ORIGINAL ARTICLE

Exploring the Knowledge, Attitude, and Practices of Community Pharmacists in Eastern Visayas towards Readiness to Provide Information Service on Complementary and Alternative Medicine (CAM) Products

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ABSTRACT

Background. Community pharmacists are strategically positioned to dispense Complementary and Alternative Medicine (CAM) products as part of their innate roles in the provision of accurate drug information to patients. This unique position of the pharmacist could be best realized if equipped with good knowledge and skills in regard to CAM products.

Objectives. This study aimed to assess the readiness of community pharmacists in the provision of CAM product-related information to patients by assessing the knowledge and determined the attitudes and practices of community pharmacists regarding CAM products in Eastern Visayas, Philippines.

Methods. A descriptive mixed-method (qualitative and quantitative) survey design was utilized in this study. Community pharmacists (n=58) in Eastern Visayas, Philippines were the research participants in the study. The survey questionnaire constituted four sections: socio-demographic profile, attitudes, practices, and knowledge of community pharmacists on CAM products. Descriptive statistical analysis was performed using SPSS Version 20.

Results. Results revealed that the majority of respondents are female (87.93%), age range in between 21-30 (62.07%), working full-time (79.31%), and bachelor's degree holder (98.28%). More than half of the participants (53.45%) did not receive any education or training on CAM products during undergraduate studies. Community pharmacists displayed strong positive attitudes (mean=3.74) and had a moderate frequency of practice on CAM products (mean=3.20). The knowledge test revealed that only a few of the community pharmacists (31.03%) were considered knowledgeable. A significant relationship between years of work experience in community pharmacy and knowledge was found in this study.

Conclusion. Despite having strong attitude and moderate level of practice, community pharmacists in Eastern Visayas showed a low level of knowledge on CAM products. Demand for CAM products by patients encouraged community pharmacists to dispense and provide information. Readiness of community pharmacists in terms of knowledge provision of CAM product-related information to patients were found to be insufficient while a moderate level of practice towards CAM products was reported. Community pharmacists displayed a strong positive attitude towards CAM products. Overall, the community pharmacists are not ready to provide CAM information service in the context of the knowledge, attitude, and practices.

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INTRODUCTION

Complementary and Alternative Medicine (CAM) encompasses a broad range of health practices that are not entirely incorporated into the predominant healthcare system and are not part of a country's conventional medicines.[1] Majority of CAM products include herbal products, vitamins and minerals, and probiotics.[2] Recently, there has been a growing interest in the use of CAM products globally and the Philippines is one of the countries found to have the highest prevalence (> 50%) of CAM users.[3] In particular, herbal supplements are a primary CAM product of choice obtained from pharmacies in the Philippines.[1]

CAM products are commonly used for general health maintenance, treatment of specific disease states, and chronic conditions. Filipinos regularly use complementary and alternative medicine (CAM) products to address conditions that cause discomfort, such as back pain, arthritis, and migraines, as well as conditions that affect the cardiovascular system, such as hypertension, hypercholesterolemia, and poor leg circulation.[4] The majority of customers relied on CAM products to treat common colds, cough, fever, and flu.[5]

The use of CAM products, particularly herbal supplements, by patients may be associated with hazardous health risks related to adverse effects, improper dosage, or quality of the products such as contamination or lack of standardization. Most of the adverse reactions related to CAM products are undetected and unreported to healthcare providers.[6] There is a greater potential of drug-herb interactions over the drug-drug interactions because herbal supplements comprise multiple pharmacological entities, which is in contrast to the single-entity nature of conventional medicines. The risk is even more compounded in patients with chronic disease, who are most likely to practice polypharmacy as well.[7] Although herbal products tend to be perceived as safe, there is still a potential for harm. For instance, hepatotoxicity was the most frequently associated adverse effect associated with CAM products since the majority are consumed orally.[8] In a study by Braun et al.[6], 22% of the survey participants describe the adverse reaction as moderate and/or requiring advice from a health care professional in regard to CAM product use while a small number of patients (7%) required hospitalization in Australia. Furthermore, patients with medical conditions necessitating immediate care have been known to rely on such CAM products for self-medication, thus delaying the provision of care from healthcare providers.[9]

In the Philippine context, consultation with traditional healers who primarily promote CAM use, has been identified to delay health-seeking behavior in healthcare facilities among mothers in the Eastern Visayas. Residents in this area resort to herbal products for self-medication in order for them to save time and money due to ease of access and the perception that they are safe.[10] Despite the prevalence of CAM usage in this area, there are no studies conducted in Eastern Visayas in terms of pharmacists' perspectives on attitudes, practices, and assessing their knowledge of CAM products.[10,11]

