

The Primary Health Care Services in a Philippine Province

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Abstract: The study aimed to assess the effectiveness of primary health care (PHC) in selected municipalities in Batangas, focusing on various health programs. It involved 384 respondents from different municipalities. The questionnaire was the primary data collection instrument, validated by experts and based on national health programs provided by the Department of Health. The findings revealed that the majority of respondents were females aged 40 to 50, with a high school education, and primarily from Barangay Buli, Taal, Batangas. The effectiveness of PHC services varied across different health programs. Programs like maternal and child health, Expanded Program on Immunization, tuberculosis control, and dental health were considered effective. However, diarrheal disease and STD/AIDS prevention programs were rated less effective. Significant differences were observed when assessing the effectiveness of PHC services based on respondent profiles. Respondents aged 51 and above had a more positive view of PHC effectiveness, except for the Diarrheal Disease program. Females generally perceived PHC services as more effective than males, except for specific programs. Educational attainment also influenced the perceptions of effectiveness. Recommendations included requesting increased budget allocation, building facilities, and using social media for awareness campaigns to improve PHC services. The proposed action plan was suggested for future implementation and evaluation. Future research should explore the delivery of PHC services using different variables, specifically focusing on service delivery in PHC.

Keywords: Primary health care; Health programs; Effectiveness; Survey method

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1. Introduction

Primary Health Care (PHC) is defined by the World Health Organization ^[1] as a “whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment.”

PHC addresses the comprehensive determinants of health and concentrates on the wide-ranging and interconnected aspects of physical, mental and social health and wellbeing. It affords whole-person care for health needs throughout the lifespan, not only for a set of specific diseases. PHC guarantees people will receive

excellent comprehensive care, starting from promotion and prevention to treatment, rehabilitation and palliative care, as close as possible to people's everyday situation ^[1].

Formulating the application approach of the PHC has spelled significant adjustments and conformance in the governance of health development, encouraging the partnership of government with various segments of civil society such as nongovernment organizations (NGOs) and people's organizations (POs) among others. It likewise enabled other sectors to take an active role in responding to the health requirements of the community. Secondly, it emphasized the involvement of various programmatic areas to ensure effective management of health, weaving health into socio-economic development, making for an integrated perspective. Thirdly, it advocated prioritizing promotive and preventive aspects of health, rather than investing resources mainly on curative care. Thus, as early as 1978, there was a convergent effort to give priority attention to the eight essential elements of health care: education on prevailing health problems and the methods of preventing and controlling them, promotion of adequate food supply and proper nutrition, basic sanitation and promotion of an adequate supply of safe water, maternal and child care (including family planning), immunization against the major infectious diseases, prevention and control of locally endemic diseases, appropriate treatment of common diseases and injuries, and provision of essential drugs ^[2]. The demographics of each country is different, with different age groups distribution, risk factors, and economic and epidemiological contexts. This makes it difficult to establish a general PHC system that suits all countries ^[3].

In the Philippines, the topic of health has become increasingly more important over the past few decades in the Philippines. Health is a basic human right guaranteed by the Philippine Constitution of 1987, provided in the Philippines through a dual health delivery system composed of the public sector and the private sector. The public sector is largely financed through a tax-based budgeting system, where health services are delivered by government facilities under the national and local governments.

The local government in the Philippines consists of 81 provinces, 145 cities (of which 33 are highly urbanized cities and five are independent component cities), 1,489 municipalities, and 42,025 barangays ^[4]. With the devolution of health services under the Local Government Code of 1991, the direct provision and management of health services such as public health programs, promotive and preventive health care, and primary and secondary general hospital services were transferred to the Local Government Units (LGUs). Under the set-up, the provincial government, headed by the governor, manages the provincial health system; the municipal government, headed by the mayor, manages the municipal health system (composed of Rural Health Units [RHUs] and Barangay Health Stations [BHSs]); the city government, specifically in highly urbanized and independent cities, manages city hospitals, medical centers, health centers, and BHSs.

In every province, city, or municipality, a local health board has been set up and chaired by a local chief executive. Its function is to serve as an advisory body to the local chief executive and the local legislative council (*sanggunian*) on health-related matters. Under the Local Government Code of 1991, the Department of Health (DOH) maintains representation in all local health boards with the help of DOH representatives.

The current physical infrastructure of the Philippine health sector is composed of (1,224) hospitals, (2,587) city/rural health centers and 20, 216 village health stations ^[5].

The Province of Batangas aims to promote the well-being of Batanguenos through the leadership of Gov. Hermilando I. Mandanas. Health topped the priority programs of the provincial government, which increased its budget share to PhP 697 million, from the previous PhP 616 million, to cover, among others, the hiring of permanent health personnel and the increase in of compensation/honorarium of volunteer health workers. The system for medical services, particularly on indigent patients, has been streamlined; a stronger Philhealth program is presently being implemented; and the Provincial Health Card System, which will be provided to

volunteer workers to augment Philhealth benefits and to be honored in all 12 provincial district hospitals, will soon take effect. Just recently, a consignment system in the procurement of medicines by all the district hospitals had been institutionalized through a Sangguniang Panlalawigan Ordinance to ensure the supply of medicines and supplies at the lowest cost ^[6]. In addition to district hospitals, rural health units have also been equipped and enhanced to offer the devolved programs from the DOH.

The RHUs serve as the main source of free basic healthcare for rural communities around Batangas City. Thence, clinics with at least one doctor including adequate nurses and volunteer workers have the sole responsibility of looking after a community of thousands of people whilst at the same time having only a limited number of resources at their disposal. As such, the quality of primary health services remains elusive or inaccessible to majority of the population, especially those living in the rural and poverty-stricken areas of the province ^[7].

The COVID-19 pandemic that commenced in rural China has had considerable impact on the country's implementation of the PHC. Practitioners took on substantial additional workload as part of epidemic control and fewer patients were administered under the PHC system. Practitioners reported a major shift in their work away from seeing and treating patients to exclusive COVID-19 clinics to focus on the key public health roles of tracing, screening, and educating in rural areas. The additional work, risk, and pecuniary pressure confronted by PHC practitioners parturied considerable strain and anxiety on the medics particularly those assigned in village clinics. Face to face PHC provision was surpassingly reduced as there was no consultation available either by phone or access through online medical apps, which practitioners attributed to the fact that most of their patients were elderly and not willing or able to switch. Practitioners saw COVID-19 as outside of their area of expertise and very different to the non-COVID-19 respiratory tract infections that they frequently treated pre-pandemic ^[8].

This study was conducted with the aim of contributing to the enhancement of the primary health care services provided in the RHUs of the whole province of Batangas. The study took off by first determining the effectiveness of the primary health care services provided by the rural health units as perceived by the residents of the sampled municipalities and based on the findings, recommend an action plan that may be used as inputs in policy formulation focused on the provision of better health care services in the province. This study also intended to provide valuable inputs that may be used by the DOH in assessing the level of effectiveness of ongoing health care services.

Subjectively, the researcher, being a Doctor of Public Administration student, has long envisioned his proclivity to contribute by and large to the enhancement of the status of primary health care services. He plans to use the knowledge he has accumulated in the degree program to contribute to the body of knowledge related to PHC. However, there is a dearth in local literature focused in the PHC services that may be used as foundations or inputs to help enmasse the effectiveness of primary health care services.

Furthermore, as a former Board Member of the Province of Batangas and currently presiding the Sangguniang Bayan of Lian, Batangas, the researcher has long envisioned to formulate policies or ordinances aimed at the betterment of the primary health care services. During the conduct of his duties, he has personally observed how dependent the marginalized communities are to rural health units. In addition, the onset of COVID-19 has created a health pandemic that has affected the RHUs. As such, he came up with this study to determine the effectiveness of primary health care services offered in selected municipalities of the province of Batangas and come up with salient suggestions in an action plan containing details and the overall blueprint on how to enhance it.

2. Objectives of the study

This study generally aimed at determining the effectiveness of the primary health care in selected municipalities in the province of Batangas.

Specifically, it aimed to determine the profile of the respondents in terms of age, sex, educational attainment, and number of times primary health care was availed of in the municipality; to assess the effectiveness of primary health care services offered in the municipality with regard to maternal and child health program, Expanded Program on Immunization (EPI), tuberculosis control program, nutrition program, control of acute respiratory infection, environmental sanitation, diarrheal disease program, cardiovascular disease and control program, dental health program, reproductive health and family planning program, voluntary blood donation program, rabies control program, STD/AIDS prevention program, cancer prevention and control program, leprosy control program, and health education and circumcision program; to test the significant difference in the effectiveness of primary health care services when grouped according to profile variables; and to propose an action plan to enhance the effectiveness of primary health care services in the province of Batangas.

3. Literature review

3.1. Research locale

To be able to determine the effectiveness of the primary health care services, the study focused on third to fifth class municipalities. From these municipalities, the barangays with the highest population were chosen as the participants of the study.

Batangas became the first practically organized province in Luzon and was officially founded in the year 1581. Balayan was the capital of the province for 135 years from 1597–1732. In 1732, it was moved to Taal, the most progressive and flourishing town of the province then. After several calamitous eruptions of Taal Volcano that buried then old Taal town site, the capital was transferred to Batangas in 1754, where it has remained as such to the present.

The province is bounded on the north by the province of Cavite; on the northeast and east by the province of Laguna and Quezon, respectively; and on the south by Verde Island passages and on the west by the China Sea. It has a land area of 316,581 hectares or 3,165.81 km². It is comprised of 31 municipalities and 1,078 barangays. To date, it has been further divided into 6 congressional districts.

The Provincial Health Office of Batangas sets its goal of uplifting the health of the people particularly Batanguenos through promotive, curative, preventive, and rehabilitative aspect of health care delivery. Its mission to develop health conscious and healthy families and communities through partnership with the people by the provision of the four ACES: availability, accessibility, affordability, acceptability and omnipotently guided health care services and a vision of a socialized medicine for the Batanguenos especially the underprivileged sector of the community. At present, there are 12 government hospitals by district.

For the first district, Matabungkay in Lian, Buli in Taal, and Luntal in Tuy served as the research locales.

Matabungkay is a coastal barangay in the municipality of Lian, in the First District of the Province of Batangas. It has a population of 5,398 as determined by the 2020 Census, which represented 9.59% of the total population of the Municipality of Lian ^[9].

Matabungkay has a household population of 4,918, which can be broken down into 1,119 households or an average of 4.39 members per household ^[4]. The population of Matabungkay grew from 2,136 in 1990 to 5,398 in 2020, an increase of 3,262 people over the course of 30 years. The latest census figures in 2020 denote a positive growth rate of 1.89%, or an increase of 460 people, from the previous population of 4,938 in 2015.

Matabungkay is led by Barangay Captain Ernie Cabahog. They have an existing BHS manned by barangay health workers (BHWs), Barangay Nutrition Scholars (BNS) and under the supervision of a midwife directly reporting to the Municipal Health Officer.

The second research locale was Buli in Taal, Batangas, which is one of the oldest towns in Batangas. The buri plant, which was said to be prospering in that region long before the arrival of the Spaniards, gave rise to the name Buli. The plant buri, also known as “*buli*” in the Batangas dialect, is used to produce mats, hats, fans, and sweet sap from its leaves ^[10].

Buli’s population in 2020 was 5,703, with a growth rate of 7.57%. That year saw an increase of 1,670 compared to the previous population of 4,033 in 2015 ^[11]. Buli, under the leadership of Hon. Edwin Semaña, has the highest internal revenue allotment (IRA) amongst barangays in Taal, Batangas.

The third research locale was Tuy, Batangas. When Tuy gained independence, Don Salvador Elio (of Spanish descent) was the one who gave the name of the municipality, to honor his hometown in Spain. Tuy became an independent town on August 12, 1866. The municipality is under the supervision of Hon. Jose Jecerell Cerrado. Tuy consists of 13 barrios, including Luntal. In 2015, the population of Luntal rose to 3,066 with a total of 715 households. Based on the 2020 Census, Luntal gained a growth rate of 3.58% that is equivalent to an increase of 558 people. Luntal is under the leadership of Hon. Oliver M. Andaya and is one of the richest barangays in Tuy, Batangas, having two daycare centers, a newly built barangay hall, and a covered court ^[12].

For the second district, the research locales were Dulungan in San Luis and Balibago in Lobo, Batangas.

The fourth research locale was San Luis. San Luis was part of the municipality of Taal. San Luis was already a town in 1861, but because of its small income, it became part of Taal again in 1904, and it was renamed as Balibago during the Spanish time. On the 2nd of February, 1918, San Luis became a municipality for the second time. No record was found on how the municipality got its name ^[13]. San Luis earned national fame when it was awarded “Top Performing Local Government Unit” and “Top Performing Local Executive” in 2018 for successfully implementing health programs, which in turn made San Luis receive the highest scores in health critical indicators for local government units. In identifying the winners, the DOH looked at the LGUs’ implementation of health programs such as immunization for children, tuberculosis cure rate, and facility-based delivery within the year ^[14].

Dulungan is one of the 26 barangays of San Luis. Its population, based on the 2020 Census is 3,095. The household population of Dulungan in 2015 was 2,868 with 689 households, or an average of 4.16 members per household. Dulungan started with a population of 1,884 in 1990. It had 330 households and its average household size was 5.71 members per household ^[15]. According to barangay officials, the name of the barangay was derived from a fish species called “*dulong*” which thrived in the coastal waters of the barangay.

The fifth research locale was Balibago, in the Municipality Lobo. Its land area is 12,247,410 hectares, its barangay classification is agricultural, rural, and coastal. Balibago began with a population of 1,959, and it accounted for 5.43% of the households Lobo. Balibago’s population was 3,454 in 2015, which consisted of 716 households that held 4.82% of the average household size. In 2020, its population rose to 3,491 ^[16]. Balibago is under the governance of Hon. Nestor Camo.

Seven municipalities from the third district were included in the study as research locales. These municipalities ranged from third to fifth class municipalities.

Coral na Munti is located in the northeastern part of the Municipality of Agoncillo. This barangay consists of four sitios, namely: Maligaya, Bilog-Bilog, Bagong Pook, and Mabini. The name Coral na Munti came from a story of a messenger who made an effort to spread the barrio leader’s news. When he reached the land of the unknown place, he tried to find someone, but there was no one in the town. Instead, he found a ballpen that had

the word “Coral na Munti” engraved on it. Starting that day, the town was called Coral na Munti^[17].

The barangay had a population of 3,793 population, with 792 households, and an average size of 4.79 members per household in 2015. Based on the 2020 Census, Coral na Munti has a total population of 4,347, which represents 11.27% of the total population of Agoncillo^[18]. Coral na Munti’s chairperson is Hon. Rizalino H. Vergara.

