REVIEW ARTICLE

Attitudes and Knowledge of Community Pharmacists Toward Complementary and Alternative Medicine: A Narrative Review

Kevin Clayton, BPharm; Yoni Luxford, PhD; Ieva Stupans, PhD

ABSTRACT

Context • The use of complementary and alternative medicine (CAM) in Australia is widespread, and self-treatment with CAM often occurs. Community pharmacies are a major supplier of CAM in Australia; consequently pharmacists may be approached by consumers in relation to self-treatment.

Objectives • The study intended to appraise peer-reviewed literature regarding the supply of CAM in retail pharmacies and pharmacists' knowledge and attitudes in relation to it.

Design • The research team performed a narrative review of peer-reviewed studies published between January 1997 and December 2017. Four electronic databases—Web of Science, ScienceDirect, CINAHL, and PubMed—were systematically searched using keywords. A search strategy was devised using 4 keywords: knowledge and attitude, complementary and alternative medicine, stress, and pharmacist. English-language, full-text studies were sought, and the team considered only the results of studies conducted in Australia or in countries with similar healthcare systems.

Setting • The study is a literature study.

Results • Performance rankings were considered, with 10 studies being identified. Pharmacists were generally positive about CAM; however, they displayed a degree of uncertainty, particularly about efficacy and safety, that pointed toward a lack of confidence and a desire for better education. Knowledge, both self-rated and assessed, was lacking. Few studies explored the use of CAMs for specific physical-health conditions and fewer still addressed mental health.

Conclusions • Pharmacists are ideally placed to interact with consumers and are often the first point of contact for those people wanting to self-treat. Pharmacists may lack the necessary practice knowledge and skills to appropriately advise consumers about CAM or about those conditions where self-treatment products fall predominantly into the CAM category, such as for stress (*Altern Ther Health Med.* 2023;29(3):274-281).

Kevin Clayton, BPharm., B.Health Sci. (Naturopathy), Grad. Dip. Health Sci. (Herbal Medicine), PhD Candidate (Health Science), School of Health, University of New England, Armidale, NSW, Australia. Yoni Luxford, PhD, Grad PHC, GCTT, BSW, RN, RM, Senior Lecturer Nursing, School of Health, University of New England, Armidale, NSW, Australia. Ieva Stupans, PhD, BPharm (Hons), Professor of Pharmacy, School of Health and Biomedical Sciences, RMIT University, Melbourne, Victoria, Australia.

Corresponding author: Kevin Clayton, BPharm
E-mail address: kclayto4@myune.edu.au

INTRODUCTION

Complementary and alternative medicine (CAM) is defined by the World Health Organization as healthcare practices that are "not part of (a) country's own tradition or conventional medicine and are not fully integrated into the dominant healthcare system."[1] A recent survey conducted with general practitioners' practices across Australia indicated that two-thirds of Australians use CAM.[2]

In countries where the dominant healthcare system uses western medicine, vitamins and herbs fall into the CAM category, and community pharmacies are a major supplier. In 2001, one study found that 54% of the CAM users among 511 patients who had been admitted to an Australian hospital, indicated that a pharmacy was their most frequent purchase point for CAM.[3] Similar results, 51% of participants, were found in a recent community survey of 612 randomly selected Australian adults.[4]

The Australian community pharmacy has been described as "complex, interrelated and dynamic with several key elements from the social, economic, and policy contexts impacting it."[5] The profession, when practised at the community level, requires the pharmacist to be socially adept in dealing with consumers. This level of social interaction is essential in providing meaningful interaction when discussing medicines. Furthermore, in practising a profession where financial viability is essential, the pharmacist will be faced with policy decisions about the choice of products stocked. This financial aspect may cause ethical dilemmas in the stocking of CAM products, particularly products such as homeopathic products which lack evidence. Pharmacists are recognized in Australia not only as qualified medical experts but also often as the first point of contact for a wide variety of medical issues, including health checks, risk assessments, and advice on a broad range of disease states.[6]

In conventional medicine, Australian pharmacists traditionally have been retailers and dispensers of medicines.[7] Some steps have been taken to reimburse pharmacists for expanding services into other practice areas.[8] However, those limited elements that require educational accreditation, such as the Home Medicines Review, are commonly outsourced.[9] This being the case for conventional medicine, it's unsurprising that CAM expertise in specific health areas is inadequate among community pharmacists.

