

Framework Development for Citizens' Satisfaction in Barangay Healthcare

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DOI: <https://dx.doi.org/10.47772/IJRISS.2025.90500053>

Received: 13 April 2025; Revised: 21 April 2025; Accepted: 25 April 2025; Published: 29 May 2025

ABSTRACT

Objective: Healthcare development has been one of the priorities of the government to ensure that the people are living well and healthily. As such, it always evolves and improves over the years but still, the citizens satisfaction with health services is not fully studied. Satisfaction defines their content to the quality they need and wants as to what the barangay should offer them. Therefore, this study investigates the underlying dimensions influencing citizen satisfaction with barangay healthcare. This study aims to fill the gap of limited literature that analyzes dimensional factors that developed a framework aimed to enhance citizen satisfaction in public healthcare, in particular, the barangay setting.

Material and Methods: An exploratory sequential mixed-method approach incorporates in-depth interviews with 8 participants and 350 respondents on surveys from selected barangays in our chosen location. The questionnaires of qualitative phase and quantitative are research-made. To ascertain the reliability of the questionnaire the pilot test is conducted with Cronbach Alpha which reliability of the Cronbach Alpha standard ranges from 0 to 1.

Results: The in-depth interview process revealed important information on the dimensions and factors that influence citizens to be satisfied with their barangay healthcare. Thirty-five significant statements were identified after Eight transcripts were analyzed. The findings in quantitative phase revealed four significant factors influencing citizen satisfaction with barangay healthcare services: Efficiency, Responsiveness, Accessibility, and Equity and Care. Kaiser-Meyer-Olkin test, Bartlett's test, and Varimax is applied to support the statistical result of the phase. Based on the rotated solution, the four factors have been classified with a cumulative value of 0.714, indicating that 71.4% of the variability was explained. Dimension 1 substantially concerned with identifying how the barangay can provide efficient health care services through enhancing resources. In Dimension 2, explain the accountable actions of the barangay when an emergency is present and needs a response. Dimension 3, disclosed the indication of people to gain opportunities for more accessible services in health. Lastly, Dimension 4 highlights the expectation of the people to receive fair treatment and care when they request assistance in barangay healthcare.

Conclusion: Taken together, integrating these four dimensions into a cohesive healthcare strategy can significantly elevate the quality of healthcare services in barangays. Investment in resources, system responsiveness, accessibility, and the combination of equity and care is imperative for creating a robust healthcare environment that meets the needs of the community. Policymakers and health administrators must prioritize these dimensions in their plans to ensure that barangays can effectively serve their populations, ultimately leading to improved health outcomes and community well-being. The findings underscore the necessity for ongoing research and collaboration among stakeholders to refine and implement these strategies sustainably.

Keywords: Citizens satisfaction, healthcare, barangay, Exploratory sequential mixed-method, Exploratory Factor Analysis, Philippines

INTRODUCTION

Healthcare is a process and an act of service to elongate the life of a person to survive. Based on the study of Neal (2023), it is to provide medical treatment to help people prevent illnesses and diseases that could impact the individual quality of life. However, the World Health Organization (2018) stated that all income levels of countries are experiencing a reversal in health improvement due to inadequate quality health services.

According to the study of Dela Cruz and Ortega (2019), in the Philippines, healthcare problems also present a shortage of funds, supplies, tools, and technical advancements causing the majority of issues. The need for adequate knowledge and human resources is a problem also in improving healthcare services. There are numerous initiatives to enhance the provision of health services in the nation. Whereas, socioeconomic and regional differences in the accessibility and availability of resources are crucial (Dayrit et al., 2018). Through this, the satisfaction index of the citizen relies on the quality of care they receive. The results indicated that their level of satisfaction with their health needs to be improved in various studies (Moyani et al., 2023). The inability of citizens to pay for half of the cost of medical care, fees, a shortage of medication, the ineffectiveness of some medications, and the fact that services were only offered during elections were among the reasons for dissatisfaction (Gumba, 2021).

Globally, the rising income levels and expanding health concerns of contemporary society have greatly enhanced healthcare demands and changed societal trends toward healthier lifestyles (Li et al., 2015). Subsequently, healthcare systems are always evolving and improving, but harder to assess how to measure outcomes while measuring service receiver satisfaction. Patient satisfaction is now acknowledged as significant despite prior disregard (Ferreira et al., 2023).

With the issues mentioned above in healthcare services, various frameworks are utilized to aid which likewise serve as the framework of this study. Firstly, sustainable development goal (SDG) number three, "good health and well-being" is the primary proposition of the study. The United Nations formulated sustainable development goals encompassing a vision and objectives spanning a fifteen-year horizon, incorporating aspirations for healthy living supported by the Philippines led by the National Economic and Development Authority (NEDA) and Philippine Statistics Authority (PSA). This overarching goal delineates seventeen specific visions of future societal desires.

Moreover, legal frameworks that ensure the alignment of causes to the abovementioned goal can be observed in the Philippines. For instance, the Universal Healthcare Act (R.A. 11223) provides a framework that advocates for the development, implementation, monitoring, and evaluation of health policies, programs, and strategies, considering perspectives from the entire healthcare system, governmental apparatus, and societal stakeholders. Furthermore, section 102 of RA 7160, known as the Local Government Code of 1991, serves to recommend annual financial allocations to the pertinent sanggunian for the maintenance and operation of health facilities and services within the applicable municipality, city, or province. In alignment with the standards and guidelines promulgated by the Department of Health and Local Government Unit, the study affirms the point of the framework to achieve the objectives of the study.

In addition, Healthcare Quality Theory is also a foundation of this study. This theory is proposed by Sixma et al., (1998), the key to assessing patient satisfaction is a positive assessment of many characteristics related to the patients perception of high-quality care. In particular, it is thought that interpersonal care has a significant impact on satisfaction. This theory is acquiesced by Marquis et al., (1983) that states, ensuring patient satisfaction is crucial to preserving the patient-provider relationship. As a result, it would be more beneficial to examine the fundamental elements of the idea, namely expectations and experiences to address patient satisfaction and dissatisfaction. Empirical evidence is used to expand and explain a conceptual framework based on the sequence performance, importance, and impact. The quality judgments of various patient groups are generated from the importance and performance scores of various healthcare components (Sixma et al., 1998). In conducting this

research on citizen satisfaction with public health care, Healthcare Quality Theory provides the basis framework for the study.

