

Comprehensive Community Health Assessment of Barangay Sto. Niño: Demographic, Socioeconomic, Environmental, and Health Profile

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Abstract. This study conducted a comprehensive community health assessment of Barangay Sto. Niño, Cabanatuan City, Nueva Ecija, to identify priority health concerns and guide community-based interventions. Using a descriptive participatory approach guided by the Community Organizing Participatory Action Research framework, data were gathered on demographic, socioeconomic, environmental, and health-related indicators. Findings showed that the community was predominantly composed of working-age adults, with almost equal male and female distribution. Most residents were Roman Catholic and had elementary to secondary-level education. Many households belonged to low-income groups, although most owned their homes and had access to electricity, private water sources, and gas stoves. Key concerns included open drainage, open waste disposal, toilet facilities needing improvement, low child vaccination, minimal birth control use, and a high burden of hypertension, followed by diabetes. The study recommends health education, regular screening, sanitation improvement, immunization follow-up, family planning counseling, and community participation.

Keywords: Community Health Assessment; Barangay Sto. Niño; COPAR; Environmental Sanitation; Non-Communicable Diseases

Introduction

Community health is a multidisciplinary field that seeks to improve the health and well-being of populations through organized, collaborative, and evidence-based interventions. Unlike clinical healthcare, which primarily focuses on the diagnosis and treatment of individual patients, community health recognizes that health outcomes are shaped by a complex interaction of social, economic, environmental, cultural, and behavioral determinants (World Health Organization [WHO], 2021). These determinants influence patterns of disease, access to healthcare services, health-seeking behaviors, and overall quality of life. Consequently, comprehensive community health assessment remains a fundamental component of public health practice and community health nursing.

In the Philippines, rural and agricultural communities continue to face persistent health challenges associated with poverty, limited access to healthcare services, environmental risks, and disparities in health resources. Nueva Ecija, recognized as the country's "Rice Granary," is predominantly agricultural, with many communities relying on farming as their primary source of livelihood. Agricultural work exposes residents to occupational hazards, seasonal income instability, and environmental conditions that influence health outcomes. Barangay Sto. Niño in Cabanatuan City reflects many of these characteristics, where socioeconomic conditions, access to health services, sanitation, nutrition, and environmental factors collectively affect the health status of its residents. Understanding these local conditions is essential for designing responsive, evidence-based, and sustainable community health interventions.

Community health assessment is a systematic process of collecting, analyzing, and interpreting information regarding a community's health status, available resources, and priority health concerns. According to the Centers for Disease Control and Prevention (CDC, 2023), community health assessments enable healthcare professionals, policymakers, and community stakeholders to identify priority issues, allocate resources effectively, and develop interventions that respond to local needs. Recent studies likewise emphasize that comprehensive community assessments strengthen local health governance, improve evidence-informed decision-making, and promote equitable delivery of health services, particularly in underserved communities (WHO, 2021; United Nations, 2023).

The importance of community health assessment extends beyond identifying disease prevalence. It provides a comprehensive understanding of how social determinants—including education, employment, income, housing, food security, environmental quality, transportation, and healthcare accessibility—influence population health. The Social Determinants of Health framework recognizes that these conditions significantly shape health outcomes throughout the life course (WHO, 2021). Similarly, Healthy People 2030 identifies economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, and social and community context as critical domains influencing health equity (Office of Disease Prevention and Health Promotion [ODPHP], 2024). Incorporating these determinants into community assessment enables health professionals to formulate interventions that address both immediate health concerns and their underlying causes.

These determinants are particularly significant in agricultural communities where geographic isolation, occupational risks, inadequate infrastructure, transportation barriers, and limited healthcare resources contribute to preventable illnesses and health disparities. Consequently, health assessments in rural settings require approaches that not only collect epidemiological data but also actively engage community members in identifying their needs, available resources, and priority concerns.

Community Organizing Participatory Action Research (COPAR) remains one of the most widely adopted approaches in Philippine community health nursing because it emphasizes community empowerment, participation, and collective action. Rather than treating community members as passive recipients of health services, COPAR actively involves them in identifying health problems, planning interventions, implementing solutions, and evaluating outcomes. This participatory approach strengthens local ownership, builds community capacity, and enhances the sustainability of health programs.

The principles of COPAR are closely aligned with Participatory Action Research (PAR), which promotes collaborative inquiry, critical reflection, and collective action in addressing community concerns (Kemmis et al., 2022). Recent literature highlights that participatory health approaches improve community engagement, strengthen local leadership, increase health literacy, and promote culturally appropriate interventions that are more responsive to local needs (World Health Organization, 2021; Wallerstein et al., 2020). Within nursing education, COPAR likewise provides meaningful experiential learning opportunities that develop competencies in community assessment, leadership, communication, health education, and interdisciplinary collaboration.

Community participation also remains a central principle of Primary Health Care, reaffirmed in the Astana Declaration, which recognizes that sustainable health improvements are achieved through active partnerships between health professionals and communities (WHO & UNICEF, 2018). Recent evidence indicates that meaningful community participation contributes to improved health planning, greater public trust, stronger multisectoral collaboration, and more sustainable community-based health programs. Likewise, community immersion enables nursing students to integrate theoretical knowledge with real-world public health practice while developing cultural competence, social accountability, and evidence-based decision-making skills (International Council of Nurses, 2021).

Although numerous studies have demonstrated the effectiveness of participatory approaches in community health, there remains limited empirical research documenting the application of Community Organizing Participatory Action Research (COPAR) as a framework for comprehensive community health assessment in agricultural barangays, particularly in Nueva Ecija. Most existing studies focus on individual health promotion programs or disease-specific interventions rather than generating a holistic community health profile that integrates demographic, environmental, socioeconomic, and health system indicators through a participatory process. This gap limits the availability of localized evidence needed by local government units, healthcare providers, and nursing educators to design context-specific and sustainable community health interventions.

In response to this gap, the present study conducts a comprehensive community health assessment of Barangay Sto. Niño, Cabanatuan City, using the Community Organizing Participatory Action Research (COPAR) framework. Specifically, it aims to identify the demographic, socioeconomic, environmental, and health characteristics of the community; determine its priority health concerns through community participation; and generate evidence that will inform community health planning, guide future nursing extension programs, and strengthen the implementation of community-based health interventions. Ultimately, the study contributes to the growing body of knowledge on participatory community health assessment and reinforces the role of community health nursing in promoting equitable, sustainable, and community-driven health development.

Research Questions

This study aims to assess the demographic, socioeconomic, environmental, and health-related conditions of Barangay Sto. Niño, Cabanatuan City, Nueva Ecija, and determine the priority health concerns that may

serve as a basis for developing community-based health interventions. Specifically, it aims to answer the following questions:

1. What are the demographic characteristics of the residents of Barangay Sto. Niño in terms of age, sex, religion, educational attainment, and household income?
2. What are the existing household and environmental conditions of the community in terms of home ownership, housing materials, lighting facilities, water sources, cooking facilities, drainage, waste disposal, and toilet facilities?
3. What are the prevailing health practices of the residents in terms of child vaccination and birth control utilization?
4. What are the most common illnesses reported among the residents of Barangay Sto. Niño?
5. What community-based interventions may be proposed to address the identified health needs of Barangay Sto. Niño?

Literature Review

Demographic, socioeconomic, and educational characteristics are fundamental components of community health assessment because they influence health status, health-seeking behaviors, and access to healthcare services. Variables such as age, sex, educational attainment, occupation, household income, and place of residence significantly affect an individual's ability to obtain, understand, and utilize health information. In the Philippine context, these factors have been identified as important determinants of health literacy and health outcomes, making them essential considerations in the planning and implementation of responsive community health programs (Tolabing et al., 2022).

The Philippine National Health Literacy Survey found that more than half (51.5%) of Filipino adults have limited health literacy, indicating considerable challenges in accessing, understanding, evaluating, and applying health information needed for disease prevention and health promotion (Tolabing et al., 2022). The survey further revealed that educational attainment, occupation, age, sex, and place of residence significantly influence health literacy. Individuals with higher educational attainment were more likely to demonstrate adequate health literacy than those with lower levels of education, while older adults and residents of disadvantaged communities were more likely to have limited health literacy (Duong et al., 2022). These findings provide a useful lens for interpreting the demographic profile of Barangay Sto. Niño. If the community exhibits lower educational attainment, irregular employment, or economically vulnerable households, these characteristics may partially explain observed gaps in health literacy, utilization of preventive services, and participation in health programs. Consequently, demographic assessment serves not only as a descriptive exercise but also as a basis for prioritizing vulnerable populations and designing targeted community health interventions.

Educational attainment likewise plays a crucial role in determining the effectiveness of community health education. In a Philippine study involving adults from low-income households, Agosto et al. (2018) found that lower educational attainment was significantly associated with limited health literacy. The authors emphasized that health education initiatives should employ communication strategies that are simple, culturally appropriate, and easily understood by community members. Consequently, community health programs should utilize plain language, visual aids, demonstrations, and participatory learning approaches to enhance comprehension, encourage active participation, and promote positive health behaviors. Such strategies are particularly relevant in communities where many residents have only elementary or secondary education, as improving health literacy contributes to better health decision-making, increased utilization of preventive health services, and greater adherence to recommended health practices (Agosto et al., 2018; Tolabing et al., 2022).

Housing and Household Facilities

Housing conditions are widely recognized as key social determinants of health because they shape the physical, environmental, and psychosocial well-being of individuals and families. Adequate housing protects residents from environmental hazards, promotes sanitation and safety, and reduces exposure to disease-causing agents. In contrast, substandard housing characterized by poor construction materials, inadequate ventilation, overcrowding, and limited access to safe water and sanitation increases vulnerability to communicable diseases, respiratory illnesses, gastrointestinal infections, and other adverse health outcomes (Department of Health [DOH], 2020; Philippine Statistics Authority [PSA] & Department of Human Settlements and Urban Development [DHSUD], 2022). These findings underscore that housing should be viewed not merely as a physical structure but as an important determinant of population health that influences disease risk and quality of life.

In the Philippine context, housing tenure and quality serve as important indicators of community well-being; however, home ownership alone does not necessarily reflect healthy living conditions. The 2022 National Demographic and Health Survey (NDHS) emphasizes that housing quality should also be evaluated based on the durability of construction materials, access to improved sanitation facilities, availability of safe drinking water, and other environmental conditions that directly affect household health (Philippine Statistics Authority [PSA] & ICF, 2023). This perspective is particularly relevant to Barangay Sto. Niño, where the predominance of permanent housing structures suggests residential stability but does not automatically indicate a healthy living environment. Even in communities with durable housing, inadequate ventilation, unsafe water sources, poor sanitation, and inappropriate household energy use may continue to expose residents to respiratory illnesses, waterborne diseases, and vector-borne infections. Therefore, interpreting housing conditions alongside other environmental determinants provides a more comprehensive understanding of the community's health status than relying solely on housing tenure or structural quality.

Beyond housing structure, household cooking and lighting practices also influence health outcomes by affecting indoor environmental quality. Although access to electricity and clean cooking fuels has improved across many parts of the Philippines, the continued use of biomass fuels such as firewood, charcoal, and agricultural residues remains common in some rural and economically disadvantaged communities. According to the Department of Health (2020), prolonged exposure to smoke and particulate matter generated from these fuels increases the risk of acute respiratory infections, chronic obstructive pulmonary disease, asthma, cardiovascular diseases, and other chronic respiratory conditions. If households in Barangay Sto. Niño continue to rely on firewood, kerosene, candles, or similar alternative energy sources, these practices may contribute to preventable respiratory health risks despite otherwise stable housing conditions. This suggests that community health assessment should extend beyond identifying available household facilities to examining how residents use these resources and the potential health consequences associated with them.

