

AN ASSESSMENT OF THE LEVEL OF KNOWLEDGE ON LONG COVID SYNDROME ON SELECTED INDIVIDUALS IN SAN PABLO CITY, LAGUNA

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Abstract

This study was conducted to assess the level of knowledge of selected individuals in San Pablo City, regarding Long COVID Syndrome. The research was guided by these questions: (1) What is the demographic profile of the respondents? (2) What is the respondents' level of knowledge on Long COVID when it comes to; risk factors, signs and symptoms, diagnosis, health Management, and prevention? (3) Is there a significant relationship between the respondents' demographic profile and their level of knowledge on the Long COVID Syndrome? (4) Based on the results, what intervention program could be recommended? Three hundred eighty (380) responded to the study. To obtain the demographic profiles and the respondents' knowledge on Long COVID, the researchers used a self-made survey questionnaire which was scrutinized by 4 COVID doctors from San Pablo City. The data collected were analyzed by different statistical treatments such as frequency distribution, percentage, weighted mean, Kendal Tau B, and Mann-Whitney U test. The study revealed that the respondents had low knowledge of Long COVID Syndrome, and it was found that as the respondents' age increased, the less they become aware of Long COVID. Also, their sex had no significant difference because males and females had the same knowledge regarding the Syndrome. Based on the results, the researchers created an intervention program in order to increase the knowledge of the community regarding Long COVID, wherein the researchers' distributed leaflets, and posted a banner in three barangays where the respondents live - Del Remedio, San Francisco, and Santo Angel.

Keywords: Long COVID Syndrome, Knowledge Assessment, Risk Factors, Health Management.

Introduction

Ignorance of the people - especially common community people regarding health is the main reason why they are not getting maximum health gain in spite of the availability of resources for them. Their lack of knowledge hinders them to not seek care when needed resulting in them wasting their limited resources on inappropriate care. Therefore, it must be said that insufficient knowledge of health is the major factor behind poor health, as stated by Folger (2018).

Generally, everyone in the community may have this Long COVID Syndrome, most especially when being exposed to and actually acquiring COVID-19 disease. Besides, according to the Centers for Disease Control and Prevention (2022) having COVID-19 disease is the risk factor for acquiring Long COVID Syndrome, together with underlying diseases that may aggravate the severity of COVID-19 disease.

One of the first Long COVID citing by Ed Yong (2020) stated that for several months, COVID-19 can still be in a person's system. Long COVID was the name given to the condition when the virus continued to pose a threat to a person's health even after being recovered. "Post-COVID" Syndrome, often revealed as "Long COVID," is projected as the combination of persistent symptoms that selected individuals endure following an exposure to the COVID-19 virus (World Health Organization, 2022). It is a condition characterized by signs or symptoms that could last up to a year.

The Long COVID Syndrome can alter the cognition of a person resulting in confusion, lack of mental

focus, and the capacity of individuals to accomplish daily tasks. This can be experienced for a short or a Long time as a side effect of having Long COVID (World Health Organization, 2021). The most common effects of Long COVID are breathlessness and fatigue as stated by Baz, et al. (2021) in their research. In addition, Ed Yong (2020) used the term 'Long-haulers' for those people who were experiencing COVID-19 for several months and by this time, the term Long COVID has not yet been formulated.

To address the aforementioned issue, the researchers were prompted to perform a study to collect data and analyze the community's degree of understanding about extended COVID on selected persons in San Pablo City, Laguna. In addition, based on the

findings, the researchers intended to fill the community's knowledge gap about the Long COVID Syndrome by providing intervention program that will help the community increase their knowledge about the syndrome's occurrence.

Theoretical Framework

This research study was hooked with the theory by another author in order to prove to participants, readers, and future researchers that the study is reliable and credible enough to provide information regarding the existence of Long COVID Syndrome and what is the standing knowledge of the selected individuals in San Pablo City, Laguna.