Moreover, the Service Quality Theory of Oliver (1980) is also considered a framework of the study. It states that if performance falls short of expectations, consumers deem the work to be of bad quality. As performance exceeds expectations, quality rises and thus, the foundation upon which consumers assess the quality of the services they receive is their expectations. Lewis and Booms (1983) study defined quality of service as the extent to which the level of service provided meets or exceeds the expectations of the customer; providing quality service is consistent with meeting or exceeding customer expectations. Parasuraman et al., (1985) expressed a similar view to Lewis and Booms (1983) when they stated that perceptions of service quality are the outcome of comparing expectations from customers with actual performance.

In conducting this research on citizen satisfaction with public health care, the proposition of SDG number three (good health and wellbeing) provides a supporting framework in the study to focus on creating a good output for a better quality of health services. This goal guides our study to what the people envision of how the local government and their barangay should assist their wants and needs in public health. The Universal Healthcare Act (RA 11223) and section 102 of Local Government Code 1991, support the proposition to monitor the implementation and for the researcher to determine whether the barangay complies with the laws of the local government. Healthcare Quality Theory can provide a basis framework for the study as this framework centralizes patient satisfaction. It ought to overview their feedback on the high-quality care they relished. Distinguishing the quality of healthcare is valuable to ascertain the needs and wants of individuals. Our study evaluates by using this framework. The Service Quality Theory also qualifies as a tool since the theory represents how the citizens perceive the service quality of what they receive. It helps to investigate how the quality of service impacts the responses and impressions of the people whether it may be positive or negative. The researcher hopes to find the dimensions to improve public health services to help the government develop policies and services that could satisfy citizens with public health care in the barangays.

Figure 1 presents the conceptual framework of this research, which seeks to identify the underlying factors that contribute to citizen satisfaction with barangay healthcare services. This framework delineates several variables, designated as Factor 1 through Factor 5, each representing a distinct dimension of citizen satisfaction. The outcomes of this study will provide detailed identification and naming of these factors, thereby highlighting the specific elements that influence the people to be satisfied with barangay healthcare.

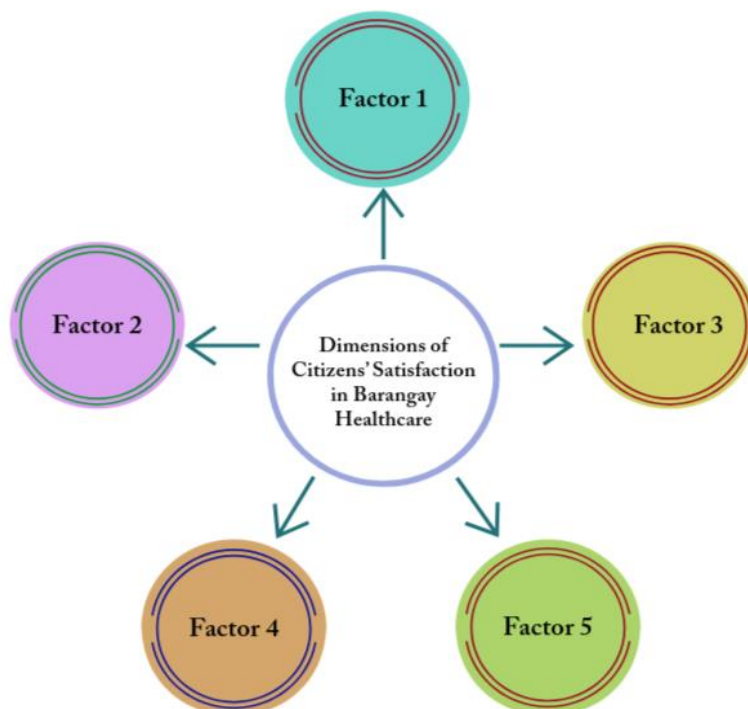


Figure 1. Conceptual Framework

The study has foregrounded a gap in the existing research, specifically about healthcare in our locale. There is an insufficiency of research on citizen satisfaction within the context of barangay healthcare in the Island Garden City of Samal. As one of the developed municipalities in the locality, studies pertinent to the region primarily concentrate on economic and environmental sustainability for ecotourism purposes. There are studies also that may be relevant to the healthcare situations of IGaCos but the aim of the studies is not mainly to gather citizen satisfaction on their barangay healthcare. Furthermore, the healthcare system remains inadequately explored, as well as the satisfaction of the residents with barangay healthcare services over the years in the area. The study is conducted in

The overall health of the population is significantly impacted by the distance to better health facilities. The poor population finds it incredibly difficult to access healthcare facilities for even the most basic needs, such as frequent checkups and intensive medical treatment. The location, cost, and travel time affect also the availability of healthcare (Collado, 2019). A recent estimate by the World Bank and the World Health Organization (2017) indicates that a minimum of half of the global population lacks access to essential healthcare treatments. Furthermore, a notable proportion of households are pushed into poverty annually due to the financial burden of covering their medical expenses.

Hence, this study aims to (1) identify and explore dimensional factors that can influence citizens to be satisfied with barangay healthcare services; and (2) to develop a framework about the dimensions to improve the quality of public healthcare in barangays particularly within the area of the Island Garden City of Samal, using exploratory factor analysis (EFA).

This study aims to fill the gap of limited literature that analyzes dimensional factors that developed a framework aimed to enhance citizen satisfaction in public healthcare, in particular, the barangay setting. The urgency of conducting this study is grounded in the needs of the of the Barangays in the Island Garden City of Samal. The study is limited in chosen barangays of IGACOS due to its location which are more isolated and distance to the main are of IGACOS. The study will be more effective as comparable challenges have been encountered in the Island Garden City of Samal regarding access to and opportunities for healthcare in most of its distant barangays. Access to healthcare still requires improvement given the proximity of the area to coastal regions. Health disparities prevail between coastal areas, attributable to the limited development of healthcare facilities and associated resources. Consequently, access to these services is hindered (Iqbal, 2019). As the demand for local governments increases and expectations rise, there is a pressing need for the development and implementation of effective frameworks that prioritize citizen satisfaction with a specific emphasis on health-related services.

MATERIALS AND METHODS

Study Participants

This section discussed the participants in the qualitative and quantitative strands of the study. The participation of the people in the area was important in generating the essential data to achieve the purpose of this study.

