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# THE CONSUMERS' LEVEL OF AWARENESS AND ATTITUDES TOWARDSTHE ONLINE PHARMACY SERVICES IN THE PHILIPPINES

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An Undergraduate Research Presented to Centro Escolar University School of Pharmacy.

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**ABSTRACT**

Online pharmacy services are a relatively new concept and are gaining traction in the Philippines. Online pharmacies illustrate a conventional pharmacy's "virtual branch," reaching out to online consumers to sell and market medications through the internet. The study aims to determine consumers' awareness and perception towards online pharmacy services in the Philippines. The research follows a quantitative non-experimental design utilizing a descriptive approach and correlational analysis. An online survey questionnaire is created and is distributed using Google Forms. The respondents are limited to the residents of the National Capital Region, Philippines, based on convenient sampling. To compute for the respondents' profile and determine the consumers' awareness and perception towards online pharmacy services, percentage, and weighted mean is calculated. Subsequently, chi-square test is used to correlate the consumers' perception to the respondents' demographic profile and internet utilization as a factor in purchasing from online pharmacies. Results of the study show that consumers perceive that the parameters – convenience, fair pricing, accessibility, reliability, and security as influencing factors in patronizing online pharmacies. No significant correlation is found between the consumers' perception to the respondents' demographic profile and internet utilization as a factor in purchasing from online pharmacies.

**KEYWORDS:** *Online Pharmacy, Services, Awareness, Perception, Consumers.*

## CHAPTER I
## The Problem and Its Background
### Introduction

It is evident that the internet has become an integral part of many people's lives and has dramatically revolutionized many different fields. One field is E-commerce. E-commerce in recent years has achieved massive success by providing a virtual platform to do business with great ease (Hassan et al., 2017).

E-commerce is currently in its emergent phase, including online shopping and the sale of prescription and over-the-counter medications (Desai, 2016).

Online pharmacy is a technological advancement in creating a massive demand in the upcoming days (Chordiya & Garge, 2019).

The Republic Act No. 10918, an act regulating and modernizing the practice of pharmacy in the Philippines, also known as the Philippine Pharmacy Act, defines online pharmacy services as pharmaceutical services of a duly licensed pharmaceutical outlet done over the internet.

Online pharmacies illustrate a pharmacy's "virtual branch," reaching out to online consumers to sell and market medications through the internet. The e-commerce share in the global retail spend is showing a steady increase over the years, indicating an evident shift of consumer attention from "bricks and mortar: to "clicks and mortar" in the retail sector (Renjith, 2018).

Many reasons influence consumers to purchase medical needs through the internet. These include having lower cost, product availability, accessibility, and time-saving (Ashames, 2019).

In the Philippines, the pharmacy market is a booming industry. Online pharmacies are a relatively new concept and are gaining traction in the region as the market witnessed a growth of 3.4% during 2014-2019 (Ken Research, 2020).

As the development of online pharmacies in the country rapidly increases, the Food and Drug Administration of the Philippines (FDA) informs the public on significant risks associated when purchasing online (FDA, 2019). Illicit online pharmacies are present and widely accessed, posting dramatic risks to the drug supply

chain integrity and patient health (Zhao, 2020).

Consumers should be educated about the benefits and downsides associated with buying drugs on the internet. Educational measures should be coupled with sufficient monitoring of online pharmacies from regulatory authorities (Shah, 2018).

The present study determines the consumers' awareness and perception towards online pharmacy services in the Philippines through the key factors used in the study. Key factors include the consumers' demographic profile, internet usage as a factor in online purchasing of medications, respondents' experience on online pharmacies, awareness on online pharmacy services available in the Philippines, and the consumers' driving force in purchasing from an online pharmacy.

**Background of the Study**

The conventional role of pharmacy had begun to change due to the Industrial Revolution; leaders within community pharmacies have sought to shift focus from product to patient (Urick, 2019).

Community pharmacists have adopted new services mostly for patients with various health conditions, people with low health literacy, and people with limited access to healthcare services (Hussain, 2020).

As a result of the COVID-19 pandemic, online buying is expected to dominate consumers' buying preferences in the future. Manufacturers are expected to move to online distribution outlets, including e-commerce websites, online markets, and invest in an official online shop (Ken Research, 2020).

Convenience and safety have been a priority during these challenging times, and online pharmacies could address these needs. Due to the internet, the medications needed are accessible in just a few clicks (Zoleta, 2020).

According to the Zion Market Research (2019) report, the E-pharmacy market worldwide was approximately USD 42.32 billion in 2018 and is expected to generate around USD 107.53 billion by 2025, at a CAGR of around 14.26% between 2019 and 2025.

More and more people opt to use online pharmacies rather than take a stroll to a retail drugstore (Chordiya & Garge, 2018). However, there is very little information regarding consumers' attitudes towards online pharmacies (Alfahad et al., 2015).

With that in mind, online pharmacy in the Philippines is in its infancystage and has only been prominent during recent times. Consumers' lack ofawareness is a concern for the legitimacy of online pharmacies (Pharmaceutical Commerce, 2017). At present, the online market, including online pharmacies, is no stranger to illegitimacy and illicit issues, and a contributing factor to this can be the limited knowledge of consumers in the existence of online pharmacies.

As per FDA Advisory No. 2019-154, the online sale of drugs is not allowed under current legislation and regulations in the Philippines. Currently, the Philippine Pharmacy Act with the FDA only allows online selling of medicines only for FDA-licensed Pharmacies with an actual physical address (FDA, 2019).

FDA-licensed online pharmacies in the country include Dima.ph, MedExpress Drugstore, MedGrocer, Mercury Drug Gamot Padala, Muramed.com, Rose Pharmacy Online, Southstar Drug Delivery, and Watsons Online Pharmacy (Zoleta, 2020).

The present study focuses on key factors to determine consumers' awareness and perception from the National Capital Region towards online pharmacy services in the Philippines. The consumers' awareness and perception are determined. Subsequently, consumers' demographic profile and internet utilization are factors correlated to the consumers' perception on online pharmacies.

Through a cumulative and curious mindset, the researchers considered this topic given its timely and significant relevance in the country, which is slowly but increasingly dependent on online services to address consumers' needs, particularly at this time.

**Conceptual Framework**

Filipino consumers are yet to be introduced entirely towards the concept of pharmacy services in an online setting. Consumers' limited awareness can contribute to why online pharmacies are not as prominent as conventional pharmacies even in these times. Due to that, Filipino consumers have not patronized online pharmacies as much compared to conventional pharmacies.

The present study focuses on determining the awareness and perception of consumers from the National Capital Region towards online pharmacy in the Philippines. The consumers' awareness is determined through the respondents' source of information regarding online pharmacy, online pharmacies patronized, the number of times of purchase, products purchased and online pharmacy services available in the Philippines. The consumers' perception is determined through factors influencing consumers to patronize online pharmacy services. Subsequently, consumers' demographic profile and internet utilization are factors correlated to the consumers' perception on online pharmacies.

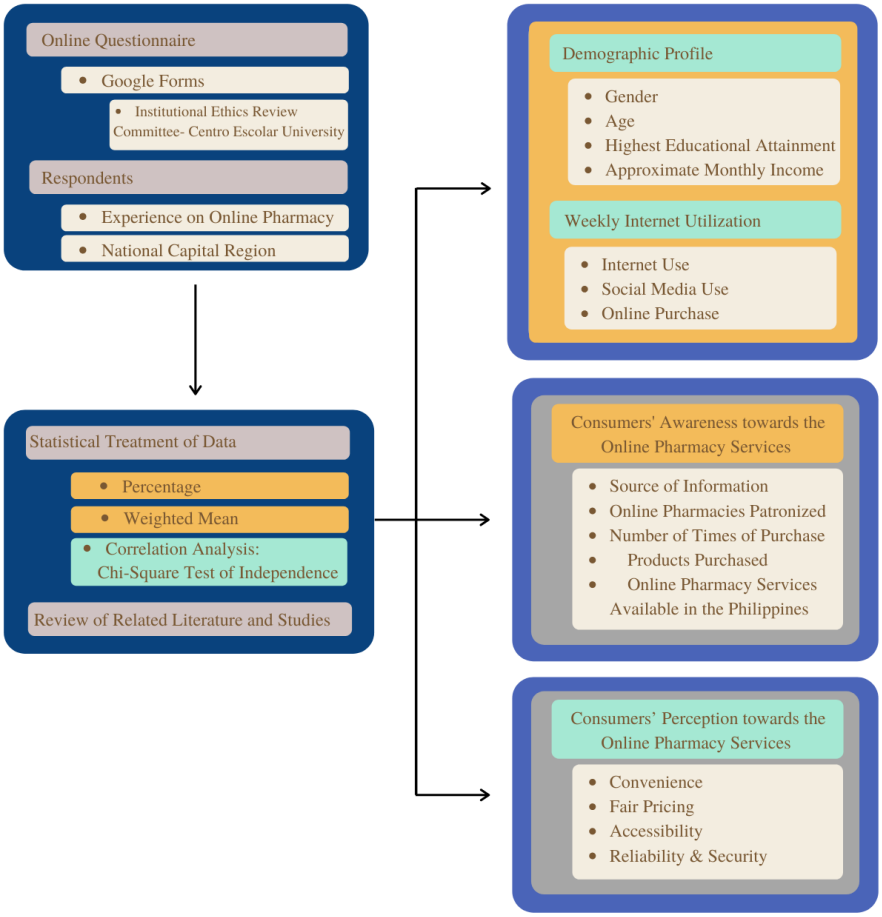


**Figure 1: The Paradigm of the Study: The Consumers Awareness and Perceptiontowards the Online Pharmacy Services in the Philippines.**

**Main Objective**

The study aims to determine consumers' awareness and perception towards online pharmacy services in the Philippines.