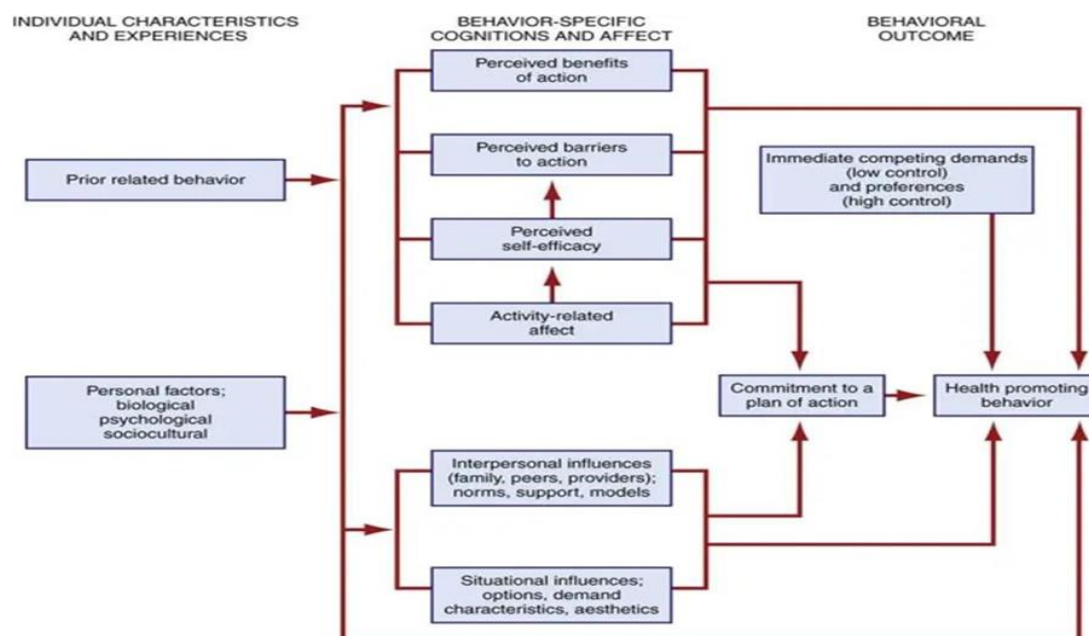


Figure 1: Health Promotion Model of Nola J. Pender

In 1982, Nola J. Pender utilized a theory in nursing which is called the "Health Promotion Model." This theory is focused on the interactions between individuals and the environment while the behavior change process is being done. It is said that this theory was developed to assist individuals make behavior changes that will increase success in health outcomes, together with prevention and minimizing the risk of acquiring the disease.

Applying the cycle to the study, knowledge on Long COVID Syndrome differs based on the individual's characteristics and experiences, and in order to at least provide a basis on the standing level of the respondent's knowledge, the researchers conducted a survey, asking each respondent with different characteristics – sex, and age, as well as their individual encounters regarding Long COVID most specifically signs and symptoms of the Syndrome.



Figure 2: Social Constructivism Theory by Lev Vygotsky

In the year 1968, a psychologist named Lev Vygotsky created a theory called, "Social Constructivism Theory." This theory emphasizes the role of social and cultural interactions that plays an impact on the learning process. In addition, this model implies that knowledge is co-constructed wherein each individual learns from each other, such

that it requires individuals to become involved in the process for the sake of learning.

The theory has three main components, which are; cultural or social, language, and thought or

knowledge. The research adopted Vygotsky's theory in order to further guide the flow of the study. Moreover, the theory was used to support the study, since the community was involved in the learning process – in the program and interventions provided.

Conceptual Framework

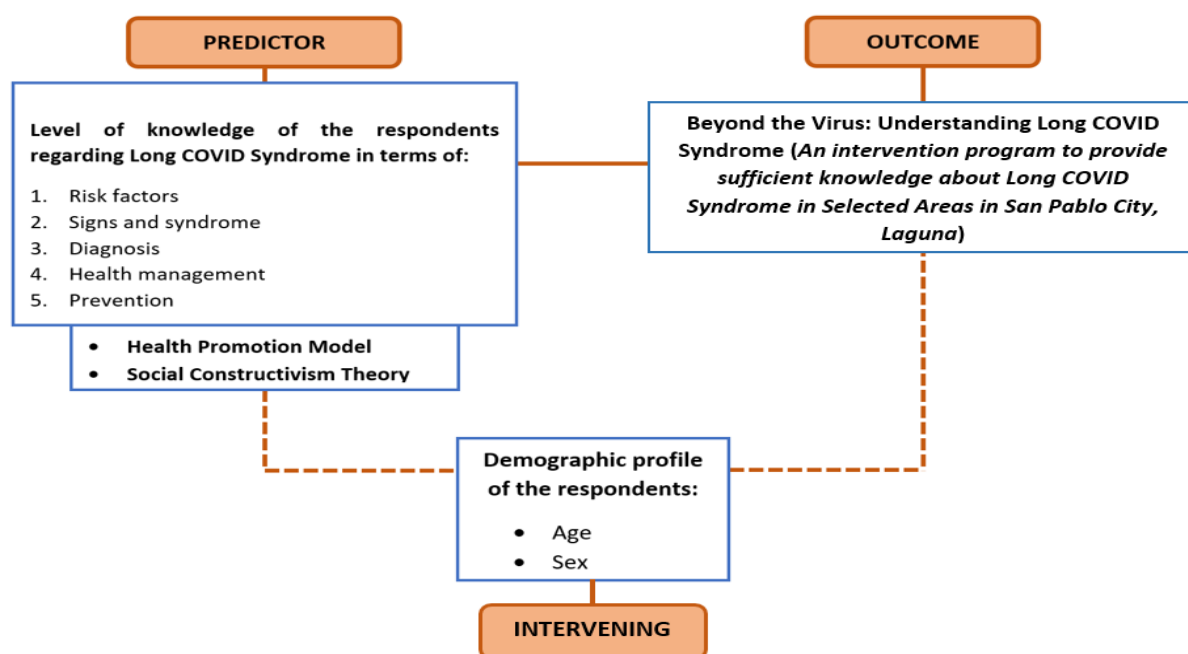


Figure 3: The Conceptual Framework of the Assessment on the Level of Long COVID Syndrome on Selected Individuals in San Pablo City, Laguna

