

**USE AND ACCEPTANCE OF SUPPLEMENTS AND ALTERNATIVE MEDICINE
(SAM) AMONG MEDICAL STUDENTS IN LUCKNOW, UTTAR PRADESH: A
CROSS-SECTIONAL STUDY**

DISSERTATION

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Of

MASTER OF DENTAL SURGERY

In

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By

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LIST OF ABBREVIATION

S. No.	Abbreviations	Full form
1.	SAM	Supplementary and Alternative Medicine
2.	CAM	Complementary and Alternative Medicine
3.	TCM	Traditional Chinese Medicine
4.	AYUSH	Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy
5.	GoI	Government of India
6.	MBBS	Bachelor of Medicine, Bachelor of Surgery
7.	WHO	World Health Organization
8.	SD	Standard Deviation
9.	p	Level of significance
10.	CI	confidence intervals
11.	N	Number of subjects
12.	%	Percentage
13.	SPSS	Statistical Package for the Social Sciences

ABSTRACT

Introduction: Supplements and Alternative Medicine (SAM) is gaining more importance around the world, both as a topic for research and a used modality. It encompasses various practices, products and medical or health systems that are not commonly recognized in the same way as conventional medicine. During COVID-19, different types of herbs were consumed by people not only in India but worldwide. Hence, the present study is planned to know the Use and acceptance of Supplements and Alternative Medicine (SAM) among medical students in Lucknow, Uttar Pradesh.

Materials & Methods: A Cross-Sectional, questionnaire study was conducted to assess knowledge, perceptions and interest in supplements and alternative medicine of the medical students of Lucknow, Uttar Pradesh. The questionnaire formed was arranged in three sections. The first section contained questions on demographic characteristics. The second section assessed the participants' knowledge about SAM and the sources from which they acquired this knowledge and the third section investigated student's attitudes toward SAM. The Chi square test was used to test if there were differences between knowledge about SAM and the characteristics of the participants. P value less than 0.05 was considered statistically significant.

Results: In the present study, 3986 medical students participated out of which 1752 (43.95 %) were male and 2234 (56.04 %) were female. Meditation and Yoga were the two most familiar SAM types and were recognized by 100.0% of the participants whereas Chiropractic and Faith healing were the two least recognized SAM types, by 50.27% and 51.32%, respectively. Social media was the most popular source for SAM knowledge among the participating students. All questions received positive responses by more than half of the participants reflecting a generally good attitude towards SAM among the participating students. Statistically significant difference was found in the result findings based on the year of study of the participants.

Conclusion: The findings of this study suggest that medical students' knowledge on SAM was inadequate and their perception and attitudes regarding SAM was mixed

Keywords: SAM, Medical students, Knowledge, Attitude, Beliefs, Lucknow

INTRODUCTION

Supplements and Alternative Medicine (SAM) is gaining more importance around the world, both as a topic for research and a used modality. This trend is also true in developed countries. It encompasses various practices, products and medical or health systems that are not commonly recognized in the same way as conventional medicine.^[1] In a literal sense, the term “alternative” refers to any practice that replaces medical therapy, and the term “supplementary” refers to any practice that completes the medical therapy.^[2]

Supplements and Alternative Medicine involves five categories of practices. The first category involves the use of natural products, such as herbs, probiotics, antioxidants, and chondroitin sulfate. The natural product that is used the most is fish oil which is rich in omega 3. The second category involves mind-body therapy, which uses techniques that enhance the ability of the mind to influence the function of the body and improve health. Examples of this category include hypnotherapy and yoga. The third category is Alternative Medical Systems, examples of which include homeopathy and naturopathic medicine. It also includes using traditional medical systems from different countries like Ayurved, which is a form used in India and Traditional Chinese Medicine (TCM) which includes acupuncture and acupressure. The fourth category is manipulation and body-based methods which are based on the manipulation and movement of one or more of the body parts as seen in body massage and sport. The fifth category is Energy Therapy, which is based on the idea that energy fields surround and penetrate the human body. Some people, however, use types of Supplements and Alternative Medicine other than these five categories, such as religious rituals including prayer.^[3]

The COVID-19 pandemic has caught international health systems with a low level of preparedness and emergency response. Till date we do not have exact treatment for Covid 19 control and prevention. Vaccines also do not provide 100% protection. Enormous efforts are being made by Governments, health care professionals, and pharmaceutical companies to contain this disease across the world. The Ministry of AYUSH, Government of India (GoI), is providing “Ayush Kwath” or an herbal kadha to its people to build immune boosters. In this course, different and varied types of herbs are consumed by people not only in India but

worldwide. Making healthy lifestyle choices by consuming nutritious foods and getting enough sleep and in addition, supplementing with certain vitamins, minerals, herbs and other substances can improve immune response and potentially protect against illness.^[4]

Internationally, this has led to a surge in the demand and supply of many supplements and alternative medicines and practices. It is imperative that healthcare professionals, including pharmacists, are acquainted with current practices, policies, and research in relation to supplements and alternative medicines use to improve health and immunity in general.^[5]

Hence, the present study is planned to know the Use and acceptance of Supplements and Alternative Medicine (SAM) among medical students in Lucknow, Uttar Pradesh.

AIM AND OBJECTIVES

AIM

To assess knowledge, perceptions and interest in supplements and alternative medicine of the medical students of Lucknow, Uttar Pradesh.

OBJECTIVES

1. To assess knowledge, perceptions and interest in supplements and alternative medicine of the medical students of Lucknow, Uttar Pradesh.
2. To evaluate the association between knowledge regarding supplements and alternative medicine with age, gender and socio-economic status of medical students of Lucknow, Uttar Pradesh.

REVIEW OF LITERATURE

1. **Kanadiya MK, Klein G, Shubrook JH Jr (2012)¹** conducted a study on Use of and attitudes toward complementary and alternative medicine among osteopathic medical students. A previously validated,29-item Integrative Medicine Attitude Questionnaire and a 10-item CAM Health Belief Questionnaire were administered to osteopathic medical students. Demographic and other data were collected. Survey respondents were 635 osteopathic medical students from 7 osteopathic medical schools and addition allocations in the United States. A total of 527 osteopathic medical students (83.0%) self-reported the use of at least 1 CAM modality, whereas 69 students (10.9%) used just 1 CAM modality and 458 (72.1%) used 2 or more modalities. The most commonly used CAM modalities—meditation /yoga /relaxation /imagery, massage, and spirituality/prayer—were also most likely to be suggested to patients by osteopathic medical students. This study showed Osteopathic medical students had a positive attitude toward CAM and had high levels of self-reported CAM knowledge and use.
2. **Frass M, Strassl RP, Friehs H, Mullner M, Kundi M, Kaye AD (2012)⁶** did a review on Use and acceptance of complementary and alternative medicine among the general population and medical personnel. They conducted a systematic search of the existing literature utilizing different databases, including PubMed/Medline, PSYINDEX, and PsycLit. A special focus on CAM-referring literature was set by adding two other search engines: CAMbase (www.cambase.de) and CAMRESEARCH (www.camresearch.net). A total of 16 papers met the scope criteria. Prevalence rates of CAM in each of the included studies were between 5% and 74.8%. They found a higher utilization of homeopathy and acupuncture in German-speaking countries. Excluding any form of spiritual prayer, the data demonstrate that chiropractic manipulation, herbal medicine, massage, and homeopathy were the therapies most commonly used by the general population. Compared to students of other professions (ie nursing students: 44.7%, pharmacy students: 18.2%), medical students reported the least consultation with a CAM practitioner (10%). The data demonstrated an increase of CAM usage from 1990 through 2006 in all countries investigated. They found geographical differences, as well as differences between the general population and medical personnel.

3. **Akan H, Izbirak G, Kaspar EC, Kaya CA, Aydin S, Demircan N et al (2012)**⁷ conducted a study on Knowledge and attitudes towards complementary and alternative medicine among medical students in Turkey. A cross-sectional study was carried out between October and December 2010. Data were collected from a total of seven medical schools. The study included 943 medical students. The most well-known methods among the students were herbal treatment (81.2%), acupuncture (80.8%), hypnosis (78.8%), body-based practices including massage (77%) and meditation (65.2%), respectively. Acupuncture, aromatherapy, herbal treatment and meditation were better known among female participants compared to males ($p < 0.05$). A larger proportion of female students compared to male students reported that a doctor should be knowledgeable about CAM ($p = 0.001$), and this knowledge would be helpful in their future professional lives ($p = 0.015$). It was concluded that majority of the medical students were familiar with the CAM methods widely used in Turkey, while most of them had positive attitudes towards CAM as well as willingness to receive training on the subject, and they were likely to recommend CAM methods to their patients in their future professional lives.

4. **Awad AI, Al-Ajmi S and Waheedi MA (2012)**⁸ conducted a study on Knowledge, Perceptions and Attitudes toward Complementary and Alternative Therapies among Kuwaiti Medical and Pharmacy Students. A descriptive and cross-sectional study was performed using a pre-tested questionnaire on a randomly selected sample of 250 students in Faculties of Medicine and Pharmacy, Kuwait University. Descriptive and logistic regression analyses were used in data analysis. The response rate was 88.4%. CAM usage was reported by 122 (55.2%) of students, and mostly associated with females. Herbal products were the most commonly used (83, 37.6%). Massage, herbal products and prayer/Qur'an reciting were perceived as being the most effective, while cauterization as the most harmful. Attitude toward CAM was positive, with 176 (79.7%) believing that CAM includes ideas and methods from which conventional medicine could benefit. Lack of trained professionals and lack of scientific evidence were the most perceived barriers for CAM implementation. The students acknowledged the need to be well educated about CAM to better advise their patients in the future.

5. **Camurdan C, Gul A. (2013)⁹** conducted a study on Complementary and alternative medicine use among undergraduate nursing & midwifery students in Turkey. A cross-sectional survey was performed on second, third and fourth year students. The mean age of the students was 21.37 ± 2.23 . The sources of information were firstly books/magazines (65.5%) and school (60.3%). 93.5% of the students preferred to use both CAM and medical treatments at their illnesses. Hot and cold application (51.6%), massage (50.9%) and exercise (48.7%) were the most chosen methods by students, to use in patient care and to recommend them to the patients. They also pointed that, CAM affects the psychology of patients positively (65.5%), accelerates the healing process (59.6%). 86.5% of the participants pointed that; they want the integration of CAM, especially massage (74.2%) and meditation (46.9%) into the curriculum. The majority of the students reported that using and recommending CAM to their patients is beneficial. These methods should be integrated into the curriculum.

