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Selected community pharmacists' extent of knowledge, actions, and confidence in medication education to people with hearing disabilities

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Abstract

Community pharmacists are accessible health care professionals to the public. With pharmacy services relying on communication, being proficient communicators enables them to provide medication education. However, it is a challenge for people with hearing disabilities to acquire medication education due to their unique language and preference in communication methods, thereby community pharmacists are needed to address the said issue. This study determined the selected community pharmacists' extent of knowledge, actions, and confidence (KAC) in medication education to people with hearing disabilities through a descriptive quantitative-comparative research design. A convenience-purposive sampling technique was used to gather 200 Filipino community pharmacists who are currently working in the Philippines and had prior experience serving people with hearing disabilities. A survey questionnaire was used to gather data on their socio-demographic profile, seminar and/or training on disability sensitivity, and the extent of KAC in medication education to these people. Only the number of years in service (Sig.=0.029) had a significant difference in the respondents' socio-demographic profile to the extent of confidence in communication methods. The respondents were also identified to be knowledgeable on the privileges in health services of these people. However, inappropriate communication strategies under action were still employed by the respondents, such as talking in a loud voice, speaking near the hearing ear, speaking solely to the companion, providing only written materials, and general use of Filipino Sign Language, despite their confidence in medication education to these people. Hence, improvement of their KAC through programs or training is important to ensure appropriate and more effective communication with people with hearing disabilities.

Keywords: Community pharmacists; Medication education; Hearing disabilities; Knowledge; Actions; Confidence

1. Introduction

The pharmacy profession mainly revolves around its practice with the art and science of ensuring the safety and efficacy of drugs, thereby improving one's quality of life. The role of community pharmacists is essential to deliver healthcare services, like medication education, since they are the most accessible health care provider to the general public, including people with hearing disabilities – the deaf and hard-of-hearing. However, it is a challenge for these people to acquire medication education due to their unique language [1] [2] and preference for methods of communication [3][4]. This makes it more difficult for people with hearing disabilities to communicate their health needs, limiting them from obtaining optimum healthcare services. Community pharmacists, on the other hand, play a vital role in the promotion and provision of medication education for people with hearing disabilities as it grants their rights and privileges to receive the highest possible quality of care [5]. Hence, community pharmacists being proficient communicators shall ensure that these people understand drug information to have more effective medication education. The improvement

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in medication education may be strengthened by increasing the selected community pharmacists' knowledge, actions, and confidence in serving people with hearing disabilities.

Furthermore, the independent variables of this study were the respondents' extent of knowledge, actions, and confidence, while the dependent variable was medication education to people with hearing disabilities.

2. Material and methods

2.1. Method of Research Used

A descriptive quantitative-comparative research design was used to differentiate the respondents' socio-demographic profile with the extent of their knowledge, actions, and confidence in medication education to people with hearing disabilities. The respondents were selected registered Filipino pharmacists who currently work in any community pharmacies in the Philippines and who had previous experience in serving people with hearing disabilities. They were selected using a non-probability convenience-purposive sampling technique.

2.2. Preparation of the Survey Instrument

The formulated questionnaire has been modified based on the research of Hyoguchi et al. [6]. It was divided into five parts with questions about the respondents'

- Socio-demographic profile,
- Seminar and/or training experience on hearing disabilities,
- Knowledge,
- Actions, and
- Confidence in medication education.

Moreover, a 4-point Likert scale was used to determine the respondents' level of agreeability and disagreeability to every given statement about their extent of knowledge, actions, and confidence, as well as Yes-No questions.

2.3. Collection of Data

The survey questionnaire was distributed through online platforms and the data collected via Google Forms were automatically stored as analytics data to easily collect, record, and summarize the responses in Google Sheets.

