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Article

Exploring Pharmaceutical Personnel's Insight and Attitudes Toward Complementary and Alternative Medicine: Preferences for Common Cold Remedies

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ABSTRACT

Background: Pharmaceutical personnel are responsible for providing accurate advice and therapeutic options to ensure safe and effective treatments. Insufficient knowledge of medications can lead to inappropriate drug selections, adversely affecting patient outcomes.
Objectives: This study aims to assess the knowledge of pharmaceutical personnel regarding complementary and alternative medicine (CAM) and their preferences for remedies used to treat the common cold.
Method: A cross-sectional design was utilized, involving 35 respondents from selected chain pharmacies. Data were collected using a validated questionnaire that included the Guttman scale for knowledge assessment and the Likert scale for evaluating attitudes and behaviours. Descriptive analysis was performed using SPSS.
Results: Most respondents were aged 17-25 years (60.0%), predominantly female (94.3%), held a diploma degree (65.7%), had a monthly income between 2.5-5 million rupiah (74.3%), and had less than three years of work experience (68.6%). Notably, 60.0% had not received training in CAM. The findings indicated that 54.3% of respondents had adequate knowledge of CAM, and 68.6% displayed a positive attitude toward selecting common cold remedies. Additionally, 62.9% recommended supplements or herbal products to patients for preventing or treating the common cold and provided guidance on their proper use.
Conclusion: To enhance their knowledge and ensure evidence-based recommendations, pharmaceutical personnel could benefit from additional training on CAM. Furthermore, ongoing education about safe and effective cold remedies may improve patient care and promote better decision-making.

Keywords: Complementary and Alternative Medicine, Health Choices, Pharmacy Practice, Treatment Options

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INTRODUCTION

A common cold is a mild upper respiratory infection caused by a virus, affecting people of all ages. The common cold is a special human disease because it is potentially the most prevalent and one of the most complicated due to the variety of respiratory viruses that cause it. The specific immune response plays a role in determining the symptoms, which typically resolve on their own within 7–10 days (Eccles, 2023). This illness is classified as an acute respiratory infection (ARI) and can be caused by various viruses, including influenza, rhinovirus, and coronavirus.

According to Basic Health Research data, the prevalence of the common cold in Indonesia is 25.0%, and 13.8% of cases are diagnosed by doctors (Kemenkes RI, 2018).

Despite the prevalence of this illness, more people are choosing herbal medicines and supplements as alternative treatments. Many studies reported that Complementary and Alternative Medicine (CAM) has become increasingly popular in recent years as people seek cures for common ailments such as the common cold (Hung et al., 2020; Kumar et al., 2022). CAM includes a variety of methods that are often used in addition to or instead of traditional therapies, including acupuncture, herbal remedies, and vitamins (Tangkiatkumjai et al., 2020).

CAM products are increasingly utilized globally, including in Indonesia. Despite their popularity, the regulatory landscape for CAM products in Indonesia remains underdeveloped compared to conventional medicines (Siswanto et al., 2022). Recent studies have highlighted the importance of integrating CAM regulation into national health policies, given the growing public reliance on these products (Subagiyo et al., 2023). Regulatory oversight is primarily managed by the National Agency of Drug and Food Control, which continues to face challenges in ensuring safety, efficacy, and quality standards for CAM products.

Choosing a drug often involves the process of self-medication, which means patients take medication without professional guidance. However, pharmaceutical personnel play an important role in providing advice and therapeutic options for treating common cold symptoms. This includes considering the use of CAM, and it is crucial that they offer accurate, clear, and non-misleading information to ensure safe and effective treatment (Paudyal et al., 2020). A poor choice of drug can negatively impact health, often due to a lack of knowledge about medication. Previous study reported that self-medication in the community continues to be a cause for concern (Sudhewa et al., 2023). Pharmaceutical personnel must be knowledgeable about CAM to ensure patient safety and the best care, as they are responsible for providing accurate, evidence-based advice (Paudyal et al., 2020).

Examining pharmaceutical personnel's knowledge and preferences regarding popular cold remedies is particularly important considering the increase in CAM use. The ability of pharmaceutical personnel to support patient choices while ensuring the safe use of alternative treatments may be enhanced by having a better understanding of how they view CAM. With an emphasis on patient safety and evidence-based procedures, this study aimed to investigate pharmaceutical personnel's knowledge, attitudes, and practices (KAP) of CAM and their preferences for suggesting popular cold remedies.