The CAM products that are available in pharmacies commonly include vitamins and minerals, herbal preparations, homeopathic products, and flower essences and are sold for a variety of physical and mental health issues. The community pharmacist's role in supplying an appropriate, evidence-based product and advice is therefore crucial.

Inadequate CAM Expertise

A 2018 systematic review reported that customers want pharmacists to answer CAM questions and provide counselling to meet their individual needs.[10] A small study reported that pharmacists, while they were seen as trusted sources of CAM knowledge, may not have the confidence or prerequisite knowledge to inform customers on products stocked in their retail pharmacies.[11]

However, research into pharmacists' CAM education appears sparse. Available studies indicate a general lack of quality training, including the need for more education on evidence-based complementary medicine within the pharmacy curricula to meet consumers' demands and align with pharmacists' professional responsibilities.[12]

Some of pharmacists' ambivalence about CAM and uncertainty regarding CAM's benefits may be due to a lack of knowledge and understanding[13] and a paucity of education.[14-16] A study conducted at an international pharmacy conference showed that 81% of the pharmacists felt they had inadequate skills and knowledge of herbal medicine, and 90.5% indicated that more CAM components should be included in professional curricula.[17]

While some formal CAM training is available to Australian pharmacists, the extent and quality varies widely, with one Australian study reporting a median duration of 13.5 hours for undergraduate pharmacists, and community pharmacists overall reporting that informal training was their major source of knowledge.[16] Professional standards in Australia dictate that the pharmacist, in discussing CAM with consumers, must provide the best available information about the current evidence regarding efficacy, potential side effects, drug interactions, and risks of harm.[18] This requirement appears unachievable at current levels of knowledge and training without a concerted effort by the individual pharmacist.

Attitudes toward CAM

Several social factors reported in the literature contribute to pharmacists' positive attitude to CAM. Pharmacists are often regular CAM users, and this familiarity may engender confidence. Two Australian studies showed a usage rate by pharmacists of over 75%.[13,15] A positive attitude may also have been reinforced by favourable customer feedback.

Australian pharmacists may feel further reassured by the position of the Pharmaceutical Society of Australia, which supports the use of CAM, excluding homeopathy, provided sufficient evidence exists, while acknowledging that some CAMs with limited evidence may potentially benefit consumers.[18]

Economic benefits may also enhance pharmacists' positivity towards CAM. Naidu et al.'s Australian study of 484 pharmacists reported that the participants believed, in addition to a perceived usefulness to the customer, that CAMs enhanced the customers' image of the pharmacy (57%), increased customer numbers (87%), and could increase annual sales (72%).[15]

The evidence about CAM that is available for pharmacists is often subject to a publication bias,[19] adding to a positive outlook. Publication bias, favouring the CAM product, occurs for several reasons such as conducting a discussion according to the methodology of non-inferiority trials and equivalence trials whilst being projected as placebo controlled trials. The non-publication of negative trials also compounds the problem. Such bias may lead to inappropriate product use. Furthermore, product information (with inherent manufacturer or sponsor bias) is a major source of CAM information for Australian pharmacists.[16] It's unclear whether pharmacists recognize that this situation may be a source of concern, particularly against a backdrop of public expectation that the pharmacist is an expert in CAM product knowledge.[20] It's also unclear whether pharmacists are constrained by time and lack of ability to adequately assess conflicting reports.