Qualitative Strand

To attain homogeneity, for the researchers to easily determine which qualified respondents are inclusion and exclusion criteria are crafted. The participants of the study are the citizens of selected barangays which are San Remigio, Libertad, Pangubatan, and San Isidro located in the Island Garden City of Samal. These barangays are specifically chosen due to their location near the coastal area. Since it shows that healthcare is one of the least developed infrastructures in many coastal communities (Harris et al., 2019). Eligibility for participation in this phase requires residency in the barangay for a period exceeding one year.

Furthermore, individuals must have attained the age of 18 years or older to participate. Eligible participants may also occupy leadership roles within the community who have knowledge and are engaged in healthcare services and programs dedicated to facilitating access to healthcare services for residents.

Ensuring that the study had sufficient representatives who would participate in in-depth interviews (IDI), two (2) participants in each barangay were selected by using the purposive sampling technique. According to Hennink and Kaiser's (2015) citation of Creswell's (2013) recommendations, most qualitative research should have a sample size of Five to Twenty-five people. Therefore, eight (8) participants are selected in these barangays to satisfy the purposes of the study. Purposive sampling is used because it is predicated on the belief that, given the goals and objectives of the research, some types of individuals may have significant and divergent opinions regarding the concepts and problems under investigation, necessitating their inclusion in the sample (Robinson, 2014)

Quantitative Strand

For the quantitative data collection, 350 people in Barangay San Remigio, Libertad, Pangubatan, and San Isidro are qualified for the study. The sampling approach of the survey is random sampling. Random Sampling method is used so that each person in the population has equal stand to be chosen. As such, the number of the sample size is determined based on the sample-to-item ratio which is generally recommended for exploratory factor analysis (Memon et al., 2020), it is used to decide sample size based on the number of items in a study. The method used to determine the number of study participants is guided by Everitt (1975), which recommends that the N:p ratio should be at least 10. *Table 1* shows the distribution of the research respondent

Table 1: Distribution of Research Respondent

	Qualitative Phase	Quantitative Phase
Barangay San Remegio	2	90
Barangay San Isidro	2	91
Barangay Libertad	2	82
Barangay Pangubatan	2	87
Total	8	350

Materials and Instruments

This section discussed the materials and instruments of the quantitative phase and qualitative phase.

Qualitative Data

In this study, a research-made interview guide serves as the research instrument. The interview guide aims to explore the dimensions of framework development for citizen satisfaction in barangay health care. To facilitate in-depth responses, the interview questions are open-ended to get their responses. Before implementation, the interview guide underwent a dry run to identify any questions that may be challenging for participants to answer. Additionally, the validation process of the interview guide was conducted by experts to ensure that the questions are relevant and reliable in capturing the desired information. Three experts validated the interview guide and the researchers incorporated their feedback to ensure reliability and that the questions were well-aligned with the objectives of the study.

The interview guide has three main parts. First, there were research questions that set the focus for the interviews. Secondly, the interview guide questions facilitated discussions that delved into specific aspects related to citizen satisfaction in barangay healthcare. Lastly, probing questions were included to encourage participants to provide more detailed and comprehensive responses.

Quantitative Data

In this phase, the researcher collects the data through a survey questionnaire. The items of the survey are rated by a 7-point Likert scale ranging from 7 as strongly agree and 1 as strongly disagree. The findings obtained in the qualitative phase are the basis for the construction of the questionnaire in the quantitative phase. As such, an in-depth qualitative data analysis is utilized to pinpoint the foundational dimensions that guide the construction of the survey.

To prove that the questionnaire is reliable, the pilot test is conducted with Cronbach Alpha. The reliability of the Cronbach Alpha standard ranges from 0 to 1, it calculates the internal consistency ground from the average correlation or the co-variances of items in a survey instrument or development of a questionnaire to measure its reliability (Sharma, 2016).

Table 2. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items	Item Consistency
.966	.969	35	Excellent

Table 2 shows the survey questionnaire indicator, Cronbach's alpha, Cronbach's Alpha. Based on Standardized Items, and number of items (N). The Cronbach's alpha for the 35-item survey was 0.966, indicating excellent internal consistency. When items were standardized, the Cronbach's alpha slightly increased to 0.969, further confirming the reliability of the survey instrument.

Design and Procedure

This study is an exploratory sequential mixed-method, the researchers utilized the qualitative results to design the quantitative phase by identifying research questions and variables, and developing an instrument, by linking the phases by analyzing the qualitative data and utilizing the results to build the succeeding quantitative phase (Creswell & Creswell, 2017). This research design is appropriate since, as stated by Creswell & Fetters (2013), research on health care involves exploring intricate, multilevel systems and processes that may call for both qualitative and quantitative data.

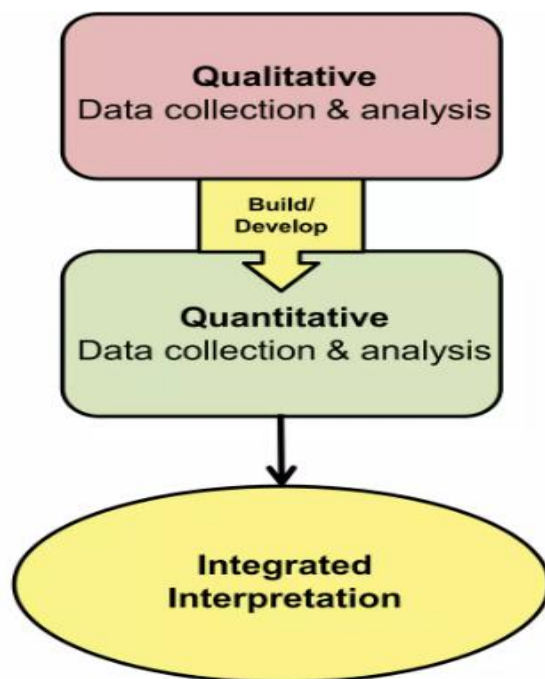


Figure 2. The Exploratory Sequential Mixed-methods Process

Figure 2 shows the exploratory sequential mixed-method process of underlying dimensions influencing the satisfaction of citizens with barangay healthcare in Island Garden City of Samal. It shows the step-by-step process of the study, including each procedure and products of phases.

In this study, the initial phase involved collecting the qualitative data, which then informed the subsequent quantitative phase. This two-step process was considered appropriate for exploring the factors influencing citizen satisfaction in barangay healthcare. The saturated data from the qualitative analysis were used to create a survey questionnaire for the quantitative phase. This method was selected because it allowed researchers to create a wider array of research questions that a single method could not sufficiently address.

