Analyzing the Perspective of Mothers on Antibiotic Misuse: A Qualitative Study in San Juan's Lower-Middle Income Households

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Abstract: - Self-medication is the use of drugs by an individual for treating self-diagnosed symptoms [1] and is a leading factor of increasing antibiotics resistance, especially in nations with prevalent low-income households such as the Philippines [2]. In a family unit, mothers are considered the caregivers as they identify illnesses, administer remedies, and seek professional help when necessary [3]. Since their perspective and stance on self-medication largely affects how a Filipino household tackles health-related issues. In line with this, this study determined the perspective of mothers from lower-middle income households, on the use of antibiotics, its misuse, and misconceptions. It also discussed their impression on the results of their self-medication of antibiotics and awareness on the dangers and communal effects of using self-medicated antibiotics. A total of twelve (12) mothers that have a five-year-old child at the minimum and within 23-56 years old from lower-middle income households in Barangay Pasadeña of San Juan City were gathered through purposive sampling. These respondents have undergone a structured interview that consisted of fourteen (14) questions that was constructed according to the qualitative phenomenological research design and was analyzed through thematic analysis using NVivo (v.12) software. Thematic analysis presented four main themes and nine sub-themes. Main themes include acquiring antibiotics, participants' practices and experiences on using antibiotics, participants' knowledge and perception with the use of antibiotics, and factors leading to participants misuse of antibiotics. Under these main themes, the sub-themes were acquiring antibiotic (1) with and (2) without prescription; (3) Experiences/common practices and (4) self-medication using antibiotics; knowledge on (5) side-effects and (6) opinions and preferences on antibiotic use; and (7) financial problems, (8) lack of awareness or education, and (9) other personal reasons as factors behind antibiotic misuse. Overall, the mothers' presented awareness of the risks of self-medicating antibiotics and preference for professional help; however, factors such as financial problems, lack of awareness or education, and other personal reasons are why it is more convenient for mothers from lower-middle income households to self-medicate antibiotics. They also reported favorable results when self-medicating. This may result in further practice of self-medication and highlights the importance of healthcare accessibility and availability for households in the lower-middle income bracket.

Key Words: — ***Antibiotic Misuse, Self-Medication, Antibiotic Resistance, Prescription, Perspective, Mothers.***

I. INTRODUCTION

Antibiotics are medicines used for the prevention and treatment of bacterial infections. Antibiotics are called the 'wonder drugs' that battle microbes [4]. However, due to misusing and overusing antibiotics accompanied by having poor control and prevention, antibiotic resistance is rising to dangerously high levels in all parts of the world [5].

The "World Health Organization" (WHO) stated that antibiotic resistance is a serious global health problem as it compromises the ability to treat infectious diseases as well as undermines the advances in both human and animal health medicine [5]. One

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of the main causes of antibiotic resistance is the misuse of antibiotics. In the Philippines, families, especially those with low income, tend to prescribe their own antibiotics since they would rather spend their money on other expenses than paying for an expensive check-up with a doctor [2]. These families do not know that their decisions would only make things harder for them in the long run.

The practice of self-medication is done as a form of self-care wherein a person utilizes medicinal products to aid in signs and symptoms that are self-diagnosed or defined as an excessive use of medicinal products which have been prescribed including the occasional or extended usage of antibiotics [6]. These actions would then hinder the actions of antibiotics in our body and lead to antibiotic resistance.

Before the bacteria can spread and cause effects, they can normally be destroyed by the immune system. White blood cells (WBCs) destroy infectious bacteria, and even if symptoms exist, the immune system will typically deal with and control the infection. However, there are periods where the number of dangerous bacteria is excessive, and the immune system cannot combat them all. In this case, antibiotics are beneficial.

Two important factors that lead to antibiotic resistance include the misuse as well as the overuse of antibiotics. Different sectors such as hospitals, medical doctors, and the general population all have a role in promoting the safe use or consumption of antibiotics and decreasing antibiotic resistance progression. The misuse of antibiotics includes inappropriate or improper use contributing to antibiotic resistance.

The Centers for Disease Control and Prevention states that the inappropriate or the unnecessary use of antibiotics can account for up to a third to a half of antibiotic use of humans. Antibiotics are intended to be used in treating infections with bacterial origin but not those caused by viruses [7]. The use of antibiotics in cases of viral infections will result in the attack of the bacteria present in one's system – bacteria which can either be probiotics or commensals. The inappropriate use of antibiotics for viral infections results in probiotics or commensals to be resistant and circulate with other bacteria or provide an opportunity for potential harmful bacteria to overgrow or dominate harmless bacteria

Antibiotic misuse and self-medication have always been a problem in the Philippines. Health Secretary Francisco Duque III calls for the public once again to avoid the habit of self-medication and instead go to public health centers or private clinics to visit and receive correct diagnosis or prescription. Duque advised the public to remove the habit of self-medication. He also stated that once the doctor has given the correct prescription, it would be better to buy the proper amount as prescribed.

The relationship between family income and availing or access to healthcare is a relationship worth noting when considering what the low-income families can afford in terms of health care and what can be done to address their situation. Low-income parents face barriers to accessing health care for their children despite being covered by health insurance [8].

The researchers used a qualitative phenomenological design and conducted the study at Barangay Pasadeña, San Juan City, involving lower-middle income households. This approach allowed the researchers to determine the perspectives and shared experiences of mothers regarding antibiotic misuse.

