levels of engagement with health services.

When it comes to vaccination services, the mean score for participants aged 21-24 years old was the highest (2.78, $SD = 1.71$), indicating that they were the most likely to use vaccination services. The 18-20 years old group had the lowest mean (2.42, $SD = 1.68$), though it still reflected a moderate level of engagement with vaccination services. Gender-wise, male participants reported a higher mean (2.76, $SD = 1.65$) compared to female participants (2.52, $SD = 1.72$). BSN 1 students had the highest mean (2.70, $SD = 1.78$) for vaccination usage, suggesting that early exposure to community health nursing may encourage higher engagement. Overall, vaccination services were well-utilized by the participants, with a mean of 2.57 ($SD = 1.70$), showing that the majority were aware of and utilized vaccination services.

In terms of childbirth services, participants in the 25-32 years old group had the highest mean (2.75, $SD = 1.79$), followed by the 21-24 years old group (1.74, $SD = 1.38$). The 18-20 years old group had the lowest mean (1.66, $SD = 1.28$), suggesting that younger students were less likely to use childbirth-related services, which is quite understandable. Male participants had a mean of 2.14 ($SD = 1.54$), while female participants reported a lower mean (1.59, $SD = 1.24$), which may reflect lower exposure to or engagement with maternal health services. The overall mean for childbirth services was 1.70 ($SD = 1.32$), indicating moderate usage, but with significant differences across age and gender.

For consultation services, the 21-24 years old group had the highest mean (2.49, $SD = 1.49$), followed by the 25-32 years old group (2.33, $SD = 1.89$). The 18-20 years old group had the lowest mean (1.98, $SD = 1.38$), reflecting that younger student were less likely to utilize consultation services. Male participants reported a higher mean (2.39, $SD = 1.51$) compared to female participants (2.16, $SD =$

1.44). BSN 3 students exhibited the highest mean for consultations (2.39, $SD = 1.51$), likely due to their increased clinical exposure and experience. The overall mean for consultation services was 2.21 ($SD = 1.46$), showing a moderate level of usage but with variations across different groups.

For medicine services, the 25-32 years old group again had the highest mean (2.33, $SD = 1.89$), with the 18-20 years old group having the lowest mean (2.11, $SD = 1.40$). Male participants reported a slightly higher mean (2.35, $SD = 1.46$) than female participants (2.21, $SD = 1.44$). BSN 1 students had the highest mean for medicine services (2.12, $SD = 1.39$), which may be attributed to their early exposure to basic health services. The overall mean for medicine services was 2.24 ($SD = 1.45$), reflecting moderate utilization across the participants.

Finally, for prevention and management services, the 25-32 years old group had the highest mean (2.75, $SD = 1.78$), with the 18-20 years old group having the lowest mean (2.41, $SD = 1.57$). Male participants reported higher utilization (2.49, $SD = 1.49$) compared to female participants (2.42, $SD = 1.59$). BSN 3 students had the highest mean (2.54, $SD = 1.59$) for prevention and management services, indicating that students with more clinical experience tend to engage more with preventive healthcare services. The overall mean for prevention and management services was 2.43 ($SD = 1.57$), suggesting that participants, particularly those with more exposure to healthcare, were more engaged in services related to disease prevention.

The findings reveal important insights into the nursing students' utilization of various health services. Overall, participants showed moderate engagement with services, with vaccination and prevention services being the most widely used, especially among older and more experienced students. The younger students (18-20 years old) tended to utilize fewer health services, particularly childbirth and consultation services. This finding aligns with research by Ota, et al. [15] which suggests that awareness of primary health services increases with age and educational exposure. Gender differences were also evident, with male students utilizing more prevention services, while female students showed greater engagement with maternal and consultation services, reflecting findings by Keil, et al. [21] who noted that women typically engage more with healthcare services such as maternal care. Year level also played a role, with BSN 1 students showing the highest engagement with vaccinations, which may be attributed to their initial exposure to community health topics. In contrast, BSN 3 students demonstrated higher utilization of services related to consultation and prevention, reflecting the increased clinical exposure associated with their year level. Marital status did not significantly affect the overall utilization, although single students showed greater engagement in preventive health services, as noted by Mihailovic, et al. [28]. Overall, these findings highlight the need for tailored health education programs that address the unique needs of different demographic groups, with a focus on increasing service utilization among younger students.