2.4. Statistical Treatments

Data were analyzed using Statistical Package for Social Sciences (SPSS). The percentage was utilized to determine the respondents' socio-demographic profile, seminar and/or training experience on hearing disabilities, and confidence in medication education. Weighted means were used to assess the three (3) specific objectives of the study: the respondents' extent of knowledge, actions, and confidence in medication education to people with hearing disabilities. An independent *t*-test was employed to determine the significant difference between the respondents' extent of knowledge, actions, and confidence in medication education related to their socio-demographic profile based on sex, and employment information: type of community pharmacy. One-way ANOVA was employed to determine the significant difference between the respondents' extent of knowledge, actions, and confidence in medication education to their socio-demographic profile based on age and employment information: number of years in service, and location of the workplace.

2.5. Ethical Consideration

The study protocol was approved by the Institutional Ethics Review Committee (IERC) of Centro Escolar University.

3. Results and discussion

3.1. Socio-demographic profile of the respondents

This study aimed to determine the extent of knowledge, actions, and confidence of selected community pharmacists in medication education to people with hearing disabilities. A total of 200 responses were obtained. Most of the respondents were in the age group of 21 to 30 years old (78.00%; n=156), female (85.50%; n=171) with less than 5

years of service (66.50%; n=133), and currently working in a chain community pharmacy (61.50%; n=123) that is mostly located in Luzon (89.00%; n=178). The respondents' socio-demographic profile was provided in Table 1.

Table 1 Distribution of Respondents based on their Socio-demographic Profile

Variables	Frequency	Percentage (%)
Age (in years)		
21-30	156	78.00
31-40	26	13.00
41-50	10	5.00
51 and above	8	4.00
Sex		
Male	29	14.50
Female	171	85.50
Number of Years in Service		
Less than 5 years	133	66.50
5-10 years	44	22.00
11-15 years	12	6.00
More than 16 years	11	5.50
Type of Community Pharmacy		
Chain	123	61.50
Independent	77	38.50
Location of the Workplace		
Luzon	178	89.00
Visayas	14	7.00
Mindanao	8	4.00

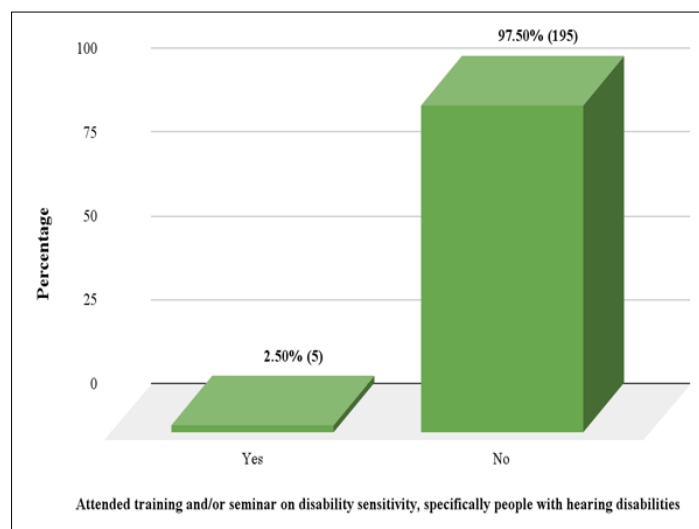


Figure 1 Distribution of Respondents' Seminar and/or Training Experience to People with Hearing Disabilities

Only five (2.50%) respondents have already attended training and/or seminar on about people with hearing disabilities, involving PWDs, learning the basic sign language, drug selling, training courses, and management of mental development seminars from 2017 to 2020; while 195 (97.50%) respondents have not yet attended any (Figure 1).

3.2. Extent of respondents' knowledge of medication education for people with hearing disabilities

Note writing (89.50%; n=179) was the most common method of communication known by the respondents, whereas only one respondent (0.50%) indicated that people with hearing disabilities bring the packaging of their products with them. Health care providers, such as pharmacists, perceived note writing as an effective method of communication with people with hearing disabilities and has become their usual practice [1]. However, this is deemed ineffective since these people may not always understand written information due to their poor reading and writing abilities [8][9]; thus, there was no assurance that the medication instruction provided by the pharmacist was sufficiently understood [10][6]. Consequently, it limits these marginalized people from obtaining adequate medication education (Figure 2).