Alitagtag is a landlocked municipality. It has a land area of 24.76 km², or 9.56 square miles, which covers 0.79% of the whole Batangas area^[19]. Alitagtag is derived from the word “Alinagnag,” which means “a small district of light.”

Alitagtag used to be a barangay in Lumang Bauang (Bauan), its terrain is covered with big and hard trees and thick vegetation. The municipality gained its independence in 1908. It is subdivided into 19 barangays, and among them is Poblacion West.

Poblacion West’s population in reached 2,445 in 2015, including 520 households, with an average of 4.70 members per household. In 2020, it had a population of 2,595, showing a growth rate of 1.26% since 2015, which is equivalent to an increase of 150 people^[19].

Balete was a former barangay of Lipa City, the old generations said that during their days, where there were less residents, balete trees were abundant. As time passed, the place became known as Balete. The municipality was liberated from Lipa City on June 21, 1969 as the Congress of the Philippines enacted the Republic Act No. 5659^[20].

There are 13 barangays in the Municipality of Balete. Among these are Barangay Malabanan. Its population as determined by the 2020 Census was 5,049^[21]. This represented 20.99% of the total population of Balete. It is broken down into 940 households, with an average of 4.93 members per household^[22].

Cuenca is a fourth-class municipality in the third district of Batangas. It became a municipality on November 7, 1876. The municipality was named by Governor Paez to give respect to his hometown in Spain because it resembles the place’s climate and green scenery. As of today, Cuenca has 21 subdivided barangays, and that includes Dita^[23].

Dita’s population grew from 2,342 in 1990 to 4,655 in 2020, an increase of 2,313 people over the course of 30 years. The latest census figures in 2020 denote a positive growth rate of 0.35%, or an increase of 76 people, from the previous population of 4,579 in 2015^[23].

Mataas na Kahoy is a fourth-class municipality in the third district of Batangas under the leadership of Hon. Janet M. Ilagan^[24]. Mataas Na Kahoy was established as a municipality on January 2nd, 1932. This town is a small piece of land that has 2,376 hectares and it is subdivided into 16 barangays^[24].

District III is located in the Municipality of Mataas na Kahoy. The population in District III was 3,385 in 2020, and it showed an increase of 1,994 people over the course of 30 years. Besides, the city’s population grew by 1.47% or 227 people, from the previous population of 3,158 in 2015^[25].

San Nicolas is considered as the smallest and the fifth municipality in Batangas. It was formerly part of Taal and only became independent in the year 1995^[26]. The name “San Nicolas” was derived from the name of the town’s patron saint, San Nicolas de Tolentino^[26].

Poblacion is a barangay in the Municipality of San Nicolas. It has a total population of 3,178. This represented 13.29% of the total population of San Nicolas^[27]. Poblacion has no BHS at the present. The BHWs use barangay halls for their medical activities.

Sta. Teresita is a fifth-class municipality in the Third District of Batangas. It was declared as a town on December 26th, 1961 and is politically subdivided into 17 barangays.

Among the barangays in Sta. Teresita, Barangay Calayaan has the highest population. In 2020, the

population grew to 2,320, which represented 10.76% of the total population of Santa Teresita ^[28].

3.2. Components of PHC services based on Alma Ata 1978

PHC was first conceptualized by the World Health Organization in the 1970s to determine the social causes of poor health, such as poverty and lack of access to proper healthcare ^[29]. This led to the issuance of the Alma Ata Declaration during an international conference in Russia in 1978. This move defined the global priorities to attain health for all in the year 2000 and subscribed to the PHC approach as key to attaining this goal ^[30]. It further considered primary health care as the means to maintain better health standards for all people by the year 2000. According to this Declaration, “primary health care is essential health care based on practical, scientifically sound, and socially acceptable methods and technology” ^[31]. Hence, health care proponent proclaimed that PHC is the first contact of individuals with the country’s health system ^[32]. Thus, it can be defined as the corner stone for national health. It has been reported that the cost-efficiency of health care would be better by transitioning the focus towards primary health care ^[33].

In addition, the Alma-Ata made the following declaration: “Health is a fundamental human right and that the attainment of the highest possible level of health is a most important worldwide social goal, the existing gross inequality in the health status of the people particularly between developed and developing countries is politically, socially, and economically unacceptable; economic and social development, based on a new international economic order is of basic importance to the fullest attainment of health for all; people have the right and duty to participate individually and collectively in the planning and implementation of their health care; governments are responsible for the health of their people, which can be fulfilled only by the provision of adequate health and social measures; all government should formulate national policies, strategies, and plans of action to launch and sustain primary health care; all countries should cooperate in a spirit of partnership and service to ensure PHC for all people; and an acceptable level of health for all the people of the world by the year 2000 can be attained through a further and better use of the world’s resources” ^[34].

The past 40 years saw PHC provisions moved from thoughts and words to action and reality and is still crucial in current global health context ^[35], especially for developing countries ^[36]. The United Nations (UN) announced eight Millennium Development Goals (MDGs) in 2015 ^[37]. However, the achievements were unsatisfactory, and thus, the UN announced 17 Sustainable Development Goals (SDGs) and expected them to be achieved in 2030 ^[38]. These 17 goals should be taken seriously and actively implemented by all countries. Health and wellbeing are among the SDGs and PHC is one way to achieve that goal. More specifically, Gillam stated that Alma-Ata Declaration is still relevant for effective healthcare systems, since the core principles of PHC are keys to moving towards health equity or universal health coverage under such a changing and challenging context ^[39]. In the World Health Report of 2008, WHO Director General Margaret Chan addressed that PHC deserved the greatest attention for policy makers and national governments ^[35]. Health systems which are oriented towards PHC are more likely to have better health outcomes and greater public satisfaction at lower costs and true access ^[40]. PHC has usually been regarded as the initial point of contact for individuals wishing to access health care ^[34], especially for the vulnerable groups ^[39].

The Philippines adopted the PHC strategy following the 1979 Alma Ata Declaration. The country already had a long history of PHC and community health programs as part of rural development programs and reforms in restructuring the health care delivery system. The 1991 Local Government Code devolved the health sector to the Local Government Units. In 2013, the DOH, the Philippine Health Insurance Corporation, and the Department of Science and Technology started the implementation of the Philippine eHealth Strategic Framework and Program which set the direction for the adoption of eHealth solutions to health care service

standards and services including that for natural and man-made disasters. These legislatives and program initiatives on health influenced the PHC implementation in the Philippines, hence the need to review the status of PHC in the country. The eight essential elements of PHC effectively integrates the health and social development aspects of the health system: (i) safe water and sanitation, (ii) food and nutrition, (iii) maternal and child health, (iv) immunization, (v) curative care, (vi) essential drugs, (vii) health education, (viii) traditional medicine, and (ix) community development. In spite of the integrating PHC framework and elements, the physical, social, and environmental vulnerabilities of the country as a whole have led to disruptions in the health systems' development ^[41].

3.2.1. Environmental sanitation

The world is worryingly off-track in the delivery of sanitation for all by 2030. Inopportunately, the Philippines is on the same path. At the recent rate of global progress, the aim of safely-managed sanitation for everyone will not be a reality until the twenty-second century.

Almost 50.3 million Filipinos or 10 million families presently do not have access to safely-managed sanitation services, and of these, some 24 million use limited and/or unimproved toilets or none at all. Safely-managed sanitation means the use of improved toilet facilities which are not shared with other households and where the excreta are safely disposed on-site, or are transported and treated off-site ^[42].

Environmental risk factors such as air, water, and soil pollution, chemical exposures, climate change, and ultraviolet radiation contribute to more than 100 diseases and injuries worldwide. In 2012, an estimated 12.6 million people died as a result of living or working in an unhealthy environment, that is nearly 1 in 4 global deaths. The Philippines is not spared from this burden with environmental risk factors contributing to at least 22% of the reported disease cases and nearly 6% of reported deaths in 2006.

The Philippines experiences a “triple burden” of disease, this refers to the high incidences of key communicable diseases, the rising rates of non-communicable diseases, while also being one of the highest disaster-prone countries in the world. These environmental risk factors are part and parcel of this triple burden of disease. To address this, the WHO Country Office in the Philippines is supporting the DOH's environmental health programs and most recently on its National Environmental Health Action Plan ^[43].

“Implementing the SDG on sanitation is an investment, but inaction brings us even greater costs. Untreated waste from poor sanitation services has negative effects on the environment and can spread diseases that cause poor health and nutrition, loss of income, decreased productivity, and missed educational opportunities,” said Dr. Rabindra Abeyasinghe, the WHO representative of the Philippines ^[42].

To achieve the national targets of universal access to environmental sanitation, an average investment of PhP 30 billion per year is needed ^[44]. This is 13% of the additional internal revenue allotment that local government units will receive by 2022, valued at PhP 225.3 billion per year ^[45].

3.2.2. Safe water and sanitation

The Declaration of Alma-Ata proclaimed PHC, along with water, sanitation, and hygiene (WASH), to be basic inputs for public health. More recently, the UN SDGs highlighted universal health coverage and access to safely managed water and sanitation services as key pillars of human security ^[46].

Safe drinking water and sanitation are fundamental to the people's living standards. The improved standards made possible by WASH (water, sanitation and hygiene) include, among others, better physical health, protection of the environment, better educational outcomes, convenience, assurance of lives lived with dignity, and equal treatment for both men and women. Poor and vulnerable populations have lower access

to improved WASH services and have poorer associated behaviors. Improved WASH is therefore central to reducing poverty, promoting equality, and supporting socioeconomic development^[47].

In the Philippines, unsafe and contaminated drinking water is the primary cause of high incidence of waterborne diseases, specifically cholera, diarrhea, and typhoid. Hence, the Water Safety Program aims to provide safe and accessible drinking water for the public. The quality of drinking water must always be within the criteria set by the Philippine National Standards for Drinking Water to ensure that it is safe for human consumption. Within this program, water quality surveillance initiatives are also established to guarantee the operations and compliance of all drinking water service providers.

3.2.3. Food and nutrition

The essential role of primary health care to improved nutrition was explicitly drawn in the Alma-Ata Declaration of 1978^[48]. Halfdan Mahler, the then Director-General of the WHO and a key architect of the Alma-Ata Declaration, in a speech in 1982, contended that primary health care advances nutrition when countries have (i) explicit nutritional objectives, (ii) sustained and adequate levels of nutritional care components, (iii) integrated monitoring and evaluation mechanisms for nutrition-related outcomes, and (iv) community involvement^[49]. Furthermore, he highlighted the role of health professionals in encouraging intersectoral policy-making and intersectoral action for health and nutrition^[50].

In the Philippines, malnutrition remains to be a public health concern. Among the common nutritional deficiencies are Vitamin A, iron and iodine. The goal of the government, through the DOH is to improve quality of life of Filipinos through better nutrition, improved health and increased productivity. The developed programs and projects to achieve these are food fortification, micronutrient supplementation, nutrition information, communication and education, home, school, and food assistance, and community food production.

Food fortification is an important element of the Philippine Plan for Action on Nutrition. Several programs are designated for the fortification of frequently consumed food, including but not limited to salt, sugar, rice, wheat flour, oil and margarine, and foods with essential micronutrients, especially vitamin A, iodine and iron, to make up for dietary gaps for these nutrients. The overall program is designed to be spearheaded and implemented by the food industry, whereas the government is to deliver necessary support through policies, technology development and transfer, and incentives to inspire the participation of food manufacturers. The main goal of the government's Sangkap Pinoy Seal Program is to encourage the manufacture of high-quality fortified food products. The seal is awarded to manufacturers who meet standards for fortifying products with vitamin A, iodine or iron. The seal promotes general public awareness of the availability of fortified foods with guarantee of quality and, thus, encourages consumption of fortified food products^[50].

Micronutrient supplementation is one of the interventions to address the health and nutritional need of infants and children and improve their growth and survival. Distribution of Vitamin A capsules conducted twice-a-year through the "Araw ng Sangkap Pinoy" (ASAP), known as Garantisadong Pambata or Child Health Week is the method adopted to provide micronutrient supplements to 6–71 months old preschoolers countrywide^[51].

The Provincial Government of Laguna is home Nutrition Honor Awardees (NHA) in the country, with the Municipality of Kalayaan, in Calamba, bagging the top award. This activity is included in the mobilization of local government units which is among the strategies under the Philippine Plan of Action for Nutrition 2017–2022^[52]. This aims to contribute to the enhanced improvement of the local nutrition state through effective nutrition program management. Through this activity, local government units are given opportunity to expand their perspectives on opportunities of nutrition action at the provincial, city, municipal and barangay level.

Laguna PNAO Teresita S. Ramos outlined the nutrition projects and activities like supplementary feeding,

integrated community food production, nutrition education, resource generation, advocacies, and capacity building while CNAO Aleli Catalina Jimenez of Calamba City emphasized that mobilizing the city nutrition committee and Barangay Nutrition Scholars as partners is one of the keys to effective nutrition program management. Through this endeavor, Calamba City won the Nutrition Honor Award for its outstanding nutrition programs. At the barangay level, Punong Barangay Sally M. Dela Cruz of Barangay Pansol also explained that the cooperation and involvement of the community, particularly the parents or mothers helps in better delivery of health and nutrition services.

In the Municipality of Kalayaan, Mayor and Chair of the Municipal Nutrition Committee Leni M. Adao who was previously a Municipal Nutrition Action Officer also shared the municipality's nutrition strategies. One of its banner programs is food production in partnership with municipal agriculture office and health office. Some of the programs implemented are as follows: container gardening, Halamanan sa Bakuran, Paaralan at Barangay, malunggay tree planting in schools, barangays, and households, production of malunggay leaves capsules for pregnant and lactating women, and organic livestock raising. The municipality focused on its vast agricultural lands for food security. Besides, one unique feature of the municipality is the pool of women as department heads, which may have been a principal factor in the enhancement of nutrition advocacy in the area. She said that to make every endeavor successful, it takes motherly love, passion, honesty, integrity, and service above oneself. The LGU of Kalayaan is one of the municipalities in Laguna with outstanding implementation of nutrition programs.

Areas in Region I and the Province of Laguna also have similar nutrition programs implemented. The only difference, which poses a challenge to all nutrition workers, is the difficulty of institutionalizing, converging and sustaining nutrition-related programs. An important learning was that nutrition advocacy is a continuous process considering that the right to nutrition is mandated in the Philippine Constitution. Nutrition as a multi-faceted issue needs support from the different partner agencies especially for allocating funds. Therefore, the budget for nutrition-related activities to each agency during planning stage of the LGU should be practiced ^[52].

3.2.4. Maternal and child health

Maternal and child health (MCH) care is the health service provided to mothers (women in their child bearing age) and children. The targets for MCH are all women in their reproductive age groups, i.e., 15–49 years of age, children, school age population, and adolescents. Around the world, especially in developing countries, there is an increasing concern and interest in maternal and child health care ^[53].