**Specific Objectives**

1. To determine the respondents' profile based on the following:

1.1. demographic profile

1.2. internet utilization as a factor in purchasing from online pharmacies

2. To determine the consumers' awareness, according to:

2.1. source of information regarding online pharmacy

2.2. online pharmacies patronized by the respondents

2.3. number of times of online pharmacy purchases

2.4. products purchased in online pharmacies

2.5. online pharmacy services available in the Philippines

3. To determine the consumers' perception on online pharmacy services according to factors influencing consumers to patronize online pharmacy services.

4. To correlate the consumers' perception to the.

4.1. demographic profile

4.2. internet utilization as a factor in purchasing from online pharmacies

**Hypotheses**

The following hypotheses are therefore stated:

1. There is no correlation between the consumers' perception on online pharmacy services to the respondents' demographic profile in terms of gender, age, educational attainment, and monthly income.
2. There is a correlation between the consumers' perception on online pharmacy services to the respondents' demographic profile in terms of gender, age, educational attainment, and monthly income.
3. There is no correlation between the consumers' perception on online pharmacy services to the respondents' utilization of the internet, social media, and online purchasing as a factor of purchasing from online pharmacies.
4. There is a correlation between the consumers' perception on online pharmacy services to the respondents' utilization of the internet, social media, and onlinepurchasing as a factor of purchasing from online pharmacies.

**Significance of the Study**

Technology has opened new doors for the pharmacy practice itself. Through the opportunity that technology has offered, pharmacy practice is not only confined in a

store or face-to-face setting. The pharmacy services now can reach out to consumers in an online environment.

The study's finding could inform consumers on how to identify and determine what makes an online pharmacy in the Philippines legal and legitimate and would help gain knowledge and understanding of the benefits and risks when purchasing online. . In the future, online pharmacies can grow into an even broader market where people can easily access it and depend on it.

The study's findings can benefit already existing legal online pharmacies in the Philippines because the data gathered from the consumers reflects their satisfaction or dissatisfaction with online pharmacies. With the information, existing online pharmacies can further improve, refine, and enhance any current offering features and services.

The study can also contribute to information dissemination about thecredibility and benefits of online pharmacies. Pharmacists who are knowledgeable in an online environment and tech-smart can apply as online pharmacists.

Existing pharmacies and drugstore owners who wish to compete in the virtual market can benefit from the researcher's study. The data gathered can present them with results on the viewpoints of experienced consumers. Understanding consumer awareness and perception towards online pharmacies can help marketers formulate marketing strategies better.

Lastly, data gathered can be utilized as a basis to improve future researches. Future researchers can also add modifications to the study following the relevance and significance when using this study as a basis.

**Scope and Delimitations**

The study focuses on determining the awareness and perception of consumers towards the services of online pharmacies. Only the variables identified are used to determine the consumers' awareness and perception.

A descriptive approach and correlational analysis are used to discuss and measure the awareness and perception of consumers towards online pharmacy services.

The primary source of the study is through an online questionnaire distributed with the use of Google Forms.

To make the study significant and viable, the respondents were narrowed down and limited to the residents of the National Capital Region, Philippines. The respondents covered in the study are based on convenient sampling. Limitations apply to those who have not experienced online pharmacy in the country yet, and will only fill up until questionnaire one, section five of the survey.

Only FDA-registered online pharmacies in the Philippines are count as legal online pharmacies. The study covers only some FDA-registered online pharmacies.

**Definition of Terms**

The terms related and used in this research are hereby defined for better understanding:

**Accessibility.** Is referred to as the availability of good health services within reasonable reach of those who need them and of opening hours, appointment systems, and other aspects of service organization and delivery that allow people to obtain the services when they need them. (World Health Organization)

**Awareness.** It refers to the familiarity of consumers with online pharmacy services in the country, what makes it legal and what it offers, or what services it provides.

**Consumers.** It refers to those who have purchased from an online pharmacy and have experienced online pharmacies' services.

**Convenience.** Is defined as a factor for purchasing as the state of being able to proceed with something with little effort or difficulty. (Asamoah, 2012)

**E-Commerce.** Electronic Commerce is defined as the purchasing and selling of goods and services over the internet. (Bhat et al., 2016)

**Fair Pricing**. Is defined as a factor that influences the purchasing decision of a consumer which means it is an adjustment of the price of a product that offers a combined quality and appropriate services for a reasonable price. (Albari, 2018)

**Online Pharmacy.** Is defined as the pharmaceutical services of a duly licensed pharmaceutical outlet done over the internet.

**Perception.** Is referred to as the consumers' way of understanding andinterpretation regarding the concept of online pharmacies. (eCampusOntario, 2018)

**Reliability.** is defined as the probability that a product, system, or service will perform its intended function adequately for a specified period, or will operate in a defined environment without failure. (Crossley, 2007)

**Security.** Is referred to as the combined physical, policy, and technological approaches to safeguard products and orders, and help protect against theft and diversion. (Figge, 2015)

**Services.** It refers to the functions and activities that online pharmaciesprovide or offer to consumers.

## CHAPTER II
## Review of Related Literature and Studies

This chapter presents a comprehensive review of various literature and studies gathered by the researchers, which are significant and are related to the present research paper. The following areas discussed are (1) Community Pharmacy Practice: Then, Now and the future,(2) Online Pharmacy in the Philippines, (3) Services of Online Pharmacies, (4) Consumer Awareness on Online Pharmacies, (5) Perception on Online Pharmacies and (6) Factors on Online Pharmacy Purchase.

### Community Pharmacy Practice: Then, Now and the Future

As traditional compounding decreases, leaders within community pharmacies have sought to shift focus from product to patient. By the 1800s, the conventional role of pharmacy had begun to change due to the Industrial Revolution, wherein manufacturers start making medicines in place of pharmacists (Urick, 2019).

According to a review article "Towards a Greater Professional Standing: Evolution of Pharmacy Practice and Education, 1920–2020," the history of American community pharmacy in the modern era can be divided into four periods. The first period is from the 1920s to 1949s, wherein people would seek fountain drinks from their local drugstore to cure physical ailments. It is an era when pharmacists' compounding has decreased, and the pharmacy profession has found itself questioning its purpose. By the 1950s to 1979s, the percent of prescriptions that were compounded had fallen to 25%. It was an era called "lick, stick, and pour" wherein pharmacists' duty was to dispense premanufactured capsules and tablets, and are still prohibited them from discussing the contents of prescriptions with patients. This led pharmacists to desire to do more than dispense a product. The 1980s saw a significant shift in the philosophy of practice, as pharmacy leaders discussed the pharmacy's role in the 21st century. The 1980s to 2009 was called the Pharmaceutical Care Era. The practice changes have been strengthened when the federal government mandated prescription counseling as a part of the Medicaid program. Dates 2010 to present were the brightest light for the post-pharmaceutical care area as opportunities begin to emerge as community pharmacies partnered with payers and caregivers to improve medication-related quality measures and decrease the total costof care (Urick, 2019).

Digital Marketing plays a vital role in the Pharmaceutical industry especially today. With the current COVID-19 pandemic and movement restrictions, the industry hashad to switch to a digital setting to be able to market its products. The Iqvia report on "The Global Use of Medicine in 2019 and Outlook to 2023", states that the pharmaceutical market will exceed a total market value of $1.5 trillion in 2023 with a compound annual growth rate (CAGR) between 3% and 6% (Doxee, 2020).

With the evolution of pharmacies towards a digital market, the goal is to enhance every aspect of pharmacy operations to cater to a larger online consumer base. This involves enhancing an integral part of any pharmacy which is its supply chain. According to experts from the medical Futurist, supply chain trends such as robotics and Artificial Intelligence are here to shorten pharmaceutical production cycles and reduce production costs. As a result, these trends aim to shape the industry by ensuring a seamless operationthrough highly technical innovated machines to offer marketers value in sales and drive large customers (Linchpin, 2021).

Another goal of digital pharmaceutical marketing is increasing "brand awareness"which is of course achieved through social media in today's era. In this generation, more pharmaceutical companies are using social media sites or e-commerce sites as a medium for digital marketing. In the pursuit of reaching a larger market, companies cannot only depend on social media alone, they also seek the help of avid social media users. Pharmaceutical companies will join influencers in search of new ways to market their products (Bharskar, 2020).

A study entitled "Drive-thru pharmacy services: A way forward to combat COVID-19 pandemic" discussed the value-added pharmacy services in different countries. In the United States of America (USA), drugs are dispensed through mail order or as "drive-thru service" to the patients. Several value-added services (VAS) in Australia include forward dispensing, a prescription reminder system, One-stop-Shops, Rolls Royce service, chronic illness card, drive-thru pharmacy services, and home delivery services. The click-and-collect technology in the United Kingdom, with "human" service,allows the collection of medicine orders and advice at a suitable time from the designated pharmacy. Other value-added services of pharmacies include the Hub and Spoke dispensing models, the ATM-style prescription collection point, supplementary prescribing, and independent prescribing models (Hussain, 2020).

The pharmacy career has evolved rapidly by pushing its boundaries and limits. An article "A Glimpse into the Future of Pharmacy" states that the universal availability of mobile devices is a call for software creators, IT workers, and technology firms to venture into and build health care delivery services that are flawlessly incorporated with the patient care environment. Advancements in pharmacogenomics are also discussed in the article. With pharmacy and pharmacogenomics being a complex and ever-expanding field, this calls for continuing education programs to introduce/reinforce pharmacogenomics findings to be placed in practice to apply a pharmacist's knowledgeof pharmacogenomics to direct patient-centered care (Longhi, 2020).