The researchers were able to gather information on the perspective of mothers on antibiotic misuse. Information gathered by the researchers presents that the respondents prefer consulting a physician before taking antibiotics and as a response if side-effects occur. Also, it was cited that antibiotics are easily acquired with prescription. But prescription is dependent on the availability and affordability of a physician thus, several channels of acquiring antibiotics without prescription were listed. The factors behind the participants' misuse and misconceptions on antibiotics was reflected on their statements. The participants had some knowledge and understanding of the risks of self-medication, but there were still several antibiotic misuses cited and all of which were reported to either heal the wounds or alleviate the pain that they were suffering.

1.1 Objectives of the Study

The general objective of this study was to investigate and analyze the nature of antibiotic misuse at barangay Pasadeña in the city of San Juan through the perception, knowledge, and understanding of mothers belonging to the lower-middle income class. It aimed to determine the perspectives and actions of mothers on self-medication of antibiotics. Its specific objectives included:

- Determine the perspective of mothers from the lower-middle income household, on the use of antibiotics, its misuse, and misconceptions.
- Identify the factors that influence mothers' misuse and misconceptions on antibiotics.
- Discuss their impression on the results of their self-medication of antibiotics and their awareness on the dangers and communal effects of self-medicated antibiotics.

1.2 Research Impediments

The study focused on the mothers' antibiotic misuse of lower-middle income households and awareness on the dangers and
communal effects of self-medicated antibiotics, which could lead to high levels of antibiotic resistance to certain bacterial infections. The respondents of the research were limited to the mothers who were 23 to 59 years old. The data collected were limited to residents of barangay Pasadeña in the city of San Juan. The respondents should have at least 1 child of at least 5 years of age. The respondents of the study were limited to the families belonging to the lower-middle income bracket based on the computations from microdata of the family income and expenditure survey (FIES) of PSA (2016). The research was limited to families that either have both parents or a single mother that supports the family. Families with only the father acting as the parent were not included. The study centered only on antibiotics. Antipyretics, analgesics, and antiseptics were not included in the study. The study utilized an auto coding software called NVivo (v.12). Future research could investigate the misuse of antibiotics of every member of the family who are able to obtain such medications for certain illness or discomfort. This research could contribute to identifying communities that are most likely to misuse antibiotics. Also, the research could contribute to specific strategies and patterns of use that relate to successful management of proper usage of antibiotics in a small population in barangay Pasadeña in the city of San Juan, specifically the lower-middle income families.

1.3 Significance of the Study

Self-medication is one of the leading health problems here in the Philippines. One of its grave consequences is antibiotic resistance. Although there are several research and studies that have been conducted in the past that are similar to this, many Filipinos still have little to no knowledge about this. Mothers in the Philippines are known to be the ones responsible for taking care of their children's illnesses. The study focused on the practices of the mothers when they deal
with medications they use, specifically the antibiotics misuse for their children. Their different practices and beliefs regarding self-medication contributes a lot to the resistance of drugs and antibiotics. This study can help future researchers in gathering information on what might emerge as new infections and disease from taking self-medicated antibiotics.

1.4 Conceptual Framework

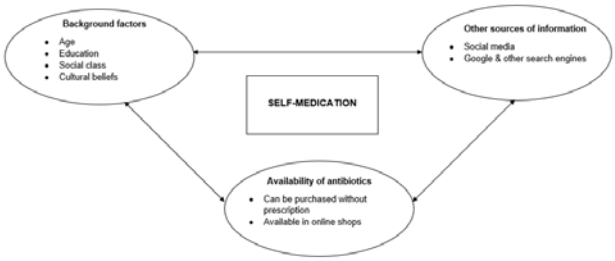

Fig.1. Conceptual framework of factors affecting the self-medication of an individual

The conceptual framework illustrated how various factors relate to the decision-making of different individuals in self-medication. The factors considered in the study were the person's background, such as age, educational attainment, social class, and their cultural beliefs about drugs. Other sources of information from social media and search engines, such as Google, can also influence the decision-making of an individual in self-medication. These factors were important in determining one's own perception about antibiotics because this can affect their decision-making process. The last factor that was considered in the study was the availability of antibiotics. Nowadays, most antibiotics require prescriptions; however, there are drug stores where people can access various types of antibiotics without a doctor's prescription.

II. MATERIALS AND METHODS

2.1 Research Design

The study utilized a qualitative phenomenological research design. The goal of the research design was to arrive at a description of the nature of a particular phenomenon [9]. This also allowed the researchers to explore participant's knowledge, attitudes, perceptions regarding antibiotics with

greater freedom [10]. Interviews were conducted with a group of people who have firsthand knowledge of a situation, event, or experience [11]. The interview(s) tried to answer two broad questions: (a)What has been your experience with the phenomenon?; (b) What contexts or situations have influenced your perceptions of the phenomenon? Documents, observations, and art were also used as data sources. The qualitative data were processed by collating similar phrases and themes, which were then grouped to form meaningful clusters [9]. Furthermore, the process allowed the researchers to deduce the event's, situation's, or experiences' universal meaning and gain a deeper understanding of the phenomenon. This research aimed to analyze the possible reasons for a mother's misuse of antibiotics may possibly lead to bacterial resistance to medications.

2.2 Respondents and Study Site

The study was conducted in barangay Pasadeña, San Juan City. In 2015, San Juan City the least population of the HUCs with around 122,000 individuals [12]. An initial number of 12 participants from barangay Pasadeña within the age group of 23-59 were selected to serve as the minimum sample size for the study.

2.3 Sampling Technique

Purposive sampling method was used. This sampling method targeted selection of respondents on the basis of their ability to characterize a specific theme, idea, or phenomenon. It included an iterative method of choosing research subjects instead of beginning from a preset sampling frame. Theoretically, the selection process included recognizing themes, ideas and indicators through evaluation and reflection [13].