6. **Anlauf M, Hein L, Hense HW, Kobberling J, Lasek R, Leidl R et al. (2015)²** conducted a study on Complementary and alternative drug therapy versus science-oriented medicine. From the authors' perspective, CAM prescriptions and most notably the extensive current endeavours to the "integration" of CAM into conventional patient care is problematic in several respects. It is extensively explained that the methods used in this regard are those of evidence-based medicine, which is one of the indispensable pillars of science-oriented medicine. This standard of proof of efficacy is fundamentally independent of the requirement of being able to explain efficacy of a therapy in a manner compatible with the insights of the natural sciences, which is also essential for medical progress. The high attractiveness of CAM measures evidenced in patients and many doctors is based on a combination of positive expectations and experiences, among other things, which are at times unjustified, at times thoroughly justified, from a science-oriented view, but which are but non-specific.

7. **Jaiswal K, Bajait C, Pimpalkhute S, Sontakke S, Dakhale G and Magdum A (2015)¹⁰** conducted a study on Knowledge, attitude and practice of complementary and alternative medicine: A patient's perspective. A cross-sectional, questionnaire-based survey conducted in 100 patients attending out-patient department of a tertiary care teaching

hospital. Among the respondents, 79.0% were aware of CAM and 46.0 used it. Most common system used was Ayurveda (71.73%), and most common ailment for which it is used was arthritis (30.43%). Majority consulted quacks (43.47%); physicians (23.91%), friends and relatives (19.56%), and 15.21% took CAM as a self-medication. Thirty percent felt that CAM was based on scientific evidence, 25% felt it was safer than modern medicine that is significantly more in women when compared to men. Majority of patients use CAM along with modern medicine without physician's advice. Hence, healthcare professionals should be aware of this while taking clinical history and treating patients that may reduce drug interactions due to use of CAM particularly in the elderly population.

8. **Roy V, Gupta M, and Ghosh RK (2015)**¹¹ conducted a study on Perception, attitude and usage of complementary and alternative medicine among doctors and patients in a tertiary care hospital in India. This study was conducted among 200 doctors working at a tertiary care teaching Hospital, India and 403 patients attending the same. The use of CAM was more among doctors (58%) when compared with the patients (28%). Among doctors, those who had utilized CAM themselves, recommended CAM as a therapy to their patients (52%) and enquired about its use from patients (37%) to a greater extent. Most patients who used CAM felt it to be more effective, safer, less costly and easily available in comparison to allopathic medicines. It was concluded that there is a lack of communication between doctors and patients regarding CAM, which may be improved by sensitization of doctors and inclusion of CAM in the medical curriculum.
9. **Alzahrani SH, Bashawri J, Salawati EM and Bakarman MA (2016)**¹² conducted a study on Knowledge and Attitudes towards Complementary and Alternative Medicine among Senior Medical Students in King Abdulaziz University, Saudi Arabia. The study was conducted by selecting a cross-sectional sample of senior medical students in the Faculty of Medicine. A validated and reliable self-administered questionnaire was used. The study included 242 students, making the response rate 88.6%. Only two-thirds of students (62.4%) were aware of acupuncture principles and only 17.4% recognized that chiropractic is associated with pain management. The knowledge of common herbs was limited among the students. Students attitudes toward CAM learning were encouraging

regardless of their limited knowledge on the subject. A high percentage of students agreed that CAM in combination with conventional therapy is beneficial in treating unusual cases, but the choice of CAM should be based on evidence.

10. **Rajashree R, Jirge VL, Parineetha B and Gouder SS (2016)**¹³ conducted a Survey Of Attitude Towards Complementary And Alternative Medicine Among First Year Undergraduate Medical Students In Belgaum. The questionnaire contained attitudes toward CAM and Integrative medicine (IM). All responses were scored on a 5- point Likert scale and the data was analyzed by using SPSS version 20.0. Nearly 53% and 76% of the students (n=150) have showed positive attitude towards CAM and integrative medicine respectively. Coastal group of students showed more positive attitude towards integrative medicine compared to that of interior group (P=0.0002). In the present study, students have showed positive attitude favoring inclusion of CAM topics in the medical curriculum in India.

11. **Akansel N, Özdemir A, Yıldız H, Baran A and Dirik M (2017)**¹⁴ conducted a study on the use of Complementary and Alternative Medicine among hypertensive patients. The descriptive design was used for this study in one university hospital located in western Turkey. Data were collected from patients by using a questionnaire with diagnoses of hypertension. There were 127 patients eligible this study. The mean age of the patients was 59.33 ± 11.97 years. Most of the patients (78.7%) reported using CAM practices. Nutritional, cognitive and behavioral approaches, vitamins and herbal medications were mostly preferred methods for controlling the blood pressure. Although hypertensive patients are on medical treatment currently most of them consider using CAM to lower their blood pressure. Adherence to medical treatment among hypertensive patients is also questionable.

12. **Sharma E, Dubey AK, Malhotra S, Manocha S and Handu S (2017)**¹⁵ conducted a study on Use of complementary and alternative medicines in Indian elderly patients. It was a descriptive cross-sectional study assessing a representative sample of 325 elderly patients over the age of 60 years. Data collection was done after face-to-face interview-

based survey administered on a semi-structured questionnaire. The number of CAM users (65.5%) was significantly more than the non-users ($P \leq 0.05$). Ayurveda was the most popular practice (64.8%), followed by homeopathy (62.4%) with many patients using both the practices together. Use of CAM practices concomitantly with modern medicine was not considered unsafe by 56.8% of patients. The study suggests the need to acknowledge and explore the high prevalence of CAM usage with increasing age in the Indian elderly, both to identify the irrational usage of CAM alone or in combination with the modern medicine system and to facilitate the integration of rational CAM practices in the mainstream medicine.

13. **Ray J, Chakrabarty D, Paul R and Som K (2018)**¹⁶ conducted a study on Prevalence of the use of complementary and alternative medicine in an eastern Indian population with emphasis on tribal/ethnic minority groups. This was a hospital-based quantitative cross-sectional survey involving adult patients. The study was conducted simultaneously in an urban university hospital and a rural hospital. Data on the demographic characteristics of the participants and their reasons for CAM use were collected. In total, 442 participants were included in the study, and among them, approximately 50% were aged 31-50 years. Moreover, around 26.7% of the participants belonged to the tribal population, 36.7% used CAM within the last year, and 57.2% used CAM in their lifetime. The use of CAM for certain symptoms was quite significant in the study population, particularly in the tribal population.

14. **Samara AM, Barabra ER, Quzaih HN and Zyoud SH (2019)**³ conducted a study on Use and acceptance of complementary and alternative medicine among medical students: a cross sectional study from Palestine. It targeted medical students of both sexes in their 4th, 5th, or 6th year of studies at An-Najah National University, between January and April of 2018. The questionnaire consisted of 3 sections: demographic characteristics and detailed practices of the participants, their attitude and held beliefs towards CAM, and their knowledge on CAM. Of the 300 medical students who were offered the questionnaire, 251 students (43.8% male and 56.2% female) were included in the final analysis. Out of a maximum of 8 points, the mean knowledge score of the participants was 2.0 ± 1.6 . The Kruskal-Wallis test showed a statistically significant difference in overall knowledge score among students of different year groups, with students at lower

levels obtaining higher scores ($P < 0.001$). It was concluded that a knowledge gap regarding CAM was found among medical students despite their good attitude towards the subject.

15. **Jessica Baugniet J, Boon H and Østbye T (2000)**¹⁷ conducted a study on Complementary/Alternative Medicine: Comparing the Views of Medical Students With Students in Other Health Care Professions. A cross-sectional study questionnaire (n=442) was administered on site at the University of Western Ontario and the University of Toronto to fourth-year health professions students. Educational exposure to CAM was correlated with the perceived usefulness of CAM. Medical students reported the least amount of education about CAM and viewed CAM therapies as less useful than did their health professions student peers. Medical students and pharmacy students were more likely than the other health professions students to view traditional scientific forms of evidence as necessary before accepting CAM therapies. Perceptions differed among the different health professions student groups about the usefulness of CAM therapies and the kind of evidence needed before they should be incorporated into standard care.

16. **Akriti, Chandurkar P, Gujar N, Murab T, Choudhary A and Tripathi A(2021)**⁴ conducted a survey on the Effect of Indian Herbs and Spices in Boosting Immunity Against Covid 19 on Bhopal Population. SARS-CoV-2 disease, commonly called Corona Virus (Covid-19) has evolved into pandemic and has led to dramatic loss of human life worldwide. The pandemic has affected the immunity of entire population leading to weak immune system. The Ministry of AYUSH, Government of India, has provided “Ayush Kwath” to improve immune system and stable the situation. Use of herbs and traditional medicinal products are recommended to strengthen immunity among people and build their livelihood. In this survey, authors tried to understand the views of Bhopal, MP, India population about the usage of herbs and spices like tulsi, turmeric, ginger, giloy, ashwaghandha, cinnamon etc. to boost their immunity during this pandemic attack. A total of 220 responders have filled the google form successfully. In this study it was found that majority of Bhopal responders has shown their interest in Indian herbs and spices and thought that it can be an effective way in controlling the spread of the novel Covid-19 by boosting their immunity.

17. **Paudyala V, Sunb S, Hussain R, Abutalebd MH, Hedima EW (2021)⁵** conducted a study on Complementary and alternative medicines use in COVID-19: A global perspective on practice, policy and research. The COVID-19 pandemic has met international health systems with a low level of preparedness and emergency response. Recent studies have shown increasing CAM information requests made to pharmacists and other healthcare staff from members of public and patients aimed at prevention, symptoms relief or treatment of COVID-19. In this context, it is imperative that healthcare professionals, including pharmacists, are acquainted with current practices, policies, and research in relation to CAM use in COVID-19. This narrative commentary provides an update on global practices, policies and research in regards to CAM use in the context of COVID-19. This narrative provides relevant discussions specific to different continents and regions historically linked to diverse CAM practices.
18. **Stub T, Jong MC, Kristoffersen AE (2021)¹⁸** conducted a study on the impact of COVID-19 on complementary and alternative medicine providers: a cross-sectional survey in Norway. This survey analyzed data from a self-administrated questionnaire. A total of 581 CAM providers completed the questionnaire. During the nationwide lockdown of Norway, 38.4% of respondents were able to provide CAM treatment to their patients. Of those, the majority (96.4%) had reorganized their clinical practice in accordance with COVID-19 hygiene regulations, offered video consultations (57.4%) or telephone consultations (46.6%). To manage financially during the lockdown, half of the providers spent their savings (48.7%). The majority (62.7%) expressed uncertainty about the future of their practice. It was concluded that the impact of COVID-19 on CAM providers was considerable. It adversely affected their clinical practice, financial situation, and view on their future practice.
19. **Singh A and Kamath A (2021)¹⁹** conducted a study on Attitude of Medical Students and Doctors towards Complementary, Alternative and Integrative Medicine: A Single-Center, Questionnaire-Based Study. The CAIMAQ consisted of 30 items, divided into five categories assessing various aspects of CAM, and scored using a 7-point Likert scale. A total of 138 medical students and faculty responded and participated in the study, of which, 24 (17.4%) were faculty, 40 (29%) were final-year medical students and 74

(53.6%) were second-year medical students. In general, the faculty were significantly less likely to consider referring patients for CAIM treatments, referring patients to alternative healthcare providers or considering CAIM treatments to be less invasive and harmful compared with conventional medicine. The attitude of medical students and doctors towards CAM is positive, and although the medical faculty have reservations in recommending specific types of CAM therapies or integrating them with conventional care, building evidence for supporting CAM therapies in specific diseases is likely to increase its uptake among health care professionals.