Mental Health Issues

Pharmacists' role as the first point of contact for CAM consumers is clearly important for all situations but may be of added concern for people suffering mental-health problems, including those with severe symptoms, who often don't contact their doctor or other mental health professional.[21]

Similarly, a small body of research regarding pharmacists' knowledge of mental health issues, a significant public health concern, indicates a lack of expertise. A British study of community pharmacists advocated enhanced mental-health content in the undergraduate pharmacy curriculum.[22] A review of mental-health literacy among Australian community pharmacists found only one study on the topic.[23] This review by O'Reilly et al. highlighted deficiencies in training in such areas as stigma, discrimination, knowledge, confidence and communication skills. This study formed part of a review by Mey et al. which examined the needs of mental health consumers in Australia with the authors recommending that an educational package be developed to address 'knowledge gaps' evident among community pharmacists.[24]

A study assessing help-seeking for stress and strain indicated that one in six of the participants wouldn't seek a doctor's help, even if his or her health were affected.[25] Stress has been associated with many negative health consequences[26] and pharmacists are well placed to assist consumers. Self-help is a common strategy. People with mental health problems are often reluctant to visit their doctors[21]; however, a recent Australian study reported that consumers felt the community pharmacy was a safe place to discuss mental health problems if a trusting relationship with their pharmacist existed.[27] Pharmacists with a flawed knowledge of CAM for stress may find this difficult because over-the-counter pharmacy products for stress appear to be solely CAM products.

An Australian study investigating how respondents coped with stress, anxiety, depression, and other emotional problems examined twenty-one possible self-help actions participants might perform, including those that involved another person—such as a doctor, pharmacist, or counsellor—and sixteen that didn't, such as exercise. Of the possible actions, 40% of respondents indicated that they took vitamins, 20% that they took herbal medicine, 18% that they saw a pharmacist, and 14% that they saw a naturopath.[28] Consequently the use of vitamins and herbs and a pharmacist's advice represented significant avenues of self-help in these situations.

Knowledge and Behaviours of Pharmacists

The above-discussed findings about CAM use and the practice knowledge and behaviours of pharmacists represent areas of significant importance. The current review intended to appraise peer-reviewed literature regarding the supply of CAM in retail pharmacies and pharmacists' knowledge and attitudes in relation to it.

The research team performed the study in part to inform a future quantitative study about pharmacists' knowledge and attitudes when presented with a patient experiencing stress, a mental health problem that afflicts 35% of Australians.[29] The current review therefore also intended to note specific health conditions, including stress; however, the exploration of the role of community pharmacists' knowledge and attitudes in all areas of CAM was the review's focus.

METHODS

Procedures

CAM concepts are evolving and are often controversial and require the flexibility of a narrative review, which is less restrictive in nature than a systematic review. Systematic reviews involve explicit, transparent and reproducible methods. The search has a narrow focus and a rigorous appraisal of validity. However, when searching for topics which are not easily quantifiable (such as attitudes and knowledge) the narrative review has a broader focus and allows the researcher to cover a range of issues in determining inclusion of evidence. That is the researcher is not bound by specifics that are necessary in a systematic review.[30,31]

However, as much as possible a rigorous approach should be followed, and in conducting this review explicit guidelines and protocols for systematically conducting narrative reviews, as described by Ferrari[31] and Green et al,[32] were followed. Their approaches identify processes specific to conducting rigorous and scholarly narrative reviews, particularly when studies in the field use a variety of methods.

Search items. The research team systematically searched electronic databases—Web of Science, ScienceDirect, CINAHL, and PubMed—for publications from January 1997 to December 2017. A search strategy was devised using 4 keywords: knowledge and attitude, complementary and alternative medicine, stress, and pharmacist.

Keywords and search terms. The keywords and terms were: (1) knowledge and attitude—pharmacist, knowledge, expertise, attitude, belief, opinion, philosophy, view,

perception, professional practice, process, education, skill, and literacy; (2) complementary and alternative medicine—complementary medicine, alternative medicine, traditional medicine, herbal medicine, herbal product, herb, herbal supplement, food supplement, health food, dietary supplement, nutritional supplement, integrative medicine, natural health product, natural product, naturopath, unconventional medicine, and unorthodox medicine phytotherapy; (3) stress—stress, psychological distress, and mental health; and (4) pharmacist—pharmacist and chemist.

Inclusion criteria. For inclusion, the studies must: (1) have had relevance to the topic—studies relating to pharmacists' knowledge, attitudes, or practice relating to CAM; (2) have been published in English; (3) have been peer-reviewed journal articles, primary studies, that related to community practice; and (4) have occurred in Australia or in countries with a healthcare system similar to that practiced in Australia—a healthcare system where healthcare professionals, such as doctors and pharmacists, treat symptoms and diseases, usually in the first instance with evidence-based, pharmacological treatments, sometimes referred to as western medicine. Studies relating to pharmacy students weren't evaluated.