Pharmacists are ideally and greatly positioned to dispense CAM products as part of their roles involved in dispensing and counseling conventional medicines. This should also be the case for CAM products wherein pharmacists should provide appropriate patient education.[12,13] With the pharmacists being the most accessible healthcare providers in the community[14] along with their extensive knowledge and expertise in the field of drug information, they must only procure, supply, or promote any pharmaceutical, complementary medicine, or other healthcare product if the safety and quality are guaranteed and the evidence of efficacy is available[12].This unique position of the pharmacist could be best realized if they are equipped with good knowledge and skills in regard to CAM products. Relating to the theory of planned behavior, behavioral attitudes of community pharmacists affect their behavior in delivering pharmacy-based interventions relating to non-prescription medications such as CAM products.[15] Attitudes of the community pharmacists on CAM use and their consequential behavior in dispensing CAM products remain undetermined.

The readiness of community pharmacists in Eastern Visayas to provide information on CAM products was probed using a knowledge, attitude, and practice survey model. The results from this study will assist in the development of interventions for practicing community pharmacists for CAM product education and training in the country.

METHODS

Study Design

The study was conducted from February 2022 - March 2022 and employed a mixed-method (qualitative and quantitative) approach with the qualitative components integrated into the descriptive survey design to determine and assess the attitudes, current practices, and knowledge of community pharmacists regarding CAM products in Eastern Visayas specifically Leyte-Biliran.

Selection of Participants

There were 106 community pharmacists in Eastern Visayas based on the list provided by the Leyte-Biliran Pharmacists Association. The sample size (n= 84) was calculated using Slovin's formula. Random sampling technique through the lottery method was used in the selection of the study participants. Out of the 84 participants, only 58 consented and participated in the study, with a response rate of 69.05%. The participants are considered eligible for the study if he/she is a (1) registered Pharmacist; (2) a member of Leyte-Biliran Pharmacists Association and the Philippine Pharmacists Association; and (3) working in the pharmacy either as a pharmacy owner or as an employee. To ensure that the selected research participant is still working in a community pharmacy setting, the researcher contacted

the participant either via email, text or call to confirm the status of his/her work. Additionally, only participants with functional email addresses were prioritized and included in this study. The eligible participants were assigned with a code to ensure anonymity. After this, the questionnaire was administered electronically via Google Form and sent through their respective email addresses.

Research Instrument and Data Collection

This study employed a research instrument adopted from Hijazi et al.[16] with minor modifications to contextualize the questionnaire in the Philippine setting. The content validity of the modified questionnaire was reviewed and validated by two community pharmacists practicing for over 10 years and two psychometricians. To ensure the reliability of the modified questionnaire, the researcher employed the Test-Retest method. The questionnaire was administered twice to the pilot sample, which consisted of 10 pharmacists outside of the focused provinces. The questionnaire was administered to the 10 pharmacists from Tacloban City. These 10 pharmacists were not included as subjects in the study. The interval of the first administration and second administration of the questionnaire was one week.

The questionnaire constituted four sections. The first section included questions related to socio-demographics, education, work experience, and education or training received about CAM products. Moreover, the profile of the community pharmacies, where the study participants were connected, was described.

The second section addressed the community pharmacists' attitudes related to CAM products. Specific questions pertaining to pharmacists' perception of the regulation of CAM products in the Philippine market, the role of media in educating consumers about the safe use of these products as well as the availability of resources in the workplace, and the need for lifelong education were included. For the second section, the survey questionnaire utilized a 5-point Likert rating scale (strongly disagree, disagree, neutral, agree, and strongly agree). The descriptive terms strongly disagree, disagree, neutral, agree, and strongly agree were converted to their numerical equivalents of 1, 2, 3, 4, and 5, respectively during data processing. The weighted means were interpreted as follows: 1.00 – 1.80 (*very strong negative attitude*), 1.81 – 2.60 (*strong negative attitude*), 2.61 – 3.40 (*neutral attitude*), 3.41 – 4.20 (*strong positive attitude*), 4.21 – 5.00 (*very strong positive attitude*). The attitude of pharmacists toward CAM products were determined wherein 1 indicated a very negative attitude and 5 indicated a very positive attitude. Therefore, the higher the score, the greater the attitude (positive) pharmacists have in CAM products.

The third section included questions that assessed the pharmacist's practices concerning CAM products, such as dispensing, counseling patients on the safe use of these products, reporting adverse effects, and checking for any drug interactions. As for practices, the scores of 1, 2, 3, 4, and 5 corresponded with the following answers: no, rarely, sometimes, often, and always, respectively. The weighted means were interpreted as follows: 1.00 – 1.80 (*very low frequency of practice*), 1.81 – 2.60 (*low frequency of practice*), 2.61 – 3.40 (*moderate frequency of practice),* 3.41 – 4.20 (*high frequency of practice*), 4.21 – 5.00 (*very high frequency of practice*). The highest score "5" indicated the frequent participation of pharmacists in activities related to CAM products and the lowest score "1" indicated minimal to no participation of pharmacists in activities pertaining to CAM products.

