

Perception and Attitude on Antibiotic Use during COVID-19 Pandemic in Koronadal City, South Cotabato

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ABSTRACT

Objective: This study aimed to evaluate the attitude and perception of the participants about antibiotic use during COVID-19.

Methods: A descriptive, cross-sectional quantitative research design through a Google form survey was used and the data gathered was analyzed using the IBM SPSS 25, inferential statistics to assess differences between groups based on certain demographic variables as well as, to determine the levels of perception and attitude of the respondents and one-way ANOVA to check if the means of two or more groups are significantly different from each other.

Results: Results of the statistical analysis revealed an existing significant difference ($p < 0.05$) in the level of perception and attitudes among respondents in taking antibiotics in terms of the amount spent purchased per month of respondents (p value = 0.014). This signifies that there are respondents who may fully take the medication as prescribed due to monetary issues and economic status. On the other hand, there is no significant difference in the level of perception and attitudes among the respondents in taking antibiotics during the COVID-19 pandemic.

Conclusion: The findings reveal that there are misconceptions about antibiotics even with a high level of perception and attitude. Majority of the respondents do not practice what they know and that respondents failed to effectively assess which condition must merit the use of antibiotics and thus pharmacists and physician's advice must strengthen patient understanding of antibiotics to ensure that patients are taking the correct antibiotic at the right time and dosage.

Keywords: Perception, attitude, antibiotic use, COVID-19

INTRODUCTION

Antibiotics are an extremely important weapon used against infections [1]. However, the benefits of antibiotics are threatened by self-medication, people's lack of knowledge and inappropriate use of antibiotics across many countries [2]. The COVID-19 pandemic has dramatically impacted health systems and there is a concern that widespread antibiotic use may drive antibiotic resistance [3].

According to the World Health Organization [4], antibiotic resistance is emerging dangerously worldwide and threatening the ability to treat common infectious diseases caused by the increase of the misuse and overuse of antibiotics [4]. Major factors that contribute to the increasing rate of irrational use of antibiotics give rise to a major threat in clinical efficacy and are a serious problem for global public health [5]. On the other hand, 700,000 people die each year worldwide caused by drug-resistant diseases [6].

In the Philippines, despite the existing legislative framework to control antibiotic use, the unregulated sale of antibiotics without medical prescription is widespread according to [7]. The warning of Department of Health (DOH) [8], that the misuse of antibiotics would make medicines ineffective and allow infections to persist in the body, which can contribute to the risk of spreading. Even those with a low-income can afford to

buy low-priced generic antibiotics without any medical consultation from physicians. Understanding the prevalence of community antibiotic use is helpful in providing information on the appropriate management of medicines in health care facilities [6].

The irrational use of antibiotics which includes self-medication, sub-optimal dosage, overuse and even with the use of prescription of inappropriate antibiotics are considered as major factors of the emergence of antimicrobial resistance that is spreading worldwide [5]. Thus, because of these current situations, the researchers propose to conduct a study to evaluate the respondents' perceptions and attitudes on the antibiotics use. Specifically, the study sought to broaden respondent's understanding on antibiotic use and to describe the barriers related to rational antibiotic use and the selection of appropriate educational resources.

MATERIALS AND METHODS

A cross-sectional quantitative research design was used for this study. The researchers collected the data by using a cross-sectional survey questionnaire; it involved the distribution of questionnaires, or conducted by interview or observation. This design allowed for the standardization in asking of questions and the categorization of the answers provided [9]. This study was conducted for a period of 9 months that began from August 2020 to May 2020,

conducted in the city of Koronadal, South Cotabato. According to the 2015 census, it has a population of 174,942 people. The sample consisted of respondents aged 18-60 years above at any specific gender or race. Participants who were unable or unwilling to provide written informed consent to participate were excluded.

Sampling and Sample Size

The sample size was based on the number of the population of morbidity and mortality rates of the Top 10 Leading Cause of Disease in Koronadal City, South Cotabato, with a total of 3560 population. This was determined by using an online sample size calculator, Raosoft (<http://www.raosoft.com/samplesize.html>). The sample size is 407 with a response rate of 95% and a margin of error of 5%.

