

KNOWLEDGE, Attitude, Barriers, and Willingness of the Community Pharmacists towards Immunization in Zamboanga City: An Explanatory Sequential APPROACH

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ABSTRACT

Immunization is a cornerstone of disease prevention, and community pharmacists, as highly accessible healthcare professionals, are vital in bridging healthcare access gaps. This study investigated the knowledge, attitudes, barriers, and willingness of community pharmacists in Zamboanga City towards immunization, using a sequential explanatory research design. A total of 147 respondents participated in the survey, and eight participated in the focus group discussion. Community pharmacists in Zamboanga City with at least six months of experience working in the community setting were selected using quota sampling for the quantitative phase, while those with perceptions of the variables as either very low or very high were selected for the qualitative phase. Adapted survey questionnaires were used for the quantitative strand, while self-structured interview questions based on the quantitative phase items that require further explanation and have undergone validation were used for the qualitative strand. Results indicated that pharmacists possess foundational knowledge. Their attitude towards immunization was notably high. However, significant barriers, including the cost and time commitment associated with specialized immunization training, were identified. Moreover, their level of willingness is also described as high. Inferential analysis showed that attitude is significantly related to the willingness of the community pharmacists towards immunization, increasing programs that are directed to increasing the level of attitude is hereby recommended. Essential themes, including overview, professional competence, patient care, funding constraints, and increased workload, emerged from the FGD participants' testimonies, further enriching the findings of the quantitative phase.

KEYWORDS: *Community pharmacists, knowledge, immunization, explanatory sequential design, Philippines*

INTRODUCTION

Immunization plays a crucial role in safeguarding public health by reducing the incidence of vaccine-preventable diseases. As highly accessible and trusted healthcare professionals, community pharmacists can make significant contributions to immunization efforts. Pharmacist-administered immunization has become an established component of primary healthcare in several countries, including the United States, Canada, Australia, and the United Kingdom. Their involvement not only benefits individual patients but also strengthens the community's overall health. Recognizing immunization as a shared responsibility highlights the importance of empowering pharmacists through training and policy support. As healthcare systems continue to address vaccine-preventable diseases, workforce shortages, and inequities in healthcare access, pharmacists have emerged as strategic providers of immunization services because of their accessibility, medication expertise, and frequent patient contact.

Despite this global expansion of pharmacist-led immunization, implementation remains uneven across countries. In many settings, pharmacists have demonstrated positive impacts on vaccine uptake; however, successful integration depends on their preparedness to assume immunization responsibilities. International evidence highlights persistent gaps in these determinants. Studies conducted in Saudi Arabia and Singapore reported inadequate pharmacist knowledge regarding specific vaccines, including varicella, herpes zoster, and pneumococcal vaccines (Alrasheedy et al., 2024; Au, Chia, & Ong, 2024). Negative attitudes toward immunization services were observed among pharmacists with limited access to continuing professional education, particularly in rural settings (Meraya et al., 2024). Structural barriers have also been documented, with Ethiopian pharmacists

In the Philippines, where pharmacists are authorized to administer vaccines, progress continues in expanding pharmacy-based immunization services. Certified pharmacists can now administer COVID-19, influenza, pneumonia, and HPV vaccines, marking a significant step toward making immunization more accessible (Inquirer Net, 2025). This growing role of pharmacists reinforces the need for education, infrastructure, and supportive policies to sustain and enhance their participation in immunization programs.

This research aimed to assess community pharmacists' knowledge,

attitudes, barriers, and willingness regarding immunization in Zamboanga City. It also explored how these factors influence their readiness to administer vaccines. The findings will be shared with government agencies and professional bodies, such as the Department of Health and the Philippine Pharmacy Association, to inform strategies for training and implementing pharmacy-based immunization nationwide.

Research Questions

1. What is the level of knowledge of community pharmacists towards immunization in Zamboanga City?
2. What is the level of attitude of community pharmacists towards immunization in Zamboanga City?
3. What are the barriers of the community pharmacists towards immunization in Zamboanga City?
4. What is the level of willingness of community pharmacists towards immunization in Zamboanga City?
5. Is there a significant relationship between knowledge, attitude, and barriers on respondent's willingness towards immunization?
6. How do the qualitative results explain the quantitative findings of the study?