The last section of the questionnaire addressed the community pharmacist's knowledge of CAM products. There were a total of 15 questions to address the uses, side effects, and drug interactions of CAM products. A knowledge score was assigned a score value of "1" for any specific question that they answered correctly. A knowledge score of "0" was given if their answer was wrong. If the respondents chose "*I don't know*", they are given a knowledge score of "0" because it represents the lack of knowledge of that question. Since the knowledge section of the questionnaire included 15 questions, the total knowledge score ranged between a minimum of "0" and a maximum of "15". A research respondent is considered "knowledgeable" about CAM products if their knowledge score falls between 12 to 15. On the other hand, a research respondent is classified as "not knowledgeable" about CAM products if their knowledge score falls below 12.

Readiness of the research participants is defined as the ability of community pharmacists to score ≥12 out 15 in the knowledge test, exhibit a strong positive attitude (3.41 – 4.20) toward CAM products in the attitude test, and demonstrate high frequency of practice (3.41 – 4.20) in the practice test.

Data and Statistical Analysis

This study utilized descriptive statistics and the data that was obtained was expressed in frequencies, percentages, and mean. Chi-square was used to assess the association of socio-demographic factors with knowledge, attitude, and practices. IBM Statistical Package for the Social Sciences (SPSS) Version 20.0® (IBM Corp Armonk, NY, USA) was used to analyze the data.

Ethical Considerations

The study was approved by the University of San Carlos Research Ethics Committee (Approval number: 2021-014).

RESULTS

Socio-demographic Characteristics

Table 1 presents the socio-demographic profile of the community pharmacists in Eastern Visayas. Out of the 84 participants, only 58 consented and participated in the study, with a response rate of 69.05%. The age profile ranges from 21-30 years of age (62.07%). There is a wide gender gap among the community pharmacists wherein the majority are females

Table 1. Socio-demographic Profile of Respondents, (n=58)

	Frequency	Percentage (%)
Demographic Profile		
Age		
21-30	36	62.07
31-40	10	17.24
41-50	7	12.07
>50	5	8.62
Sex		
Male	7	12.06
Female	51	87.93
Employment Status		
Full-time	46	79.31
Part-time	2	3.45
Pharmacy Owner	10	17.24
Highest Educational Level Attained		
Bachelors	57	98.28
Masters	1	1.72
PhD	0	0.00
During your university education, did you receive any education/ training on CAM products?		
Yes	27	46.55
No	31	53.45
Years of work experience in community pharmacy		
1-3 years	21	36.21
4-7 years	20	34.48
8-10 years	3	5.17
>10 years	14	24.14
Pharmacy Profile		
How many pharmacists work in this pharmacy in addition to yourself?		
0	11	18.97
1	19	32.76
2	13	22.41
>3	15	25.86
How long has this pharmacy been open for?		
1-5 years	17	29.31
6-10 years	13	22.41
11-15 years	5	8.62
16-20 years	4	6.90
>20 years	18	31.03
Don't know	1	1.72

(87.93%) compared to males (12.06%). Most community pharmacists who participated in the study were employed full-time (79.31%) while the others were either pharmacy owners (17.24%) or employed part-time (3.45%). In terms of educational attainment, 98.28% reported having a bachelor's degree while the remaining had attained a higher degree: a master's degree (1.72%). Half of the community pharmacists did not receive any CAM education/training during university education (53.45%) while 46.55% have reported undergoing post-graduation education/training on CAM products. The profile of the community pharmacies showed that the work experience of their community pharmacists ranges from 1 to 3 years (36.21%). The majority of pharmacies have been operational for 1 to 5 years (29.31%).

Attitude on CAM products

Table 2 presents the general attitude of community pharmacists toward CAM products. Community pharmacists have a strong positive attitude toward CAM products and agree (50%) that they are effective. They agreed that CAM products should only be sold in pharmacies (62.07%) and their use should not be limited to patients who have failed in conventional medicine therapy (56.90%). It was also found in this study that community pharmacists have neutral attitudes (34.48%) in regard to CAM products having fewer side effects compared with conventional medicines. In providing information about CAM products, 46.55% have a strong positive attitude that it is a pharmacist's professional responsibility.

Table 3 reveals the attitudes of community pharmacists towards CAM products available in the Philippine market. About 43.10% of community pharmacists are neutral about whether CAM products available in the Philippine market are well-standardized or not. Fifty percent (50%) have a strong positive attitude that CAM products sold in the Philippines are of good quality and have a neutral attitude (39.66%) about being well-regulated in the country. Community pharmacists displayed strong positive attitudes (51.72%) that the media plays a great role in educating consumers about the safe use of CAM products available in the Philippine market.