20. **Pandey L, Pasricha R, Joseph D, Ahuja R, Yanthan Y, Garg PK et al (2021)**²⁰ conducted a study on Use of complementary and alternative medicine among patients with cancer in a sub-Himalayan state in India: An exploratory study. This was a questionnaire-based study, conducted among patients with cancer in a tertiary care hospital in a sub-Himalayan city. A total of 2614 patients with cancer were included. Almost half of the patients (n = 1208, 46.2%) reported to have been treated with CAM. Breast cancer (n = 274, 23.0%) was most prevalent with majority at advanced stages. Ayurveda (n = 428, 35.9%) Yoga/Naturopathy (n = 381, 32.0%) Homeopathy (n = 143, 12.0%) and Unani (n = 71, 5.9%) were used commonly. Among CAM users, 85.0% (n = 1012) of patients used CAM as the sole method of treatment, while 58.9% (n = 702) patients reported initial symptomatic benefit. It was concluded that using CAM benefitted a significant number of patients with cancer. However, there is an urgent need to integrate CAM with modern system of medicine.

MATERIALS AND METHODS

STUDY DESIGN:

A Cross-Sectional, questionnaire study was conducted to assess knowledge, perceptions and interest in supplements and alternative medicine of the medical students of Lucknow, Uttar Pradesh.

STUDY AREA:

- A questionnaire survey was conducted among the medical students of Lucknow city.
- Lucknow is the capital of Uttar Pradesh.
- The city remains at an elevation of roughly 123 meters (404 ft) above the sea level. Lucknow region covers a total area of 2,528 square kilometers (976 sq mi)
- It is bounded by Barabanki on the east, by Unnao on the west, by Raebareli in the south and by Sitapur and Hardoi in the north, Lucknow lies on the northwestern bank of the Gomti River.
- According to the provisional report of Census of India in 2011, the population of Lucknow city was 2,815,601, out of which 1,470,133 were men and 1,345,468 women.
- The city has a total literacy level in 2011 of 84.72% in Lucknow city, the total literate population totalled 2,147,564 people of which 1,161,250 were male and 986,314 were female.
- Relevant Demographic Details along with questions on knowledge, perceptions and interest in supplements and alternative medicine were included in the study.

STUDY SETTING:

- Lucknow city was divided into 5 geographical regions: East, West, North, South and Central zone.
- There are 7 medical colleges and around 4600 students in Lucknow city.
- Students from both the government and private medical colleges of Lucknow city who met the eligibility criteria were selected.

STUDY POPULATION:

The study population consisted of medical students of Lucknow city.

ETHICAL CLEARANCE:

- Ethical clearance was obtained from Institutional Ethical Committee of Babu Banarasi Das College of Dental Sciences, BBDU, Lucknow.

CONSENT:

- Verbal consent was obtained from all the subjects participating in the study. and permission was taken from the college authorities.

INCLUSION CRITERIA:

- MBBS students
- Participants of both genders.
- Ability to understand and answer questions.

EXCLUSION CRITERIA:

- Those who were not able to understand the questions or unwilling to participate in the study.

PILOT STUDY:

- A pilot study was conducted on 50 participants to pre-test the questionnaire to check for feasibility, reliability of the study.
- The reliability was calculated using test retest and Cronbach's alpha.

SAMPLE SIZE ESTIMATION:

Total Enumerates

SCHEDULE OF THE SURVEY:

- The collection of data was carried for 4 months between July 2022 to October 2022.
- Daily and weekly schedules were prepared.
- The schedule was made available to the college authorities.
- The schedules took into account some adaptability, so that the unexpected delays don't cause significant upsets in the survey schedule.
- The plan for scheduling the time survey included: Introducing the examiner to the college director and teachers concerned; Distributing the questionnaire, Providing a short oral report to the incharge; Traveling to the next college.
- Questionnaire was distributed to the students and they were given 5-7 min to fill the questionnaire.
- Completed questionnaire was obtained back by the investigator.

CALIBRATION AND TRAINING

- The calibration of the principal investigator was done by the research head who had conducted various epidemiological study and has thorough knowledge of the subject.

EXAMINATION AREA

- The study was carried in the class room or field of the college.

INSTRUMENTS AND SUPPLIES

- The following instruments and supplies were used
 1. Questionnaire
 2. Pencil/pen
 3. Eraser
- An adequate supply of assessment forms, hardboard bases and clips, sharpened pencils, erasers and pens was readily available.

DAILY REVIEW OF ASSESSMENT FORMS

- It is vital that the investigator surveys every day's assessment forms around the same time, for completeness and accuracy of recordings.

QUESTIONNAIRE:

- The questionnaire was formed using content validity by a subject expert who is also the research head of the study.
- Face validity was conducted on 20-25 people by distributing the questionnaire in multiple format.
- Content validity was calculated using correlation test.
- The questionnaire consisted of 8 variables consisting of subparts, self-administered questions.
- The questionnaire was modified based on the result of the reliability to gather information about participant's demographic data, attitude, beliefs, knowledge, and use of supplements and alternative medicine.
- The final questionnaire was arranged in three sections. The first section contained questions on demographic characteristics. The second section assessed the participants' knowledge about SAM and the sources from which they acquired this knowledge and the third section investigated student's attitudes toward SAM.

DATA COLLECTION:

- The questionnaire was distributed personally by the investigator herself and collected back the same day.

STATISTICAL ANALYSIS:

- The data collected were entered in IBM SPSS 20.0 version (Chicago, Inc, USA).
- The results are presented in frequency and percentage through graphs and tables.
- The Chi square test was used to test if there were differences between knowledge about SAM and the characteristics of the participants.
- P value less than 0.05 was considered statistically significant. All the data were reported with exact p-values and 95% confidence intervals (CI) and 5% margin of error (z).

RESULTS

In the present study, 3986 medical students participated out of which 1752 (43.95 %) were male and 2234 (56.04 %) were female. 72.10 % of the students were less than 23 years of age and 37.60 % were of 24 years age and above. Data was analysed using SPSS 22.0 version (Chicago, Inc, USA). Descriptive statistics was used for qualitative analysis which depicts as frequency, bar graph and pie diagram. Chi square test was used at $p < 0.05$ to see the association with demographic data and to generate the hypothesis.

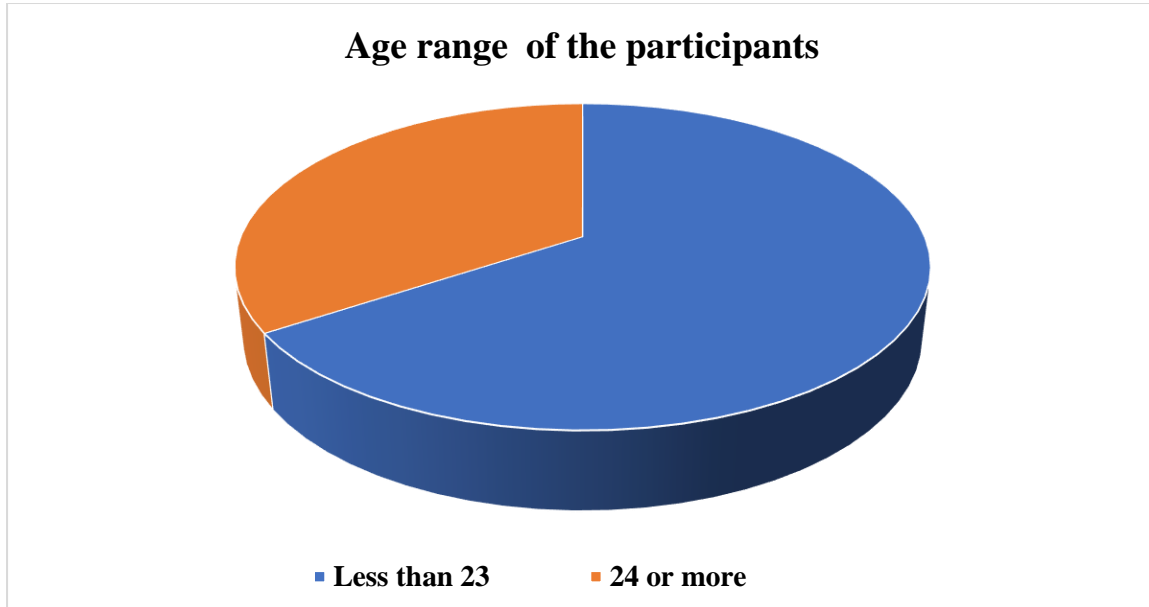
The demographic characteristics of the participants are detailed in Table 1 and Graph 1a,1b,1c,1d and 1e

Table 1: Demographic characteristic of the participants

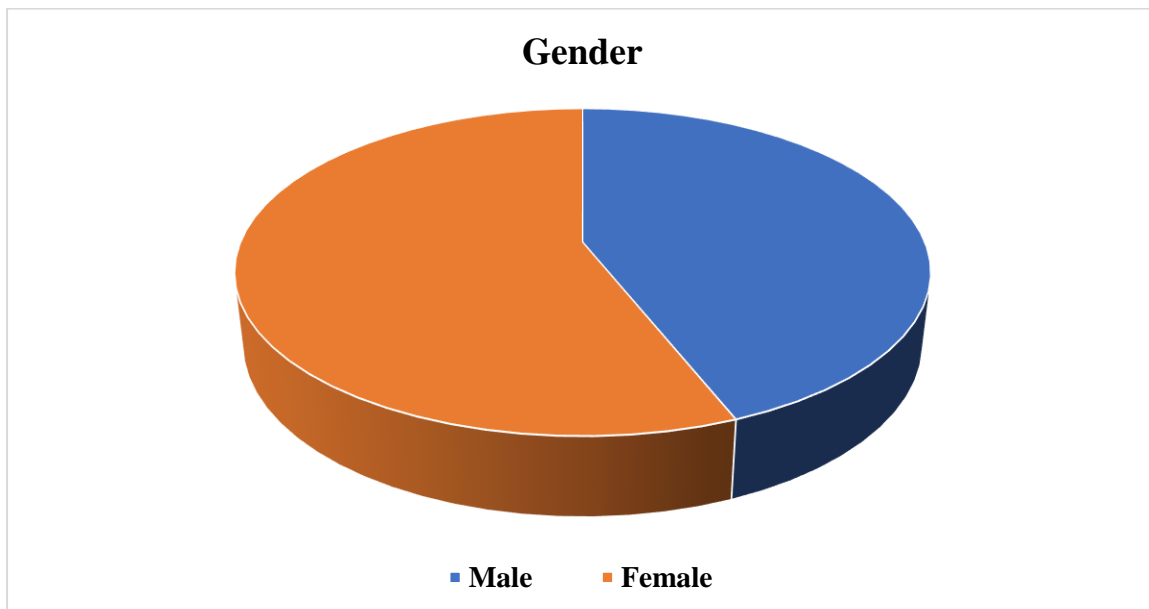
Demographic variables	Total (n)	Percentage
Age range		
Less than 23	2487	72.10 %
24 or more	1499	37.60 %
Gender		
Male	1752	43.95 %
Female	2234	56.04 %
Year of study		
1 st year	1046	26.24 %
2 nd year	994	24.93 %
3 rd year	986	24.73 %
4 th year	960	24.08 %
Locality you grew up in		
Rural	1597	40.06 %
Urban	2389	59.93 %
In what category does your family's monthly income fall		
Rs.7533 and above	3889	97.56 %
Rs.3766-7532	88	2.20 %
Rs.2260-3765	9	0.23 %
Rs.1130-2259	0	0 %