Survey Instrument

A self-administered questionnaire was used to collect the data from the participants based on the review of the previous literature. The content of the survey questionnaire was validated by three professionals. Survey Questionnaire was done online by the use of Google Forms, it is a part of Google's online application to easily access especially one of the simplest ways for saving the data. The content of the study will be validated by our mentor, adviser, and statistician. The survey questionnaire will consist of three domains: 1) Demographic Profile, 2) Perception, 3) Attitude toward antibiotic use during this COVID-19

pandemic. The first part of the questionnaire should gather the demographic information of the respondents such as age, gender, antibiotic use, cost of medicine, and type of disease. The second part of the questionnaire should assess the respondent's perception of the use of antibiotics. The Likert Scale (1= Strongly Disagree, 2= Disagree, 3= Agree, and 4= Strongly Agree) will be used to determine their perception regarding the antibiotic use during this COVID-19 pandemic. The last part of the questionnaire will evaluate the respondents' attitudes towards antibiotic use. Respondents' responses were also recorded on a four-point Likert scale (1= Strongly Disagree, 2= Disagree, 3= Agree, and 4= Strongly Agree). The significance of the relationship between the perception and attitude will be based on the answer of respondents in the second and third domains of the questionnaire.

Data Analysis

The data was analyzed using the One-way ANOVA test as a statistical tool for providing information from the respondents. One-way Analysis of Variance (ANOVA) is used to check if the means of two or more groups are significantly different from each other and the impact of one or more factors by comparing the means of different samples. This would provide the researcher's information about the significant relationship and difference between the independent and dependent variables of the study. The data was analyzed using the IBM SPSS 25 (Statistical

Package for the Social Sciences) computer software (IBM SPSS Inc. 2017). Descriptive statistics were used to describe the percentages, frequencies, median, and mean antibiotic perception and attitude scores obtained from the respondents of Koronadal City, South Cotabato. The use of inferential statistics provided an opportunity to assess differences between groups based on certain demographic variables as well as, to determine the levels of perception and attitude of the respondents. The statistical significance for all the analyses was assessed using the p-value. A p-value less than 0.05 was considered significant.

Ethical Consideration

To ensure the study is abiding by the ethics of conducting research, this ethical approval with a code ethics number SAC-PREC-01-FEB-005 was obtained from the Pharmacy Research Ethics Committee (PREC). The researchers will observe the following:

Informed Consent. Ethical approval will be coming from the ethics committee of St. Alexius College. For compliance with ethical considerations in conducting research, all participants will be given informed consent of what the purpose of the study is before participating in the research. Informed consent will help the participants fully understand what they are being asked to do. The researchers will ask permission by giving informed

consent before giving the guided questionnaire.

Privacy and Confidentiality of Information. The data collected will be respected with confidentiality and anonymity of the respondents by limiting the access that could reveal an individual's identity and by obtaining anonymous information to ensure the quality and integrity of the research. The researchers abide by the Data Privacy Act of 2012, which assures that data will not be traced back to the participants who are the real source of information, to protect their identities. The researchers will ensure the privacy of the participants and that all information will be for academic purposes only.

RESULTS

Table 1
 Demographic Profile of the Respondents

Test Parameters	Segmentation	N	Percentage (%) Distribution)
Age	18-25	310	76.2
	31-40	33	8.1
	26-30	30	7.5
	41-50	20	4.9
	51-60	14	3.4
Gender	Female	273	67.08
	Male	134	32.92
Amount spent a month to purchased antibiotic medication	<500 Pesos	323	80.1
	501 – 1000 pesos	66	15.8
	1001 – 1500 pesos	15	3.7
	1501 – 2000 pesos	2	0.5
	2001 above	1	0.2

Health Conditions	Flu like symptoms	146	35.9
	Wounds	109	26.78
	Body Pain (Muscles, Headache)	66	16.21
	Physical Discomfort (Urination Problem)	48	11.8
	Prescribed by Physician	6	1.5
	Allergies	5	1.2
	Common cough with Phlegm	5	1.2
	Skin problem	5	1.2
	Tooth extraction	4	1.0
	Ear infection	3	0.7
	Prevention of Bacterial infection	3	0.7
	Urinary Tract Infection	3	0.7
	No reasons	2	0.5
	Post operation	1	0.2
	Respiratory problems	1	0.2