METHODS

Research Design. The researcher employed a sequential-explanatory research design, integrating quantitative and qualitative phases to provide a comprehensive understanding of the topic. This approach was deemed appropriate: first collect and analyze numerical data, then explore deeper insights through qualitative means.

Research Locale. The study was set in Zamboanga City, located in Region IX, Philippines, where a gap in healthcare accessibility persists due to a limited number of healthcare facilities, only four public and seven private hospitals serve a population of nearly one million. Based on the Yamane Formula, 147 out of 237 pharmacists were selected as respondents for the quantitative survey. For the qualitative portion of the study, only those whose survey responses indicated very high or very low perceptions of knowledge, attitude, and barriers were selected to participate in a Focus Group Discussion (FGD). A total of eight participants were required, and all successfully participated in the FGD.

Research Instruments. Survey links were distributed electronically, and privacy measures were implemented, including the use of respondent codes to maintain anonymity. The FGD was conducted in a rented private space, with each session lasting 30 to 45 minutes. For data analysis, quantitative responses were measured using mean and standard deviation, while frequency and percentage were applied to identify common barriers. The Pearson Product-Moment Correlation was used to test relationships among knowledge, attitude, barriers, and willingness, and thematic analysis was used to interpret qualitative data from the FGDs.

Ethical Consideration. This research study was conducted in accordance with the directives set forth by the office of the Research Ethics Committee of the University of Immaculate Conception, Davao City, Philippines. The researcher followed the acceptable and proper ethical considerations among the participants of the study. Letter of intent and informed consent form were handed out by the researcher and the facilitator to all the participants of the study ensuring their voluntary participation in this research.

RESULTS

Level of Knowledge of Community Pharmacists towards Immunization in Zamboanga City

Presented in Table 1 is the level of knowledge of community pharmacists in Zamboanga City towards immunization. The results indicated that community pharmacists in Zamboanga City have a high level of immunization knowledge.

Table 1
Level of Knowledge of Community Pharmacists in Zamboanga City towards Immunization

	Correct		Incorrect	
	F	%	F	%
Domain 1. General Knowledge				
K1. Vaccines are critical to the prevention and control of infectious diseases	139	91.45	13	8.55
K2. The ingredients of the vaccine include: The antigen, adjuvants, preservatives, and stabilizers	141	92.76	11	7.24
K3. Vaccines are safe, and serious problems from the vaccine are very rare	139	91.45	13	8.55

K4. Every vaccine must go through extensive and rigorous testing before it can be introduced.	148	97.37	4	2.63
K5. During the COVID-19 pandemic, vaccination continuous to be critically important	146	96.05	6	3.95
K6. Vaccines reduce the risk of getting a disease by working with the body's natural defenses to build protection	148	97.37	4	2.63
K7. Vaccines protect us throughout life and at different ages, from birth to childhood, as teenagers, and into old age	144	94.74	8	5.26
Domain 2. Influenza Vaccination				
K8. Unvaccinated people with mild symptoms of influenza can spread the disease to others	133	87.50	19	12.50
K9. The seasonal flu vaccine protects against the most common influenza viruses including H1N1	141	92.76	11	7.24
K10. Annual influenza immunization is recommended for all healthcare professionals in contact with individuals in high risk groups.	146	96.05	6	3.95
K11. Anyone can get very sick from influenza, including people who are healthy	140	92.11	12	7.89
Domain 3. Contraindications and Precautions to Vaccination				
K12. Pneumococcal vaccination is contraindicated for asplenic (without spleen) patients.	109	71.71	43	28.29
K13. Breastfeeding is a contraindication to vaccination.	86	56.58	66	43.42
K14. Pregnant women who are expected to deliver during the influenza season should not receive the influenza vaccine.	94	61.84	58	38.16
K15. Anaphylactic reaction to previous dose of the vaccine or a vaccine component is a contraindication to further doses of the same vaccine or to the same component in other vaccines	134	88.16	18	11.84
K16. Persons receiving immunosuppressive medications should not receive the influenza vaccine	90	59.21	62	40.79
K17. Live virus vaccines (MMRI..) should be postponed until the chemotherapy or high dose steroid has ended.	132	86.84	20	13.16
Domain 4. Storage and Administration of Vaccine				
K18. Improper storage of vaccines may affect the immune response of the vaccine recipient.	148	97.37	4	2.63
K19. Stabilizers protect the vaccine during storage and transportation.	148	97.37	4	2.63