Study selection. The initial searches yielded 23 649 potential studies. The study selection had 3 stages. First, studies from the initial database search were screened by title,

and most were rejected as duplicates or not relevant. Second, the abstracts of the remaining articles were assessed for relevance and adherence to the inclusion criteria, allowing for a further reduction. Finally, the full texts of the remaining studies were closely examined. Studies were assessed for rigor, using recognized evaluation checklists as published by Flinders University in Australia in Critiquing Research Articles[33] and Literature Reviews.[34] This assessment was supplemented by the use of analytical tools from the Step-by-step Guide for Critiquing Research for critiquing the integrity and credibility of quantitative (Part 1) and qualitative studies (Part 2).[35,36]

Extraction and grouping of data was then undertaken. All data relating to knowledge, either self-rated or assessed via other means, without exception was discussed in terms of the word knowledge. Aspects relating to attitudes were discussed under various headings, such as beliefs, perceptions, and confidence measures. The experience of one member of the research team, a registered pharmacist and naturopath, was considered an asset, but the possibility of bias during the appraisal was recognized. Therefore, the studies were subjected to a further assessment using the sixteen-item, Quality Assessment Tool for Studies with Diverse Designs (QATSDD), developed to rigorously assess health-service studies with such designs.[37] Using the same tool, the studies were independently assessed by the research team, resulting in the final studies determined as admissible for the review.

RESULTS

The screening of titles reduced the number of studies to 296, and the examination of abstracts decreased the number to 105. The full-text examination found 9 studies considered to be suitable for inclusion. A study, published in 2020 by Waddington et al, was added to the review because it fulfilled the inclusion criteria and offered important recent perspectives. This resulted in a final total of 10 studies, which are provided in summary in Table 1.

Table 1. Summary of reviewed articles

Author, Year Location	Purpose of study	Sample size, Response Rate and Type of study	Methods and Instruments	Major Findings	Main Limitations
Chang et al., 2000, USA[14]	To determine the knowledge and attitudes of pharmacists about herbal medicines	164 participants Response rate 76% Community pharmacists 68% Quantitative study	Survey reviewed by a university pharmacy school and practising pharmacists	Average score on herbal knowledge 6.3 out of a maximum possible 15 (42%) Better scores for pharmacists with prior continuing education. Varied attitudes but general support for pharmacists' role as educators and mandatory continuing education	Not generalizable Non-validated instrument Possibly unreliable statistics (The answer 'I don't know incorporated into the 'incorrect' category)
Clauson et al., 2003, USA[40]	To determine the perceived knowledge and attitudes toward natural products by pharmacists in Missouri	534 participants Response rate 18.2% Community pharmacists 56.9% Quantitative study	Self-report mail survey with 6 demographic questions and 11 assessment questions	Percentage of pharmacists with: ability to answer a 'natural product question': Rarely 10.3% Sometimes 61.6% Often 25.7% Always 2.4% Percentage of pharmacists with: Satisfaction with product knowledge: Not satisfied 45.5% Somewhat satisfied 44.3% Satisfied 8.6% Very satisfied 1.7	Possible response bias potentially leading to an increase or decrease in responses Possible lack of clarity in question-naire wording
Naidu et al. 2005 Australia[15]	To determine the knowledge and attitudes of pharmacists toward CAM	484 participants Response rate 32.3% Community pharmacists 75% Quantitative study	Questionnaire with pre-paid envelope, delivered by surface mail	Personal use 77% Daily recommendation of CAM 23% Necessity for pharmacists to have knowledge of both CAM and conventional medicine 91% CAM teaching at university 82% Continuing education for pharmacists 87% Knowledge sufficient to recommend herbs 15%	None listed by authors Potential bias from respondents baseline interest in CAM
Kemper et al. 2006, USA[41]	To determine the knowledge, confidence and communication practices about herbs and dietary supplements for various healthcare professionals	1268 participants Pharmacists 58 (4.6%) Response rate not identified Emails and brochures going to in excess of 60,000 people in 2 'batches' in 2004 and 2005 indicating a response rate of approximately 2%	Cross sectional survey based on instrument used in 2003 pilot study	Major findings related to comparisons between groups For pharmacists: Knowledge: 70.7% Confidence: 'Higher' for pharmacists and dietitians at 59.8% and 59.2% respectively "Substantial room for improvement" for knowledge and practice	Very low response rate and a "highly self-selected sample" Limited generalizability
Semple et al. 2006, Australia[16]	To determine for pharmacists the perceived barriers to provision of information about CAM	344 participants Response rate 49% Community pharmacists 211 (30%) Quantitative study with some open-ended questions	Questionnaire with paid envelope for reply, delivered by surface mail	Confidence in answering enquiries related to safety, interactions and adverse effects < 15% Information sources: "heavy reliance" on manufacturer's information at 82.9% Lack of training	Possible response bias Self-administered survey indicating possible self-report and recall bias