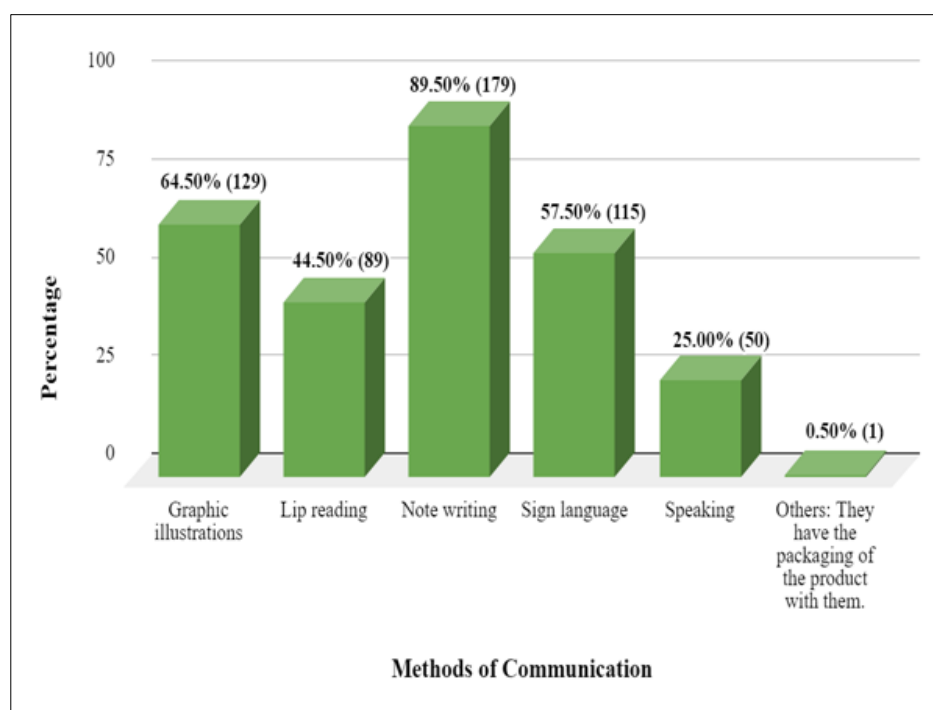


Figure 2 Extent of Respondents' Knowledge in Medication Education to People with Hearing Disabilities based on Methods of Communication

Table 2 shows that the obtained overall mean was 3.565 which indicates that the respondents strongly agreed with the statements provided. This explains that they were knowledgeable about the privileges of health services for people with hearing disabilities. However, statements 8, 9, and 10 have the verbal interpretation of Agree which generally pertains to Filipino Sign Language (FSL). This was supported by Article VII Section 22 (a) and (e) of the Implementing Rules and Regulations of RA 11106, known as the "Filipino Sign Language (FSL) Act," which declared that FSL is the official language in all affairs of the Deaf, and mandates that both public and private health facilities, including pharmacies, to develop, promote, and monitor policies for the designation of interpreters, respectively [11]. Moreover, the FSL training for health workers, including pharmacists, was only recently conducted by the Department of Health [12]; hence, reflecting delayed reinforcement of this method of communication to instill a thorough understanding and knowledge of the Deaf's unique language for effective communication.

Table 2 Extent of Respondents' Knowledge in Medication Education to People with Hearing Disabilities based on the Privileges in Health Services