K20. Inactivated vaccines may be administered at the same time or at any time before or after a live vaccine.	125	82.24	27	17.76
K21. A person who received a live vaccine should wait 28 days before receiving another live vaccine.	139	91.45	13	8.55
Domain 5. Adverse Reaction following Vaccination				
K22. Local adverse reaction such as pain, swelling, and redness at the injection site generally occurred within a few hours of the injection and are usually mild and self-limited.	145	95.39	7	4.61
K23. Systemic adverse reactions may occur following receipt of live, attenuated vaccines which must replicate to produce immunity.	142	93.42	10	6.58
K24. A systemic reaction is usually mild and occurs 3-21 days after the vaccine was administered.	140	92.11	12	7.89
K25. Severe allergic reaction may be life-threatening but fortunately, rare.	138	90.79	14	9.21
K26. The risk of an allergic reaction can be decreased by effective screening prior to vaccination.	140	92.11	12	7.89
K27. Providers should report any clinically significant adverse event occurring after administration of the vaccine even if they are unsure whether vaccine caused the event	144	94.74	8	5.26
Overall Level of Knowledge		88.89%		

The result is indicative that community pharmacists in Zamboanga City have a very high knowledge towards immunization, with the surveyed pharmacists' overall score of 24/27 or 88.89%.

Level of Attitude on Immunization

Shown in Table 2 is the level of attitude of community pharmacists in Zamboanga City towards immunization. The result indicated that the community pharmacists in Zamboanga City have a high level of attitude towards immunization.

Table 2
Level of Attitude of Community Pharmacists in Zamboanga City towards Immunization

	Mean	SD	Description	Interpretation
I believe that Community pharmacists should be permitted to expand their practice to include the administration of vaccines.	3.19	0.94	High	The community pharmacists show a positive attitude on immunization.

Formal certification for vaccine administration is required for community pharmacists to administer vaccines	3.20	0.94	High	The community pharmacists show a positive attitude on immunization
I received adequate teaching/training about vaccines during my pharmacy course training	2.64	0.91	High	The community pharmacists show a positive attitude on immunization
I am confident that Immunization service provided to the population, is adequate in the Philippines	2.94	0.90	High	The community pharmacists show a positive attitude on immunization.
I believe that Pharmacist’s opinion should be looked at when the scope of practice of pharmacists is expanded to include the administration of vaccines to the population	3.15	0.94	High	The community pharmacists show a positive attitude on immunization.
I am confident in the Administration of vaccine	2.74	1.00	High	The community pharmacists show a positive attitude on immunization.
If given the opportunity I will acquire additional training/education to administer vaccine safely	3.10	0.95	High	The community pharmacists show a positive attitude on immunization.
If community pharmacists are permitted to deliver vaccines, the proportion of the population who receives the recommended vaccination will increase	3.03	0.97	High	The community pharmacists show a positive attitude on immunization.
The relationship between community pharmacists and other vaccine provider (physicians) would improve if community pharmacists were certified to administer the were certified to administer the	3.13	0.93	High	The community pharmacists show a positive attitude on immunization.
Attitude	3.01	0.80	High	The community Pharmacists show a positive attitude on immunization.

1.00-1.75 SD/Low; 1.76-2.50 D-Moderate; 2.51-3.25 Agree/High; 3.26-4.00 Strongly Agree/Very High

The overall mean of 3.01 showed that the level of attitude of the community pharmacists in Zamboanga City towards immunization is high.