The literature demonstrates that healthy housing encompasses more than durable structures or residential ownership. Instead, it reflects the interaction of housing quality, household facilities, environmental sanitation, and energy use in shaping community health outcomes. For Barangay Sto. Niño, assessing these interconnected factors enables health planners to identify households at greater environmental risk and develop evidence-based interventions, such as improving household ventilation, promoting safer cooking practices, strengthening sanitation, and enhancing environmental health education. Integrating housing assessment with broader environmental health indicators therefore provides a stronger foundation for community health planning and the development of responsive, preventive interventions.

Water, Drainage, Waste Disposal, and Environmental Sanitation

Complementing housing conditions, environmental sanitation is another critical determinant of community health because it directly influences residents' exposure to communicable diseases and environmental hazards. Access to safe drinking water, functional drainage systems, proper solid waste management, and adequate sanitation facilities collectively reduces the transmission of waterborne, foodborne, and vector-borne diseases. Conversely, inadequate drainage, indiscriminate waste disposal, and poor sanitation contribute to environmental contamination, flooding, foul odors, and the proliferation of disease vectors such as mosquitoes, flies, and rodents, thereby increasing the risk of preventable illnesses, particularly in densely populated communities (Department of Health [DOH], 2020; Philippine Statistics Authority [PSA] & ICF, 2023).

The 2022 National Demographic and Health Survey (NDHS) identifies access to improved drinking water and safely managed sanitation facilities as essential indicators of household health and well-being (PSA & ICF, 2023). However, the availability of these services alone does not guarantee a healthy environment. Their effectiveness depends on consistent maintenance, appropriate household practices, and the capacity of communities to manage environmental sanitation collectively. This perspective is particularly relevant to Barangay Sto. Niño, where evaluating drainage systems, water sources, waste disposal practices, and toilet facilities provides a more comprehensive assessment of environmental health risks than considering these indicators independently. Deficiencies in any of these areas may increase residents' vulnerability to gastrointestinal infections, parasitic diseases, and other illnesses associated with poor sanitation and environmental contamination.

Effective solid waste management is equally important in preventing environmental degradation and reducing disease transmission. Republic Act No. 9003, or the *Ecological Solid Waste Management Act of 2000*, mandates local government units to implement systematic waste segregation, collection, recycling, composting, and environmentally sound waste disposal to protect both public health and the environment (Republic of the Philippines, 2001). Beyond regulatory compliance, proper waste management serves as a preventive public health strategy because improperly discarded household waste can obstruct drainage systems, contribute to flooding, and create breeding sites for mosquitoes and other disease vectors. These risks

become particularly significant in communities where waste disposal practices and drainage maintenance are inconsistent.

The relationship between environmental sanitation and communicable disease prevention is clearly illustrated in dengue control. According to the Department of Health (2023), stagnant water found in uncovered containers, clogged drainage canals, discarded tires, plastic containers, and improperly managed solid waste provides ideal breeding habitats for *Aedes* mosquitoes, the primary vector of dengue. Consequently, environmental conditions characterized by poor drainage and inadequate waste management substantially increase the likelihood of mosquito proliferation and disease transmission. If similar environmental conditions exist in Barangay Sto. Niño, they may contribute to sustained dengue risk despite the availability of healthcare services. This underscores the importance of integrating regular drainage maintenance, proper waste segregation, elimination of mosquito breeding sites, and sustained implementation of the DOH's 4S Strategy Kontra Dengue into local community health initiatives. Such measures emphasize prevention by addressing the environmental conditions that facilitate disease transmission rather than responding only after outbreaks occur (DOH, 2023).

The literature demonstrates that water supply, sanitation, drainage, and waste management are interdependent environmental determinants that collectively shape community health outcomes. For Barangay Sto. Niño, deficiencies in any of these components should not be viewed as isolated environmental concerns but as interconnected factors that influence the occurrence of communicable diseases and the overall quality of life. Consequently, community health planning should adopt an integrated environmental health approach that combines infrastructure improvement, effective waste management, vector control, health education, and active community participation. Such a comprehensive strategy provides a stronger foundation for sustainable disease prevention and evidence-based public health interventions.

Child Immunization

While environmental sanitation reduces exposure to infectious diseases, sustaining child health also depends on the effective delivery and utilization of preventive healthcare services. Among these, childhood immunization remains one of the most cost-effective public health interventions for preventing vaccine-preventable diseases, reducing childhood morbidity and mortality, and establishing herd immunity. In the Philippines, the Department of Health's National Immunization Program (NIP) provides routine vaccines against tuberculosis, hepatitis B, poliomyelitis, diphtheria, pertussis, tetanus, measles, rubella, and other vaccine-preventable diseases (Department of Health [DOH], 2023). However, despite the availability of free immunization services through public health facilities, vaccination coverage continues to vary across communities because of socioeconomic, geographic, and behavioral factors that influence access to and utilization of health services.

The 2022 National Demographic and Health Survey (NDHS) reported improvements in childhood immunization coverage nationwide but also revealed persistent disparities associated with household wealth, maternal educational attainment, and place of residence (Philippine Statistics Authority [PSA] & ICF, 2023). Children from socioeconomically disadvantaged households remain more likely to have incomplete vaccination status, reflecting inequities that extend beyond the availability of vaccines. These findings provide an important context for interpreting the health profile of Barangay Sto. Niño, where the relatively low number of fully immunized children suggests that barriers to immunization may include limited access to health services, socioeconomic constraints, inconsistent follow-up, or reduced participation in routine preventive care. Consequently, assessing immunization coverage should involve examining not only vaccination status but also the broader social and health system factors that influence service utilization.

Beyond structural barriers, parental knowledge, attitudes, and confidence in vaccines substantially influence immunization uptake. Larson et al. (2019) reported that concerns regarding vaccine safety, declining public trust following the Dengvaxia controversy, misinformation, and inadequate communication from health authorities contributed to vaccine hesitancy among Filipino parents. These findings suggest that incomplete immunization in Barangay Sto. Niño may not solely reflect logistical challenges but may also be associated with parental perceptions, misconceptions, and varying levels of trust in health services. Addressing these concerns therefore requires communication strategies that are evidence-based, culturally appropriate, and responsive to the specific information needs of parents and caregivers.

Improving childhood immunization coverage likewise depends on effective community-based primary healthcare systems that facilitate early identification of children with missed vaccinations and ensure continuity of care. Community health workers, including Barangay Health Workers (BHWs) and Barangay Nutrition Scholars (BNSs), contribute to this process by supporting household monitoring, maintaining updated master lists, coordinating catch-up immunization activities, and strengthening linkages between families and the Rural Health Unit (DOH, 2023). These community-based mechanisms are particularly

valuable in areas where socioeconomic or geographic barriers may delay timely vaccination, as they enable local health providers to identify underserved households and implement targeted follow-up interventions.

The literature demonstrates that childhood immunization is influenced by the interaction of socioeconomic conditions, parental vaccine confidence, accessibility of health services, and the effectiveness of community-based health systems. The situation in Barangay Sto. Niño reflects these broader determinants, indicating that increasing immunization coverage requires more than ensuring vaccine availability. Community health planning should therefore integrate systematic immunization monitoring, evidence-based risk communication, targeted household follow-up, and strengthened coordination between the Rural Health Unit and community health workers. Such an integrated approach can improve vaccine acceptance, increase the completion of age-appropriate immunizations, and strengthen the community's capacity to prevent vaccine-preventable diseases.

Family Planning and Reproductive Health

Beyond childhood immunization, reproductive health services constitute another essential component of primary healthcare that contributes to improved maternal, child, and family health outcomes. Family planning enables individuals and couples to make informed decisions regarding the number and spacing of their children, thereby reducing unintended pregnancies, preventing high-risk pregnancies, and promoting responsible parenthood. In the Philippines, the use of modern contraceptive methods has steadily increased; however, the 2022 National Demographic and Health Survey (NDHS) continues to report significant disparities in contraceptive utilization according to educational attainment, household wealth, age, and place of residence. Women with lower educational attainment, those from economically disadvantaged households, and those residing in rural communities remain less likely to use modern contraceptive methods (Philippine Statistics Authority [PSA] & ICF, 2023). These findings indicate that access to family planning is shaped not only by the availability of services but also by broader social and economic determinants.

The decision to use family planning methods is influenced by a complex interaction of individual, interpersonal, and community factors. Philippine studies have demonstrated that contraceptive utilization is associated with women's knowledge of reproductive health, educational attainment, accessibility of health services, spousal communication, cultural and religious beliefs, and the availability of quality counseling from healthcare providers (Commission on Population and Development [CPD], 2023; PSA & ICF, 2023). This multidimensional perspective provides an important context for interpreting the health profile of Barangay Sto. Niño, where the reported utilization of birth control methods remains low. Rather than attributing this finding solely to limited service availability, it suggests the presence of multiple barriers, including insufficient knowledge, misconceptions regarding contraceptive methods, sociocultural influences, and challenges in accessing reproductive health services. Understanding these interacting factors is essential for designing interventions that respond to the specific needs of the community.

Improving family planning utilization therefore requires strategies that extend beyond increasing contraceptive availability. The Commission on Population and Development (2023) emphasizes that effective reproductive health programs should provide evidence-based, culturally sensitive, and rights-based counseling that enables individuals and couples to make voluntary and informed reproductive choices. Comprehensive family planning services should include accurate information on modern contraceptive methods, healthy birth spacing, maternal health, and responsible parenthood while recognizing the influence of cultural, religious, and personal values on reproductive decision-making. Furthermore, evidence suggests that engaging husbands and male partners in reproductive health education promotes shared decision-making and supports the sustained adoption of family planning practices (CPD, 2023). These approaches acknowledge that reproductive health decisions are often made within the context of family relationships and community norms rather than by individuals alone.

The literature demonstrates that family planning utilization is determined by the interaction of socioeconomic conditions, health literacy, cultural beliefs, accessibility of services, and the quality of reproductive health counseling. The low utilization of birth control methods in Barangay Sto. Niño reflects these interconnected determinants and highlights the need for interventions that address both demand- and supply-side barriers. Consequently, community health planning should strengthen access to comprehensive reproductive health services, improve evidence-based counseling and community engagement, encourage informed participation of couples in reproductive decision-making, and ensure that family planning programs remain culturally appropriate, respectful, and responsive to the needs of the community. Such an integrated approach can contribute to improved maternal and child health outcomes while supporting responsible parenthood and reproductive well-being.

Non-Communicable Diseases

While reproductive health programs primarily address maternal and child health, the growing burden of chronic illnesses underscores another major priority in community health assessment. Non-communicable diseases (NCDs) have become the leading cause of morbidity and mortality in the Philippines, accounting for most deaths while contributing substantially to disability, reduced productivity, and escalating healthcare expenditures. Cardiovascular diseases, diabetes mellitus, chronic respiratory diseases, and cancers comprise the country's major NCDs and are largely associated with modifiable behavioral risk factors—including unhealthy diets, physical inactivity, tobacco use, harmful alcohol consumption, overweight, and obesity—as well as broader socioeconomic and environmental determinants (Department of Health [DOH], 2022). These findings highlight the need to examine not only disease prevalence but also the underlying conditions that influence the development and progression of chronic illnesses within communities.

National epidemiological evidence reflects this growing burden. The Philippine Statistics Authority (2024) reported that diseases of the heart remain the leading cause of death among Filipinos, followed by cerebrovascular diseases, diabetes mellitus, and malignant neoplasms. Similarly, the 2021 Expanded National Nutrition Survey (ENNS) found that hypertension and elevated blood glucose are increasingly prevalent among Filipino adults, particularly among older individuals and those who are overweight or obese. The survey further identified unhealthy dietary practices, physical inactivity, and excess body weight as important contributors to hypertension and diabetes (Department of Science and Technology–Food and Nutrition Research Institute [DOST-FNRI], 2023). These national trends closely correspond with the health profile of Barangay Sto. Niño, where hypertension emerged as the most frequently reported illness, followed by diabetes mellitus and cholesterol-related conditions. The similarity between the community profile and national epidemiological patterns suggests that the burden of NCDs in the barangay is likely driven by the same combination of behavioral, demographic, and socioeconomic risk factors observed across the country.