The researchers utilized this independent variable and dependent variable model where the research have circulated. The predictor or the independent variable contained the level of knowledge of the respondents regarding Long COVID Syndrome in terms of risk factors, signs and symptoms, diagnosis, health management, and prevention. In addition, the predictor also contained the applied theories – the “Health Promotion Model” of Nola Pender and “Social Constructivism Theory” of Lev Vygotsky.

Based on the results regarding the respondents’ level of knowledge on Long COVID Syndrome, the recommended interventions were created. The contents and the approach in the recommended interventions were based on the predictor – the respondents’ knowledge and theories applied.

However, the framework did not flow only on the predictor and the outcome, because the results were also being affected by the intervening variables such as the demographic profile of the respondents – the age and sex. Besides, the respondents’ knowledge was being correlated to their demographic profile in which it was found that as the respondent’s age increases the less knowledge, they have regarding Long COVID. The results also implied that regardless of the sex – male and female, the

respondents have insufficient knowledge on Long COVID Syndrome. In this matter, the recommended interventions were needed in order to suffice and increase the knowledge of the community people.

Statement of the Problem

The study aimed to assess the level of knowledge of the selected individuals in San Pablo City, Laguna regarding Long COVID Syndrome. Specifically, the researchers aimed to answer the following questions:

1. What is the demographic profile of the respondents in terms of:
 - 1.1. Age;
 - 1.2. Sex?
2. What is the respondents’ level of knowledge on Long COVID when it comes to:
 - 2.1. Risk factors;
 - 2.2. Signs and symptoms;
 - 2.3. Diagnosis;
 - 2.4. Health Management;
 - 2.5. Prevention?
3. Is there a significant difference between the level of knowledge on Long COVID Syndrome when grouped according to their sex?
4. Is there a significant relationship between the respondents’ level of knowledge on Long COVID Syndrome and their age?

5. Based on the results, what program and interventions could be recommended?

Scope and Delimitation

The research study consisted of the level of knowledge of the selected individuals who are 20 up to 59 years old. These data were given by the City Population Office, in which all the age ranges were grouped in this manner (20-29, 30-39, 40-49, 50-59) which can explain why the study only covered ages from 20 up to 59. Furthermore, obtaining the respondents with ages ranging from 19 and below needs to secure an assent letter from the minor respondent and a consent letter from the guardian, relating to the population size of the research study, it would take so much time and resources from the researchers.

The study covered only one (1) city, namely San Pablo City, Laguna. The city has a total population size of 322,489, composed of 163,081 females and 159,408 male citizens. The target respondents of this research came from the age bracket ranging from 20 to 59 years old with a population size of 188,311 according to the City Population Office of San Pablo City, Laguna.

Samples taken represented the selected population of San Pablo City, Laguna. The said individuals were selected by the method of multistage sampling technique in which the barangays were clustered based on the recorded COVID19 disease from the year 2020 until November 2022 based on the statistics of the City Health Office of San Pablo City, Laguna. The researcher selected the top three (3) barangays who had the highest cases of COVID-19 – Del Remedio, San Francisco, and Santo Angel with a total number of population size of 31,026.

The researchers utilized a sampling calculator to limit and decrease the population size needed for the study. The results of the sampling calculator from the population size of 31,046 were narrowed only to 380 individuals with 95% confidence level and 5% margin of error, this sample size was used to suffice the needs of the research. The respondents were purposively picked from the three (3) barangays. One-hundred-sixty (160) from Brgy. Del Remedio, one-hundred-fifty-two (152) from Brgy. San Francisco, and sixty-eight (68) which were from Santo Angel.

Methodology

Research Design

Voxco (2022) stated that a descriptive study design collects data to systematically describe a syndrome, circumstance, or population. Instead of focusing on the why, it helps with the research challenge of what, when, where, and how inquiries. While a correlational study design does not involve any

modification on the part of the researcher to examine the relationship between two variables. The systematic study of developing, generating, and evaluating educational programs, practices, and products that must satisfy internal consistency and effectiveness standards also describes a developmental research design.

Therefore, descriptive-correlational-developmental was used to describe the population experiencing a syndrome in which the research aimed to investigate the relationship between variables in the selected population. In the end, the researchers were able to create an intervention program in accordance to the results of the study.

