Sri Lankan Journal of Health Sciences

Article

Use and Attitudes of Complementary and Alternative Medicines Among Allied Health Sciences Students, University of Peradeniya

Kavindi Dayarathna[1], M. H. F Sakeena[1], Gayan Bowatte[2*]

[1] Department of Pharmacy, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka
[2] Department of Basic Sciences, Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka

[*] Correspondence: gayan.bowatte@ahs.pdn.ac.lk

Abstract

Background: Complementary and Alternative Medicine (CAM) consists of a group of medical and health care systems, practices, and products delivered outside the mainstream health care system. CAM treatments can be used not only to treat diseases but also to promote wellness, disease prevention, and manage symptoms. However, someone's attitudes toward health may contribute to seeking CAM treatments. This study aimed to investigate the use and attitudes of CAM among Allied Health Sciences (AHS) students at the University of Peradeniya. **Methods:** An online questionnaire was used and all AHS students at the University of Peradeniya were invited to participate. The questionnaire comprised three parts: Part A) demographic data, Part B) usage of complementary and alternative medicines and Part C) attitudes toward complementary and alternative medicines. CAM usage and attitude differences between different degree programs and academic years were compared. **Results:** Of the 601 students invited, 314 (52.2%) responded to the questionnaire. Among them, 143 participants (45.5%) had used CAM during the past 12 months. Of them, vitamins were the most used CAM. Most participants (70.1%) had used CAM to improve their health, while (68.5%) had selected CAM to reduce side effects. More than one-third of students showed positive attitudes towards CAM. There were significant differences in CAM usage between students of pharmacy/nursing and MLS/Radiography/Physiotherapy, while there was no difference in attitudes regarding CAM. There were differences in attitudes concerning CAM between senior and junior students, however no difference in CAM usage. **Conclusion:** This study found that AHS students commonly reported using CAM. A comparison between Pharmacy/Nursing and MLS/Radiography/Physiotherapy students suggests that pharmacy/nursing education is associated with improved awareness and use of CAM among AHS undergraduate students in a Sri Lankan university.

Keywords: Complementary and Alternative Medicines; Usage, Attitudes, University Students

Introduction

Complementary and Alternative Medicine (CAM) consists of a group of medical and health care systems, practices, and products delivered outside the mainstream health care system (1). They are delivered by a trained practitioner or administered as a self-care practice and have a heterogeneous spectrum that includes ancient to modern approaches to prevent or treat diseases. Complementary medicines are treatments used along with allopathic medicines (Massage therapy, Vitamins), whereas alternative medicines are used instead of allopathic medicines (Unani. Siddha) (2,3). Treatment procedures of allopathic medicine are based more on evidence-based approaches, which refer to the distinct and precise

Citation: Dayarathna K, Sakeena MHF, Bowatte G. Use and Attitudes of Complementary and Alternative Medicines Among Allied Health Sciences Students, University of Peradeniya. Sri Lankan J. Health. Sci. 2022, 1(1): 10-18.
Received: 18.02.2022; Accepted: 01.06.2022; Published: 06.07.2022

use of current evidence in making decisions about the treatment and care of patients (4). In contrast, CAM decision-making approaches are mainly based on experience, observation, and traditional healing manuscripts. As a general term, CAM can include all sorts of practices and modalities that are used in agreement with its literal description. But their effectiveness, approval for medical use, and the evidence of their benefit or harm can vary widely (3).

In both developed and developing countries, CAM is commonly practiced (5, 6), and its usage and popularity have increased gradually over time (4, 6). It has been used to improve health and well-being and treat or prevent many diseases and conditions. Dissatisfaction with allopathic medicine is also a reason for seeking CAM treatment by patients because of poor patient-physician communication and lack of time spent with the physician. Additionally, someone's attitudes toward health may also contribute to the decision to seek CAM treatments. Having a philosophical orientation and having greater control over personal health also affects the selection of CAM treatments (7). In addition, the rapid increase of interest in CAM in academic, industrial, and economic sectors contributes to its high prevalence of use (8). The acceptability, choice, and decision-making on CAM depend on many reasons, such as the availability of CAM, the belief in the safety of CAM, unsatisfactory results from mainstream therapies (7), and dissatisfaction with allopathic medicines (7,9). In developing countries, CAM therapies are mainly performed by people who do not have academic training in this field. It may increase the risk of deviation from scientific approaches and eventually cause unwanted complications. Therefore, medical students' awareness of CAM and perhaps how to deal with patients who simultaneously use CAM and the usefulness of CAM for patients in certain circumstances can be discussed at the university level.