Results of the demographic analysis of data showed that most of the respondents comprised 18-25 years old (76.2%), while 7.4%, 8.1%, 4.9%, and 3.4% were 26-30, 31-40, 41-50, and 51-60 and Females consist of 67.08% while males (32.92%). 78% of the respondents spent less than 500 pesos a month to purchase antibiotics and those who spent 2001 pesos and above comprised only 2% of the respondents. The demographic profile was important in the assessment of this study in respondents as it will guide the researchers on what triggers respondents to take antibiotics during the COVID-19 pandemic. Based on the result, the most common health conditions are flu-like symptoms (35.9%), treatment for wound infection (26.78%), physical discomfort (11.8%), and Body pain (16.21%). Of those 35.9% respondents who wrongly believed

that taking antibiotics when having a cold could help them recover faster and also 26.78% for wound infection which this study shows that people tend to practice using antibiotics as a treatment for skin wounds and injuries in the wrong manner of administration. The current findings are quite disturbing as the reasons of the respondents based on professional evaluation do not merit the intake of antibiotics.

Respondents in this study ranged in age from 18 to 60 years, the majority (76.2%) of the respondents were in the age range 18 - 25. Females comprised a larger portion of the group 67.08 %, whereas 32.92% were males. Similar to Southwest Alberta Study. Females with 58.0% respondents, whereas 42.0% were males [10]. Female respondents in our study reported more frequent antibiotic use when compared to respondents of the opposite gender, and we found the same discrepancy in the study of Romania (Voidăzan, 2019)

Majority of the of respondents (35.9%) did not know that antibiotics do not work on most flu and colds close to the results from a study in the United Kingdom [13] that found this proportion to be 38% because they believe that antibiotics may treat common flu and cold (often due to viral infection). However, contradicting another study in a UK survey, 43% of the respondents understood that antibiotics can kill bacteria that normally live on the skin and in the gut [13]. Additionally, most of those who responded to our survey were unaware

of the growth of antibiotic-resistant bacteria or does not finish an antibiotic course may lead to antibiotic resistance. In which the result from this study was lower than the proportions 40%, 57%, 70%, 83% reported in Britain [13], Qatar [42], South Korea (Kim et al., 2011) and Mongolia [18] respectively, and higher than those reported in the United States of America 27% ([19], Hong Kong 17% [14] and Sydney 3% [20]. Respondents may lack adequate knowledge to differentiate between these groups of organisms, hence it may be beneficial to educate them on the differences between viruses and bacteria and the disease they cause.

Table 2
Types of Antibiotics Taken by the Respondents during COVID-19 Pandemic

Types of Antibiotics	N	Percentage (%) Distribution
Amoxicillin	275	67.57
Cephalexin	35	8.60
Ciprofloxacin	16	3.93
Other prescribed medication	16	3.93
Azithromycin	11	2.70
Levofloxacin	11	2.70
Clindamycin	9	2.21
Sulfamethoxazole/Trimethoprim	9	2.21
Doxycycline	8	1.97
Clarithromycin	7	1.72
Co-amoxiclav	3	0.74
Cefuroxime	2	0.49
Cloxacillin	2	0.49
Erythromycin	1	0.25
Fluconazole	1	0.25
Cotrimoxazole	1	0.25

The table shows that the most common antibiotic taken by the respondents was amoxicillin (67.57%). Accordingly, amoxicillin is used to treat a wide variety of bacterial infections and it works by stopping the growth of bacteria that caused the infection. This antibiotic treats only bacterial infections and it will not work for viral infections (such as common cold, flu). Other

antibiotics taken by the respondents were Cephalexin (8.60%) and Ciprofloxacin (3.93%). The least antibiotics taken by the respondents were erythromycin (0.25%), fluconazole (0.25%), and cotrimoxazole (0.25%).

Regarding the results of the survey, the most mentioned antibiotics in the study were amoxicillin with 67.57% of the respondents, in comparison to other studies in Greece and Indonesia which reported amoxicillin as 81% the most frequently used antibiotics [16, 17]. Other antibiotics used by the respondents were Cephalexin (8.60%) and Ciprofloxacin (3.93%). The reason why respondents take antibiotics is due to different health conditions, most of the respondents assumed antibiotics can treat common colds/flu (35.9%) and body pain and inflammation (16.21%) in which it is lower than the proportion of the other study in San Jose Del Monte, Bulacan (Phase et al., 2019), it indicates that 62.75% of the respondents answered that antibiotics can treat common colds and flu and 77.78% of the respondents believed that antibiotics are indicated to reduce pain and inflammation.