A study on data saturation and variability proposed that data saturation occurred after analyzing twelve interviews [14]. The researchers observed the data saturation during its collection to determine if enough data was already collected during the data gathering process. Data saturation is achieved when the researchers are no longer finding additional data for categories and similarities are encountered repeatedly [15]. This led the researchers to set a minimum of 12 interviews for data collection from where it will be assessed if data saturation is achieved. If upon evaluation the data is not yet saturated, sample size will be increased.

2.4 Inclusion Criteria

Participants selected from the study were required to be within the age range of 23-59. The participants were registered residents of barangay Pasadeña, San Juan City. Participants had at least one child of at least 5 years of age, were able be to speak and understand English or Filipino, and belonged to a household in the lower-middle income bracket. Respondents were given the right to decide whether they want to participate or withdraw from the interview at any time at their own discretion

2.5 Exclusion Criteria

Respondents should have given antibiotics to their child/children at least once. The exclusion was made on mothers who have never used antibiotics on their children. Respondents not having a child of at least 5 years of age were also excluded.

2.6 Withdrawal Criteria

Respondents were informed and given the right to decide whether they want to participate or withdraw from the interview at any time at their own discretion.

2.7 Data Measure/Instrumentation

The instrument used in the study was a set of interview questions to gather information on the understanding of a mother’s perspective in antibiotic misuse. Specifically, the questions explored the nature of antibiotic misuse that affected the low-income households in barangay Pasadeña, San Juan City. The set of questions were formulated based on related readings, previous studies, published and unpublished thesis, and professional literature relevant to the current study. The criteria for the design of a good data collection instrument were considered in planning of the instrument. Open-ended alternatives were given to satisfy free formatted viewpoints on the topic or issue.

2.8 Barber Questionnaire

The study used the Barber Questionnaire. The questions were modified and adapted from the study “Correlates of Antibiotic Diversion in the Philippines: Misconceptions and Community-Level Access to Nonmedical

Sources of Antibiotics" [16]. It dealt with the respondent's knowledge on antibiotics as well as their perception, their misconceptions on antibiotic access and their behaviors.

2.9 Data Gathering Procedure

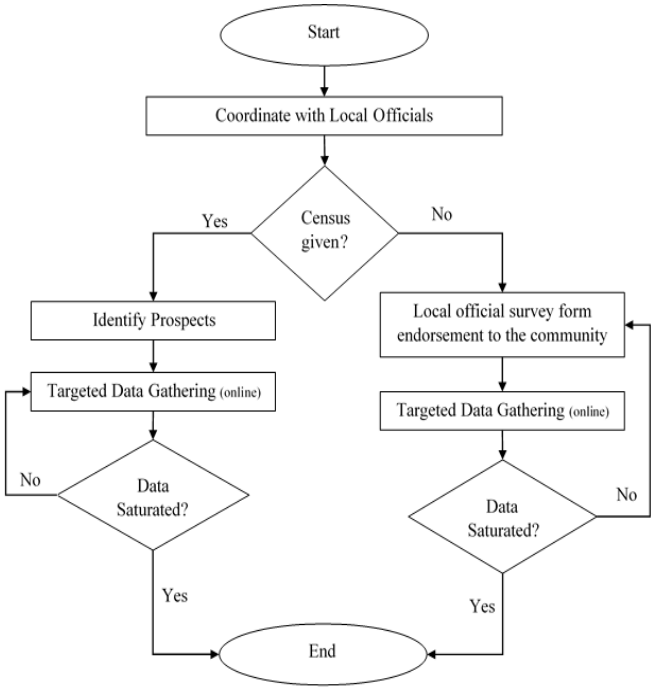

Fig.2. Flowchart of Data Gathering Process

The researchers coordinated with the local government units for permission to conduct the study within the barangay. A survey was administered to identify the respondents. The respondents were informed to answer the Google form considering the inclusion and exclusion criteria that filtered the qualified respondents. An interview session was conducted for those qualified respondents through an online interview. The link was sent together with a statement providing the participants an option to contact the researchers if they have problems in accessing the platform. The researchers also asked the assistance from the barangay officials to provide names of qualified respondents. A data privacy clause was included in the Google form. Researchers ensured the confidentiality of the response by keeping the details about the respondents secure and will be solely used for the purposes of the report. All conversations were recorded and were made available to the respondents upon request. Researchers also made sure that during the data collection, all the ethical standards were observed. The researchers analyzed the data of the respondents through content analysis, after obtaining the data from the respondents.

2.10 Conduct of the Study

Participants were contacted and selected through the assistance of the barangay officials. The collection of the demographic data was done through a form sent through private messaging. All interviews were conducted online and lasted for 30 to 40 minutes. Respondents were asked to participate for one day only. This process was done to eliminate the possibility of disease transmission between the participants and the researchers. Data collected from the interviews were reviewed and analyzed.

2.11 Data Analysis

The data from the study was analyzed through thematic analysis. The researchers collated the answers of all the respondents and looked for common themes in their answers. The themes were further categorized into more concise categories until condensed categories were formed.

2.12 Ethical Considerations

In the conduct of the study, the researchers guaranteed that all data and information of the participants were treated with utmost confidentiality. Anonymity was also observed as recording of the interview did not contain the name, contact numbers, and any form of identification. After transcription of all the data from the interview, recorded videos and audio were deleted to maintain the integrity of the interview's confidentiality.