In Table 4, attitude of pharmacists regarding availability of CAM resources in pharmacies are presented. The overall strong positive attitude toward the availability of resources on CAM products is presented. Community pharmacists (48.28%) revealed strong positive attitude that sources of information should be available and easily accessible to pharmacists. Half of the respondents have very strong positive attitudes and raised the need for continuous education on CAM products to be mandatory.

Practices of Community Pharmacists on CAM Products

Table 5 shows the practices of community pharmacists on CAM products. Community pharmacists (39.66%) frequently dispense CAM products in their respective pharmacies and frequently receive inquiries from their patients regarding the use of CAM products (32.76%). There is a high frequency of practice among the community pharmacists in Eastern Visayas where they provide advice on the safe use of CAM products (31.03%). About 43.10% showed moderate practices in asking for feedback about their use of CAM products. In terms of adverse effect reporting by community pharmacists in Eastern Visayas, a low frequency of practice (32.76%) was observed (Table 5). It is also worth noting that 44.83% of pharmacists reported that they check for drug-CAM products interaction before dispensing.

Table 2. General Attitudes toward CAM Products, (n=58)

Statements	Scale	f	%	Weighted Mean	Interpretation
1. *CAM products are effective.*	5	5	8.62	3.66	Strong Positive Attitude
	4	29	50.00		
	3	23	39.66		
	2	1	1.72		
	1	0	0.00		
	Total	**58**	**100.00**		
2. *CAM products should be sold only in pharmacies.*	5	14	24.14	4.09	Strong Positive Attitude
	4	36	62.07		
	3	7	12.07		
	2	1	1.72		
	1	0	0.00		
	Total	**58**	**100.00**		
3. *The use of CAM products should not be limited to patients who have failed conventional medicine therapy.*	5	12	20.69	3.95	Strong Positive Attitude
	4	33	56.90		
	3	11	18.97		
	2	2	3.45		
	1	0	0.00		
	Total	**58**	**100.00**		
4. *CAM products have less side effects than conventional medicines.*	5	2	3.45	3.02	Neutral Attitude
	4	17	29.31		
	3	20	34.48		
	2	18	31.03		
	1	1	1.72		
	Total	**58**	**100.00**		
5. *Providing information about CAM products is a pharmacist's professional responsibility.*	5	26	44.83	4.33	Very Strong Positive Attitude
	4	27	46.55		
	3	3	5.17		
	2	2	3.45		
	1	0	0.00		
	Total	**58**	**100.00**		
Overall				**3.81**	**Strong Positive Attitude**

Knowledge on CAM products

Table 6 presents the results of the evaluation of knowledge among the pharmacists on CAM products using a tool covering 15 questions on uses, side effects, and drug interactions of commonly sold CAM products in the Philippines. Their level of knowledge on CAM products is presented in Table 7. A community pharmacist is considered knowledgeable on CAM products if their knowledge score falls between 12 to 15. On the other hand, one is considered as not knowledgeable if their knowledge score falls below 11. Based on the result, the majority of the community pharmacists in Eastern Visayas were not considered knowledgeable enough about CAM products (68.97%) while only 31.03% were considered knowledgeable. High concern regarding the result of the knowledge question revealed that 94.83% of community pharmacists were unaware that valerian should be used with caution in patients taking benzodiazepines, and that 84.48% incorrectly answered that ginseng can raise blood pressure.

Table 8 presents the readiness of community pharmacists in terms of the aspects that were investigated in the study. Only 9.43% of the community pharmacists were considered ready to provide CAM-related information based on the cut-offs of the three domains - attitude, practice, and knowledge.

DISCUSSION

Community pharmacists in Eastern Visayas are actively involved in the dispensing of CAM products. This is the first study that determined community pharmacists' readiness to provide information on CAM products by assessing their knowledge, attitudes, and practices. Community pharmacists have strong positive attitudes towards CAM products yet, they have moderate frequency of practice. It is notable that 68.97% were considered not knowledgeable about CAM products.

Pharmacists are ideally and greatly positioned to dispense CAM products as part of their roles involved in dispensing and counseling conventional medicines.[13] The socio-demographic characteristics of the present study, composed primarily of female respondents, do not corroborate with previous works conducted in other countries[12,16-18] where the majority of

Table 3. Attitudes toward CAM Products Available in Philippine Market, (n=58)