Rs.1129 and below	0	0 %
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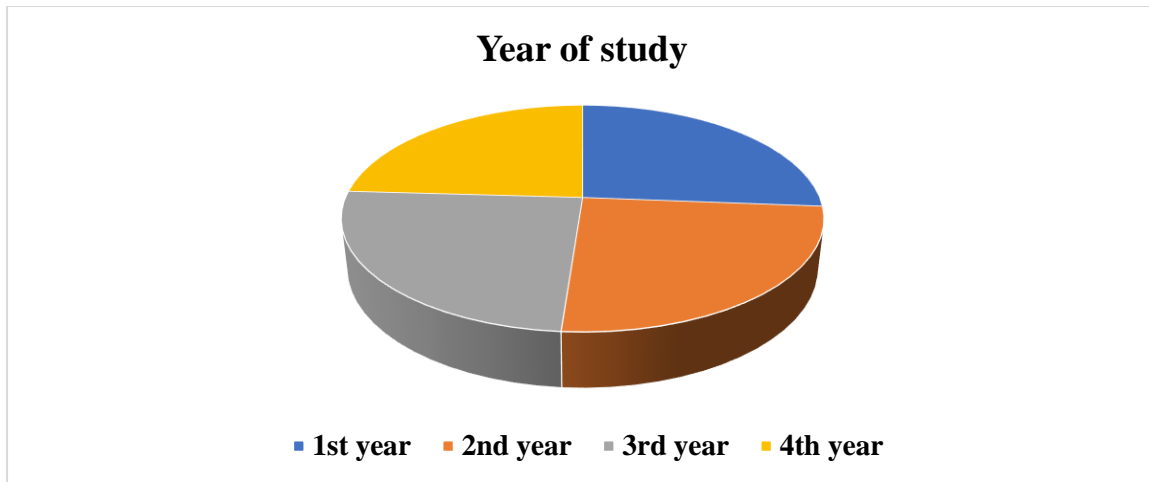
Graph 1a: Age range of the participants



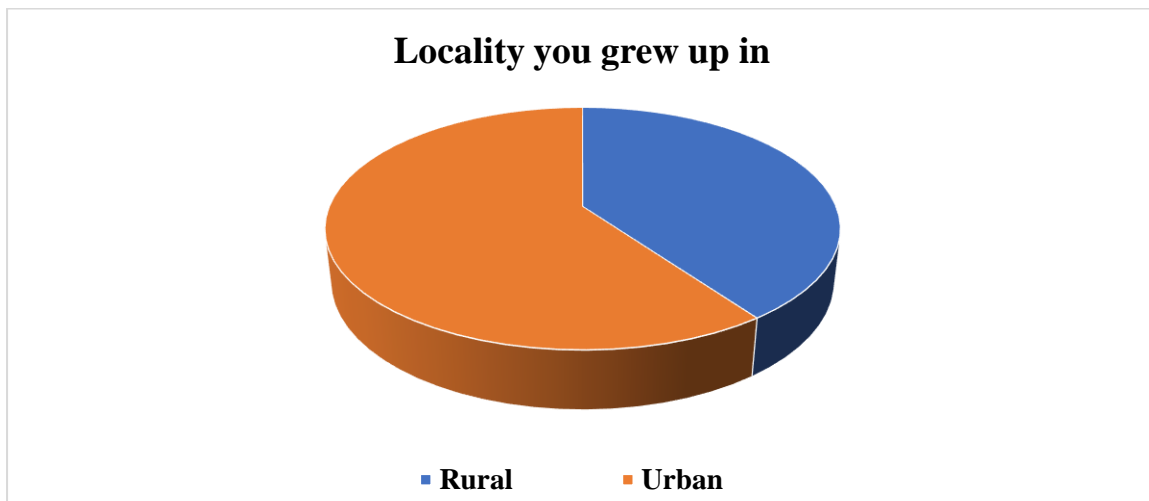
Graph 1b: Gender wise distribution of participants



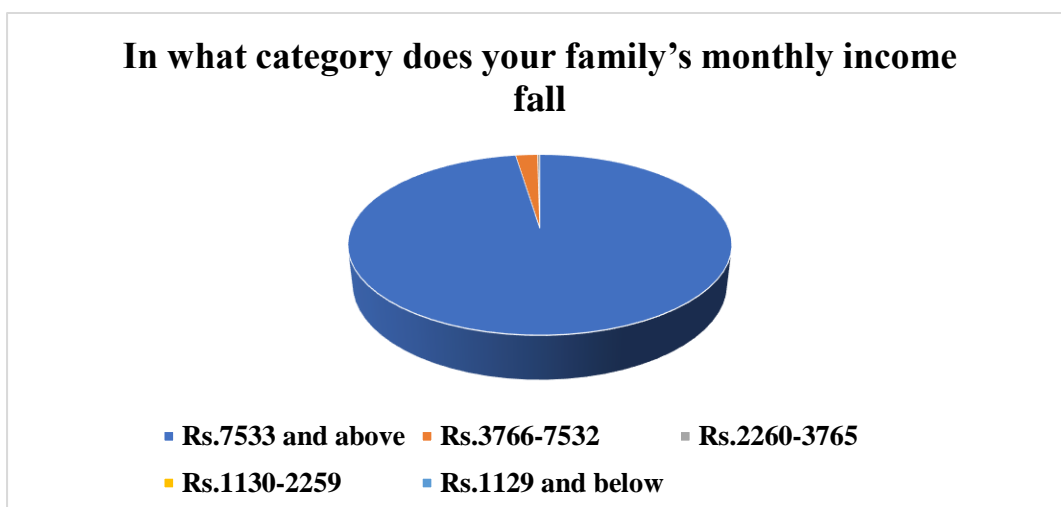
Graph 1c: Year of study of participants



Graph 1d: Locality wise distribution of participants



Graph 1e: Socioeconomic status of the participants



Knowledge of SAM

The results of SAM knowledge are summarized in Table 2a, 2b and 2c. The two most frequently correctly answered questions were about the safety of Spinach eating in patients with kidney disease (53.73% correct response rate) and the beneficial effect of Ginger for patients with premenstrual syndrome (49.84% correct response rate). The lowest correct response rates, on the other hand, were for questions about Echinacea's effect on immunity (14.79%) and bran's effect on the metabolism of digoxin (8.42%). The differences in knowledge between medical students based on their year of study was found to be statistically significant while the differences based on age, gender, type of residency and their families' monthly income were not found to be significant.

Table 2a: Numbers and percentages of participants who answered correctly on the 8 knowledge questions

No.	Question	Number	Percentage
1	Senna contraindicated in case of pregnancy and children under 12 years.	1476	37.03 %
2	Eating Spinach is safe for kidney patients.	2142	53.73 %
3	Fenugreek increases the risk of elevated blood sugar so it should be avoided in diabetes patients.	1678	42.09 %
4	Garlic increase the possibility of bleeding when used with warfarin.	1247	31.28 %
5	Bronchoconstriction is a side effect of caffeine.	1746	43.80 %
6	Ginger is effective in decreasing PMS.	1987	49.84 %
7	Echinacea is used to suppress immunity.	597	14.97 %
8	The use of digoxin with bran will increase the concentration of digoxin.	336	8.42 %

Table 2b: Year wise comparison of response of participants who answered correctly on the 8 knowledge questions

No.	Question	1 st Year (N)	2 nd Year (N)	3 rd Year (N)	4 th Year(N)
1	Senna contraindicated in case of pregnancy and children under 12 years.	258	267	402	549

2	Eating Spinach is safe for kidney patients.	224	326	689	903
3	Fenugreek increases the risk of elevated blood sugar so it should be avoided in diabetes patients.	215	324	497	642
4	Garlic increase the possibility of bleeding when used with warfarin.	197	209	336	505
5	Bronchoconstriction is a side effect of caffeine.	246	351	498	651
6	Ginger is effective in decreasing PMS.	299	386	552	750
7	Echinacea is used to suppress immunity.	86	102	198	211
8	The use of digoxin with bran will increase the concentration of digoxin.	45	78	102	111

Table 2c: Association between demographic data and the response using Chi square test (p value)

No	Question	Age	Gender	Year of study	Locality	SES
1	Senna contraindicated in case of pregnancy and children under 12 years.	0.65	0.72	0.04	0.31	0.98
2	Eating Spinach is safe for kidney patients.	0.23	0.21	0.03	0.06	0.86
3	Fenugreek increases the risk of elevated blood sugar so it should be avoided in diabetes patients.	0.21	0.22	0.04	0.12	0.07
4	Garlic increase the possibility of bleeding when used with warfarin.	0.07	0.60	0.04	0.70	0.26
5	Bronchoconstriction is a side effect of caffeine.	0.06	0.32	0.03	0.23	0.45
6	Ginger is effective in decreasing PMS.	0.42	0.71	0.02	0.21	0.70
7	Echinacea is used to suppress immunity.	0.07	0.43	0.03	0.07	0.36
8	The use of digoxin with bran will increase the concentration of digoxin.	0.23	0.07	0.04	0.06	0.07

Graph 2: Numbers and percentages of participants who answered correctly on the 8 knowledge questions