Table 1. (continued)

Author, Year Location	Purpose of study	Sample size, Response Rate and Type of study	Methods and Instruments	Major Findings	Main Limitations
Bushett et al., 2011 Australia[13]	To explore the knowledge, attitudes, and information-seeking practices of a cohort of rural pharmacists and to compare them with those of pharmacists in a larger study conducted by the National Prescribing Service	110 participants Response rate 43.6% 30 were ineligible as hospital pharmacists for an actual response of 80 with a response rate of 31.7% Quantitative study	Questionnaire with questions relating to demographics, knowledge, experience, attitudes, and information seeking	Attitudes: 77.5% usage by respondents 95% providing recommendations in 12 months prior to the study Confidence rates variable with experience and education Knowledge: Variable but good for only one product of 3 with often low interaction knowledge Information seeking: 97.5% sought information in 12 months prior to study, from various sources Overall lack of confidence and knowledge (as low as 15% in some areas)	Response bias due to possibly more interest from those more aware of CAM Self-reported responses
Culverhouse and Wohlmouth, 2012 Australia[38]	To report on factors that influence whether or not pharmacists recommend CAM to customers	12 Community pharmacists Response rate not specified Qualitative study	Pharmacists were divided into 3 groups depending on the frequency of their CAM recommendations	Six Themes: 1.Drivers of recommendation 2. Barriers to recommendation 3. Attitude to CAM 4. Education and resources 5. Personal and family use of CAM 6. Relationship with other healthcare professionals	Selection bias Possible response bias to please the primary investigator, a CAM company employee
Schultz et al., 2014, Australia [43]	To explore the factors that influence pharmacists' preparedness to stock homeopathic products	Two focus groups (n = 13) Telephone interviews (n = 18) Questionnaire involving 185 pharmacists opting in from information in 19 400 newsletters Pharmacist population of 23 850 pharmacists with the sample size representing a 7.18% margin of error at a 95% confidence interval Mixed methods study	Focus groups: 1 regional and 1 metropolitan with equal numbers of pro- and anti-CAM pharmacists Telephone interviews exploring areas similar to the focus groups Cross-sectional survey including 42 questions	Focus groups: Lack of knowledge Lack of differentiation of homeopathy from other CAM Various ideas about provision of advice, lack of financial ROI Telephone: Concern about ethical dilemma of contravening codes of conduct by stocking a product with no active ingredient(i.e. a homeopathic product) A belief that there was no evidence of efficacy A belief that stocking homeopathic products contravened ethics by giving tacit approval to products with no efficacy Possibility of delayed medical treatment from using homeopathy Cross sectional survey: That homeopathic products "have a place" in community pharmacy; 38% disagreed, 36% agreed and 26% were undecided The belief that homeopathic products are effective: 55% considered them ineffective, 14% effective and 31% unsure That they were acting ethically as pharmacists in the best interest of consumers: 77% agreed	Possible selection bias
Ung et al., 2017, Australia[39]	To explore the perceptions and opinions of pharmacists and other key stakeholders regarding barriers that hinder pharmacists from providing care in relation to CAM and to identify solutions	2 practising pharmacists, 1 pharmacy owner, and 8 other stakeholders Response rate not identified Qualitative study	Interviews: 9 face-to-face and 2 via telecommunication	Insufficient knowledge Lack of initiative Lack of confidence and communication skills Lack of research skills Lack of evidence about safety and efficacy Lack of access to reliable and reputable information and support Solutions: Education and training: university, internship, continuing professional education Employment of a naturopath Establishment of a red flag system Promotion of quality CAM research	Limited number of participants, however thematic saturation was achieved (Thematic situation is the attainment of enough data so that no more new themes or patterns are emerging)
Waddington et al., 2018, Australia[42]	To determine Australian pharmacists' knowledge of the safety and efficacy of CAM	533 pharmacists Response rate: 1.9% Quantitative study	Questionnaire in 3 sections with the section relating to pharmacists' knowledge of CAM safety and efficacy containing 21 questions	Knowledge: Mean score 62% No significant difference between those with some nutritional qualification and those without (such as basic CAM knowledge of clinically effective CAM)	Unlikely that pharmacists held knowledge across all areas "Unsure" response is difficult to interpret Possible selection bias