The predominance of hypertension and diabetes in Barangay Sto. Niño also indicates the need to shift community health efforts from episodic treatment toward comprehensive prevention and long-term disease management. The National Objectives for Health 2023–2028 emphasize strengthening primary healthcare through regular risk assessment, early detection, routine screening for hypertension and diabetes, health promotion, and continuous management of individuals living with chronic diseases (DOH, 2022). However, effective NCD control requires more than periodic screening activities. Sustainable improvements depend on enabling individuals to adopt healthier lifestyles while ensuring continuity of care through accessible primary healthcare services, routine monitoring, and timely referral for patients with identified risk factors or established chronic conditions. This integrated approach recognizes that long-term disease control is influenced by both individual health behaviors and the responsiveness of the local health system.

The literature demonstrates that non-communicable diseases arise from the interaction of behavioral, socioeconomic, demographic, and health system factors rather than from isolated lifestyle choices alone. The disease profile of Barangay Sto. Niño reflects this broader epidemiological transition and underscores the need for comprehensive community-based interventions that integrate early detection, risk reduction, continuous patient monitoring, and lifestyle modification within primary healthcare. Consequently, community health planning should prioritize sustainable strategies that strengthen chronic disease prevention and management while addressing the modifiable risk factors contributing to the increasing burden of hypertension, diabetes, and other non-communicable diseases in the community.

Communicable Disease Prevention

Although non-communicable diseases comprise the majority of reported illnesses in Barangay Sto. Niño, communicable diseases such as dengue, pulmonary tuberculosis (TB), and pneumonia continue to pose significant public health threats. These diseases remain among the priority conditions under the Philippine Department of Health (DOH) because of their contribution to morbidity, preventable mortality, and recurring community outbreaks. Their prevention requires an integrated approach that combines environmental sanitation, health promotion, disease surveillance, early diagnosis, and timely access to treatment (Department of Health [DOH], 2023).

Dengue prevention is closely linked to environmental sanitation and community participation. The Department of Health emphasizes that *Aedes* mosquitoes breed in stagnant water commonly found in uncovered water containers, clogged drainage systems, discarded tires, cans, bottles, and other improperly managed solid waste. Consequently, poor household water management and inadequate waste disposal increase the risk of dengue transmission (DOH, 2023). The DOH's 4S Strategy Kontra Dengue—Search and destroy mosquito breeding sites, Self-protection measures, Seek early consultation, and Support fogging or spraying during outbreaks—highlights the importance of regular environmental clean-up and community involvement in vector control. For Barangay Sto. Niño, strengthening household waste management,

maintaining drainage systems, eliminating stagnant water, and sustaining community clean-up campaigns can significantly reduce mosquito breeding sites and lower the risk of dengue transmission.

Tuberculosis likewise remains a major public health concern in the Philippines, which continues to have one of the highest TB burdens globally. The Philippine Strategic TB Elimination Plan (PhilSTEP1) 2020–2023 emphasizes that early case detection, prompt diagnosis, and treatment are essential to interrupt disease transmission within communities (Department of Health, 2020). The strategy recommends intensified case finding through household contact investigation, community-based screening, chest radiography for high-risk populations, and rapid molecular diagnostic tests, alongside comprehensive health education to increase awareness of TB symptoms and reduce delays in seeking care.

At the community level, Barangay Health Workers (BHWs) play a critical role in communicable disease prevention by identifying individuals with prolonged cough or other symptoms suggestive of tuberculosis, encouraging early consultation at Rural Health Units, facilitating referral for diagnostic testing, and supporting treatment adherence through directly observed treatment and regular follow-up. Together with sustained health education, environmental sanitation, and disease surveillance, these community-based interventions can strengthen the prevention and control of communicable diseases and improve the overall health status of residents in Barangay Sto. Niño (DOH, 2020, 2023).

Community Participation and COPAR

Community participation is a cornerstone of primary health care and community health nursing in the Philippines. Active involvement of community members in identifying health problems, setting priorities, planning interventions, implementing programs, and evaluating outcomes promotes shared responsibility, strengthens local capacity, and improves the sustainability of health initiatives. The Department of Health (DOH) recognizes community participation as a key strategy in achieving people-centered and primary health care services through empowered communities and functional local health systems (Department of Health [DOH], 2022). This principle is particularly relevant to Barangay Sto. Niño, where the active engagement of residents, barangay officials, Barangay Health Workers (BHWs), Barangay Nutrition Scholars (BNSs), and other local stakeholders is essential in identifying priority health concerns and implementing responsive community-based interventions.

The Community Organizing Participatory Action Research (COPAR) framework is widely adopted in Philippine community health nursing as an approach that empowers communities to become active partners rather than passive recipients of health services. COPAR emphasizes community mobilization, participatory decision-making, capacity building, and collective action, enabling community members to identify their own needs, develop appropriate solutions, and sustain health programs through local leadership and ownership (Maglaya, 2009). Consistent with the principles of the Universal Health Care Act (Republic Act No. 11223), participatory approaches also strengthen community engagement by promoting equitable access to health services and encouraging collaboration among local government units, healthcare providers, and community organizations (Republic of the Philippines, 2019).

Applying the COPAR framework in Barangay Sto. Niño can enhance community ownership and sustainability of interventions related to environmental sanitation, childhood immunization, family planning, communicable disease prevention, and the control of non-communicable diseases. Through regular community assemblies, household visits, health education sessions, participatory health planning, and continuous monitoring conducted in partnership with local stakeholders, the community can actively contribute to identifying priority health needs, mobilizing available resources, and evaluating program outcomes. Such participatory strategies foster empowerment, strengthen social cohesion, and increase the likelihood that health interventions will be culturally appropriate, locally accepted, and sustainable over time (DOH, 2022; Maglaya, 2009).

Methodology

Research Design

This study employed a descriptive Community-Based Participatory Research (CBPR) design guided by the principles of Community Organizing Participatory Action Research (COPAR). The descriptive research design was appropriate because the primary objective of the study was to systematically describe the demographic characteristics, socioeconomic conditions, environmental sanitation, health status, available resources, and priority health concerns of Barangay Santo Niño, Cabanatuan City without manipulating any variables. Descriptive research is widely used in community health assessment because it provides an accurate representation of existing conditions that serve as the basis for evidence-based planning, health promotion, and program development. The participatory nature of the study was anchored on the COPAR framework, which emphasizes collaboration among researchers, community members, local government officials, and

health workers throughout the research process. Rather than treating residents solely as respondents, the study actively engaged them in community entry, problem identification, validation of findings, prioritization of health issues, and planning of appropriate interventions. This participatory approach ensured that the identified health concerns reflected the actual needs and lived experiences of the community while fostering local ownership, empowerment, and sustainability of future health programs. The integration of descriptive research and COPAR therefore provided a comprehensive approach to assessing community health conditions while strengthening community participation in health planning and decision-making.

Research Locale

The study was conducted in Barangay Santo Niño, one of the 89 barangays of Cabanatuan City, Nueva Ecija, Philippines. According to the 2020 Philippine Census, the barangay had a population of 1,946 distributed across six puroks. Barangay Santo Niño is predominantly rural, with agriculture, particularly vegetable farming, serving as one of the primary sources of livelihood among residents. The community consists of mixed residential and agricultural areas characterized by varying socioeconomic conditions that influence access to healthcare, sanitation, nutrition, education, and other social determinants of health. Basic health services are primarily provided through the Barangay Health Station in collaboration with the City Health Office of Cabanatuan, while referral services are accessed through nearby public and private healthcare facilities. Like many rural communities, Barangay Santo Niño experiences health concerns associated with communicable and noncommunicable diseases, maternal and child health, environmental sanitation, and access to preventive health services. These community characteristics make it an appropriate setting for a comprehensive community health assessment using the COPAR framework. The barangay was selected because it serves as the adopted community of the Community Health Nursing Program of Manuel V. Gallego Foundation Colleges, Inc., providing opportunities for community diagnosis, service-learning, health promotion, and long-term community partnership.

Research Participants

The participants consisted of household representatives residing in the six puroks of Barangay Santo Niño. A total of 320 household respondents participated in the study. The primary respondents were household heads or responsible adult members who were capable of providing reliable information regarding their family's demographic profile, educational attainment, occupation, housing conditions, environmental sanitation, health status, utilization of health services, and available community resources. The inclusion criteria were: residents aged 18 years and above, permanent residents of Barangay Santo Niño, present during the household survey, and willing to provide informed consent. Excluded from the study were vacant households, inaccessible households after repeated visits, and individuals who declined participation.

Research Instrument

The study utilized a structured Community Health Assessment Tool adapted from the Community Health Nursing assessment guide, existing community diagnosis forms used in public health nursing, and the principles of the COPAR framework. The instrument was designed to generate comprehensive baseline information necessary for community health assessment and planning. The questionnaire consisted of the following sections: household demographic characteristics; family composition; educational attainment; occupation and sources of income; housing characteristics; water supply; sanitation facilities; waste management practices; environmental conditions; utilization of health services; health status of household members; and community resources based on the eight community subsystems. Prior to data collection, the instrument underwent content validation by a panel of experts composed of community health nursing faculty members, public health practitioners, and research experts to ensure the relevance, clarity, and adequacy of each item. Their recommendations were incorporated into the final version of the instrument. A pilot test was likewise conducted among households from a neighboring barangay with characteristics similar to the study area but not included in the actual study. The pilot testing assessed the clarity of the questions, sequence of items, and estimated interview duration. Necessary revisions were made based on participant feedback and expert recommendations to improve the instrument's comprehensibility and usability.

Data Gathering Procedure

The conduct of the study followed the COPAR process and consisted of the following phases: Phase 1. Preparatory Phase: Approval to conduct the study was secured from the administration of Manuel V. Gallego Foundation Colleges, Inc., the Barangay Local Government Unit of Santo Niño, and the City Health Office of Cabanatuan. Coordination meetings were conducted with barangay officials and barangay health workers to discuss the objectives, schedule, and implementation of the community assessment. Phase 2. Community Entry and Social Preparation: Community entry activities were undertaken to establish rapport with

community leaders and residents. Orientation meetings introduced the purpose of the study and encouraged community participation throughout the assessment process. Phase 3. Training of Student Researchers: Student researchers received orientation on research ethics, informed consent procedures, standardized interviewing techniques, household assessment, data recording, observation methods, and community engagement to ensure consistency in data collection. Phase 4. Household Data Collection: Face-to-face household interviews were conducted using the structured Community Health Assessment Tool. Before each interview, respondents were informed of the purpose of the study, confidentiality of information, voluntary participation, and their right to withdraw at any time without penalty. Direct observation was likewise conducted to assess housing conditions, water sources, drainage systems, waste disposal practices, toilet facilities, and other environmental conditions. Secondary data, including demographic records, health statistics, and barangay profiles, were obtained from the Barangay Health Center and Barangay Office to supplement the primary data. Phase 5. Data Validation and Community Consultation: Completed questionnaires were reviewed for completeness and consistency. Findings were validated through consultations with barangay officials, barangay health workers, and community representatives. Community assemblies were subsequently conducted to present the results, verify priority concerns, and facilitate participatory identification of appropriate health interventions.

Results and Discussions

Research Question 1: What are the demographic characteristics of the residents of Barangay Sto. Niño in terms of age, sex, religion, educational attainment, and household income?