Barriers to Immunization

In the survey given to the respondents of the study, barriers to

immunization were enumerated and the respondents would only choose those that best applied to them. The table below showed the result of the barriers that could possibly influence the level of willingness of the surveyed pharmacists towards immunization.

Table 3
Barriers on Immunization

	True in the Setting		Not True in the Setting	
	F	%	F	%
Low patient demand	101	66.89	50	33.11
Sharp safety demand	122	80.79	29	19.21
Poor quality of university education	67	44.37	84	55.63
Uncomfortable with seeing/using needles	85	56.29	66	43.71
Needle disposal concerns	117	77.48	34	22.52
Lack of collaboration with other healthcare professionals	108	71.52	43	28.48
Lack of private areas to provide vaccination	117	77.48	34	22.52
Lack of reimbursement (profitability)	111	73.51	40	26.49
Liability and malpractice concerns	121	80.13	30	19.87
Lack of time	98	80.13	53	35.10
Record keeping difficulty	91	60.26	60	39.74
Lack of pharmacy space to store vaccines	114	75.50	37	24.50
Insufficient staff or resources for implementation	122	80.79	29	19.21
Time needed for professional development and training	138	91.39	13	8.61
Cost associated with professional development and training	138	91.39	13	8.61
Lack of authorization	122	80.79	29	19.21

The result of the survey showed that the majority of the respondents, or 91.39%, identified time needed for professional development and training, as well as the cost associated with it, to be the major barriers to providing immunization. This is then followed by a lack of authorization, insufficient staff or resources for implementation, and a sharp safety demand.

Willingness of Community Pharmacists on Immunization

Table 4 below presents community pharmacists' willingness towards

immunization in Zamboanga City. In the survey questionnaire, statements were presented, and the respondents rated them using a Likert scale, such as strongly disagree, disagree, agree, and strongly agree.

Table 4
Level of Willingness of Community Pharmacists in Zamboanga City towards Immunization

	Mean	SD	Description	Interpretation
Community pharmacists have a good knowledge of vaccines and immunization process	3.01	0.81	High	The willingness of the community pharmacists towards immunization is good.
Community pharmacists are more accessible to patients than other health care professionals	3.14	0.86	High	The willingness of the community pharmacists towards immunization is good.
Immunization in community pharmacies is more convenient to the patients	3.11	0.81	High	The willingness of the community pharmacists towards immunization is good.
Immunization in community pharmacies improves the therapeutic relationship between pharmacists and patient	3.15	0.81	High	The willingness of the community pharmacists towards immunization is good.
Immunization in community pharmacies encourage people to get vaccine and improve the vaccination coverage rate	3.1	0.79	High	The willingness of the community pharmacists towards immunization is good.
Vaccination in community pharmacies reduces the cost to the patients	3.11	0.78	High	The willingness of the community pharmacists towards immunization is good.
I feel happy to extend the patient services to include immunization	3.24	0.79	High	The willingness of the community pharmacists towards immunization is good.
I am happy to support the healthcare system during COVID -19 through the administration of vaccine to the patients	3.28	0.83	Very high	The willingness of the community pharmacists towards immunization is good.
Overall Mean	3.16	0.73	High	The willingness of the community pharmacists towards immunization is good.

1.00-1.75 SD/Low; 1.76-2.50 D-Moderate; 2.51-3.25 Agree/High; 3.26-4.00 Strongly Agree/Very High

With an overall mean of 3.16 and a standard deviation of 0.73, the level of willingness of community pharmacists in Zamboanga City is described as high.

Significant Relationship between Knowledge, Attitude, and Barriers to Willingness

One objective of this research study is to determine whether knowledge, attitude, and perceived barriers significantly influence willingness to be immunized. The table presents the relationship between knowledge, attitudes, and barriers to their willingness.

Table 5
Significant Relationship between Knowledge, Attitude, and Barriers on Willingness towards Immunization

	r	Magnitude	p-value	Remarks
Knowledge and Willingness	0.020	Very Low	0.805	Not Significant
Attitude and Willingness	0.695	Moderate	<.001	Significant
Barriers and Willingness	-0.016	Very Low	0.843	Not Significant

As evident in the result, knowledge and barriers are not significantly related to the level of willingness of community pharmacists in Zamboanga City towards immunization; it is actually the attitude of the community pharmacists that is significantly related to their level of willingness. Furthermore, the results show that the independent variable, particularly the level of knowledge, does not have a significant relationship with the level of willingness ($r=0.020$, $p=0.805$). The strength of correlation between the two is very low, as revealed by the coefficient of 0.020.