The procedure of collecting the data for the study commences after the researchers get approval to begin the data collection. A notice to commence is issued by the course adviser to be signed by the Institute of Leadership, Entrepreneurship, and Good Governance dean as a signal to begin the collection of data. In the first step of the procedure, the researchers send a letter of request to the barangay captains of the selected area of Island Garden City of Samal to ask permission to conduct the study in their barangay.

For the qualitative data collecting phase of this study, before participant recruiting, careful preparations are made and informed consent and ethical approval is sought. Written in the letter were the inclusion criteria to avoid interviewing unqualified participants. After receiving the confirmation to conduct interviews, the researcher then goes to the respective location of the participants. Prior to conducting the interviews, the researchers request permission from the participants to audio-record the sessions. After the consent was granted, a phone was used to ensure clear audio recordings. To maintain data confidentiality, researchers only have access to the audio recordings, ensuring the privacy and security of the collected data. After the interview, the researcher transcribed the data gathered to get significant information to construct the research-made instrument intended for the quantitative phase of the study.

After the survey questionnaire was generated, the researcher sought approval to conduct the survey. Before administering the survey, the researchers sent a letter again to the barangay captains of the selected barangays of Island Garden City of Samal. After getting approval from the barangay captains, participants get a letter requesting their agreement to be surveyed for research. The researchers disseminate the survey questionnaire if respondents provide permission. To guarantee a 100% retrieval rate, the researchers further ask the respondents to propose a deadline for completing and returning the questionnaire. The survey results were statistically arranged and sent to a specialist for validation and grammatical improvement. The reliability of the survey instrument is tested before it is employed in the statistical method. All variables are screened for potential outliers and missing data before executing the data analysis. Missing values are looked for in every variable. The responses are reviewed with the results after the data reduction procedure. Findings and recommendations are constructed then.

Since the aim is to assess what dimensional factors influenced the citizens to be satisfied with barangay healthcare, the exploratory factors analysis is an appropriate approach to explore the underlying theoretical structure of the phenomena. Theoretical theories and assessments are developed and validated using Exploratory Factor Analysis (EFA), a multi-variable statistical method. Exploratory factor analysis (EFA) is a multivariate statistical method that finds the fewest number of hypothetical constructs such as factors; dimensions; latent variables; synthetic variables; or internal attributes that can adequately explain the co-variation observed for a set of measured variables. To identify common factors explaining the sequence and structure of observed variables (Watkins, 2018).

Data Analysis

This study used various statistical techniques to explore the underlying factors affecting citizen satisfaction in barangay healthcare.

Qualitative Phase: Following the collection of qualitative data, data analysis is conducted by systematic procedures that start with collecting the essential amount of extensive data, proceeding to the identification of significant trends, and deducing the extraction of insights to construct a coherent line of evidence using Pallant, J. (2011) approach. This is an organized method of data analysis that creates overarching themes, arranges ideas and concepts, validates the reliability and validity of the analysis and results, and investigates potential causes.

Quantitative Phase

Results from the survey have been compiled and analyzed. Key domain structures that could influence how satisfied citizens are with barangay healthcare were identified using data reduction techniques. To ascertain dimensionality and constructs, Principal Component Analysis (PCA) was employed, with an eigenvalue threshold of 1.0 or more. Varimax rotation recommended by Kaiser (1958) was used to identify significant coefficients, or those which were greater than +0.40. Therefore, to determine the number of underlying

constructs, latent variables, or factors in a set of questions, exploratory factor analysis (EFA) was employed. This procedure strengthened the overall study by revealing the underlying structure of the data and guaranteeing the validity and reliability of the factors found.

Ethical Considerations

The researchers followed the ethical guidelines, they kept the privacy and well-being of the participants. The respondents and participants were given information about the study to fully understand their involvement. Then, consent was given to them for the clarification of voluntary participation, and had the right to withdraw. The researchers followed the Data Privacy Act of 2012 or RA 10173 in qualitative analysis of the study, aliases were used to ensure the confidentiality of the participants. During the quantitative phase, a letter was provided to the respondents that stated that the collected data would be used for research purposes only and their personal information would remain confidential.

RESULTS

This section presents the results and discussion obtained from the study conducted in exploring the underlying dimensions of citizens satisfaction in barangay healthcare. This study utilized an exploratory sequential mixed method which has two phases– qualitative and quantitative, hence this chapter presents the findings obtained from both phases.

Findings in the Qualitative Phase

The in-depth interview process revealed important information on the dimensions and factors that influence citizens to be satisfied with their barangay healthcare. The qualitative data obtained using these interview approaches were refined and unified, yielding thirty-five unique items that identified and detailed the factors of citizens to be satisfied in their barangay healthcare. Thirty-five significant statements were identified after Eight transcripts were analyzed which is showed in *Table 3*.

Table 3. Formulated Meaning for Dimensions of Citizen Satisfaction in Barangay Healthcare

1	There are annual check-ups and the provision of medications.
2	There is sufficient medicine.
3	The medicines provided are administered properly.
4	The health services are accessible.
5	There is sufficient equipment.
6	I can call the nurse and healthcare personnel for treatment any day.
7	I can receive notifications about available public health services.
8	The BHWS are active.
9	The BHWs frequently do household visits.
10	The health center personnel assist us immediately.
11	The BHWs are knowledgeable about health care.
12	The health center personnel are dependable.
13	The healthcare personnel can be easily contacted during an emergency
14	There is an available nurse in the center.
15	The transactions in acquiring health services are less bureaucratic.
16	The recruitment of health care providers is well examined.
17	The BHWs take action with less supervision.
18	The healthcare providers are respectful and accommodating.
19	There is a good barangay healthcare infrastructure.
20	The mobilization of healthcare services is easier.
21	The healthcare institution is near.
22	The emergency response immediately arrives.
23	The service delivery timetable is followed.

24	I will not wait for a few days to receive my medical assistance.
25	Referrals are only provided for complex transactions.
26	There is political neutrality.
27	There is good implementation of policies.
28	There is nearby hospital.
29	There is an ambulance in the health center.
30	There is fair attention when distributing medical services and programs.
31	The barangay allocates more budget for healthcare.
32	I can call the emergency response teams immediately.
33	The health center has a proper sanitation area and comfort room.
34	There is unity between barangay officials and health care personnel.
35	I can borrow medical equipment from the health center.