Informed consent from all the participants were collected before the commencement of the interviews. Participants of the study were informed of the purpose of the research, where the data and findings will be used, and who will have access to the findings. All information was fully disclosed to the participants. Participants were assumed to be mentally capable of comprehending the information and content of the provided informed consent. The study's possible risks and benefits were also disclosed to the participants. Participants were also allowed to withdraw participation at any time. The study did not receive any financial support. The authors declare no conflict of interest.

III. RESULTS AND DISCUSSION

A structured interview was conducted consisting of 14 interview questions that guided the respondents to share their knowledge, experiences, practices, and perceptions towards the use of antibiotics. The interview questions were constructed in Filipino language, and the participants were allowed to answer in their most comfortable language. The recorded answers were then translated before it was analyzed using thematic analysis aided by NVivo software (version 12) with auto coding to organize data.

Deductive approach was followed by the researchers wherein four (4) themes with nine (9) sub-themes were predefined to lead the direction of the analysis, aligning with the objectives of the study. Shown in **Table 1** are the predefined themes that were used to guide in the analysis on the perspective of the participants (mothers) on the use of antibiotics.

Table 1

Themes and Sub-themes of the Study

Themes	Subthemes
Participants' practices and experiences on using antibiotics	With Prescription Without Prescription
Participants' practices and experiences on using antibiotics	Experiences and common practices Self-medication
Participants' knowledge and perception with the use of antibiotics	Side Effects Opinions and Preferences
Factors leading to participants misuse of antibiotics	Financial Problems Lack of awareness and education Other personal reasons

Theme 1: Acquiring Antibiotics. The first theme covers the mothers' perspective and experiences on acquiring antibiotics in two different situations – with and without prescription. Antibiotic prescription is given by doctors or qualified community health workers to patients who are advised to take antibiotic drugs to be cured based on their diagnosis. Due to the rapid emergence of antibiotic resistance that is linked to widespread misuse and application of antibiotics, policies on requiring prescriptions in acquiring antibiotics have become stricter. Participants were asked first to share their thoughts and experiences on acquiring a doctor's prescription for antibiotics. It was notable that the availability of doctors has greatly influenced the difficulty of acquiring prescriptions.

"It's not that hard to get a prescription, you just really need an available doctor, a checkup and then you'll have a prescription." (Respondent 11, 28 y/o
"Sometimes it's difficult if there is no doctor in the barangay health center because they will not give a prescription. That's why we sometimes go to San Juan to have a checkup because it is sure that there is a doctor there." (Respondent 7, 42 y/o)

The importance of doctors in Barangay Health Centers is highlighted based on the participants as they do not only prescribe antibiotics, but also are one of the major sources of knowledge and information on antibiotics and its proper use [17]. However, some participants shared that the pandemic has affected the availability of doctors in health centers, resulting in several changes in the normal way of acquiring prescriptions.

"... because for example, our barangay health center has not had a doctor for a year already, but we are referred to other barangays. But because of the pandemic, we are now supposed to book online." (Respondent 2, 36 y/o)
"It's easy to see a doctor for a checkup except during this pandemic because they are scared of being infected. They think about their safety making it hard to get a prescription because you cannot directly go to the doctor. Like my children, they usually go to a private doctor or pediatrician and can only consult online when they are sick. They usually do not prescribe antibiotics right now because they cannot personally see the children." (Respondent 8, 44)
"Now, antibiotics are not easily given to children because of the pandemic. I just take a picture and send it to doctors online, especially with wounds. The doctor replies to me and says I need antibiotics." (Respondent 12, 56 y/o)

Also, among the factors that influenced the difficulty in acquiring prescriptions, participants featured the cost of consultation or financial constraints. Consultations are costly especially for low and middle-income families, hindering them from proper access to antibiotic prescriptions. It is speculated that patients acquire antibiotics in local pharmacies rather than going to medical facilities that would possibly incur more and additional costs [18]. Costs of consultation in the Philippines influenced people's practices in acquiring antibiotics without prescriptions [19].

"It's easy to get a prescription here. Except in times when you don't have money because it's expensive to have a consultation

right now. Doctors' fee usually starts at 600PHP." (Respondent 4, 52 y/o)
"... they do not have money for checkups. If there is no free doctor and you need to go to doctors who ask for payments, instead of paying you just spend the money to buy the antibiotics. (Respondent 9, 48 y/o)

Having discussed the thoughts and experiences on acquiring a doctor's prescription for antibiotics, differences between the perspective, knowledge, and experiences on acquiring antibiotics with and without prescription are then discussed on the following sub-themes.

*Acquiring antibiotics with prescription***.** In general, most of the participants have shared that there are no difficulties acquiring antibiotics with a prescription, it is easy, and it's fast to purchase. With a prescription, the pharmacists in available drug stores and the barangay health workers will already know what you need and the details such as dosage and instructions.

"We do not have any problems in acquiring antibiotics with prescriptions" (Respondent 9, 48 y/o)
"There are no issues in acquiring antibiotics with a prescription." (Respondent 11, 28 y/o)
"When antibiotics come from the doctors, just bring the prescription and it will be immediately known by the pharmacists in available drug stores." (Respondent 2, 36 y/o)

This thought, however, is influenced by some other factors which includes the financial capacity of the household and the availability of antibiotics in the barangay health centers and local pharmacies and drugstores.