Table 1. Age Distribution

Age Distribution	Frequency	Percentage
1. 0-2 years old	35	3%
2. 3-5 years old	50	4%
3. 6-8 years old	56	5%
4. 9-11 years old	69	6%
5. 12-18 years old	165	13%
6. 19-29 years old	220	18%
7. 30-48 years old	331	27%
8. 49-78 years old	275	22%
9. 79-85 years old	25	2%
Total	1226	100%

The findings indicate that Barangay Sto. Niño is predominantly composed of adults within the productive age group (19–78 years), representing 67% of the total population. This demographic profile has important implications for community health planning because adults are at greater risk of developing non-communicable diseases (NCDs), including hypertension, diabetes mellitus, cardiovascular diseases, and obesity. These findings are consistent with the community-based cross-sectional study of Yamaguchi et al. (2021), which examined Filipino adults in Muntinlupa City and reported a high prevalence of hypertension (59.5%), overweight and obesity (36.9%), dyslipidemia, and elevated blood glucose levels among community-dwelling adults aged 50 years and older. The authors concluded that unhealthy lifestyle behaviors contribute significantly to the progression of NCDs and emphasized the importance of strengthening preventive health promotion and community-based interventions to reduce disease burden.

Similarly, Ulep et al. (2020) emphasized that non-communicable diseases have become the leading contributors to morbidity and mortality in the Philippines. Their analysis argued that the country's primary health care system must move beyond its traditional emphasis on communicable diseases and adopt a more comprehensive approach that prioritizes health promotion, early detection, routine screening, and long-term management of chronic illnesses. Given the predominance of working-age adults in Barangay Sto. Niño, strengthening barangay-based primary health care services through regular health screening, lifestyle modification programs, nutrition counseling, and physical activity promotion is essential.

Although children aged 0–11 years comprise only 18% of the population and adolescents account for 13%, these groups remain priority populations for preventive health interventions. Findings from the Expanded National Nutrition Survey conducted by the Department of Science and Technology–Food and Nutrition Research Institute (DOST–FNRI) demonstrate that adequate childhood nutrition, timely immunization, and the adoption of healthy behaviors during childhood and adolescence contribute significantly to improved physical growth, cognitive development, and the prevention of chronic diseases later in life (DOST–FNRI, 2021). Consequently, sustained investments in child nutrition, school health services,

immunization, and adolescent health promotion remain essential components of community-based health programs.

The relatively small proportion of older adults aged 79–85 years (2%) should not diminish the need for geriatric health services. Yamaguchi et al. (2021) reported that older Filipino adults experience a high prevalence of chronic diseases and require continuous monitoring, medication adherence, and community-based preventive interventions. These findings suggest that regular health assessments, maintenance medication programs, chronic disease management, and home-based health monitoring should remain integral components of the barangay's health agenda to promote healthy aging and improve the quality of life among older adults.

The demographic profile of Barangay Sto. Niño suggests the need for a life-course approach to community health planning. While health promotion efforts should prioritize the prevention and control of non-communicable diseases among the predominantly adult population, essential services for children, adolescents, and older adults must also be sustained to ensure equitable and comprehensive primary health care across all stages of life.

Table 2. Sex Distribution of the Participants in the Brgy. Sto. Niño

	Sex	Frequency	Percentage
1.	Male	617	51%
2.	Female	609	49%
	Total	1,226	100%

Table 2 presents the sex distribution of the 1,226 residents of Barangay Sto. Niño. Of the total population, 617 (51%) are male, while 609 (49%) are female, indicating a nearly equal distribution between the two sexes. Although males slightly outnumber females by eight individuals, the difference is negligible, suggesting a balanced sex composition within the barangay. Based on the exact computation, males comprise approximately 50.3% of the population, whereas females account for 49.7%, further confirming the nearly equal representation of both sexes.

The balanced sex distribution has important implications for community health planning because the health needs, healthcare utilization, and health-seeking behaviors of men and women often differ. While the demographic composition suggests that health interventions should be equitably distributed across both sexes, Philippine-based studies indicate that sex-specific differences should also be considered in designing community health programs.

Mallari et al. (2020) examined the roles and experiences of Barangay Health Workers (BHWs) in strengthening primary healthcare delivery in the Philippines. Their findings revealed that BHWs serve as essential links between communities and health facilities by promoting preventive healthcare, facilitating access to health services, and encouraging both men and women to participate in community-based health programs. The study further emphasized that primary healthcare interventions become more effective when they are responsive to the unique health needs of different population groups, including those related to sex and gender. These findings highlight the importance of strengthening the capacity of Barangay Health Workers in Barangay Sto. Niño to deliver inclusive and gender-responsive health services.

Similarly, Morishita et al. (2023) investigated gender-related factors affecting access to tuberculosis (TB) services in the Philippines. The study found that men were more likely to delay seeking healthcare because of employment responsibilities, social expectations, and limited health-seeking behavior, whereas women generally demonstrated greater utilization of healthcare services, particularly those related to maternal, reproductive, and family health. The researchers concluded that incorporating gender-responsive strategies into primary healthcare delivery is essential to reduce disparities in healthcare access and improve treatment outcomes. These findings suggest that community health programs in Barangay Sto. Niño should continue promoting men's health awareness while sustaining reproductive and maternal healthcare services for women.

Recent evidence from medically underserved communities in the Philippines further supports these observations. Baticulon et al. (2024) reported that health-seeking behaviors among Filipinos vary according to both age and sex. Their study showed that women were significantly more likely to consult healthcare professionals and utilize available health services, whereas men were comparatively less likely to seek preventive care. The authors recommended strengthening community-based health education, improving access to reliable health information, and enhancing the role of healthcare professionals and Barangay Health Workers in promoting timely healthcare utilization among community residents. These recommendations are relevant to Barangay Sto. Niño, where a balanced male and female population requires equitable yet sex-responsive health promotion strategies.

The nearly equal distribution of males and females in Barangay Sto. Niño provides an opportunity to implement comprehensive and gender-responsive community health programs. Health interventions should continue to strengthen maternal and reproductive health services, family planning, child health, men's health

promotion, mental health awareness, and the prevention and control of non-communicable diseases. Likewise, community-based health education should encourage preventive healthcare utilization among both men and women to ensure equitable access to primary healthcare services and improve overall community health outcomes.

Table 3. Religious Affiliation of the Participants in the Brgy. Sto. Niño

	Religion	Frequency	Percentage
1.	Roman Catholic	1,103	90%
2.	Born Again	76	6 %
3.	Iglesia ni Cristo	47	4 %
	Total	1,226	100 %

Table 3 presents the religious affiliation of the residents of Barangay Sto. Niño. Of the total population of 1,226, the majority (1,103 residents or 90%) identified as Roman Catholic, indicating that Catholicism is the predominant religion in the barangay. Meanwhile, 76 residents (6%) identified as Born-Again Christians, while 47 residents (4%) reported affiliation with the Iglesia ni Cristo. These findings demonstrate that although the community is predominantly Roman Catholic, it also includes other Christian denominations that contribute to its religious diversity.

The predominance of Roman Catholicism suggests that religion remains an important social institution within the community. Religious beliefs and practices have been shown to influence health behaviors, social support systems, health decision-making, and participation in community development initiatives. Consequently, understanding the religious composition of a community is essential in designing culturally appropriate and socially acceptable health promotion programs.

Philippine-based research has consistently demonstrated the significant role of faith-based organizations in promoting community health. Mallari et al. (2020) found that Barangay Health Workers frequently collaborate with community leaders, including religious organizations, to improve health promotion, increase participation in preventive health programs, and strengthen trust between healthcare providers and community members. Their study emphasized that partnerships with local institutions, including churches and faith-based groups, facilitate greater acceptance of community health interventions because these organizations possess established relationships and credibility within local communities.

Similarly, Lasco et al. (2021) highlighted the influence of religion on health behaviors and public health responses in the Philippines during the COVID-19 pandemic. Their study found that religious institutions played a crucial role in disseminating health information, encouraging compliance with public health protocols, mobilizing volunteers, and providing psychosocial and spiritual support to affected communities. The authors argued that faith-based organizations serve as valuable partners in promoting health communication, particularly in predominantly religious communities where church leaders are highly trusted by residents.

Research by Baticulon et al. (2024) further supports the importance of community networks in promoting positive health-seeking behaviors. The study reported that Filipinos living in medically underserved communities often rely on trusted community members and local organizations as important sources of health information. The researchers emphasized that collaboration among healthcare professionals, Barangay Health Workers, and community organizations enhances health literacy and encourages greater participation in preventive healthcare programs. In communities such as Barangay Sto. Niño, where Roman Catholicism is the dominant religion, faith-based organizations can therefore become strategic partners in delivering health education campaigns, vaccination drives, nutrition programs, mental health awareness activities, and other community-based health initiatives.

The findings suggest that the religious composition of Barangay Sto. Niño extends beyond demographic characteristics and represents a valuable community asset for health promotion and community engagement. The predominance of Roman Catholicism, together with the presence of other Christian denominations, provides opportunities to establish collaborative partnerships with religious leaders and faith-based organizations in implementing health promotion activities. Such partnerships may enhance community participation, improve the dissemination of health information, strengthen social support networks, and contribute to the successful implementation of community health programs.

Table 4. Highest Educational Attainment of the Participants in the Brgy. Sto. Niño

	Highest Educational Attainment	Frequency	Percentage
1.	Highschool Undergraduate	233	19%
2.	Elementary Undergraduate	227	19%
3.	Highschool Graduate	226	18%
4.	Elementary Graduate	171	14%
5.	College Undergraduate	146	12%
6.	College Graduate	113	9%
7.	Not Specified	110	9%
	Total	1,226	100%

Table 4 presents the highest educational attainment of the residents of Barangay Sto. Niño. The largest proportion of the population consists of high school undergraduates with 233 individuals (19%), followed closely by elementary undergraduates with 227 individuals (19%) and high school graduates with 226 individuals (18%). Elementary graduates account for 171 residents (14%), while 146 residents (12%) are college undergraduates and 113 residents (9%) are college graduates. Additionally, 110 residents (9%) did not specify their educational attainment.

The findings indicate that a substantial proportion of the residents attained only elementary or secondary education. Combining elementary undergraduates, elementary graduates, high school undergraduates, and high school graduates shows that the majority of the population has educational attainment limited to the basic education level. Conversely, only 259 residents (21%) reached tertiary education, either as college undergraduates or college graduates. This educational profile suggests that many residents may face challenges related to employment opportunities, income generation, health literacy, and access to information.

Educational attainment is widely recognized as one of the most important social determinants of health because it influences an individual's ability to obtain employment, understand health information, adopt healthy behaviors, and access healthcare services. In a study examining health literacy among Filipino adults, Baticulon et al. (2024) found that educational attainment significantly influenced individuals' health-seeking behaviors and their ability to identify credible sources of health information. Individuals with lower educational attainment were more likely to depend on informal sources of health information and demonstrated lower utilization of preventive healthcare services. The authors emphasized that community health programs should deliver health information using clear, understandable, and culturally appropriate communication strategies to improve health literacy among underserved populations.

Similarly, Mallari et al. (2020) reported that Barangay Health Workers play a crucial role in translating complex health information into language that is understandable to community members with varying educational backgrounds. Their qualitative study highlighted that effective community health education depends not only on the accuracy of health information but also on its accessibility and comprehensibility. The authors recommended strengthening community-based health education through culturally sensitive communication and sustained engagement with households, particularly among populations with limited formal education.

Educational attainment also influences socioeconomic opportunities and participation in community development initiatives. In an analysis of education and labor market outcomes in the Philippines, Albert et al. (2021) observed that individuals with higher educational attainment generally experience better employment opportunities, higher incomes, and improved socioeconomic conditions than those who completed only basic education. These socioeconomic advantages indirectly contribute to better health outcomes by increasing access to healthcare services, nutritious food, and healthier living conditions. Conversely, limited educational attainment may contribute to lower income, reduced access to health information, and increased vulnerability to preventable diseases.