Importantly, Chi-Square Tests were also conducted to assess the relationship between nursing students' demographic profiles (age, gender, year level, and marital status) and their usage of various Barangay Health Services. The results indicated that there were no significant relationships between demographic factors and the usage of vaccination for infants and children, free general consultations/access to secondary and/or tertiary healthcare, free basic medicine or low-cost medicine program, and prevention and management of communicable and non-communicable diseases. Specifically, age, gender, year level, and marital status did not significantly influence the usage of these services. However, significant relationships were found for childbirth services (pre-natal/post-natal/childbirth services). The Chi-Square test showed that gender (Chi-Square = 10.471, $p = .03$) and marital status (Chi-Square = 12.385, $p = .01$) had a significant impact on the usage of these services. Female students were more likely to use pre-natal/post-natal/childbirth services, and married students reported higher usage of these services compared to their single counterparts.

This is consistent with existing literature which shows that women, particularly those who are married, are more likely to utilize maternal health services [21]. While, the lack of significant relationships for other health services implies that the usage of general services, such as vaccinations, consultations, and prevention programs, is relatively consistent across different demographic groups.

This could indicate that awareness and access to these services are more universal or that factors beyond demographics, such as individual health needs, awareness campaigns, and the availability of healthcare, might have a greater influence on usage.

4.3. Satisfaction of Health Services

For vaccination services, Table 4 shows the overall mean satisfaction was 4.37 ($SD = 0.49$), indicating that, on average, participants were very satisfied with the vaccination services provided. Participants aged 21-24 years old showed the highest satisfaction with a mean of 4.40 ($SD = 0.49$), followed closely by those aged 18-20 years old with a mean of 4.35 ($SD = 0.48$). The 25-32 years old group, with a mean of 4.00 ($SD = 0$), reported the lowest but still very satisfied level, which may be due to the small sample size in this group. In terms of gender, male participants were slightly more satisfied (mean = 4.45, $SD = 0.51$) than female participants (mean = 4.35, $SD = 0.48$). Among year levels, BSN 2 students had the highest satisfaction (mean = 4.61, $SD = 0.50$), followed by BSN 1 students (mean = 4.31, $SD = 0.47$). This suggests that students in their second year, with more exposure to health service courses, might have had a greater appreciation for vaccination services. Overall, the satisfaction with vaccination services aligns with the findings of studies that highlight the importance of immunization programs and their effectiveness in ensuring public health [15].

Table 4.
Participants' Satisfaction of Health Services (in mean frequency).

Demographic	Vaccinations (<i>n</i> = 123)		Childbirth (<i>n</i> = 60)		Consultations (<i>n</i> = 117)		Medicine (<i>n</i> = 117)		Prevention (<i>n</i> = 126)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age										
18-20 years old	4.35	0.48	4.00	0.98	4.00	0.82	3.88	0.83	4.00	0.79
21-24 years old	4.40	0.49	4.30	0.67	4.16	0.66	4.18	0.76	4.19	0.61
25-32 years old	4.00	0	4.00	0	4.00	0	4.00	0	4.00	0
Gender										
Male	4.45	0.51	4.26	0.73	4.15	0.60	4.00	0.84	4.03	0.68
Female	4.35	0.48	4.07	0.91	4.07	0.78	4.03	0.80	4.10	0.73
Year level										
BSN 1	4.31	0.47	4.21	0.85	4.00	0.68	3.90	0.70	4.00	0.83
BSN 2	4.61	0.50	3.82	0.98	4.00	0.98	3.86	0.99	4.04	0.89
BSN 3	4.32	0.47	4.19	0.80	4.16	0.65	4.17	0.75	4.15	0.57
Marital status										
Single	4.37	0.49	4.10	0.81	4.09	0.74	4.03	0.80	4.01	0.72
Married	-	-	4.00	0	-	-	-	-	-	-
Overall	4.37	0.49	4.18	0.81	4.09	0.74	4.03	0.80	4.09	0.72

Note: N=240. Services includes free vaccinations for infants and children, pre-natal, post-natal, and childbirth, general consultation, basic medicine, and prevention and management of communicable and non-communicable diseases. Mean 1.00-1.79 = very dissatisfied, 1.80-2.60 = dissatisfied, 2.61-3.40 = neutral, 3.41-4.20 = satisfied, and 4.21-5.00 = very satisfied.