METHODS

Study design and settings

A cross-sectional strategy was used in this study, where data was collected all at once. In April 2024, this study was conducted in seven (7) carefully selected chain pharmacies in Denpasar city, Gianyar district, and Badung district.

Sample selection

The sample for this study consisted of all pharmaceutical personnel working in selected chain pharmacies, using the total sampling method (Notoatmodjo, 2018).

A total of 35 pharmaceutical personnel were purposely recruited for this cross-sectional study. While the sample size was relatively small, it was deemed adequate for this study aimed at gaining preliminary insights into their knowledge and attitude regarding CAM products in a specific region. The limited sample size was due to the study's specific focus on pharmaceutical personnel who worked in selected chain pharmacies who met the inclusion criteria. The findings were not intended to be generalizable but rather to inform the development of larger, more representative studies in the future.

Data collection

Data collection for this study utilized a questionnaire divided into three parts. The first section gathered information about the characteristics of the respondents. The second section consisted of a knowledge questionnaire with eight (8) questions structured using a Guttman scale, allowing answer choices of Yes/True (score, 1) or No/False (score, 0). The results of this section were categorized into three groups based on the respondents' answers: good (76%-100%), sufficient (56%-75%), and poor (<55%) (Notoatmodjo, 2018). The third section included a behavioral questionnaire comprising six (6) questions using a Likert scale with answer options: Not Agree, Agree, and Strongly Agree. The results from this part were classified into positive and negative categories. To assess validity, point biserial correlation was applied to the knowledge questionnaire, while product-moment correlation was used for the behavioural questionnaire. This involved comparing the calculated r values with the r table values for each item. For a sample of 30 respondents, the r table value is 0.361. If the computed r value exceeds 0.361, the questionnaire items are deemed valid. All eight (8) knowledge questions and six (6) behavioural statements resulted in calculated r values greater than 0.361, confirming their validity. Reliability testing was conducted using the Cronbach Alpha model, with a value considered reliable if it exceeds 0.6. The analysis revealed that the Cronbach Alpha values were 0.749 for the eight (8) knowledge questions and 0.866 for the six (6) behavioural statements, both of which are greater than 0.6, thus deeming the questionnaire reliable.

Data analysis

Descriptive statistics were performed using SPSS 24.0 to summarize the characteristics, knowledge, and behaviours of pharmaceutical personnel regarding CAM. The results are presented as proportions for each category. The main objective was to describe the levels of knowledge and attitudes among pharmaceutical personnel when providing CAM references to patients. Additionally, the Spearman Rank correlation test was conducted to evaluate the strength and significance of the relationships observed.

Ethical consideration

The Bali International University Ethics Committee granted its ethical approval with No.02.0356 /UNBI/EC/IV/2024, issued on April 15, 2024.

RESULTS

Table 1 outlines the characteristics of the respondents. Most of the respondents were aged between 17 and 25 years (60.0%), female (94.3%), held a pharmacy diploma (65.7%), earned between 2,500,000 and 5,000,000 rupiah, had less than 3 years of work experience (68.6%), and had never received training on complementary and alternative medicine (CAM) (60.0%).

Table 1. Respondents' characteristics (n=35)

Characteristics	n	%
Age (years)		
17-25	21	60.0
26-35	14	40.0
Gender		
Male	2	5.7
Female	33	94.3
Education		
Diploma	23	65.7
Bachelor	5	14.3
Pharmacist	7	20.0
Income (IDR)		
< 2.500.000	5	14.3
2.500.000 – 5.000.000	26	74.3
>5.000.000	4	11.4
Work experience (years)		
>3	24	68.6
4-6	7	20.0
>6	4	11.4
Trained for CAM		
No	21	60.0
Yes	14	40.0

Participants' knowledge toward CAM treatment for common cold is presented in Table 2. Most respondents answered correctly on eight (8) questions about CAM for common cold.

