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Original Research Article

Knowledge and Preparedness on Covid-19 of Community Pharmacists in Northern Philippines

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Abstract: Community pharmacists, like other health care providers, have a crucial role in controlling and preventing the spread of the COVID-19 virus. They should possess adequate knowledge to help in the response against this infection. This study assessed the knowledge and preparedness of community pharmacists working in community pharmacies within a component city in northern Philippines. A descriptive quantitative design was used. Sixty community pharmacists responded to the online survey of a structured questionnaire. Data were analyzed using frequency and percentage and mean while tests to determine significant difference were done using Independent Samples T-test and One-way ANOVA. Results showed that the community pharmacists are fully knowledgeable about the signs and symptoms, screening guidelines, and transmission prevention for COVID-19. Furthermore, the community pharmacists were fully prepared to manage or control COVID-19 transmission and implement preventive measures to address the pandemic. There is no significant difference in the knowledge and preparedness of the community pharmacist when grouped according to demographic profile. Moreover, there is no significant relationship between the knowledge and preparedness of the community pharmacists toward COVID-19. The researchers conclude that community pharmacists possess the knowledge and preparedness needed to help in the effective response against COVID-19.

Keywords: Community pharmacists, COVID-19 knowledge, COVID-19 preparedness.

INTRODUCTION

The emergence of Coronavirus Disease 2019 (COVID-19) cases caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) led to the declaration by the World Health Organization (WHO) as a global pandemic on March 11, 2020 (Cennimo *et al*., 2021). COVID-19 originated in bats, and the first recorded human COVID-19 case was in Wuhan, Hubei Province, China (Singhal, 2020).

According to the International Pharmaceutical Federation (FIP), community pharmacists have a crucial role in preventing the spread of the COVID-19 virus. The role of community pharmacists includes public education about the disease and the supply and distribution of essential preventive products such as hand sanitizers and personal protective equipment (Tesfaye *et al*., 2020). New roles for pharmacists have also emerged and evolved, such as online patient counseling and home delivery of medicines (Novak *et al*., 2021). The community pharmacists are also maintaining the dispensing of medications for acute and chronic users, guaranteeing the supply and availability of quality medications and rapid tests for diagnoses of COVID-19 (Passos *et al*., 2021). Community pharmacists contributed to preventing the spread of the virus by employing safety practices with the patients or customers.

Pharmacists' knowledge of the various facets of the COVID-19 pandemic is essential as it influences their roles and responsibilities as frontline healthcare. They work even during lockdowns to provide services such as disseminating

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accurate COVID-19 information, public education on preventive measures, and ensuring a steady supply of pharmaceuticals and personal hygiene products (Ahmed & Saeed, 2020). Their COVID-19 preparedness is also vital in making appropriate referrals for suspected cases to promote COVID-19 management and prevent the community's spread of the virus (Muhammad *et al*., 2020).

Community pharmacists with good knowledge demonstrate exemplary practices. Health professionals who have a better understanding of COVID-19 will have a better account of its severity and transmission, which will lead them to practice in a manner that they can act with maximum caution to protect themselves and their customers. Therefore, being knowledgeable about COVID-19 is a crucial point that allows a pharmacist to be prepared to prevent the spread of COVID-19. Ensuring the continuous operation of pharmacies in the country during this pandemic is essential. That is why the Philippine Pharmacists Association (PPA) prepared guidelines to ensure the safety of the pharmacy community (2021). Studies measuring the knowledge or practices of health professionals about COVID-19 in the Phillipines focused primarily among nurses and physicians and among pharmacy students (Dalanon *et al*., 2021; ElGeed *et al*., 2021). These studies identified that health care professionals and pharmacy students have good knowledge about COVID-19 and its implications to public health.

With this, the researchers evaluated the knowledge and preparedness of community pharmacists in Tuguegarao City, Cagayan, who engage in the response against the COVID-19 pandemic. Moreover, the researchers focused on assessing the awareness of the community pharmacists as regards the COVID-19 sign and symptoms, technical screening guidelines, including their adherence to the preventive measures for the prevention of COVID-19 spread, and the practices related to COVID-19 preparedness of the community pharmacists in response to the COVID-19 pandemic.

METHODS

Research Design: A descriptive-quantitative research design was utilized in this study.

Setting and Respondents

This study was conducted at Tuguegarao City, Cagayan. The study respondents comprised the employed or working community pharmacists from Tuguegarao City, Cagayan. A non-probability sampling, specifically convenience sampling, was used to identify a total of 60 respondents in this study.