Findings in the Quantitative Phase

To examine the dimensionality of citizen satisfaction in barangay healthcare, the following analyses are conducted: the Kaiser-Meyer-Olkin test, Bartlett's test, and Varimax.

Kaiser-Meyer-Olkin Index of Sampling Adequacy. This is an analysis utilized to measure the adequacy of the sample. The range of this measure is from the value of 0 to 1, 0.6 is the proposed minimum for factor analysis to continue and values closer to 1 are great. The result of the analysis is found below.

Table 4. Kaiser-Meyer-Olkin Test for Sample Adequacy

	MSA
Overall MSA	0.96
1	0.629
2	0.756
3	0.963
4	0.965
5	0.964
6	0.963
7	0.96
8	0.961
9	0.957
10	0.971
11	0.963
12	0.958
13	0.974
14	0.959
15	0.965
16	0.97
17	0.954
18	0.979
19	0.964
20	0.978
21	0.964
22	0.958
23	0.961
24	0.971

25	0.964
26	0.944
27	0.943
28	0.954
29	0.967
30	0.95
31	0.941
32	0.959
33	0.937
34	0.953
35	0.978

The overall result of the test is 0.960, which indicates that the sample size is appropriate for factor analysis, According to Sigudla and Maritz (2023), the value of the factor analysis in the one where KMO runs from 1 to 0, is 0.6 or above, thus resulting in the KMO of this study being suitable for factor analysis.

Barlett's Test of Sphericity. This tool is used to determine whether the correlations between variables are sufficient to support the use of EFA in the study. To make the data suitable for factor analysis, barlett's test result suggested there are significant correlations between the variables in the data set. This Statistical tool is an important test to ensure the validity and reliability of the factor analysis result.

Table 5. Bartlett's Test of Sphericity on the Variables for Citizen Satisfaction in Barangay Healthcare

X ²	df	p
12136.960	595.000	< .001

The result in the table above indicates a high Chi-square value of 12136.960 (χ^2) with 595.000 degrees of freedom (df) and a p-value of <.001, implying the rejection of the null hypothesis. Also, the data set is considered suitable for factor analysis. According to Wu et al. (2023), Exploratory Factor Analysis confirms the validity analysis if Bartlett's test of Sphericity should be 0.000 ($p < 0.001$).

The Latent Roots Criterion. This aspect shows the information about the significance of the results identified. It is to accumulate the total value of the variances explained, in which every factor is evaluated and the factors that are considered significant are indicated with higher eigenvalue and variances.

Table 6. Latent Roots Criterion Analysis for Citizen Satisfaction in Barangay Healthcare

Dimension	Eigenvalues	Variance	Cumulative Variance
1	9.556	0.273	0.273
2	7.291	0.208	0.481
3	6.759	0.193	0.674
4	1.395	0.040	0.714

Based on the rotated solution, there are four factors to have been classified with a cumulative value of 0.714, indicating that 71.4% of the variability was explained. The majority of the results of variation explained that the first factor is the most significant followed by the three factors that also significantly contribute to the variance. These dimensions represent the underlying patterns and the interactions between variables that imply that the key aspects of the data set are correctly digested by the factors justifying the amount of the data variability.

Presented in the table above are the rotation results and to further understand the generated factor matrix, orthogonal rotation (VARIMAX) is utilized. This rotation approach sets an understandable framework for the factors content validity.

Table 7. Rotated Component Matrix for Citizen Satisfaction in Barangay Healthcare

Items	Dimension 1	Dimension 2	Dimension 3	Dimension 4	Uniqueness
31	0.870				0.167
34	0.852				0.166
1	0.821				0.311
26	0.812				0.211
27	0.804				0.229
33	0.795				0.274
23	0.773				0.262
2	0.742				0.431
11	0.722				0.252
20	0.722				0.307
5	0.681				0.349
16	0.631				0.296
19	0.611				0.303
32		0.803			0.232
29		0.793			0.232
22		0.748			0.295
10		0.727			0.267
6		0.693			0.300
13		0.639			0.319
25			0.778		0.299
9			0.754		0.275
15			0.735		0.254
28			0.729		0.355
21			0.727		0.245
24			0.722		0.307
4			0.722		0.307
35			0.719		0.324
7			0.697		0.303
14			0.629		0.357
8			0.629		0.357
30				0.751	0.278
3				0.707	0.353
17				0.707	0.353
12				0.683	0.359
18				0.667	0.268

The Rotated Component Matrix, which was extracted from 35 items, resulted in 4 dimension structures. These dimensions are labeled based on the nature of the items in every distinct structure, specifically: efficiency, responsiveness, accessibility, and equity and care. Moreover, all the items are included even after the rotation analysis.

Dimension 1. Efficiency. Dimension 1 yielded 13 items after extraction. The coefficient figure for items ranges from 0.611 to 0.870 which is presented in table. This coefficient difference delineates a unique yet interconnected collection of values related to the complementary components. It inferred profound shares from every element to the overall composition, with values implying an explicit range. This fortifies the strength and interrelated

nature of the extracted dimension. Moreover, item 19 got the lowest value coefficient at 0.611 while item 31 got the highest coefficient at 0.870. Anyhow, all the items exceed the minimum value of ± 0.60 .

Table 8. Constructs and Loadings of Dimension 1

Item	Constructs	Loadings
Item 31	The barangay allocates more budget for healthcare.	0.870
Item 34	There is unity between barangay officials and health care personnel.	0.852
Item 1	There are annual check-ups and the provision of medications.	0.821
Item 26	There is political neutrality.	0.812
Item 27	There is good implementation of policies.	0.804
Item 33	The health center has a proper sanitation area and comfort room.	0.795
Item 23	The service delivery timetable is followed.	0.773
Item 2	There is sufficient medicine.	0.742
Item 11	The BHWs are knowledgeable about health care.	0.722
Item 20	The mobilization of healthcare services is easier.	0.722
Item 5	There is sufficient equipment.	0.681
Item 16	The recruitment of health care providers is well examined.	0.631
Item 19	There is a good barangay healthcare infrastructure.	0.611

The items of this factor are substantially concerned with identifying how the barangay can provide efficient health care services through enhancing resources. The propositions of the people mostly derive from their needs such as more budgets for their health, the unity and neutrality of officials, sufficient medicines and equipment, and good delivery of services. They also perceive that knowledgeable BHWs and good infrastructure or facilities could improve efficiency of the barangay to sustain their needs.