Participants/Respondents of the Study

The respondents of the study were the residents from the community of Del Remedio, San Francisco, and Santo Angel of San Pablo City, Laguna. Whereas; 168 responded from Del Remedio, while San Francisco brought 152 individuals, and 68 respondents were from Santo Angel with the total of three-hundred-eighty (380) respondents. Respondents were only those individuals with age ranging from 20 years old until 59 years or age comprised of males and females.

Instrument/s of the Study

The research instrument used in the study was a self-devised questionnaire about Long COVID Syndrome. Validated by 3 COVID doctors from Laguna Provincial Hospital San Pablo City District Hospital (Panlalawigang Pagamutan ng Laguna o PPL) and 1 COVID doctor from the City Health Office of San Pablo. In addition, the content was translated in Filipino for better understanding of the community, the translation was then examined by a Filipino Major teacher from Canossa College – San Pablo City, Inc.

The research instrument was composed of two (2) parts; the demographic profile and the level of knowledge on Long COVID. The second part has 5 subgroups; risk factors, signs and symptoms, diagnosis, health management, and prevention.

The respondents were asked to answer the questionnaire by yes or no only. The risk factors had 2 subparts with twelve (12), signs & symptoms has thirteen (13) items, five (5) items were allotted for the diagnosis while six (6) items were allotted for the health management. Lastly, the prevention has 2 subparts with seven (7) items in total to be answered.

Data Collection and Analysis

The researchers personally visited the said barangays with the permission of respective barangay chairmen. The self-made questionnaire,

which was translated into Filipino, was distributed and individually administered to the respondents

The questionnaire was read to the respondents, and their responses were entered immediately into Google Forms. Also, the google forms were sent to some of the respondents residing to the research locales.

Responses were collected and given to a statistician for statistical treatment and to determine the results, which were critical as the basis for program and intervention based on the needs of the results.

To finally get the results from the data gathered, the research utilized the following statistical treatment; percentage formula to analyze the demographic profiles of the respondents, weighted mean to determine the respondents' knowledge and its value, Kendal tau B to test the significant relationship between the respondents' knowledge on Long COVID Syndrome, Mann-Whitney U to test if there is significant difference between the respondents' level of knowledge and their sex, and Kolmogorov-Smirnov and Shapiro-Wilk to check the normality distribution of the data.

Ethical Considerations

The respondents were informed and fully aware that their participation in the study was entirely voluntary and they had the choice to answer the questionnaire or back out or not to answer the questionnaire if they felt uncomfortable with the questions being asked. In order to be certain that the respondents are willing to freely participate in the study, the informed consent of the participants from the pilot testing was obtained as well as the informed consent of the participants from the original study.

As stated in Republic Act No. 10173 of the Philippines, also known as the "Data Privacy Act of 2012" all of the gathered personal information and data should be secured, protected, and kept confidential. With the consideration of the republic act, the researchers guaranteed and assured that the respondent's responses or answers from the questionnaires will remain private and confidential, and be utilized strictly for research purposes only. Therefore, all of the data and information that was acquired from the respondents will not be used for anything other than research purposes.

Results and Discussion

The first section looked at the demographic data of the respondents and how it differs from one another. The second half assessed respondents' knowledge of Long COVID Syndrome information such as risk factors, signs and symptoms, diagnosis, health management, and prevention. The third section discussed the relationship between respondents'

level of knowledge on Long COVID and their demographic profile, including the correlation between respondents' level of knowledge and their age, as well as the difference between respondents' level of knowledge on Long COVID based on their gender.

Part I - Demographic profile of the respondents

Table 1: Frequency Distribution and Percentage of the Age of the Respondents

AGE	Frequency	Percentage
20-29	237	62.4
30-39	70	18.4
40-49	30	7.9
50-59	43	11.3
TOTAL	380	100%

Table 1, illustrated the frequency distribution and percentage of the demographic profile of the respondents in terms of age. The age brackets of the respondents were grouped based on the data given by the City Population Office of San Pablo City, Laguna. While 70 out of 380 were included in the age ranging from thirty up until thirty-nine years old (30-39), equivalent to 18.4 percent. The results implied that the study was greatly responded by the individuals ages from twenty up to twenty-nine (20-29), followed by those whose age belong to thirty up until thirty-nine years old (30-39).

According to the 2022 population data of the City Population Office of San Pablo City, the etiology of why the study was mostly responded by people aged twenty to twenty-nine (20-29) is because the population size was greatly composed by these people. In which; ages 20-29 (8,872), ages 30-39 (8,112), 40-49 (7,530), and 50-59 (6,512).

Moreover, the census of Philippine Statistics Authority (PSA) published on year 2022 implied that the 2020 population were composed of the following age ranges with corresponding population size of the country: 20-29 years old (19, 585,500), 30-39 (15, 467, 800), 40-49 (12, 361, 100), 50-59 (9, 505, 000). Whereas, the Philippine Statistics Authority (PSA) 2020 census correlates the number of the selected population size of San Pablo City, with the respective age ranges.

