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Knowledge, attitude, and use of complementary and alternative medicine (CAM) among pharmacy and nursing students in Oman

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Abstract
Problems: This study aimed to assess the knowledge, attitude, and self-use of CAM among the pharmacy and nursing students at a university in Oman.
Experimental approach: A cross-sectional survey of 183 students was conducted among all pharmacy and nursing students. A pre-validated questionnaire was used to collect data and descriptive analysis was performed to present the results.
Findings: The study observed that most CAM modality used was prayer/spiritual healing for both groups, while most herbal medicine used by students was ginger and honey for relief from flu symptoms. The major source of information for pharmacy students was family/relatives and nursing students. More than half pharmacy students had good knowledge about CAM use. Lack of knowledge about CAM was the biggest barrier for nursing students.
Conclusion: The findings demonstrated that the answers of students were not scientific and not evidence-based. Although sample had a positive attitude towards importance of CAM knowledge and its utility in their profession, better education about CAM should be implemented in their curriculum to sharpen their critical thinking.

Keywords: Complementary and Alternative Medicine (CAM); Knowledge; Attitude; Student; Pharmacy; Nursing.

Introduction

The National Center for Complementary and Alternative Medicine (NCCAM) defines complementary and alternative medicine (CAM) as "*a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional Medicine*". The use of CAM is common worldwide, particularly amongst patients with chronic or long-standing illnesses [1, 2]. The main difference between complementary medicine and alternative medicine is that the complementary medicine is used together with conventional medicine. An example of that is the use of aromatherapy to help reduce a patient‘s discomfort after surgery. Comparatively, alternative medicine is used instead of conventional medicine such as using a special diet to treat a disease instead of undergoing surgery or chemotherapy that has been recommended by a doctor [3].

There are hundreds of complementary therapies available, and the National Institutes of Health has categorized them according to five broad types. Firstly, healing systems, complete sets of theories and practices, it is not a single practice or remedy like massage, but many different practices, such as the power of nature or the presence of energy in the body [4]. Secondly, mind-body connections, such as relaxation and yoga, techniques are intended to strengthen the communication between mind and body. Thirdly, dietary supplements like vitamins, minerals, fish oil. The fourth type is using human touch to move or manipulate a part of the body like acupressure, chiropractic, cranio-sacral therapy, massage, and osteopathy. Finally, restoration of natural energy forces such as acupuncture, magnet therapy, light therapy and reiki [5-7]. Oman has an extended history of using traditional and herbal remedies, such as cauterization “Al-Wasam”, which is burning the body’s skin with a heated instrument, and “Al-Hujama”, which is a vacuum cup suction of the body surface [8, 9]. These remedies are provided by traditional healers, or self-obtained and are administered in the management of a wide variety of both acute and chronic conditions [10, 11]. The healthcare professionals should have better understanding of CAM, how it works, and what are the

potential benefits and harms.

Studies had reported the existence of diverse factors that influence the student‘s ability to gain knowledge about CAM, such as curricular education, environment and family practices. Certain studies stated that self-use of CAM was above 70% among medical, pharmacy and nursing students and use of CAM was influenced by family background, gender differences or friends, and colleagues. Some studies showed that the lack of scientific evidence about CAM practices was the significant barrier in self-use among the students and recommending them to their patients in future [12-14]. Hence, CAM education is crucial to the students to equip them with the proper knowledge. This study aimed to assess the knowledge, attitude, and self-use of CAM among the pharmacy and nursing students at University of Nizwa.

Materials & Methods

Study design and setting

A descriptive cross-sectional study design was used to assess the knowledge, attitude, and self-use of CAM among the pharmacy students and nursing students in the University of Nizwa, Oman.

Data collection instrument

A pre validated questionnaire was used. It was developed based on the literature review consisted of seven sections and total of 44 items. It was used to record demographic information about students, use of CAM among students, motives for using CAM [13], sources of information and knowledge about CAM, general attitudes of students towards CAM, and barriers to CAM use [11, 13, 15-17].