Dimension 2. Responsiveness, which accumulates 6 items and has a coefficient pattern of 0.693 to 0.804 is shown in the table. This length entails stability, which is shown in the values of the dimension. The coefficient of the items signifies that correlations and robustness are evident in every value that constructs a well-fined span of results. Additionally, item 13 got the lowest coefficient range at 0.639 and 0.804 item 27 got the highest coefficient. All the items got the minimum requirement of coefficient value which is ± 0.60 .

Table 9. Constructs and Loadings of Dimension 2

Item	Constructs	Loadings
Item 32	I can call the emergency response teams immediately.	0.803
Item 29	There is an ambulance in the health center.	0.793
Item 22	The emergency response immediately arrives.	0.749
Item 10	The health center personnel assist us immediately.	0.724
Item 6	I can call the nurse and healthcare personnel for treatment any day.	0.693
Item 13	The healthcare personnel can be easily contacted during an emergency	0.639

The phases of the dimension explain the accountable actions of the barangay when an emergency is present and needs a response. The proposition of the people emphasizes that an ambulance, good communication, and immediate response can solve the problem of the barangay for rapid rescue. Moreover, the regular presence of the healthcare workers for treatment gains a favorable inclusion to the aim of the dimension.

Dimension 3. Accessibility has extracted 11 items after the analysis and has a range of coefficients from 0.629 to 0.778. There is firm evidence that the result values of the dimension have stability. The coefficient of each item implies that they are collectively and effective for the source of the dimension.

Shown in the table 10, are the constructs and loadings of dimension 3 which all exceed the minimum value of ± 0.60 . Item 8 garnered the lowest coefficient at 0.629 while item 33 excised the highest coefficient range at 0.795.

Each statement in the dimension disclosed the indication of people to gain opportunities for more accessible services in health. The particular needs to resolve the lack of accessible healthcare in barangay are; the nonentity of referrals, longer waits for simple aid, acquired permit to borrow equipment from the health center, and convenient distance of health facilities. Additionally, notifications about available healthcare services, frequent house visits of BHWs, and nurse activeness can increase the access of people to healthcare.

Table 10. Constructs and Loadings of Dimension 3

Item	Constructs	Loadings
Item 25	Referrals are only provided for complex transactions.	0.778
Item 9	The BHWs frequently do household visits.	0.754
Item 15	The transactions in acquiring health services are less bureaucratic.	0.735
Item 28	There is nearby hospital.	0.729
Item 21	The healthcare institution is near.	0.727
Item 24	I will not wait for a few days to receive my medical assistance.	0.722
Item 4	The health services are accessible.	0.722
Item 35	I can borrow medical equipment from the health center.	0.719
Item 7	I can receive notifications about available public health services.	0.697
Item 14	There is an available nurse in the center.	0.629
Item 8	The BHWS are active.	0.629

Dimension 4. Equity and Care. Dimension 4 obtained 5 items and has a coefficient structure of 0.667 to 0.751. The accumulation of values of items is shown in Table 11, which implies that consistency is present. The linkages and strengths of the values of items comprise the intention of the coefficient for the dimension. Item 18 got the lowest coefficient at 0.667 while item 30 got the highest coefficient value of this dimension. Correspondingly, each item transcended the minimum value of ± 0.60 .

Table 11. Constructs and Loadings of Dimension 4

Item	Constructs	Loadings
Item 30	There is fair attention when distributing medical services and programs.	0.751
Item 3	The medicines provided are administered properly.	0.707
Item 17	The BHWs take action with less supervision.	0.707
Item 12	The health center personnel are dependable.	0.683
Item 18	The healthcare providers are respectful and accommodating.	0.667

The dimension highlights the expectation of the people to receive fair treatment and care when they request assistance in barangay healthcare. The sought requests particularly are; fair distribution, proper administration, dependable health personnel, accommodation, and respect by healthcare providers. The action of BHWs with less supervision added to the yearned proposals of the people to feel empathy.

Framework for Dimensions of Citizens' Satisfaction in Barangay Healthcare

Figure 3 illustrates the framework of the study. The Exploratory Factor Analysis generated four dimensions for citizens satisfaction in barangay healthcare, these are (1) efficiency, (2) responsiveness, (3) accessibility, and (4) equity and care. These four indicators specify the reasons why people can be satisfied in barangay healthcare.

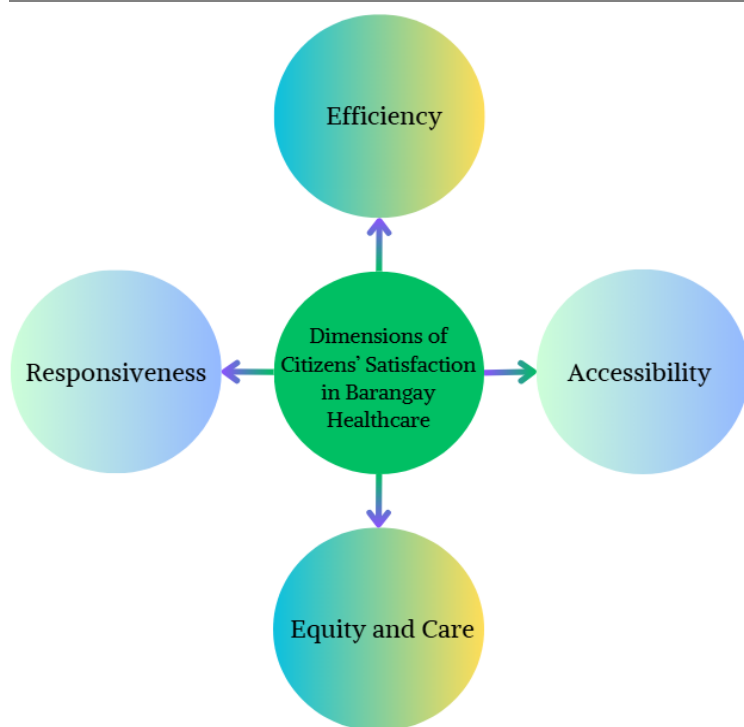


Figure 3. Framework for Citizens' Satisfaction in Barangay Healthcare

DISCUSSIONS

The analysis data extracted from the citizens of the selected barangays of the Island Garden City of Samal in the province of Davao del Norte disclosed that this framework accounted for 71.4% of the variations in the data. The framework developed gives a clear display of the underlying factors that could make the citizens satisfied in barangay healthcare.