Ease of availability and perceived efficacy of natural approaches are primary factors of preference toward CAM (10). A previous study reported that most students in Allied Health sciences believe CAM is based on ideas and methods from which allopathic medicine can benefit. Further, pharmacy and nursing students believe that CAM will be more beneficial after their studies to apply in real-world scenarios (11, 12). The research findings can be used to generate further research questions and inform academics on how to discuss CAM with students regarding important aspects. As future healthcare professionals, today's Allied Health students should have adequate knowledge of CAM. From the findings on the use and attitudes about CAM among Allied Health students, this study may help identify Allied Health students' perception of CAM and make necessary decisions to improve the knowledge of Allied Health students regarding CAM.

Some studies argued that the most influential factor in patients' decision on CAM may be perceived efficacy (13). Also, the literature suggests that better use of CAM may be beneficial to reducing the load on overburdened health systems, especially in developing countries. This would require incorporating some discussions regarding CAM in universities' medical and Allied Health Science Faculties (4). However, this curriculum for CAM should be developed based not only on opinions but also on scientific data (5). In this study, we aimed to investigate the use and attitudes of Complementary and Alternative Medicines among Allied Health Sciences students at the University of Peradeniya.

Materials and Methods

Study design and setting

All undergraduate students (Pharmacy, Nursing, Medical Laboratory Sciences, Radiography, and Physiotherapy students) of the Faculty of Allied Health Sciences (FAHS), University of Peradeniya, were invited to participate in this descriptive cross-sectional study.

Data collection tool

An online questionnaire (a Google form) was used to collect data from the study participants. The questionnaire for this study was developed using previously validated questionnaires (4,10,14,15). The content and format of the questionnaire were evaluated using a pre-test involving a convenience sample of 20 students, and they were not included in the final analysis. The online questionnaire was in English. It consisted of three main sections, Part A: Demographic data, Part B: Usage of Complementary and Alternative Medicines (12 questions), and Part C: Attitudes on Complementary and Alternative Medicines (11 statements). All questions were close-ended questions.

Inclusion and exclusion criteria

All first, second, third- and fourth-year Sri Lankan undergraduates from the Faculty of Allied Health Sciences, University of Peradeniya, who provided informed consent, participated in the study. Students who were involved in the pre-test were excluded from the main analysis.

Data analysis

Data analyses were performed using Statistical Package for Social Sciences (SPSS) software version 26. Data were summarized using tables and graphs and expressed as frequencies. Participants were grouped into two based on their undergraduate degree programs, Group 1 – 'Nursing and Pharmacy students' and Group 2 – 'Medical Laboratory Science, Physiotherapy, and Radiography students'. Further, the students were categorized into another two groups: junior students – 'first and second-year students' and senior students – 'third-year and fourth-year students'. Categorical variables between different degree programs and different academic years were compared using the Chi-Square test. A P value < 0.05 was considered as significant.

Ethical consideration

Before commencement of the study, ethical approval was obtained from the Ethics Review Committee, Faculty of Allied Health Sciences, the University of Peradeniya (Ethics Approval Number - AHS/ERC/2021/005).

Results

Demographic data

Data collection was done from the 10th of May to the 10th of June 2021. The online questionnaire was sent to all students with a valid email address (n=601) and registered at the Faculty of Allied Health Sciences, University of Peradeniya. The total response rate was 52.2% (314 students). When considering the academic year, most responses were from the fourth year (2015/2016 batch), which was 15.8% out of the total number of responded participants. Second-year students showed a lower response rate of about 8.6%. When considering the degree program of the participants, the Department of Nursing showed a higher response rate, about 12.3% out of all the participants. The lower response rate was 7.6% among the Department of Radiography participants. Most study participants were female students (Tables 1 & 2).