The "Pharmacy of the Future" will be shaped by demographic, economic, and regulatory changes. It will be formed by the integration of drastic shifts in multi-

channel marketing and primary health care. Digital innovations are starting to revolutionize the retail, pharmaceutical environment, and even how prescriptions are filled. The way individuals monitor and manage their health is also beginning to transform. With the adoption of GS1 data standards and permission-based access across primary health care, the sharing of information between healthcare professionals is primarily driven by the ambition to provide the best and safest healthcare possible (Alvarez and Marsal, 2016).

**Online Pharmacy in the Philippines**

The Republic Act No. 10918, an act regulating and modernizing the practice of pharmacy in the Philippines, also known as the Philippine Pharmacy Act, defines online pharmacy services as pharmaceutical services of a duly licensed pharmaceutical outlet done over the internet. Penal provisions are imposed on (n) unauthorized dispensing of pharmaceutical products through unregistered online services or direct selling businesses,as stated in Article VII Section 45 of the act.

FDA Advisory No. 2019-154 states that the online sale of pharmaceutical goods in the Philippines is not allowed under the current rules, legislation, and regulations. Currently, FDA only requires internet shopping services such that the retailer has a registered FDA-licensed pharmacy with a physical address. Online services are only additional operations of the pharmacy subject to approval by the FDA (FDA, 2019).

FDA-licensed online pharmacies in the country include Dima.ph, MedExpress Drugstore, MedGrocer, Mercury Drug Gamot Padala, Muramed.com, Rose Pharmacy Online, Southstar Drug Delivery, and Watsons Online Pharmacy (Zoleta, 2020). Most online pharmacies are mostly available in the National Capital Region (NCR), which is composed of multiple urban cities which are highly industrialized and is where technology is easily accessible and functional (National Nutrition Council, Philippines, 2020).

MedGrocer is an FDA-registered pharmacy that delivers prescription and OTC medicines. The consumer is asked to upload a prescription for drugs that need it. Medications are added to the cart once a prescription is uploaded and evaluated. An email will be sent out summarizing the order. Payment methods could be via cash on delivery (COD), GCash, and bank deposit. Convenience fees vary from Php 200 to Php 300, depending on the location. The processing of orders is from 9 am to 6 pm on weekdays. Orders made during office hours are processed within the day, and orders made during the weekend or the evening are processed on the next working day (MedGrocer).

Another FDA-registered online Pharmacy in the Philippines is Dima.ph. Dima is an online pharmacy that safely offers confidential access to condoms, pills, and other reproductive health services. During the Enhanced Community Quarantine, During the COVID-19 quarantine, Dima took off when individuals searched for new ways to purchase birth control pills and other reproductive health products. A patient can visit a doctor, order prescriptions, and search for medication on the online pharmacy's website, making it easier for the patient to access medical information, prescription drugs, and personal product faster, quicker, and free of judgment (CNN, 2020).

As a result of the COVID-19 pandemic, online buying is expected to increase. Manufacturers are expected to move to online distribution outlets, including e-commerce websites, online markets, and invest in an official online shop. (Ken Research, 2020)

According to the Zion Market Research (2019) study, the E-pharmacy industry worldwide was around USD 42.32 billion in 2018, and by 2025 it is projected to produce round USD 107.53 billion, with a CAGR of 14.26% from 2019 to 2025.

**Services of Online Pharmacies**

Hussain et al. (2020) discussed new services that community pharmacists have adopted. These services are referred to as value-added services (VAS) or extended pharmacy services. These services were mostly for patients with various health conditions, people with low health literacy, and people with limited access to healthcare services.

Online pharmacy services and online access to medications have added a new dimension to the delivery of medicines—the Royal Pharmaceutical Society listed down a checklist for online pharmacy services. An online pharmacy service should be registered, and their registration should be available to the public; it should be able to verify a person's identity when supplying prescription-only medicines online; it should always provide an opportunity to access advice from a pharmacist when medications are provided and have an online consultation process of the same clinical standard as a face- to-face consultation (Royal Pharmaceutical Society,2020).

A review article entitled "E-pharmacy vs conventional pharmacy" described how an e-pharmacy model functions. An online pharmacy application asks consumers to upload a copy of their prescriptions and place requests for the medications needed. A team of registered pharmacists will verify and check every order that they receive. With that, the validated drugs are forwarded to a pharmacy store from where the medicines are dispensed (Chordiya & Garge, 2018).

According to Prashanti (2017), there are undoubted opportunities for customers in the online pharmacy market. This provides access to medications for the disabled or home-bound, access for 24 hours a day, a nearly infinite range of items available, greater

anonymity that could allow patients to raise questions about embarrassing problems, and more accessible prices; and easy access to details and comparison shopping.

A review article comparing "E-pharmacy vs conventional pharmacy" stated that online pharmacies have many advantages compared to conventional pharmacies. Online pharmacies offer great convenience to consumers. Individuals who live far from the retail pharmacies and others whose daily routine requires additional difficulties can benefitfrom the online buying of medications conveniently and quickly. In comparison, delivery costs are often cheaper than the travel expenses associated with a conventional pharmacy visit. Online pharmacies take less time and effort than traveling to your local pharmacy and having to wait in line for your medicine. Online medication purchase provides lower costs. It is especially helpful for individuals who find it challenging to talk face-to-face with doctors and pharmacists and offer a wide range of choices (Chordiya & Garge, 2018).

Desai (2016) stated that online pharmacies provide competitive deals over offline pharmacies, including expanded availability, reduced purchase and product prices, accessibility, and greater customer privacy. Online pharmacies provide access to consumers with limited mobility and who are far from retail pharmacies. Some have a provision of text alerts such as medicine reminder messages. Online pharmacies also offer more discounts and provide doorstep delivery within a short time.

**Consumer Awareness on Online Pharmacies**

In research entitled "The extent of use of online pharmacies in Saudi Arabia," the awareness of 633 respondents was determined with the existence of online pharmacies. Results show that only 23.1% or 146 were aware of online pharmacies, and only 2.7% or 17 respondents had already purchased medicines online. A significant question was asked to the respondents if they can differentiate between legal and illegal online pharmacies. The majority of the respondents could not distinguish both online pharmacies or were unsure about their differences (Abanmy, 2017).

In the same study, 17 respondents who purchased medications online were satisfied with the service. Three stated that the medicines purchased from an online pharmacy were better than those bought from a retail pharmacy, while seven said that the service was not excellent. Two of 17 respondents said that they need a prescription to purchase medications online. One was asked to provide and upload the prescription, while the other was asked to answer several questions about the respondents' health status. The study concluded that online pharmacies in Saudi Arabia are currently not an issue since most were unaware of online pharmacies' services. They emphasized that online pharmacies' legality and the quality of the products sold should be addressed as the number of online pharmacies in Saudi Arabia is significantly increasing (Abanmy, 2017).

Another study entitled "Consumer and Community Pharmacists' Perceptions of Online Pharmacy Services in Uyo Metropolis, Nigeria," surveyed 60 pharmacists and 500consumers. The study results show that although >85% of the respondents reported frequent internet use, only 28% of the consumers and 57% of the pharmacists were aware of the existence of online pharmacy in Nigeria. (Ndem, 2019)

A study investigated the "Perception and Knowledge to Online Pharmacy Services among Consumers in Riyadh, Saudi Arabia: a Pilot Survey." The findings of the study revealed that only a few of the respondents indicated that they had ever bought pharmaceutical drugs over the internet. Most respondents (82.6%) did not know about an online pharmacy, and very few respondents (1.4%) bought medication from an online pharmacy (Alfahad, 2015).

In May 2017, the Alliance for Safe Online Pharmacies (ASOP) Global commissioned a national polling firm to assess online pharmacies' consumer behaviorand perception. They have concluded that there is very little awareness about online pharmacies, and only 27% of consumers were very familiar with online pharmacies. While only 27% of consumers are very familiar with online pharmacies, 55% of respondents have or would consider purchasing medication online.

A study on "Consumer Perceptions and Behaviors towards Online Pharmacies" found out that over half (55%) of respondents know that online pharmacies exist. 2% of the respondents have experienced online pharmacies, 4% looked into online pharmacies and understand how they work, and 49% know that online pharmacies exist, but don't know much about them and had not heard of online pharmacies. 65% of females with ages 55 above know that online pharmacies exist. The study also found out that non- prescription drugs are most likely to be considered for online purchases (Snowdon, 2018).

**Perception on Online Pharmacies**

A study listed the reasons for buying medications online. The research shows that the leading cause of consumers purchasing online was the unavailability of medicines from retail pharmacies near them. Respondents who did not buy any medication online said that there was a lack of awareness of online pharmacies. 42.7% of respondents said that they would consider buying drugs online, 38.5% answered "No", and 18.8% did not answer the question (Abanmy, 2017).

A survey on "Attitudes of Patients and Customers Regarding Purchasing Drugs Online" concluded that education ($p = 0.001$) and age ($p= 0.012$) are that factors

that influence the consumers' frequency of visiting websites about medicine and medicinal products. The effect of gender, age, and education on online drug purchase was evaluated. Twenty-one (21) respondents have purchased from an online pharmacy already. Among those were 14 females and seven males. More respondents (8) of ages 21-34 years old have ordered already followed by (5) ages 14 to 24 and 15 years and older, 35-44 years rated lesser (3). In terms of educational level, 11 respondents already ordered, which are those who have a university degree, followed by nine (9) high school respondents and one (1) from a primary school (Pal et al., 2015).

The Alliance for Safe Online Pharmacies Global national polling firm evaluated consumer behavior and online pharmacies' perception. Those who are younger have higher incomes, and purchase already purchased from other online stores would mostly consider purchasing medications online. Comparing those who have not purchased online medication resulted in 72 percent of regular social media users would consider ordering medications online, and 74 percent of customers who have bought prescription drugs from an online pharmacy before will do so again (ASOP, 2017).