Level of Perception and Attitudes

To determine the level of perception and attitudes among the respondents in taking antibiotics, a summary of their responses is shown in table 3.

The matrix of Interpretation for the 4-Likert scale survey is shown below:

Mean interval	Category*
1 – 1.75	Very Low
1.76 -2.50	Low
2.51 – 3.25	High
3.26 -4.0	Very High

* Wibowo & Suyatmi, 2016

While respondents tend to take antibiotics without a physician’s prescription, it was shown that the level of perception and attitudes of the respondents in taking antibiotics is high with an overall mean value of 2.62. However, it was noticeable that most of the respondents believe that antibiotics may treat common flu and cold (often due to viral infection). This means that respondents failed to effectively assess which condition must merit the use of antibiotics and thus pharmacists and physician’s advice must strengthen patient understanding of antibiotics to ensure that patients are taking the correct antibiotic at the right time and dosage.

Table 3

Level of Perception and Attitudes in Taking Antibiotics of the Respondents During COVID-19 Pandemic

Parameters	Percentage (%) Distribution				Mean	Description
	SD	D	A	SA		
PERCEPTION						
When taking the antibiotics, I always follow the dosing regimen as prescribed by the doctor.	6.1	10.1	41.3	42.5	3.20	High
I think unnecessary use of antibiotics sometimes	6.1	21.1	49.4	23.3	2.90	High

causes ineffective.						
I think the misuse of antibiotics may cause complications such as allergies, digestive disorders, etc.	6.1	10.8	48.4	34.6	3.13	High
I think antibiotics are effective for cold and fever.*	10.3	21.6	58.0	10.1	2.68	High
I think antibiotics are effective for viruses.*	13.8	36.6	39.8	9.8	2.46	Low
I consider antibiotics to be effective against COVID-19.	23.6	45.7	26.5	4.2	2.12	Low
I consider taking antibiotics when others tell me to.	27.0	37.1	33.9	2.0	2.12	Low
I prefer to ask consult or advice from a family member than going to a not have side effects.	18.9	34.9	33.4	12.8	2.40	Low
I think the more expensive the antibiotic, the more effective it will be.	18.9	39.1	33.4	8.6	2.32	Low
Average Mean	2.52					High

Level of Perception of the Respondents

Based on the table above, the perception of the respondents in taking antibiotics during the COVID-19 pandemic, the majority of the respondents showed a high level of perception in always follow the dosing regimen as prescribed by the doctor with a percentage of 42.5 who strongly agreed and 41.3% that agreed, similar to the other study in Saudi Arabia [30]. Their respondents think that skipping the doses of antibiotics may end up in the development of resistance, which means patients usually follow the instructions of the physician when they are given a prescription for antibiotics. Most of the respondents agreed (49.4%) that

unnecessary use of antibiotics sometimes causes ineffective and misuse of antibiotics may cause complications such as allergies, digestive disorders, etc. with a percentage of 48.4%, similar to the study of [10], some of the respondents were also misinformed regarding the reduced effectiveness of treatment if the full course of antibiotic treatment was not completed and the potential to spread antibiotic-resistant bacteria.

For the statement of antibiotics are effective for cold and flu, the majority of the respondents agreed with a percentage of 58, compared to the other study of [42], 43.5% (165/379) were aware that antibiotics are ineffective for colds and flu, which means that most respondents were not aware of the role of antibiotics in treating viral infections. Because colds and flu are caused by viruses, not by bacteria. Most of the respondents disagreed with a percentage of 45.7, that antibiotics are effective in COVID-19, in which another study from Beirut, Lebanon (Chedid et al., 2020) stated that antibiotic efficacy should be further investigated prospectively in Covid-19 patients to minimize their irrelevant use.

Most of the respondents disagreed that considering taking antibiotics when others tell them to with a percentage of 37.1 and asking advice from a family member than going to a physician for consultation with 34.9 percent, which is different from the other study in Mures County, Romania (Voidăzan et. al, 2019), stated that before

taking antibiotics, 57.43% of the respondents consulted a physician, but there were about 30% of the respondents who either used an old prescription in their home or have taken antibiotics based on the advice of family and friends, which means that majority of the respondents knows to consult first to their physicians and not taking any advice from others especially from their family members.