Awareness of Complementary and Alternative Medicines

Two-thirds of participants (66.6%) were aware of the term Complementary and Alternative Medicines, while the rest (33.4%) were not. However, only 42.7% of participants were aware of the difference between Complementary and Alternative Medicines, while 57.3% were not.

Table 1: Students' response rate for the survey questionnaire

	No. of students invited to participate	No. of responded students (Percentage %)	Percentage % by the total
Academic year			
1st Year	187	82 (43.8)	13.6
2nd Year	172	52 (30.2)	8.6
3rd year	140	85 (60.7)	14.1
4th year	122	95 (77.8)	15.8
Total	601	314	52.2
Degree program			
MLS	102	63 (61.7)	10.4
Nursing	151	74 (49.0)	12.3
Pharmacy	100	68 (68)	11.3
Physiotherapy	107	63 (58.8)	10.4
Radiography	141	46 (32.6)	7.6
Total	601	314	52.2

Table 2: Socio-demographic data of the students of the Faculty of Allied Health Sciences by the academic year

	1st year (2018/2019 batch) (%)	2nd year (2017/2018 batch) (%)	3rd year (2016/2017 batch) (%)	4th year (2015/2016 batch) (%)
Field of study				
MLS	12 (3.8)	18 (5.7)	11 (3.5)	22 (7.0)
Nursing	23 (7.3)	13 (4.1)	13 (4.1)	25 (7.9)
Pharmacy	28 (8.9)	8 (2.5)	15 (4.7)	17 (5.4)
Physiotherapy	11 (3.5)	3 (0.9)	34 (10.8)	15 (4.7)
Radiography	8 (2.5)	10 (3.1)	12 (3.8)	16 (5.0)
Gender				
Female	59 (18.7)	41 (13.0)	66 (21.0)	74 (23.5)
Male	23 (7.3)	11 (3.5)	19 (6.0)	21 (6.6)
Nationality				
Sri Lanka	82 (26.1)	52 (16.5)	85 (16.5)	95 (30.2)
Other	0	0	0	0

Use of Complementary and Alternative Medicines

Among the participants, 143 (45.5%) used some form of CAM during the past 12 months, while 171 (54.5%) did not. Vitamins, Herbal medicines, and Ayurveda were the most commonly used CAM among all participants, while Homeopathy, Unani, Siddha, and Acupuncture were the least used CAM types. Vitamins were used by 60.9% of participants, and among them, the majority were fourth-year students. Herbal medicines were used by 48.9% of the participant, with the majority among first-year students (53.7%). The third primarily common CAM was Ayurveda. A high prevalence was observed among the

first-year students (46.3%) and less prevalence in the second-year. Among all the participants in this study, only three students used Acupuncture, Siddha, and/or Unani CAM.

A high number of first-year students have used vitamins, which was about 63.4%, while no one was using Acupuncture, Homeopathy, and Siddha. Among second-year students, the majority used Herbal medicine (68.2%) and vitamins (50.0%). Ayurveda and Herbal medicines were used by a similar number of students from the third-year. Most third-year students have used Vitamins (50.0%). The most commonly used CAM among fourth-year students was Vitamins, which was about 72.2%. Lesser number of students in all years practiced Yoga, Acupuncture, Homeopathy, Siddha, and Unani (Table 3).

Table 3: Usage of Complementary and Alternative Medicines during the last 12 months among undergraduate students of the Faculty of Allied Health Sciences by the academic year

	First-year (2018/2019) (%)	Second-year (2017/2020) (%)	Third-year (2016/2021) (%)	Fourth-year (2015/2016) (%)	Total Frequency (%)
CAM Type					
Acupuncture	0 (0.0)	0 (0.0)	1 (2.9)	0 (0.0)	1 (0.7)
Ayurveda	19 (46.3)	7 (31.8)	12 (35.3)	11 (25.0)	49 (34.7)
Herbal medicine	22 (53.7)	15 (68.2)	13 (38.2)	19 (43.2)	69 (48.9)
Homeopathy	0 (0.0)	1 (4.5)	1 (2.9)	0 (0.0)	2 (1.4)
Massage	8 (19.5)	3 (13.6)	7 (20.6)	4 (9.1)	22 (15.6)
Meditation	14 (34.1)	5 (22.7)	8 (23.5)	11 (25.0)	38 (26.9)
Music therapy	4 (9.8)	2 (9.1)	6 (17.6)	5 (11.4)	17 (12.0)
Siddha	0 (0.0)	0 (0.0)	1 (2.9)	0 (0.0)	1 (0.7)
Unani	1 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.7)
Vitamin	26 (63.4)	11 (50.0)	17 (50.0)	32 (72.2)	86 (60.9)
Yoga	2 (4.9)	2 (9.1)	0 (0.0)	2 (4.5)	6 (4.2)
Other	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	41	22	34	44	141