Abbreviations: CAM, complementary and alternative medicine; ROI, return on investment.

Quality and Characteristics of Studies

The included studies used a range of methods. The majority, 7 studies, used quantitative-survey design; 2 qualitative studies used in-depth interviews; and a mixed-methods study involved surveys, interviews, and focus groups.

No study was without limitations, the commonly occurring constraints were the use of self-reporting, a possible response bias, low response rates, and failures to justify analytical methods. The research team decided to include articles for synthesis that were considered to offer the best contributions, while acknowledging the limitations. The current review's findings are presented under the concepts of the pharmacists' attitudes and knowledge of CAM and their related components.

Pharmacists' Attitudes to CAM

Pharmacists' attitudes to CAM were investigated directly, or reported upon, in several studies. Four key themes emerged: efficacy, safety, confidence in consumer interactions, and education. These topics structure the following discussion.

Efficacy. In recent years, Australians and people across other western countries have increasingly embraced CAM. Pharmacists have displayed varying degrees of positivity and uncertainty about the efficacy of many products. A survey of 164 American pharmacists, including 117 community pharmacists, most commonly produced a neutral score in response to the statement "herbal medicines are efficacious."[14] This may be an opinion about all, or the majority of, herbal medicines, but the researchers noted that this may also imply that the respondents considered some herbal agents to be efficacious and some not.

The results of an Australian survey completed by 484 Australian pharmacists, including 75% who were community or retail pharmacists, indicated that pharmacists generally viewed CAM positively.[15] The pharmacists agreed or strongly agreed that "CAM is a useful supplement to conventional medicine," 51% and 26%, respectively, and that "conventional medicine can benefit from CAM ideas," 54% and 19%, respectively. In contrast, the pharmacists' responses to the statement that "CAMs are efficacious" showed that only 4% strongly agreed, 32% agreed, and 46% were undecided. The highest-ranked CAM for perceived usefulness was herbal medicine

In another study in rural Australia, 80 surveyed pharmacists adjudged that they were uncertain of the benefits of CAM, as demonstrated in the response to the statement: "The results from CAMs are mainly due to placebo effect," with only 12.5% agreeing but 35% being undecided.[13]

Such indecision is further illustrated in comparing 2 qualitative Australian studies that investigated topics relating to CAM recommendations in pharmacies. The first, involving 12 pharmacists with varying propensities to recommend CAMs, found that the primary drivers for recommendations were a desire to provide a health benefit and an awareness of efficacy.[38] Five years later in 2017, this positivity wasn't mirrored in interviews with 11 pharmacy stakeholders.[39] Those researchers concluded that most participants perceived that pharmacists have a negative attitude to CAM. Lack of evidence of efficacy and safety was one of the key factors hindering pharmacists from providing care to CAM users. Furthermore, clear uncertainty existed about the role of pharmacists in relation to CAM.

Safety. Few studies have investigated attitude to safety in any depth, with 3 in the current review including safety-related findings. The survey results from pharmacists in rural Australia showed that 53.8% strongly disagreed or disagreed that "most CAMs are safe and have very few side effects."[13] The opposite view was held by 26.3%, while 18.8% were undecided.

