Volume 4, Issue 3, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

THE ASSESSMENT OF KNOWLEDGE AND ATTITUDE AMONG NURSING STUDENTS REGARDING COMPLEMENTARY AND ALTERNATIVE MEDICINE

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DOI: https://doi.org/10.5281/zenodo.23588991

Keywords
Complementary and alternative medicine, nursing students, herbs, healing therapies

Article History
Received: 01 January 2026
Accepted: 17 March 2026
Published: 31 March 2026

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Abstract

Background: *Basic goal of medicine is to heal disorders as much as possible, complementary and alternative medicine practice which is the approach through which healing can be provided in the same way as provided by the modern medicine. Nursing devotion to health care system is appreciable and compassionate. So, thus the knowledge of health care professional particularly nurses is of great importance. This study focus on nursing student's knowledge about complementary and alternative medicine*

Aim: *The study was aimed to assess the knowledge and attitude of nursing students regarding complementary and alternative medicine practice.*

Methods: *A cross sectional research study was conducted using convenient sampling technique. Questionnaires was distributed among nursing students of diffident classes. Questionnaire contain sub portion having questions related to familiarity (knowledge) regarding complementary and alternative medicine and attitude regarding statement.*

Results: *The data collected is evaluated through a SPSS version 21. After statistical evaluation it was noted that total students of the study were 164, from them 100 students were female and 64 were male. 47 students were from BSN 4th year. Only twenty-four students had attended lecture on complementary and alternative medicine. Majority of them had unfamiliar with some common complementary and alternative medicine; naturopathy (95), hypnosis (90), and probiotics (88). Regarding herbs their familiarity respectively was; 59 students did not know about ginseng, followed by garlic (29). Similarly, their attitude was somewhat negative and for some statement positive.*

Conclusion: *it was concluded that knowledge level of the study participants had insufficient regarding complementary and alternative medicine. However, their attitude was positive towards complementary and alternative medicine. The findings of the study emphasized the need for integration of complementary and alternative medicine into educational curricula, so to raise awareness among nursing students.*

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ISSN: (e) 3007-1607 (p) 3007-1593

INTRODUCTION

Medical science predominantly focuses on healing of an individual pathological concern. Those healing strategies for any medical concern may involves recommending medication, surgery or modification of life style(Gethin, Touriany et al. 2022) . Same in the way complementary and alternative medicine ally down on the solely focus to help ease human health concern by using different actions and approaches to prevent or treat a majority of human issues related to health(Cohen 2000).

As defined by the US national Center for Complementary and Integrative Health (NCCIH); complementary medicine is when non-mainstream approach is merge with conventional medicine, it's considered "complementary" while when a non-mainstream practice is used instead of conventional medicine, it's considered "alternative"(Mortada 2024). But this approach to treat disorders is holistic in nature that focuses on patient mind, body and spirit. In addition to it all therapeutic regimen that are not inclusion of standard medical practice are included in alternative medicine(Urits, Schwartz et al. 2021). Although dramatically advancement in medical science technology and practices, people still believe on alternative ways to heal their soul through complementary and alternative medicine. Among complementary and alternative medicine which are still applied are; herbal medicine, massage therapy, spirituality by religious leaders, hypnosis, acupuncture, vitamins therapy, homeopathy, and meditation(Balogun 2022).

Findings from many scientific research shows the effectiveness of this specific therapeutic approaches, because it's mainly focus on symptomatic control along with promoting natural healing process(Goyal and Chauhan 2024). The traditional Chinese medicine which includes specific practices that create balance with the natural world, thus promote healing process. Similarly, well known Ayurvedic Medicine which is the ancient Indian medical system. By utilizing different natural herbs and holistic approaches to eliminate physical and or psychological disorders. Some of the therapies included in Ayurveda system are; special diets, medications usually from herbal nature, massage, yoga, breathing , meditation, bowel cleansing, and relaxation techniques(Jaitwar, Jatav et al. 2024). A study from 2013 in United Kingdom reveals that most of the UK people (1 in 4 people) used complementary and alternative medicine during any one year, and it was estimated that about 9 in every 20 of the population used complementary based approaches at some time during their lifetime(Alzahrani, Price et al. 2021). Statistics from many regions indicated that 50% of the population received complementary and alternative treatment even in developed countries (which include United States 42%, France 49%, Canada 70%, and Australia 48%.(Gall, Butler et al. 2021). While some of the countries recently goes under development such as; Colombia 40%, Chile 71%, and up to 80% in Africa counties people utilized these approaches at some point of their life. A statistical analysis from Pakistan indicates that round about 70–80% of the population in rural areas, uses Complementary and alternative medicine approaches(Mussarat, Ali et al. 2021). Even in Pakistan Unani system has been well accepted by the people and are integrated into the national health system(Ansari 2021).