Table 2: Frequency Distribution and Percentage of the Sex of the Respondents

Sex	Frequency	Percentage
Male	193	50.8
Female	187	49.2
TOTAL	380	100%

Table 2, illustrated the frequency distribution and percentage of the demographic profile of the respondents in terms of sex. The gender of those

who replied to the study's survey was simply divided into two categories: male and female. Out of three-hundred-eighty (380) respondents ages from twenty to fifty-nine (20-59), one-hundred-ninety-three (193) were males with an equivalent percentage of 50.8, while females constitute a-hundred-eighty-seven (187) in the total sample population size which is 49.2 percent of the said population. The results indicated that the majority of the respondents of the study were males.

The comparison between the frequency of males and females may be due to the composition per se of the population. According to the City Population Office of San Pablo City (2022), male residents from the selected 3 barangays of the study equate the

numerical value of 14,188 individuals, while the female category was composed of 13, 268 individuals.

Furthermore, according to the Philippine Statistics Authority (2022), of the 108.67 million household population in 2020, 55.02 million (50.6%) were men, while 53.65 million (49.4%) were females. Whereas, the majority of the population belongs to ages 15-64 years old with a total number of 69.40 million (63.9%) individuals, followed by 15 years old below with a population of 33.4 million (30.7%), while the remaining 5.86 million (5.4%) was comprised of 65 years old and above individuals.

Part II - Level of Knowledge on Long COVID

Table 3: Respondents' Level of Knowledge on Long COVID when it comes to Risk Factors.

RISK FACTORS	Frequency	%
Do you know that most of the risk factors of having Long COVID Syndrome are the following?		
Individuals who do not have any vaccination against COVID-19	158	41.58
Having underlying disease/s before acquiring COVID-19 disease such as the following:		
a. Chronic kidney disease	25	6.58
b. Chronic liver disease	27	7.11
c. Chronic lung disease	35	9.21
d. Cancer	28	7.37
e. Diabetes	46	12.11
f. Heart problems	46	12.11
g. HIV infections	31	8.16
h. Weakened immune system	72	18.95
i. Stroke	24	6.32
j. Tuberculosis	46	12.11
k. Obesity	46	12.11

Table 3, presented the level of knowledge on the Long COVID Syndrome of the respondents regarding the syndrome. Among 380 respondents 158 individuals (41.58%) had the prior knowledge that having no vaccines against COVID-19 is a risk factor of Long COVID Syndrome. Moreover, the level of knowledge of the respondents regarding the presence of underlying diseases prior to acquiring COVID-19 as a risk factor of Long COVID Syndrome was tested. The researchers identified that some respondents had prior knowledge in terms of underlying diseases prior to acquiring COVID-19 disease as precipitating factors for Long COVID.

Risk factors can be avoided, most specifically having COVID-19 disease. Gao, et. al., (2022) stated that COVID-19 can be prevented and its severity. They also added that having COVID-19

vaccines will help the public avoid having Long COVID. Lastly, their study suggested that having no vaccines against COVID-19 disease is a predisposing factor for Long COVID.

Moreover, cardiovascular disease, diabetes, chronic respiratory illness, and cancer were declared to be risk factors since these underlying conditions can exacerbate the severity of COVID-19 disease, resulting in Long COVID occurrence, according to the World Health Organization (2023). In connection to this; cancer, chronic organ diseases such in; kidney, liver, lung, diabetes, heart problems, HIV infections, immunocompromised conditions, stroke, tuberculosis, overweight and obesity were also hugely contributing to the said syndrome, implied by Centers for Disease Control and Prevention (2023).

Table 4: Respondents' Level of Knowledge on Long COVID when it comes to Signs and Symptoms.

Signs and Symptoms	Frequency	%
Do you know that the following are the signs and symptoms of the Long COVID Syndrome?		
A. Cough	231	60.79
B. Fatigue	103	27.11
C. Breathlessness	138	36.32

D. Fever	176	46.32
E. Sore throat	128	33.68
F. Chest pain	101	26.58
G. Palpitations	90	23.68
H. Muscle pain	93	24.47
I. Skin rashes	70	18.42
J. Diarrhea (3 or more liquid stools per day)	97	25.53
K. Difficulty concentrating/thinking	70	18.42
L. Loss of smell	175	46.05
M. Loss of taste	182	47.89

Table 4, showed the frequency and the percentage distribution of the respondent's level of knowledge on Long COVID Syndrome when it comes to the signs and symptoms. Based on the table above, it is inferred that there is a relatively low level of knowledge among the respondents regarding the signs and symptoms of Long COVID Syndrome. However, there are some parts of the result regarding the signs and symptoms that have slightly increased, especially the common signs and symptoms of the COVID which are cough, fever, loss of smell, and loss of taste. This suggests that there is a need for increased awareness and education regarding the signs and symptoms of Long COVID Syndrome among the population.