Dimension 1. Efficiency. To strengthen the efficiency in the barangay, sufficient and effective resources for healthcare prove that the barangay is capable of providing satisfactory services to its citizens. These grounds aim to maximize the citizens satisfaction with barangay healthcare by combining the neutrality and effectiveness of healthcare resources, which not only means that the health services are instantly according to the needs of the citizens but can also contribute to the long-term improvement and sustainability of healthcare in the barangay. The lack of good infrastructure and medical supplies blocks the health center from ensuring the effectiveness of their services to support and give convenience to the citizens (Bhattacharyya et al., 2015). This has been presented in our locale which was also in the coastal area. Given the proximity of the area to receive high-quality healthcare, the barangay should settle for an immediate collection of resources that could maximize their system to reach even the remote areas of their locality.

Therefore, securing the availability of medical supplies and medicines, maintaining equipment goods for use (Lagos & Adorio-Arce, 2017), and allocating resources based on priority needs to ensure that the critical areas are primarily addressed (Aytona et al., 2022), to fulfill the aim of having effective resources. To be productive and to increase the quality of healthcare, officials, and personnel should promote collaboration and support each other at any time. For the resource to be effective, the barangay should develop a proper way to initiate.

Furthermore, a book by Rajan (2022) titled "Health System Performance Assessment: A Primer for Policy-makers", stated that 'resource generation' has a role in having effective resources. It establishes that the health system can operate when the required resources are presented. The required resources are; medical devices or equipment, infrastructure, medical supplies, and budgets.

Moreover, BHWs who are equipped contribute to the overall efficiency by obtaining the knowledge and qualifications to provide good quality healthcare. These demonstrate that the themes of these dimensions prove that knowledgeable BHWs (item 11), sufficient medicines and equipment (items 2 and 5), and good healthcare

infrastructure (item 19) are essential to reach the intention of this factor to have efficiency and satisfy the people on healthcare.

Dimension 2. Responsiveness. This dimension highlights the ability of the barangay to respond when an emergency erupts. To ensure that the barangay can mitigate and decrease the number of fatalities when there is a calamity, accident, sudden illness, or disease break out the responsiveness of the healthcare system is essential for the continuous improvement and maintenance of service quality, which in turn leads to better patient outcomes at a reduced cost (Olaopa et al., 2022). Getting patients well and achieving positive outcomes is the main objective of any healthcare system (Bhati et al., 2023).

Additionally, the study of Khatri et al. (2023) confirmed that weak health systems cannot partly support when there are sudden emergencies that need immediate aid. Complexity in communication also rendered the ability to respond quickly (Farmer, 2016). Therefore, better health system preparedness is important to develop a responsive healthcare system, to produce beneficial results.

A study by Puryear and Gnugnoli (2023) derived key aspects that emergency preparedness should obtain, including the importance of transportation and communication in the planning process. In regards to transportation, the study by Becker and Hugelius (2021), acquiesced that transportation like ambulances is fundamental for medical services. As well as the study of Chehade et al. (2020), supports the idea that interaction and good communication are essential when there is an emergency. Furthermore, the availability of ambulances (Item 29) and good communication (Items 32,6 and 13) have proven that this dimension displays an effort to sustain the satisfaction of the citizens to foster responsiveness in the healthcare system.

Dimension 3. Accessibility. The healthcare in barangays deficiently has access to healthcare services, especially in outlying areas. These factor highlight the capability of barangay to reduce the lack of accessibility in any instance of healthcare. Decisions made by people are greatly influenced by the accessibility and quality of healthcare services, as well as by the extent of benefit packages and the geographic distribution of providers (Willie et al., 2024)

Due to the conflict of transactions, distance, and ability of barangay to sustain the demand of the citizens. The people forwarded their recommendations to support their barangay to improve their access to healthcare services.

Furthermore, a study conducted by Kotavaara et al. (2021), states that a scheduled door-to-door approach can help to access healthcare services easily in remote areas. One of the content items of the dimension is frequent household visits (item 9), which implies the same intention is presented. In Austria, an innovative approach like conducting trials of proposed social-prescribing models which are non-referrals dominates to have less complexity of transactions in the instance of complicated illnesses (Woodall et al., 2018), it has strengthened the aim of items 9,15, and 13, which is about easy transactions and referral issue. The availability and activeness of nurses and health workers could enhance the accessibility also of health services (Kim et al., 2021) and have deciphered the goal of items about the availability and activeness of BHWs and nurses (items 14 and 8). These goals explained the main purpose of this dimension to have opportunities and access to more health services.

Dimension 4. Equity and Care. This dimension greatly concerns how the health workers attended to people who requested assistance in healthcare. In several instances, the opinions of people on health workers foul behaviors negatively impacted their trust to seek help from them, particularly, the fair treatment and the compassion of the health workers to carry out their duties. As such, people request and state their aspirations on how to be assisted, to influence them to be satisfied with the services provided.

The people highlight first, that health services should have equity. To promote equity in giving health services, it should be align in the expectation of the people (Weinhold & Gurtner, 2018). This emphasized the supporting theory of the study (Service Quality Theory), as when the expectation of the people is fulfilled the satisfaction increases as well. This also contributes to improving the goal of horizontal equity, as horizontal equity achievements in healthcare are rarely shown (Raine et al., 2016). Horizontal equity is when people with the same needs should have fair treatment.

Moreover, the study by Lauwers et al. (2024) cites studies that emphasize patients express or prefer health workers who are thoughtful, caring and have true empathy. Requested to be heard and the attentiveness of health providers is also a good approach for them to expect good quality health service. People also seek dependable health providers when coordinating (Nazione et al., 2019). Giving the utmost respect to patients is evident to be mostly desired when going to health facilities (Dutra et al., 2022). As such, all the items of the dimension were deemed to aim the influence of the information content to gain satisfaction in healthcare, especially in the local barangay. Because people have the right to receive high-quality healthcare, combining equity with care could make out the mission of health providers to expand their services even to remote and coastal areas.

Overall, the framework crafted an extensive understanding of the factors that will influence the citizens to be satisfied with the barangay health care. When the barangay prioritizes improving their efficiency, the responsiveness of the healthcare system, the accessibility of healthcare services, and lastly promoting equity and care are likely to help the citizens acknowledge the barangay administration in their effort to make their demands be heard. These qualities can generate satisfaction from the people in the barangay healthcare system.