WHO Philippines MCH program works with local public health departments, community-based organizations, statewide organizations and other providers to provide and/or assure quality health services are delivered to mothers, children, and families in the country. The primary areas of work focus are increasing healthy birth outcomes; promoting and assuring comprehensive primary care for children, from birth to 21 year olds, including children with special health care needs; promoting healthy lifestyles among school-age youth, ages 6–21, including children with special health care needs; and promoting access to safe, healthy child care, including children with special health care needs; and to improve the survival, health, and wellbeing of mothers and unborn children.

Among the maternal health services are antenatal registration where pregnant women can avail free prenatal services at their respective health center; tetanus toxoid immunization – a series of 2 doses of tetanus toxoid vaccination must be received by a pregnant woman one month before delivery and 3 booster doses after childbirth; micronutrient supplementation – vitamin A and iron supplement for the prevention of anemia and vitamin A deficiency; treatment of diseases and other conditions for the women who are diagnosed as high risk.

Maternal health programs include a minimum of three pre-natal check-ups, as early as before 4 months or during 1st trimester, during the second trimester and during the third trimester or after 8 months. Another program is the provision of tetanus toxoid vaccine up to fifth dose which gives lifetime protection for the mothers. When given to women of childbearing age, vaccines that contain tetanus toxoid not only protect women against tetanus, but also prevent neonatal tetanus in their newborn infants.

3.2.5. Reproductive health and family planning program

In addition, MCH also includes a reproductive health and family planning program, which is a national mandated priority public health program to attain the country's national health development: a health intervention program and an important tool for the improvement of the health and welfare of mothers, children and other members of the family. It also provides information and services for the couples of reproductive ages to plan their family according to their beliefs and circumstances through legally and medically acceptable family planning methods.

Child health programs are designed for newborns, infants, and children and they are vulnerable to common childhood diseases. To address problems, child health programs have been created and are available in all health facilities, which includes infant and young child feeding, newborn screening, EPI, management of childhood illnesses, micronutrient supplementation, dental health, early child development and child health injuries. The main objective of child health programs is to reduce morbidity and mortality rates of children of 0–9 years ^[51].

3.2.6. Circumcision program

Circumcision is the process of removing the foreskin and exposing the end of the penis. It is believed that circumcised men will be at lower risk from acquiring sexually transmitted infections, as well as infection of the penis as the skin wherein some bacteria can accumulate are easily cleansed or removed. Circumcision is still performed using traditional methods in some remote areas in the country, where a local village circumciser will perform it using the “*pukpok*” method. The DOH is not against the “traditional way” or “*pukpok*” as long as tools to be used are clean and sterilized. However, they still encourage parents and young boys to undergo circumcision by a well-trained doctor or health professionals.

The Rural and Barangay Health Centers, through directives from Provincial Health Office, offer Oplan Tuli during summer to ensure free and safe circumcision of young boys. In addition, educational campaigns have been conducted to encourage young boys to undergo circumcision.

3.2.7. Expanded Immunization Program (EPI)

Immunization is a global health and development success story, saving millions of lives every year. Vaccines reduce risks of getting a disease by working with our body's natural defences to build protection. Immunization currently prevents 3.5–5 million deaths every year from diseases like diphtheria, tetanus, pertussis, influenza, and measles.

Immunization is a key component of PHC and an indisputable human right. It is also one of the best health investments money can buy. Vaccines are also critical to the prevention and control of infectious disease outbreaks. They underpin global health security and will be a vital tool in the battle against antimicrobial resistance ^[53].

The Philippines established the EPI in 1976 to ensure that infants/children and mothers have access to routinely recommended infant/childhood vaccines. Six vaccine-preventable diseases were initially included in the EPI: tuberculosis, poliomyelitis, diphtheria, tetanus, pertussis, and measles. The main objective of EPI is to reduce the morbidity and mortality among children against the most common vaccine-preventable diseases. Its specific goals are to immunize all infants/children against the most common vaccine-preventable

diseases; sustain the polio-free status of the Philippines; eliminate measles infection; eliminate maternal and neonatal tetanus; control diphtheria, pertussis, hepatitis b, and German measles; and prevent extra pulmonary tuberculosis among children.

One significant milestone under the EPI is that its budget allocation has continued to increase year by year. The Philippine government allocates budget for the immunization of all infants/children/women/older persons nationwide. The budget allocated for EPI in 2012 was PhP1.8 billion, and another PhP 1.5 billion was allocated for the immunization for senior citizen and children for the National Household Targeting System (NHTS) families. This is a great leap towards universal access to quality vaccines for the prevention of the most common vaccine-preventable disease in the country ^[54].

3.2.8. Curative care

Curative care is an important component of a health program adapted to the needs of a developing country. Initially however, more important measures have to be implemented to provide the foundations for all programs aimed at improving the health of a community ^[55]. Curative care refers to health care practices that treat patients with the intent of curing the patients, not just reducing their pain or stress. An example is chemotherapy, which seeks to cure cancer patients ^[56].

At the individual level, the objective of curative care is to cure the patient and to minimize or prevent the consequences of illness. At the community level, the objectives are to reduce the mortality and morbidity attributable to the common severe illnesses in the community. Curative care can reduce transmission of certain diseases (e.g., tuberculosis, leprosy, trypanosomiasis, bilharzia) provided a high proportion of the infected community is treated.

In the Philippines, curative care is embedded in the Universal Health Care of the National Health Insurance Program where it aims to protect all Filipinos, especially the poor, from the financial burden of accessing/availing preventive and curative healthcare services. It was established to help the people pay for health services; and to prioritize and accelerate the provision of health service to all Filipinos, especially the segment of the population who cannot afford these services ^[57].

The DOH has tuberculosis control program, control of acute respiratory infection, diarrheal disease program, cardiovascular disease prevention and control program, STD/AIDS prevention program, cancer prevention and control program, leprosy control program among its curative care.

3.2.9. Essential drugs

The Alma-Ata declaration during the International Conference on Primary Health Care in 1978 reaffirms that health is a fundamental human right and the attainment of the highest possible level of health is a most important worldwide social goal ^[34]. The Alma Ata declaration has outlined the eight essential components of primary health care and provision of essential medicines is one of them. Medicines are integral parts of the health care and the modern health care is unthinkable without the availability of necessary medicines. They not only save lives and promote health, but also prevent epidemics and diseases. The medicines are undoubtedly one of the weapons of mankind to fight disease and illness. Accessibility to medicines is too the fundamental right of every person.

The objectives of WHO's essential medicines and pharmaceutical policies programme are to save lives and improve health by ensuring the quality, efficacy, safety and rational use of medicines, including traditional medicines. It promotes equitable and sustainable access to essential medicines particularly for the poor and disadvantaged ^[54].

The 1987 Philippine Constitution mandates the right of every Filipino to health. It enunciates the policy that “the State shall protect and promote the health of the people and instill health consciousness among them” (Article II Section 15). Furthermore, it provides the adoption by the State of an “integrated and comprehensive approach to health development which shall endeavor to make essential goods, health and other social services accessible to all the people at affordable cost” (Article XII Section 15).

To support these goals, several policies and laws have been passed. These include Republic Act No. 6675 known as the Generic Act of 1988 that was enacted to “ensure the adequate supply of drugs with generic names at the lowest possible cost.” It further states that “in the promotion of the generic names for pharmaceutical products, special consideration shall be given to drugs and medicines which are included in the Essential Drugs List to be prepared within 180 days from approval of this act and updated quarterly by the DOH on the basis of health conditions of the Philippines as well as internationally accepted criteria”^[58]. The provision of anti-hypertensive drugs and antibiotics in RHUs are among the essential drugs program of the country.

3.2.10. Health education and health promotion

Health education is an effective tool that helps improve health in developing nations. It not only teaches prevention and basic health knowledge but also conditions ideas that re-shape everyday habits of people with unhealthy lifestyles in developing countries. Quality health is a fundamental right of all citizens. This can only be achieved through effective health care services.

Health education plays a crucial role in the development of healthy, inclusive, and equitable, social, psychological, and physical environments. It reflects current best practice, using an empowering, multi-dimensional, multi professional approach which relates to all settings and organizations, including communities, schools, health service institutions, and workplaces^[59]. Health education helps to provide health knowledge, enhance wellness behaviors, promote health status, facilitate healthy relationships, and enables community members make responsible decisions. Health education is defined as any combination of planned learning experiences based on sound theories that provide individuals, groups, and communities the opportunity to acquire information and the skills needed to make quality health decisions. Health education at the PHC level help to address issues related to disease prevention; consumer health, environmental, emotional, and sexual health; first aid, safety, and disaster preparedness; and also substance abuse prevention.

3.2.11. Traditional and complementary medicine

Traditional and complementary medicine (T & CM) remains as one of the reliable sources of healthcare among rural areas and the poor. In 1992, the Traditional Medicine Program was launched by the DOH to promote traditional medicine in the country. This was followed by the passage of Republic Act 8423, or the Traditional and Alternative Medicine Act (TAMA) of 1997, which enabled the creation of the Philippine Institute of Traditional and Alternative Healthcare (PITAHC). This institute was established to encourage the development and research of traditional and alternative healthcare in the country. Currently, PITAHC has embarked on the following initiatives to carry out their mandate: (i) development of reference materials, standards, guidelines, and code of ethics on traditional and alternative medicine; (ii) advocacy for increased awareness and practice of T & CM through Traditional and Alternative Healthcare (TAHC) month, (iii) integration of T & CM services in two DOH-retained hospitals; and (iv) certification of TAHC practitioners and accreditation of TAHC facilities^[60].

However, several issues are plaguing traditional medicine in the country. PITAHC currently lacks regulatory and enforcement powers to regulate the practice of T & CM in the country, which is important to ensure the provision of quality, safe, and effective T & CM services. There is also a lack of baseline data

on present T & CM modalities and the number of T & CM practitioners in the Philippines. Lastly, there are concerns on the sustainability of T & CM implementation in hospitals. This is due to a lack of staff and non-inclusion of T & CM services in the benefit package of PhilHealth.

3.2.12. Community development.

PHC is essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at an affordable cost to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family, and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first elements of a continuing health care process ^[54].

Community health workers are an important cadre of the PHC workforce in many low- and middle-income countries. The Philippines was an early adopter of the community health worker model for the delivery of PHC, launching the BHW program in the early 1980s ^[61].

3.3. Overview of current policies and systems of primary health care services

While the Philippines has delegated the responsibility for PHC to LGUs, explicit definition of the term is not perspicuous in the Implementing Rules and Regulations of the Local Government Code of 1991. Thus, even the DOH saw the importance of advocating the significance of the PHC philosophy through the issuance of the PHC policies or community health development in 1996 ^[62] which stressed the vision of “putting health in the hands of the people” through PHC to enable the people “to serve as active participants in attaining their own health needs” and not as “mere beneficiaries of development effort” ^[62]. To accomplish this mission, the policy paper also pointed out that “health is made accessible, available, acceptable and affordable at all times within the context of an effective and efficient devolved health care system that leads towards self-reliance, sustainability, and indigenous efforts” ^[62]. The policy paper promoted the importance of disseminating such strategies as community organizing to prepare the community for effective interface with government; convergence of civil society groups and other government agencies, apart from health; partnership with the community; focused targeting of marginalized sectors; utilization of the basic needs information system as a tool for planning; setting up community information systems for transparency; and indigenization to recognize local resources. The DOH sponsored the Training on Health in the Hands of the People to enrich the role of national health workers, especially the DOH representatives to the Local Health Board (LHB), as DOH sentinels in the local technical body. Some batches also involved local officials and local health workers in this training program on the essence of PHC philosophy, stressing the importance of the approach, apart from the promotive and preventive aspects of health.

3.4. Organization

With devolution, the key responsibility for PHC is delegated to the municipality and city ^[63]. Each municipality assumes the burden of implementing programs in promotive and preventive health care such as maternal and child-care, communicable and non-communicable disease control services, and purchase of medicines and medical supplies. Each municipality and city extend assistance to the lowest political boundary of the barangay which is responsible for the maintenance of BHSs, although the lack of resources hinders each LGUs' capacity to respond effectively to this role ^[64]. It may also maintain some hospitals in each LGU level (i.e., city or

municipality). In the case of the province, the highest political subdivision of the LGU, its basic responsibility is for curative services through the provincial hospitals maintained in the locality. The province is also charged with the provision of other support services under the provincial health offices that oversee the operation of the different hospitals in the locality. A total of 46,000 health workers were devolved by 1997, representing 75% of the field personnel of the DOH in that year ^[65].

3.5. Health Sector Reform Agenda

Since the devolution, the DOH has the role of “steering” LGUs towards PHC. Thus, it undertook major reform measures to enable the national office to perform an advocacy role, rather than as the implementer of health programs. The Health Sector Reform Agenda spelled out the key reform areas in national and local health management: (i) enhancing hospital systems at national and local levels by promoting fiscal autonomy, allowing them to collect socialized user fees and become more self-sufficient; (ii) ensuring sustainable funding for public health systems for programs targeting the elimination of infectious diseases and promoting preventive measures; (iii) improving local health systems by establishing local health zones to facilitate cooperation among LGUs and encouraging private sector participation in local health networks; (iv) strengthening health regulation agencies to guarantee the delivery of quality healthcare by both public and private facilities; and (v) enhancing health financing to expand participation in the National Health Insurance Program, particularly among the poor and informal sectors, who often lack access to quality healthcare due to limited resources and connections.

The DOH agenda and advocacy to set up an integrated approach to promotive and curative health care is realized through the provision of an integrable management concept of the District Health System and/or Inter-Local Health Zone ^[64]. This medical approach is characterized by collaborative and synergetic arrangements among the different LGUs to establish a structure by which an integrated health plan is formulated, incorporating two levels of the health care system: the referral hospital and the health centers, in conjunction with the satellite BHSs. This move is reinforced by the mandate to establish a National Health Planning Committee which institutionalizes the covenant among the Secretaries of the DOH, Department of the Interior and Local Government, and the Department of Budget and Management; Health Committee Chairmen of the Senate and House of Representatives; representatives of the private sector; and the president of the league of provinces. Thus, the collective participation of key players engenders an advantageous cost sharing among the members of the LGUs in the conduct of health programs and other related activities. The advantage of the district health system is the cost sharing agreement of the program. It also enables efficient utilization of resources across the different LGUs, reduction of outpatient load at the district hospitals and the furtherance of the referral system. In point of fact, it was observed that low-income families indicated the highest access rate of access to public health facilities. Of those who sought health services, 82% depended on public health facilities, with 61% consulting the RHUs/BHSs and 20% going to public hospitals ^[62].