Some of the well-known complementary and alternative medicine practice worldwide are; yoga, meditation, traditional Chinese medicine, Ayurvedic therapy and massage. There effectiveness is variable in term of health outcomes. Most of the people get benefits by utilizing yoga exercise in their daily life, while most of the traditional Chinese medicine are still used by the people for related health concern(Matos, Machado et al. 2021). There is no doubt in the efficacy of those practices, all of these has positive consequences, but at the same time it also has some negative outcome for health. So proper knowledge for health workers and general population is essential, in order to use them in the way, thus to promote the health of in individual towards wellbeing.

Despite of its positive consequences for the health of an individuals, researchers are interested to study the same issue in developing countries among health care professionals. Researchers believes that health care professionals including

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ISSN: (e) 3007-1607 (p) 3007-1593

nursing students does not have adequate knowledge in these regions(Hill and Mengelkoch 2023). Some Developed countries is now going through a phase, so is to conduct complementary and alternative medicine modules in undergraduate studies such as medicine, pharmacy, and nursing(Zhao, Kennedy et al. 2022). Due to its importance and potentially positive impacts it is necessary to assess the knowledge and attitude of nursing students regarding complementary and alternative medicine. For the safety of the general population like interaction of complementary and alternative medicine with modern allopathic medicine, it is also essential that the health care workers must be aware of the negative and positive side of complementary and alternative medicine.

As majority of the population across Pakistan beliefs on the effectiveness of traditional therapy like Unani herbal medicine, so it is necessary to evaluate concern related to it. As according to previous study there is no controlled and valid study on the complementary and alternative medicine practice in medical students in Pakistan. So due to a wide gap in research, this study aims to assess the knowledge and attitude of nursing students regarding complementary and alternative medicine practice. By assessing the knowledge and attitude of nursing students regarding complementary and alternative medicine practice, this study will provide a reflection for conducting awareness program among medical students, and thus will serve as indirect significant for general population.

Methods

Study Design and Setting

A **descriptive cross-sectional study design** was used to assess the level of knowledge and attitude regarding complementary and alternative medicine (CAM) practices among nursing students. The cross-sectional design was appropriate because data related to participants' knowledge, attitudes, and demographic characteristics were collected at a single point in time. The study was conducted at **Superior College of Nursing, Lahore**, which provides nursing education to undergraduate nursing students. The study was conducted over approximately **nine months**, including the preparation phase, data collection, data analysis, and report writing.

Population and Sampling

The study population consisted of nursing students enrolled at **Superior College of Nursing, Lahore**. Students from the **2nd, 3rd, and 4th years** were included in the eligible population. First-year nursing students were excluded because they had limited exposure to professional nursing education and clinical practice. A **random sampling technique** was used to select participants from the eligible student population, ensuring that each eligible student had an equal opportunity to participate in the study. The required sample size was calculated using **Slovin's formula**, based on the total eligible population and the selected margin of error.

Data Collection Procedure

Before data collection, ethical approval and permission from the relevant institutional authorities were obtained. The researcher approached the eligible nursing students and explained the purpose, objectives, procedures, voluntary nature, and importance of the study. Written informed consent was obtained from each participant before participation. Data were collected using an **adapted structured questionnaire** designed to assess nursing students' knowledge and attitudes regarding complementary and alternative medicine practices. Participants were asked to complete the questionnaire independently. Adequate time was provided for completion, and the researcher was available to clarify procedural questions without influencing participants' responses. The completed questionnaires were checked for completeness and securely maintained to ensure confidentiality and privacy.