Ethical approval

The study was approved by the Ethics Approval Committee, School of Pharmacy and Institutional head of College of Pharmacy and Nursing, University of Nizwa, Oman.

Sampling

All pharmacy and nursing students in their final year were included in this study. List of students was obtained from the college with their contact information. The participants were informed about the nature of the study, the procedure to complete the questionnaire and the anonymity of the survey. Consented students who met the inclusion criteria were given the questionnaire for self-administration. Completed questionnaires were sealed in envelopes and confidentiality of the collected data was maintained. The collected data was used only for the purpose of the present study.

Data management and analysis

The data were managed and analyzed by using Statistical Package for Social Sciences (SPSS version15.0) software. Descriptive analysis was done using frequency and percentage to present the results and draw conclusions.

Results

A total sample of 183 students was surveyed, 90 pharmacy students and 93 nursing students. The survey response rate was 90% for the pharmacy students and 100% for the nursing students. Fifty percent (n=45) of the pharmacy students were in the age group of (24-26) years, while 80.6% (n=75) of the nursing students were in the age group of (21-23) years. The mean age for the pharmacy students was 24.01 (±1.65) years and for the nursing students was 22.6 (±1.20) years. The ratio of female to male among pharmacy students was 5:1. Comparatively, 17:1 was the female to male ratio among nursing students. All the surveyed pharmacy students had completed the CAM course in their curriculum. While among the nursing students only 28% (n=26) of the students took course or training in CAM.

The use of complementary and alternative medicine among students is summarized in Table 1. The most frequently used herbal medicine among the pharmacy students was ginger and honey 28.3% (n=86) followed by cinnamon 20.7% (n=63), anise seed 19.1% (n=58), neem leaves 16.8% (n=51), black seeds 8.9% (n=27), and the least commonly used was capsaicin 6.25% (n=19). Among the nursing students the most commonly used herbal medicine was ginger and honey 27.9% (n=84), followed by cinnamon 19.3% (n=58), neem leaves 18.6% (n=56), anise seed16.6% (n=50), black seeds 10.6% (n=32), and the least commonly used was capsaicin 7% (n=21). Among the pharmacy students, the most common source of CAM information was through family/relatives 68% (n=61), followed by friends/ colleagues 60% (n=54), internet 52% (n= 47), CAM course in the school 43% (n=39), and mass media and books/ journals/ articles with the same percentage 29% (n= 26).Similar results were observed with nursing students where the most common source of CAM information was family/relatives 49% (n=46), followed by friends/ colleagues 41% (n=38), internet 40% (n=37), mass media 32% (n= 30), books/ journals/ articles 26% (n=24) and the least common source for nursing students was CAM course in the school 14% (n=13).

Table 1: The use of CAM among students of pharmacy and nursing

CAM Modality	Pharmacy students (n=90)		Nursing students (n=93)	
	Use (n)	Percentage (%)	Use (n)	Percentage (%)
Prayer/spiritual healing	84	93.3	91	97.8
Herbal medicine	51	56.6	53	57.0
Massage	63	70.0	76	81.7
Nutritional supplements	56	62.2	45	48.4
Cauterization- Al Was am	20	22.2	19	20.4
Music	42	46.7	47	50.5
Cupping- Al Hujama	18	20.0	9	9.7
Bio-electromagnetic	5	5.6	15	16.1
Homeopathy	8	8.9	22	23.7
Acupuncture	5	5.6	12	12.9
Aromatherapy	30	33.3	24	25.8

Table 2 presents the students' responses on knowledge-based items about different CAM uses. The results show that among the 11 statements which assessed the knowledge of CAM use, 54.4% of the pharmacy students had good knowledge about CAM use and answered correctly. On the other hand, 47% nursing students answered correctly. In terms of barriers to use CAM, the majority of pharmacy students reported that the main barrier is the availability of CAM 68% (n=61), followed by the lack of specialists 58% (n=52) and the least two barriers were lack of trust and that treatment with CAM takes longer time to give results. Among the nursing students, the main barrier was lack of knowledge about CAM 58% (n=54) followed by CAM availability 44% (n=41), and the least barrier was the treatment with CAM takes longer time to produce result.