The Centers for Disease Control and Prevention, (2022) stated that Long COVID Syndrome was defined as signs and symptoms as well as the condition that develops and continues after the initial COVID-19 infection. People that have Long COVID Syndrome can experience a wide range of symptoms that can last weeks, months, or even years after the infection. Symptoms can disappear and sometimes can come back again one more time. However, Long COVID Syndrome does not affect everyone in the same way.

People may experience different types or conditions in their health problems and a combination of symptoms over different lengths of time. The Centers for Disease Control and Prevention, (2022) stated the list of signs and symptoms that are commonly reported and experienced by the person having Long COVID Syndrome. The following are; cough, fatigue, shortness of breath, fever, sore throat, chest pain, palpitations, muscle pain, skin rashes, diarrhea, anxiety, depression, impaired ability to focus, loss of smell, and loss of taste. Moreover, knowing these signs and symptoms are the important factor for everyone to be aware of their health. Especially for those individuals experiencing these signs and symptoms and having an underlying illness that was more likely to occur and develop Long COVID Syndrome.

Patients can be fully recovered from the COVID-19 virus but in some patients, symptoms persist after several weeks. They can also re-acquire or develop new symptoms such as cough, fever, loss of taste, and loss of smell, in that case, it is called Long COVID Syndrome (VanElzakker, 2021). The Centers for Disease Control and Prevention (2022) said that in some time, symptoms of Long COVID could be gone and could come back again.

Table 5: Respondents' Level of Knowledge on Long COVID when it comes to Diagnosis.

Diagnosis	Frequency	%
Are you informed that healthcare providers consider a patient with Long COVID Syndrome based on the following?		
A. History or present illness or comorbidities	77	20.26
B. Diagnosis of COVID-19 disease in the past at least 3 months	57	15.00
C. Symptoms of COVID-19 disease	72	18.95
D. Exposure to an individual with COVID-19 disease	77	20.26
E. InCellKINE test (a blood test that is only available in Europe)	19	5.00

Table 5 showed the percentage distribution of the respondents' level of knowledge on Long COVID when it comes to its diagnosis. Based on the information provided, it can be inferred that there is a relatively low level of knowledge among the respondents regarding Long COVID diagnosis. This suggests that there is a need for increased awareness and education regarding Long COVID diagnosis among the general population.

The NICE guidelines in the UK have created a differentiation for Long COVID based on the length of symptoms after the acute phase of the illness, according to Cau et al. (2022). The recommendations make a distinction between post-acute COVID-19 Syndrome, which describes persistent symptoms lasting longer than 12 weeks after the beginning of acute symptoms, and post-acute COVID-19, which describes continuous

symptoms between 4 and 12 weeks following the onset of acute symptoms.

Table 6: Respondents' Level of Knowledge on Long COVID when it comes to Health Management.

Health Management	Frequency	%
Do you know that there are no specific treatment or medication for Long COVID? Instead, the current interventions available are:		
A. Deal with each symptom individually	150	39.47
B. Manage daily activities	88.00	23.16
C. Cope with stress	80	21.05
D. Breathing exercises	92	24.21
E. Physical exercise as tolerated	110	28.95
F. Boosting of immune system	154	40.53

Table 6, displayed the frequency and the percentage distribution of the respondent's level of knowledge on Long COVID Syndrome in terms of health management. With a low result, the respondents were not that aware of the possible interventions for the health management of Long COVID.

As Long COVID slowly progresses, more and more people are curious about the Long COVID Syndrome. According to Kaatz et al. (2022), by the use of google trends, they saw a significant increase of Long COVID topics in the year 2021. This

showed that people were interested about the Long COVID and how it could affect us. As they are no treatment or medication to treat the overall condition of Long COVID, several interventions could be made to help relieve some of the symptoms (British Heart Foundation, 2023). The data shown above was the overall knowledge of the respondents when it comes to the medical interventions of Long COVID. With a low result, the respondents were not that aware of the possible interventions for the health management of Long COVID.

Table 7: Respondents' Level of Knowledge on Long COVID when it comes to Prevention.

Prevention	Frequency	%
Are you aware that avoidance of acquiring COVID-19 disease is the preventive measure for Long COVID Syndrome?	263	69.21
Do you know that the following are the ways to avoid having Long COVID illness?		
A. COVID-19 vaccines	289	76.05
B. COVID-19 boosters which are recommended based on age and medical status	195	51.32
C. Wearing a well-fitting high-protection respirator mask	210	55.26
D. Avoiding crowds and maintaining at least 1 meter social distancing	219	57.63
E. Frequent hand hygiene; washing with soap and water, alcohol, and sanitizer	226.00	59.47
F. Quick consultation response when experiencing signs and symptoms of COVID	200	52.63

Table 7 displayed the frequency and percentage distribution of respondents' level of knowledge on Long COVID Syndrome prevention. The majority of respondents demonstrated some level of knowledge about preventing Long COVID.