"When we have money, we can buy it immediately. If we do not have money, we try to go to the barangay health center to show the prescription. If they have the antibiotics available, they will give it to us." (Respondent 3, 25 y/o)
"Not much, because these are available in the drug stores and in the barangay health centers." (Respondent 4, 52 y/o)
"Many of us depend on the barangay health center. Especially now, there are people known for asking free antibiotics from the nurse in the barangay health center." (Respondent 1, 38 y/o)

Acquiring antibiotics without prescription. This sub-theme highlights the perceptions, experiences, and practices of the participants in acquiring antibiotics without prescription. Four notable key points were discussed which helped describe and discussed the difficulty and workarounds that has enabled them to acquire antibiotics without prescription.

Antibiotics can't be acquired without a prescription. There has been a general knowledge and understanding among the respondents that antibiotics can't be acquired without a prescription. Nowadays, drugstores and pharmacies are stricter in selling antibiotics, mainly due to some actions or policies of the government in prohibiting the selling of antibiotics without prescriptions.

"Drug stores do not easily give antibiotics even if the dosage is low. A doctor's prescription is needed." (Respondent 12, 56 y/o)
"You really need a prescription to buy antibiotics here. They will really look for one in drug stores such as Mercury Drugstore." (Respondent 4, 52 y/o)
"It is hard to buy antibiotics without a prescription, there are times that they will ask what kind of antibiotics you are going to buy, how many milligrams, and what the antibiotic is for, where it will be used and how old is the person who will take the antibiotic." (Respondent 6, 34 y/o)
Among the common meanings of antibiotics based on some women in the economic margins of Manila, antibiotics is commonly associated with the prescription policy, that is, antibiotics can only be acquired through prescriptions [17].

Antibiotics can be acquired without a prescription before. Another key point that emerged under acquiring antibiotics without prescription is that antibiotics can be acquired without a prescription before. Within a 5-month period in 1987 (June to October) gathered at some drugstores in Makati, Philippines, 66.3% of 1608 transactions and purchases made were without prescriptions [20].

"Long ago, we could usually get Amoxicillin. Long ago we could get it from the generic's pharmacy, but now it is not allowed anymore. That was a long time ago already. … right now, there are none [people who acquired antibiotics without prescription] because it is not allowed anymore. Before they can buy it in the generic's pharmacy, you can buy it without a prescription before." (Respondent 5, 47 y/o)
"Back then in the 80s you can readily buy Amoxicillin. It was common when you had wounds, you would remove it from the capsule and sprinkle it. That was what was done in those

decades because they say it's effective, but it was not really good." (Respondent 12, 56 y/o)
"… there are some who attempt to buy from small stores, but small stores do not just give antibiotics. An example in small stores would be amoxicillin. That is prohibited by our barangay health center that they sell antibiotics to those without prescriptions." (Respondent 10, 46 y/o)

Some antibiotics are still being sold in small stores. Some antibiotics are still being sold in small stores that do not require prescriptions. Despite prescription being officially required for acquiring antibiotics, recent reports indicate that inappropriate selling of antibiotics without prescription still occurs especially in community drug stores [18]. Antibiotics are still widely available in "sari-sari stands" where most of them are missing information on the expiration [1].

"They can also get antibiotics without prescriptions because they sell it in small stores. Antibiotics like Amoxicillin." (Respondent 12, 56 y/o)
"I use amoxicillin, here in small stores you can buy that. But for those that you need to take, I consult that because wounds are only external." (Respondent 2, 36 y/o)

Using previous prescriptions or sharing stored antibiotics. With the difficulties and hassle of getting prescriptions, some resorted to this practice, using previous prescriptions—both personal and neighbor's or friend's prescriptions, without considering the possible consequences.
"It's really hard to get a prescription. But sometimes, we get an old prescription of antibiotics that is not yet expired. I sometimes use that to make my husband buy, and he is able to buy antibiotics." (Respondent 7, 42 y/o) 61
"Sometimes when neighbors have a prescription or when our relatives have a prescription, I borrow it so I can buy from the pharmacy." (Respondent 4, 52 y/o)
"I use the ones from my neighbors because theirs have prescriptions and it is indicated there how old and how many milligrams of the antibiotic can be given in a day. That is what I follow. (Respondent 6, 34 y/o)

Also, though some has no actual experience of doing the said practice, this has been known in the community through hearsays and casual talks:

"I think you can use prescriptions you have previously used as long as one year has not lapsed yet. I haven't tried it, but I have heard that if the prescription for the antibiotic is less than one year, you can still use it." (Respondent 8, 44 y/o)

Another way that was mentioned was sharing with a friend or neighbor's stored antibiotics. Available antibiotics that were stored by neighbors are sometimes offered or used provided that they are not yet expired:

"Sometimes when I know someone like our neighbor who has that antibiotic, they give it to me … when you say that you are looking for this antibiotic that you did not buy, they will offer that they have some available in their house, and that is what you give to someone who needs it. Sometimes that is what I give to my children." (Respondent 7, 42 y/o)
"Sometimes you can ask from neighbors or friends if they have that antibiotic because sometimes, the barangay health center really won't give you antibiotics. It is used when teeth are painful or when there are coughs." (Respondent 6, 34 y/o)

Eighteen percent of those who were reported to have practiced sharing antibiotics have shared it with their neighbors, the same percentage for those who share it with their elderly family, 4% lower to those who share it with their friends, and about half to those who have shared it with their family (37%) [1]. Antibiotic prescriptions are usually recycled especially on those recurring symptoms based on a previous diagnosis [21].

Theme 2: Participants' Practices and Experiences on Using Antibiotics. This theme covers the practices and experiences shared by the participants on using antibiotics. This is further divided into two subcategories- Experiences and common practices; and self-medication. This experience of using antibiotics is often shared with family members or with the society especially within a specific socio demographic characteristic [1]. Common experiences that emerged within this theme include mostly on the shared experiences of the direct application of antibiotics in open wounds, practices in storage and acquisition of antibiotics within the community, and other shared experiences with the use of antibiotics and self-medication.