Table 2: Students' responses on knowledge-based items about different CAM uses

Variable	Pharmacy students (n=90) N (%)			Nursing students (n=93) N (%)		
	True	False	Don't know	True	False	Don't know
Alternative medicines are used instead of conventional medicine	67 (74.4)	7 (7.8)	16 (17.8)	52 (55.9)	15 (16.1)	26 (28.0)
The use of ginger, thyme, and green tea in the first trimester of pregnancy is totally safe.	25 (27.8)	35 (38.9)	30 (33.3)	37 (39.8)	23 (24.7)	33 (35.5)
Ginseng is commonly used as a general health tonic	29 (32.2)	11 (12.2)	50 (55.6)	31 (33.3)	16 (17.2)	46 (49.5)
Capsaicin relieves arthritis pain	48 (53.3)	5 (5.6)	37 (41.1)	30 (32.3)	13 (14.0)	50 (53.8)
Hijama is a popular method used in Oman	82 (91.1)	3 (3.3)	5 (5.6)	80 (86.0)	7 (7.5)	6 (6.5)
Frankincense is used as an anti- spasmodic	43 (47.8)	4 (4.4)	43 (47.8)	62 (66.7)	7 (7.5)	24 (25.8)
Ginger can be used as analgesic.	64 (71.1)	14 (15.6)	12 (13.3)	51 (54.8)	18 (19.4)	24 (25.8)
It's safer to use alternative medicines along with the conventional medicine.	28 (31.1)	39 (43.3)	23 (25.6)	39 (41.9)	37 (39.8)	17 (18.3)
Herbal medicines are free of side effects.	27 (30.0)	55 (62.1)	8 (8.9)	36 (38.7)	45 (48.4)	12 (12.9)
Caffeine is used to treat insomnia.	38 (42.2)	41 (45.6)	11 (12.2)	23 (24.7)	44 (47.3)	26 (28.0)
Peppermint is used as an antimicrobial	36 (40.0)	12 (13.3)	42 (46.7)	26 (28.0)	10 (10.8)	57 (61.3)

Discussion

The observed results showed that the most common CAM modality used was prayer/spiritual healing by both pharmacy and nursing students, which is consistent with the conservative nature about the country and the religious culture of the population. A study conducted by Al Mansour *et al.* on medical students at the College of Medicine, Majmaah University, Saudi Arabia, showed that the most important modality used by medical students was prayers (66.7%) as well [12], while another Pakistani study demonstrated that massage therapy 83% and dietary supplements 62% were the most commonly used CAM modality by the pharmacy students there [18].

Pharmacy and nursing students reported that the major source of information for them was family/relatives. However, a study by Duraz and Khan included pharmacists in Oman showed that the majority were interested in herbal information and their herbal information source mainly comes from their pharmacy education [13, 19]. A Malaysian study showed that the internet (69%) was the most commonly used source of information on CAM followed by friends or family members (63%) and media (61%) [14]. These findings can be considered as non-evidence-based answers and can influence badly in the future practice of the students; true education that alters the thinking of the students is required. All students agreed with the importance of including CAM courses into their school's curriculum. This result agrees with the study of Aba Hussain *et al.* where pharmacists working in government and private pharmacies in Kuwait recommended the need to include herbal information courses for pharmacy students in their curriculum [20].

The majority of pharmacy students reported that the main barrier for use of CAM was its availability, followed by the lack of specialists, while the nursing students stated that lack of knowledge about CAM was the main barrier and the least barrier in their opinion was that the treatment with CAM takes longer time to produce result. Comparatively, a Malaysian study reported that the main barriers to the use of CAM were insufficient scientific evidence to support CAM use and lack of trained professionals of CAM [14].

Conclusion

The findings of this study demonstrate that the answers of the students are not scientific and not evidence-based critical thinking. Although the sample had a positive attitude towards the importance of CAM knowledge and its utility in their future professional life, better education about CAM should be implemented in their curriculum to sharpen their critical thinking. The study recommends including information about CAM in the Nursing curriculum to help meet the demand of growing number of CAM users in the general population of Oman.

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