A study on "Consumer Perceptions and Behaviors towards Online Pharmacies" found out that people between the ages of 18-34 are the ones who are most likely to be open to purchasing from online pharmacies. The study also found out that frequent online shoppers are most receptive to online pharmacies. For the respondents, convenience and lower prices are the most considerable perceived benefits of online pharmacies (Snowdon, 2018).

The present study's main inspiration was from a research entitled "Consumers Turning to the Internet Pharmacy Market: Cross-Sectional Study on the Frequency and Attitudes of Hungarian Patients Purchasing Medications Online." Key factors used in the study to identify the consumers' awareness and attitude, which were (1) demographic factors, (2) internet use behavior, and (3) online drug purchase attitude (Fittler et al., 2018).

The Republic Act No. 10918, also known as the Philippine Pharmacy Act, defines online pharmacy services as pharmaceutical services of a duly licensed pharmaceutical outlet done over the internet. Currently, FDA only requires internet shopping services such that the retailer has a registered FDA-licensed pharmacy with a physical address. In this present study, FDA- licensed online pharmacies in the country are counted as legal pharmacies, which include Dima.ph, MedExpress Drugstore, MedGrocer, Mercury Drug Gamot Padala, Muramed.com, Rose Pharmacy Online, Southstar Drug Delivery, and Watsons Online Pharmacy (Zoleta, 2020).

In various studies, little consumer awareness of online pharmacies was found. "The extent of use of online pharmacies in Saudi Arabia" concluded that only 23.1% or 146 were aware of online pharmacies, and only 2.7% or 17 respondents had already purchased medicines online. Another study entitled "Consumer and Community Pharmacists' Perceptions of Online Pharmacy Services in Uyo Metropolis, Nigeria" shows that only 28% of the consumers and 57% of the pharmacists were aware of online pharmacy in Nigeria. (Ndem et al., 2019). In the Alliance for Safe Online Pharmacies (ASOP) Global evaluation, they have concluded that there is very little awareness about online pharmacies, and only 27% of consumers were very familiar with onlinepharmacies.

Various studies on online medication attitudes were conducted. A study by Abanmy (2017) shows that the leading cause of consumers purchasing online was the unavailability of medicines from retail pharmacies near them. In a survey on "Attitudes of Patients and Customers Regarding Purchasing Drugs Online," the effect of gender, age, and education on online drug purchase was evaluated and concluded that education and age are that factors that influence the consumers' frequency of visiting websites about medicine and medicinal products. The ASOP Global national polling firm evaluated consumer behavior and perception of online pharmacies and found out that those who are younger, have higher incomes, and already purchased from other online stores would mostly consider purchasing medications online.

**Factors Influencing Online Pharmacy Purchase**

The study's main inspiration was from a research entitled "Consumers Turning to the Internet Pharmacy Market: Cross-Sectional Study on the Frequency and Attitudes of Hungarian Patients Purchasing Medications Online." In the study, the correlation between (1) demographic factors, (2) internet use behavior, and (3) online drug purchase attitude was assessed. In the study, the online purchase is defined by the frequency of internet use, which strongly relates to age. The degree of education will influence all other variables and, as a result, will have a general effect on the online drug buying attitude. Results of the study show that 82.65% of the respondents were aware that medications could be obtained online, but only 4.17% used the internet for previous medication purchases. A correlation analysis indicated that a significant correlation was found between age, average time spent on the internet, internet purchase in general, settlement size, and level of education (Fittler et al., 2018).

An article that examined the dynamics of men and women on online shopping behaviors show that females are more likely to enjoy the shopping process as a whole than men, as women make unplanned purchases mostly triggered by advertisements, special offers, new trends, and desire to improve mood (Dasha, 2019).

The importance of social media in the information age has never been more significant. Businesses have also started to use social media networks as a way to attract their customers' attention to their products and, thus, communicate with them more easily(Sümer, 2019). The Philippines has one of the highest numbers of social network users across Southeast Asia with a 67% social media penetration rate as of January 2020 where Filipinos spent 4 hours using social media. As a result, online pharmacy companies have also turned to online advertising through social media and have effectively allowed advertisements of products and services to become more visible online (Sanchez, 2020).

When it comes to age brackets, Millennials (Gen Y) and Generation Z are generations who are mostly computer literate and have been well-versed in technology among previous generations (Kasasa, 2021).

According to the data gathered from transactions through Shopback, Filipino consumers ordered 9.1 million valued at P5.6 billion in January to June, nearly five times higher than the 2.1 million orders (P1.3 billion) in the same period last year from online pharmacies. In the survey, most respondents of all ages took dietary supplements more frequently after the outbreak of COVID-19 (Sanchez, 2020).

A "Predictive Model To Study The Consumer Buying Behaviour Towards E- Pharmacy Through Social Media Influence: A Cross Country Study" concluded that the perceived usefulness, perceived intention, and demographics influenced by the social media feedback posted across different cultures impact purchasing from online pharmacies(Arekar, 2021).

## CHAPTER III

### Method and Procedures

This chapter presents the methods and procedures utilized by the researchers to gather pertinent data needed to determine consumers' awareness and perception towards online pharmacy services in the Philippines. The chapter's discussion includes the methodof research used, the subject of the study, survey instrument, sampling technique, statistical treatment, and ethical considerations.

### Method of Research Used

This research follows a quantitative non-experimental design utilizing a descriptive approach and correlational analysis. The descriptive study approach is employed since the study aims to determine the consumers' awareness and perception towards online pharmacy services in the Philippines. The later analysis is used to correlate the awareness and perception towards online pharmacy services in the Philippines to the respondents' profile.

### Survey Instrument & Collection of Data

A semi-structured online questionnaire is developed based on a validated and published questionnaire from a study entitled "consumers turning to the internet pharmacy market: cross-sectional study on the frequency and attitudes of Hungarian patients purchasing medications online" is utilized and modified to save time and resources.

The survey questionnaire is comprised of nine (9) sections where section one (1)is on survey introductory letter, section two (2) is on the respondents' consent to participate, section three and four (3-4) on the demographic profile of the respondents, section five (5) is on internet usage as a factor in online purchasing of medications, section six and seven (6-7) is on the respondents' experience on online pharmacies, section eight (8) is on online pharmacy services available in the Philippines, and section nine (9) is on the consumer's driving force in purchasing from an online pharmacy.

A 5-point Likert scale is utilized to determine the frequency of internet use, social media use, and online purchases weekly. The 1st point on the Likert scale indicates that the respondent does not use or browse the internet/social media nor had purchased from an online pharmacy. The 2nd point indicates that the respondent is rarely using or browsing the internet/social media and has rarely purchased from an online pharmacy. The 3rd point indicates that the respondent uses the internet/social media sometimes and has sometimes purchased from an online pharmacy. The 4th point indicates that the respondent often browses the internet/social media and often purchases from an online pharmacy. Finally, the 5th point indicates that the respondent browses the internet/social media and purchases from an online pharmacy always. The Likert scale is also utilized to determine the consumers' driving force in purchasing from an online pharmacy. The 1st point indicates that the respondent strongly disagrees or opposes the statement related to consumers' driving force in purchasing from an online pharmacy. The 2nd point indicates that the respondent only disagrees with the statement related to the driving force for consumers in purchasing from an online pharmacy. The 3rd point indicates that the respondent chooses to remain neutral on the statement related to consumers' driving force in purchasing from an online pharmacy. The 4th point indicates that the respondent agrees with the statement related to consumers' driving force in purchasing from an online pharmacy. Finally, the 5th point indicates that the respondent strongly agrees and accepts the statement related to consumers' driving force in purchasing from an online pharmacy.

Since restriction of movement and the move of classes to an online setting is put in place during this health crisis and pandemic, the researchers decided to utilize a questionnaire developed in Google forms to ensure quick and easy distribution and data collection to obtain the

necessary data. The distribution will be done through different social media platforms such as Facebook, Instagram, and Twitter.

The questionnaire is set to a one (1) limit response to ensure that no respondent will answer the survey multiple times.

**Respondents & Sampling Technique**

The respondents of the study are limited to the residents of the National Capital Region (NCR), where the majority of the online pharmacies are operational from the region only.

The respondents of the study are determined via convenience sampling, a non- probability sampling technique wherein subjects are identified prior to the ease of accessibility of the researchers.

To ensure the respondents' location, a dropdown option in the questionnaire is asked to what city or municipality within the National Capital Region, the respondents reside in. Otherwise, the respondent is direct to the submit page.

Another measure to ensure the questionnaire and respondents' reliability is that respondents who have yet to experience or have no transactions with an online pharmacy only filled up until question one, section five of the survey questionnaire.

**Statistical Treatment**

To compute for the respondents' profile and determine the awareness towards online pharmacy services, the percentage is calculated using the following formula.

$$\% = \frac{f}{n} x\ 100$$

Where:

% = percentage value
f = frequency
n = sample size

To describe the respondents' perception on online pharmacies, a 5-point Likert scale was used where weighted mean was utilized.

| Point | Scale | Verbal Interpretation |
|---|---|---|
| 5 | 4.51-5.00 | Strongly Agree |
| 4 | 3.51-4.50 | Agree |
| 3 | 2.51-3.50 | Neutral |
| 2 | 1.51-2.50 | Disagree |
| 1 | 1.00-1.50 | Strongly Disagree |

Formula

$$W = \frac{\sum wx}{\sum w}$$

Where:

W = weighted mean
∑ = summation of values
*w* = weights
*x* = values

The Chi-Square test of independence is computed to correlate the consumers' perception to the respondents' demographic profile and internet utilization as a factor in online purchasing of medications.