Experiences and common practices. One way to conventionally shield the wound from external contamination is by wound dressing [22]. Much research reveal that bacteriostatic or bactericidal antibiotics can assist wound closing however their overall effect in healing wounds is usually unnoticed [23]. The participants' experience in treating wounds by using antibiotics

suggests that most of them observed that wounds heal faster when antibiotics are administered directly to open wounds.

"For example, you get wounded, so your grandmother will open the antibiotic capsule and will sprinkle it on the wound because they say that it will heal faster." (Respondent 1, 38)
"It heals fast. When you sprinkle the antibiotic on the wound, it will heal in just three days because it dries fast." (Respondent 4, 52 y/o)

Amoxicillin is perceived to be the most purchased antibiotic overall, which is also consistent with the responses of the participants as amoxicillin appears to be the most frequently mentioned antibiotic [24].

"That is the one where Amoxicillin is opened and sprinkled on the wounds right? I have done that before. I went for a checkup and was told to drink it, but I thought it would not be that effective. What I did was I opened the capsule. It was okay because it is directly applied to the wound." (Respondent 8, 44 y/o)

Other participants specified that the procedure of applying antibiotics to open wounds only applies to small wounds and emphasized the importance of antiseptics on open wounds as mentioned in their responses:

"When the wound is small, so that it would not swell up, you wash it first with povidone iodine and after you sprinkle the antibiotic and place a gauze." (Respondent 5, 47 y/o)
"Usually when I have an ingrown left, I wash it, and while the povidone iodine is still left, that's when I will apply the antibiotic. It heals fast and in fairness is effective." (Respondent 2, 36 y/o)

While a few of the participants believed that direct application of antibiotics only dries up the wound but does not really contribute to the overall healing, the study of Negut, Grumezescu, and Grumezescu, suggests that antibiotic use can accelerate the process of cutaneous healing. It is found out that it reduces the wound area and inflammatory infiltration, as well as increasing the number of fibroblasts, the synthesis of extracellular matrix components (MEC), the formation of epithelial tissue and the force of wound closure [20].

Self-medication. Self-medication is considered irrational, and self-medication of antibiotics has been recognized as inappropriate and irrational use of antibiotics [25]. It is found out that there is a prevalence of self-medication with antibiotics among low-middle income countries at a very alarmingly high rate. This was also observed in the participants' response in treating small wounds with antibiotics [24].
"I use amoxicillin, here in small stores you can buy that. But for those that you need to take, I consult that because wounds are only external." (Respondent 2, 36 y/o)
"I've also done that for my husband, but mostly in wounds caused by manicures and pedicures. When that happens. I put crushed antibiotics." (Respondent 4, 52 y/o)

However, it is notable that for various instances where larger wounds need to be treated, participants cited that they seek advice from any medical related institutions or at the barangay health center.
"For larger wounds, we go to the barangay health center to ask for help already." (Respondent 4, 52 y/o)

Theme 3: Participants' Knowledge and Perception with the Use of Antibiotics. This theme covers the knowledge and perception with the use of antibiotics shared by the participants. This is further divided into two subcategories — Side effects and Opinions and preference. Common side effects that emerged within this theme include headaches and allergic reactions, hyperacidity and loss of appetite and bitter taste in the mouth. Most of their opinions and preferences lean towards consulting a physician before taking any antibiotics for possible side effects. If any adverse side effects were experienced, their immediate response was to seek advice from their physician on what should be their next course of action.

Side effects. Combinations of antibiotics as treatment aims to hit the bacterial flora, with certain antibiotics that act on certain bacteria. However, besides its positive effect in combating certain bacteria, side effects may also be encountered expressed in organs and other systems of the body [26]. Perceived side effects of antibiotics were observed to be one of the primary reasons as to why many of the participants refrain from self-medicating due to the possible side effects of taking antibiotics. However, despite these adverse reactions experienced by some of the participants, the majority of them expressed that they do not usually experience any adverse reactions in taking antibiotics orally and generally feel better after taking antibiotics:

Among the common side effects of antibiotics medication, allergies against drugs are expressed as main and primary complications. Allergic reaction is also one of the side effects mentioned by the participants in the survey among the other mentioned such as headaches, hyperacidity, and loss of appetite and bitter taste in the mouth:

"Yes, sometimes my head aches or I have allergic reactions." (Respondent 4, 52 y/o)
"I experience headaches and back pain for side effects." (Respondent 10, 46 y/o)
"Yes, because my hyperacidity does not react well with antibiotics. If the antibiotic is strong, it triggers my hyperacidity." (Respondent 6, 34 y/o)

Another participant mentioned that upon taking antibiotics, usually they experience loss of appetite due to the bitter taste in the mouth:
"... you lose your appetite, and you have a bitter taste in your mouth when you often take antibiotics." (Respondent 6, 34 y/o)

The effect of antibiotics to the kidneys was also perceived by some participant as negative when taking antibiotics without the proper guidance of a health professional:

"From what I understand it can destroy the kidneys. Some patients are not given antibiotics without a proper prescription or if they haven't seen a doctor. (…) I would not take antibiotics that are not prescribed because I am scared, and I know that our kidneys will suffer." (Respondent 12, 56 y/o)

These perceived side effects of antibiotics were observed to be one of the primary reasons as to why many of the participants refrain from self-medicating due to the possible side effects of taking antibiotics. However, despite these adverse reactions experienced by some of the participants, majority of them expressed that they do not usually experience any adverse reactions in taking antibiotics orally and generally feel better after taking antibiotics:

"Thank the Lord that my twins which have used strong antibiotics did not have any side effects." (Respondent 1, 38 y/o)
"I haven't experienced any side effects, and none of my family members have experienced it too." (Respondent 9, 48 y/o)
"I have not experienced any side effects because before taking antibiotics it should be first prescribed by a doctor." (Respondent 12, 56 y/o)

In 2009 an evaluation of antibiotic-associated adverse drug events (ADEs) using an administrative database of hospitalized patients with pneumonia, that less than 1% of the patients developed ADEs [27]. This is consistent with the result of this study because the participants who responded to experience no adverse reactions had the most frequency among all other subthemes in this category.