The relatively small proportion of college graduates in Barangay Sto. Niño suggests that community interventions should consider the educational profile of residents when designing health promotion activities. Health education materials should use simple language, visual aids, demonstrations, and community-based learning approaches to ensure that health messages are easily understood across different educational levels. Moreover, partnerships with schools, local government units, and community organizations may help promote lifelong learning, health literacy, and skills development that can improve both health and socioeconomic outcomes.

The educational profile of Barangay Sto. Niño indicates that the majority of residents have attained only basic or secondary education. This demographic characteristic highlights the need for inclusive and accessible community health programs that promote health literacy while recognizing the educational diversity of the population. Tailoring health education strategies to residents' educational backgrounds is likely to

improve community participation, encourage healthier behaviors, and enhance the effectiveness of primary healthcare interventions.

Table 5. Socio-economic Data of the Participants in the Brgy. Sto. Niño

	Monthly Income	Frequency	Percentage
1.	5,001-10,000	90	28.1%
2.	1,000-5,000	84	26.3%
3.	10,001-15,000	57	17.8%
4.	15,001-20,000	27	8.4%
5.	20,001-25,000	23	7.2%
6.	30,001-35,000	13	4.1%
7.	25,001-30,000	9	2.8%
8.	40,001-45,000	8	2.5%
9.	35,001-40,000	7	2.2%
10.	45,001-50,000 and above	2	0.6%
	Total	320	100%

Table 5 presents the monthly household income distribution of the 320 respondent-households in Barangay Sto. Niño. The largest income group earns ₱5,001–₱10,000 per month, comprising 90 households (28.1%), followed by households earning ₱1,000–₱5,000, with 84 households (26.3%). Collectively, these two income groups account for 54.4% of the respondents, indicating that more than half of the households earn ₱10,000 or less each month.

The next largest group earns ₱10,001–₱15,000 per month, representing 57 households (17.8%). When combined with the two lowest income categories, 72.2% of respondent-households earn ₱15,000 or less each month. This finding indicates that the majority of households in Barangay Sto. Niño belong to the low- to lower-middle-income sector. Limited household income may constrain families' ability to meet essential needs, including adequate nutrition, healthcare, education, transportation, housing, and sanitation, thereby increasing their vulnerability to adverse health outcomes.

Household income is widely recognized as a key social determinant of health because it influences access to healthcare services, healthy food, safe living conditions, and educational opportunities. In a study of medically underserved communities in the Philippines, Baticulon et al. (2024) found that socioeconomic status significantly influences health-seeking behavior and access to reliable health information. Households with lower incomes were less likely to seek preventive healthcare services because of financial constraints and were more likely to delay medical consultation until illnesses became severe. The authors emphasized the importance of strengthening community-based health education and improving the accessibility of affordable primary healthcare services for economically disadvantaged populations.

Similarly, Mallari et al. (2020) reported that Barangay Health Workers play a critical role in reducing health inequities by connecting economically vulnerable households with essential primary healthcare services. Their qualitative study found that BHWs facilitate access to free consultations, immunization, maternal and child health services, and health education, particularly among low-income families. The study further highlighted that community-based primary healthcare is most effective when healthcare services are affordable, accessible, and responsive to the socioeconomic conditions of the community.

The observed income distribution is likewise consistent with national evidence indicating that income remains a major determinant of health and well-being in the Philippines. According to Albert et al. (2023), households with limited financial resources are more likely to experience food insecurity, lower educational attainment, unstable employment, and reduced access to healthcare services. These socioeconomic disadvantages contribute to poorer health outcomes and limit participation in preventive health programs. The authors emphasized that poverty reduction initiatives, livelihood opportunities, and strengthened social protection programs are essential strategies for improving overall community well-being.

The relatively small proportion of households earning more than ₱20,000 per month, and particularly the 0.6% earning ₱45,001 or more, suggests that higher-income households are limited within the barangay. This income distribution underscores the importance of designing community interventions that are financially accessible to the majority of residents. Health promotion activities should therefore prioritize free or low-cost healthcare services, nutrition education, preventive health screening, and financial protection mechanisms. Likewise, livelihood development, skills training, and income-generating programs may complement health interventions by addressing one of the underlying determinants of health.

The socioeconomic profile of Barangay Sto. Niño indicates that most households belong to the low- to lower-middle-income group. This economic condition may influence health-seeking behavior, healthcare utilization, nutritional status, and participation in community development programs. Consequently, community health planning should adopt an integrated approach that combines primary healthcare services with livelihood

assistance, social protection, nutrition support, and health education to improve the overall quality of life of economically vulnerable households.

Research Question 2: What are the existing household and environmental conditions of the community in terms of home ownership, housing materials, lighting facilities, water sources, cooking facilities, drainage, waste disposal, and toilet facilities?

Table 6. Home Ownership of the Participants in the Brgy. Sto. Niño

	Home Ownership	Frequency	Percentage
1.	Owned	318	99%
2.	Rented	2	1%
	Total	320	100%

Table 6 presents the home ownership status of the 320 respondent-households in Barangay Sto. Niño. The findings reveal that 318 households (99%) own their homes, whereas only 2 households (1%) reported living in rented residences. This indicates that home ownership is nearly universal within the community, suggesting that most households have established permanent residences in the barangay.

The high prevalence of home ownership suggests a relatively stable residential population. Residential stability is an important social determinant because it fosters stronger community ties, greater participation in local governance, and sustained engagement in community-based programs. Households that have permanent residences are generally more accessible for routine health monitoring, disease surveillance, and the implementation of long-term health promotion and preventive healthcare interventions.

This finding is supported by Mallari et al. (2020), who reported that Barangay Health Workers (BHWs) play a vital role in delivering primary healthcare services through regular household visits and continuous community engagement. The study found that stable communities facilitate stronger relationships between BHWs and residents, thereby improving the delivery of maternal and child health services, immunization, health education, and chronic disease monitoring. These findings suggest that the predominance of home-owning households in Barangay Sto. Niño provides a favorable environment for sustaining community-based health programs.

Similarly, Ballesteros et al. (2024) emphasized that housing conditions and tenure security are closely associated with household welfare in the Philippines. Their study on housing affordability found that while home ownership provides greater residential security, housing adequacy depends not only on ownership status but also on affordability, structural quality, and access to basic services. The authors argued that many Filipino households continue to experience housing-related challenges despite owning their homes, particularly among low-income families. Therefore, home ownership should not be considered the sole indicator of housing well-being.

This observation is consistent with earlier Philippine research by Porio and Crisol (2004), who found that security of tenure contributes to residents' sense of stability and encourages greater participation in community development initiatives. However, the study emphasized that housing security must also be accompanied by access to essential services such as potable water, sanitation, drainage systems, and safe living environments to achieve meaningful improvements in quality of life.

Although the findings indicate that nearly all respondents own their homes, housing tenure alone does not provide sufficient information regarding the overall living conditions of households. Factors such as housing materials, structural integrity, overcrowding, ventilation, sanitation facilities, waste management, and access to safe water remain important environmental determinants of health. These variables should therefore be examined alongside home ownership to provide a more comprehensive assessment of the community's health and housing conditions.

The predominance of home-owning households in Barangay Sto. Niño represents an important community asset that can facilitate the implementation of sustained health promotion, disease prevention, and community development programs. Nevertheless, future community health assessments should include indicators of housing quality and environmental health to better understand the relationship between residential conditions and the health status of the population.

Table 7. Types of House Materials of the Participants in the Brgy. Sto. Niño

	Type of Material	Frequency	Percentage
1.	Concrete	173	54%
2.	Mixed	130	41%
3.	Wood	17	5%
	Total	320	100%

Table 7 presents the types of construction materials used by the 320 respondent-households in Barangay Sto. Niño. The findings indicate that 173 households (54%) live in concrete houses, while 130 households (41%) reside in houses constructed from mixed materials, and 17 households (5%) occupy wooden houses. These results suggest that more than half of the households live in relatively permanent dwellings, although a substantial proportion continues to occupy houses made from mixed construction materials.

The predominance of concrete houses indicates that many households possess relatively durable residential structures capable of providing better protection against adverse weather conditions and other environmental hazards. Concrete houses are generally more resistant to typhoons, heavy rainfall, and fire than houses constructed primarily from light materials. Nevertheless, the large proportion of mixed-material houses suggests considerable variation in housing quality within the community. Since mixed-material dwellings may differ in structural integrity, ventilation, thermal comfort, and disaster resilience, construction materials alone cannot fully determine whether a house provides a healthy living environment.

This finding is consistent with the observations of Mallari et al. (2020), who reported that Barangay Health Workers routinely assess household environmental conditions—including housing, sanitation, and living environments—during community visits. Their study emphasized that housing conditions influence the effectiveness of community-based health interventions because inadequate housing environments may increase residents' vulnerability to communicable diseases and other environmental health risks. The authors further highlighted that community health programs should integrate environmental assessments with primary healthcare services to address health risks at the household level.

Similarly, Ballesteros et al. (2024) explained that housing adequacy in the Philippines extends beyond ownership and should include structural durability, access to basic services, and resilience to environmental hazards. Their study emphasized that many Filipino households own their homes but continue to experience deficiencies related to housing quality and infrastructure. Consequently, assessments of community housing conditions should consider not only construction materials but also the availability of safe water, sanitation facilities, drainage systems, electricity, and other components of a healthy living environment.

Evidence from the Philippine Statistics Authority (PSA) likewise recognizes construction materials as an important indicator of housing quality and household well-being. National housing statistics classify wall and roofing materials as measures of structural permanence; however, they also emphasize that adequate housing should be evaluated together with indicators such as access to potable water, sanitation, electricity, and household crowding to provide a more comprehensive assessment of living conditions. These indicators are essential because the quality of the built environment influences both physical health and disaster resilience.

The 17 households (5%) living in wooden houses represent a relatively small but potentially vulnerable segment of the community. Wooden dwellings are generally more susceptible to fire, termite infestation, structural deterioration, and damage during typhoons and flooding. These households may therefore require priority attention during disaster preparedness activities, environmental health inspections, and housing improvement initiatives.

The findings indicate that housing conditions in Barangay Sto. Niño are generally favorable because the majority of households reside in concrete houses. However, the substantial proportion of mixed-material dwellings underscores the need for a more comprehensive assessment of housing quality. Future community health assessments should include indicators such as structural safety, ventilation, indoor air quality, sanitation facilities, water supply, household crowding, drainage systems, waste management, and disaster preparedness to better understand the relationship between housing conditions and the health status of community residents.

Table 8. Lighting Facility of the Participants in the Brgy. Sto. Niño

	Types of Lighting Facility	Frequency	Percentage
1.	Electricity	264	82%
2.	Others (Kerosene, candle, solar)	56	18%
	Total	320	100%

Table 8 presents the primary lighting facilities used by the 320 respondent-households in Barangay Sto. Niño. The findings reveal that 264 households (82%) use electricity as their primary source of lighting, while 56 households (18%) rely on alternative lighting sources, including kerosene lamps, candles, and solar-powered lighting.

The findings indicate that the majority of households in Barangay Sto. Niño have access to electricity, suggesting relatively favorable living conditions and improved access to basic household utilities. Electricity is an essential component of a healthy living environment because it supports household productivity, facilitates children's learning, enables communication, improves household security, and provides access to health-related information through television, radio, and digital technologies. Nevertheless, the finding that nearly

one-fifth of households continue to rely on alternative lighting sources suggests that disparities in access to reliable electricity remain within the community.