Statement/ Question	Scale	f	%	Weighted Mean	Interpretation
1. *CAM products available in the Philippine market are well-standardized.*	5	2	3.45	3.29	Neutral Attitude
	4	22	37.93		
	3	25	43.10		
	2	9	15.52		
	1	0	0.00		
	Total	**58**	**100.00**		
2. *CAM products available in the Philippine market are of good quality.*	5	5	8.62	3.60	Strong Positive Attitude
	4	29	50.00		
	3	20	34.48		
	2	4	6.90		
	1	0	0.00		
	Total	**58**	**100.00**		
3. *The market for CAM products in the Philippines is well regulated.*	5	0	0.00	2.90	Neutral Attitude
	4	15	25.86		
	3	23	39.66		
	2	19	32.76		
	1	1	1.72		
	Total	**58**	**100.00**		
4. *Media plays a positive role in educating consumers about safe use of CAM products available in the Philippine Market.*	5	22	37.93	4.21	Very Strong Positive Attitude
	4	30	51.72		
	3	3	5.17		
	2	2	3.45		
	1	1	1.72		
	Total	**58**	**100.00**		
Overall				**3.50**	**Strong Positive Attitude**

Table 4. Availability of CAM Information Resources in Pharmacies, (n=58)

Statement/ Question	Scale	f	%	Weighted Mean	Interpretation
1. *Information resources on CAM products should be available and easily accessible to the pharmacists.*	5	5	8.62	3.48	Strong Positive Attitude
	4	28	48.28		
	3	15	25.86		
	2	10	17.24		
	1	0	0.00		
	Total	**58**	**100.00**		
2. *Continuous education on CAM products should be mandatory for pharmacists.*	5	29	50.00	4.36	Very Strong Positive Attitude
	4	22	37.93		
	3	6	10.34		
	2	1	1.72		
	1	0	0.00		
	Total	**58**	**100.00**		
Overall				**3.92**	**Strong Positive Attitude**

the participants were males. In a local context, the Philippines has more female than male pharmacists.[19]

In the context of this study, readiness is the ability of community pharmacists to obtain a score of ≥12 out 15 in the knowledge test, exhibit a strong positive attitude (3.41 – 4.20) toward CAM products in the attitude test, and demonstrate high frequency of practice (3.41 – 4.20) in the practice test. In the present study, community pharmacists had strong positive attitudes about CAM products (Table 2). The result is disconcerting given that more than half of the community pharmacists (53.45%) in the area did not receive any formal training on CAM products during undergraduate studies. These findings corroborate other similar works done in Palestine[20] and Lebanon[16] where the majority of community pharmacists did not receive any education or training on CAM products while they were in pharmacy school. In fact, Complementary and Alternative Medicine as a course has not been part of the Philippine pharmacy curriculum as well as its more recent version.[21] Most pharmacists in the area obtained a bachelor's degree in pharmacy (98.28%).

Community pharmacists play the lead role in ensuring the safe utilization of CAM products among patients. Half

Table 5. Practices in Relation to CAM Products, (n=58)

Statement/ Question	Scale	f	%	Weighted Mean	Interpretation
1. *I sell CAM products in the community pharmacy.*	5	23	39.66	3.78	High frequency of practice
	4	15	25.86		
	3	12	20.69		
	2	0	0.00		
	1	8	13.79		
	Total	**58**	**100.00**		
2. *I receive inquiries from patients regarding the use of CAM products.*	5	13	22.41	3.47	High frequency of practice
	4	15	25.86		
	3	19	32.76		
	2	8	13.79		
	1	3	5.17		
	Total	**58**	**100.00**		
3. *I advise patients on safe use of CAM products.*	5	16	27.59	3.47	High frequency of practice
	4	12	20.69		
	3	18	31.03		
	2	7	12.07		
	1	5	8.62		
	Total	**58**	**100.00**		
4. *I ask patient for their feedback after their use of CAM products.*	5	9	15.52	3.12	Moderate frequency of practice
	4	9	15.52		
	3	25	43.10		
	2	10	17.24		
	1	5	8.62		
	Total	**58**	**100.00**		
5. *I report any adverse effect that has occurred in patients when using CAM products.*	5	6	10.34	2.28	Low frequency of practice
	4	5	8.62		
	3	8	13.79		
	2	19	32.76		
	1	20	34.48		
	Total	**58**	**100.00**		
6. *I check for CAM product-drug interaction.*	5	10	17.24	3.09	Moderate frequency of practice
	4	6	10.34		
	3	26	44.83		
	2	11	18.97		
	1	5	8.62		
	Total	**58**	**100.00**		
Overall				**3.20**	**Moderate frequency of practice**

(50%) of the research respondents strongly believe in the effectiveness of CAM products while being neutral (34.48%) that they have fewer side effects compared with conventional medicines. More than half (56.90%) of the community pharmacists have a strong positive attitude that using CAM products should not be limited to patients who have failed conventional medicines. However, the components present in CAM products should be viewed with suspicion and attention as these substances can represent a significant source of adverse effects and drug interactions. These proprietary blends of CAM products contain potent patentable preparations of phytochemicals.[22] Although these ingredients were originally derived from a natural source, these commercial combinations do not occur in nature and have never been administered to humans to determine safety, so the pharmacological repercussions of their medical use are unknown.[23]

Community pharmacists were shown to have moderate frequency of practice on CAM products (Table 5). This finding could be attributed to the limited information about ADRs specific for these products; hence it would be difficult for pharmacists to identify and report such occurrences. Moreover, it is uncertain if patients experiencing ADRs attributed to CAM products are being reported to the pharmacists or physicians during visit.