The last statement above tells that the more expensive the antibiotic, the more effective it will be, which shows that only 9% of the respondents strongly believe that the more expensive the antibiotic, the more effective it will be, which is opposite to the other study in San Jose, Bulacan, Philippines (Phase et al., 2019). Because their respondents believed that the more expensive the antibiotic, the more effective it is. This demonstrates that there is a misunderstanding that the efficiency of an antibiotic is determined by its price [21]. This means that the majority of the respondents answer negatively because for them the price is no longer the basis of whether or not the purchased antibiotic is effective, as long as it can treats and curable.

ATTITUDE						
I consult my doctor before taking antibiotics.	3.7	13.3	47.7	35.4	3.15	High
I buy antibiotics with prescription	2.9	15.5	45.2	36.4	3.15	High
I complete the prescribed course of antibiotic treatment.	2.9	17.2	47.9	31.9	3.09	High
Before taking antibiotics, I check the expiry date.	3.7	5.2	44.0	47.2	3.35	Very high
If I miss a dose, I take antibiotics as soon as I remember.	6.4	36.4	43.7	13.5	2.64	High
I keep leftover antibiotics from my last prescription.	13.5	41.8	39.1	5.7	2.37	Low
I take antibiotics if I have a cold or cough for more than a	12.3	37.3	43.2	7.1	2.45	Low
I stop taking antibiotics when I feel better.	14.0	23.3	48.2	14.5	2.63	High
If I have no prescription, I get antibiotics from relatives or friends.	21.9	42.3	33.2	2.7	2.17	Low
When a family member gets sick, I recommend antibiotics.	21.1	41.0	35.4	2.5	2.19	Low
Average Mean	2.71					High
Overall Mean of Perception and Attitude	2.62					High

Level of Attitude of the Respondents

Considering the attitude in taking antibiotics of the respondents during the COVID-19 pandemic, the majority of the respondents showed a high level of attitude in going to the doctor first before taking antibiotics, with a percentage of 35 who strongly agreed and the highest rate of 47% that agreed. This result is similar to the studies conducted [44, 44]. This shows that the respondents know that they should consult their physicians first to get the proper treatment they need.

In the second statement, the data also showed that the majority of respondents have their prescription with them when buying antibiotics which has the same results in the study [5]. These respondents are aware that antibiotics can only be dispensed when they have a prescription to show to pharmacists. Also, most of the respondents agreed that they complete the prescribed course of treatment instructed by their doctor similar to other studies with 58%, 45%-59%, and 50% [22, 38, 15]. An important reason for completing antibiotic treatment is that bacteria can become resistant when they are under-treated while only 3% strongly disagreed. However, this contradicts with the statement where most of the respondents also agreed in stopping their medication once they felt better. This could be due to following only the first course of treatment given to them and failing to comply with the next course of antibiotic regimen. It can be alarming since majority of the respondents do not totally adhere with their medication fully. Similarly, participants from the study conducted in Penang [45, 42], 35.9% discontinue the use of antibiotics when symptoms have subsided.

Regarding with the respondents keeping leftover antibiotic from the last prescription for future use, 41.8 % disagreed that antibiotics are kept in case of an emergency which is lower than 48%, 55%, 88% reported in other studies [28, 34]. The disposal and storage of unwanted medications by respondents may increase

inappropriate antibiotic usage. Access to leftover antibiotics, particularly those kept in open drawers, might enhance the likelihood of abuse not just by the individual who stored them but also by others in the home [35]. 43.2 % of the respondents incorrectly agreed in treating coughs and colds lasting for more than a week with antibiotics. This shows that the respondents have less knowledge when it comes to knowing what bacterial infections cause and the its difference from viral infections [36, 37, 40].

Easy access to antibiotics brings a significant risk of the irrational use of antibiotics, respondents having the attitude of getting antibiotics from friends or relatives and recommending it to others is identified in this study to have a positive result showing that majority of the respondents know that it is inappropriate to get antibiotics elsewhere. It was seen in the data that only 2% of the respondent report sharing antibiotics with family members which are lower than the reports from other studies 8%, 13% [38, 15]. Antibiotic sharing can increase the community's exposure to antibiotic misuse. This is due to incorrect use of antibiotics, such as when the individual for whom the antibiotics were given did not complete the course of treatment. Therefore, it is only appropriate for people to practice the rational use of antibiotics to reduce the increasing level of resistance [39].