Data Analysis Procedure

The collected data were coded, entered, cleaned, and analyzed using **SPSS V 27**. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to

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ISSN: (e) 3007-1607 (p) 3007-1593

summarize the demographic characteristics and knowledge and attitude scores of the participants. Appropriate inferential statistical tests, including the **chi-square test,** were applied where appropriate to determine associations and differences between variables. A **p-value of ≤ 0.05** was considered statistically significant.

Results

Demographic Analysis

Table 4.1 below presents the summary of the demographic characteristics of the participants.The summary of the demographic characteristic of the participants is presented in table 4.1. Demographic data of the 164 subjects is given in Table 4.1. Most were women (100) and 64 were men (39.0%). In terms of education level, 47 (28.7%) participants were fourth-year students, 46 (28.0%) were third-year students and 37 (22.6%) were Post RN students. The 17 (10.4%) participants were second-year students at BSN and other diploma holders. As for clinical rotations, 34 (20.7%) participants reported studying in the neurology department, 30 (18.3%) in a critical care unit, and 25 (15.2%) in an emergency department. These results suggest that the study participants were from various educational backgrounds and clinical departments, resulting in a diverse representation of nursing students' knowledge of complementary and alternative medicine (CAM). First, it is important to note that the educational activities in Table 4.2 do not necessarily imply a connection to CAM.It is important to note that the educational activities in Table 4.2 do not necessarily imply a connection to CAM.

Table 4.1. Demographic characteristics of participants (N = 164)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	64	39.0
	Female	100	61.0
Educational level	BSN 2nd year	17	10.4
	BSN 3rd year	46	28.0
	BSN 4th year	47	28.7
	Post RN	37	22.6
	Other diploma	17	10.4
Clinical rotation	Emergency	25	15.2
	Neurology	34	20.7
	Critical care units	30	18.3
	Pediatrics	17	10.4
	Psychiatry	10	6.1
	Unspecified	23	14.0
	Other departments	25	15.2
Total		164	100.0

Table 4.2 summarizes the information that participants were exposed to and how they felt they were able to access information regarding CAM. The majority of participants (85.4%) reported that they had no exposure to CAM lectures, workshops or training, while 24 (14.6%) reported having some exposure. When asked about their access to information about herbs, 65 (39.6%) participants said it was easy to get the information, and 28 (17.1%) said it was very easy. 33 (20.1%) had a neutral experience while 38 (23.2%) experienced difficulty or extreme difficulty accessing the site. With regards to authentic information about CAM approaches, 80 (48.8%) respondents reported that it was easy to access and 36 (22.0%) respondents reported that it was very easy to access. The results showed that most of the participants felt that they could easily access information on CAM; however, they did not have formal education in CAM, suggesting

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ISSN: (e) 3007-1607 (p) 3007-1593

that there may be a need for formal education on CAM in nursing education curricula.

Table 4.2. Participation in CAM-related educational activities and access to information (N = 164)

Variable	Response	Frequency (n)	Percentage (%)
Attendance at a CAM lecture, workshop, or training	Yes	24	14.6
	No	140	85.4
Ease of obtaining information about herbs	Very easy	28	17.1
	Easy	65	39.6
	Neither easy nor difficult	33	20.1
	Challenging	21	12.8
	Very challenging	17	10.4
Ease of obtaining authentic information about CAM approaches	Very easily	36	22.0
	Easily	80	48.8
	Neither easy nor difficult	21	12.8
	Challenging	17	10.4
	Very challenging	10	6.1

Table 4.3 shows the level of knowledge of various CAM therapies and the confidence of the participants in their ability to counsel patients on various CAM therapies. The least familiar modality was naturopathy, with 95 (57.9%) participants reporting that they were unfamiliar with this modality. Likewise, 90 (54.9%) participants did not know what hypnosis is and 90 did not know what chiropractic/osteopathy is. 88 (53.7%) and 85 (51.8%) participants also did not know about probiotics and tai chi, respectively. In contrast, spiritual healing or prayer showed the highest reported level of counseling confidence with 115 (70.1%) reporting a level of understanding about the uses of spiritual healing or prayer and feeling comfortable discussing its advantages and disadvantages with each patient. The massage therapy was also the therapy which was found as comparatively more familiar with 65 (39.6%) participants who were confident in advising patients about the therapy. Overall, the results indicate a high level of variation in levels of familiarity with each CAM modality, and higher levels of confidence in spiritual healing and massage than with other CAMs.