A survey contracted by the World Bank in 2001 with Social Weather Stations disclosed that 37% of both public health facilities and government hospitals were accessed by respondents in the bottom 30% in expenditure class. However, the survey results braced earlier findings that those in the higher classes depended predominantly on private clinics/hospitals. In particular, the study revealed that those in the middle 30% and top 40% in expenditure class relied for the most part on private clinics/hospitals.

There is a substantial amount of literature covering both patient satisfaction and patient characteristics; in addition to aspects of care provided by hospitals related to patient satisfaction. Data from 21 European Union countries was analyzed to investigate the determinants of satisfaction with the health care system as it relates to patient experience ^[66]. The authors found out that satisfaction with the health care system depended more on

external factors such as the patients' expectations, health status, and type of care required, rather than on the experience of care as a patient. They assessed the extent to which direct access to health care services influences the satisfaction with general practitioner services in 18 European countries. The results showed that direct accessibility appeared to be important for patient satisfaction ^[67].

Several studies discussed the questionnaire's design, validity, and reliability as it related to patient satisfaction which divulged that nursing and doctor categories were most notable.

Also, several studies approached different aspects of patient satisfaction. Yet, there are very few studies that took account of the health care system reform program with regard to resident satisfaction. An evaluation of the primary health care reform in Estonia from patients' perspectives using interview data was conducted. On the other hand, with the deepening understanding of modern scientific management methods, hospital supervisors are paying increasing attention to the patients' suggestions and the doctor-patient consultation experience. This is because they are both important in a keenly competitive health care service market. Internationally, many scholars agree that patient satisfaction investigation and consultation experience investigation can be helpful in making sustainable improvements to medical services ^[68].

One study also aimed to describe how the characteristics of Rural Health Centers (RHCs) have either changed or remained stable over a 10-year period in the past: from the late 1990s to 2007. In addition, it also described some of the outstanding needs of RHCs as they navigate the transitions of U.S. health care reform. Using a panel of RHCs continuously in existence from 2006 through 2007, the authors calculated and compared statistics with interrelated statistics from the literature. They described the geographic distribution of RHCs, demographics of their counties of location, and characteristics of RHC structure and staffing. They also explored the implications of the recently enacted health reform law (the Patient Protection and Affordable Care Act or ACA) for RHCs, and the rescripting that RHCs need as it is implemented ^[69].

By the end of the study period, the highest percentages of RHCs were glimpsed in the South and Midwest, where noticeably the percentage of RHCs in the West had grown, and that in the South had declined. RHCs served counties with increasing proportions of individuals below poverty and Hispanics/Latinos. The percentage of independent clinics had grown, as had the percentage for profit clinics. Finally, the percentage of nurse practitioner full-time equivalents had grown as a proportion of the total for three providers.

The study's conclusion highlights that when examining the performance of RHCs, there is a lack of comprehensive understanding regarding many managerial and operational factors. It is crucial for RHCs to collect information that can aid them in optimizing their performance aspects, which, in turn, will contribute to their financial stability. In addition, a broader awareness of the unique challenges that RHCs face in this era of health care reform is needed.

The study titled "Effective Utilization of Healthcare Services in Rural Tamil Nadu, India" aimed to investigate the utilization of primary healthcare services in a primary health center and its sub-centers. The study also sought to identify the factors influencing service utilization in these healthcare facilities. This descriptive study was conducted at Orathur PHC, Cuddalore District, Tamil Nadu and its sub-centers, covering a population of 45,183 by using structured interview schedule with sample size of 3,220 (80 houses in each sub-center) using the simple random sampling technique. The results revealed that 60.2% of selected households are located beyond 5 kms. Out of 560 households, 552 are headed by males and the remaining females. 71.96% of study subjects had formal education. 85.5% of respondents were aware of the PHC services. 71.2% of respondents had satisfactory opinion about health services. Only 45.40% and 58.80% of the patient's households with acute & chronic illness had utilized PHC services, respectively. 81.65% of the antenatal care mothers had utilized PHC services, 77.98% had received tetanus toxoid immunization, 75.24% had utilized

delivery services, 75.76% had sought postnatal care, and 79% had immunized their children. It was concluded that the utilization of primary level services (PHC and Subcenters) is better for preventive and promotive care but is ineffectual in the treatment of acute illness, intra-natal care and family welfare, and special investigation services ^[70].

Another study was conducted to identify perceptions of the quality-of-service provision in a rural area of the Limpopo Province. It was an attempt to identify factors that are related to quality improvement in primary health care centers in the central region of the Limpopo Province to be used as inputs to a more effective approach in improving the quality of health care among the consumers of that region. They surveyed the perceptions on the quality of primary health care services provided in rural communities in the Limpopo Province. Ten focus group discussions were held with community members chosen by convenience from public places from four villages in the central region of the Limpopo Province. The sample included 42 women and 34 men (76 participants). Results indicated perceived quality discussed within the following categories: (i) conduct of staff (reception, communication, discrimination, care and compassion, and respect for privacy), (ii) technical care (examination, explanation of treatment, responsiveness, treatment outcomes), (iii) health care facility, (iv) health care organization, (v) drugs (availability, explanation, effectiveness, and payment), and (vi) waiting time.

The findings indicated a certain level of satisfaction regarding the availability of free basic and preventive health care services and social services. However, there is a need to focus on the interpersonal aspect of service delivery, including providing medication with clear explanations to patients. Additionally, addressing structural issues is essential, and it's recommended that the government provides support to clinics to ensure they can offer adequate services. To enhance the perceived quality of primary healthcare and inform health policy action, it is crucial to prioritize three main areas: improving drug availability, enhancing interpersonal skills, including attitudes towards patients, and ensuring high-quality technical care ^[71].

In the Philippines, there are only a few studies conducted that focused on the effectiveness of primary health care services in the country. One study found that despite achieving some success, wealth-related disparities in the utilization of maternal and child health services persist in the Philippines. The objective of the said study was to decompose the principal factors driving the wealth-based utilization gap.

The authors of this study used national representative data from the 2013 Philippines Demographic and Health Survey to investigate the extent to which variations in the utilization of maternal health services can be attributed to observable factors. They employed nonlinear Blinder-Oaxaca-type decomposition methods to quantify how differences in measurable characteristics contribute to the wealth-based coverage gap in facility-based delivery.

The study has found moderate wealth-based disparities in the utilization of institutional delivery in the Philippines. The results confirm the importance of recent efforts made by the Philippine government to implement equitable, pro-poor focused health programs in the most deprived geographic areas of the country. It is crucial to prioritize addressing the social determinants of health, with a specific focus on education. Additionally, there is a need to develop and implement effective strategies to promote institutional delivery for higher-order births ^[72].

4. Methods

4.1. Research design

In this study, a non-experimental, descriptive research method was employed. This approach was chosen because it offers descriptive insights into the effectiveness of PHC services provided in the RHUs of the

Province of Batangas.

The essence of survey method can be explained as “questioning individuals on certain topic(s) and then describing their responses” [73]. Besides, the descriptive method is widely used in most branches of science, including social sciences.

A descriptive study is one in which information is collected without changing the environment. It is used to obtain information concerning the current status of the phenomena to describe “what exists” with respect to variables or conditions in a situation [74].

This method was chosen because it best fits the study’s goal of assessing the effectiveness of PHC services in Batangas municipalities without altering the environment.

4.2. Participants of the study

Convenience sampling was used in the selection of the respondents, enabling the inclusion of all residents who were availing primary healthcare services in rural health units during the data gathering period as study participants.

At a 95% confidence level with a 5% margin of error, the sample size calculator indicated that the recommended sample size for this study was 384. A total of 384 residents from 12 municipalities were asked to participate as respondents of this study (**Table 1**). Their experience and perception on the PHC services offered by the rural health units served as the backbone of this study.

Table 1. Participants of the study

Barangay and municipality	No. of participants
Barangay Matabungkay, Lian (first district)	48
Barangay Buli, Taal (first district)	51
Barangay Luntal, Tuy (first district)	32
Barangay Dulangan, San Luis (second district)	27
Barangay San Juan, Tingloy (second district)	21
Barangay Coral na Munti, Agoncillo (third district)	38
Barangay Poblacion West, Alitagtag (third district)	25
Barangay Malabanan, Balete (third district)	46
Barangay Dita, Cuenca (third district)	41
Barangay District III, Mataas na Kahoy (third district)	30
Barangay Poblacion, San Nicolas (third district)	29
Barangay Calayaan, Santa Teresita (third district)	21

4.3. Instrument

The main data gathering instrument that was used in this study is a self-made questionnaire based on the national programs provided by the DOH in order to determine the effectiveness of the primary health care services. The survey questionnaire was validated by experts to ensure that all the items were relevant to the study.

The questionnaire was structured into two sections. The initial section addressed the respondents’ demographic information, while the second section concentrated on assessing the effectiveness of PHC services.

Equivalent verbal interpretations using the Likert scale was utilized to interpret the numerical data

gathered.

The score on the scale is the average of the weight assigned to the particular response made by the respondents. To be able to interpret the responses on the scale, the following range of mean and their corresponding adjective ratings was observed: 3.31 – 4.00 for “highly effective”; 2.61–3.30 for “effective”; 1.81-2.60 for less effective; and 1.00–1.80 for “not effective.”

The questionnaire contained a confidentiality clause whereby respondents were informed that their answers will be treated with utmost privacy.

4.4. Data collection

Before the data gathering activity, a letter of request for permission to conduct interview along with the approved survey questionnaire was submitted to the various mayoralty office thru their Municipal Rural Health Officers for approval and endorsement. Upon approval of request, distribution of the survey instruments followed. Patients availing of primary health care services in the rural health units were asked to participate in the survey.

Before the conduct of the survey, the nature of the study and the survey questionnaire were explained. Adequate time were given to ensure that all the questions in the survey form have been fully understood and answered by the respondents. A total of 384 respondents successfully answered the survey questionnaire. The data collected from these questionnaires were statistically processed followed by the generation of various statistical tables.

4.5. Ethical considerations

In this study, a letter of permission was included in the questionnaire as it is important to establish trust by ensuring anonymity and confidentiality of all respondents. The data collected via the questionnaire were obtained from residents in the chosen municipalities who were using primary health services, and their information was treated with utmost confidentiality. Alongside the confidentiality assurance, respondents were informed of their right to withdraw their participation, even in the midst of answering the questionnaire or during the interview. Fortunately, all 384 respondents cooperated and successfully completed the survey questionnaire.

4.6. Data analysis

To perform data analysis, several statistical tools were used. Frequency distribution was used to determine the profile of the respondents in terms of age, sex, educational attainment, number of times PHC was availed of from the municipality. Weighted means and ranking was used to assess the effectiveness of PHC services offered in the municipality with regards to maternal and child health program, EPI, tuberculosis control program, nutrition program, control of acute respiratory infection, environmental sanitation, diarrheal disease program, cardiovascular disease prevention and control program, dental health program, reproductive health and family planning program, voluntary blood donation program, rabies control program, STD/AIDS prevention program, cancer prevention and control program, leprosy control program and health education, circumcision program, and health education and health promotion.

The normality status of the data was tested vis-à-vis the result of the Shapiro-Wilk test which revealed that *P-values* of two major variables were less than 0.05, which meant that the data set was not normally distributed. Consequently, the Mann Whitney U and Kruskal Wallis tests were used to test the significant difference in the effectiveness of PHC services when grouped according to profile variables. The data sets were processed using SPSS 26.0 to further interpret the results of the study, with $\alpha = 0.01$.

5. Results and discussion

Table 2. Percentage distribution of respondent's demographic profile

Profile variables	Frequency	Percentage (%)
Age		
18 to 28 years old	62	15.2
29 to 39 years old	101	24.7
40 to 50 years old	146	35.7
51 years old and above	100	24.4
Sex		
Male	146	35.7
Female	263	64.3
Educational attainment		
Elementary undergraduate	13	3.2
Elementary graduate	23	5.6
High school undergraduate	38	9.3
High school graduate	123	30.1
College undergraduate	113	27.6
College graduate	99	24.2
Barangay and municipality		
Barangay Matabungkay, Lian (first district)	48	11.7
Barangay Buli, Taal (first district)	51	12.5
Barangay Luntal, Tuy (first district)	32	7.8
Barangay Dulangan, San Luis (second district)	27	6.6
Barangay San Juan, Tingloy (second district)	21	5.1
Barangay Coral na Munti, Agoncillo (third district)	38	9.3
Barangay Poblacion West, Alitagtag (third district)	25	6.1
Barangay Malabanan, Balete (third district)	46	11.2
Barangay Dita, Cuenca (third district)	41	10.0
Barangay District III, Mataas na Kahoy (third district)	30	7.3
Barangay Poblacion, San Nicolas (third district)	29	7.1
Barangay Calayaan, Santa Teresita (third district)	21	5.1

Table 2 presents the overall distribution of the respondents' profile. In terms of age, most of them fell under the age bracket of 40 to 50 years old, with a frequency of 146 or 35.70%, while only 15.2% were 18 to 28 years old. The findings can be linked to the demographic composition of the survey sample. Most of the residents surveyed in their households fell within the age group of 40–50 years. Additionally, it was observed that individuals in the 18–28 age bracket often declined to provide data, citing reasons like not having utilized medical services or having limited knowledge about government health services. This aligns with the findings that individuals in the younger age group had a low level of awareness and understanding of the government's health programs, their purposes, and activities^[75].

The study was also dominated by female respondents, which had a frequency of 263 (64.3%), while male respondents only accounted for 35.70%. More females were willing to participate in the survey. Also, when male respondents were asked to participate, they would often ask their wives or daughters to answer for them. This is in agreement with the notion that women are more likely to participate than males in surveys^[76].

As to educational attainment, most of the respondents are high school graduates, represented by a frequency of 123, followed by college undergraduates and college graduates. This finding may be attributed to the fact most residents of Batangas Province are high school graduates. Therefore, most of the respondents were from this age group. Furthermore, this discovery aligns with a broader trend identified in research, which suggests that, as a general pattern, individuals with higher education levels and greater financial resources are more inclined to participate in surveys compared to those with lower education and fewer financial means^[77].

Lastly, as to the distribution of barangay, most of them are from Buli (12.5%), Matabungkay (11.7%), and Malabanan (10.0%). This can be simply credited to the fact that Buli has the greatest population amongst the barangays included in this study.