Opinions and preference. After the discussion of the perceived side effects of antibiotics within the participants, most of them expressed their opinions and preferences on what to do when such adverse reactions occur in the process of medication. Some of them emphasized that it is important to seek medical advice as soon as possible when allergic reactions arise:

"As far as I know, if there are side effects, you need to go back to the doctor. If you find it hard to breathe or you had an allergic reaction with the antibiotic, you really need to consult with a doctor. You should not wait until tomorrow; you should do it immediately." (Respondent 2, 36 y/o)
"When that happens, I stop it and I go to the doctor to have my medications changed, I will say what I feel, and they will change the prescription." (Respondent 4, 52 y/o)

Most of the participants perceive the importance of following the doctor's recommendations in terms of antibiotics treatment. This sub-theme has the most frequency among others in this category amounting to almost half of the responses.

"It is important that the prescription of the doctor be followed because it will stop the bacteria." (Respondent 2, 36 y/o)
"The doctors order or prescription should be followed because you will heal better." (Respondent 3, 25 y/o)
"... if the doctor prescribes the antibiotic for seven days, even if you do not have symptoms anymore, you still need to finish it." (Respondent 12, 56 y/o)

Another frequent response from the participants is their opinion and preference on treating mild cough with water and cough medicines instead of directly resorting to use of antibiotics. They added that they would most likely use antibiotics if the symptoms are already intolerable.

"If it is just common coughs and colds, that can be treated with drinking plenty of water or eating fruits. If the cough and colds worsen and is accompanied by a fever, one must go to the doctor and have a checkup so they will know what to do." (Respondent 5, 47 y/o)

"...if it just because of the weather, it can be remedied with water, vitamin C, and other medicine prescribed for coughs and colds." (Respondent 2, 36 y/o)

"If it is a serious cough and cold, or when it is accompanied by hard coughs or lasts for three days and the cough and cold still hasn't gone away, I use antibiotics." (Respondent 4, 52 y/o)

Theme 4: Factors Leading to Participants' Misuse of Antibiotics. This theme comprises three sub-themes which influence mothers' misuse of antibiotics: financial status, knowledge, and attitudes and beliefs that led to antibiotic misuse.

Financial status. The motives for self-medication and antibiotic misuse include cutting of costs and acting expeditiously to treat confirmed or suspected bacterial infection [28]. Many participants realized that it is generally because of the difficult situation they are in that they opt to self-medicate instead of using prescribed antibiotics.

"Self-medication is done by people especially when they are financially lacking because instead of spending money to get prescriptions from the doctors, they know that they can acquire antibiotics that they can take. There is self-medication happening because they think about the money they have to spend. It is really because of something financial." (Respondent 1, 38 y/o)
"I think other people do it because they do not have money to have a check-up. That's why they ask for antibiotics even without a prescription." (Respondent 6, 34 y/o)

Other participants also felt that the absence of doctors offering free consultations created an avenue for people to self-medicate instead of paying consultation fees to get a prescription.

"I think they do it because of financial constraints and lack of money. Because there are no free doctors, that's what happens." (Respondent 9, 48 y/o)
"I think other people do it despite the risk because they are lazy to go to the doctor and they do not have money for checkups. If there is no free doctor and you need to go to doctors who ask for payments, instead of paying you just spend the money to buy the antibiotics. That's why they self-medicate." (Respondent 6, 34 y/o)

Apart from this, some participants perceived that some people have the tendency to go for a consultation once and just reuse the same prescription when the same illness occurs at another time. For some participants, this may be problematic because this may draw some risks on their body considering the prescription they used may not be suitable anymore for their present illness.

"I think people do this because they do not have money to go for a checkup sometimes with private doctors. Life is hard, that's why they only go for a checkup once and reuse the prescription for another time even if it is not the right one to buy." (Respondent 6, 34 y/o)

Generally, the participants were consistent in acknowledging that financial constraint has been one of the hurdles that mothers continue to face particularly in providing their children with better healthcare support. It was reported that financial status and security, as part of the key demographics, influences community antibiotic use and misuse [29].

Knowledge. Knowledge is the participant's understanding and awareness on the use of antibiotics and its effects. Most of the participants appeared to have known how antibiotic resistance poses a threat to their health.

"Because they have previously used it, they think that if they get sick or if they experience the same thing as before they can still use the same antibiotic. They do not know that if they have used an antibiotic, resistance increases because that is what a doctor has previously said to me." (Respondent 8, 44 y/o)

Some participants also pointed out that there are instances of people getting antibiotics easily from the barangay health center because of some established connections inside. For them, this constitutes a problem to their health as these people lack awareness and education on the right amount of antibiotics to take that is suitable for their illnesses. As discussed, antibiotic misuse is one of the primary factors leading to antibiotic resistance, thus, most of the participants strongly suggested that these people should consult a doctor and get prescribed antibiotics.