	Responses				Mean	Verbal Interpretation
	4	3	2	1		
I am aware of the 20% discounts for people with hearing disabilities when purchasing generic or branded medicine.	179	20	1	0	3.890	Strongly Agree
I am aware that it is prohibited to limit or schedule the time for people with hearing disabilities to avail of their medicine discounts.	135	43	16	6	3.535	Strongly Agree
I am aware that special discounts on medicine for people with hearing disabilities should be available at all times.	158	35	6	1	3.750	Strongly Agree
In purchasing medicine, I know that people with hearing disabilities should be informed that discounts are available.	173	25	2	0	3.855	Strongly Agree
I am knowledgeable that generic menu cards shall be provided, containing their usual prices, discounts, and VAT (value-added tax) exemption.	168	24	7	1	3.795	Strongly Agree
I am informed that people with hearing disabilities must be included in priority lanes.	181	15	4	0	3.885	Strongly Agree
I know that express lanes for PWDs, like those with hearing disabilities, should be provided; if not, priority should be given to them.	179	19	1	1	3.880	Strongly Agree
I am well informed that there could be free Filipino Sign Language interpreters in drug stores to provide health and/or medication information.	70	78	35	17	3.005	Agree
I am knowledgeable that Filipino Sign Language interpreters shall be available in community pharmacies upon request.	59	85	35	21	2.910	Agree
I am knowledgeable that Filipino Sign Language (FSL) is the National Language of the Filipino Deaf which shall be used in all of their health affairs or concerns. Hence, they are entitled to request FSL interpreters in pharmacies.	82	79	25	14	3.145	Agree
Overall					3.565	Strongly Agree

*Legend 3.26-4.00 = Strongly Agree (SA), 2.51-3.25 = Agree (A), 1.76-2.50 = Disagree (D), and 1.00-1.75 = Strongly Disagree (SD).

3.3. Extent of respondents' actions in medication education to people with hearing disabilities

Using easy-to-understand words while delivering medication education was revealed to be the most common communication strategy used by the respondents with a mean of 3.640 (Strongly Agree). Whereas, statements 2, 3, and 5 only have a verbal interpretation of Agree which were the least used communication strategies. Using easy-to-understand words is one of the fundamental communication skills of pharmacists, including those in the community setting, to become proficient communicators that ensure a better understanding of drug information to people with hearing disabilities [3][4].

The respondents agreed and strongly agreed in statements 2, 3, and 5; likewise, in statements 6 and 10, respectively, despite that these are inappropriate actions in communication strategies. It is inappropriate to talk in a loud voice (statement 2) and speak near the hearing ear of hard-of-hearing people (statement 3) since it influences the sound of speech, leading to less effective and more challenging communication [6][7]. Furthermore, speaking solely to their companion (statement 5) is also inappropriate because people with hearing disabilities prefer to receive medication education directly from health care professionals [13]. Providing only written materials does not ensure full understanding (statement 6), wherein the average reading level of Deaf people is similar to or lower than fourth grade [10]. Lastly, the general use of FSL (statement 10) is also incorrect since the preferred method of communication of people with hearing disabilities varies, hence should be considered [6].

Table 3 Extent of Respondents' Actions in Medication Education to People with Hearing Disabilities based on the Communication Strategies

	Responses				Mean	Verbal Interpretation
	4	3	2	1		
I first identify the preferred communication method/s of people with hearing disabilities since it is a must.	127	68	5	0	3.610	Strongly Agree
I talk in a loud voice to communicate with hard-of-hearing people.	52	64	67	17	2.755	Agree
I speak near the hearing ear in communicating with hard-of-hearing people.	74	76	38	12	3.060	Agree
I speak words separately as a good strategy for lip reading.	86	100	14	0	3.360	Strongly Agree
I speak solely to the companion rather than to the people with hearing disabilities.	65	85	43	7	3.040	Agree
I only provide written materials to ensure a full understanding of people with hearing disabilities.	91	87	20	2	3.335	Strongly Agree
I use words that are easy to understand while speaking in delivering medication instructions.	130	68	2	0	3.640	Strongly Agree
I provide written notes with pictures of generic and branded medicines or graphical illustrations when communicating with people with hearing disabilities for enhanced communication.	121	72	6	1	3.565	Strongly Agree
I should learn sign language to improve communication with people with hearing disabilities.	104	85	11	0	3.465	Strongly Agree
I should generally use Filipino Sign Language for all deaf and hard-of-hearing people.	99	80	19	2	3.380	Strongly Agree
Overall					3.321	Strongly Agree

*Legend 3.26-4.00 = Strongly Agree (SA), 2.51-3.25 = Agree (A), 1.76-2.50 = Disagree (D), and 1.00-1.75 = Strongly Disagree (SD).