To facilitate the computation of data analysis, SPSS Statistics is used.

**Ethical Considerations**

The study protocol is approved by the Institutional Ethics Review Committee of Centro Escolar University.

## CHAPTER IV

**Presentation, Analysis, and Interpretation of Data**

This chapter includes the presentation, analysis, and interpretation of data gathered on the consumers' awareness and perception towards online pharmacy services in the Philippines. The discussion of the results includes the respondents' demographic profile and internet utilization, respondents' awareness, perception on online pharmacy services, and correlation.

### 1. Demographic Profile and Internet Utilization of the Study Respondents

The survey questionnaire administered using Google Forms garnered a total of 699 responses; however, research delimitations were applied that the respondents are a resident of the National Capital Region (NCR) and must have an online pharmacy serviceexperience.

#### 1.1. Respondents Demographic Profile

**1.1.1. Based on Residence in National Capital Region (NCR)**

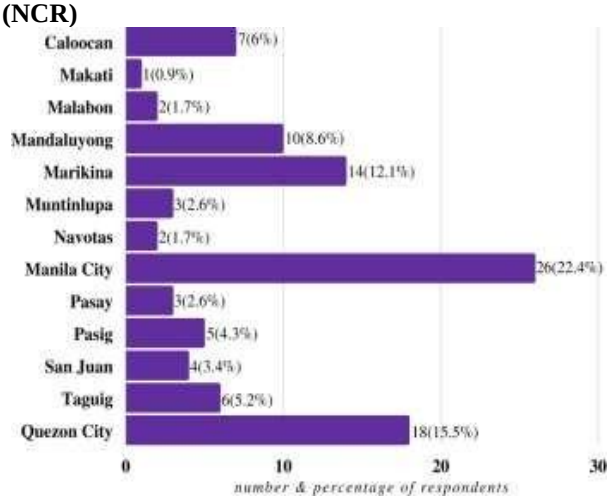


**Figure 2: Distribution of Respondents According to Respondents Residence in National Capital Region (NCR).**

Figure 2 shows that study respondents who have purchased from online pharmacies came from 13 cities in NCR with Manila City having the most study respondents with 22.4% (n-26) and Makati having the least with 0.9% (n-1).

The National Capital Region is composed of multiple urban cities which are highly industrialized and is where technology is easily accessible and functional (National Nutrition Council, Philippines, 2020). Online businesses and e-commerce including online pharmacies are taking advantage of this favorable factor to slowly gain popularity and expand their services furthermore. Manila City and Quezon City being thetwo largest and populous cities provide online pharmacies with a large customer base andmarket to cater to and hence ranking as the first and second city with the highest number of study respondents.

Out of 115 who had previous transactions with online pharmacies, 101 study respondents are allowed to proceed further through the survey as the study is limited to the residents of the National Capital Region only.

### 1.1. 2. Based on Gender

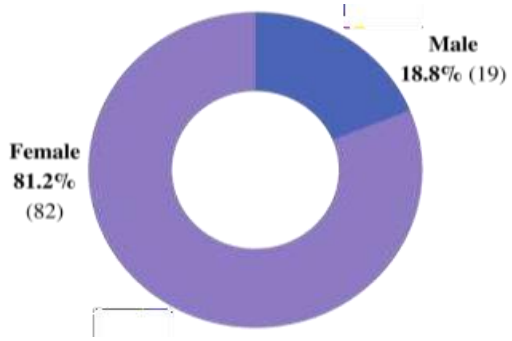


**Figure 3: Distribution of Respondents According to Gender.**

Figure 3 indicates that the majority of the respondents were females with 81.2% (n-82) while 18.8% (n-19) are male respondents. The findings show that females tend to utilize online pharmacy services more as compared to males.

Females spend more time shopping online, they also decide based on review and ratings and not on specific features of an item. Females are more likely to enjoy the shopping process as a whole and make unplanned purchases mostly triggered by advertisements, special offers, and new trends, and desire to improve mood (Dasha, 2019).

### 1.1.3. Based on Age

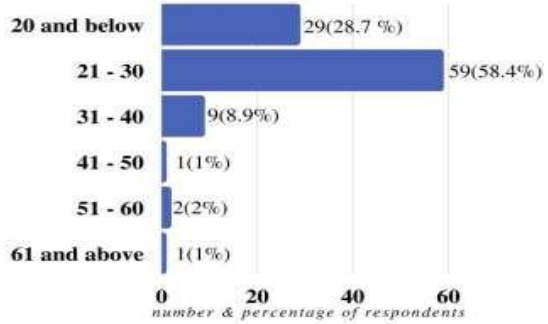


**Figure 4: Distribution of Respondents According to Age.**

Figure 4 shows that the majority of the study respondents belong to the age bracket of 21-30 years of age 58.4% (n-59) while the lowest representation is for those whose age is 41 – 50 and 60 and above having 1% (n-1).

The age brackets of 21-30 & 20 and below are composed of two generations namely Millennials (Gen Y) and Generation Z, these generations are the most computer literate and have been well-versed in technology among previous generations which explains why they represent the majority of the study respondents (Kasasa, 2021).

### 1.1.4. Based on Highest Educational Attainment

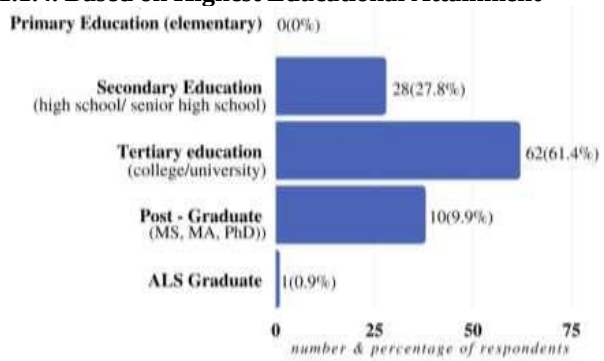


**Figure 5: Distribution of Respondents According to Highest Educational Attainment.**

Figure 5 indicates those respondents which had tertiary education or university graduates with 61.4% (n-62) respondents were among the most that had previous purchases and transactions from online pharmacies and 27.8% (n-28) of the respondents have finished secondary education. There are 9.9% (n-10) respondents whose highest educational attainment is postgraduate school.

In totality, the study respondents are characterized as well-educated individuals with significant exposure to the use of technology. Given this, the respondents are likely to provide reliable answers and responses needed in the present study.

A similar study showed that respondents who attained tertiary education or university degrees (51.1%) are most likely to purchase from online pharmacies than other educational levels (Pal, 2015).

### 1.1.5. Based on Approximate Monthly Income

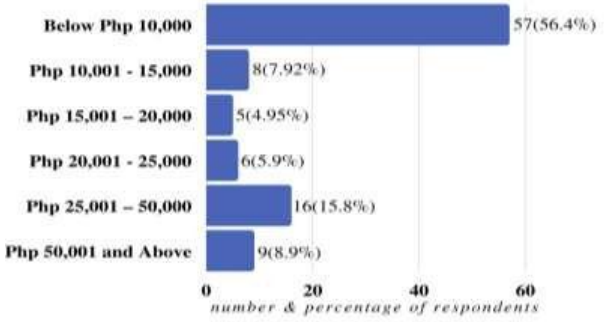


**Figure 6: Distribution of Respondents According to Approximate Monthly Income.**

Figure 6 indicates that the majority or 56.4% (n-57) of the respondents' earnings is below Php 10,000 while 15.8% (n-16) respondents' earnings were within Php 25,001- 50,000.

Monthly income can serve as a strong indicator, as it provides an estimated representation of the respondent's purchasing ability. In the researcher's study, the majority of the respondents indicate that they have an approximate monthly income of below Php10,000. The data also exhibit that the lowest approximate monthly income option is most likely customers in online medication purchasing. This could signify that some of the respondents are students or currently unemployed.

### 1.2. Respondents Internet Utilization as a Factor in Online Purchasing ofMedications

#### 1.2.1. According to Weekly Internet Use

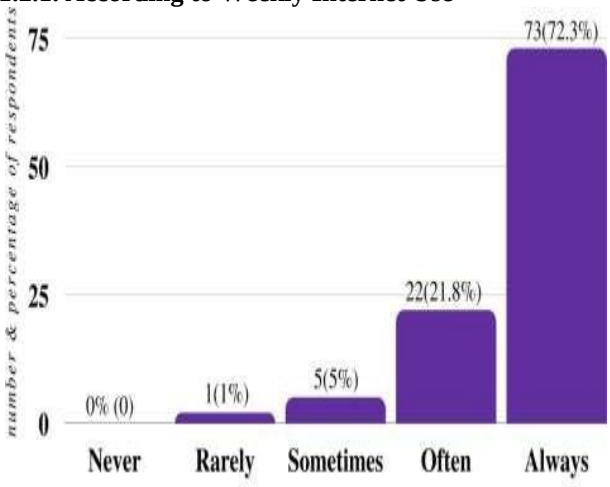


**Figure 8: Distribution of Respondents According to Weekly Social Media Use.**

Figure 8 shows that 72.3% (n-73) respondents always use social media per week and 21.8% (n-22) respondents describe their social media use as often.

The importance of social media in the information age has never been more significant. Businesses have also started to use social media networks as a way to attract their customers' attention to their products and, thus, communicate with them more easily (Sümer, 2019). With the findings indicating that the majority of the respondents always use their social media, these respondents are more likely to be exposed to social media advertisements and promotions of online businesses like online pharmacies.

This data coincides with a survey that tackled social media users and their online medication purchasing attitude where 72% of daily social media users would consider purchasing medications online (ASOP Global, 2017).