This finding is consistent with the Philippine Statistics Authority (2023), which identified electricity as one of the principal indicators of housing quality and household well-being. National housing statistics indicate that households with access to electricity generally experience better living conditions, greater access to educational resources, and improved opportunities for economic productivity. However, the PSA also noted that some Filipino households continue to rely on alternative lighting sources because of financial limitations, intermittent electrical service, or inadequate infrastructure, particularly in economically disadvantaged communities.

Similarly, Albert et al. (2022) emphasized that access to basic utilities, including electricity, is closely associated with multidimensional poverty in the Philippines. Their study demonstrated that households lacking reliable access to electricity are more likely to experience educational disadvantages, limited economic opportunities, and reduced access to information and essential services. The authors argued that improving access to basic utilities should remain a priority in local development planning because it contributes directly to household welfare and overall quality of life.

The continued use of kerosene lamps and candles by 18% of households deserves particular attention from a community health perspective. Although these lighting sources may provide temporary solutions where electricity is unavailable or unaffordable, they may also increase the risk of household fires, accidental burns, and injuries. In addition, prolonged use of kerosene lamps inside poorly ventilated homes may contribute to indoor air pollution, which has been associated with respiratory illnesses and other adverse health outcomes. While some households reported using solar-powered lighting, which offers a cleaner and more sustainable energy source, the combined use of non-electric lighting facilities indicates the need to further assess household access to safe, reliable, and affordable electricity.

The findings underscore the importance of integrating household energy access into community health planning. Coordination with the local government unit, electric utility providers, and relevant national agencies may help identify households with limited access to electricity and facilitate appropriate interventions. Community-based health education should also include information on electrical safety, fire prevention, and the safe use of alternative lighting facilities. Furthermore, promoting energy-efficient and sustainable lighting technologies, such as solar-powered household lighting systems, may improve household safety while reducing long-term energy costs among economically vulnerable families.

The high proportion of households with electricity reflects relatively favorable household conditions in Barangay Sto. Niño. However, the continued reliance on alternative lighting sources among a considerable proportion of households indicates that universal access to safe and reliable electricity has not yet been achieved. Addressing these disparities through infrastructure development, household energy assistance, and community-based safety education may contribute to improved living conditions, better health outcomes, and enhanced community resilience.

Table 9. Drinking Water Supply of the Participants in the Brgy. Sto. Niño

	Sources	Frequency	Percentage
1.	Private Sources	223	70%
2.	Public Sources	87	27%
3.	Portable	10	3%
	Total	320	100%

Table 9 presents the primary sources of drinking water used by the 320 respondent-households in Barangay Sto. Niño. The findings indicate that 223 households (70%) obtain their drinking water from private sources, while 87 households (27%) rely on public sources. A small proportion of households (10 or 3%) reported using the category identified as portable water. Because this category is not a standard classification of drinking water sources in public health, its meaning should be clarified in the data collection instrument. If it refers to water that is safe for human consumption, the correct term should be potable water. If it refers to bottled or delivered water, the category should be renamed accordingly.

The predominance of private water sources suggests that most households rely on individually managed water systems. However, the source of water alone does not indicate its microbiological or chemical safety. The quality of drinking water depends on several factors, including source protection, treatment, storage practices, and regular water quality monitoring. Therefore, households obtaining water from private sources may still be exposed to contamination if appropriate sanitation and water safety measures are not maintained.

This finding is consistent with the Philippine National Standards for Drinking Water (Department of Health [DOH], 2017), which emphasize that all drinking water intended for human consumption—whether supplied through public or private systems—should comply with microbiological, physical, and chemical

quality standards. The guidelines further recommend regular water quality monitoring and sanitary inspections to prevent waterborne diseases and ensure the safety of community water supplies.

Similarly, the Philippine Statistics Authority (2023) identifies access to safe drinking water as a key indicator of household welfare and living conditions. National statistics indicate that although many Filipino households have access to improved water sources, disparities in water quality, service reliability, and affordability continue to exist. The agency emphasizes that improving access to safe drinking water remains essential for reducing health inequalities and achieving better public health outcomes.

Evidence from Philippine research likewise demonstrates the importance of safe and reliable drinking water in preventing communicable diseases. Capuno et al. (2022) reported that the quality of water services significantly affects household health and welfare. Their study found that unreliable or poor-quality water supplies increase households' vulnerability to waterborne diseases and often require families to incur additional expenses for alternative water sources. The authors recommended strengthening local water governance, improving water infrastructure, and ensuring equitable access to safe drinking water, particularly among economically vulnerable communities.

The 27% of households relying on public water sources underscore the importance of maintaining government-managed water systems through routine monitoring, infrastructure maintenance, and compliance with national drinking water standards. Public water systems require continuous surveillance to ensure that water supplied to households remains safe and accessible.

The findings indicate that the majority of households in Barangay Sto. Niño obtain drinking water from private sources. However, the type of water source should not be interpreted as evidence of water safety. Community health planning should therefore prioritize regular water quality monitoring, household education on safe water storage and handling, sanitation promotion, and collaboration with local water service providers to ensure continuous access to safe and potable drinking water for all households.

Table 10. Cooking Facility of the Participants in the Brgy. Sto. Niño

Type of Cooking Facility	Frequency	Percentage
1. Gas Stove	238	74%
2. Firewood	54	17%
3. Electric Stove	28	9%
Total	320	100%

Table 10 presents the primary cooking facilities used by the 320 respondent-households in Barangay Sto. Niño. The findings indicate that 238 households (74%) use gas stoves as their primary cooking facility, while 54 households (17%) continue to use firewood, and 28 households (9%) use electric stoves.

The findings indicate that most households in Barangay Sto. Niño utilize liquefied petroleum gas (LPG) through gas stoves as their primary cooking facility. The predominance of LPG suggests that the majority of households have access to relatively cleaner and more efficient cooking energy than traditional biomass fuels. Cleaner cooking technologies reduce household exposure to smoke and particulate matter while improving cooking efficiency and household convenience. Nevertheless, the continued use of firewood by 17% of respondent-households indicates that a considerable proportion of residents still relies on biomass fuels for cooking, potentially because of financial constraints, fuel availability, or cultural preferences.

Household cooking fuel is an important environmental determinant of health because it directly influences indoor air quality and exposure to pollutants. In the Philippines, Quirit et al. (2018) reported that exposure to household air pollution from biomass fuel combustion remains a significant environmental health concern, particularly among women and children who spend more time in cooking areas. Their study found that smoke generated from firewood and other solid fuels contains particulate matter and toxic gases that increase the risk of respiratory diseases, chronic obstructive pulmonary disease, and other adverse health outcomes. The authors emphasized the importance of promoting cleaner household energy sources to reduce exposure to indoor air pollution.

Similarly, Capuno et al. (2021) observed that household access to modern energy services is closely associated with socioeconomic status and overall household welfare in the Philippines. Their study found that lower-income households were more likely to rely on traditional cooking fuels because of affordability and accessibility, whereas households with higher socioeconomic status were more likely to adopt cleaner fuels such as LPG and electricity. These findings suggest that the continued use of firewood among some households in Barangay Sto. Niño may reflect underlying socioeconomic conditions rather than household preference alone.

The Philippine Statistics Authority (2023) likewise recognizes cooking fuel as an important indicator of household living conditions. National statistics indicate that although LPG has become the dominant cooking fuel in many Filipino households, biomass fuels remain common in communities with limited

economic resources. Consequently, household energy use should be considered when assessing environmental health risks and planning community-based health interventions.

Although only 9% of households reported using electric stoves, this finding may reflect the higher cost of electricity, limited ownership of electrical cooking appliances, or household preference for LPG. Electric stoves produce no indoor combustion emissions during cooking; however, their utilization depends on the availability of reliable electricity and the financial capacity of households to sustain electricity consumption.

The continued use of firewood among a substantial proportion of households highlights the need for environmental health interventions. Community health programs should include education on proper kitchen ventilation, safe cooking practices, fire prevention, and the health risks associated with prolonged exposure to biomass smoke. Local government units may also consider supporting programs that encourage the adoption of cleaner household energy technologies through energy assistance initiatives, livelihood improvement programs, or access to affordable clean cooking technologies.

The findings indicate that Barangay Sto. Niño has made considerable progress toward the adoption of cleaner household cooking facilities through the widespread use of gas stoves. However, the continued reliance on firewood among nearly one-fifth of respondent-households underscores the need for sustained environmental health programs aimed at reducing indoor air pollution and promoting safer, cleaner, and more sustainable household energy practices.

Table 11. Drainage Facility of the Participants in the Brgy. Sto. Niño

	Drainage Facility	Frequency	Percentage
1.	Open Drainage	194	61%
2.	Covered Drainage	76	24%
3.	No Drainage	50	16%
	Total	320	100%

Table 11 presents the drainage facilities of the 320 respondent-households in Barangay Sto. Niño. The findings indicate that 194 households (61%) have open drainage systems, 76 households (24%) have covered drainage systems, and 50 households (16%) reported having no drainage facility.

The findings indicate that open drainage systems are the predominant means of wastewater disposal in Barangay Sto. Niño. Although open drainage channels facilitate the movement of wastewater, inadequate maintenance or obstruction of these systems may result in stagnant water, accumulation of solid waste, and environmental contamination. The presence of households without any drainage facility further suggests that wastewater disposal remains a challenge for a portion of the community and may contribute to localized flooding, poor sanitation, and deterioration of environmental health conditions.

Proper drainage is a fundamental component of environmental sanitation because it minimizes human exposure to wastewater and prevents the accumulation of stagnant water that can serve as breeding sites for disease vectors. In their qualitative study on primary healthcare delivery in the Philippines, Mallari et al. (2020) reported that Barangay Health Workers routinely assess environmental sanitation, including drainage conditions, wastewater disposal, and household hygiene, during community visits. The study emphasized that improvements in environmental sanitation strengthen disease prevention efforts and support healthier community living conditions.

Similarly, Bravo et al. (2021), in a Philippine study on community-based dengue prevention, found that poorly maintained drainage canals and stagnant water were among the environmental conditions associated with mosquito breeding and increased community vulnerability to dengue transmission. The authors emphasized that effective dengue prevention requires not only household participation but also regular cleaning of drainage systems, proper waste management, and coordinated environmental sanitation activities involving local government units and community residents.

The Department of Health (2023) likewise identifies drainage management as a critical element of environmental sanitation. The department recommends maintaining unobstructed drainage systems, eliminating stagnant water, and improving wastewater disposal to reduce the transmission of vector-borne and water-related diseases. These recommendations are particularly relevant to Barangay Sto. Niño, where the predominance of open drainage systems and the absence of drainage facilities in some households may increase environmental health risks if not properly maintained.

Evidence from the Philippine Statistics Authority (2023) further recognizes environmental sanitation facilities as important indicators of household living conditions. National housing statistics emphasize that access to adequate drainage, sanitation, and wastewater disposal contributes to healthier residential environments and supports the prevention of communicable diseases. Consequently, drainage facilities should be evaluated alongside other environmental health indicators, including water supply, toilet facilities, solid waste management, and housing conditions.

Although 24% of households have covered drainage systems, which generally provide better protection against environmental contamination, their effectiveness depends on regular maintenance and proper wastewater management. Likewise, the 16% of households without drainage facilities should be prioritized during environmental health planning because inadequate wastewater disposal may contribute to flooding, unsanitary surroundings, and increased exposure to environmental hazards.

The findings suggest that drainage remains an important environmental health concern in Barangay Sto. Niño. Community health interventions should prioritize the improvement and maintenance of drainage infrastructure, regular cleaning of canals, promotion of proper wastewater and solid waste disposal, and community education on environmental sanitation. Strengthening collaboration among the barangay, Rural Health Unit, Municipal Engineering Office, and other local government agencies will be essential in reducing environmental health risks and creating a healthier living environment for residents.

Table 12. Waste Disposal of the Participants in the Brgy. Sto. Niño.