Table 3. Effectiveness of PHC in terms of environmental sanitation

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Water sanitation: inspection of water supplies, sample collection, disinfection of newly constructed or contaminated water sources, monitoring and sample collection of water refilling stations, and water chlorination	2.69	Effective	2
(ii) Construction of sanitary toilet: household survey, issuance of toilet bowls, and regular monitoring	2.63	Effective	4
(iii) Food sanitation: inspection of food establishments, training of food handlers, and salt testing.	2.70	Effective	1
(iv) Dengue prevention and control: information, education, and communication (IEC)/lecture and school misting and monitoring.	2.68	Effective	3
Composite mean	2.67	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 3 illustrates the effectiveness environmental sanitation program which corresponds to safe water and sanitation of the Alma Ata Declaration of 1978. All the evidences were positively assessed as effective, with the item “food sanitation: inspection of food establishments, training of food handlers, and salt testing” ranking first with a mean value of 2.70. This finding is surprising as when respondents were asked if they have personally witnessed the inspection of food establishments, not one did. The favorable perception regarding the effectiveness of inspecting food establishments, training food handlers, and conducting salt testing can be attributed to the respondents’ belief that Local Government Units (LGUs), through the Business Permit and Licensing Office (BPLO) and Sanidad Office, were responsible for these activities. Respondents may have also been aware of food handlers receiving training during their pre-employment orientation. This aligns with a similar study that revealed LGUs were responsible for overseeing food establishments at the local level, while the FDA had oversight at the national level^[78]. Thus, it can also be deduced that there exists a strong public confidence on the work done by the LGUs in effectively conducting food sanitation programs.

Second in rank, with a mean of 2.69, “Water sanitation: inspection of water supplies, sample collection, disinfection of newly constructed or contaminated water sources, monitoring and sample collection of water refilling stations, and water chlorination” was found to be effective.

The water refilling station must obtain a satisfactory rating from the City or Municipal Health Office

before a sanitary permit is issued. A score of 50 out of 100 points in a 20-item checklist of DOH standards would be needed to obtain a satisfactory rating. The City or Municipal Health Office is mandated to conduct annual sanitary inspections for all water refilling stations before issuing a sanitary permit. No person or entity is allowed to operate a water refilling station without a sanitary permit ^[79]. Therefore, the respondents believed that water stations met sanitation requirements before starting operations. This suggests trust in the local government, especially the Sanidad Office within the City or Municipal Health Office, to carry out their duties effectively. In addition, it was reported that 89.38% of Batanguenos have access to safe water ^[80].

Third in rank, “Dengue prevention and control: IEC/lecture and school misting and monitoring” had a weighted mean of 2.68, meaning that it was effective. It should be noted that according to the barangay officials and employees, misting is only conducted when there is a positive dengue case. However, the information and educational campaign against dengue has been regularly conducted by rural health midwives and BHWs. These campaigns are conducted in conjunction with other activities such as during Usapang Buntis and Operation Timbang to ensure that parents or guardians are made aware of the importance and ways of preventing dengue. This finding aligns with a previous study that showed communities in Batangas are compliant with dengue prevention and control programs ^[81].

On the other hand, although still verbally interpreted as effective, the lowest on the rank was “construction of sanitary toilet: conducting household survey, issuance of toilet bowls, and regular monitoring,” with a mean value of 2.63. The effective perception of the respondents on the construction of sanitary toilets is supported by the recent statistics published ^[82], 88.17% of households in Batangas has sanitary toilets, a combination of bathrooms that are either privately-bought or those installed by the LGUs. Some respondents stated that before the Covid19 pandemic, their LGUs would sometimes issue sanitary toilets. For the conduct of household survey, the BHWs took note of the households without their own toilet bowls and to bring their data when asked to be submitted by the City/Municipal Health Office. Other national household surveys, such as the Population Census, CBMS and NHTS Listahanan also gathered data on the status of household sanitary toilets.

Table 4. Effectiveness of PHC services in terms of nutrition program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Operation Timbang: mass-weighing of 0–11 months children, treatment of malnourished children with primary complex, deworming of malnourished children, and feeding of malnourished children (3 times a week for 6 months).	2.90	Effective	1
(ii)	Micronutrient supplementation: giving Vitamin A capsule to children aged 0–71 months and distributing iron tablets to pregnant and lactating mothers to reduce and control iron-deficiency anemia.	2.81	Effective	2
(iii)	Nutrition advocacy: giving dietary counselling on modified diet and organizing PABASA classes	2.70	Effective	3
(iv)	Salt iodization: promoting iodized salt to prevent simple goiter; conducting self-testing at markets, sari-sari stores, and households; enforcing the ASIN ordinance.	2.61	Effective	5
(v)	Food fortification: promotion of Sangkap Pinoy products to increase dietary intake of Vitamin A, iron, and iodine.	2.69	Effective	4
	Composite mean	2.74	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 4 presents the observation of the respondents on the effectiveness of a nutrition program. Among

the items cited, “Operation Timbang: Mass-weighing of 0–11 months children, treatment of malnourished children with primary complex, deworming of malnourished children, and feeding of malnourished children (3 times a week for 6 months) received the highest mean of 2.90, which indicates that it is effective. This finding may be attributed to the presence of a BNS who weighs all children up to the age of 5 and keeps record of all their immunization details, including intake of vitamin supplements and deworming particulars. When a BNS suspects malnourishment, he/she directly reports the case to the Municipal Nurse and the Municipal Social Welfare and Development Office (MSWDO). Subsequently, malnourished children receive supplementary feeding under the direct supervision of the BNS.

Second in rank, with a mean of 2.81, “Micronutrient supplementation: giving Vitamin A capsule to children aged 0–71 months and distributing iron tablets to pregnant and lactating mothers to reduce and control iron-deficiency anemia” was also found to be effective by the respondents. This finding may be attributed to the free vitamin A capsules that are provided to children of 0–71 months old by the RHUs. According to BHWs encountered during the data-gathering, children of 0–71 months old are tracked and given vitamin A orally. Moreover, mothers who attend maternal health care services are provided with folic acid and iron tablets to fight anemia during pregnancy. The effectiveness of this indicator, as perceived by the respondents, could be attributed to the supplements being both adequate and provided for free.

With a mean of 2.70, the third in rank, the respondents perceived the promotion of nutrition advocacy through giving dietary counselling on modified diet and organizing PABASA classes was effective.

The PABASA sa Nutrisyon Program aims to educate caregivers of families on proper nutrition practices and healthy lifestyle to reduce the risk of malnutrition in the family. It is a 10-week course conducted by the Philippine Nutri-Foods Corporation in coordination with the health and nutrition workers such as rural health midwives, BNS, BHWs, and NGO volunteers. PABASA sa Nutrisyon is an informal and fun learning activity where parents receive an in-depth and comprehensive training on proper nutrition. A variety of demonstrations, exercises, and games are held to help the parents better understand the importance of proper nutrition and the risks of malnutrition on their children. This program provides convenience to rural health officers who need educational materials and tools for promotion of health and nutrition education. PABASA materials can be used repeatedly because they are made of sturdy materials. Since this program was temporarily halted during the pandemic, the respondents answered based their personal experience of this program during the pre-COVID-19 period.

The respondents also finds food fortification in terms of promoting of Sangkap Pinoy products to contribute to increased dietary intake of Vitamin A, iron and iodine effective, although it had the lowest mean score of 2.69. The DOH through the Bureau of Food and Drugs (BFAD) sets the standards in the mandatory fortification of the following staple foods: (i) rice - with iron; (ii) wheat flour - with vitamin A and iron; (iii) refined sugar - with vitamin A; and (iv) cooking oil - with vitamin A. To promote food fortification, Sangkap Pinoy Seal is a government program established to encourage food manufacturers to market high-quality fortified food products. The seal is awarded to manufacturers who are able to meet standards for fortifying products with vitamin A, iron, or iodine. Respondents ranked this indicator as second to last because some had questions that required clarification during data collection. Although they remembered hearing about it through radio and TV advertisements, they could not associate the information with the government’s project. Some even perceived it as merely an advertising campaign to promote specific brands of fortified food. They also said that they did not hear about it from their rural health centers or barangay health center. However, they admitted that they prefer[red] buying food with Sangkap Pinoy Seal than non-fortified items because they believed it is healthier.

Lastly, with a mean of 2.61, the respondents find “salt iodization: promoting iodized salt to prevent simple goiter; conducting self-testing at markets, sari-sari stores, and households; enforcing the ASIN ordinance”

effective. The respondents remembered that the LGU conducted tests on the salts in the market and BHWs conducted tests on their household salt. However it was not periodically and regularly done. Some even argued that the implementation of the ASIN Ordinance was strict at some time but also became lenient at a later time. Some even believed that the testing and implementation of the ordinance completely stopped even years before the COVID-19 pandemic hit the country.

With a composite mean of 2.74, it can be said that the PHC services in terms of nutrition program in the province of Batangas is effective. This is parallel to study where respondents rated their satisfaction of the nutrition service as above average in Bangladesh ^[82]. However, it must be noted that the efficiency of the nutrition service in both studies relied solely on the work done by the CHWs.

Table 5. Effectiveness of PHC services in terms of maternal and child health program

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Provision of intensive care to mother during pre-natal and post-partum period.	3.02	Effective	1
(ii) Provision of adequate care and treatment for some common childhood illnesses of 0–5 years old as well as protection and promotion of good health.	2.98	Effective	2
(iii) Provision of facility-based delivery.	2.22	Less effective	4
(iv) Promotion of social awareness through conduct of dialogue meeting in mothers' class and bench conferences, intensified pregnancy tracking, Buntis Congress and Safe Motherhood, and Usapang Buntis Awareness.	2.85	Effective	3
Composite mean	2.77	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 5 shows an assessment of the respondents on the effectiveness of primary health care services in terms of maternal and child health program. Among the activities cited, provision of intensive care to mother during pre-natal and post-partum period recorded the highest mean of 3.01 which implies that the Batangas Province is effective in providing pre-natal and post-natal care health services offered through RHUs and cascaded to barangay health centers. During the prenatal period, pregnant women are diligently listed by BHWs and are encouraged to attend counselling sessions and regular check-ups held at the barangay health centers except Poblacion, San Nicolas. According to a member of the Sangguniang Barangay of Poblacion, San Nicolas, to date, there are no barangay health centers in the municipality and that all check-ups and other health services are instead provided for in the RHU. When pregnant women fail to attend, BHWs would fetch them from their homes and bring them to the health centers.

During data gathering, BHWs highlighted the challenges they have encountered when trying to encourage pregnant women to adhere to their recommended consultation schedules for pre- and post-natal care. They pointed out that some mothers could not visit RHUs due to work commitments, while others were concerned about the financial burden associated with consultations, including laboratory fees and the high cost of medicines. As a result, these mothers prioritized earning a livelihood over visiting barangay health centers and RHUs, where they anticipated incurring these expenses. This finding is consistent with the national survey where only 84% of pregnant women were recorded to have received antenatal checkups in the Philippines. Although many mothers have received antenatal check-ups, there are still mothers who are opposed to these medical check-ups.

During these check-ups, pregnant women are lectured by the midwives on the significance of prenatal care

visits to a health center, the required preparations for delivery, and crucial health information during pregnancy. Additionally, assessments of abnormal ante-, intra-, and post-natal signs and symptoms are conducted by the midwives, and if any are identified, referrals to higher health facilities for suitable management are made. Pregnant women are also advised by the midwives to take vitamins and supplements, particularly folic acid and iron for addressing anemia during pregnancy, and to receive tetanus vaccinations, which are often provided free of charge by the health centers. Midwives also discourage traditional birthing at homes and refer pregnant women to lying-ins and obstetricians/gynecologists when they detect risks. The effort of the BHWs and the midwives are appreciated by the respondents wherein the effectiveness of the pre- and post-natal services of the province of Batangas can be attributed to. This vital role of midwives and BHWs is also evident in the study where they play an important role in assessing pre-natal and postpartum health conditions ^[83].

This finding is parallel to results of the study where a high level of satisfaction by respondents was observed as having a high quality of maternal health services among pre- and antenatal attendees such as those recorded in Anambra State, southeast Nigeria ^[84].

Another study done locally also supports the finding of this study ^[85]. In the said study, Mothers evaluated the extent of prenatal health services rendered by health workers as “very good” with a mean of 4.14 in the RHUs of Region III.

Second in rank, with a mean of 2.98, the respondents perceived the provision of adequate care and treatment for some common childhood illnesses of 0–5 years old as well as protection and promotion of good health as effective. This may be attributed to the EPI implemented in the Barangay Health Centers aimed to reduce infant and child mortality due to seven immunizable diseases, i.e., diphtheria, tetanus, pertussis, tuberculosis, poliomyelitis, Hepatitis B, measles, rubella, along with the provision of other basic immunization services for infants and children below eight years of age ^[85].

Respondents perceive the provision of early childhood health services as effective because it grants their children access to vaccines that can be costly when obtained from private clinics and doctors. Moreover, BHWs frequently conduct home visits to communicate the upcoming vaccination schedule. In instances where parents miss scheduled vaccinations, these same BHWs visit their homes and ensure they receive the necessary vaccinations.

In addition to BHWs, a BNS is present in every barangay. They are in-charge of all the health records of children of 0–5 years old and pregnant and lactating mothers. They are responsible for delivering nutrition services in the barangay. Under their watch, the weight of the 0–5 years of age are periodically recorded. When a child is recorded as underweight, a report is submitted to the RHU and the City or Municipal Social Welfare and Development for the proper feeding of the children. The food supply for the malnourished children will be provided through the BNS. This includes milk, bread, meat, fruits, and vegetables. The malnourished children are closely monitored by the BNS until they have fully recovered. Fortunately, none of the respondent-barangays have malnourished children during the period of the study. However, the respondents believe that their BNS are always on hand, always reminding them of the vaccination schedules and proper caring of their children.

Certain medications are readily available in RHUs in most of the barangays in Batangas. Paracetamol for fever, salbutamol, and vitamins are almost always available for children when they are sick. All the parents have to do is to bring their children for check-ups at the RHU or in the case of San Luis, at their Barangay Health Center.

With all these pronouncements, it is not surprising that the respondents believe that the province of Batangas is effective in provision of adequate care and treatment for some common childhood illnesses as well as ensuring protection and promotion of good health.

Lastly, with an average rating of 2.85, the respondents viewed the promotion of social awareness through activities like conducting dialogue meetings in mothers' classes, bench conferences, intensified pregnancy tracking, Buntis Congress, Safe Motherhood initiatives, and Usapang Buntis Awareness as effective. This finding directly corresponds to another research study on the provision of intensive care to mothers during their pre-natal period which has been proven as likewise effective. Barangay Health Centers have a scheduled Buntis Congress and Usapang Buntis Awareness during every scheduled consultation for pregnant women. Before the check-ups, a bench conference is held first where rural health midwives would provide lecture and dialogues on social awareness and topics related to pregnancy. Although it must be noted that the COVID-19 pandemic brought a temporary halt to the conduct of these meetings and conferences, albeit it is slowly getting back to its normal procedure and schedules. The BHWs are effective in conducting intensified pregnancy tracking, thus, no pregnant woman is left behind with no knowledge on the proper care and nutrition. In Buli, the Secretary stated that when a pregnant woman does not attend the scheduled bench conferences or meetings, the BHW concerned and a Barangay Tanod will fetch expectant mothers using the Barangay Patrol. This is to guarantee 100% attendance to said activities.