3.4. Extent of respondents' confidence in methods of communication

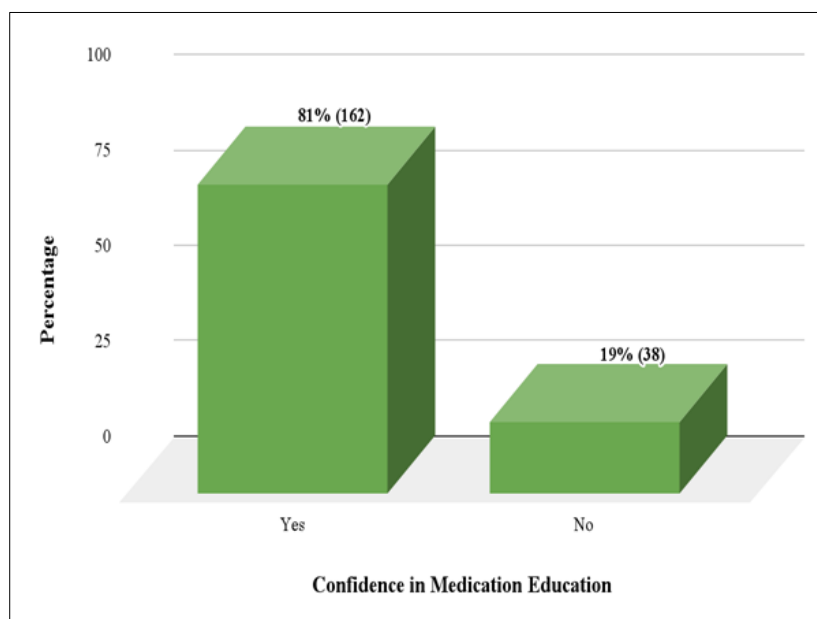
**Figure 3** Distribution of Respondents' Confidence in Medication Education to People with Hearing Disabilities

Figure 3 shows that the majority of the respondents were confident (81%; n=162) in delivering medication education to people with hearing disabilities, while only 19% (n=38) were not confident. This corresponds with another study that healthcare professionals should be confident because it affects their ability to perform necessary clinical actions [14].

Table 4 reveals that communicating with gestures was the method of communication that the respondents were most confident with (3.560; Strongly Agree). This coincides with using body gestures as one of the most appropriate methods of communication to establish better interaction with hard-of-hearing people [15]. Meanwhile, speaking in a loud voice to hard-of-hearing people was the method of communication that the respondents were least confident with (2.770; Agree). This corresponds with another study wherein talking in a loud voice was determined as not a good way to communicate [6]. Furthermore, this method was also regarded as an improper way to communicate with these people because speaking in a loud voice affects the sound of speech, making communication more difficult [7].

Statements 1, 2, and 10, with a mean of 2.990, 2.770, and 2.990, respectively, obtained a verbal interpretation of Agree. This implies that these were the methods of communication that respondents were least confident with. Furthermore, this rationalizes why talking near the hearing ear and speaking loudly were also the least used communication strategies, as well as the use of sign language, which can be attributed to the respondents' lack of knowledge as part of the privileges in health services of people with hearing disabilities.

Table 4 Extent of Respondents' Confidence in Medication Education to People with Hearing Disabilities based on the Methods of Communication