This study revealed a high frequency of dispensing CAM products in their pharmacies (39.96%). In a study conducted in Lebanon using stratified random sampling among community pharmacists showed that 35.2% of Lebanese pharmacists dispense CAM products.[16] A very similar finding

Table 6. Results of Evaluation of Knowledge among the Pharmacists in Eastern Visayas, (n=58)

Statement / Question	Correct		Incorrect		Total	
	f	%	f	%	f	%
1. *Ginseng may increase blood pressure.*	9	15.52	49	84.48	58	100
2. *Ginkgo can increase the risk of bleeding when combined with warfarin.*	52	89.66	6	10.34	58	100
3. *Omega-3 is beneficial for patients suffering from cardiovascular disorders.*	54	93.10	4	6.90	58	100
4. *Vitamin B complex may delay wound healing.*	43	74.14	15	25.86	58	100
5. *Vitamin C when taken with iron (ferrous salt) increases its absorption.*	48	82.76	10	17.24	58	100
6. *Mangosteen increases the chances of bleeding when taken with warfarin.*	35	60.34	23	39.66	58	100
7. *Banaba is recognized to treat diabetes mellitus.*	46	79.31	12	20.69	58	100
8. *Omega-3 can be given safely to patient taking clopidogrel.*	24	41.38	34	58.62	58	100
9. *Ginkgo can be used to delay dementia.*	36	62.07	22	37.93	58	100
10. *Valerian should be used cautiously in patients using benzodiazepines.*	3	5.17	55	94.83	58	100
11. *Sambong is not recognized to treat urinary stones.*	40	68.97	18	31.03	58	100
12. *Vitamin D3 is also known as ergocalciferol.*	42	72.41	16	27.59	58	100
13. *Lagundi is used to treat cough and asthma.*	57	98.28	1	1.72	58	100
14. *Silymarin is an antioxidant compound taken from milk thistle seeds.*	46	79.31	12	20.69	58	100
15. *Ascorbic acid can speed up the healing process of wounds.*	56	96.55	2	3.45	58	100

was observed which may be due to the wide popularity of CAM product use in the locale and the potential influence played by the trimedia in marketing these products that entice patients' purchasing behavior.[10,11,16]

When community pharmacists were asked if they received inquiries about the use of CAM products, 32.67% reported receiving inquiries from patients. This coincides with another result that pharmacists sometimes advised patients on the safe use of CAM products (31.03%). Interestingly, the occasional inquiries of patients regarding CAM products have resulted in pharmacists fulfilling their professional role as drug dispenser and information provider despite their limited know-how about CAM products in the country. The occasional inquiries of patients to pharmacists regarding CAM products, pharmacists made sure to fulfill their professional role as drug information provider despite the limited resources and the lack of training and education. Feedbacking about CAM product usage from patients was moderately practiced by community pharmacists (43.10%). Similarly, pharmacists in Japan are confident in asking their patients about CAM products they use despite the limitations of not providing helpful information to the patient during dispensing. Also, pharmacists record the CAM products dispensed to patients. Through interviews, Japanese pharmacists often learn clinically important information that could assist patients when using CAM products.[24]

Table 7. Level of Knowledge of Community Pharmacists in Eastern Visayas on CAM Products

Level of Knowledge	f	%
Knowledgeable	18	31.03
Not Knowledgeable	40	68.97
Total	**58**	**100.00**

Table 8. Readiness of Community Pharmacists in Eastern Visayas (Leyte-Biliran)

Aspect	f (%)
Attitude	42 (72.41)
Practices	25 (43.10)
Knowledge	18 (31.03)
Overall Readiness	5 (9.43)

In a qualitative study conducted in New Zealand, it was found that the motivations of pharmacists in selling these products are driven by consumer demand and profit sales[12], this is possibly why community pharmacists in this study strongly believed that CAM products should only be sold in pharmacies (62.07%). A possible reason for this behavior is the pharmacist's sense of responsibility with CAM products which includes: (1) acknowledging the use of CAM products; (2) being knowledgeable on CAM products; (3) ensuring the safe use of CAM products; (4) documenting the use of CAM products; (5) ADR reporting related to CAM products; (6) educate about CAM products; and (7) collaborate with other healthcare professionals.[25]