Table 4.3. Familiarity with selected complementary and alternative medicine therapies (N = 164)

CAM modality	Unfamiliar, n (%)	Limited familiarity, n (%)	Understand uses but uncomfortable counseling, n (%)	Understand uses and comfortable counseling, n (%)
Acupuncture	75 (45.7)	50 (30.5)	23 (14.0)	16 (9.8)
Chiropractic/osteopathy	90 (54.9)	32 (19.5)	24 (14.6)	18 (11.0)
Massage	14 (8.5)	28 (17.1)	57 (34.8)	65 (39.6)
Homeopathy	36 (22.0)	84 (51.2)	28 (17.1)	16 (9.8)
Herbal medicine	47 (28.7)	36 (22.0)	41 (25.0)	40 (24.4)
Probiotics	88 (53.7)	45 (27.4)	16 (9.8)	15 (9.1)

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Spiritual healing/prayer	15 (9.1)	29 (17.7)	5 (3.0)	115 (70.1)
Aromatherapy	83 (50.6)	50 (30.5)	26 (15.9)	5 (3.0)
Energy healing/Reiki	43 (26.2)	93 (56.7)	12 (7.3)	16 (9.8)
Yoga	21 (12.8)	66 (40.2)	40 (24.4)	37 (22.6)
Tai Chi	85 (51.8)	62 (37.8)	9 (5.5)	8 (4.9)
Hypnosis	90 (54.9)	45 (27.4)	16 (9.8)	13 (7.9)
Naturopathy	95 (57.9)	38 (23.2)	16 (9.8)	15 (9.1)
Relaxation therapy	24 (14.6)	70 (42.7)	14 (8.5)	56 (34.1)
Meditation	22 (13.4)	49 (29.9)	46 (28.0)	47 (28.7)

Table 4.4 shows a summary of participants' familiarity with selected herbs, and their experience of recommending CAM to their patients. Low levels of knowledge were found for the five herbs evaluated, with 96 (58.5%) participants being levelled as limited knowledge of valerian, followed by Ginkgo biloba (83, 50.6%) and ginger (82, 50.0%). The percent of participants who reported being "unfamiliar" with ginseng was the highest at 59 (36.0%), and 60 (36.6%) reported limited knowledge. Concerning counseling confidence, 47 (28.7%) participant were confident about garlic use and advantages/disadvantages, whereas 45 (27.4%) participant were confident about ginger use and advantages/disadvantages. From a clinical perspective, 137 (83.5%) participants said that they had never referred to a CAM practitioner, and 27 (16.5%) had referred. Additionally, 124 (75.6%) said they gave CAM awareness or counsel to a small number (˜1-25%) of their patients. The results indicate that many of the participants were not familiar with herbal therapies or had no personal experience of the CAM referral.

Table 4.4. Familiarity with selected herbs and clinical experiences related to CAM (N = 164)

Variable	Category	Frequency (n)	Percentage (%)
Familiarity with herbs			
Ginger	Unfamiliar	19	11.6
	Limited knowledge	82	50.0
	Understand uses but uncomfortable counseling	18	11.0
	Understand uses and comfortable counseling	45	27.4
Garlic	Unfamiliar	29	17.7
	Limited knowledge	61	37.2
	Understand uses but uncomfortable counseling	27	16.5
	Understand uses and comfortable counseling	47	28.7
Valerian	Unfamiliar	28	17.1
	Limited knowledge	96	58.5
	Understand uses but uncomfortable counseling	26	15.9
	Understand uses and comfortable counseling	14	8.5
Ginseng	Unfamiliar	59	36.0
	Limited knowledge	60	36.6

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	Understand uses but uncomfortable counseling	16	9.8
	Understand uses and comfortable counseling	29	17.7
Ginkgo biloba	Unfamiliar	23	14.0
	Limited knowledge	83	50.6
	Understand uses but uncomfortable counseling	21	12.8
	Understand uses and comfortable counseling	37	22.6
Clinical experience			
Previously recommended CAM to a patient	Yes	27	16.5
	No	137	83.5
Percentage of patients receiving CAM awareness/advice	0%	9	5.5
	1–25%	124	75.6
	26–50%	28	17.1
	76–100%	3	1.8