#### 1.2.3. According to Weekly Online Purchase

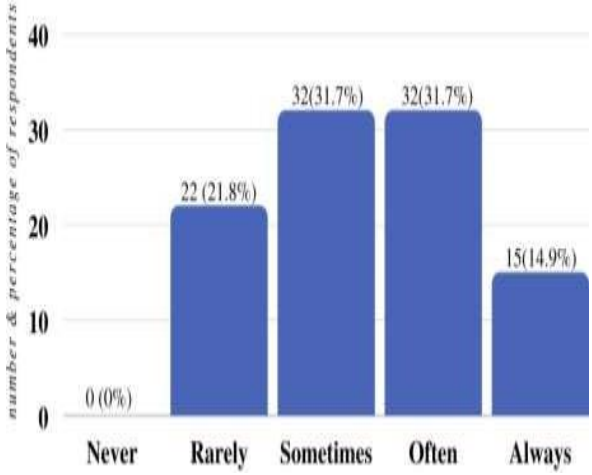


**Figure 9: Distribution of Respondents According to Weekly Online Purchase.**

Figure 9 presented that out of the 101 respondents, 31.7% purchase sometimes and often online, 21.8% rarely purchase online and 14.9% always purchase online. This data shows that the trend in online purchasing is slowly uprising and gaining consumers access.

The data present that there is a rising trend amongst the study respondents in terms of purchasing online. According to the data gathered from transactions through Shopback, Filipino consumers ordered 9.1 million valued at P5.6 billion from January to June, nearly five times higher than the 2.1 million orders (P1.3 billion) in the same period last year (Lumas, 2020). This rising trend in e-commerce growth can be attributed to theCOVID-19 pandemic.

In a survey regarding consumer perceptions and behaviors towards online pharmacies, frequent online shoppers are most receptive to online pharmacies and 24% ofthe survey respondents are "somewhat likely" to purchase from an online pharmacy weekly (Snowdon, 2018).

**2. Awareness on Online Pharmacies Services**

**2.1. Source of Information Regarding Online Pharmacy**

**Table 1: Distribution of Respondents' Source of Information Regarding OnlinePharmacy.**

| Source of Information | f | % | Rank |
|---|---|---|---|
| Social Media (Facebook, Instagram, Twitter, etc.) | 68 | 67.33 | 1 |
| Advertisements (Commercials) | 58 | 57.43 | 2 |
| Pharmacy (Retail or store) | 49 | 48.51 | 3 |
| Family | 42 | 41.58 | 4 |
| Friends | 34 | 33.66 | 5 |
| Website (.com, .org, etc.) | 31 | 30.69 | 6 |
| News (TV News, Online News, Radio News, etc.) | 21 | 20.79 | 7 |
| Others* | 4 | 3.96 | 8 |
| ** Respondent specified option* | | | |

** Respondent specified option*

Table 1 show that 67.3% (n-68) of the respondents have learned about online pharmacies from social media (Facebook, Instagram, Twitter, etc.). 57.4% (n-58) respondents knew the concept from advertisements (commercials), followed by from the pharmacy (retail or store) with 48.5% (n-49) respondents.

Previously, social media was mentioned as a useful tool in disseminating information and promoting online businesses like online pharmacies but it is not the only platform/means by which respondents gain awareness and information. As seen in the ranking table, different platforms like advertisements, websites, and news are also utilized to promote online pharmacies. It shows that respondents are also informed through means other than technology (e.g. family & friends) which is a positive sign in terms of gaining awareness.

The Philippines has one of the highest numbers of social network users across Southeast Asia with a 67% social media penetration rate as of January 2020 where Filipinos spent 4 hours using social media. As a result, online pharmacy companies have also turned to online advertising through social media and have effectively allowed advertisements of products and services to become more visible online (Sanchez, 2020).

3.96% (n-4) of the respondents specified that the source of information regarding online pharmacies are from the Grab application, recommended by a doctor, and from a pharmaceutical company that offers direct selling and direct marketing applications.

**2.2. Online Pharmacies Patronized by the Respondents**

**Table 2: Distribution of Respondents' to the Patronized Online Pharmacy.**

| Online Pharmacy | f | % | Rank |
|---|---|---|---|
| Watsons Online Pharmacy | 75 | 74.26 | 1 |
| Mercury Drug Gamot Padala | 53 | 52.48 | 2 |
| Southstar Drug Delivery | 26 | 25.74 | 3 |
| Others* | 5 | 4.95 | 4 |
| MedExpress Drugstore | 4 | 3.96 | 5 |
| Dima.ph | 2 | 1.98 | 6 |
| MedGrocer | 1 | 0.99 | 7 |
| Muramed.com | 1 | 0.99 | 8 |
| Rose Pharmacy Online | 1 | 0.99 | 9 |
| ** Respondent specified option* | | | |

** Respondent specified option*

Table 2 indicates that 74.26% (n-75) of the respondents have purchased from Watsons Online Pharmacy, 52.48% (n-53) of the respondents have purchased from Mercury Drug Gamot Padala and 25.74% (n-26) of respondents have purchased from Southstar Drug Delivery. The data collected indicates that the respondents prefer purchasing from prominent online pharmacy brands.

The ranking table presents the respondents' preference in terms of which online pharmacy company to purchase from. Three well-known retail pharmacies in the Philippines have been ranked as the most patronized by the study respondents. This could signify that the study respondents tend to trust and purchase from retail pharmacies they already trust and have had previous face-to-face transactions with. While 4.95% (n-5) of the respondents have purchased from other online stores namely Medical Supply Depot, pharmez.ph, Watsons' Lazada page, Shopee/Lazada and Usana.

**2.3. Number of Times of Online Pharmacy Purchase**

**Table 3: Distribution of Respondents' Number of Times of Online Purchase.**

| Number of Times | f | % |
|---|---|---|
| 1 time | 26 | 25.74 |
| 2 times | 24 | 23.76 |
| 3 times | 33 | 32.67 |
| 4 times | 3 | 2.97 |
| 5 times | 13 | 12.87 |
| More than 5 times | 2 | 1.98 |

Table 3 shows that most respondents have purchased from online pharmacies three times having 32.7% (n-33) of the study respondents. 25.7% (n-26) respondents claim to have purchased from an online pharmacy at least once and 23.8% (n-24) respondents have purchased from an online pharmacy twice.

The data present that with the rise of online pharmacies, the number of multiple purchases also increased with respondents indicating that they have had 2 to 3 previous purchases. Despite the positive note, there are still a significant number of respondents with only a single previous purchase which could indicate that some of the study respondents have only tried or hesitated to purchase again from online pharmacies.

**2.4. Based on Products Purchased in Online Pharmacies**

**Table 4: Types of Products and/or Medication Purchased from an Online Pharmacy.**

| Types of Products | f | % | Rank |
|---|---|---|---|
| Vitamins and Supplements | 64 | 63.37 | 1 |
| Skin Care / Cosmetics | 63 | 62.38 | 2 |
| Non - Prescription Drugs (Over-the-Counter) | 59 | 58.42 | 3 |
| First aid and Supplies | 29 | 28.71 | 4 |
| Prescription Drugs | 25 | 24.75 | 5 |
| Lifestyle Products (contraceptives, condoms, etc.) | 10 | 9.90 | 6 |

Table 4 shows that vitamins and supplements and skincare/ cosmetics were the most purchased products from online pharmacies having 63.37% (n-64) and 62.38% (n- 63) consecutively. It can also be seen that 58.42% (n-59) of the respondents have purchased non-prescription drugs (over-the-counter) more than prescription drugs which are only 24.75% (n-25).

Vitamins and supplements have been frequently purchased by Filipino consumers due to the lockdowns caused by the COVD-19 pandemic. In a survey result, most respondents of all ages took dietary supplements more frequently after the outbreak of COVID-19 (Sanchez, 2020).

The data also coincides with a survey that also indicates that non-prescription drugs are most likely to be considered compared to prescription drugs for online purchases (Snowdon, 2018).

**2.5. Respondents' Awareness on Online Pharmacy Services Available**

**Table 5: Online Pharmacy Services Available.**

| Services | F | % | Rank |
|---|---|---|---|
| Mode of payment (Cash on Delivery) | 72 | 71.29 | 1 |
| Price inquiry | 62 | 61.39 | 2 |
| Order and pickup (Click and collect) | 61 | 60.40 | 3 |
| Drug inquiry | 58 | 57.43 | 4 |
| Ordering of non - prescription drugs | 56 | 55.45 | 5 |
| Mode of payment (Debit/Credit card) | 55 | 54.46 | 6 |
| Same-day deliver service | 39 | 38.60 | 7 |
| Ordering of prescription drugs | 37 | 36.63 | 8 |
| Consultation/counseling services | 25 | 24.75 | 9 |
| Product return | 20 | 19.80 | 10 |

Table 5 shows that most of the respondents are aware of various online pharmacy services such as cash on delivery mode of payment, price inquiry of the products, order and pickup (click and collect) services, and drug inquiry.