An Australian qualitative study revealed that pharmacists' safety concerns were a primary barrier to CAM recommendations, particularly in patients taking multiple medications or with complex health issues.[38]

In another Australian qualitative study, concerns over safety and efficacy were identified by the majority of participants with one, a practicing pharmacist, suggesting the creation of "a red flag system to help pharmacists remember important things,"[39] which indicates that pharmacists may be safety conscious.

Confidence. Pharmacists' lack of confidence in answering consumers' CAM questions was found in several studies. The expertise of a diverse group of 1268 American healthcare professionals was explored via an internet survey.[41] The findings across all groups showed that confidence was moderate. The score for the 58 pharmacists involved was 59.8 out of a possible 95.

An Australian study indicated a lower level of confidence.[16] Of 344 respondents, including 211 community pharmacists, 97% worked in pharmacies that stocked CAM, and 95% of these personally received CAM enquiries. Fewer than 15% felt very confident in answering questions about the safety, interactions, adverse reactions, or benefits of CAM.

Rural Australian pharmacists displayed more confidence; however, the results were still poor, with only 52.6% agreeing with the statement, "I am confident in discussing CAMs therapy with consumers."[13] This lack of confidence was summed up by Ung et al, who reported the statement of a key representative of the Australian complementary medicine industry: "The other issue is confidence…they (pharmacy graduates) lack the confidence to have a conversation."[39]

Education. The desire for better CAM education for pharmacists is a commonly expressed need. Of 217 American pharmacists surveyed, 50% strongly endorsed mandatory continuing education on herbal medicines.[14] A study of 484 Australian pharmacists reported a stronger call for education; 82% wanted CAM training in university courses, and 87% recommended continuing-education courses.[15] While 80% of the 344 Australian pharmacists surveyed by Semple et al had undertaken some CAM training, 57% indicated it hadn't met their needs.[16] A deficit in undergraduate curriculum as to the importance of complementary medicines was noted as key to

pharmacists' lack of CAM knowledge, which was identified by every pharmacy stakeholder in a more recent Australian study.[39]

Pharmacists' Knowledge of CAM

Knowledge was the subject of several publications that reported either self-rated general appraisals of knowledge or assessments regarding individual CAMs.

Self-rated knowledge. Pharmacists' tendency to rate their knowledge of CAM as poor was common across the studies reviewed. Of 534 American pharmacists surveyed in one study, 56.9% of whom were community pharmacists, only 1.7% were very satisfied with their level of natural product knowledge.[40] Almost 90% weren't satisfied or were somewhat satisfied, and only 2.4% felt that they could always answer a natural-product question.

In another example, a study examining 17 types of CAM indicated that only 15% of the 484 pharmacists knew a lot about herbal medicine, the highest ranking available, and 35% knew a considerable amount.[15]

A significant deficit in the tested knowledge of community pharmacists concerning 3 common CAMs was reported in a study of 80 rural Australian pharmacists.[13] Lack of knowledge was considered a barrier hindering Australian pharmacists in CAM practice.[38,39]

Assessed knowledge. When pharmacists' knowledge of CAM was assessed by researchers, most studies reported that their knowledge was lacking or in need of improvement. For example, in one study, in answering 15 questions about 5 common herbs, 164 pharmacists scored an average of 6.3, with the maximum score being 15.[14] In the same study, 117 community pharmacists produced scores no higher than those in other settings. However, pharmacists with previous continuing education in CAM scored higher.

Overall, pharmacists are more likely to answer correctly about uses of herbs than about drug interactions, adverse drug effects, or precautions. A North American survey of health professionals, 58 (4.6%) of whom were pharmacists, included questions about knowledge of common herbs and dietary supplements.[41] The pharmacists scored 5% higher than other health professionals, at 70.7% and 65.8%, respectively. Given that this was a highly selective sample of professionals, the researchers suggested that the knowledge and practices of pharmacists in the study left substantial room for improvement.