Similarly, there is no significant relationship between barriers and willingness ($r = -0.016$, $p = 0.843$). The strength of correlation between the two is very low, as revealed by the coefficient of -0.016. Attitude is significantly related to community pharmacists' willingness to immunize. There is a significant relationship between attitude and willingness ($p < .001$). The strength of the correlation is moderate, as indicated by the coefficient of 0.695.

The Extent to which Qualitative Data Explain the Quantitative Data

In Table 6, the concerns that were extracted from the quantitative findings are emphasized by the researcher as crucial and deemed worthy of further explanation. This section presents both the quantitative and qualitative data that follow the different themes – knowledge, attitude, and barriers. The qualitative data further explains the results obtained from the quantitative data.

Table 6

The extent to which the Qualitative Data explains the Quantitative Data

Issues Probed	Core Ideas	Codes	Essential Themes	Nature of Integration
Teaching/ Training received during the pharmacy course	It was discussed a little through an overview, but not expounded much	Knowledge	Overview	Connecting-Reinforcing
Formal certification is required for vaccine administration	Pharmacist have to be licensed. Should have proof or eligibility capable to perform immunization. Should have certificate of Training	Attitude	Professional Competence	Connecting-Explaining
Time needed for professional development Cost associated with professional development and training	Pharmacist are not well compensated. Financial burden if the cost is high to undergo training if we have to pay for it ourselves. Time commitment on top of regular workload Pharmacists often have demanding schedules	Barriers	Funding Constraint Increase Workload	Connecting-Explaining
Sense of gratitude in helping the healthcare team during COVID-19 through vaccine administration Administering vaccine if certified during COVID-19	Because pharmacists are the most accessible HCP in the community. Willing (choose) to be a vaccinator, counselor, happy to support the healthcare system I would like to take up counseling as I love helping patients I will give my time and patience so that they will know that vaccines help protect them against COVID-19	Willingness	Sense of Fulfillment Patient care	Connecting-Explaining

DISCUSSION

Level of Knowledge of Community Pharmacists towards Immunization in Zamboanga City

The findings indicate that community pharmacists in Zamboanga City possess a generally high level of knowledge regarding immunization, suggesting an awareness of the importance of vaccines and the expanding role of pharmacists in public health initiatives. This finding is consistent with the international literature, which demonstrates that pharmacists generally possess favorable baseline knowledge of immunization and recognize vaccination as an important component of pharmacy practice (Tadele et al., 2023; Udoh et al., 2024). Such knowledge is essential because pharmacists are increasingly expected to contribute to preventive healthcare and improve access to immunization services.

Despite the overall high level of knowledge, notable deficiencies were identified in vaccine contraindications, precautions, and the management of adverse reactions. These findings warrant particular attention because such competencies are directly linked to patient safety and clinical decision-making during vaccine administration. Previous studies have similarly reported that pharmacists often demonstrate adequate general vaccine knowledge while exhibiting lower confidence and competence in identifying contraindications and managing adverse events following immunization (Tadele et al., 2023; Udoh et al., 2024). In fact, a systematic review by Udoh et al. (2024) found that many pharmacists lacked familiarity with procedures for reporting and managing serious adverse events such as anaphylaxis.

The persistence of these knowledge gaps may reflect the limitations of undergraduate pharmacy education in preparing graduates for expanded immunization roles. While pharmacy curricula provide foundational knowledge of vaccines, administering vaccines requires additional competencies in patient assessment, screening for contraindications, emergency preparedness, and adverse event management. Qualitative findings from the present study support this interpretation, as participants expressed uncertainty regarding vaccine-specific clinical considerations and emphasized the need for further professional training. Therefore, expanding pharmacists' participation in immunization programs will likely require competency-based continuing professional development rather than relying solely on undergraduate education.