With that, 55.4% (n-56) of the respondents were aware that non-prescription drugs can be purchased online. On the other hand, 36.6% (n-37) of the respondents were aware that prescription drugs can be purchased online, where Dima.ph, MedExpress Drugstore, MedGrocer, Mercury Drug Gamot Padala, Muramed.com, Rose Pharmacy Online, Southstar Drug Delivery, and Watsons Online Pharmacy offer this service. This, show why more respondents have purchased non-prescription drugs compared to prescription drugs from online pharmacies. Only 24.8% (n-25) of study respondents were aware that online pharmacies do offer consultation and/or counseling services that are available at Dima.ph, MedExpress Drugstore, Rose Pharmacy Online, and Watsons Online Pharmacy

**3. Consumers' Perception towards Online Pharmacy Services**

**Table 6: Factors Influencing Consumers to Patronize Online Pharmacy Services.**

| Parameters | Weighted Mean | Verbal Interpretation |
|---|---|---|
| A. Convenience | | |
| The services in an online pharmacy are faster. | 3.64 | Agree |
| Online pharmacy offers a wider range of products/medications. | 3.74 | Agree |
| Detailed information for the products/medications is readily available in online pharmacies. | 3.75 | Agree |
| It is easier to compare products/medications in online pharmacies. | 3.83 | Agree |
| The products/medication is delivered on the same day. | 3.44 | Neutral |
| Convenience | 3.68 | Agree |
| B. Fair Pricing | | |
| Online pharmacy offers cheaper medication. | 3.15 | Neutral |
| Online pharmacy offers discounts and promotions. | 3.73 | Agree |
| Online pharmacy adds a reasonable delivery charge. | 3.78 | Agree |
| Fair Pricing | 3.55 | Agree |
| C. Accessibility | | |
| Online pharmacies are accessible to those who cannot go out. | 4.55 | Strongly Agree |
| An online pharmacy offers patient counseling/consultations. | 3.46 | Neutral |
| An online pharmacy provides prescription reading/validation. | 3.77 | Agree |
| Information about the products/ medications is readily available in an online pharmacy. | 3.93 | Agree |
| Accessibility | 3.93 | Agree |
| D. Reliability and Security | | |
| Online pharmacy delivers/provides the correct products/medications. | 4.20 | Agree |
| Online pharmacy provides proper instructions and information about the products/medications. | 4.01 | Agree |
| Online pharmacy provides better quality products. | 3.52 | Agree |
| Consumer confidentiality is ensured. | 4.03 | Agree |
| The online pharmacy company brand is trustable. | 4.20 | Agree |
| Reliability and Security | 3.99 | Agree |
| Overall Weighted Mean | 3.81 | Agree |
| Std. Deviation | 0.55 | |

Table 6 presents the respondents' perception towards online pharmacy services using the 4 parameters and results showed agreement on convenience, fair pricing, accessibility and reliability and security having a mean average of 3.68, 3.55, 3.93, and 3.99 respectively. The overall weighted mean of all the cited parameters influencing consumers to patronize online pharmacy services delivered during online pharmacy is 3.81 with a verbal interpretation of agree. Moreover, it was noted that respondents strongly agreed that online pharmacies provide accessibility and convenience during a lockdown or when there are limitations on outside activities due to pandemic.

It was noted that the following were rated as neutral by respondents namely same- day delivery services, cheaper products, and patient counseling/consultation services. These are inferred on company policy on pick-up scheme, additional costing due to operational systems used and patient counseling/consultations is minimal since purchases are mostly on over-the-counter medicines, food supplements, and skin care products.

**4. Correlation of the Consumers' Perception Towards Their Demographic Profileand Internet Utilization as a Factor in Online Purchasing of Medications**

**4.1. Towards Consumers ' Demographic Profile**

**Table 7: Correlation of the Consumers' Perception to Demographic Profile.**

| Independent Variable | Chi-Square ($x^2$) | Df | p-value | Decision | Remarks |
|---|---|---|---|---|---|
| Gender | 6.440 | 3 | .092 | Retain $H_0$ | Not Significant |
| Age | 11.981 | 9 | .214 | Retain $H_0$ | Not Significant |
| Educational Attainment | 5.597 | 6 | .470 | Retain $H_0$ | Not Significant |
| Monthly Income | 13.060 | 15 | .598 | Retain $H_0$ | Not Significant |

** Significant at .05 level (p<.05)*

Table 7 shows no significance in the chi-square correlation analysis towards the consumer's perception and demographic profile. Thus, the consumers' gender, age, educational attainment, and monthly income are not factors for the consumers' patronage towards online pharmacies.

Although the consumers' perceptions were in agreement with the 4 parameters, the consumers' gender, age, educational attainment, and monthly income does not necessarily relate to their perceptions when it comes to purchasing medications online.

### 4.1. Towards Internet Usage as a Factor in Online Purchasing of Medications

**Table 8: Correlation of the Consumers' Perception and Internet Utilization.**

| Independent Variable | Chi-Square ($x^2$) | Df | p-value | Decision | Remarks |
|---|---|---|---|---|---|
| Frequency of Internet Use | 7.078 | 12 | .852 | Retain $H_0$ | Not Significant |
| Frequency of Social Media Use | 8.201 | 9 | .514 | Retain $H_0$ | Not Significant |
| Frequency of Online Purchase | 18.375 | 12 | .105 | Retain $H_0$ | Not Significant |

** Significant at .05 level (p<.05)*

Table 8 reveals that chi-square test results showed no significant correlation towards the respondents' perception of online pharmacy to internet utilization.

Although the respondents' perceptions were in agreement with the 4 parameters, the respondents' internet use, social media use, and online purchasing frequency do not necessarily relate to their perceptions when it comes to purchasing medications online.

Online pharmacies are a relatively new concept and are gaining traction in the Philippines (Ken Research, 2020). These findings can be inferred that Filipino consumers are yet to be introduced entirely to the concept of online pharmacy services.

This data contradicts a study that indicates that social media use contributes significantly toward e-purchasing on online pharmacies (Arekar, 2021). Another study shows that the average time spent on the internet and internet purchase, in general, show a significant correlation with purchasing from online pharmacies (Fittler et al., 2018).

## CHAPTER V

### Summary, Conclusion, and Recommendation

This chapter holds the knowledge obtained through the results of the study. The summary of findings based on the collected data is presented as well as conclusions derived from the findings, and recommendations based on the findings and conclusion.

### Summary of Findings

Based on the analyzed data, the findings of the study were the following.

1. Among the 101 qualified study respondents in the National Capital Region, 22.4% are from Manila city and 15.5% from Quezon City, and the remaining numbers are distributed in other cities. The majority of the study respondents are females (81.2%) were females, from the age group of 21-30 years old (58.4%), finished tertiary education, or are university graduates (61.4% ), and approximate monthly income was below Php 10,000 (56.4%). As to internet utilization, 80.2% of study respondents always using the internet weekly, 14.9% is often and 1.98% is sometimes and 2.90% is rarely. On the weekly use of social media, 72.3% is always, 21.8% often, 5% sometimes and 1.0% rarely. On weekly online purchasing in general, 31.7% are sometimes and often, 21.8% rarely and only 14.9% always purchase online.
2. As to the respondents top three source of information on online pharmacies services, 67.3% is from social media, 57.4% is from advertisements and 48.5% from pharmacies (retail or store). As for which online pharmacy was mostly patronized by respondents, 74.26% had purchased from Watsons Online Pharmacy, 52.48% had purchased from Mercury Drug Gamot Padala and 25.74% had purchased from Southstar Drug Delivery. As to respondents' number of times purchasing online, 32.67% had purchased three times, 25.74% purchased at least once and 23.76% purchased twice. As to the type of product that respondents had purchased, vitamins and supplements are purchased by 63.37%, 58.42% for non-prescription drugs (over- the-counter), 24.75% for prescription drugs and lifestyle medicines with 9.9%. As for the online pharmacy services that respondents are aware of, the three most known services were the mode of payment (cash on delivery) with 71.29%, price inquiry with 61.39%, and order and pickup (click and collect) with 60.40%.
3. On factors influencing consumers to patronize online pharmacy services, consumers' unanimously agreed on the four parameters with a weighted mean of 3.68 on convenience, 3.55 on fair pricing, 3.93 on accessibility, and 3.99 on reliability and security.
4. On the correlation analysis of the consumers' perception towards their demographic profile and internet with the use of a chi-square test, no correlation is found between consumers' demographic profile in terms of gender, age, educational attainment, and monthly income to the respondents' perception towards online pharmacy having all p- values higher than acceptable p-value of 0.05. The same findings were derived on internet

utilization as a factor in online purchasing of medications with no significant correlation between the respondents' perception to the utilization of the internet, social media, and online purchasing as a factor in purchasing from online pharmacies.

## CONCLUSION

Based on the findings, the following conclusions were drawn.

1. There is no correlation between the consumers' perception on online pharmacy services to the consumers' demographic profile in terms of gender, age, educational attainment, and monthly income.
2. There is no correlation between the consumers' perception on online pharmacy services to the consumers' utilization of the internet, social media, and online purchasing as a factor in online purchasing of medications.

### Recommendations

Based on the summary of findings and conclusions, the researchers recommend thefollowing:

1. To focus on vital categorical and/or single variables to obtain optimal correlation on the consumers' awareness to their demographic profile and internet utilization.
2. To identity the advantage and disadvantages of online pharmacy transactions in termsof dispensing, medication counseling, medication error, and medication adherence.
3. To determine the job satisfaction level of pharmacists in online pharmacies.
4. To create a program to raise consumer's awareness on online pharmacy practices andservices.