After measuring CAM knowledge of 533 Australian pharmacists, the researchers in one study concluded that pharmacists had only a satisfactory knowledge of the products examined, representing a barrier to safe and informative sale and indicating a need for specialized and targeted education.[42]

Despite ongoing controversy, homeopathic products for stress are commonly sold in community pharmacies. An Australian mixed-methods study revealed that 216 pharmacists lacked knowledge of homeopathic products and were unable to differentiate them from other forms of CAM and that they seemed to confuse these products with other natural medicines, nutritional supplements, and herbal products.[43]

Knowledge of CAMs for Specific Health Conditions

Few studies addressed pharmacists' knowledge regarding a named CAM and its use for a particular health condition. In studies where particular CAMs are identified, the focus included: side effects and interactions,[13] recommended dose and strength of treatment, indications for use and interactions,[42] and use and safety.[41] Chang et al.'s study was the only one that investigated pharmacists' knowledge of CAM for health conditions; these included migraine headaches, benign prostatic hyperplasia, and immunity.[14]

Information relating to mental health was scarce. Only 3 studies included questions about mental health, kava, or St. John's wort.[14,38,40] Pharmacists displayed good knowledge of the conditions for which these herbs are commonly used—anxiety and depression respectively—but lacked knowledge in other areas.[14] Although stress is widespread in the community and a number of CAM products have been shown to be helpful, CAM for stress relief didn't feature in any of the reviewed studies.

DISCUSSION

Pharmacists' attitudes to and knowledge of CAM were addressed in this review. Although pharmacists are generally positive about CAM, many are uncertain about the efficacy of particular products, and some raise safety concerns and express a lack of confidence and a desire for better educational opportunities. Pharmacists' knowledge of CAM, both self-rated and assessed, was generally found wanting. Information relating to knowledge of CAM for specific health conditions has rarely been studied. Mention of CAM for mental health challenges was particularly scant, and the very common issue of stress or related complaints wasn't investigated in any of the paper.

Uncertainty, lack of knowledge and low confidence levels in dealing with CAM, as found in this study, may mean that pharmacists are not providing the level of professional expertise exercised with other over-the-counter preparations. Furthermore, the chance to build a significant business opportunity utilising CAM is lost. Hermansyah et al.[5] describe pharmacy as having untapped potential in primary healthcare but being slow to change to meet the opportunities. This aligns with the current study's findings that pharmacists generally display positivity toward CAM but that some uncertainty exists. Some pharmacists have overcome this problem (of uncertainty) by employing a CAM professional such as a naturopath to manage that area of the pharmacy.[33] The author notes that whilst such an arrangement appears potentially beneficial, ethical, professional and professional difficulties may arise.

Limitations and Strengths of Reviewed Studies

The data and conclusions of the reviewed studies should be considered in the context of their limitations and strengths.

All the reviewed studies were subject to some limitations, such as the use of self-reporting questionnaires, possible response bias, low response rates, and failure to justify analytical methods. Only the studies for which the findings were judged not to be significantly affected by limitations, were therefore included. While generalizations can't be made from this current review, trends in findings were consistent across the studies.

Limitations and Strengths of Reviewed Studies and Current Study

A rigorous process in the review of studies using multiple methods is a strength of the current review. These included the use of the protocols as described by Ferrari and Green et al,[31,32] the use of evaluation tools,[35,36] and the final screening with the use of the QATSSD.[37] A further strength lies in the initial search strategy, which included multiple search terms. In combination, these strategies enabled the development of a narrative review, rigorously conducted in a systematic nature.

CONCLUSIONS

The current review has provided considerable insight into the professional practice of community pharmacists and CAM in Australia and in countries with similar healthcare systems. Pharmacists appear uncertain about many aspects of CAM, yet they retain a positive attitude while lacking overall knowledge. Their knowledge of CAM for the treatment of specific health conditions is inadequate, particularly in the area of mental health. The importance of the review is seen in the extension of this finding to stress. The early consideration and treatment of stress is of significant importance.

Promoting health, well-being, and patient safety are cornerstones of pharmacy practice. Pharmacists are well positioned to play a critical role in assisting consumers by referral, by providing information about health-promoting strategies, and/or by recommending products. As product recommendations are often of a CAM nature, accurate knowledge and practice is essential; however, published information about pharmacists' role in providing mental health care and CAM appears to be virtually non-existent. This establishes a strong case for further research in this area.

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