Table 2. Respondents' Knowledge about CAM for common cold (n=35)

Statements	True n (%)	False n (%)
There are regulations regarding CAM	35 (100.0)	0 (0.0)
Insomnia is a side effect of using ginseng root	33 (94.3)	2 (5,7)
Echinacea works as an immunomodulator	35 (100.0)	0 (0.0)
Echinacea can be used in patients with autoimmune disorders	16 (45.7)	19 (54.3)
Ginseng can increase the incidence of hypertension	33 (94.3)	2 (5.7)
Ginkgo biloba can increase the effect of the drug warfarin as an anticoagulant	32 (91.4)	3 (8,.6)
Echinacea is generally used to treat the symptoms of the common cold	34 (97.1)	1 (2.9)
The dose of dry ivy leaf extract for adults is 3 times a day, 2-3 teaspoons	10 (28.6)	25 (71.4)

Participants' attitude of CAM treatment for common cold is showed in Table 3. More than half of the respondents had a positive attitude as indicated by answers agreeing and strongly agreeing to the statement regarding education about CAM for common cold.

Table 3. Respondents' Attitude about CAM for common cold (n=35)

Statements	Not Agreed n (%)	Agreed n (%)	Strongly Agreed n (%)
I educated patients about the precautions to prevent the common cold.	5 (14.3)	13 (37.1)	17 (48.6)
I recommended supplements or herbal products to patients to prevent or treat the common cold.	1 (2.9)	12 (34.3)	22 (6.9)
I counselled patients regarding the correct use (dose, administration, etc.) of supplements or herbal products for the common cold.	0 (0.0)	13 (37.1)	22 (62.9)
I counselled patients regarding side effects that may occur when using supplements or herbal products for the common cold.	10 (28.6)	15 (42.9)	10 (28.6)
I reported unexpected effects observed in patients using supplements or herbal products for the common cold.	9 (25.7)	14 (40.0)	12 (34.3)
I monitored patients with the common cold who take supplements or herbal products.	9 (25.7)	16 (45.7%)	10 (28.6)

Table 4 presents the relationship between knowledge and attitudes toward CAM for the common cold. The analysis revealed no significant correlation between the two variables (p = 0.080), with a weak relationship strength (correlation coefficient = 0.300).

Table 4. Correlation between knowledge and attitude

	n	%
Knowledge		
Good	1	2.9
Fair	19	54.3
Low	15	42.9
Attitude		
Negative	11	31.4
Positive	24	68.6
	Attitude	
	Sig. (2 tailed)	Correlation
Knowledge	0.080	0.300

DISCUSSION

Knowledge about CAM

The findings of this study showed that 54.3% of participants had sufficient knowledge about CAM. This knowledge includes an understanding of the various types of therapies, their uses, benefits, and potential risks. Previous studies have reported that the information available may not always be accurate, leading to knowledge that is sufficient but not necessarily in-depth or comprehensive (Lee et al., 2022; Tangkiatkumjai et al., 2020).

Out of the 35 respondents, all were aware of the regulations governing the practice of CAM in health facilities. This awareness ensures that these practices are conducted safely and in accordance with health standards. Their knowledge of these regulations enables them to provide appropriate services and comply with established standards (Siswanto et al., 2022; Widowati & Zamroni, 2023). This represents a strength of the study, as few investigations have explored awareness of pharmaceutical regulations.

This study found that 54.3% of respondents incorrectly answered that Echinacea can be used in patients with autoimmune disorders. Echinacea functions as an immunostimulatory, influencing the production of soluble mediators such as cytokines. Immunostimulants can enhance the immune system's response to tumors, infections, and conditions that involve immunological deficits, such as AIDS. Conversely, autoimmune diseases involve an overactive immune system that harms and disrupts body tissues, affecting certain organs or the body as a whole. Therefore, individuals with autoimmune diseases require immunosuppressive therapy to inhibit their immune response (Bascones-Martinez et al., 2014). Additionally, 71.4% of respondents given incorrect answers regarding the appropriate dosage of dried ivy leaf extract for adults. The recommended dosage for medicinal preparations containing dried ivy leaf extract is 5-7.5 ml taken three times a day, which is equivalent to 1 to 1.5 teaspoons (Sierocinski et al., 2021).

The percentage of incorrect answers to knowledge questions may indicate that the level of knowledge falls within the sufficient category. To improve this situation, pharmaceutical personnel should enhance their interest in reading to keep their knowledge up-to-date and have strategies for enhancing patient-centered communication abilities (Ilardo & Speciale, 2020; Wolters et al., 2021). By engaging in regular reading, individuals can develop and maintain their knowledge over time.