Research Instrument

The researchers used a structured questionnaire based on Nguyen *et al*., (2021), Hangoma *et al*., (2020) and ElGeed *et al*., (2021). The questionnaire consists of three sections/ parts. Section 1 included seven (7) items about the demographic profile of the community pharmacists: name, age, sex, highest educational attainment, location of current workplace, duration of working experience, and the number of training/seminars attended about COVID-19. Section 2 comprised nineteen (19) items designed to assess the community pharmacists' knowledge of COVID-19 signs and symptoms, screening guidelines, and transmission prevention. The knowledge score will be calculated by assigning 1 point to each correct answer and 0 for the incorrect answer, with higher scores signifying more excellent knowledge about COVID-19. Section 3 included twenty-four (24) questions to assess the preparedness of community pharmacists for handling COVID-19. For section 4, a 4-point Likert-type scale was used to determine the frequency of the respondents' preparation for COVID-19.

Data Analysis

The data was analyzed using the following statistical tools: frequency and percentage were used to describe the profile of the respondents. This was also used to determine the knowledge and preparedness of community pharmacists on COVID-19. Moreover, the researchers used an Independent Samples T-test and One-way Analysis of Variance (ANOVA) to determine the significant difference in the knowledge and preparedness of community pharmacists about COVID-19 when grouped according to the profile variable. On the other hand, Relationship-Pearson-R was utilized to determine the relationship between the knowledge and preparedness of community pharmacists during the COVID-19 pandemic.

Ethical Considerations

The present study received ethical approval from Region 2 Trauma and Medical Center Institutional Review Board, Bayombong, Nueva Vizcaya, Philippines with reference number 2022:033 dated May 10, 2022 before the commencement of the study.

RESULTS AND DISCUSSION

Table 1: Demographic Profile of the Community Pharmacists

Variables	Categories	Frequency (n-60)	Percentage
Age	30 years old and below	43	71.70
	31-40 years old	13	21.7
	41-50 years old	4	6.70
Sex	Male	10	16.70
	Female	50	83.30
Highest Educational Attainment	Master's Degree	2	3.30
	Bachelor's Degree	57	95.00
	Doctor of Pharmacy	1	1.70
Current Workplace	Rural	24	40.00
	Urban	36	60.00
	Total	60	100
Years of Service	More than 5 years	25	41.70
	1 - 5 years	22	36.70
	Less than 1 year	13	21.70
Number of Trainings/Seminars Attended related to COVID-19	More than 5	14	23.30
	1 – 5	37	61.70
	None	9	15.00

Table 1 shows the demographic information of the community pharmacists. Sixty community (60) pharmacists working in FDA-registered community drugstores around Tuguegarao City completed the questionnaire. Most of the respondents (71.70%) were 30 years old and below, with the female majority (83.30%). Almost all of the respondents (95%) were pharmacy degree holders, and nearly two-thirds (60%) currently work in an urban area- located community drugstores. The majority of the respondents (41.70%) have a working experience for more than five years, and more than half of them (61.79%) have attended one to five portions of training and seminars related to COVID-19.

Table 2: Knowledge of Community Pharmacists about COVID-19 Pandemic

Dimensions	Mean Total Score	Qualitative Description
Signs and Symptoms	8.52	Knowledgeable
Screening Guidelines	3.85	Knowledgeable
COVID-19 Transmission Prevention	5.77	Knowledgeable
Overall Knowledge	18.13	Knowledgeable

Table 2 shows that the overall mean knowledge score of the 60 community pharmacists was 18.13, which indicates that they are fully knowledgeable about the COVID-19 disease, in which they are well informed about the signs and symptoms and screening guidelines, as well as the prevention of COVID-19 transmission. This means that the community pharmacists are fully knowledgeable on the different aspects of COVID-19 needed to determine suspected cases, provide necessary referrals, and prevent further transmission of the disease.

Table 3: Preparedness of Community Pharmacists about COVID-19 Pandemic

Dimensions	Mean	Qualitative Description
Preventive Measure Implementation	3.45	Prepared
COVID-19 Practices Related to Preparedness	3.55	Fully Prepared
Overall Preparedness	3.50	Fully Prepared `

Table 3 indicates the preparedness among the community pharmacists for the COVID-19 pandemic. The community pharmacists are prepared in terms of the implementation of preventive measures in the community drugstores. Nonetheless, the overall mean preparedness score was 3.50, which signifies that the respondents are fully prepared to fight against the COVID-19 pandemic. This demonstrates that the community pharmacists are ready and well-equipped to provide COVID-19-related services necessary to halt the insurgence of cases.