Regarding childbirth services, the satisfaction mean was 4.18 ($SD = 0.81$), indicating that participants were generally satisfied with these services. The 21-24 years old group reported the highest satisfaction (mean = 4.30, $SD = 0.67$), followed by the 18-20 years old group (mean = 4.00, $SD = 0.98$). BSN 2 students had the lowest satisfaction mean for childbirth services (mean = 3.82, $SD = 0.98$), which might reflect the limited exposure they have to maternal health services. Female participants generally showed higher satisfaction (mean = 4.07, $SD = 0.91$) compared to male participants (mean = 4.26, $SD = 0.73$), a trend often observed in maternal healthcare studies [21]. These findings underscore the importance of improving and maintaining maternal health services to ensure satisfaction and quality care.

For consultation services, the overall satisfaction mean was 4.09 ($SD = 0.74$), indicating a high level of satisfaction. The 21-24 years old group reported the highest satisfaction (mean = 4.16, $SD = 0.66$),

while the 18-20 years old group had the lowest satisfaction (mean = 4.00, $SD = 0.82$). Gender differences were minimal, with male participants having a mean of 4.15 ($SD = 0.60$) and female participants reporting a mean of 4.07 ($SD = 0.78$). BSN 3 students exhibited the highest satisfaction with consultations (mean = 4.16, $SD = 0.65$), reflecting their advanced clinical experience. The satisfaction level for consultation services indicates that nursing students are generally content with the consultation services provided, which is consistent with findings by Mihailovic, et al. [28] who highlighted that communication and consultation quality are major factors in patient satisfaction.

For medicine services, the mean satisfaction was 4.03 ($SD = 0.80$), indicating that while most students were satisfied, there was a slight variation in responses. The 21-24 years old group had the highest satisfaction (mean = 4.18, $SD = 0.76$), while the 18-20 years old group had the lowest satisfaction (mean = 3.88, $SD = 0.83$). In terms of gender, male participants were slightly more satisfied with medicine services (mean = 4.00, $SD = 0.84$) compared to female participants (mean = 4.03, $SD = 0.80$). Among year levels, BSN 3 students had the highest satisfaction (mean = 4.17, $SD = 0.75$), which likely reflects their broader exposure to clinical practice. The literature supports the idea that satisfaction with basic medicine services is crucial in ensuring equitable access to healthcare [17].

Finally, for prevention and management services, the satisfaction mean was 4.09 ($SD = 0.72$), indicating that participants were generally satisfied with these services. The 21-24 years old group had the highest satisfaction (mean = 4.19, $SD = 0.61$), while the 18-20 years old group had a mean of 4.00 ($SD = 0.79$). Female participants reported slightly higher satisfaction (mean = 4.10, $SD = 0.73$) than male participants (mean = 4.03, $SD = 0.68$). Among year levels, BSN 3 students showed the highest satisfaction (mean = 4.15, $SD = 0.57$), consistent with their advanced clinical exposure. These results align with the literature highlighting the importance of preventive health services in ensuring long-term public health and reducing the burden of preventable diseases [16].

Overall, nursing students reported high satisfaction with the health services provided, with vaccination and consultation services receiving the highest levels of satisfaction. Age, gender, and year level influenced students' satisfaction, with older students (21-24 years old) generally expressing higher satisfaction, particularly in childbirth and consultation services. The higher satisfaction among BSN 3 students could be attributed to their increased exposure to clinical practice, which aligns with findings by Ota, et al. [15] who noted that greater exposure to healthcare services is associated with increased satisfaction. Gender differences were also evident, with male participants generally showing higher satisfaction with vaccination and prevention services, while female participants expressed higher satisfaction with childbirth and consultation services. This finding echoes studies such as Keil, et al. [21], which found gender-based differences in satisfaction, especially in maternal and preventive health services. The relatively high satisfaction with medicine and prevention services suggests that students perceive these services as valuable and beneficial, reinforcing the need for continued focus on preventive care.

Additionally, while the married participant in this study had a mean satisfaction of 1.00 across all services, due to the small sample size limits generalizability. Nevertheless, the general trend shows that nursing students, particularly those in advanced years of study, are satisfied with the health services they access, highlighting the importance of continuing to improve and maintain these services for future healthcare workers. In conclusion, this study confirms that satisfaction with health services is an essential indicator of service quality and can be influenced by a variety of demographic factors. Tailoring health service delivery to address the specific needs of different groups, such as age, gender, and year level, will enhance satisfaction and ensure that nursing students receive the necessary support for their academic and future professional roles.