	Waste Disposal	Frequency	Percentage
1.	Open	156	48.8%
2.	Covered	138	43.1%
3.	None	26	8.1%
	Total	320	100%

Table 12 presents the waste disposal practices of the 320 respondent-households in Barangay Sto. Niño. The findings reveal that 156 households (48.8%) practice open waste disposal, while 138 households (43.1%) use covered waste disposal facilities. In addition, 26 households (8.1%) reported having no waste disposal facility.

The findings indicate that open waste disposal remains the most common household waste management practice in Barangay Sto. Niño. Although nearly half of the households utilize covered waste containers, the predominance of open waste disposal and the presence of households without any waste disposal facility suggest that solid waste management continues to be an important environmental health concern within the community. Improperly managed household waste may attract flies, rodents, and other disease vectors, produce unpleasant odors, contaminate nearby surroundings, and obstruct drainage systems, thereby increasing the risk of environmental pollution and communicable diseases.

Proper solid waste management is a fundamental component of environmental sanitation and primary healthcare. In their qualitative study of community health workers in the Philippines, Mallari et al. (2020) found that Barangay Health Workers routinely monitor household sanitation practices, including waste management, as part of community-based primary healthcare. The study emphasized that household environmental conditions directly influence disease prevention efforts and that health education on sanitation practices is an important strategy for improving community health outcomes.

Similarly, Capistrano and Navarro (2023) examined household solid waste management practices in Philippine communities and found that improper waste storage and disposal remain persistent environmental problems despite the implementation of ecological solid waste management policies. The study reported that open waste disposal contributes to pest infestation, environmental contamination, and reduced community sanitation, while proper waste segregation and the use of covered waste containers significantly improve household hygiene and environmental quality. The authors recommended strengthening community education, increasing household participation, and enhancing local government implementation of ecological solid waste management programs.

The findings are likewise consistent with the provisions of Republic Act No. 9003, or the *Ecological Solid Waste Management Act of 2000*, which requires the segregation, proper storage, collection, and environmentally sound disposal of solid waste at the household and community levels. The law recognizes improper waste disposal as a major contributor to environmental degradation, flooding, and public health problems. Compliance with its provisions depends largely on effective community participation, continuous public education, and strong support from local government units.

The Philippine Statistics Authority (2023) also recognizes household waste management as an important indicator of environmental health and housing conditions. National statistics demonstrate that households with appropriate waste storage and disposal facilities generally experience cleaner surroundings and reduced exposure to environmental hazards. These findings reinforce the need to improve household waste management practices in Barangay Sto. Niño, particularly among households practicing open waste disposal or those without designated waste disposal facilities.

The finding that 26 households (8.1%) have no waste disposal facility warrants particular attention because inadequate waste storage may result in indiscriminate disposal, open dumping, or burning of household waste. Such practices increase environmental pollution and may contribute to the spread of vector-

borne and waterborne diseases. Consequently, these households should be prioritized during environmental health education and community sanitation initiatives.

The findings indicate that household waste management remains an important environmental health issue in Barangay Sto. Niño. Although a substantial proportion of households use covered waste disposal facilities, the predominance of open waste disposal and the absence of waste disposal facilities among some households highlight the need for strengthened environmental sanitation programs. Community interventions should focus on proper waste segregation, the use of covered waste containers, compliance with Republic Act No. 9003, regular waste collection, environmental cleanliness campaigns, and sustained health education on ecological solid waste management. Strengthening collaboration among the barangay, local government unit, Municipal Environment and Natural Resources Office, and Rural Health Unit will further support the development of a cleaner, healthier, and more sustainable community.

Table 13. Toilet Facility of the Participants in the Brgy. Sto. Niño

	Toilet Facility	Frequency	Percentage
1.	Buhos-Type Toilet	231	72%
2.	Covered Toilet	36	11%
3.	Without Cover Toilet	33	10%
4.	Water-Sealed Toilet	19	6%
5.	Flush Toilet	1	<1%
	Total	320	100

Table 13 presents the types of toilet facilities used by the 320 respondent-households in Barangay Sto. Niño. The findings indicate that 231 households (72%) use buhos-type toilets, making this the most common sanitation facility in the community. This is followed by covered toilets with 36 households (11%), toilets without covers with 33 households (10%), water-sealed toilets with 19 households (6%), and flush toilets with only 1 household (<1%).

The findings indicate that the majority of households in Barangay Sto. Niño have access to a basic toilet facility, with the buhos-type toilet being the predominant sanitation system. Buhos toilets are widely used in many Philippine communities because they are relatively inexpensive, require only a small amount of water for flushing, and are suitable for areas without centralized sewerage systems. When properly constructed, maintained, and connected to an appropriate septic tank or waste disposal system, buhos toilets can provide safe sanitation and effectively reduce environmental contamination.

Access to improved sanitation is a fundamental determinant of public health because it reduces human exposure to fecal contaminants and prevents the transmission of sanitation-related diseases. In their qualitative study on primary healthcare delivery in the Philippines, Mallari et al. (2020) reported that Barangay Health Workers routinely monitor household sanitation practices, including toilet facilities, waste disposal, and environmental hygiene, during household visits. The study emphasized that promoting proper sanitation practices at the household level remains a critical component of disease prevention and community health promotion.

Similarly, Capuno et al. (2022) highlighted that access to adequate sanitation facilities remains an important dimension of household welfare and multidimensional poverty in the Philippines. Their study found that households with improved sanitation facilities generally experience better health outcomes because proper sanitation reduces exposure to infectious agents and supports healthier living environments. The authors further emphasized that investments in sanitation infrastructure should accompany community-based health education to maximize public health benefits.

The Philippine Statistics Authority (2023) likewise recognizes toilet facilities as one of the principal indicators of housing quality and environmental sanitation. National housing statistics show that although most Filipino households have access to toilet facilities, disparities remain in the quality and type of sanitation systems used. These differences often reflect variations in household income, housing conditions, and access to water and sanitation infrastructure.

The presence of 33 households (10%) using toilets without covers deserves particular attention because uncovered toilet facilities may increase exposure to foul odors, insects, and other disease vectors if not properly maintained. Likewise, the relatively low proportion of households using water-sealed toilets (6%) and flush toilets (<1%) suggests that more advanced sanitation facilities remain limited within the community. However, it should be recognized that the health benefits of a sanitation facility depend not only on its type but also on its cleanliness, maintenance, proper septic tank management, and availability of adequate water for hygiene.

These findings underscore the importance of strengthening sanitation practices in Barangay Sto. Niño. Community health programs should promote proper toilet maintenance, regular septic tank desludging, safe disposal of human waste, handwashing with soap, and household environmental sanitation. In addition, local government initiatives that support the upgrading of sanitation facilities, particularly among economically

vulnerable households, may further reduce the risk of sanitation-related diseases and improve overall community health.

The findings indicate that most households in Barangay Sto. Niño have access to basic sanitation facilities, with buhos-type toilets serving as the predominant system. Nevertheless, the continued use of uncovered toilets and the limited availability of water-sealed and flush toilets suggest opportunities to improve sanitation infrastructure and hygiene practices. Strengthening household sanitation through health education, environmental sanitation programs, and infrastructure development will contribute to the prevention of communicable diseases and the promotion of healthier living conditions within the community.

Research Question 3: What are the prevailing health practices of the residents in terms of child vaccination and birth control utilization?

Table 14. Child Vaccination

Child Vaccination	Frequency	Percentage
1. Vaccinated	2	15%
2. Not Vaccinated	11	85%
Total	13	100%

Table 14 presents the vaccination status of 13 eligible children in Barangay Sto. Niño. The findings indicate that only 2 children (15%) were reported as vaccinated, while 11 children (85%) were not vaccinated. Although the number of children included in the survey is relatively small, the results suggest low immunization coverage among the recorded children in the community.

Table 6. Child Vaccination of the Participants in the Sto. Niño. The findings indicate that a substantial proportion of the eligible children included in the survey had not received routine childhood immunizations. Although these results should be interpreted cautiously because they are based on only 13 children and may not represent the immunization status of all children in Barangay Sto. Niño, they nevertheless suggest the need to examine factors affecting childhood vaccination within the community. Low immunization coverage increases children's susceptibility to vaccine-preventable diseases such as measles, poliomyelitis, diphtheria, pertussis, tetanus, and hepatitis B, which remain important public health concerns in the Philippines.

These findings are consistent with reports of declining childhood immunization coverage in the Philippines following the Dengvaxia controversy and the COVID-19 pandemic. Dayrit et al. (2022) reported that routine childhood immunization services experienced significant disruptions because of reduced healthcare utilization, movement restrictions, and the diversion of health resources during the pandemic. The authors emphasized that declining vaccination coverage has increased the risk of outbreaks of vaccine-preventable diseases and highlighted the need to strengthen routine immunization services at the community level.

Similarly, Carlos et al. (2023) found that parental vaccine hesitancy, misinformation, concerns about vaccine safety, and limited confidence in immunization programs continue to influence childhood vaccination in the Philippines. Their study demonstrated that vaccine acceptance improves when parents receive accurate information from trusted healthcare providers, particularly Barangay Health Workers (BHWs), nurses, and physicians. The authors emphasized the importance of community-based health education and effective risk communication in restoring public confidence in childhood immunization.

The important role of Barangay Health Workers in improving immunization coverage has likewise been documented by Mallari et al. (2020). Their qualitative study found that BHWs are instrumental in identifying eligible children, conducting household visits, reminding parents of scheduled immunization sessions, and facilitating referrals to health facilities. The study concluded that strong community engagement and sustained household follow-up contribute significantly to improving the utilization of preventive health services, including childhood vaccination.

The low vaccination coverage observed in this study underscores the need to strengthen routine immunization activities in Barangay Sto. Niño. Community health interventions should include intensified house-to-house identification of eligible children, regular monitoring of immunization status, catch-up vaccination campaigns, parent education on vaccine safety and effectiveness, and strengthened coordination among the Rural Health Unit, Barangay Health Workers, and local government officials. Community information campaigns should likewise address vaccine misinformation and encourage parents to complete the recommended childhood immunization schedule.

Although the number of children included in the survey is limited, the findings indicate potential gaps in childhood immunization that warrant further assessment. Improving vaccination coverage remains a priority public health strategy because routine immunization is one of the most cost-effective interventions for preventing childhood morbidity and mortality. Strengthening community-based immunization services and

promoting parental awareness can contribute to higher vaccine uptake and better child health outcomes in Barangay Sto. Niño.

Table 15. Family Planning Method of the Participants in the Brgy. Sto. Niño

	Birth Control	Frequency	Percentage
1.	Not Using Birth Control	379	99.5%
2.	Using Birth Control	2	0.5%
	Total	381	100%

Table 15 presents the family planning practices of 381 respondents in Barangay Sto. Niño. The findings reveal that 379 respondents (99.5%) reported not using any form of birth control, while only 2 respondents (0.5%) indicated that they were using a family planning method. These results demonstrate an extremely low prevalence of contraceptive use among the respondents included in the survey.

The findings indicate a very low level of contraceptive utilization within the study population. However, these results should be interpreted with caution because the table does not distinguish respondents according to reproductive age, marital status, pregnancy status, fertility intentions, or medical eligibility for family planning. Consequently, the findings reflect contraceptive use among all respondents rather than the unmet need for family planning among women or couples who are at risk of unintended pregnancy.

Family planning is a fundamental component of reproductive health because it enables individuals and couples to determine the number and spacing of their children while contributing to improved maternal and child health outcomes. In the Philippines, Perez et al. (2022) reported that modern contraceptive use remains uneven across communities because of socioeconomic disparities, educational attainment, access to reproductive health services, and regional differences in service delivery. Their study emphasized that women with greater access to accurate reproductive health information and quality family planning services were significantly more likely to adopt modern contraceptive methods.