Additional studies in Riyadh, Saudi Arabia, and Australia reveal a significant gap in knowledge and training among pharmaceutical personnel regarding CAM. In Saudi Arabia, a staggering 99% of respondents reported that they have never attended lectures or courses on this topic, highlighting their limited understanding (Al-Yousef et al., 2022). A similar trend is observed in Australia, where pharmacists cited a lack of training as the main reason for not recommending CAM (Culverhouse & Wohlmuth, 2012).

Preference for common cold remedies

The study results indicated that the selection of drugs for the common cold by pharmaceutical personnel is generally viewed positively (68.6%). Most of the respondents, 37.1%, agreed and 48.6% strongly agreed on the importance of providing education to patients about preventing the common cold. This highlights the awareness among pharmaceutical personnel regarding the role of education in reducing the prevalence of the common cold. Effective education is crucial in helping patients avoid infections and improve their overall health. It seems that pharmaceutical personnel recognize their responsibility in disease prevention, as shown by the high percentage of respondents demonstrating this awareness.

Approximately 62.9% of respondents strongly agreed that they would recommend herbal supplements or products as an alternative for managing or preventing the common cold. This belief may be influenced by the growing public interest in alternative and complementary therapies. Additionally, the same percentage of respondents, 62.9%, strongly agreed to provide counseling on the proper use of supplements or herbal products. This high level of agreement demonstrates the commitment of pharmaceutical personnel to ensure that patients use supplements and herbal products safely and effectively. They also emphasize the importance of understanding the correct dosage and proper usage.

When asked about counseling related to side effects or drug interactions, 42.9% of respondents agreed, while 28.6% strongly agreed. This type of counseling is considered vital in pharmaceutical practice, as it helps to prevent the risks associated with dangerous side effects or interactions for patients. However, a small percentage of respondents may feel inadequately trained or lack sufficient information, which could negatively impact the quality of the counseling they provide. Previous studies have highlighted the importance of pharmaceutical personnel offering counseling to ensure patient safety (Suryaputra et al., 2021; Widowati et al., 2021).

In terms of reporting the unexpected side effects, 40.0% of respondents agreed, and 34.3% strongly agreed. These figures indicate a growing awareness of the importance of reporting side effects, although there may be barriers to implementing or integrating the reporting process into daily practice. With this increased awareness, there is hope that systematic reporting can be established in the future. Additionally, monitoring of patients who use supplements or herbal products is conducted by 45.7% of respondents, with 28.6% strongly agreeing to the necessity of this monitoring. This oversight is crucial to ensure that the use of supplements or herbal products does not lead to side effects or adverse interactions.

This in line with previous study that reported 64.5% of pharmacists frequently advise patients on the safe use of CAM (Hijazi et al., 2019; Thin et al., 2022).

The results of the questionnaire distribution showed that most of the respondents chose answers that strongly agree, which leads to positive behavior regarding complementary and alternative medicine. A limitation of this study is the diversity of education level among pharmaceutical personnel, which may affect the results. Consequently, the findings may not accurately reflect a consistent relationship between knowledge and behavior across the pharmacy workforce.

Implication for pharmacy practice

The study findings suggested that while pharmaceutical personnel generally have positive attitudes toward CAM products, gaps in knowledge and inconsistent practices persist. These findings carried significant implications for pharmacy practice in Indonesia. First, they highlight the need for targeted continuing education programs that equip personnel with evidence-based information about CAM products. Enhanced training can improve their ability to counsel patients effectively and ensure safe integration of CAM into therapeutic regimens.

Furthermore, pharmacy curricula should consider incorporating CAM education to prepare future pharmacists and pharmaceutical personnel for the growing consumer interest in these products (Gurgel et al., 2021; Medeiros et al., 2021). Regulatory bodies, academic institutions, and professional organizations should collaborate to develop standardized guidelines for CAM use and pharmaceutical personnel responsibilities in recommending or selling such products. By addressing these practice and training gaps, pharmaceutical personnel can play a critical role in bridging the divide between conventional and alternative medicine, thereby improving public health outcomes.

CONCLUSION

Pharmaceutical personnel's knowledge about CAM is considered sufficient, while their attitude is in the positive category. However, to enhance their understanding and ensure they provide evidence-based advice, these professionals may benefit from additional training in CAM. Furthermore, ongoing education on safe and effective common cold treatments can improve the quality of patient care and support more informed decision-making.

CONFLICT OF INTEREST
The authors stated there is no conflict of interest in this study.

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