Level of Attitude on Immunization

A key finding of the study is that attitude emerged as the only variable significantly associated with willingness to participate in immunization services. Pharmacists demonstrated strong support for vaccination and viewed immunization as a meaningful extension of their professional responsibilities. They recognized their accessibility within communities and acknowledged the potential of pharmacist-administered immunization to increase vaccine uptake and improve public health outcomes.

This finding is consistent with behavioral theories, particularly the Theory of Planned Behavior, which posits that positive attitudes toward a behavior significantly influence an individual's intention to engage in that behavior (Ajzen, 1991). In the context of immunization services, pharmacists who perceive vaccine administration as beneficial, professionally rewarding, and socially valuable are more likely to express willingness to engage in such activities. Similar observations have been reported internationally, where favorable attitudes toward immunization were associated with greater readiness to provide vaccination services (Tadele et al., 2023; Udoh et al., 2024).

The qualitative findings further reinforced this relationship. Participants frequently described immunization as part of their professional obligation to serve the community and contribute to disease prevention efforts. Such perspectives suggest that willingness is shaped not only by technical competence but also by professional identity. Pharmacists who perceive immunization as aligned with their evolving healthcare role may be more motivated to pursue certification, participate in training programs, and advocate for vaccination services within their communities.

Barriers to Immunization

Although pharmacists demonstrated high knowledge, positive attitudes, and strong willingness, several barriers were identified that may hinder the practical implementation of immunization services. The most prominent barriers included the financial costs of certification and training, time constraints, and staffing limitations in community pharmacies. Similar challenges have been documented in other countries, where pharmacists have expressed concerns about training expenses, inadequate workforce capacity, and the absence of institutional support mechanisms (Tadele et al., 2023; Udoh et al., 2024). The qualitative findings provided important context for understanding these barriers. Participants explained that certification programs require personal financial

investment and that understaffed pharmacy settings often make it difficult to attend training programs without disrupting pharmacy operations. These findings suggest that implementation challenges extend beyond individual motivation and reflect broader organizational and health-system constraints.

Interestingly, perceived barriers were not significantly associated with willingness. At first glance, this finding appears counterintuitive because substantial obstacles might be expected to reduce pharmacists' intention to participate. However, qualitative evidence suggests that pharmacists remain motivated to contribute to immunization programs despite recognizing these challenges. This indicates that barriers may affect the feasibility of implementation rather than willingness itself. In other words, pharmacists may be willing to provide immunization services but may lack the resources, support, or infrastructure necessary to translate that willingness into actual practice.

This distinction has important implications for policy development. Regulatory authorization alone may not be sufficient to ensure the successful implementation of pharmacist-administered immunization. Community pharmacies must also possess adequate vaccine storage facilities, emergency response protocols, workflow adjustments, and access to affordable certification programs. Without addressing these structural requirements, the expansion of pharmacist-led immunization services may remain limited despite strong professional support.

Willingness of Community Pharmacists on Immunization

The high level of willingness observed among pharmacists represents a positive indicator for the future of pharmacy-based immunization services in the Philippines. However, willingness should not be equated with implementation readiness. Rather, willingness reflects a behavioral intention indicating openness to participation when appropriate opportunities, competencies, and support systems are available (Ajzen, 1991).

The qualitative findings revealed that pharmacists were motivated by a strong sense of professional responsibility, commitment to public health, and desire for interprofessional collaboration. Experiences during the COVID-19 pandemic may have further reinforced these motivations by demonstrating the important role pharmacists can play in supporting large-scale public health interventions. Similar findings have been reported globally, with pharmacists expressing strong willingness to expand their immunization role, particularly

when they perceive vaccination services as contributing to community health outcomes (Udoh et al., 2024).

Nevertheless, participants emphasized that willingness alone is insufficient. Additional training, regulatory clarity, institutional support, and practice infrastructure remain necessary before pharmacists can fully assume immunization responsibilities. Consequently, the successful implementation of pharmacy-based immunization programs will depend not only on maintaining positive attitudes and willingness but also on ensuring that pharmacists possess the competencies and resources required to safely and effectively administer vaccines.