Among all participants, CAM was used by a higher number of participants to improve health, (37.7%). Among them, fourth-years have reported a higher prevalence. Few participants used CAM only to prevent illness (6.2%). Among them, second-years showed a poorer response than the other three years (4.5%). Most participants selected CAM only to reduce harm to the body (30.6%), while fourth-years showed a higher response (36.6% compared to the other three years).

There was a significant difference in the use of all types of CAMs investigated in this study in the two groups of students: Group 1 and Group 2 students ($p < 0.05$). Comparatively, all CAM types such as Herbal medicines, Meditation, Music therapy, and Vitamin usage were higher in group 1 (Table 4).

Table 4: Difference in usage of Complementary and Alternative Medicines between Group 1 and Group 2

	Group 1 (n=164) Frequency (%)	Group 2 (n=128) Frequency (%)	p*
CAM Type			
Ayurveda	26 (15.8)	23 (17.9)	0.011
Herbal medicines	40 (24.3)	29 (22.6)	0.006
Massage	12 (7.3)	10 (7.8)	0.008
Meditation	25 (15.2)	13 (10.1)	0.002
Music therapy	12 (7.3)	5 (3.9)	0.003
Vitamin	45 (27.4)	41 (32.0)	0.008

* Chi-square test. Some students have used more than one CAM type. Therefore, the total percentage does not add up to 100%. Group 1 – Nursing and Pharmacy students, Group 2 – Medical Laboratory Science students, Physiotherapy students, and Radiography students.

Usage of all CAM types investigated in this study was not significantly different by two student groups: 'first and second-year students and 'third-year and fourth-year students ($p > 0.05$). (Table 5)

Table 5: Difference in usage of Complementary and Alternative Medicines between junior and senior students.

	first and second-year students (n=142) Frequency (%)	third and fourth-year students (n=150) Frequency (%)	p
CAM Type			
Ayurveda	26 (18.3)	23 (15.3)	0.274
Herbal medicines	37 (26.0)	32 (21.3)	0.077
Massage	11 (7.7)	11 (7.3)	0.735
Meditation	19 (13.3)	19 (12.6)	0.618
Music therapy	6 (4.2)	11 (7.3)	0.635
Vitamin	37 (26.0)	49 (32.66)	0.716
Yoga	4 (2.8)	2 (1.3)	0.443†

* Chi-square test. Some students have used more than one CAM type. Therefore, the total percentage does not add up to 100%. †Fisher's exact test p value.

Attitudes towards Complementary and Alternative Medicines

The majority of the participants thought that 'CAM built up the body's own immunity and promoted self-healing' (70.1%) 'CAM have less side effects (68.5%), 'CAM have less complications when taking them' (63.7%), and 'taking CAM therapies was not harmful' (55.1%). However, most of the student-participants did not have an idea about the statement 'the results of CAM are in most cases due to a placebo effect' (58.9%) and 'CAM have better healing power than allopathic medicines' (51.9%). In comparison, the highest level of disagreement was obtained for 'CAM is a threat to public health' (55.7%) followed by 'traditional medicine practices performed by non-physicians are acceptable' (38.5%) (Table 6).