	Responses				Mean	Verbal Interpretation
	4	3	2	1		
I talk near the ear of the hard-of-hearing people because it allows for better delivery of information.	63	82	45	10	2.990	Agree
I usually speak loud to hard-of-hearing people because they can better understand what I am saying.	44	79	64	13	2.770	Agree
I speak slowly and pause between sentences and/ or phrases when providing medication education for an easier understanding of what I am saying.	112	82	6	0	3.530	Strongly Agree
I carefully read the lips of deaf people when they are communicating since it is more effective.	89	92	19	0	3.350	Strongly Agree
I avoid too many movements when communicating with people who use lip reading to avoid distraction and talk clearly to them for effective communication.	92	97	11	0	3.405	Strongly Agree
I am writing while speaking because it is the most effective communication method in delivering medication instructions to people with hearing disabilities.	118	63	17	2	3.485	Strongly Agree
I provide graphical illustrations since it helps them better understand the information.	103	83	12	2	3.435	Strongly Agree
I communicate with gestures since it improves the understanding of people with hearing disabilities in medication education.	118	76	6	0	3.560	Strongly Agree
I use hand gestures while speaking slowly since it helps people with hearing disabilities grasp information accurately.	115	81	4	0	3.555	Strongly Agree
I use sign language when communicating with deaf people since it is the most effective communication method.	61	88	39	12	2.990	Agree
Overall					3.307	Strongly Agree

*Legend 3.26-4.00 = Strongly Agree (SA), 2.51-3.25 = Agree (A), 1.76-2.50 = Disagree (D), and 1.00-1.75 = Strongly Disagree (SD).

3.5. Differentiation of the respondents' socio-demographic profile to the extent of knowledge, actions, and confidence in medication education to people with hearing disabilities

The differentiation of the respondents' socio-demographic profile to the extent of knowledge, actions, and confidence was employed to determine a significant difference between the variables. The socio-demographic profile consists of age, sex, employment information: number of years in service, type of community pharmacy, and location of the workplace.

Table 5 reveals that all aspects of the respondents' socio-demographic profile showed no significant difference in their knowledge of the privileges in health services since their values for statistical significance were greater than 0.05 (5%). This implies that all respondents were knowledgeable about the privileges of health services in medication education to people with hearing disabilities regardless of their age, sex, and employment information. This was consistent with another study wherein pharmacists were identified to have a good overall knowledge and understanding of their functions and services [16]. This can also be further reflected in pursuing educational programs to acquire the necessary knowledge and skills of a pharmacist.

Table 5 Differentiation of the Respondents' Socio-demographic Profile to the Extent of Knowledge in Medication Education

Socio-demographic Profile	Knowledge of Privileges in Health Services	Interpretation
	Sig.	
Age (in years)	0.317	No Significant Difference
Sex	0.869	No Significant Difference
Employment information:		
Number of years in service	0.634	No Significant Difference
Type of community pharmacy	0.122	No Significant Difference
Location of the workplace	0.978	No Significant Difference

*Legend < 0.05 (5%) = Significant Difference, > 0.05 (5%) = No Significant Difference.

Table 6 reveals that all aspects of the respondents' socio-demographic profile showed no significant difference in their actions based on communication strategies since their values for statistical significance were greater than 0.05 (5%). This means that similar communication strategies were being employed by the respondents in medication education to people with hearing disabilities despite their age, sex, and employment information. In contrast with the research of Athiyah et al., significant differences were found between practice and age, as well as in practice and years of work experience [16]. However, this may also be due to the similarities in communication strategies used by the respondents.

Table 6 Differentiation of the Respondents' Socio-demographic Profile to the Extent of Actions in Medication Education

Socio-demographic Profile	Actions Based on Communication Strategies	Interpretation
	Sig.	
Age (in years)	0.798	No Significant Difference
Sex	0.110	No Significant Difference
Employment information:		
Number of years in service	0.355	No Significant Difference
Type of community pharmacy	0.600	No Significant Difference
Location of the workplace	0.834	No Significant Difference

*Legend < 0.05 (5%) = Significant Difference, > 0.05 (5%) = No Significant Difference.

Table 7 reveals that all aspects of the respondents' socio-demographic profile showed no significant difference in their confidence in medication education since their values for statistical significance were greater than 0.05 (5%). This indicates that all respondents perceived themselves as confident in medication education for people with hearing disabilities despite their age, sex, and employment information. The respondents' confidence may be attributed to the need to be confident as healthcare professionals since this affects their ability to competently provide care [14]. However, this was different from another study wherein the majority of pharmacists were not confident in interacting with people with hearing disabilities to provide medication education [6]. Though, the country of practice or setting may also be a factor in its differing confidence.