Table 4.5 shows the attitudes of the participants towards CAM practices and perceived professional responsibilities. 101 (61.6%) participants disagreed at some level that they evaluated their patients for CAM use, and 99 (60.4%) disagreed at some level that they felt comfortable evaluating patients for CAM use. When asked about the role of CAM in professional practice, 66 (40.2%) participants agreed to some extent that CAM therapies had a place in their practice while 76 (46.3%) disagreed. Despite these various opinions, 113/161 (68.9%) participants felt that CAM should be integrated with conventional medical treatment, and 83/161 (50.6%) agreed that they had a role in this integration to some degree. Furthermore, 114 (69.5%) said that CAM education should be required for healthcare workers and 112 (68.3%) said that the incorporation of CAM into workplace practice is a required. Overall, the results suggest that the majority of participants were supportive of CAM education and to integrate CAM with conventional treatment, with limited reports of comfort with, and involvement in, routine CAM assessment. These findings reflect participants' reactions and are not causal or statistically significant.

Table 4.5. Attitudes and professional responsibilities regarding CAM practices (N = 164)

Statement	Response category	Frequency (n)	Percentage (%)
I assess my patients for CAM use	Disagree at any level	101	61.6
	Neutral	19	11.6
	Agree at any level	44	26.8
I feel comfortable assessing patients for CAM use	Disagree at any level	99	60.4
	Neutral	10	6.1
	Agree at any level	55	33.5

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CAM therapies have a role in my practice	Disagree at any level	76	46.3
	Neutral	22	13.4
	Agree at any level	66	40.2
CAM should be integrated with conventional treatment	Disagree at any level	38	23.2
	Neutral	13	7.9
	Agree at any level	113	68.9
I have a role in integrating CAM into conventional treatment	Disagree at any level	46	28.0
	Neutral	35	21.3
	Agree at any level	83	50.6
CAM education is necessary for healthcare workers	Disagree at any level	29	17.7
	Neutral	21	12.8
	Agree at any level	114	69.5
CAM education should be integrated into workplace practice	Disagree at any level	37	22.6
	Neutral	15	9.1
	Agree at any level	112	68.3

Discussion

The present study aims to assess the knowledge and attitude of nursing students regarding complementary and alternative medicine practice. As from study demographic, total subject of the study were 164, majority of them (100) were female and remaining 64 were male. Their educational level was; BSN 2nd year (17), BSN 3rd year (46), BSN 4th year (47), post RN (37), followed by students having other diplomas (17). Inference form data collected, distribution of the study participants by department specific clinical rotations, Neuro wards (34), followed by Critical care units (30), Emergency (25), others department and not specified (48), while some of them had experience in pediatrics (17). Most of the study participants (140) had not attend any lecture, workshop or training on complementary and alternative medicine.

The questionnaire portion of the study were divided into two portion, where portion A, describe the familiarity and utilization of the study participants towards some commonly use complementary and alternative approach (reflecting knowledge level of the students), while portion B, which asked a question that was about attitude of the study subjects towards complementary and alternative medicine. As inference from study findings, it was found that most of them were unaware about some of the common complementary and alternative medicine. About 95 students did not know about naturopathy, followed by hypnosis (90), and even about probiotics their familiarity level was very less (88). Although when asked about spiritual healing, most of them had knowledge about it (115), and responds that they feel comfortable while asking about spiritual healing to patient. Familiarity of the study regarding some of the herbs respectively was; most of the subjects (59) did not know about Ginseng, and about 60 students had limited familiarity, followed by Garlic (29) had no knowledge and 61 students had limited knowledge about it. when asked about "have you ever patient to CAM practitioner", majority of them (137) marks "No". Majority of the students (85) had negative generalization about Complementary and alternative practice and consider them as moderate threat to the public of people.