Table 6: Attitudes toward Complementary and Alternative Medicines in undergraduate students of the Faculty of Allied Health Sciences

Attitude statement about CAM	Agree Frequency (%)	Disagree Frequency (%)	No idea Frequency (%)
There are less side effects when taking CAM	215 (68.5)	25 (8.0)	74 (23.6)
There are less complications when taking CAM	200 (63.7)	27 (8.6)	87 (27.4)
CAM builds up the body's own immunity and promotes self-healing	220 (70.1)	17 (5.4)	77 (24.5)
Taking CAM therapies is not harmful	173 (55.1)	43 (13.7)	98 (31.2)
CAM have better healing power than allopathic medicines	83 (26.4)	68 (21.7)	163 (51.9)
The results of CAM are in most cases due to a placebo effect	74 (23.6)	55 (17.5)	185 (58.9)
It is necessary to instruct CAM subjects in the health curriculum in universities	215 (68.5)	24 (7.6)	75 (23.9)
Physicians who practice CAM must be licensed	200 (63.7)	30 (9.6)	84 (26.8)
Traditional medicine practices performed by non-physicians are acceptable	80 (25.5)	121 (38.5)	113 (36.0)
CAM is only effective in treating minor complaints and ailments	92 (29.3)	86 (27.4)	136 (43.3)
CAM is a threat to public health	56 (17.8)	175 (55.7)	83 (26.4)

The majority of group 2 students agreed to the statement 'there are less side effects when taking CAM' when compared to group 1 students, but no difference was observed [Group 1 (31.2%), Group 2 (37.3%)]. Although there was a difference between the two groups regarding their attitude on 'There are less complications when taking CAM', there is no significant difference.

The majority of senior students agreed with the statement, 'There are less complications when taking CAM' than the junior students', and there was a significant difference between these two groups [junior students (23.2%), senior students (40.4%), $p = 0.008$].

Discussion

CAM treatments can be used to treat diseases and promote wellness, disease prevention, and manage symptoms (e.g. pain, insomnia, and hot flash) (9). Evidence from the literature suggests that some chronic diseases that are not responding well to allopathic medicines may respond to certain CAMs (7). Some examples are people with HIV who respond to herbal, mineral, and vitamin supplements (16), patients with inflammatory bowel disease who respond to herbs and botanicals (17), and people with terminal cancer who responds to detoxification with coffee and a special diet cleanser and vitamins, enzymes, and minerals (18).

At the time of investigation, this study found that nearly half of the students used some type of CAM during the last 12 months, while most of them used Vitamins, Herbal medicines, and Ayurveda. Most of them reported positive attitudes regarding CAM. The results also indicate that most students were aware of the term CAM. However, most participants reported a lack of understanding of the terms Complementary and Alternative and relating these terms with medicine. There was no difference between the use of CAM or attitudes towards CAM among senior and junior students.

Interestingly, the use of CAM was different among Group 1 and Group 2. This highlights that the pharmacy and nursing undergraduate education may be one reason that contributes to greater awareness of different CAM types and, therefore, their use. This could likely be due to the inclusion of subjects such as pharmacology and social pharmacy that discusses other therapies that patients might use, their potential interactions with allopathic treatment and how it fits into their broader treatment-seeking behaviour.

Previous studies on attitudes and beliefs of CAM reported that users of CAM believe it is safer than allopathic medicines. Moreover, they think CAM is a holistic approach to maintaining personal health and well-being (10). However, some patients consider it a supplement rather than a substitute for allopathic medicine (7,11). There are positive attitudes among the general population. Therefore, this may lead to encouraging a positive reframing for particular CAM therapies (9,10) than allopathic medicines, especially among patients with chronic illnesses (10) like cancer (9).

In this study, we approached all undergraduate students in all five departments of the Faculty of Allied Health Sciences. The questions included in this study were pre-tested and used in previous studies, making the questionnaire more reliable in comparing results with similar international studies.

There are a few potential limitations of this study. The response rate was comparatively lower probably due to the many online surveys received by university students during the COVID19 pandemic. Furthermore, several emails bounced back when sending them due to incorrect email addresses.

Conclusion

In conclusion, the findings of this study provide an understanding of CAM use among AHS students in a Sri Lanka university. Awareness of CAM was no different among senior AHS students compared to junior AHS students. This study also showed that pharmacy/nursing education is associated with improved knowledge about CAM compared to MLS/Radiography/Physiotherapy students. These gaps in student knowledge can be overcome by introducing a collaborative education plan for all AHS undergraduates.