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## REFERENCES

1. Kasasa [Internet]. Texas: Primary Financial institution. 2021 June 07 - [cited 2021 Aug 03]. Available from https://www.kasasa.com/articles/generations/gen-x-gen-y-gen-z.
2. Abanmy N. The extent of use of online pharmacies in Saudi Arabia. Saudi Pharm J, 2017; 25(6): 891–899. [Full Text]
3. Albari, Safitri I. The Influence of Product Price on Consumers' Purchasing. RIBER, 7(2): 2414-6722. Available from *http://buscompress.com/uploads/3/4/9/8/34980536/riber_7-s2_k18- 165_328-337.pdf*
4. Alfahad, et al. Perception and Knowledge to Online Pharmacy Services among Consumers in Riyadh, Saudi Arabia: A Pilot Survey. Latin American Journal of Pharmacy, 2015; 34(6): 1113-8. [Full Text]
5. Alvarez & Marsal ; Alvarez and Marsal Holdings, LLC. The Digital Transformation of Healthcare: Part 1, Pharmacy. The Network:2016. Available from https://www.alvarezandmarsal.com/sites/default/files/sidebar-callouts/am_multichannelpharmacy_07_pages.pdf.
6. Arekar K. Jain R. Kumar S. Predictive Model To Study The Consumer Buying Behaviour Towards E-Pharmacy Through Social Media Influence: A Cross Country Study. A Mark Stu J. 2021 [cited 2021 Aug 03]. Available from: *https://www.abacademies.org/articles/predictive-model-to-study-the-consumer- buying-behaviour-towards-epharmacy-through-social-media-influence-a-cross- country-study-10038.html*
7. Asamoah G. Factors Which Influence the Buying Behaviours of Customers with Multiple Regular Customer Cards. ARCADA. 2012 [cited 2021 Aug 03]. Available from: *https://core.ac.uk/download/pdf/38067117.pdf*
8. Ashames A, Bhandare B, AlAbdin SZ, Alhalabi T, Jassem F. J Phar BioA Sci, 2019; 11(3): 284-291. [Full Text]
9. ASOP Global., Online Pharmacy Consumer Behavior and Perception Survey. (2017). Available from https://buysaferx.pharmacy/public-awareness-campaigns/drug- importation/factsheets/online-pharmacy-consumer-behavior-and-perception-survey/
10. Bharskar G, Siddheshwar S. Digital Marketing In Pharmaceutical [dataset]. 2020 Mar-April [cited 2021 Aug 05]. International Journal of Pharmaceutical Science and Health Care. Available from http://rspublication.com/ijphc/2020/apr20/1.pdf Referenced in https://dx.doi.org/10.26808/rs.ph.i10v2.01

11. Bhat, A, Kansana K. A Review Paper on E-commerce. Asian Journal of Technology & Management Research, 2016; 6(1): 2249-0892. [Full Text]
12. Chordiya, S.V., Garge, B.M. E-pharmacy vs conventional pharmacy. IP International Journal OF Comprehensive and Advanced Pharmacology, 2019; 3(4): 121-123. [Full Text]
13. CNN Philippines. A discreet online pharmacy for your reproductive health needs. 2020 [cited 2021 Aug 03]. Available from: https://cnnphilippines.com/life/culture/2020/8/28/dima-online- pharmacy.html
14. Crossley M.The Desk Reference Of Statistical Quality Methods, Second Edition (E- Book) [Internet]. North America & Mexico. American Society for Quality; 2007 [cited 2021 Aug 05]. Available from: *https://asq.org/quality-press/display-item?item=E1317*.
15. Dasha M. Men vs Women. Who Runs the Online Shopping World? BELVG 2019 [cited 2021 Aug 05]. Available from: *https://belvg.com/blog/men-vs-women-who-runs-the-online-shopping-world.html*.
16. Demilt, J. How Has the Internet Changed Shopping Behaviors? Pennington Creative 2018 [cited 2021 Aug 05]. Available from: *https://penningtoncreative.com/internet-shopping-behaviors/*
17. Desai, C. Online Pharmacies: A boon or bane?. Indian J Pharmacol, 2016; 48(6): 615-616. [Full Text]
18. Doxee Blogs. Digital Marketing for the Pharma Industry: The Pillars of a Successful Strategy, 2020 [cited 2021 Aug 05]. Available from: *https://www.doxee.com/blog/digital-marketing/digital-marketing-for- the-pharma-industry/*.
19. eCampusOntario. Communication for Business Professionals. Open Library 2018 [cited 2021 Aug 04] Available from: *https://ecampusontario.pressbooks.pub/commbusprofcdn/front-matter/introduction/*
20. Figge. Pharmacy Security: Know the Options. US Pharm, 2015; 40(8): 44-46. Available from *https://www.uspharmacist.com/article/pharmacy-security-know-the-options.*
21. Fittler, A, et al. Consumers Turning to the Internet Pharmacy Market: Cross- Sectional Study on the Frequency and Attitudes of Hungarian Patients Purchasing Medications Online. J Med Internet Res, 2018; 20(8): e11115. [Full Text].
22. Food and Drug Administration (2019). FDA Advisory no. 2019-154 Internet Sales and Access to Safe Medicine. Available from.
23. https://www.fda.gov.ph/fda-advisory-no-2019-154-internet-sales-and-access-to-safe- medicine/.
24. Hassan, S.A. A Proposed Prototype of E-Pharmacy Web Application for the Consumers of Saudi Arabia. International Journal of Advanced Research in Computer Science, 2017; 8(9): 461-467. [Full Text]
25. Hussain R, Daqoud D, Babar Z. Drive-thru pharmacy services: A way forward to combat COVID-19 pandemic. ScienceDirect. 2021. https://doi.org/10.1016/j.sapharm.2020.07.015.
26. Ken Research. In-Depth Analysis of the Covid-19 Impact on the Philippines Pharmacy Retail Market. Ken Research 2020 [cited 2021 Aug 04] Available from: https://www.kenresearch.com/blog/2020/08.
27. Ken Research. Philippines Pharmacy Retail Market Outlook to 2025. Ken Research 2020 [cited 2021 Aug 04] Available from: https://www.kenresearch.com/blog/2020/08/philippines-pharmacy- retail-market-outlook-to-2025-ken-research/
28. Team Linchpin. Pharmaceutical Digital Marketing Trends that will Shape 2021. Linchpinseo 2021 [cited 2021 Aug 04] Available from: *https://linchpinseo.com/pharmaceutical-digital-marketing-trends/*.
29. Longhi N and Ogurchak J. A Glimpse into the Future of Pharmacy. Pharmacy Times 2020 [cited 2021 Aug 04] Available from: https://www.pharmacytimes.com/news/a-glimpse-into-the-future-of- pharmacy.
30. Lunas, B. Pandemic Drives E-commerce Growth. Manila Standard 2020 [cited 2021 Aug 05] Available from: *https://manilastandard.net/mobile/article/333076*.
31. MedGrocer.org [Internet]. c2021 [cited 2021 Aug 04]. Available from: https://medgrocer.com/help-center
32. National Nutrition Council NCR Profile. Available from: https://www.nnc.gov.ph/2-uncategorised/244-ncr-profile
33. Ndem E, Udoh A, Awofisayo O, Bofor E. Consumer and Community Pharmacists' Perceptions of Online Pharmacy Services in Uyo Metropolis, Nigeria. Inn Pha, 2019; 10(3): 18. [Full Text]
34. Pal et al. Attitude of Patients and Customers Regarding Purchasing Drugs Online. Farmacia, 2015; 63(1). [Full Text]
35. Pharmaceutical Commerce. Consumers' lack of awareness is a worry for online pharmacy legitimacy. Pharmaceutical Commerce [cited 2021 Aug 05] Available from: https://pharmaceuticalcommerce.com/latest- news.
36. Prashanti et al. A Review on Online Pharmacy. IOSR Journal of Pharmacy and Biological Services, 2017; 12(3): 4. [Full text]
37. Renjith, S. Detection of Fraudulent Sellers in Online Marketplaces using Support Vector Machine Approach. International Journal of Engineering Trends and Technology, 2018; 57(1): 8-53. [Full Text]
38. Royal Pharmaceutical Society. Providing Medicines Online. RPS 2020 [cited 2021 Aug 06] Available from: https://www.rpharms.com/recognition/all-our-campaigns/policy-a-z/online- pharmacy-services

39. Sanchez, M. Social Media Usage in the Philippines-statistics & facts. Statista 2020 [cited 2021 Aug 06] Available from: *https://www.statista.com/topics/6759/social-media-usage-in-the- philippines/*
40. Shah H, Patel R, Nayak S, Patel HR, Sharma D. A questionnaire-based cross-sectional study on self-medication practices among undergraduate medical students of GMERS Medical College. Int J Med Sci Public Health. 2018; 7(4): 249-254. Available from: https://www.ijmsph.com/?mno=288019 Referenced in doi**:** 10.5455/ijmsph.2018.0101324012018.
41. Snowdon, A. Consumer Perceptions and Behaviors towards Online Pharmacies. World Health Innovation Network 2018 [cited 2021 Aug 06] Available from: https://asopfoundation.pharmacy/wp-content/uploads/2018/11/A.-Snowdon-U.-Windsor-Slides.pdf
42. Sümer, I.S. A New Marketing Trend in the Digital Age: Social Media Marketing. Springer Link 2019 [cited 2021 Aug 06] Available from: *https://link.springer.com/chapter/10.1007/978-3-030-29739-8_7*.
43. Urick B, Meggs E. Towards a Greater Professional Standing: Evolution of Pharmacy Practice and Education. Pharmacy 2019, *7*(3), 98. Available from:https://www.mdpi.com/2226-4787/7/3/98 Reference in: https://doi.org/10.3390/pharmacy7030098.
44. World Health Organization. Gender, equity and human rights. Available from.
45. https://www.who.int/gender-equity-rights/understanding/accessibility-definition/en/.
46. Zhao, H. et al. Managing Illicit Online Pharmacies: Web Analytics and Predictive Models Study. Journal of Medical Internet Research, 2020; 22(8): e17239. [Full Text]
47. Zion Market Research. E-Pharmacy Market by Drug Type (Prescription Drugs and Over the Counter Drugs): Global Industry Perspective, Comprehensive Analysis, and Forecast, 2018-2025. Zion Market Research 2019 [cited 2021 Aug 07] Available from: https://www.zionmarketresearch.com/report/e-pharmacy-market.
48. Zoleta, V. 9 Online Drugstores in the Philippines for Medicine Delivery and Pickup. Yahoo Philippines 2020 [cited 2021 Aug 07] Available from: https://ph.news.yahoo.com/9-online-drugstores-philippines-medicine- 020032006.html.