Results of the statistical analysis revealed that there is no significant

Table 4
Statistical Analysis on the Mean Level of Perception and Attitudes According to the Demographic Profile

Test Parameters	Segmentation	Mean value	SD	P-value	Remarks*
Age Bracket	18-25	2.64	0.3867	0.077	Not significant
	26-30	2.61	0.2369		
	31-40	2.47	0.3299		
	41-50	2.52	0.2267		
	51-60	2.69	0.3516		
Gender	Female	2.63	0.3760	0.441	Not significant
	Male	2.60	0.3526		
Amount spent a month to purchase antibiotic medication	<500 Pesos	2.68	0.3639	0.014	Significant
	501 – 1000 pesos	2.57	0.2286		
	1001 – 1500 pesos	2.55	0.0		
	1501 – 2000 pesos	2.75	0.0		
	2001 above	2.00	0.0		

difference in the level of perception and attitudes among the respondents in taking antibiotics during the COVID-19 pandemic in terms of age bracket (p-value 0.077), gender (p-value 0.441), and health conditions (p-

Health Conditions	Mean value	SD	P-value	Remarks*
Flu like symptoms	2.65	0.3602	0.331	Not Significant
Wounds	2.63	0.4325		
Body Pain (Muscles, Headache, Swelling)	2.65	0.3272		
Physical Discomfort (Urination Problem)	2.47	0.2978		
Precribed by Physician	2.60	0.2000		
Allergies	2.72	0.1151		
Common cough with Phlegm	2.43	0.2388		
Skin Problem	2.47	0.2280		
Tooth Extraction	2.58	0.3948		
Ear infection	2.53	0.4311		
Prevention of Bacterial infection	2.85	0.6946		
Urinary tract infection	2.68	0.1893		
No Reasons	2.30	0.4950		
Post Operation	2.70	0		
Respiratory Problems	2.45	0		

*Calculation was performed at 0.05 level of significance

value 0.331) which means that they are above the level of significance ($P \leq 0.05$). which means it doesn't matter what age, gender, and health conditions when using antibiotics, whether you are female or male, young or old as well as in health conditions, whatever disease people had, they still had the same mindset when it comes to using antibiotics.

On the other hand, there is an existing significant difference ($p < 0.05$) in the level of perception and attitudes among respondents in taking antibiotics in terms of the amount spent to purchased antibiotics per month of the respondents. This signifies that there are respondents who may fully take the medication as prescribed due to economic issues, whereas patients might belong to a certain economic class that cannot afford to take or buy antibiotics in the prescription. Based on the result the respondents have different responses when it comes to the amount spent per month to purchase antibiotics, there is a big difference between people buying antibiotics, they do not have the same perspective and behavior to complete or to buy the medication when less than 500 they have a greater chance that they will complete the drug purchase.

This means that the level of perception and attitudes among the respondents in taking antibiotics is at a high level but healthcare professionals (e.g pharmacists and physician) must carefully assess the needs of the patients before antibiotics must be administered. Although the results indicated that the participants of this study had some knowledge whether what age bracket, gender, or type of health condition experience, it can still be associated that there are still some knowledge gaps. No matter what symptoms are felt, it is acknowledged by the respondents to consider taking antibiotics. This contradicts the respondents' overall level of perception and attitude, were the

majority of the respondents do not practice what they know. As shown in Table 3, there several cases that don't merit dispensing of antibiotics to patients during the COVID-19 pandemic. It would bring a major impact to educate the public about this concern and the consequences it may result to be helpful in the overall improvement of attitude and perception. Given the scale of the issue of antibiotic resistance and the fact that attempts to resolve it will involve efforts on the part of all, the public must be aware of the importance of the issue of antibiotic resistance, its implications, and what they can do to address it. The level of attitudes and perception among respondents on the responsible use of antibiotic medication must be persistently be guided by the pharmacist to prevent recurring infection and antibiotic resistance.

The result shows that there is a disconnect between what is perceived by the respondents and what they do. This is related to our theory which is the health belief model to know whether the patients adhere to the treatment of antibiotics and on what disease or symptoms they feel before deciding on taking antibiotics, which means that not all beliefs or doings are done by patients. The overall result is that even in this time of the pandemic, most of the people in Koronadal City have the same mindset on antibiotics, wherever male or female, young or old, and whatever their health conditions were people believed and has the same perception and attitude about antibiotics. On the amount spent on antibiotics per month,

because of economic reasons and it is now known that the pandemic has made people lose their jobs and in economy has affected the income of people.