Significant Relationship between Knowledge, Attitude, and Barriers to Willingness

Attitude is significantly related to the willingness of the community pharmacists towards immunization. There is a significant relationship between attitude and willingness with a p value of $<.001$. The strength of correlation is moderate as revealed by the coefficient of 0.695.

In a study conducted by Tadele et al. (2023), they found out that community pharmacists possess a high level of knowledge regarding the significance of vaccines in preventing infectious diseases and the potential risks that are associated with improper storage. This finding suggests that community pharmacists are well-aware of the significant role that vaccines play in public health, and this is also true to the community pharmacists in Canada and Italy. It is worth noting that in the current study, the respondent's knowledge is solely based on their pharmacy studies and that they did not receive any formal training or workshop regarding immunization in which only 17% of the community pharmacists strongly agreed that they received adequate training on vaccination during their pharmacy studies. These findings therefore imply the need for more robust enhancement in pharmacy curriculum to ensure that pharmacy students are comprehensively trained and knowledgeable in vaccination. This can help empower and equip community pharmacists with the necessary skills and knowledge to provide immunization services to the patient they serve. The result of the current study is in contradiction with the results of other studies. In Ethiopia, they found out that poor knowledge can influence the willingness of the community pharmacists towards immunization.

In a study conducted in Saudi Arabia, the respondents who showed a positive attitude towards immunization also showed a high level of willingness. This implies that attitude is significantly related to the level of willingness (Meraya et al., 2024). Barriers are not significantly related to the level of willingness of the community pharmacists towards immunization.

Extent by which Qualitative Data Explain the Quantitative Data

The quantitative result showed that knowledge and barriers are not significantly related to the level of willingness of the community pharmacists towards immunization with a p value of 0.81 and 0.84 respectively. On the other hand, attitude does significantly influence the level of willingness of the community pharmacists in Zamboanga City towards immunization with a p value of $<.001$.

Discussions with the community pharmacists revealed that although there is no specific subject during their university years that provides in-depth training and education regarding vaccines and immunizations, their knowledge regarding the general concept of vaccine is still high as they believe that knowledge and skills can be learned even outside the university. The qualitative finding largely supports the statistical relationship, suggesting that knowledge can come from different sources and not solely from the university. The same applies to the barriers. With a p value of 0.843, the quantitative data suggests that it does not significantly influence the level of willingness of the community pharmacists towards immunization, as the qualitative data revealed that solutions can be done to address these barriers. On the other hand, the quantitative data revealed that attitudes significantly influence the level of willingness of the community pharmacists towards immunization. This fully supports findings from the quantitative data.

Taken together, the quantitative and qualitative findings suggest that the level of willingness of the community pharmacists towards immunization is not significantly related by their level of knowledge or the presence of barriers, however, it's their attitude. This highlights the importance of fostering an encouraging environment that builds the self confidence and the competence of the pharmacists. Additionally, with participant narratives demonstrating that personal values and emotional ties are essential to their motivation, the qualitative results offer compelling explanatory support for the noteworthy association between attitude and willingness. On the other hand, participants' displays of indifference in spite of their knowledge demonstrate the minimum

role of knowledge, and their resolve to proceed in spite of the difficulties helps to explain why barriers have little effect. As a result, the qualitative data contributes nuance to our knowledge of motivational drives by largely explaining and validating the quantitative findings. Furthermore, the results proved the point of the different theories utilized in this research study. More than the knowledge, the attitude of a person and the perceived outcome of a particular action are significantly related as to whether an individual is motivated or willing to perform a certain action or behavior.

Overall, the integration of quantitative and qualitative findings demonstrates that positive attitudes constitute the primary driver of willingness among community pharmacists in Zamboanga City. While pharmacists possess strong foundational knowledge and are willing to participate in immunization programs, important gaps remain in clinical preparedness and implementation capacity. Addressing these gaps through targeted training, supportive policies, and strengthened infrastructure will be essential for the successful integration of pharmacists into national immunization strategies and for maximizing their contribution to public health.

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