Table 7 Differentiation of the Respondents' Socio-demographic Profile to their Confidence in Medication Education

Socio-demographic Profile	Confidence in Providing Medication Education	Interpretation
	Sig.	
Age (in years)	0.915	No Significant Difference
Sex	0.595	No Significant Difference
Employment information:		
Number of years in service	0.247	No Significant Difference
Type of community pharmacy	0.786	No Significant Difference
Location of the workplace	0.239	No Significant Difference

*Legend < 0.05 (5%) = Significant Difference, > 0.05 (5%) = No Significant Difference.

Table 8 presents that among all aspects of the socio-demographic profile of the respondents, only the number of years in service had a significant difference with their confidence in the methods of communication having a statistical significance value of 0.029. This means that the respondents' years of service as community pharmacists affected their confidence in the method of communication they use in medication education to people with hearing disabilities.

In particular, significant differences were found between those with more than 16 years and less than 5 years of experience, and likewise, with more than 16 years and 5-10 years of experience. This indicates that respondents who have more than 16 years of experience have varied confidence in different methods of communication as compared to those with less than 5 years and 5-10 years of experience. Furthermore, this coincides with another study that the knowledge, attitude, and practice of community pharmacists vary among groups of years of experience, considering the factors associated with early and late careers [16]. It can also be implied that long years of experience may be attributed to the confidence that has been tested over time and practice.

Table 8 Differentiation of the Respondents' Socio-demographic Profile to the Extent of Confidence in Medication Education based on Methods of Communication

Socio-demographic Profile	Confidence in Methods of Communication	Interpretation
	Sig.	
Age (in years)	0.068	No Significant Difference
Sex	0.551	No Significant Difference
Employment information:		
Number of years in service	0.029	Significant Difference
Type of community pharmacy	0.100	No Significant Difference
Location of the workplace	0.723	No Significant Difference

*Legend < 0.05 (5%) = Significant Difference, > 0.05 (5%) = No Significant Difference.

4. Conclusion

Based on the results of the study, the following conclusions were drawn:

Most of the Filipino community pharmacists were in the age group of 21-30 years old, females with less than 5 years of service, and are currently working in chain community pharmacies that are mostly located in Luzon. The respondents also lacked seminars and/or training about people with hearing disabilities.

On the other hand, note-writing was the most known communication method by the respondents. It was determined that they were knowledgeable of the different privileges in health services for people with hearing disabilities. The usage of easy-to-understand words was identified to be the most commonly used communication strategy by the respondents under actions. However, many of these communication strategies were still being utilized by respondents despite being inappropriate. It was further determined that the majority of the respondents perceived themselves as confident in providing medication education to people with hearing disabilities. As such, communicating with gestures was the method of communication that respondents were most confident with. This implies that being confident is not enough since the respondents should also be knowledgeable and apply appropriate communication strategies, considering the preferred communication methods of people with hearing disabilities. Furthermore, only the number of years in service had a significant difference among all aspects of the respondents' socio-demographic profile with their extent of confidence in methods of communication; but there was no significant difference identified with their extent of knowledge and actions.

Therefore, it is vital to educate community pharmacists through programs and/or training that will further enhance their knowledge, actions, and confidence, particularly in the different communication methods and strategies to ensure a more effective medication education.

Recommendations

After the study was conducted, the following recommendations are hereby advanced:

- To conduct further studies regarding this research but with a larger sample size focusing on a particular region or location in the Philippines to obtain a more specific perspective.
- To develop programs and/or training to further enhance the knowledge, actions, and confidence of community pharmacists, while also emphasizing the importance of utilizing appropriate communication strategies, considering the preferred communication method of people with hearing disabilities.
- To conduct a similar study that explores other fields of pharmacy practice that involve direct patient care to contribute to the improvement of medication education.
- To conduct research that investigates the perspective of people with hearing disabilities in receiving medication education from the pharmacist.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Statement of ethical approval

Statement of ethical approval was obtained from Centro-Escolar University- Institutional Ethical Boars (CEU-IERB)

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