DISCUSSION

In the demographic profile, all ages of the respondents must be 18 to 60 years old were represented in the survey. Coming from the findings of this study, respondents were 18-25 years old and most of them were female. Most of the respondents spent less than 500 pesos a month to purchase antibiotics. The demographic profile of the respondents shows the result of what ages can be triggers to take antibiotics during the COVID-19 pandemic. Based on the result, there are the top 4 most common health conditions why respondents take antibiotics are flu-like symptoms, treatment for wound infection, physical discomfort, and body pain. The respondents wrongly believed that taking antibiotics when having a cold could help them recover faster and this study shows that people tend to practice using antibiotics as a treatment for skin wounds and injuries in the wrong manner of administration. The most common antibiotic taken by the respondents was amoxicillin. Amoxicillin was used to treat a wide variety of bacterial infections and it works by stopping the growth of bacteria that cause infection. The other antibiotics taken by the respondents were cephalexin and ciprofloxacin. Erythromycin and fluconazole are the least taken by the respondents.

Based on the perception and attitude of the respondents, the majority of them answered positively and negatively in the survey but most triggered in their result is that most of the respondents believe that antibiotics are effective for cold and flu, they were not aware of the role of antibiotics in treating viral infections and they did not know that antibiotics do not work on most colds and flu, because colds and flu are caused by viruses, not by bacteria. Considering the attitude of the respondents in taking antibiotics. The overall mean of the result for both perception and attitude means that the respondents have perspectives about antibiotics, but it was noticeable that there are inconsistent answers based on the results. Specifically, the positive attitudes and negative attitudes of stopping the intake of antibiotics once they feel better. This could mean that the respondents lack in some areas on how to take antibiotics and what it cures. Based on the result of statistical analysis, there is no significant difference in the level of perception and attitudes among the respondents in taking antibiotics during the COVID-19 pandemic in terms of age bracket, gender, and health conditions. It doesn't matter what age, gender, and health conditions when using antibiotics, whether you are female or male, young or old as well as in health conditions, whatever disease people had, they still had the same mindset when it comes to using antibiotics. However, there is a significant difference in the level of perception and attitudes among respondents in taking antibiotics in terms of the amount spent to purchased antibiotics per month of

the respondents. This signifies that there are respondents who may fully take the medication as prescribed due to economic issues, whereas patients might belong to a certain economic class that cannot afford to take or buy antibiotics in the prescription. The results indicate that there is a disconnect between what is perceived by the respondents and what they do. In which the level of attitudes and perception among respondents on the responsible use of antibiotic medication must be persistently be guided by the pharmacist and physicians to prevent recurring infection and antibiotic resistance.

Recommendation

During the process of gathering information for literature review, we recognized that they were limited studies that evaluating this topic area in Local areas, particularly in the Region area. Conducting a national survey will be beneficial in understanding the perception and attitude of antibiotics among Filipinos. In addition, there is also a need for a national longitudinal study to evaluate changes in attitude and perception of antibiotic use. It may be beneficial also to conduct a qualitative study to explore an in-depth understanding of this topic area from various individual perspectives. Qualitative approaches allow for an in-depth exploration and generation of new insight into a topic interest. In addition, the role of ethnicity in predicting antibiotic perception and attitude can also be explored. The researchers recommended, an effective public educational campaign to

reduce the inappropriate use of antibiotics, it should not only disseminate information but also provide practical and appropriate means for changing the perceptions and behavior of patients regarding the use of antibiotics. Based on our finding, most of the respondents need some patient counseling, not just for the participants who responds in our study but also all the population in Koronadal City, about the appropriate use of antibiotics and also for the pharmacist, they are encourage to attend the Antimicrobial Stewardship Program, which they lack of interaction with the patient regarding the use of antibiotics. We intend to disseminate the research findings at relevant scholarly conferences by spreading awareness about antibiotic use through leaflets and flyers with fact and relevant information and we also intend to present the findings of the research through the use of social media, such as Zoom, Facebook and Messenger. With the help of our official governments such Local Government Units (LGU), Department of Health (DOH), Health Centers, South Cotabato Philippine Pharmacist Association (PPhA) and etc., we can conduct interventions and seminars to publicize information about the antibiotic use in the Community.

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