Table 4: Significant Difference on the Knowledge of the Community Pharmacists about COVID-19 Pandemic when Grouped According to Profile Variables

Variables	t-value/F-value	p-value	Decision
Age	.903	.411	Accept Ho
Sex	-.913	.365	Accept Ho
Highest Educational Attainment	.432	.651	Accept Ho
Current Workplace	-.351	.727	Accept Ho
Years of Service	2.759	.072	Accept Ho
Number of Trainings/Seminars Attended related to COVID-19	.152	.859	Accept Ho

**significant at 0.05 level*

Table 4 shows no significant difference in community pharmacists' knowledge about the COVID-19 pandemic when grouped according to profile variables. As seen in the table, the P-values of all identified profile variables did not meet the 0.05 level to be considered significant. Therefore, regardless of the community pharmacists' age, sex, highest educational attainment, current workplace, years of service, and the number of training/seminars attended, they are still fully knowledgeable about the COVID-19 pandemic. The demographic profile of the community pharmacists does not influence their knowledge regarding the different aspects of COVID-19.

Table 5: Significant Difference on the Preparedness of Community Pharmacists about COVID-19 Pandemic when Grouped According to Profile Variables

Profile Variables	t-value/F-value	P-value	Decision
Age	.178	.637	Accept Ho
Sex	-.421	.675	Accept Ho
Highest Educational Attainment	1.098	.340	Accept Ho
Current Workplace	.547	.586	Accept Ho
Years of Service	.863	.427	Accept Ho
Number of Trainings/Seminars Attended related to COVID-19	.762	.471	Accept Ho

**significant at 0.05 level*

Table 5 explains that there is no significant difference in the preparedness of community pharmacists for the COVID-19 pandemic when grouped according to profile variables. The P-values of all identified profile variables did not meet the 0.05 level. Therefore, regardless of the community pharmacists' age, sex, highest educational attainment, current workplace, years of service, and the number of training/seminars attended, they are still fully prepared for the COVID-19 pandemic. The demographic profile of the community pharmacists does not affect their preparedness to render COVID-19 services.

Table 6: Significant Relationship between the Knowledge of Community Pharmacists and Preparedness of Community Pharmacists about COVID-19 Pandemic

Variables	R-value	P-value	Decision
Knowledge of the Community Pharmacists about COVID-19 Pandemic	.210	.107	Accept Ho
Preparedness of Community Pharmacists about COVID-19 Pandemic			

Table 6 signifies no significant relationship between the knowledge and preparedness of the community pharmacists toward COVID-19. It means that the knowledge is not a measurement to assess the preparedness of the community pharmacist, and the preparedness does not reflect how knowledgeable the community pharmacists are.

It has been approximately two years since the COVID-19 pandemic started. Many studies have been conducted to assess the knowledge and preparedness of the community pharmacists about COVID-19 (Shrestha *et al*., 2020). According to the best of the researchers' knowledge, this study presents the first portrayal of the knowledge and preparedness of the community pharmacists working in an FDA-registered drugstore around Tuguegarao City, Cagayan. Previous studies show that community pharmacists are vital in delivering critical health care services, including infectious disease mitigation, preventive services, and medication provision to communities, because of their accessibility to the general public (CDC, 2020; Nguyen & Dinh, 2021; Parums, 2021). The community pharmacists are often the first point of contact for individuals with COVID-19-related concerns and people who need reliable information about the disease. Therefore, the community pharmacists must be sufficiently knowledgeable about every aspect of COVID-19 and be prepared to enable them to respond and impede the expansion of the disease. The proportion of community pharmacists in this study aged thirty and below is high, and the number of females is far higher than males. The current study also demonstrated that most community pharmacists have a bachelor's degree educational qualification. All practicing pharmacies in the Philippines should at least have a bachelor's degree and have attained the units required by the

Professional Regulation Commission (PRC) for the Continuing Professional Development (CDP) for pharmacists (PRC, 2017).

According to Philippine Standard Geographic Code (PSGC, 2022), 26 out of 49 barangays in Tuguegarao City were rural. However, more than half of the community pharmacists in this study work in urban areas because most of the community drugstores where the community pharmacists are employed are located in classified urban barangays. Moreover, almost half of the community pharmacists have been in the years of service for more than five years, and they have attended 1-5 COVID-19 related training and seminars. On the contrary, findings of previous studies stated that pharmacists have attended lectures/discussions about COVID-19 to keep abreast with this public health concern (Hatem *et al*., 2024; Yimenu *et al*., 2021). Continuous training and opportunities to participate in discussions regarding COVID-19 are needed for the community pharmacists to deepen their knowledge of the emergency response and new updates about COVID-19.