However, provision of facility-based delivery was less effective as indicated by the mean value of 2.22. This may be due to the fact that of all the barangay-respondents, only Barangay Dulungan in the Municipality of San Luis have access to free facility-based delivery provided by their LGU. Neighboring towns, such as Cuenca, San Nicolas, and Sta. Teresita also relies on the Municipality of San Luis for free facility-based delivery. Residents rely on government hospitals but there are not enough beds to accommodate them, especially during the pandemic. Individuals with additional financial resources often choose private hospitals for healthcare services, while beneficiaries of the 4Ps program typically opt for lying-in clinics or the nearest birthing facility that provides services with no cost to patients. .

In the whole province of Batangas, there are only four government-run hospitals. The Batangas Provincial Hospital in Batangas City, Lipa City District Hospital in Lipa City, Don Manuel M. Lopez Memorial District Hospital in Balayan, Batangas and the Apacible Memorial Hospital in Nasugbu, Batangas. These hospitals cannot cater to the 2,908,494 total population of Batangas in 2020. Even before the COVID-19 pandemic, there has been lack of hospital beds, particularly on maternity wards. The lack of free birthing facilities and maternity beds in government hospitals may be the reason why this indicator was perceived by many residents of Batangas as less effective.

Overall, with a composite mean of 2.77, the maternal and child health program's PHC services in the Batangas Province are perceived as effective. This observation aligns with a study that found the health services delivered by RHUs in Region III, Philippines, to also be effective ^[85].

Table 6. Effectiveness of PHC in terms of reproductive health and family planning program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Community awareness: conducting pre-marital counselling to pre-married couples for the promotion of responsible parenthood	2.66	Effective	3
(ii)	Natural family planning: helping married couples of reproductive age to learn and practice natural family planning methods	2.71	Effective	1
(iii)	Temporary and permanent family methods: promotion of family planning services available through bench conferences and household teachings.	2.69	Effective	2
	Composite mean	2.68	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 6 reveals the overall effectiveness of the reproductive health and family planning program. Among the listed items, “natural family planning: helping married couples of reproductive age to learn and practice natural family planning methods” received the highest ranking with a mean score of 2.71, followed by “temporary and permanent family methods: promoting family planning services through bench conferences and household teachings.”

However, “community awareness: conducting pre-marital counseling for pre-married couples to promote responsible parenthood” was also viewed as effective, albeit receiving the lowest rating among the mentioned items. Pre-marital counseling or pre-marriage orientation and pre-marriage counseling is a pre-requisite in securing a marriage license. The would-be-married couples, who are applying for a marriage license at the Local Civil Registry Office (LCRO), are required to personally attend the pre-marital counselling. The effective perception may be credited to the teachings of responsible parenthood, family planning, marriage and relationship, and breastfeeding and infant nutrition during the counseling. The respondents believed that pre-marital counseling is effective in preparing them for responsible parenthood and successful married life. This finding aligns with a study that indicated that premarital counseling can encompass a broad spectrum of knowledge, covering topics such as the objectives of marriage, understanding the psychology of men and women, grasping the appropriate criteria for marriage, and recognizing the essential prerequisites for entering into marriage, all contributing to education in this context. It also helps couples become fully aware of important areas of reproductive health issues and base their sexual relationships on the right foundation ^[85]. Generally, pre-marital counselling helps couples prepare for marriage and has an effect on creating a happier and more stable life.

Table 7. Effectiveness of PHC services in terms of circumcision program

Indicators	Weighted mean	Verbal interpretation
(i) Conducting master listing and promoting circumcision through Information, Education, and Communication (IEC) materials.	2.52	Effective

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

The circumcision program, which focused on master-listing and promoting circumcision through IEC materials was considered effective. The Rural and Barangay Health Centers offer Oplan Tuli during summer for the free and safe circumcision of young boys. In addition to that, information and educational campaign are conducted to encourage young boys to undergo circumcision (**Table 7**).

The effectiveness of the IEC is evident in the record of the barangays where all of the respondent-barangays reported that all young boys are eager to undergo circumcision, with the more affluent even going to private doctors to be circumcised. A study also showed that 95% of children are circumcised between 2 to 14 years of age in the Philippines ^[87].

Table 8. Effectiveness of PHC services in terms of EPI

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Provision of routine immunization every Wednesday and other days of the month with antigens to 0-12 months.	2.92	Effective	1.5
(ii) Intensified tracking of children 0-11 months for immunization.	2.92	Effective	1.5
(iii) Provision of adequate logistics and supplies and cold chain equipment.	2.60	Effective	3
Composite mean	2.82	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

All items in **Table 8** were rated as effective. The provision of routine immunization every Wednesday and other days of the month with antigens to 0–12 months and intensified tracking of children 0–11 months for immunization both obtained the same mean score of 2.92. Though effective, it must be noted that the schedule of the immunization on the province of Batangas does not always fall on a Wednesday. As per the information provided by the BHWs, the day depends on the availability of rural health doctors, nurses, or midwives. As they serve the entire municipality on the same day, they allocate specific days for each barangay.

On the same note, the effectiveness of the immunization program may be attributed to the hard work of the BHWs who are the main arm in intensifying the tracking of children aged 0–11 months for immunization. Each BHW has an assigned sitio with corresponding assigned households. They are the ones who track and inform the parents of the children on immunization schedules. During the time when there was a vaccine-scare brought about by Dengvaxia issue, so some mothers refused to have their children vaccinated. It was the BHWs who encouraged them to trust the vaccines. When the parents still refused, the Barangay Patrol with a Barangay Tanod and designated BHW would fetch them from their houses. These effort and hard work are the main contributing factor for the effectiveness of the immunization program of the province of Batangas.

Meanwhile, provision of adequate logistics and supplies and cold chain equipment ranked the least. Though a mean of 2.60 was still considered as effective, this general opinion ranked the lowest because the respondents believed that the Barangay Health Centers and RHUs still lack the required logistics and supplies. During immunization scheduled to distant barangays, it was the barangay authorities who provided vehicles for the transportation of the nurses and doctors. A respondent also stated that sometimes they would hand out cash donations for the procurement of syringes.

With a composite mean of 2.82, the assessment of the respondents on the effectiveness of PHC services in terms of expanded program on immunization was viewed as effective. There have been no published studies to support nor refute this finding, however, national assessment on the immunization revealed that our country failed to reach its 95% target coverage, unlike its neighboring ASEAN countries,^[88] thereby giving the impression that immunization efforts in the country is still not effective.

Also, the latest study conducted in Pakistan on 2008 differed in the present study. It revealed that immunization days have a negative impact on the immunization coverage and that its effectiveness is hampered by the inadequate mobility of health workers^[89]. Fortunately, in the Philippines or particularly the province of Batangas, the health workers are the main reason for the effectiveness of the immunization program.

Table 9. Effectiveness of PHC services in terms of tuberculosis control program

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Conducting case-finding activity: identification of tuberculosis symptoms, direct sputum smear microscopy, and gene-expert and purified protein derivative (PPD) testing.	2.80	Effective	2
(ii) Providing treatment for positive cases.	2.85	Effective	1
Composite mean	2.83	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 9 presents the respondents’ assessment of the effectiveness of primary healthcare services, specifically in the context of the tuberculosis control program. Both components of the program received positive evaluations, with the ability to provide treatment for positive cases receiving a mean score of 2.83, and the capacity to conduct case-finding activities, including identifying tuberculosis symptoms, direct sputum smear microscopy, gene-expert, and PPD testing, scoring 2.80.

Directly observed treatment strategy may be the most effective approach in the diagnosis, treatment, and control of tuberculosis. When a patient shows symptoms of tuberculosis, he/she will be advised to approach his/her designated BHWs, where he/she will undergo a sputum test. When the test yields a positive result, the patient will have to undergo counselling followed by a six-month period of continuous medication provided by the RHUs. The patients' household members will be educated on the proper care of tuberculosis patients. Whenever necessary, family members will also have to be screened and tested for possible tuberculosis infection.

To address recurring infections resulting from patients neglecting to take their prescribed medicines on time, a barangay health program has been established. Under this program, patients are required to report to their designated BHW every day. The BHW will be responsible for overseeing and administering the patient's medication intake.

Thus, it can be said that the effectiveness of the tuberculosis control program may be fully attributed to the adequate supply of tuberculosis medicines, the availability of sputum smear tests, gene-expert and PPD tests, and the effort of the BHWs in the supervision of proper intake of medicines.

In general, the PHC service in terms of tuberculosis control program is considered effective as shown from the composite mean of 2.83. The success of this program is evident in the 101% tuberculosis case detection rate and 93% tuberculosis success rate reached by the Batangas Province in 2015 [80]. This finding is congruent to the findings of [90] where participants perceived the PHC program focused on tuberculosis treatment delivery as good. Both studies show that the success in the tuberculosis control program is founded on the hard work of health care workers and the successful implementation of directly observed treatment strategy.

However, the findings of this study differ from another research conducted in rural areas of Indonesia, which aimed to describe the effectiveness of a tuberculosis control program. The latter study indicated that the implementation of the pulmonary tuberculosis control program in that context had not been effective [91]. The lack of synergy can be attributed to the low level of public awareness, making it difficult for individuals to adhere to their treatment consistently. Additionally, there is a deficiency in monitoring and evaluating the performance of health workers.

Table 10. Effectiveness of PHC services in terms of control of acute respiratory infection

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Case finding: identification of patient with acute respiratory infection among 0–4 years old and management and treatment of patients identified with acute respiratory infection.	2.65	Effective	2
(ii) Promoting health education of mothers and caretakers of 0–5 years old through household teaching and bench conferences	2.69	Effective	1
Composite mean	2.67	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Based on **Table 10**, the program focused on controlling acute respiratory infection cases was deemed effective, with a composite mean score of 2.67. All components were rated positively, with the highest effectiveness observed in health education for mothers and caretakers of children aged 0–5 years through household teaching and bench conferences, scoring 2.69. This was followed by case finding, which involved identifying patients with acute respiratory infections among those aged 0–4 years and managing and treating them, with a mean score of 2.65.

The household teaching methodology and bench conferences were found effective because in these

activities, the mothers learned about the importance of early detection of respiratory tract infection in children between 0 and 5 years old in preventing its development into acute pneumonia. During these activities, mothers or caregivers received guidance on various aspects, including how to identify acute respiratory infections, the responsible intake of antibiotics, and the importance of monitoring oxygen levels and intensity of care.

This finding bears a resemblance to a study in which it was established that children displaying symptoms of acute respiratory infections in an urban community in the Philippines often engaged in self-treatment with antibiotics like amoxicillin, as well as its derivatives cotrimoxazole and cephalosporins. These bench conferences and household discussions not only raised awareness about acute respiratory infections but also enhanced understanding of them. Mothers and caregivers were encouraged to refrain from self-medication practices, which often resulted in the misuse of antibiotics. As a result, respondents perceived this activity as effective ^[92].

The implementation of case finding was also perceived to be effective. According to the BNS of Buli in Taal and Dulungan in San Luis, these case findings were done simultaneously during the implementation of Oplan Timbang. During Oplan Timbang and immunization schedules, the BNS observed children aged 0 to 5 years for symptoms indicative of acute respiratory infections.

This discovery aligns with a study highlighting that community-based active case-finding (ACF) can have significant effects on the routine detection of respiratory pathogens. This approach indirectly contributes to disease prevention and care ^[93].

Table 11. Effectiveness of PHC in terms of diarrheal disease program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Health education: promotion of proper environmental sanitation and importance of oral rehydration solution (ORS) in cholera and diarrheal disease (CDD)	2.54	Effective	1
(ii)	Provision of adequate supply of Oresol	2.16	Less effective	2
	Composite mean	2.35	Less effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 11 displays the evaluation of the effectiveness of the diarrheal disease program, which is generally perceived as less effective. Among the listed items, health education involving the promotion of proper environmental sanitation and emphasizing the importance of ORS in CDD was found to be effective. This finding is due to the fact that the respondents are aware that their LGUs are promoting environmental sanitation to avoid diarrhea. During bench conferences or dialogues held in the barangays to promote environmental sanitation, including water and food safety, the importance of clean food and water sources is emphasized as a means to prevent diarrhea. Additionally, rural health midwives and BHWs consistently explain to the barangay authorities the significance of oral rehydration salts in controlling diarrheal diseases.

CDD was implemented by the DOH in 1997 centered on the prevention, management and treatment of diarrhea among children under five years of age.

Since the finding is hinged on the effective promotion of proper environmental sanitation and importance of ORS in CDD, it implies that mothers or caretakers in Batangas are aware of the importance of clean surroundings and ORS in the prevention and treatment of diarrhea.

However, provision of adequate supply of oresol has proven to be less effective based on the actual observations made. It obtained the lowest mean value of 2.16. This may be due to the fact that ORS is not always available in the Barangay Health Centers or Stations. According to the respondents, when one or

two of their family members suffer from diarrhea, they had to buy ORS from the nearest pharmacy because their respective BHSs are out of stock. They further stated that stocks are only provided by the RHU during community outbreaks of diarrhea. Given that the respondents come from third to fifth-class municipalities, most of them, with the exception of Dulungan in San Luis and Buli in Taal, utilize their own barangay funds to procure medicine supplies. This is because they still rely on support from the provincial or municipal government. Consequently, the availability of ORS in the BHS is either limited or non-existent.

The inadequate supply of ORS in the country is one of the main reasons why the use of ORS has become limited. The two indicators in relation to each other, does not translate to its effective use because of the limited access. Another finding is also presented in a study where it was debated that “a high knowledge of ORS (nearly 90%) does not translate to its subsequent usage^[94],” a contributory factor directly affecting access to ORS in the country)^[95].

Table 12. Effectiveness of PHC services in terms of cardiovascular disease prevention and control program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Case finding: conducting blood pressure screening for individuals aged 15 years old and above, especially those with a family history of hypertension.	2.63	Effective	2.5
(ii)	Promotion of healthy lifestyle through physical activity and exercise, healthy diet, weight control, stress management and emphasized smoking cessation	2.63	Effective	2.5
(iii)	Treatment: giving anti-hypertensive drugs	2.64	Effective	1
	Composite mean	2.64	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 12 presents the evaluation of the cardiovascular disease prevention and control program. Under the treatment category, providing anti-hypertensive drugs received the highest mean score of 2.64. Respondents mentioned that they obtain anti-hypertensive drugs from their BHSs, even though the supply may not always meet their full needs. They found this assistance to be greatly beneficial. Some of the hypertensive drugs they mentioned receiving from barangay health stations include losartan and amlodipine.

It must be noted that from the respondent-barangays, only Buli and Dulungan have purchased their medicines from their own barangay fiscal budget. The rest relied on their respective RHUs and the medicine supply from the Provincial Government.