Similarly, Nagai et al. (2019) examined factors influencing contraceptive use among Filipino women and found that educational attainment, household income, access to healthcare facilities, partner support, and exposure to family planning counseling significantly influenced contraceptive uptake. The study also reported that misconceptions regarding contraceptive side effects, cultural beliefs, and limited access to reproductive health services contributed to the low utilization of modern family planning methods in some communities. These findings suggest that multiple social, cultural, and health system factors may explain the limited contraceptive use observed in Barangay Sto. Niño.

The importance of community-based reproductive health services has likewise been highlighted by Mallari et al. (2020), who reported that Barangay Health Workers (BHWs) play an essential role in delivering health education, conducting household visits, and linking women and couples to primary healthcare services. Their study emphasized that community health workers serve as trusted sources of reproductive health information and contribute to improving the utilization of preventive health services, including family planning.

The Department of Health (2023) likewise emphasizes that comprehensive family planning services are essential for reducing unintended pregnancies, improving maternal health, and supporting responsible parenthood. Through the implementation of the Responsible Parenthood and Reproductive Health Act (Republic Act No. 10354), local health facilities are mandated to provide accessible, voluntary, and informed family planning counseling and services while respecting individual choice and reproductive rights.

The extremely low prevalence of contraceptive use observed in this study underscores the need to further assess barriers to family planning utilization within the community. Future assessments should examine respondents' reproductive intentions, preferred family planning methods, knowledge of contraceptive options, perceived barriers to service utilization, and reasons for non-use. Such information would provide a more comprehensive understanding of the reproductive health needs of Barangay Sto. Niño.

The findings suggest the need to strengthen reproductive health education and family planning services in the community. Community health interventions should include comprehensive reproductive health education, individualized counseling, community outreach activities, and strengthened referral systems through the Barangay Health Center and Rural Health Unit. Barangay Health Workers should continue conducting household visits to provide accurate information on modern contraceptive methods, address misconceptions, and encourage informed and voluntary decision-making regarding family planning. These interventions may contribute to improved reproductive health outcomes and support the goals of responsible parenthood and universal access to reproductive healthcare.

Research Question 4: What are the most common illnesses reported among the residents of Barangay Sto. Niño?

Table 16. Common Illnesses of the Participants in the Brgy. Sto. Niño

	Types Of Illnesses	Frequency	Percentage
1.	Hypertension	135	54%
2.	Diabetes	42	17%
3.	Cholesterol	15	6%
4.	Asthma	9	3%
5.	Stroke	9	3%
6.	Hyperuricemia	9	3%
7.	Dengue	9	3%
8.	Heart Disease	6	2%
9.	Pulmonary Tuberculosis	6	2%
10.	Pneumonia	3	1%
11.	Kidney Stones	3	1%
12.	Schizophrenia	3	1%
13.	Arthritis	3	1%
14.	Cancer	3	1%
15.	Kidney Failure	3	1%
	Total	258	100%

Table 16 presents the illnesses reported among 258 residents of Barangay Sto. Niño. The findings indicate that hypertension is the most frequently reported illness, accounting for 135 cases (54%), followed by diabetes mellitus with 42 cases (17%) and high cholesterol (hypercholesterolemia) with 15 cases (6%). Other reported conditions include asthma, stroke, hyperuricemia, and dengue with 9 cases (3%) each; heart disease and pulmonary tuberculosis with 6 cases (2%) each; and pneumonia, kidney stones, schizophrenia, arthritis, cancer, and kidney failure with 3 cases (1%) each.

The findings indicate that non-communicable diseases (NCDs) constitute the predominant health burden in Barangay Sto. Niño. Hypertension alone accounts for more than half of all reported illnesses, while diabetes mellitus and hypercholesterolemia rank as the second and third most common conditions. These diseases are closely associated with modifiable risk factors such as unhealthy dietary practices, physical inactivity, tobacco use, harmful alcohol consumption, obesity, advancing age, and genetic predisposition. The predominance of these chronic conditions suggests an increasing need for preventive health services and long-term disease management within the community.

These findings are consistent with Philippine studies demonstrating the growing burden of NCDs. Yamaguchi et al. (2021) conducted a community-based study among Filipino adults and reported a high prevalence of hypertension, diabetes, overweight and obesity, and dyslipidemia among community-dwelling adults. The authors emphasized that unhealthy lifestyle behaviors and inadequate preventive healthcare contribute substantially to the progression of chronic diseases and recommended strengthening community-based screening, health promotion, and lifestyle modification programs.

Similarly, Ulep et al. (2020) reported that non-communicable diseases account for the majority of deaths and disability in the Philippines, with cardiovascular diseases and diabetes among the leading causes of morbidity and mortality. Their analysis emphasized that primary healthcare services should prioritize regular screening, early diagnosis, continuous monitoring, and long-term management of chronic diseases through strengthened barangay health systems. These recommendations are particularly relevant to Barangay Sto. Niño, where hypertension and diabetes represent the most common reported illnesses.

The findings also align with the Philippine Package of Essential Non-Communicable Disease Interventions (PhilPEN) implemented by the Department of Health. PhilPEN promotes routine blood pressure measurement, blood glucose screening, cardiovascular risk assessment, lifestyle counseling, and continuous monitoring at the primary healthcare level to reduce the complications associated with hypertension, diabetes, and other chronic diseases. Strengthening the implementation of PhilPEN through the Rural Health Unit and Barangay Health Workers may therefore improve early detection and management of NCDs within the community.

Although non-communicable diseases predominate, the presence of dengue (3%), pulmonary tuberculosis (2%), and pneumonia (1%) demonstrates that communicable diseases remain important public health concerns. These conditions continue to require sustained disease surveillance, environmental sanitation, vector control, early diagnosis, prompt treatment, and community health education. Dengue prevention, in particular, depends on regular elimination of mosquito breeding sites and active community participation, while tuberculosis control requires early case detection, treatment adherence, and household contact tracing.

The coexistence of chronic and communicable diseases indicates that Barangay Sto. Niño is experiencing a double burden of disease, a pattern increasingly observed in many Philippine communities. While chronic diseases require continuous long-term management, communicable diseases continue to

demand preventive public health interventions. Consequently, community health planning should adopt an integrated primary healthcare approach that addresses both disease groups simultaneously.

The findings indicate that hypertension and diabetes constitute the major health concerns in Barangay Sto. Niño, highlighting the need for strengthened prevention and control of non-communicable diseases. Community health programs should prioritize regular blood pressure and blood glucose screening, healthy lifestyle promotion, nutrition counseling, physical activity programs, medication adherence counseling, and continuous follow-up of individuals with chronic diseases. At the same time, environmental sanitation, vector control, tuberculosis case finding, immunization, and communicable disease surveillance should remain integral components of barangay health services to reduce the overall disease burden and improve community health outcomes.

Ethical Considerations

The study adhered to the fundamental ethical principles of respect for persons, beneficence, and justice throughout the conduct of the research. Prior to data collection, permission to conduct the study was obtained from the administration of Manuel V. Gallego Foundation Colleges, Inc., the Barangay Local Government Unit of Santo Niño, and the City Health Office of Cabanatuan. In addition, the research protocol underwent the appropriate institutional ethical review and approval process in accordance with the policies of the institution before the implementation of the study. Before participation, respondents were provided with a comprehensive explanation of the study's objectives, research procedures, expected duration of participation, potential benefits, and any foreseeable minimal risks. They were likewise informed of their rights as research participants, including the right to ask questions, seek clarification regarding any aspect of the study, decline participation, or withdraw from the study at any stage without penalty or adverse consequences. Sufficient time was provided for participants to review the informed consent form and consider their decision before voluntarily signing the written informed consent. Confidentiality and anonymity were strictly maintained throughout the research process. Personal identifiers were excluded from the research database, and each participant was assigned a unique identification code to protect privacy. All information collected was used exclusively for the purposes of this research and for community health planning. Hard-copy documents were stored in a locked cabinet, while electronic research files were maintained in password-protected and encrypted storage accessible only to the principal researcher and authorized members of the research team. No research data were disclosed to unauthorized individuals or third parties. The study complied with the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173) and its Implementing Rules and Regulations to ensure the protection, confidentiality, and lawful processing of participants' personal information. Research data will be retained in accordance with the institution's records retention policy and, upon the completion of the required retention period, all electronic files will be permanently deleted using secure deletion procedures, while printed documents will be shredded and securely disposed of to prevent unauthorized access. Throughout the conduct of the study, every effort was made to minimize potential risks to participants. Data collection involved only non-invasive interviews related to community health conditions and was conducted at a time and place convenient for the respondents to minimize disruption and avoid any form of coercion or undue influence. The researcher maintained the highest standards of honesty, objectivity, fairness, and academic integrity throughout all phases of the research.

Conclusion

Based on the findings of the study, Barangay Sto. Niño is characterized by a predominantly adult population with a balanced distribution of males and females. Most residents have attained only elementary or secondary education and belong to low- to lower-middle-income households, indicating that demographic and socioeconomic factors may influence health literacy, health-seeking behavior, and access to healthcare services. The assessment of household and environmental conditions revealed that while most households own their homes and have access to basic utilities such as electricity, private water sources, and toilet facilities, several environmental health concerns remain. The presence of open drainage systems, open waste disposal practices, the continued use of firewood for cooking, and variations in housing and sanitation conditions highlight the need to strengthen environmental sanitation and promote healthier household practices. The findings also showed that preventive health practices require improvement. The low reported childhood vaccination coverage and limited utilization of family planning services indicate the need to strengthen health education, routine immunization, and reproductive health programs through the Barangay Health Center and Barangay Health Workers. In terms of health status, hypertension, diabetes mellitus, and high cholesterol were identified as the most common illnesses among the residents, indicating that non-communicable diseases are the primary health concerns in the community. However, the presence of communicable diseases such as dengue, pulmonary tuberculosis, and pneumonia demonstrates that disease prevention, environmental sanitation, and community surveillance should continue to be prioritized. The study concludes that the health

needs of Barangay Sto. Niño require a comprehensive and community-based approach that integrates health promotion, disease prevention, environmental sanitation, and primary healthcare services. Through the collaborative efforts of the Barangay Local Government Unit, City Health Office, Barangay Health Workers, educational institutions, and other community stakeholders, appropriate interventions can be implemented to improve the health and well-being of the residents and support sustainable community development.

Recommendations

The Barangay Local Government Unit (BLGU), City Health Office (CHO), and Barangay Health Workers (BHWs) should use the demographic profile of the residents in planning health programs. Health education should be simple, understandable, and appropriate for different age groups and educational backgrounds. Livelihood and social assistance programs should also be strengthened to improve the overall well-being of low-income families. The BLGU and CHO should improve environmental sanitation by maintaining drainage systems, promoting proper waste disposal and segregation, ensuring safe drinking water, and encouraging good sanitation and hygiene practices. Community clean-up activities and regular monitoring of environmental conditions should also be strengthened. The Barangay Health Center should strengthen child immunization and family planning services through regular information campaigns, house-to-house visits, and counseling. Barangay Health Workers should monitor children with incomplete immunization and encourage eligible couples to avail themselves of family planning services. The Barangay Health Center should strengthen programs for the prevention and management of hypertension, diabetes, and other non-communicable diseases through regular health screening, health education, nutrition counseling, and physical activity programs. Efforts to prevent communicable diseases, such as dengue and tuberculosis, should also be sustained through environmental sanitation, disease surveillance, and health promotion activities. A comprehensive community health intervention program should be developed through the collaboration of the BLGU, City Health Office, Barangay Health Workers, educational institutions, and other stakeholders. The program should focus on health promotion, disease prevention, environmental sanitation, and continuous monitoring to improve the health status of the residents. Future community health assessments should also be conducted regularly to evaluate the effectiveness of these interventions and identify emerging health concerns.

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