Participants response to portion B, which contain questions about attitude towards Complementary and alternative medicine. Out of 164 subject 101

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ISSN: (e) 3007-1607 (p) 3007-1593

responds (disagreed) negatively towards a question that is "I assess my patients for CAM use". However, integration of CAM practice into patient conventional therapies, about 83 study participants intend for help, 35 of them was neutral regarding statement, and 46 students disagreed to the given statement. Regarding importance of education of complementary and alternative in their own practice, approximately 114 participants agreed to the given statement, reflecting interest in education of CAM practice. When asked about accountability "I believe I am accountable for assessing patients for CAM therapy use", out of 164 subjects 103 considered that they are not accountable for it. however, overall their attitude was somewhat positive towards question and mostly negative towards some specific questions mention above.

A study conducted by Yasemin Yildirim along with other researchers. The study was aimed to assess compare nursing students and medical student's knowledge and attitude regarding complementary and alternative medicine practice. As from epidemiologic study population, which was 972. Half of them were medical students (50.9 %), and remaining (49.1%) was nursing students. From conclusion portion of the study, it was revealed that nursing students had inadequate knowledge on various complementary and alternative approaches such as massage and imagery, while medical students had proper knowledge on diet therapy, vitamins and prayer. However, it was revealed that both of the group had limited knowledge on complementary and alternative medicine practice. Nursing student's attitude towards complementary and alternative medicine practice was positive as compared with medical students(Yildirim, Parlar et al. 2010).

Another cross sectional study was done on Turkish nursing students. The purpose is to assess the knowledge and attitude of students regarding complementary and alternative medicine (Gulhane Military Medical Academy Nursing School during March/April 2010). Out of total students 354, (91.2%) students participated in the study. When asked about sources of information, there response respectively was; television and radio (80.3%), followed by internet (69.0%). Hypnosis (59.4%), herbal therapies (52.6%), and prayer (58.5%) were the most known practices among them. The response is similar to our study when asked about most effective complementary and alternative approaches their response respectively was; massage (81.4%), herbal therapies (69.3%), and prayer (56.0%). 1st year, 2nd year and 3rd year students had positive attitude towards complementary and alternative medicine practice than 4th year students. The study concluded that the lecture on complementary and alternative medicine practice should be included into curriculum, so that to enhance knowledge of nursing students(Turker, Kilic et al. 2011).

A study conducted on Iranian nurses, where the knowledge, attitude and practice of nurses were assessed in Iranian hospitals. The data was collected from nurses working in four different hospitals. 230 nurses were included in this study. it was noted that most nurses had low level of knowledge regarding complementary and alternative medicine. High level of familiarity was found about herbal medicine and some nutrients. However, majority of them 71.1% believed about the effectiveness of complementary and alternative medicine in disease treatment, which shows their positive attitude towards complementary and alternative medicine. When asked about personal use of complementary and alternative medicine, only 1.56% used complementary and alternative medicine. Overall nurse's attitude towards CAM is positive while their knowledge is poor. So, the study suggest educational program for the improvement of knowledge on complementary and alternative medicine and the inclusion of complementary and alternative medicine education into the curriculum(Zeighami and Soltani-Nejad 2020).

A cross sectional approach on studying Knowledge about, attitude toward, and practice of complementary and alternative medicine among nursing students in China. Eight data base were analyzed, twenty-six were included for analysis. After inference from all these studies, it was concluded that there is a need for integrating and strengthening complementary and alternative medicine curricula into current nursing education. The curricula must be built in way that

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ISSN: (e) 3007-1607 (p) 3007-1593

it should include theoretical framework along with matched clinical practice, any instruments needed for complementary and alternative medicine practice setting(Zhao, Kennedy et al. 2022).

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CONCLUSION:

The present study concluded that most of the study participants had insufficient knowledge regarding complementary and alternative medicine practice. However, their attitude was positive towards complementary and alternative medicine. Most of the subject believed that formal and well defined structured education on complementary and alternative medicine must be integrated into curricula. Level of familiarity was noted high to some complementary and alternative medicine like, spiritual healing and massage, and comparatively low to herbal medicine.

RECOMMENDATIONS

On the basis of study findings, it is recommended that;

- There must be proper educational program on complementary and alternative medicine practice.
- Integration of complementary and alternative medicine practice education into nursing curriculum.
- Avoid the concept of negative generalization towards complementary and alternative medicine practice by general population as well as medical students.

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