CONCLUSION AND RECOMMENDATION

Conclusion

This study examines the underlying dimensions of citizen satisfaction in four local Barangays of Island Garden City of Samal Davao del Norte which are the Barangay San Remegio, Pangubatan, Libertad, and San Isidro. To investigate the underlying dimensions of citizens satisfaction, this study used an exploratory sequential mixed-method approach obtaining the qualitative data first followed by quantitative data.

The result revealed four significant factors which significantly influenced barangay healthcare satisfaction namely, efficiency, responsiveness, accessibility, and equity and care. The analysis of these four (4) dimensions demonstrates a comprehensive framework for improving healthcare services in barangay. Each dimension plays a crucial role in addressing the multifaceted challenges faced by rural healthcare systems and, when effectively integrated, can significantly enhance the overall health outcomes of communities.

In addition, to manifest overall efficiency in barangay healthcare, effective resources are fundamental to ensure that service quality is high. The current deficiencies of proper infrastructure and medical supplies highlight a pressing need for immediate resource allocation, particularly in coastal and remote areas. By optimizing the healthcare infrastructure and ensuring the availability of necessary medical supplies, barangays can enhance their capability to deliver timely and effective health services, thereby fostering long-term sustainability in healthcare delivery.

Furthermore, responsiveness is vital for mitigating the impact of emergencies and improving patient outcomes. The evidence suggests that weak health systems are ill-equipped to handle crises, which can lead to preventable fatalities. Through strengthening health system preparedness and enhancing communication channels, barangays can improve their responsiveness to emergencies, ensuring that citizens receive timely and effective care during critical situations. This dimension underscores the importance of proactive measures in healthcare planning and the need for continuous improvement in service quality. Studies have shown that weak health systems struggle to respond adequately to emergencies, often leading to negative outcomes (Khatri et al., 2023; Farmer, 2016).

Similarly, to improve accessibility, which remains a significant barrier to healthcare in barangays, particularly in outlying areas. Strategies such as door-to-door healthcare initiatives can bridge the gap between healthcare providers and underserved populations. The geographic distribution of healthcare providers, coupled with effective communication and transaction processes, can facilitate better access to health services. The findings suggest that enhancing the availability and activity levels of BHWs and nurses is crucial for improving healthcare access, thereby addressing the recommendations put forth by community members. Innovative approaches, such as door-to-door healthcare initiatives and social prescribing models, can help bridge the gap and improve access for underserved populations (Kotavaara et al., 2021; Woodall et al., 2018).

Apparently, The dimension of equity and care among health workers is essential for building trust and ensuring patient satisfaction. The studies indicate that patients prefer health providers who demonstrate fairness, genuine care, and attentiveness. By fostering an environment of respect and empathy in healthcare interactions, barangays can improve patient experiences and outcomes. Training programs focused on communication and interpersonal skills for BHWs and health personnel can further enhance the quality of care and strengthen community relationships. Research consistently shows that patients prefer health providers who demonstrate genuine care and compassion (Lauwers et al., 2024; Nazione et al., 2019; Dutra et al., 2022). Healthcare providers that promote equity and care can foster trust, improve patient satisfaction, and lead to better health outcomes.

Given the factors explored, it can be gleaned that this study supports the idea of the Service Quality Theory, pioneered by Oliver (1980), which provides a framework for understanding how consumers, including patients in healthcare settings, evaluate the quality of services they receive. This theory emphasizes the crucial role of expectations in shaping perceptions of service quality.

Meanwhile, the relationship between patients and providers is foundational to effective healthcare delivery. Marquis et al. (1983) further support this notion by emphasizing that ensuring patient satisfaction is essential for maintaining this relationship. A positive patient-provider relationship fosters trust, encourages open communication, and promotes adherence to treatment plans. When patients are satisfied with the care they receive, they are more likely to return for future care and recommend the provider to others.

Healthcare Quality Theory, as proposed by Sixma et al. (1998), serves as a critical foundation for understanding and assessing patient satisfaction within healthcare systems. This theory posits that patient satisfaction is deeply rooted in the perception of various characteristics associated with high-quality care. It emphasizes that the quality of care is not solely determined by clinical outcomes but is significantly influenced by interpersonal interactions between healthcare providers and patients.

Taken together, integrating these four dimensions into a cohesive healthcare strategy can significantly elevate the quality of healthcare services in barangays. Investment in resources, system responsiveness, accessibility, and the combination of equity and care is imperative for creating a robust healthcare environment that meets the needs of the community. Policymakers and health administrators must prioritize these dimensions in their plans to ensure that barangays can effectively serve their populations, ultimately leading to improved health outcomes and community well-being. The findings underscore the necessity for ongoing research and collaboration among stakeholders to refine and implement these strategies sustainably.

Recommendation

The following recommendations were made following the results of the study and with the aid of supporting studies and literature:

The *Barangay Health* workers of the local government may use the findings of this study as a foundation for improving their healthcare services for citizen satisfaction. The dimensions provided by the study has valuable insights that BHWs can utilize to better understand and carry out their duties and responsibilities in the field. Specifically, efficiency, equity and care which highlights the critical importance of ensuring that the BHWs can provide high-quality of health services. This can alleviate inequalities and foster inclusivity in their communities by emphasizing equity and efficiency in healthcare services.

The *Local Government Unit* may use the findings of this study to develop initiatives that provide improvements in the health care system in the localities. Additionally, the LGU may use the underlying factors of the study as a basis to assist and create a program that pertains to the dimension mentioned and enhance policies for the overall satisfaction of the citizens.

The *Department of Health (DOH)* may use the results of this study to assess citizen satisfaction with healthcare by providing information and evaluating the healthcare programs available in the community. This also serve for them to expand and reform their service qualities to the extent that the citizens could easily reach them immediately without any complications. Furthermore, this research can serve as a basis for the Department of

Health to establish regulations about the retention of health workers in the field, which can help enhance the local healthcare system.

The *Barangay Constituent* may use the findings of this study to serve as a valuable reference for them to evaluate whether they receive the quality of care their healthcare system could provide which encourage them to actively participate in healthcare-related programs and activities within the Island Garden City of Samal. This research aims to motivate local community members to engage in and contribute to the development and implementation of healthcare policies and initiatives. Such involvement will help improve public sector healthcare services, ensuring they meet the constituents' needs and enhance overall satisfaction with the healthcare system.

Future researchers may use the underlying dimensions developed by this study to analyze citizen satisfaction in barangay healthcare. These dimensions can be used for future studies and utilized in confirmatory factor analysis to develop a validated instrument for citizen satisfaction in barangay healthcare.

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