Community pharmacists' knowledge plays a vital role in providing quality information about medication and diseases to the public. Therefore, assessing the degree of expertise at the beginning, middle (at peak), and end of the pandemic as the recommendation, guidelines, and general knowledge about the COVID-19 virus change. Overall, this study demonstrated that the community pharmacists are fully knowledgeable about the different aspects of COVID-19, such as the signs and symptoms, screening guidelines, and transmission prevention, as the community pharmacists in this study have attended training and seminars related to COVID-19. Furthermore, publication materials have already been posted to different reliable health-related websites about COVID-19, and the community pharmacists can easily access the information. The current finding was in line with the results of previous studies (Hangoma *et al*., 2020; Muhammad *et al*., 2020; Nguyen *et al*., 2021; Tesfaye *et al*., 2020), where the majority of the community pharmacists have sufficient knowledge about the COVID-19. The same studies revealed that the COVID-19 signs and symptoms, which the majority of the community pharmacists knew, were fever, dry cough, tiredness, and difficult respiration. Moreover, a high level of knowledge about the way of transmission, risk factors, and management of COVID-19 was also found.

The preparedness of the community pharmacists in dealing with the COVID-19 is indispensable in providing adequate health care to the people. Community pharmacists are often the first point of contact for the public, especially during pandemics. Responsibilities of community pharmacists during the COVID-19 pandemic include provision of pharmaceutical care which may involve teleconsultation and provision of information regarding drugs used to manage COVID-19 to the general public or among fellow healthcare professionals (Faller & Mariano, 2021). Hence, well-equipped pharmacists are essential to control the transmission of the disease. Overall, the study demonstrated that community pharmacists are fully prepared to manage or prevent COVID-19 transmission by having a glass shield and sanitizers installed in their workplace, maintaining at least a one-meter distance, and applying evidence-based information when asked by the patient/customer about COVID-19 infection. The result of this study corresponds with the findings of El Geed *et al*., (2021) and Nguyen *et al*., (2021) which state that most pharmacists and drug outlets are well prepared to render service to the people during the COVID-19 pandemic. Glass shields were installed to prevent the spread of droplets from saliva or nose when the pharmacists communicate directly with the customers. The same studies also revealed that hand sanitizers were put at the drug outlets' doors, and customers were encouraged to use them before entering the outlets. Moreover, the majority of the community pharmacists maintain the recommended COVID-19 distance. These activities contributed to protecting both the pharmacists and customers.

This study revealed that the demographic profile of the community pharmacists does not affect their knowledge regarding the COVID-19 pandemic because all identified profile variables did not meet the 0.05 significant level. This is supported by findings of previous studies (Albahri *et al*., 2021; Tripathi *et al*., (2020), stating that age, gender, and area were not predictors of COVID-19 knowledge. However, the year of service is contrary to the findings of previous studies (Al Mazrouei *et al*., 2020; Alnajjar *et al*., 2022), where the participants who had 5–10 and >10 years of experience were more likely to have good knowledge than participants with less than two years of experience. Another study from Shrestha *et al*., (2020) also revealed that in Kathmandu, Nepal, the community pharmacists' knowledge is higher among the respondents with more than five years of work experience.

On the other hand, the community pharmacists' preparedness is not determined by their demographic profile. However, a study on the preparedness of community pharmacists in developing countries during the COVID-19 pandemic stressed that the country from which pharmacists obtained their first degree and the type of pharmacy where they practice influenced their overall perception of emergency response preparedness (El Geed *et al*., 2021; Meghana *et al*., 2021). The same study also implied that the vast majority of pharmacists needed professional development related to COVID-19, which also deviates from the non-significance of the number of training/seminars attended related to COVID-19 to community pharmacists in the current study.

This study also found that the community pharmacists' knowledge and preparedness do not affect each other. However, the findings of other studies (Al Mazrouei *et al*., 2020; Alnajjar *et al*., 2022) concluded that years of experience and good knowledge of COVID-19 were significant determinants of pharmacists' preparedness for the pandemic control. This differs from the current result that the knowledge is not a measurement to assess the preparedness of the community pharmacist, and the preparedness does not reflect how knowledgeable the respondents are. On the contrary, the study of Nguyen *et al*., (2021), states that not being knowledgeable about COVID-19 reflects the lack of preparedness of community pharmacists.

CONCLUSION

As the COVID-19 pandemic continues to cause health risks to the public, it is vital to assess our healthcare workers, such as community pharmacists, on how much they are knowledgeable and prepared as front liners in fighting the spread of the virus. This study established that the community pharmacists from the FDA-registered drugstores in Tuguegarao City, Cagayan, are fully knowledgeable about the different aspects of COVID-19, such as the signs and symptoms, screening guidelines, and transmission prevention. In addition, they are fully prepared to manage or control COVID-19 transmission and implement preventive measures to address the COVID-19 pandemic. Moreover, it is found that the community pharmacists are still fully knowledgeable and fully prepared regardless of their age, sex, highest educational attainment, current workplace, years of service, and the number of training/seminars attended. This means that the community pharmacists have the needed knowledge and preparedness to aid in combatting and preventing COVID-19 in the community setting.

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