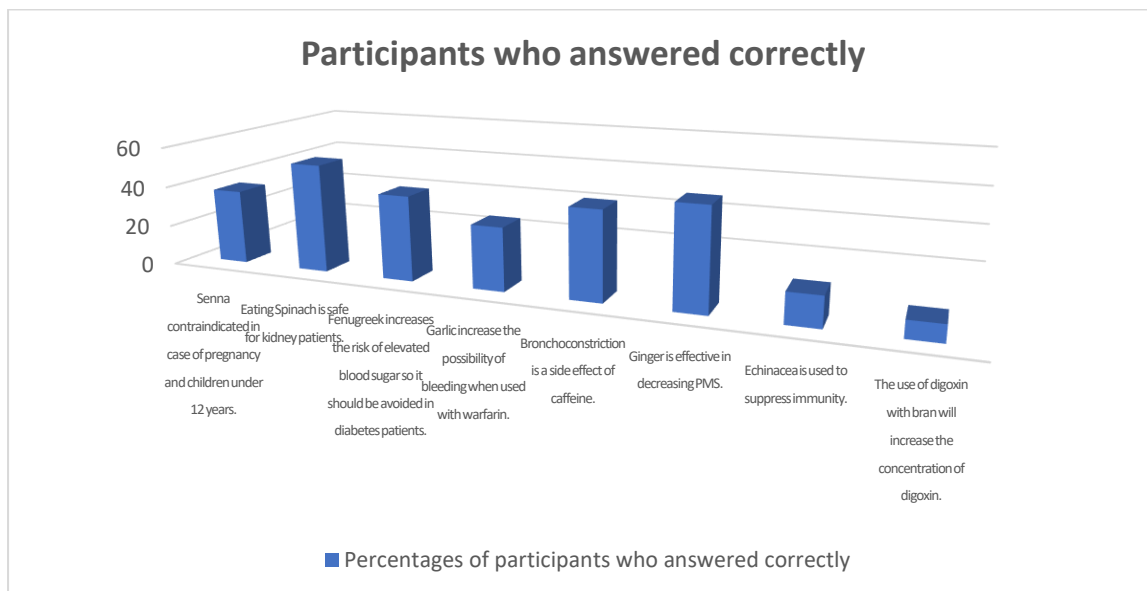


Table 3 shows the relationship between medical students' characteristics and their knowledge score. The mean age of the students in the age group of below 23 years was 21 ± 0.32 and for the age group of above 24 years was 27 ± 2.1 . There was no association between the participants' age and their knowledge score as evident by the p values for these two variables (0.88).

Table 3: Relationship between characteristics of participants and their knowledge scores

Demographic variables	Mean	P value
Age range		
Less than 23	21 ± 0.32	0.88
24 or more	27 ± 2.1	

Types of SAM

The participants' familiarity with, use of, and attitude towards different types of SAM were assessed. The results of this assessment are summarized in Table 4a. Meditation and Yoga were the two most familiar SAM types and were recognized by 100.0% of the participants, followed by Homeopathy and Ayurvedic medicine by 97.49% and 97.17% respectively,

whereas Chiropractic and Faith healing were the two least recognized SAM types, by 50.27% and 51.32%, respectively. As for personal use, Meditation and Yoga came at the top with 97% of the participants reported previously using each of these two types of SAM. When asked if they would advise patients to use different types of SAM, participants showed a positive attitude towards Meditation (93.95%) and Yoga (97.06%) followed by Massage therapy (68.86%) and Herbal medicine (64.70%) more frequently than any other SAM type, and they were least likely to advise using Chiropractic, Faith healing, Hypnosis and Reflexology. Table 4b shows year wise comparison of response of the participants and Table 4c shows Association between demographic data and the response using Chi square test (p value). Statistically significant difference was found in the result findings based on the year of study of the participants.

Table 4a: Types of supplementary and alternative medicine (SAM) and participants' knowledge and attitude regarding them

Term	1. Is it familiar to you? N (%)	2. Have you ever used it? N (%)	3. Would you advice using it to patients? N (%)
Homeopathy	3886 (97.49 %)	2987 (74.93 %)	2475 (62.09 %)
Naturopathy	3549 (89.03 %)	2445 (61.33 %)	2316 (58.10 %)
Acupuncture	3589 (90.04 %)	2256 (56.59 %)	2114 (53.03 %)
Ayurvedic medicine	3874 (97.17 %)	2631 (66.0 %)	2147 (53.86 %)
Aromatherapy	3669 (92.04 %)	2175 (54.56 %)	1997 (50.10 %)
Chiropractic	2004 (50.27 %)	1023 (25.66 %)	1009 (25.31 %)
Faith healing	2046 (51.32 %)	1456 (36.52 %)	1162 (29.15 %)
Massage therapy	3147 (78.95 %)	2791 (70.02 %)	2746 (68.86 %)
Hypnosis	3745 (93.95 %)	1263 (31.68 %)	990 (24.83 %)
Meditation	3986 (100.0 %)	3887 (97.51 %)	3745 (93.95 %)
Yoga	3986 (100.0 %)	3890 (97.59 %)	3869 (97.06 %)
Reflexology	2456 (61.61 %)	1274 (31.96 %)	1120 (28.09 %)
Herbal medicine	3115 (78.14 %)	2650 (66.48 %)	2579 (64.70 %)

Table 4b: Year wise comparison of response of participants on the types of supplementary and alternative medicine (SAM) and knowledge and attitude regarding them

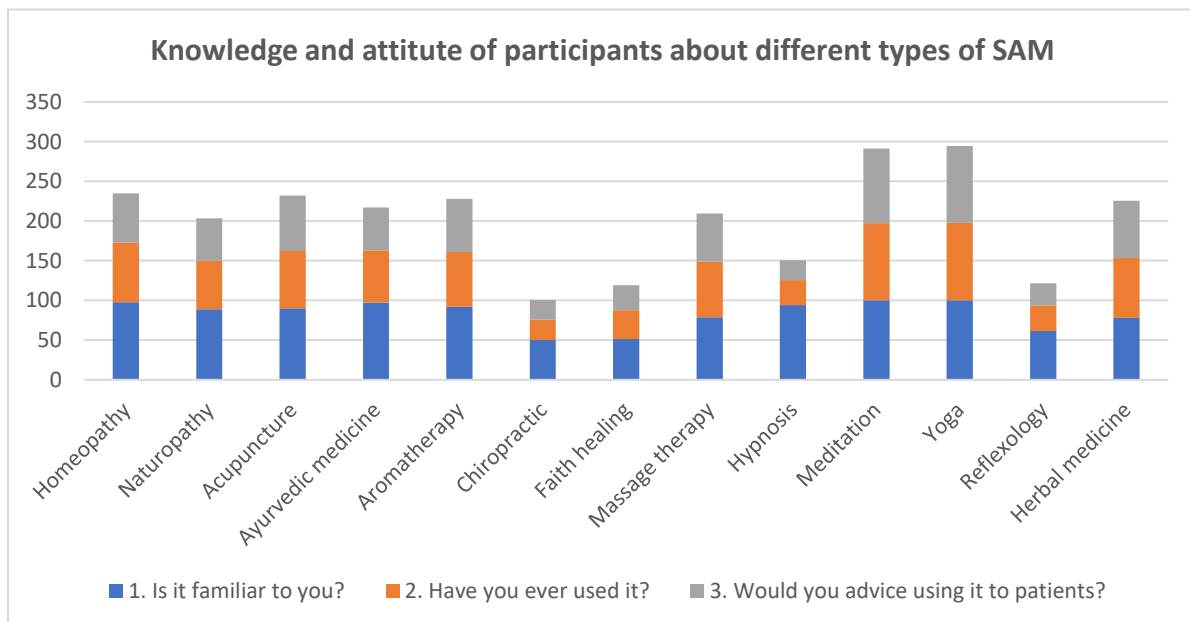
		1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR
No.	Q1: Is it familiar to you?				
1	Homeopathy	648	886	1056	1296
2	Naturopathy	447	678	983	1441
3	Acupuncture	436	660	940	1553
4	Ayurvedic medicine	574	703	899	1698
5	Aromatherapy	456	684	947	1582
6	Chiropractic	223	426	596	759
7	Faith healing	231	412	557	846
8	Massage therapy	389	516	774	1468
9	Hypnosis	614	887	1120	1124
10	Meditation	874	999	1004	1109
11	Yoga	874	999	1004	1109
12	Reflexology	241	369	684	1162
13	Herbal medicine	412	563	768	1372
No.	Q2: Have you ever used it?				
1	Homeopathy	541	689	759	998
2	Naturopathy	346	412	507	1180
3	Acupuncture	389	497	612	758
4	Ayurvedic medicine	523	641	709	758
5	Aromatherapy	369	447	550	809
6	Chiropractic	106	236	332	349
7	Faith healing	174	221	309	752
8	Massage therapy	289	465	587	1450
9	Hypnosis	112	202	366	583
10	Meditation	589	682	994	1622
11	Yoga	449	553	793	2095
12	Reflexology	147	269	387	471
13	Herbal medicine	356	498	666	1130
No.	Q3: Would you advice using it to patients?				
1	Homeopathy	269	377	551	1278
2	Naturopathy	214	336	541	1225
3	Acupuncture	212	369	539	994
4	Ayurvedic medicine	199	374	499	1075
5	Aromatherapy	187	441	501	868
6	Chiropractic	99	115	274	521
7	Faith healing	102	241	366	453
8	Massage therapy	297	426	689	1334

9	Hypnosis	87	105	296	502
10	Meditation	689	786	1089	1181
11	Yoga	624	791	1126	1328
12	Reflexology	102	236	341	441
13	Herbal medicine	389	496	682	1012

Table 4c: Association between demographic data and the response using Chi square test(p value)

Term	Age	Gender	Year of study	Locality	SES
Homeopathy	0.78	0.98	0.03	0.87	0.21
Naturopathy	0.56	0.06	0.04	0.54	0.55
Acupuncture	0.98	0.09	0.04	0.67	0.034
Ayurvedic medicine	0.86	0.31	0.02	0.72	0.31
Aromatherapy	0.07	0.06	0.01	0.21	0.06
Chiropractic	0.26	0.12	0.01	0.22	0.12
Faith healing	0.45	0.70	0.03	0.60	0.70
Massage therapy	0.70	0.23	0.03	0.32	0.23
Hypnosis	0.36	0.21	0.03	0.71	0.21
Meditation	0.07	0.07	0.04	0.43	0.07
Yoga	0.12	0.06	0.05	0.07	0.06
Reflexology	0.32	0.32	0.02	0.12	0.23

Graph 3: Types of supplementary and alternative medicine (SAM) and participants' knowledge and attitude regarding them



When asked about SAM modalities they would recommend (Table 5a), exercise came at the top recommended by 91.67% of the participants, followed by massage (68.89%) and nutritional supplements (67.23%). Chiropractic (25.31 %), praying (29.15%), fasting (35.69%) and honey (36.80%), on the other hand, were the least likely modalities to be recommended. Table 5b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 5c. No Statistically significant differences was found based on age, gender, type of residency and the families' monthly income of the participants.