Author Contributions: Conceptualization, GB, MHFS; methodology, GB, MHFS, KD; analysis, GB, MHFS, KD; investigation, KD; data curation, KD; writing—original draft preparation, KD; writing—review and editing, GB, MHFS; supervision, GB, MHFS; project administration, GB, MHFS. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding

Acknowledgements: Authors acknowledge the participants of this study.

Conflicts of Interest: The authors declare no conflict of interest

References

1. World Health Organization. (2020). Essential medicines and health products. Retrieved 31 10, 2020, from WHO: https://www.who.int/medicines/publications/traditional/trm_strategy14_23/en/
2. National Center for Complementary and Integrative Health. (2018). Complementary, Alternative, or Integrative Health: What's in a Name? Retrieved 05 10, 2020, from nccih: https://www.nccih.nih.gov/health/complementary-alternative-orintegrative-health-whats-in-a-name
3. Samara AM, Barabra ER, Quzaih NN. et al. Use and acceptance of complementary and alternative medicine among medical students: a cross-sectional study from Palestine. BMC Complement Altern Med. 2019, 19(1): 78.

4. Sadeghi M, Rabiepoor S, Forough AS, et al. A Survey of Medical Students' Knowledge and Attitudes Toward Complementary and Alternative Medicine in Urmia, Iran. J Evid Based Complement Altern Med. 2016, 21(4): 306-10.
5. Münstedt K, Harren H, von Georgi R, et al. Complementary and Alternative Medicine: Comparison of Current Knowledge, Attitudes and Interest among German Medical Students and Doctors. Evid Based Complement Alternat Med. 2011: 790951.
6. Awad AI, Al-Ajmi S, Waheedi MA. Knowledge, perceptions and attitudes toward complementary and alternative therapies among Kuwaiti medical and pharmacy students. Med Princ Pract. 2012, 21(4): 350-4.
7. McFadden KL, Hernández TD, Ito TA. Attitudes toward complementary and alternative medicine influence its use. Explore. 2010, 6(6): 380-8.
8. Medagama AB, Bandara R, Abeysekara RA, et al, Use of Complementary and Alternative Medicines (CAMs) amongtype 2 diabtes patients in Sri Lanka: a cross sectional survey. BMC Complementary Altern Med. 2014, 14: 347.
9. Garland SN, Valentine D, Desai K, et al. Complementary and alternative medicine use and benefit finding among cancer patients. J Altern Complement Med. 2013, 19(11): 876-81.
10. Islahudin F, Shahdan IA, Mohamad-Samuri S. Association between belief and attitude toward preference of complementary alternative medicine use. Patient Prefer Adherence. 2017, 11: 913–8.
11. Chua SA, Furnham A. Attitudes and beliefs towards complementary and alternative medicine (CAM): A cross-cultural approach comparing Singapore and the United Kingdom. Complement Ther Med. 2008, 16: 247-253.
12. Tiralongo E, Wallis M. Attitudes and perceptions of Australian pharmacy students towards Complementary and Alternative Medicine - a pilot study. BMC Complement Altern Med. 2008, 8: 2.
13. Astin JA. Why patients use alternative medicine: results of a national study. JAMA. 1998, 279(19): 1548–53.
14. Harris IM, Kingston RL, Rodriguez R, et al. Attitudes towards complementary and alternative medicine among pharmacy faculty and students. Am J Pharm Educ. 2006, 70(6): 129.
15. Patterson C, Arthur HA. Complementary alternative medicine questionnaire for young adults. Integr Med Insights. 2009, 4: 1–11.
16. London AS, Foote-Ardah, CE, et al. Use of alternative therapies among people in care for HIV in the United States. Am J Public Health. 2003, 93(6): 980-7.
17. Li FX, Verhoef MJ, Otley A, et al. Why patients with inflammatory bowel disease use or do not use complementary and alternative medicine a Canadian national survey. Can J Gastroenterol. 2005, 19(9): 567-3.
18. Yates PM, Beadle G, Clavarino A, et al. Patients with terminal cancer who use alternative therapies: their beliefs and practices. Sociol Health Illn. 1993, 15(2): 199– 216.