However, case finding, which involves conducting blood pressure screenings for individuals aged 15 years and above, especially those with a family history of hypertension, along with the promotion of a healthy lifestyle through physical activity and exercise, maintaining a healthy diet, weight control, stress management, and emphasizing smoking cessation, received the lowest rating. Despite this, they were still considered effective.

The respondents noted that while they perceived blood pressure screenings among individuals aged 15 years and older as essential, none of their family members had actually undergone such screenings. Instead, they mentioned that they only undergo medical screenings or examinations when they experience symptoms. They also expressed that their BHSs or RHUs were accommodating when they sought such medical attention. They considered these facilities effective because they could visit them when feeling unwell to have their blood pressure checked.

The respondents perceived the promotion of healthy lifestyle through physical activity and exercise, healthy diet, weight control, stress management and, emphasized smoking cessation as effective. This is

because BHSs have created HPN/DM clubs under the order of DOH, where patients with hypertension and diabetes mellitus gather once a week. A Municipal Nurse would educate them on importance of healthy diet and lifestyle, and every session would end with Zumba class or aerobics. Active members entitled to free maintenance drugs for hypertension (losartan/amlodipine/metoprolol) and diabetes (metformin) from the DOH.

With a composite mean rating of 2.64, it can be concluded that primary healthcare services in terms of cardiovascular disease prevention and control program are effective in Batangas. This observation aligns with findings that emphasize the utility of cardiovascular disease programs in providing valuable information for the prevention and control of cardiovascular diseases in the region.

Table 13. Effectiveness of PHC services in terms of dental health program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Conducting oral examinations on pregnant mothers, preschoolers, schoolers and adult	2.55	Effective	1.5
(ii)	Offering preventive measures: sealant application for school children and oral prophylaxia for pregnant and school children	2.51	Effective	3
(iii)	Curative measures: gum treatment, temporary filling, permanent filling and extraction.	2.55	Effective	1.5
(iv)	Conduct of dental mission in remote areas	2.48	Less effective	4
	Composite mean	2.52	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 13 shows the effectiveness of dental health program. A composite mean of 2.52 indicates that the program is effective in general. Both conducting oral examinations for pregnant mothers, preschoolers, school-aged children, and adults, as well as providing curative measures such as gum treatment, temporary filling, permanent filling, and extractions, received an identical mean score of 2.55. This may be attributed to the presence of a Municipal Dentist who conducts oral examinations and the numerous dental missions conducted by the Provincial Health Office and other agencies. For example, in Dita, Cuenca, dental missions were carried out by the military, according to the respondents. One respondent also said that there are numerous dental associations who conduct dental missions in schools.

In terms of adult and curative measures, the residents of Dita in Cuenca and Kalayaan in Sta. Teresita rely on the free dental services of the Municipality of San Luis. The free dental services are only for tooth extraction, so they have to go to private clinics for gum treatment and temporary and permanent filling. This is analogous to the findings that among the rural population all health services are given free, except for major operations, medicines and dental procedures such as the construction of partial and full dentures, porcelain restorations, root canal therapy and major oral surgery ^[96].

Meanwhile, with a mean of 2.48, conduct of dental mission in remote areas was perceived as less effective. Remote barangays such as Balibago in Lobo, Batangas experience very few dental missions. This perception may also be due to the fact that many dental missions have been cancelled during the COVID-19 pandemic. It was reiterated the call for more dental missions to remote barangays. According to studies, dentistry is one of the most underserved healthcare services worldwide, which is essentially true for remote and impoverished communities ^[96]. The finding of this study may imply that many of the residents in distant and remote areas from Batangas may have never seen a dentist before.

Table 14. Effectiveness of PHC services in terms of rabies control program

	Indicators	Weighted mean	Verbal interpretation	Rank
(i)	Information identification and communication: increasing the community's awareness regarding rabies prevention and control through community assemblies, bench. conferences, and household teachings	2.62	Effective	2.5
(ii)	Tetanus prevention: providing tetanus toxoid and anti-tetanus serum injection.	2.59	Effective	4
(iii)	Referrals: All patients with animal bites categorized as CAT II and CAT III are referred for anti-rabies immunization.	2.62	Effective	2.5
(iv)	Coordination: Coordinating with the Department of Agriculture for vaccination of dogs.	2.94	Effective	1
	Composite mean	2.69	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 14 shows the assessment of the respondent on the effectiveness of rabies control program. “Coordination: Coordinate with the Department of Agriculture for vaccination of dogs” received the highest rating of 2.94. The effective perception of the respondents may be attributed to the free dog and cat vaccinations that are given annually by the barangay, which the respondents have greatly benefited from.

The second-ranking components, each with a mean rating of 2.5, include information identification and communication, which involves increasing community awareness of rabies prevention and control through community assemblies, bench conferences, and household teachings. Additionally, referrals, which involves ensuring that all patients with animal bites categorized as CAT II and CAT III are referred for anti-rabies immunization, was also rate effective.

These findings suggest that the local government, through the Municipal Agriculture Office, has been successful in its information and awareness campaign against rabies. All respondents are well-informed about the dangers posed by rabies and the importance of vaccinating their pets against it. Moreover, they believe that the government effectively refers animal bite patients for anti-rabies immunization, although the accessibility of such services varies across municipalities in the province. For instance, in Dita, there are no available animal bite centers, necessitating patients to seek immunization from private institutions or the Municipality of San Luis. Similarly, San Nicolas, Sta. Teresita, and Alitagtag rely on the healthcare facilities of San Luis for anti-rabies immunization.

The least rated item was tetanus prevention, which involves giving tetanus toxoid and anti-rabies serum injection. Though the respondents find the tetanus prevention effective, it was the least ranked because of its high cost. Though it is available everywhere, it is never free in the province of Batangas. While the administration of the vaccine is free, the vaccine is not free. In fact, it is more expensive in government hospitals. However, there are several instances where the RHUs would provide free tetanus toxoid to fishermen and other vulnerable groups such as pregnant women.

A composite mean of 2.68 indicated that the program is effective in general. It is parallel to the findings where information dissemination on rabies awareness was found to have immense importance in the effective control of rabies and that vaccination of dogs and cats was an effective preventive measure^[99].

Table 15. Effectiveness of PHC services in terms of STD/AIDS prevention Program

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Lecture/Symposium: providing health education and IEC materials to high schools and barangays, especially commercial sex workers (CSWs) and bar owners.	2.59	Effective	1
(ii) Gram staining: Conducting monthly vaginal smearing and gram staining among CSWs and conducting HIV testing.	2.49	Less effective	3
(iii) Treatment: giving medications to those with positive gram stain and inflammation.	2.51	Effective	2
(iv) Presence of laboratory capability.	2.17	Less effective	4
Composite mean	2.44	Less effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 15 displays the assessment on the STD/AIDS program. providing health education and IEC materials to various high schools and barangays, especially targeting commercial sex workers and bar owners through lectures and symposia, received the highest mean score of 3.59, signifying its effectiveness. This implies that the lectures and symposiums conducted on schools by NGOs and barangays by the RHU are effective on providing education and awareness on STD and AIDS. The lectures given to commercial sex workers and bar owners is deemed to be effective in raising their awareness of the risks of contracting these diseases, especially in their line of profession. It must be noted that according to the 12 respondent-barangays, none of them have been positive for STD/HIV/AIDS, which suggest the effective impact of these lectures and symposiums.

However, the treatment or giving medications to those with positive gram stain and with inflammation was assessed as effective with a mean of 2.51. This finding is surprising as there have been no records of positive cases in the respondent-barangays, yet they assessed the treatment as effective. This finding is founded on the confidence of the respondents that if one ever contracts the disease, the government will help them with the medications.

While, “gram staining: monthly vaginal smearing and gram staining among CSWs and HIV testing” and “presence of laboratory capability” were less effective. This finding can be credited to the confidentiality of gram staining conducted by the RHUs on CSWs, in addition to the temporarily discontinuing of this program due to the pandemic. As such, most of the respondents find it less effective. In addition, there are currently no government laboratory that provides free HIV testing in the province, which is why the respondents find it less effective.

As seen from the composite mean, the PHC services in terms of STD/AIDS prevention program were less effective. This finding contradicts published studies where STD/AIDS prevention programs were found to be effective ^[100], especially activities like providing non-formal educational training such as lectures/symposiums for target high-risk groups such as female sex workers and their establishment managers. This also diverges from the conclusion that government has reach its over-all goal in the STD/AIDS prevention and control ^[101].

Table 16. Effectiveness of PHC in terms of cancer prevention and control program

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Health education: conducting household teachings	2.63	Effective	1
(ii) Pap smearing for women of 25–55 years old, and visual inspection with acetic acid for women of 21–65 years old women	2.59	Effective	2
(iii) Conducting breast exam among women of 30–55 years old.	2.48	Less effective	3
Composite mean	2.57	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 16 shows the effectiveness of cancer prevention and control program. Health education through conducting household teachings got the highest mean score of 2.63, and it is considered effective. This indicates that the respondents find the household teachings conducted by rural health officers effective. They learn about symptoms and importance of early detection from these teachings.

Similarly, with a mean score of 2.59, the respondents considered the conduct of pap smearing for women aged 25–55 years and visual inspection with acetic acid for women aged 21–65 years as effective. It is worth noting that cervical cancer is the second most common cancer among women in the Philippines, accounting for 14% of female cancers and ranking as the second leading cause of cancer mortality. Despite temporary interruptions during the COVID-19 pandemic, the availability of free pap smears and visual inspections for women was highly appreciated by the respondents. These screenings offer women the opportunity to access free cervical screening, potentially saving them from cervical cancer in the future.

On the other hand, the conduct of breast exam among 30–55 years old women was perceived as less effective. This is because most of the respondents stated that they are not well-informed that a breast exam was available in the rural health centers. Some individuals expressed reluctance to avail of the program due to concerns about the possibility of the doctor discovering a lump during breast examinations. Others were uncomfortable with the idea of having their breasts examined.

It must be noted though that the same respondents who found the breast exam less effective found the pap smear effective. When asked about this, most of the respondents stated that pap smear was a clinical test while breast exam is a physical test, and they believe more in clinical tests.

With a general mean of 2.57, the cancer prevention and control program was perceived as effective. This is in agreement with the idea that for years, PHC has played a vital role in promoting health and reducing the incidence of and mortality from cancer through early diagnosis ^[102]. PHC plays a vital role in raising public awareness about the significance of screening, particularly among high-risk patient groups. This is essential in ensuring that any concerning symptoms are promptly assessed and appropriate action and medication are initiated as soon as possible.

Table 17. Effectiveness of PHC in terms of leprosy control program and health education

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Conducting community assemblies, bench conferences, and household teaching for early detection and treatment;	2.58	Effective	1
(ii) Coordinating with the Provincial Health Office for the provision of complete medication.	2.57	Effective	2
Composite mean	2.57	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 17 displays the assessment of leprosy control program and health education. Both items in this category were assessed as effective. Conducting community assemblies, bench conferences, and household teaching for early detection and treatment ranked first with mean score of 2.58 followed by coordinating with the Provincial Health Office for the provision of complete medication.

The effectiveness of the leprosy control program is evident as all of the barangay respondents reported zero leprosy cases up to the present. This indicates that the government is successful in preventing leprosy through early detection, and there are established mechanisms in place to address any potential cases by simply reporting them to the Provincial Health Office.

The awareness of the respondents on the leprosy control programs of the government is in disparity with

the findings where respondents were only moderately aware and only moderately accepts the government policies, programs, and projects on health service for leprosy ^[103]. On the present study, however, there have been no personal experience yet they are fully aware and believes in the effectiveness of the primary health care services in terms of leprosy.

Table 17. Effectiveness of PHC in terms of health education and health promotion

Indicators	Weighted mean	Verbal interpretation
Promotion of health through advocacy, community assembly, bench conference, mothers' class and household teaching	2.57	Effective

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 18 reveals that the health education and health promotion program was effective, with a mean of 2.57, which concentrate on the promotion of health thru advocacy, community assembly, bench conference, mothers' class, and household teaching.

Community assemblies, such as State of Barangay Address conducted twice a year, bench conferences, mother's class such as Usapang Buntis, and household teaching, were deemed effective in raising awareness and promoting health. These activities are done locally and sometimes in conjunction with one another. Although community assemblies were forbidden during the pandemic, the RHUs and BHSs continued to promote the health of the residents during small discussion or household teachings during immunization schedules of infants or Oplan Timbang. Thus, the respondents were still in full awareness of all the advocacies of the government in terms of promotion of health and find them effective.

The importance of promoting health in the PHC services is also evident in the study where effective understanding and delivery of health promotion practice brings improved health status of the general population ^[104].

Table 19. Effectiveness of PHC services in terms of voluntary blood donation program

Indicators	Weighted mean	Verbal interpretation	Rank
(i) Information dissemination: community assembly, tri-media campaign, and public forum.	2.63	Effective	3
(ii) Identifying possible donors: master listing and blood typing.	2.66	Effective	2
(iii) Bloodletting: bloodletting of all qualified and properly screened donors.	2.77	Effective	1
Composite mean	2.68	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 18 illustrates that all components of the voluntary blood donation program were considered effective. The highest-rated item was “Blood Letting,” which involves conducting bloodletting from all qualified and properly screened donors, with a mean rating of 2.77. Following closely were “Identifying possible donors: master listing and blood typing,” both of which were also rated as effective.

The organization of bloodletting through Red Cross and district hospitals in conjunction with master listing and blood typing have been rated effective by the respondents. This is because the respondents are familiar with bloodletting. During the Bloodletting Month, which is July, the extensive campaign for donating blood is cascaded to the barangay. Besides, BHWs conducts house to house invitation to probable donors and encourage the residents to donate blood. In every barangay, there is a master list of probable blood donors, known as

Barangay-based Voluntary Blood Donors Registry, and the potential donors will be called when the need arises.

With a composite mean rating of 2.68, it can be concluded that the voluntary blood donation program is effective. This finding is consistent with a recent study conducted in Manila, Philippines, which concluded that voluntary blood donation programs, including regular blood donation activities and campaigns, significantly contribute to increasing blood donation rates^[105].