Table 5a: Types of supplementary and alternative medicine (SAM) and the number distribution of participants who recommend them

No.	Will you recommend this item to a patient?	Number	Percentage
1.	Exercises	3654	91.67 %
2.	Supplements	2680	67.23 %
3.	Honey	1467	36.80 %
4.	Massage	2746	68.89 %
5.	Herbs	2579	64.70 %
6.	Fasting	1423	35.69 %
7.	Praying	1162	29.15 %
8.	Music	1746	43.80 %
9.	Chiropractic	1009	25.31 %
10.	Acupuncture	2114	53.03 %
11.	Aromatherapy	1997	50.10 %

Table 5b: Year wise comparison of response of participants who recommend them

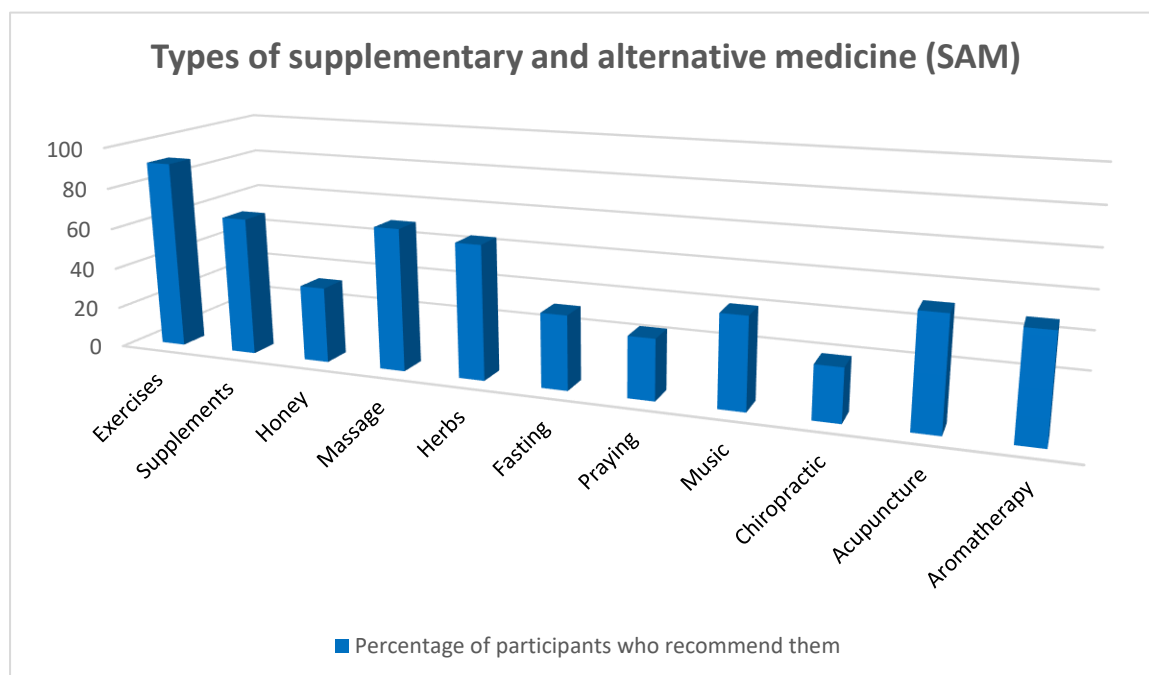
No.	Will you recommend this item to a patient?	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	Exercises	475	669	1023	1487
2	Supplements	336	598	872	874
3	Honey	136	269	447	615
4	Massage	274	487	799	1186
5	Herbs	221	398	699	1261
6	Fasting	147	286	439	551
7	Praying	112	223	387	440
8	Music	241	374	563	568
9.	Chiropractic	97	123	341	448

10.	Acupuncture	227	398	712	777
11.	Aromatherapy	189	267	482	1059

Table 5c: Association between demographic data and the response using Chi square test (p value)

No.	Will you recommend this item to a patient?	Age	Gender	Year of study	Locality	SES
1.	Exercises	0.09	0.56	0.03	0.67	0.034
2.	Supplements	0.31	0.98	0.04	0.72	0.31
3.	Honey	0.06	0.86	0.04	0.21	0.06
4.	Massage	0.12	0.07	0.03	0.22	0.12
5.	Herbs	0.70	0.26	0.02	0.60	0.70
6.	Fasting	0.23	0.45	0.01	0.32	0.23
7.	Praying	0.21	0.70	0.02	0.71	0.21
8.	Music	0.07	0.36	0.03	0.43	0.07
9.	Chiropractic	0.06	0.07	0.04	0.07	0.06
10.	Acupuncture	0.32	0.12	0.04	0.12	0.23
11.	Aromatherapy	0.71	0.32	0.05	0.70	0.36

Graph 4: Types of supplementary and alternative medicine (SAM) and the number distribution of participants who recommend them



Sources of SAM knowledge:

Table 6a presents knowledge sources used by students to know about SAM. Social media was the most popular source for SAM knowledge among the participating students, reported by 72.67% of the participants as a primary source for such knowledge, followed by the internet (67.33%) and relatives (60.53%). Whereas only 37.02% of the participant acquired their knowledge on SAM from a doctor and even less than that acquired this knowledge from scientific magazines (25.16%) or books (21.92%). Table 6b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 6c. Statistically significant difference was found in the result findings based on the year of study of the participants

Table 6a: Information sources used by participants as their source of knowledge on supplementary and alternative medicine (SAM)

No.	Source	Number	Percentage
1.	Doctor	1476	37.02 %
2.	Relatives	2413	60.53 %
3.	Pharmacist	1063	26.66 %
4.	Social media	2897	72.67 %
5.	TV	1879	47.13 %
6.	Friends	1998	50.12 %
7.	Internet	2684	67.33 %
8.	Scientific magazines	1003	25.16 %
9.	Religious books	987	24.76 %
10.	School	990	24.83 %
11.	University	876	21.97 %
12.	Scientific books	874	21.92 %
13.	Others	1046	26.24 %

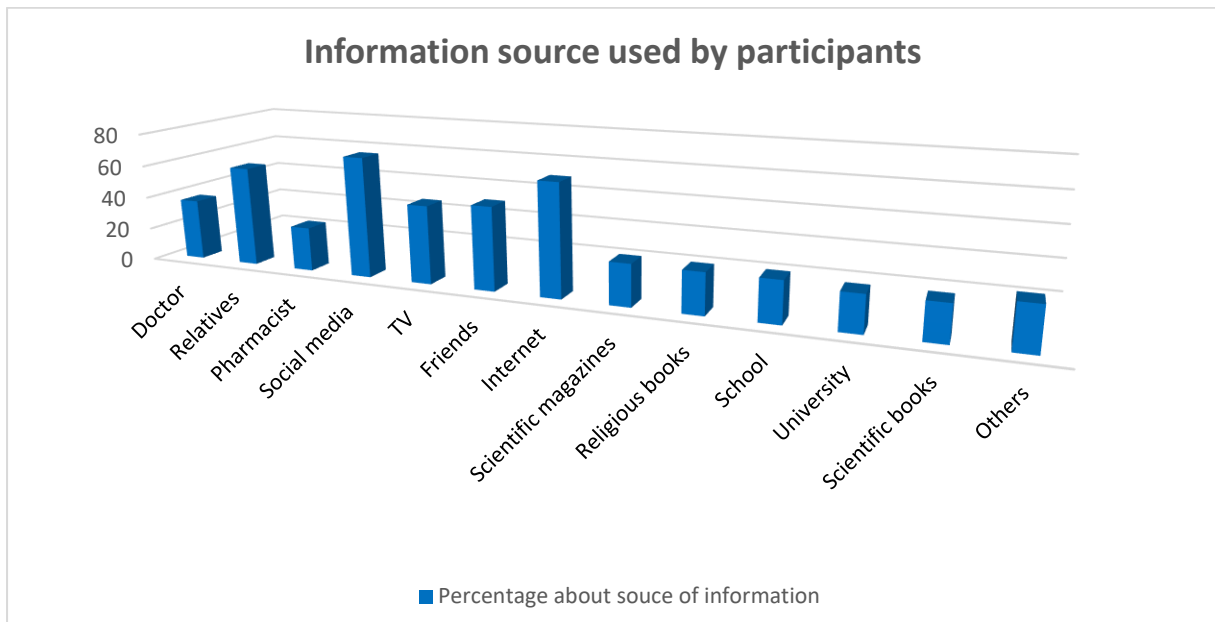
Table 6b: Year wise comparison of response of participants about the sources of information about knowledge on supplementary and alternative medicine (SAM)

No.	Source	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	Doctor	112	265	387	712
2	Relatives	224	389	523	1277
3	Pharmacist	103	214	302	444
4	Social media	264	403	755	1475
5	TV	202	369	619	689
6	Friends	220	366	701	711
7	Internet	374	424	741	1145
8	Scientific magazines	110	234	293	366
9.	Religious books	87	112	279	509
10.	School	96	123	314	457
11.	University	77	104	263	432
12.	Scientific books	83	113	276	402
13.	Others	111	201	334	400

Table 6c: Association between demographic data and the response using Chi square test (p value)

No.	Source	Age	Gender	Year of study	Locality	SES
1.	Doctor	0.54	0.55	0.02	0.06	0.06
2.	Relatives	0.67	0.034	0.04	0.09	0.56
3.	Pharmacist	0.72	0.31	0.04	0.31	0.98
4.	Social media	0.21	0.06	0.03	0.06	0.86
5.	TV	0.22	0.12	0.02	0.12	0.07
6.	Friends	0.60	0.70	0.01	0.70	0.26
7.	Internet	0.32	0.23	0.02	0.23	0.45
8.	Scientific magazines	0.71	0.21	0.03	0.21	0.70
9.	Religious books	0.43	0.07	0.04	0.07	0.36
10.	School	0.07	0.06	0.04	0.06	0.07
11.	University	0.12	0.23	0.05	0.32	0.12
12.	Scientific books	0.70	0.36	0.03	0.71	0.32
13.	Others	0.32	0.21	0.01	0.06	0.12

Graph 5: Information sources used by participants as their source of knowledge on supplementary and alternative medicine (SAM)



Attitude towards SAM

Table 7a presents the percentages of participants who answered positively to ten questions related to their attitude toward SAM. All ten questions received positive responses by more than half of the participants reflecting a generally good attitude towards SAM among the participating students.

For example, 79.0% agreed that it is necessary to ask all patients about any previous SAM use and 53.86% agreed that patients have the right to choose between SAM and orthodox medicine. Also, 61.33% of the participants believed that SAM is beneficial to the health-care system. Table 7b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 7c. Statistically significant difference was found in the result findings based on the year of study of the participants while no statistically significant difference was found based on age, gender, type of residency and the families' monthly income of the participants.