There is a very strong attitude among community pharmacists that the media play a positive role in educating consumers about the safe use of CAM products that are available in the Philippine market which leads to their strong perception that CAM products are of good quality (50%) (Table 3). These media platforms are crucial to patients since their perception of advertised products is safe and effective.[26] However, such platforms are often inundated with misinformation regarding testimonies and claims for these herbal products. On the other hand, these products do not

have a consistent and standardized composition which may result in marked variability in the content and quality.[27]

The enactment of Republic Act 8243 or The Traditional and Alternative Medicine Act (TAMA) of 1997 paved the way for the establishment of the Philippine Institute of Traditional and Alternative Health Care (PITAHC), which formulates standards and guidelines for the manufacture, marketing, and quality control of traditional and alternative health care materials and products.[28] Yet, community pharmacists are still neutral when asked about CAM products being well-standardized (43.10%) and well-regulated (39.66%) in the country. This could be attributed to the fact that CAM has not yet been fully incorporated into the national health care system and the differing opinions of community pharmacists about its standardization and regulation is a result of the lack of formal training. CAM products are poorly regulated in terms of regulatory requirements not only in the Philippines but also in other countries where regulatory frameworks for CAM products are less stringent compared to conventional medicines. In New Zealand, most complementary medicines are regulated as 'dietary supplements' under their law.[12] On the other hand, the Philippines classifies these products as 'food supplements' and are only intended to supply nutrients but not to treat diseases.[29] Gueguen et al.[30] posit that CAM products must be evaluated 'rigorously' as conventional therapies. However, stringent regulation, especially on their safety and efficacy (i.e., clinical trials of CAM products), is perceived to make them expensive and eliminate them from pharmacies.[12]

In this study, community pharmacists strongly believe that information resources on CAM products should be available and easily accessible in the pharmacy (Table 4) even though such resources are currently limited.[31] This could greatly affect their role as drug information providers to their patients where ensuring patient safety is their utmost responsibility. This explains why community pharmacists strongly believe (50%) that continuous education on CAM products should be mandatory for pharmacists to elevate and improve their knowledge and skills towards providing information, checking drug interactions, and patient counseling.

Several pharmacists gained their knowledge through experiences and the feedback gained from their patients and self-directed inquiries on products that they dispense.[12] Lastly, community pharmacists in this study had very strong positive attitudes that it is their professional responsibility to provide information about CAM products (46.65%) since they are accessibly positioned for this role in their community of practice.[13]

Community pharmacists in this study were likely to answer patient queries that focused on CAM products. However, the knowledge tests revealed that only a few of the community pharmacists in Eastern Visayas were considered knowledgeable (31.03%) about CAM products (Table 7). Yet, the same cannot be said for their knowledge about CAM product-drug interaction. The result of this study corroborates with numerous works that investigated the perspectives of pharmacists regarding CAM in countries like Singapore[32], the USA[33], Saudi Arabia[34], Palestine[21], and Lebanon[16] wherein there is also limited knowledge in CAM products among pharmacists. It is evident that most of the community pharmacists in Eastern Visayas are not knowledgeable about the CAM products distributed in their community pharmacies.

The theoretical underpinning of this study is based on the Theory of Planned Behavior (TPB), a theory that links attitudes and behavior. The principle behind this theory states that attitude toward a behavior, subjective norms, and perceived behavioral control all shape an individual's behavioral intentions and actual behaviors.[35] The relevance of this theory in this study was significant in recognizing the relationship between the theoretical constructs of TPB in describing community pharmacists' attitude towards practices on CAM products to patients and how these practices affect community pharmacists' inclination which led to an intention of the desire to perform those practices despite the lack of evidence to support their safety and efficacy. If a community pharmacist has a positive attitude towards an act (e.g., dispensing of CAM products), are surrounded by favorable norms and high level of patient demand for CAM products (i.e., perceived behavioral control), these best facilitate the display of a behavior (i.e., dispensing of CAM, provision CAM information). A high demand for CAM products from patients is often difficult to decline by community pharmacists. The community pharmacists' positive attitude coupled with favorable norms presupposes their behavior to dispense CAM products despite their lack of training and a neutral attitude that they are well-standardized.