Preventing the acquisition of COVID-19 played a major role to lessen the chance of a person to have

Long COVID. Landau (2022) stated that having vaccinated the COVID-19 vaccine and booster shots are some interventions we could prevent having Long COVID. In addition, O'Mary (2022) stated that a single dose of Pfizer, Moderna, AstraZeneca, or the Janssen COVID-19 vaccines were effective in preventing Long COVID acquisition by 29%.

Part III. Relationship of Respondents Level of Knowledge on Long COVID and their Demographic Profile

Table 8: Difference between the Respondents' Level of Knowledge on Long COVID with regards to their Sex.

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Risk	380	1.5368	2.47227	.00	12.00
Signs	380	4.3526	4.69400	.00	13.00
Diagnosis	380	.7947	1.41793	.00	5.00
Treatment	380	1.7737	2.27904	.00	6.00
Prevention	380	4.2158	2.68697	.00	7.00
Sex	380	.4921	.50060	.00	1.00
Test Statistics ^a					

	Risk	Signs	Diagnosis	Treatment	Prevention
Mann-Whitney U	17046.000	18037.500	17484.500	17859.000	16554.000
Wilcoxon W	34624.000	36758.500	35062.500	36580.000	34132.000
Z	-.994	-.008	-.635	-.187	-1.427
Asymp. Sig. (2-tailed)	.320	.994	.525	.852	.154

a. Grouping Variable: Sex

The Mann-Whitney U test was conducted to determine if there was a significant difference in the level of knowledge on Long COVID between male and female respondents. The results showed no significant difference in knowledge regarding risk factors, signs and symptoms, diagnosis, health management, and prevention of Long COVID based on gender. This suggests that both male and female respondents had similar levels of expertise in Long COVID.

In contrast to the result, Enjeela (2022) said that it suggests that women are more intelligent than men, and there are several factors that contribute to this advantage including their better memory, ability to handle stress, and multitasking. ability, and more. In many cases, women are also found to be better leaders, drivers, and students than men due to their increased focus, frugality, and other positive traits.

Correspondingly, according to Satoshi Kanazawa (2009), a scientific fundamentalist. Women and men had the same average intelligence or level of knowledge in the orthodoxy of intelligence research for the second half of the 20th century. Another study made on public opinion polls performed between 1946-2018 concluded that women are now looked up as just as brilliant and clever as men. The experiment was conducted by the researchers at Northwestern University and was published by the American Psychological Association, using the opinions of more than 30,000 U.S. adults in the 16 polls, (Connley, 2019).

Lastly, it is said that there is no thing such as “smarter sex” because women and men do not differ in an actual intellectual quantity (Nueroscience, 2022).

Table 9

Descriptive Statistics			
	Mean	Std. Deviation	N
Risk	1.5368	2.47227	380
Signs	4.3526	4.69400	380
Diagnosis	.7947	1.41793	380
Treatment	1.7737	2.27904	380
Prevention	4.2158	2.68697	380
Age	30.6474	11.22247	380

Correlations between Respondents' Level of Knowledge and their Age Using Kendal Tau B

Correlations		Risk	Signs	Diagnosis	Treatment	Prevention
Kendal Tau b	Age	Correlation	-.104**	-.134**	-.221**	-.180**
		Coefficient				
		Sig. (2-tailed)	.008	.000	.000	.000
		N	380	380	380	380

**. Correlation is significant at the 0.01 level (2-tailed).

The Kendall tau b test was conducted to examine the relationship between respondents' knowledge on Long COVID and their age. The results revealed a significant negative relationship between age and knowledge in terms of risk factors, signs and symptoms, diagnosis, health management, and prevention of Long COVID. This suggests that as respondents grow older, their knowledge about Long COVID tends to decrease.

At present, there is limited understanding of Long COVID in many areas, and there is a lack of agreed-upon guidelines for managing the disease (Garg, 2022).

Cooper et al. (2023) stated that individuals encountering recent or continuous symptoms after being infected with COVID-19 may not have sufficient knowledge about Long COVID, which could lead to a decrease in their inclination to search

for clinical evaluation or support groups. Numerous studies on Long COVID, such as the survey of Davis et al. (2020), have enrolled individuals through existing online support groups, social media, or specialized clinical services that cater to individuals with Long COVID. This allowed them to distinguish that the majority of participants were within the age range of 30-59 years. However, the findings may not reflect the experiences of the entire Long COVID population.

Thus, further studies that involve more diverse samples are crucial to obtain a comprehensive understanding of the individuals affected by Long COVID and how it affects their daily lives.