Table 7a: Participants' attitude towards supplementary and alternative medicine (SAM)

No.	Question	Number	Percentage
1	Do you believe that all types of SAM are beneficial to healthcare?	2445	61.33 %
2	As a future doctor, will you recommend SAM to a patient?	2789	69.96 %
3	Do you agree that patients have right to choose between SAM and orthodox medicine?	2147	53.86 %
4	As a future doctor, will you encourage the use of SAM together with other medicine ?	2698	67.68 %
5	Do you agree that SAM should be introduced in medical course?	2007	50.35 %
6	Will you be ready to be trained more on SAM after becoming a doctor?	2178	54.64 %
7	Do you agree that it's necessary to ask every patient of previous usage of SAM during history taking?	2699	67.71 %
8	As a future doctor, will you ask patient of previous SAM use?	3149	79.00 %
9	Do you agree that It is necessary for a doctor to have good knowledge of SAM?	2479	62.19 %
10	As a future doctor, will you have a positive reaction should a patient ask you to recommend a SAM?	2466	61.86 %

Table 7b: Year wise comparison of response of participants about attitude towards supplementary and alternative medicine (SAM)

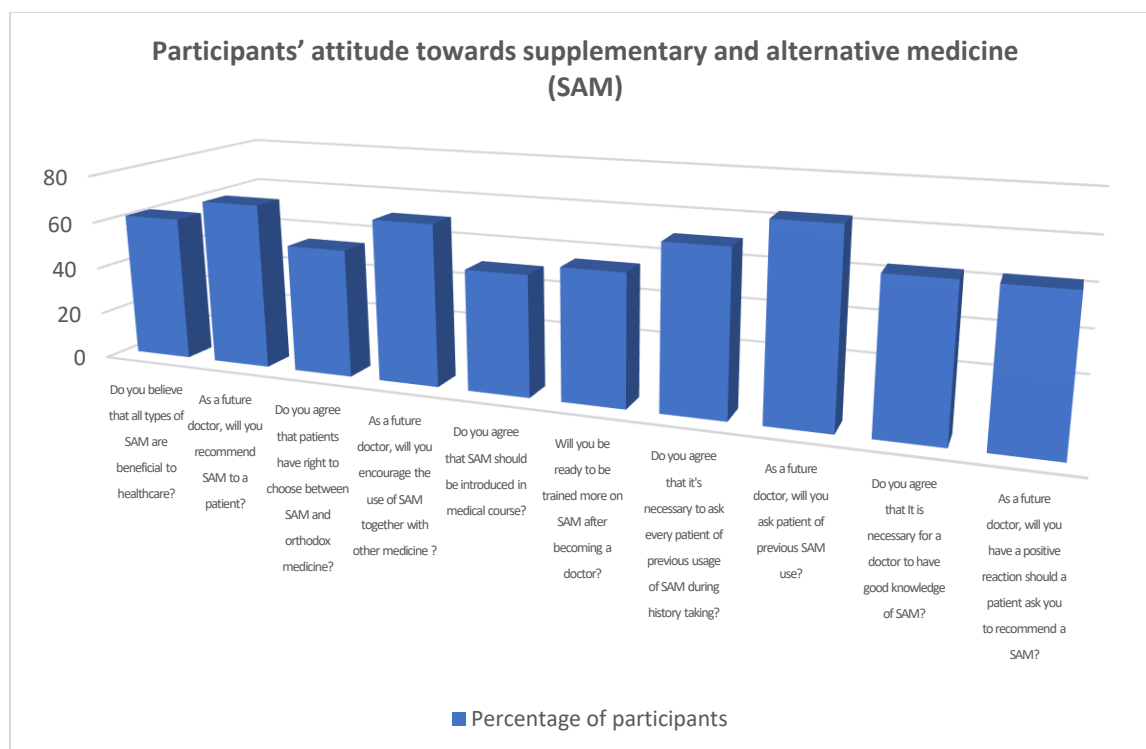
No.	Source	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	Do you believe that all types of SAM are beneficial to healthcare?	236	389	554	1266
2	As a future doctor, will you recommend SAM to a patient?	384	498	777	1130
3	Do you agree that patients have right to choose between SAM and orthodox medicine?	330	446	675	696
4	As a future doctor, will you encourage the use of SAM together with other medicine ?	364	481	621	1232
5	Do you agree that SAM should be introduced in medical course?	297	503	552	654
6	Will you be ready to be trained more on SAM after becoming a doctor?	263	367	669	879

7	Do you agree that it's necessary to ask every patient of previous usage of SAM during history taking?	312	497	887	1003
8	As a future doctor, will you ask patient of previous SAM use?	345	598	884	1322
9	Do you agree that It is necessary for a doctor to have good knowledge of SAM?	212	399	636	1232
10	As a future doctor, will you have a positive reaction should a patient ask you to recommend a SAM?	233	416	711	1106

Table 7c : Association between demographic data and the response using Chi square test (p value)

No.	Question	Age	Gender	Year of study	Locality	SES
1	Do you believe that all types of SAM are beneficial to healthcare?	0.79	0.08	0.04	0.98	0.08
2	As a future doctor, will you recommend SAM to a patient?	0.34	0.32	0.03	0.89	0.432
3	Do you agree that patients have right to choose between SAM and orthodox medicine?	0.21	0.99	0.05	0.88	0.56
4	As a future doctor, will you encourage the use of SAM together with other medicine ?	0.87	0.89	0.05	0.78	0.222
5	Do you agree that SAM should be introduced in medical course?	0.66	0.56	0.04	0.56	0.31
6	Will you be ready to be trained more on SAM after becoming a doctor?	0.45	0.67	0.02	0.34	0.12
7	Do you agree that it's necessary to ask every patient of previous usage of SAM during history taking?	0.67	0.54	0.02	0.78	0.66
8	As a future doctor, will you ask patient of previous SAM use?	0.71	0.33	0.03	0.56	0.543
9	Do you agree that It is necessary for a doctor to have good knowledge of SAM?	0.81	0.45	0.01	0.45	0.43
10	As a future doctor, will you have a positive reaction should a patient ask you to recommend a SAM?	0.32	0.22	0.02	0.23	0.21

Graph 6: Participants’ attitude towards supplementary and alternative medicine (SAM)



Beliefs about SAM

The results of participants’ opinion on 7 statements related to beliefs about SAM are presented in Table 8a. The most agreed upon statement among participants was one that emphasized the need for scientific evaluation before using SAM with 75.05% of the participants answering between “agree” and “strongly agree”, followed by a statement highlighting the importance of asking the patient about any SAM modality use (68.88% between “agree” and “strongly agree”). A statement claiming that all kinds of supplementary medicine are safe and have very few side effects was the most disagreed statement with 74.27% of the participants disagreeing or strongly disagreeing with it. Table 8b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 8c. Statistically significant difference was found in the result findings based on the year of study of the participants.

Table 8a: Participant’s beliefs about supplementary and alternative medicine (SAM)

No.	Statement	Strongl y agree	Agree	Disagree	Strongly disagree	No opinion
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1	All kinds of supplementary medicine are safe and have very few side effects	225 (5.64 %)	678 (17.00 %)	1987 (49.84 %)	974 (24.43 %)	122 (3.06 %)
2	Conventional medicine doesn't offer the patient benefits offered by alternative medicine	213 (5.34 %)	598 (15.00 %)	1769 (44.38 %)	741 (18.59 %)	665 (16.68 %)
3	Results of supplementary medicine is mainly due to placebo effect	305 (7.65 %)	614 (15.40 %)	1779 (44.63 %)	813 (20.39 %)	475 (11.91 %)
4	I have full trust to debate with patients about terms of alternative and supplementary medicine	297 (7.45 %)	574 (14.40 %)	1874 (47.01 %)	699 (17.53 %)	542 (13.59 %)
5	Supplementary and alternative medicine not only cure the disease but will improve general health in other hand	697 (17.48 %)	996 (24.98 %)	1241 (31.13 %)	412 (10.33 %)	640 (16.05 %)
6	The doctor should continuously question whether the patient has used modalities of alternative medicine	1879 (47.13 %)	867 (21.75 %)	412 (10.33 %)	220 (5.51 %)	608 (15.25 %)
7	We need scientific evaluation before use supplementary and alternative medicine	1994 (50.02 %)	998 (25.03 %)	436 (10.93 %)	367 (9.20 %)	191 (4.79 %)

Table 8b: Year wise comparison of response of participants who agreed and strongly agreed about the beliefs about supplementary and alternative medicine (SAM)

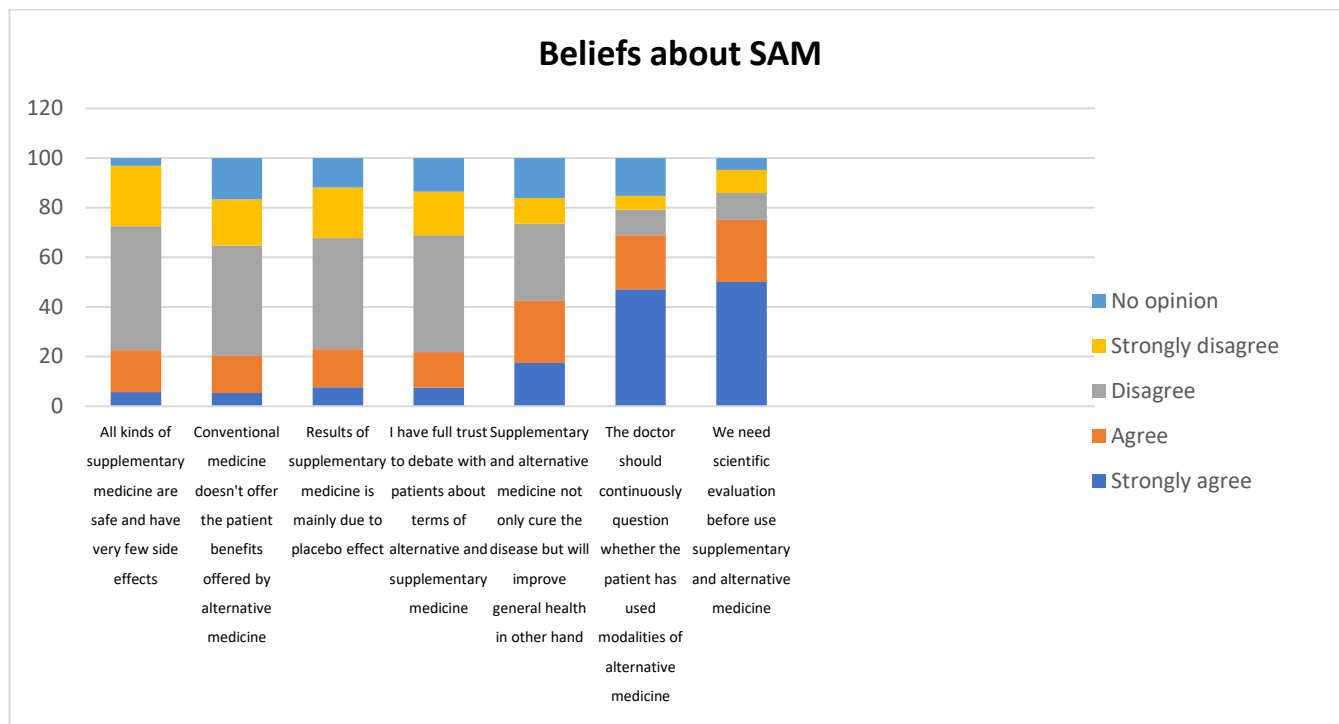
No.	Source	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	All kinds of supplementary medicine are safe and have very few side effects	98	146	387	272
2	Conventional medicine doesn't offer the patient benefits offered by alternative medicine	88	136	233	354
3	Results of supplementary medicine is mainly due to placebo effect	87	141	254	437
4	I have full trust to debate with patients about terms of alternative and supplementary medicine	79	154	276	362
5	Supplementary and alternative medicine not only cure the disease but will improve general health in other hand	141	226	465	861