Table 20. Summary of the effectiveness of PHC services

Indicators	Weighted mean	Verbal interpretation	Rank
Maternal and child health program	2.77	Effective	3
EPI	2.82	Effective	2
Tuberculosis control program	2.83	Effective	1
Nutrition program	2.74	Effective	4
Control of acute respiratory infection	2.67	Effective	8
Environmental sanitation	2.67	Effective	9
Diarrheal disease program	2.35	Less effective	17
Cardiovascular disease prevention and control program	2.64	Effective	10
Dental health program	2.52	Effective	15
Reproductive health and family planning program	2.68	Effective	6
Voluntary blood donation program	2.68	Effective	6
Rabies control program	2.69	Effective	5
STD/AIDS prevention program	2.44	Less effective	16
Cancer prevention and control program	2.57	Effective	13
Leprosy control program and health education	2.57	Effective	11
Circumcision program	2.52	Effective	14
Health education and health promotion	2.57	Effective	12
Composite mean	2.57	Effective	

Note: 3.50–4.00 = Highly effective; 2.50–3.49 = Effective; 1.50–2.49 = Less effective; 1.00–1.49 = Not effective

Table 20 illustrates the summary on the effectiveness of primary health care services. A composite mean of 2.57 indicates that the program was effective in general. However, upon scrutiny of result, it was found out that tuberculosis control program, EPI, and maternal and child health program got the highest mean score of 2.83, 2.82, and 2.77, respectively. This is not surprising as the Provincial Health Office recorded 101% success in terms of detection rate.

Meanwhile, STD/AIDS prevention program and diarrheal disease program were assessed as less effective. This finding may be attributed to the lack of laboratory capacity for STD/HIV free testing in the province. Also, the restrictions of COVID-19 have put a toll on the monthly conduct of gram staining and vaginal smearing for commercial sex workers.

On the same note, the lack of ORS on BHSs has also affected the perception towards the diarrheal disease program. It must be noted that even if there are supplies from the RHUs, the BHSs are nearer to the residents. When there is none at the BHS, the respondents would rather buy from near pharmacies than to travel to the RHUs.

Table 21. Difference of responses on the effectiveness of PHC services when grouped according to age

Age	χ^2/U	<i>P-value</i>	Interpretation
Maternal and child health program	11.138	0.049	Significant
EPI	15.436	0.009	Significant
Tuberculosis control program	12.129	0.033	Significant
Nutrition program	17.066	0.004	Significant
Control of acute respiratory infection	12.277	0.031	Significant
Environmental sanitation	11.223	0.047	Significant
Diarrheal disease program	10.572	0.061	Not significant
Cardiovascular disease prevention and control program	11.498	0.042	Significant
Dental health program	12.836	0.025	Significant
Reproductive health and family planning program	15.36	0.009	Significant
Voluntary blood donation program	17.193	0.004	Significant
Rabies control program	14.316	0.014	Significant
STD/AIDS prevention program	13.213	0.021	Significant
Cancer prevention and control program	15.206	0.010	Significant
Leprosy control program and health education	14.307	0.014	Significant
Circumcision program	15.628	0.008	Significant
Health education and health promotion	15.442	0.009	Significant

Table 21 presents the comparison of responses on the effectiveness of PHC services when grouped according to profile. It was observed that there was significant difference except on diarrheal disease program when grouped according to sex and control of acute respiratory infection, reproductive health and family planning program, and rabies control program when grouped according to sex. This was indicated by the *P-values*, which were less than the α level, which implies that the responses differ significantly. Based on a post-hoc test conducted, it was found that those females who are 51 years old and above, whom were high school graduates and from Buli were more likely to perceive the programs as effective.

The difference in responses on the effectiveness of PHC services when grouped according to age is also evident in the where higher ratings of PHC were associated with the increase in age^[106].

Table 22. Difference of responses on the effectiveness of PHC services when grouped according to sex

	χ^2/U	<i>P-value</i>	Interpretation
Maternal and child health program	15888	0.004	Significant
EPI	15987	0.005	Significant
Tuberculosis control program	16206.5	0.008	Significant
Nutrition program	15806	0.003	Significant
Control of acute respiratory infection	17132.5	0.062	Not Significant
Environmental sanitation	15948	0.004	Significant
Diarrheal disease program	15585.5	0.001	Significant
Cardiovascular disease prevention and control program	16106	0.006	Significant

Table 22 (continued)

	λ^2/U	<i>P</i> -value	Interpretation
Dental health program	16449	0.015	Significant
Reproductive health and family planning program	17240	0.081	Not significant
Voluntary blood donation program	15591	0.001	Significant
Rabies control program	17527.5	0.142	Not significant
STD/AIDS prevention program	15939	0.004	Significant
Cancer prevention and control program	16389	0.012	Significant
Leprosy control program and health education	15414	0.001	Significant
Circumcision program	16478	0.012	Significant
Health education and health promotion	16456	0.011	Significant

Table 22 presents the comparison of responses on the effectiveness of PHC services when grouped according to sex. It was observed that there was significant difference on all PHC programs except control of acute respiratory infection, reproductive health and family planning program and rabies control program when grouped according to sex. This was indicated by the P-values, which were less than the α level, which implies that the responses differ significantly. Based on the post-hoc test conducted, it was found out that females were more likely to assess the program as more effective than males.

A significant difference was observed in the assessment of the maternal and child health program between males and females, with females perceiving it as more effective than males. This may be due to the fact that the maternal and child health programs benefits females than males, so they are more favored by the females.

The disparity in the assessment of the EPI can be attributed to the fact females usually the ones bringing their children to BHS for immunizations. Consequently, they tend to be more knowledgeable about and favorable toward the program.

In terms of other programs, more females find the programs more favorable than males simply because they are more aware and knowledgeable of them.

This pattern can be attributed to the fact that mothers or eldest daughters often take on the role of caregivers within the family. They are more likely to attend conferences, lectures, and other health programs compared to males, leading to their greater familiarity and positive perception of these programs.

Table 23. Difference of responses on the effectiveness of PHC services when grouped according to educational attainment

	λ^2_c / U	<i>P</i> -value	Interpretation
Maternal and child health program	15.001	0.010	Significant
EPI	13.843	0.017	Significant
Tuberculosis control program	13.047	0.023	Significant
Nutrition program	13.67	0.018	Significant
Control of acute respiratory infection	12.984	0.024	Significant
Environmental sanitation	19.685	0.001	Significant
Diarrheal disease program	14.711	0.012	Significant
Cardiovascular disease prevention and control program	17.463	0.004	Significant
Dental health program	18.351	0.003	Significant

Table 23 (continued)

	χ^2 / U	<i>P-value</i>	Interpretation
Reproductive health and family planning program	17.114	0.004	Significant
Voluntary blood donation program	14.101	0.015	Significant
Rabies control program	17.873	0.003	Significant
Std / aids prevention program	20.755	0.001	Significant
Cancer prevention and control program	15.36	0.009	Significant
Leprosy control program and health education	12.911	0.024	Significant
Circumcision program	13.457	0.019	Significant
Health education and health promotion	18.21	0.003	Significant
Maternal and child health program	15.001	0.010	Significant

Table 23 presents the comparison of responses on the effectiveness of primary health care services when grouped according to educational attainment. It was observed that there was significant difference on all primary health programs when grouped according to educational attainment. This was indicated by the *P-values*, which were less than the α level, which implies that the responses differ significantly. Based on the post-hoc test conducted, it was found out that respondents belong to the category of high school graduate assessed the programs more effective.

This finding may be attributed to the fact that high school graduates are more reliant on government free health services than college graduates who are more learned and are more aware and capable to avail of more options. A number of respondents who are college graduates stated that they prefer to consult private doctors for check-ups and immunization of their children than queuing up in the BHSs. They also prefer to buy branded medicines than those available in BHS.

Table 24. Difference of responses on the effectiveness of primary health care services when grouped according to barangay

	χ^2 / U	<i>P-value</i>	Interpretation
Maternal and child health program	160.169	0.000	Highly significant
EPI	143.515	0.000	Highly significant
Tuberculosis control program	153.363	0.000	Highly significant
Nutrition program	165.424	0.000	Highly significant
Control of acute respiratory infection	136.9	0.000	Highly significant
Environmental sanitation	144.522	0.000	Highly significant
Diarrheal disease program	107.658	0.000	Highly significant
Cardiovascular disease prevention and control program	145.256	0.000	Highly significant
Dental health program	147.349	0.000	Highly significant
Reproductive health and family planning program	131.365	0.000	Highly significant
Voluntary blood donation program	135.192	0.000	Highly significant
Rabies control program	146.97	0.000	Highly significant
STD/AIDS prevention program	140.62	0.000	Highly significant
Cancer prevention and control program	144.496	0.000	Highly significant

Table 24 (continued)

	λ^2/U	<i>P-value</i>	Interpretation
Leprosy control program and health education	149.927	0.000	Highly significant
Circumcision program	131.046	0.000	Highly significant
Health education and health promotion	128.86	0.000	Highly significant

Table 24 indicates that there is a highly significant difference in the assessment of primary health care services when grouped according to sex. This significant difference is evident as the computed *P-values* were lower than the α level, signifying a highly significant variation in responses between the two groups. Additionally, the post hoc test revealed that respondents from Buli assessed the programs as more effective.

This finding is not surprising because when compared with other barangay-respondents, Buli is more capable of providing PHC services. They have active Barangay Health Stations (BHSs), allocate funds for purchasing hypertensive drugs, possess logistics like Barangay Patrols and other vehicles, and their municipality, Taal, is currently expanding its RHU to include maternity beds. These capabilities and resources in Buli may explain why its residents assessed all primary health care services and programs as more effective compared to other barangays included in the study.

However, this is quite surprising because Dulungan in San Luis has more capability than Buli. Dulungan has an existing ambulance, also has allocated budget to finance their residents' hypertensive drugs and their municipality, San Luis, already has free anti-rabies vaccines, free facilities for birthing, free dental procedures and upgraded RHU that their municipality won the 2018 Best Local Performing LGU awarded by the DOH.

Based on the respondents' assessment, the researcher formulated an action plan that may be used by the Province of Batangas to further address and enhance the primary health care services/programs that received a less effective assessment (**Table 25**).

Table 25. Proposed action plan to enhance the primary health care programs in Batangas

Programs/ Plans/Activities	Strategy	Performance Indicator	Office Responsible
Provision of facility-based delivery	Coordinate with the Provincial Government and DBM to source out fundings for the creation of free birthing institutions in each municipality	Birthing facilities that will provide free and safe deliveries for the residents in every municipality.	Office of the Governor, Sangguniang Panlalawigan, DBM, LGUs, DOH
Purchase of adequate supply of Oresol	(i) Coordinate with Provincial Health Office to ensure that all BHSs will be provided with Oresol. (ii) Disseminate information about the supply of Oresol from RHUs	(i) Adequate supply of Oresol in each barangay (ii) Residents are informed on the availability of Oresol (iii) Improved control of diarrheal disease	Provincial Health Office, Office of the Governor, Sangguniang Panlalawigan, LGUs, DOH, RHUs
Conduct of dental mission in remote areas	Coordinate with the Provincial Health Office, Philippine Dental Association (PDA) and other organizations for requests of dental mission to remote barangays in the province.	Batanguenos have better oral health.	Provincial Health Office, LGUs, DOH, RHUs, PDA, NGOs
Re-implementation of the monthly vaginal smearing and gram staining among CSWs and HIV testing	(i) Coordinate with the Provincial Health Office and the LGUs to re-implement the monthly vaginal smearing, gram staining and HIV testing to CSWs. (ii) Suspend the business permits of bars who do not comply with the scheduled gram staining	CSWs in Batangas are clinically tested to be HIV-free.	Provincial Health Office, LGUs, DOH, RHUs, BPLO

Table 25 (continued)

Programs/ Plans/Activities	Strategy	Performance Indicator	Office Responsible
Establishment of free HIV testing centers	(i) Coordinate with the Office of the Governor and Provincial Health Officer to create at least one HIV testing facility in the province. (ii) Coordinate with DOH and NGOs such as AHF and Loveyourself Inc. on building a free and confidential HIV testing facility in the province.	(i) Batanguenos have access to free and confidential HIV testing center. (ii) Improved STD/AIDS prevention program.	Office of the Governor, Provincial Health Office, DOH, NGOs, Sangguniang Panlalawigan
Information and education campaign on the importance of breast examinations for women of 30–55 years old	(i) Coordinate with the Provincial Health Office, Provincial Information Office, LGUs, RHUs, Barangays to conduct a provincial-wide IEC on the importance of breast examinations. (ii) Coordinate with provincial/city/municipal social welfare organizations and Development Office to include breast examinations in check-ups of mothers who are 4Ps beneficiaries	(i) Batanguenos are aware and knowledgeable on the importance of having their breasts examined as cancer prevention. (ii) 4Ps members are encouraged to undergo breast examinations	Provincial Health Office, Provincial Information Office, LGUs, RHUs, P/C/MSWDO, barangays
Establishment of traditional medicine units in RHUs and district hospitals	(i) Institutionalize and enhance the provision of traditional medicine in health facilities by establishing units in DOH hospitals. (ii) Enhance knowledge of RHUs and Barangay Health Centers' knowledge on traditional medicine.	Each district hospital and RHU will have a Traditional Medicine Unit	DOH, Office of the Provincial Governor, Provincial Health Office, LGUs, RHUs, barangays

6. Conclusions

The respondents are 40 to 50 years of age, female, high school graduates and majority are from Buli.

- (i) The PHC service in the Batangas Province is effective in terms of maternal and child health program, EPI, tuberculosis control program, nutrition program, control of acute respiratory infection, environmental sanitation, cardiovascular disease prevention and control program, dental health program, reproductive health and family planning program, voluntary blood donation program, rabies control program, cancer prevention and control program, leprosy control program and health education, circumcision program, health education and health promotion. However, diarrheal disease program and STD/AIDS prevention program are less effective.
- (ii) There is significant difference on the assessment of the effectiveness of PHC services when grouped according to the profile of the respondents. In terms of age, respondents who are 51 years old and above were more positive on the effectiveness of primary health care services except for the diarrheal disease program.
- (iii) In terms of gender, female respondents generally perceive primary health care services as more effective than males, with the exception of the control for acute respiratory infection, reproductive health and family planning, and rabies control program. When considering educational attainment, a significant difference in responses regarding the effectiveness of all primary health care programs was observed. Lastly, when looking at the different barangays, respondents from Buli tend to rate all primary health care programs as more effective in the province of Batangas.

Therefore, an action plan to improve all health programs assessed to be less effective is proposed.

7. Recommendations

- (i) The Provincial Health Office could consider seeking support from the Office of the Governor and NGOs to construct facilities that would enhance the delivery of health care services in the province.
- (ii) The Provincial Health Office might request an increase in its allocated budget from the Office of the Governor and the Sangguniang Panlalawigan to ensure that there are sufficient supplies and logistical support, especially for third to fifth-class municipalities.
- (iii) The Provincial Health Office could collaborate with the Provincial Information Office and utilize LGU social media platforms to raise public awareness about various health programs.
- (iv) The proposed plan of action should be presented for discussion, with the intention of implementing and subsequently evaluating it in the future.
- (v) Future researchers could explore similar research topics using different variables, specifically focusing on the delivery of PHC services.

Disclosure statement

The author declares no conflict of interest.

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