Intervention Program

The proposed intervention entitled “Beyond the Virus: Understanding Long COVID Syndrome (An Intervention Program to provide sufficient knowledge about the Long COVID Syndrome in Brgy. Del Remedio, San Francisco, and Sto. Angel)”, was conducted on the three (3) barangays and was done within the proposed schedule which was from June 14 to June 23, 2023. We initially obtained written permission from the researchers' research adviser and the Dean of the College of Nursing to conduct the intervention. We then went to the three barangays, acquired their signatures on our letter, and began putting up posters and distributing flyers in their community within a specific deadline. Aside from that, we also shared a Facebook post with our posters, leaflets, and other captions to broaden the topic's reach.

Conclusion

Based on the findings, the following conclusions were drawn:

- After the three barangays; Del Remedio, San Francisco, and Santo Angel were assessed, the research was answered greatly by individuals ages from twenty up to twenty-nine (20-29) amounting to 237 of 380. In addition, the respondents were mostly male individuals constituting one-hundred-ninety-three (193) of three-hundred-eighty (380) respondents.
- One-hundred-fifty-eight (158) respondents are knowledgeable that having no vaccines against COVID-19 is a risk factor of the Long COVID Syndrome. However, the respondents have inadequate knowledge regarding the presence of underlying diseases for developing Long COVID Syndrome after contracting COVID-19. There is a somewhat low degree of knowledge on Long COVID signs and symptoms, however there are common COVID-19 signs and symptoms that are comparable to Long COVID that respondents are slightly more aware of. Moreover, the level of knowledge among respondents regarding the diagnosis of

Long COVID is also relatively low, needing increased awareness and education. However, one-hundred-fifty (150) respondents had knowledge on the health management of Long COVID, signifying deficient knowledge. Majority of the respondents were informed of some of the possible measures to prevent the Long COVID Syndrome as implied by a much higher result. According to the study's findings, the general population has insufficient knowledge of extended COVID.

- The respondents, male or female, were the same in terms of their level of knowledge regarding Long COVID. This implied that sex did not show any significant difference in their level of knowledge on Long COVID; hence, the null hypothesis was accepted.
- Between the respondents' age and their level of knowledge on Long COVID. The knowledge on Long COVID tends to decrease as the age of the respondents' increases. There was a very low significant negative relationship; thus, the null hypothesis was accepted.
- Aligning to the results, the respondents are needing further education regarding their knowledge on Long COVID Syndrome. Based on the findings, an intervention program was made.

Recommendations

This study showed the level of knowledge of the community with regards to the Long COVID Syndrome. As a response, the following recommendations were formulated:

COVID-19 Patients

Patients with a history of acquiring COVID-19 disease should know that they are prone to develop symptoms associated with Long COVID Syndrome, and probably can acquire new signs and symptoms. In addition to this, information about the condition itself should be provided by their doctors or healthcare providers to better understand its long-lasting effects.

Community

Barangay chairmen together with other officials and personnel of the three locales of the research – Del Remedio, San Francisco, and Santo Angel are encouraged to carry out the developed intervention program by the researches in order to increase the knowledge of their residents regarding Long COVID Syndrome. Moreover, people within the community must actively engage in knowing about the Long COVID Syndrome for them to be aware of its risk factors, signs and symptoms, diagnosis, health management, and prevention.

Community Health Office

The researchers recommend the Community Health Office to use this study to serve as the basis in knowing the community's level of knowledge about Long COVID Syndrome. The CHO is highly advised to lead the community in terms of disseminating information about the Long COVID Syndrome so that they are properly guided and supported. CHO must apply the results that the researchers gather, for them to enhance their capacity to have such interventions to provide a community-based program to address the issue regarding Long COVID.

Department of Health

The Department of Health is suggested to use the findings of this study to serve as a basis to have a complete assessment of the community's level of knowledge with regards to Long COVID Syndrome. The researchers also encourage the DOH to use the data available to devise an intervention program to address the issue regarding the lack of available public information about the Long COVID Syndrome.

Nursing Education

It would serve as a foundation for further developing the health knowledge and nursing program that students should be aware of, so the researchers will recommend including the Long COVID Syndrome in the nursing curriculum. This study would be even more beneficial if it were advised that it be used to communicate information to the entire nursing profession, as well as their family and friends.

Nursing Students

This study and its results should serve as the basis for teaching nursing students about the risk factors and potential causes of the Long COVID Syndrome.

Future Researchers

If future researchers conduct a study using the same factors and data as this one, they can use it to further investigate their issue and compare the results to determine if there are any improvements. It is also recommended that future researchers make use of this study and its findings for the enhancement and betterment of the topic and to further discuss the problems involved in this research study.

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Conflicts of Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have influenced the performance or presentation of the work described in this manuscript.

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