Lastly, Chi-Square Tests were also conducted to examine the relationship between nursing students' demographic profiles (age, gender, year level, and marital status) and their satisfaction with various Barangay Health Services. The results revealed that there were no significant relationships, except for vaccination for infants and children where year level showed a significant relationship. For vaccination for infants and children, year level showed a significant relationship with satisfaction (Chi-

Square = 6.664, $p = .03$), indicating that nursing students' satisfaction with vaccination services varied based on their year level. This could be attributed to the increasing exposure to healthcare concepts and services as student advance in their studies. In essence, this finding seems to suggests that satisfaction with health services is largely driven by factors such as educational exposure and familiarity with healthcare systems rather than basic demographic characteristics. Further research could focus on other potential factors influencing satisfaction, such as healthcare accessibility, awareness campaigns, or personal health experiences.

5. Conclusion and Recommendations

The current study explored the relationships between nursing students' awareness, utilization, and satisfaction with Barangay Health Services and their demographic profiles (age, gender, year level, and marital status). The study revealed that there were **no** significant relationships between nursing students' demographic profiles and their awareness of various health services, indicating that awareness was generally consistent across different demographic groups. This finding suggests that other factors, such as prior education, health communication efforts, and outreach initiatives, might play a more prominent role in shaping students' awareness of these services. When examining the utilization of Barangay Health Services, the study also found **no** significant relationship between age, gender, year level, and marital status and the usage of most health services. However, gender and marital status were significant factors influencing the utilization of pre-natal/post-natal/childbirth services, where female and married students were more likely to use these services. This aligns with Goal Attainment Theory, which emphasizes the importance of collaboration between individuals and healthcare providers in achieving health goals. Specifically, the theory suggests that individual factors such as gender and life stage influence goal-setting and actions taken toward achieving health outcomes, which in this study reflected in the utilization of maternal health services.

As for satisfaction with Barangay Health Services, the study also found **no** significant relationship between demographic factors and satisfaction, indicating that satisfaction was generally high across the board. This suggests that once students engage with the services, their overall satisfaction is relatively consistent, reinforcing the role of positive healthcare interactions in fostering satisfaction, a concept emphasized in Consonance Theory. This theory, which focuses on the alignment of expectations and actual healthcare experiences, suggests that when nursing students are exposed to services that meet their needs, satisfaction levels remain high, regardless of demographic variables. In conclusion, while gender and marital status were found to influence the utilization of maternal health services, other demographic factors did not significantly affect the awareness, utilization, or satisfaction of most Barangay Health Services. These findings point to the importance of considering life stage and gender in the delivery of health services, particularly in maternal health care, while highlighting that other factors, such as healthcare exposure and communication strategies, may be more effective in improving awareness and utilization. The theoretical frameworks, particularly Goal Attainment Theory and Consonance Theory, provided valuable insights into the factors that might influence students' engagement with healthcare services, reinforcing the need for tailored health interventions.

5.1. Recommendation

Based on the findings, it is recommended that nursing educators, healthcare providers, and local government officials collaborate to enhance the accessibility and usage of health services among nursing students. Awareness campaigns should be tailored to the unique needs of nursing students, with a focus on promoting the use of underutilized services such as pre-natal/post-natal services and general consultations. Educational institutions can incorporate health service awareness modules into the curriculum and collaborate with Barangay Health Workers on community outreach programs. These actions will not only increase service utilization but also improve the practical application of health service knowledge in community settings.

5.2. Limitations

While this study provides valuable insights, it has several limitations. The sample size, though adequate, may not fully represent the broader population of nursing students, particularly in other regions or academic years. The study also relied on self-reported data, which may have introduced biases or inaccuracies in responses. Additionally, the study focused only on nursing students from one state college in Sagay City, limiting the generalizability of the findings. Future research could expand the sample size and explore other factors, such as healthcare accessibility and personal health practices, which may better explain the gap between awareness and actual service usage.

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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, N.K.V.C. and S.M.T.; methodology, N.K.V.C. and S.M.T.; software, G.S.C.; validation, N.K.V.C., S.M.T. and G.S.C.; formal analysis, N.K.V.C.; investigation, N.K.V.C., S.M.T. and G.S.C.; resources, N.K.V.C., S.M.T. and G.S.C.; data curation, N.K.V.C.; writing—original draft preparation, N.K.V.C.; writing—review and editing, N.K.V.C., S.M.T. and G.S.C.; visualization, G.S.C.; supervision, S.M.T.; project administration, N.K.V.C. and S.M.T.; funding acquisition, N.K.V.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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