"There are people who can get antibiotics easily like amoxicillin especially when you know somebody from the barangay health center. They do not know if it is right for their body because they did not have a checkup." (Respondent 8, 44 y/o)
"It is much better if you go for a checkup first. The right antibiotic will be given to you because you will be given a prescription." (Respondent 3, 25 y/o)

A study in 2003 revealed that 58% of the patients were not aware of the possible health dangers of antibiotics and further reported that misguided beliefs and expectations relating to antibiotics were associated with a lack of awareness of the dangers of antibiotic use [30].

*Attitudes and beliefs. A*lthough the majority of the participants acknowledged the impact of financial capability and knowledge on antibiotic misuse, some felt that there are other reasons that led to this. These reasons relate to their attitudes and beliefs towards the use of antibiotics. Attitudes and beliefs are the participants' viewpoint on antibiotic use and their beliefs about the role of significant people in the use of antibiotics.

Some participants observed that people are only taking antibiotics through the recommendation of their family and friends. They highlighted that consultation to a doctor prior to taking antibiotics should be the right thing to do and not to rely on hearsays. Others also thought that self-medication happens due to distrust from doctors and other healthcare professionals.

"For others, they might think that they do not want to go to the doctor. They just listen to what others say. They should really go to the doctor before taking antibiotics. Sometimes it's because other people rely on what their parents or what their siblings said, that's why they do not follow instructions from a healthcare worker." (Respondent 2, 36 y/o)

In 2015, The World Health Organization also reported similar results wherein across twelve countries that were surveyed, 25% of the respondents agreed with the idea of using antibiotics from a friend or a family member, as long as they were used to treat the same illness [31]. It was further analyzed that those respondents came from rural areas with lower levels of education and low income.

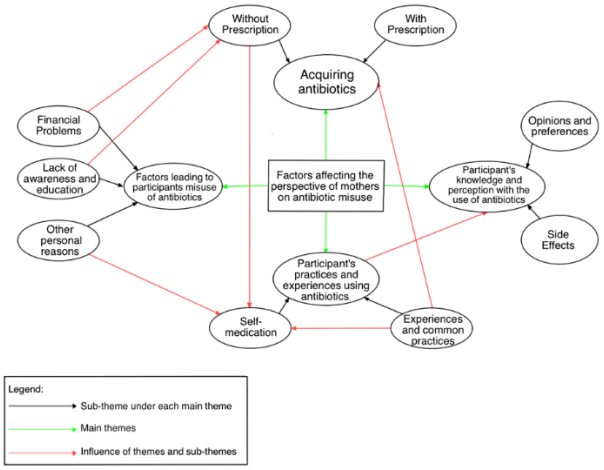

Fig.3. Diagram showing the thematic map demonstrating the connection between different themes generated from the data gathered.

IV. CONCLUSION

Mothers' role as the caregivers in the household [3] makes their perspective and stance on healthcare affects how a family tackles health-related issues such as antibiotic use. They prefer to consult a physician before antibiotic use or if side-effects occur. They perceive that obtaining antibiotics is easy as long as a prescription is available while acquiring a prescription is dependent on the availability and costs of a physician consultation. They also cited channels where they can also acquire and use antibiotics without valid prescription such as reusing old prescriptions, borrowing prescriptions, asking antibiotics through their connections in the Barangay Health Center, buying from the sari-sari store, stored surplus antibiotics from previous prescriptions, and donations from family, friends, and neighbors.

Factors on why antibiotics are acquired and used without prescription include financial status, knowledge, and their attitudes and beliefs on healthcare. Financial status or the capacity to pay for healthcare was the primary factor behind antibiotic misuse as mothers opt out of physician consultation to save money.

Despite the continued misuse and prolific misconceptions on antibiotics, mothers are aware of the risks of self-medicating antibiotics. Continued antibiotic misuse is due to certain factors that make antibiotic misuse a more convenient choice for mothers from lower-middle income households. High efficacy of self-medicating antibiotics was also cited in their experiences

and may result in further practice of antibiotic self-medication. This highlights the importance of healthcare accessibility and availability for this demographic group as it greatly affects how they tackle health-related issues in the family unit.

Recommendations:

The research encountered a number of problems over the course of the data gathering. A notable problem was the data gathering being done through online means which meant that the researchers had to find participants who had sufficient internet connection for a conducive interviewing environment. Given this, it is recommended that the interview and data gathering are conducted face to face so that the data gathered are much more clarified since online interviews may be hindered by the internet connection problems as encountered by the researchers.

Another problem encountered was the problems with the response of the local government units (LGUs) which resulted in the study being conducted in San Juan City instead of Manila as intended. Although data was successfully gathered, the city is not as densely populated as the city of Manila so with this in mind, conducting the research in Manila is highly recommended.

The last major problem the researchers encountered was not meeting the criteria for the initial intended demographics, in which they resorted to raising the income bracket and age range due to digital constraints such as communication and delayed response of the local government units. With knowledge of this, it is recommended that a lower income bracket best be utilized if possible as bigger financial constraints will equate to greater chance of antibiotic misuse and that a smaller age range be utilized as it will concentrate more data, preventing generation impediments in the answers.

Manual coding is recommended to replace auto coding for future similar research as it will account for the essence of verbalization of the participants. A study regarding the different opinions and perspective of respondents on antibiotic resistance is also recommended as it will give a deeper insight on how much knowledge people actually have about the topic. Aside from being just a study on perspectives of a certain demographic group, a future study can be done on the difference in perspective between different demographics including the employed vs unemployed and/ or married/cohabiting vs single. More can be accomplished by the research when a greater scope is encompassed.

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