The study revealed a generally strong positive attitude of community pharmacists in Eastern Visayas toward CAM products in terms of their effectiveness, being only sold in pharmacies, not limiting their use if patients failed in using conventional therapies, and lastly, providing information about these products. Despite the limited resources of information on CAM products to support their safety and efficacy, community pharmacists maintain a positive inclination toward CAM products, therefore, they are more likely to act on these practices such as selling, dispensing, and providing information. On the economic aspect, community pharmacists can benefit from these practices because they meet the patient demand for these products and satisfy their perceived role for CAM products. Considering that CAM products are not fully integrated into the Philippine health systems, community pharmacists are still compelled to dispense and provide information relating to non-prescription medications such CAM products to ascertain patient safety. Under these conditions, community pharmacists face ethical dilemmas between their business and health professional roles.[36] CAM products are categorized as "food" according to RA 10918. These products are labeled with "*no approved therapeutic*

claims," in which this phrase can be vague and misleading on the part of the consumers as well as the community pharmacist and pharmacy assistants as these products are not intended for any "specific indications" since food are intended to increase the total daily intake of nutrients conforming to the latest Philippine-recommended energy and nutrient intakes or internationally agreed minimum daily requirements. These products are not intended as replacement of drugs and medicines, as defined under R. A. No. 9711. However, the tri-media advertisements promote these products mentioning the "cure-all" claims, hence, misleading patients and compromising their safety. With the lack of frameworks, science-based regulations, and access to information at the workplace to ensure pharmacists' knowledge on CAM products, pharmacists are inevitably confronted with low confidence when dispensing CAM products.

Results revealed that there is a significant relationship (p-value 0.026) between the years of work experience in community pharmacy and knowledge on CAM products among the community pharmacists in Eastern Visayas. Further statistical analysis (Cramer's V; 0.399) of the years of work experience and knowledge suggested a very strong relationship. It can be inferred that the greater the number of years of work experience in the community pharmacy, the more knowledge is gained by pharmacists regarding CAM products regardless of their lack of education or training.

The CAM product use in the Philippines is prevalent, with more than 50% of the population using such products. The role of community pharmacists in ensuring safe and effective use of these products is crucial. The inadequate knowledge of community pharmacists limits their readiness for the provision of information services on CAM products. Moreover, pharmacists would have difficulty in assessing and verifying types of drug interactions which limits their role in the dispensing of CAM products. These findings can be explained by the limited availability of references for CAM products in the Philippines. The limited knowledge of pharmacists about CAM products is a worrying scenario as this could affect their role in the provision of CAM product-related information to patients.

The lack of knowledge could be attributed, foremost, to their lack of formal training regarding CAM products where CAM courses or topics not being part of the previous and current pharmacy curriculum in the country.[22] Without the proper guidance of pharmacists regarding CAM product usage, could lead to irrational CAM product usage, CAM product-drug interactions, and undesirable health consequences. The study showed that most of the community pharmacists have not received any training about CAM products during their undergraduate education, reflecting their poor result on the knowledge test wherein only 31.03% of community pharmacists were considered knowledgeable. A national cross-sectional study in Lebanon underscored that receiving education or training on CAM products during university was the sole predictor of higher knowledge score.[16] The findings of this research call attention to pharmacists' need for education and training towards CAM products to prepare them better in the provision of CAM product information to patients.

Overall, the study results reveal the readiness of community pharmacists in Eastern Visayas, specifically in Leyte-Biliran, were found to be only at 9.43% (Table 8). It is recommended to provide evidence-based training programs for Filipino pharmacists focusing on CAM products distributed through community pharmacies in the Philippines. Given the high prevalence of the use of CAM products in this region, cases of CAM product-related adverse reactions may have remained unreported and undocumented.[3] In line with this, reporting of adverse reactions related to CAM product use should be strengthened in the FDA Pharmacovigilance Reporting to monitor their safety and efficacy in the country. With this inclusion in pharmacovigilance reporting, the agency will be able to exclude CAM products in the market that will pose harm to patients and consumers. This study reports the actual status of attitudes, practices, and knowledge of community pharmacists in Eastern Visayas on CAM products and can be beneficial as a guide for regulatory bodies, health agencies, and pharmacy associations in formulating a more comprehensive and structured training for practicing pharmacists and student pharmacists, filling a much-needed gap in the practice relating to CAM products.[37]

Community pharmacists are expected to exercise their role by counseling patients, checking for drug interactions and adverse effects, and ensuring proper record keeping not just for conventional medicines but for CAM products as well.

Limitations were encountered and acknowledged in this study. First, recall bias among the respondents was likely present. Second, since the research instrument was self-administered online (i.e., Google Form), some selected participants in the study were not able to fill out due to unfamiliarity of the platform, hence a low response rate (69.05%). The platform, Google Form, requires familiarity with the interface and a functional email which could have deterred participation. Lastly, the study sample size and the results may not represent or generalize the CAM attitudes, practices, and knowledge in other regions.

CONCLUSION

Readiness of community pharmacists in terms of knowledge provision of CAM product-related information to patients were found to be insufficient while a moderate level of practice towards CAM products was reported. Community pharmacists displayed a strong positive attitude towards CAM products. Demand for CAM products by patients encouraged community pharmacists to dispense and provide information.

Overall, the community pharmacists are not ready to provide CAM information service in the context of the knowledge, attitude, and practices which can be strengthened through training and upskilling.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

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