6	The doctor should continuously question whether the patient has used modalities of alternative medicine	221	489	754	1282
7	We need scientific evaluation before use supplementary and alternative medicine	236	490	803	1463

Table 8c: Association between demographic data and the response using Chi square test (p value)

No.	Statement	Age	Gender	Year of study	Locality	SES
1	All kinds of supplementary medicine are safe and have very few side effects	0.06	0.06	0.043	0.08	0.031
2	Conventional medicine doesn't offer the patient benefits offered by alternative medicine	0.07	0.098	0.05	0.065	0.097
3	Results of supplementary medicine is mainly due to placebo effect	0.43	0.87	0.043	0.31	0.07
4	I have full trust to debate with patients about terms of alternative and supplementary medicine	0.06	0.43	0.03	0.54	0.54
5	Supplementary and alternative medicine not only cure the disease but will improve general health in other hand	0.32	0.076	0.03	0.984	0.21
6	The doctor should continuously question whether the patient has used modalities of alternative medicine	0.11	0.98	0.04	0.11	0.123
7	We need scientific evaluation before use supplementary and alternative medicine	0.32	0.45	0.02	0.546	0.11

Graph 7: Percentages of participants about the beliefs about supplementary and alternative medicine (SAM)



Motivating and limiting factor regarding SAM recommendation

Table 9a presents the percentages of participants who considered certain factors to play a motivational role for them to recommend SAM use. Less expensive product was the most cited factor with 75.43% of the participants citing it, followed by the SAM modality having a limited number of side effects (71.97%) and the positive feedback on the modality by the patients (53.16%). Table 9b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 9c. No statistically significant difference was found based on age, gender, type of residency and the families' monthly income of the participants.

Table 9a: Motivating factors reported by the participants toward recommendations for supplementary and alternative medicine use

No.	Factor	Number	Percentage
1	Product efficacy is scientifically proven	1264	31.71 %
2	Positive responses from patients on the effectiveness of the product	2119	53.16 %
3	Fewer side effects	2869	71.97 %

4	Less expensive (Cheaper)	3007	75.43 %
5	Publicity of the product	1986	49.82 %
6	Highest profit	1743	43.72 %
7	Incentives from manufacturers	1641	41.16 %

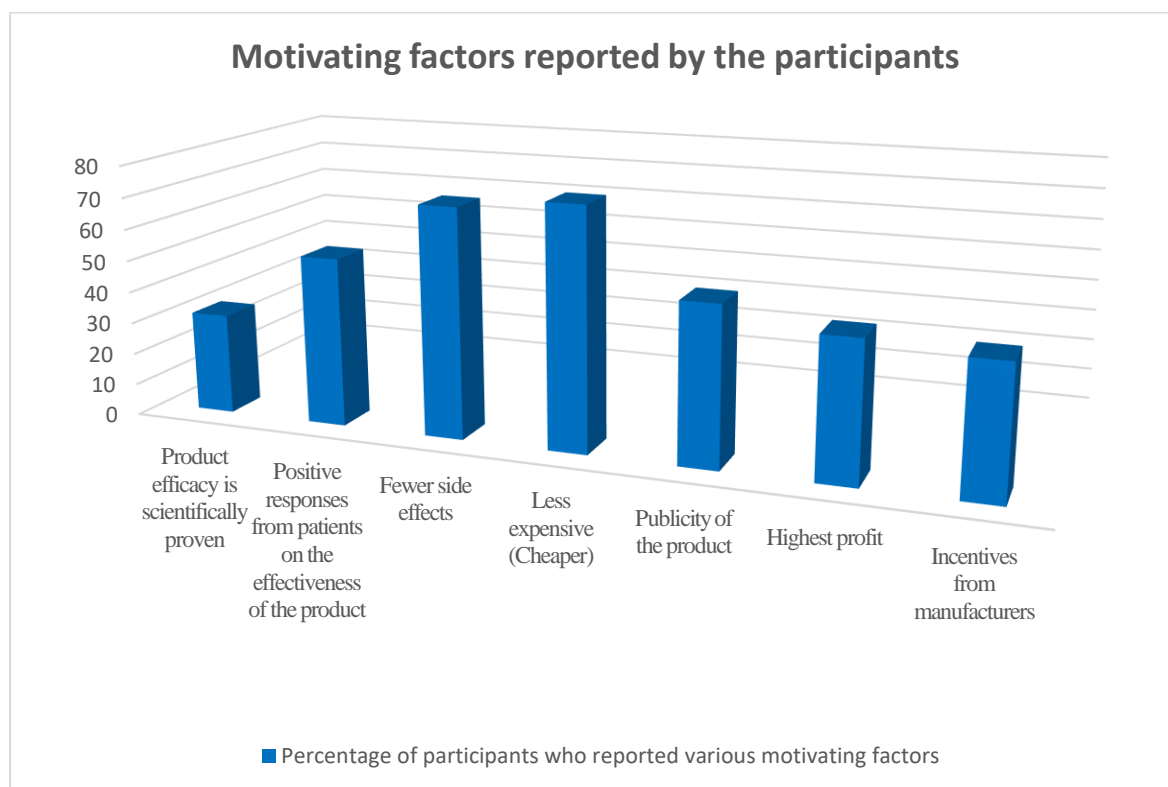
Table 9b: Year wise comparison of response of participants about the motivating factors recommendations for supplementary and alternative medicine use

No.	Source	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	Product efficacy is scientifically proven	109	287	422	446
2	Positive responses from patients on the effectiveness of the product	187	324	514	1094
3	Fewer side effects	284	443	674	1468
4	Less expensive (Cheaper)	299	512	887	1309
5	Publicity of the product	198	436	664	688
6	Highest profit	174	266	589	714
7	Incentives from manufacturers	146	275	601	619

Table 9c: Association between demographic data and the response using Chi square test (p value)

No.	Factor	Age	Gender	Year of study	Locality	SES
1	Product efficacy is scientifically proven	0.87	0.54	0.04	0.23	0.34
2	Positive responses from patients on the effectiveness of the product	0.45	0.45	0.01	0.07	0.33
3	Fewer side effects	0.321	0.56	0.05	0.34	0.45
4	Less expensive (Cheaper)	0.77	0.334	0.03	0.432	0.55
5	Publicity of the product	0.356	0.432	0.03	0.66	0.21
6	Highest profit	0.52	0.34	0.02	0.12	0.45
7	Incentives from manufacturers	0.66	0.07	0.03	0.24	0.12

Graph 8: Percentages of participants about the motivating factors recommendations for supplementary and alternative medicine use



As for barriers that limit the use of SAM as perceived by the participants (Table 10a), the lack of scientific evidence in regard to the use of SAM was the most cited factor, recognized by 72.15% of the participants, followed by the lack of scientific knowledge on SAM (by 61.38%) and the lack of reliable source of information of SAM (by 60.18%). Table 10b shows year wise comparison of response of participants and association between demographic data and the response is given in Table 10c. Statistically significant difference was found in the result findings based on the year of study of the participants.

Table 10a: The barriers that limit the appropriate use of supplementary and alternative medicine as reported by the participants

No.	Do you believe this to be a barrier to the use of SAM?	Number	Percentage
1	Small number of trained personnel to use SAM	2169	54.41 %
2	Lack of scientific knowledge in SAM	2447	61.38 %
3	Lack of scientific evidence to use SAM	2876	72.15 %

4	Lack of reliable sources of information	2399	60.18 %
5	Need a long time of treatment	1069	26.81 %
6	Lack of time	1746	43.80 %
7	Lack of interest in SAM	1443	36.20 %
8	There is no obstacle	469	11.76 %

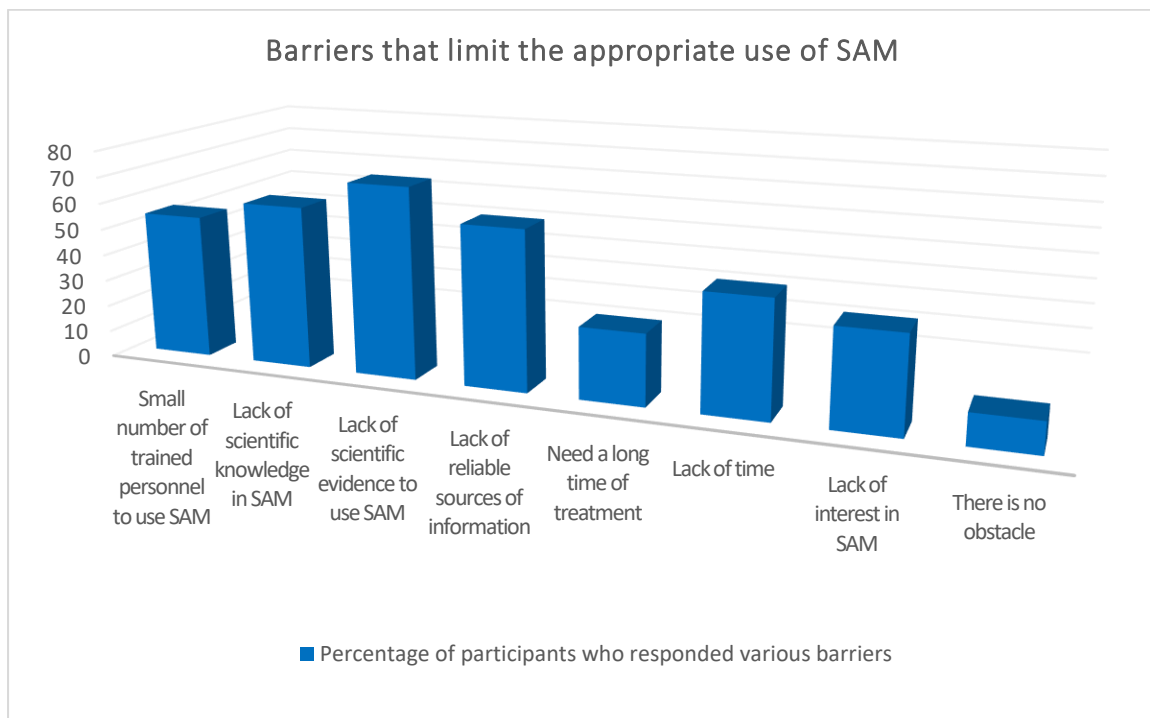
Table 10b: Year wise comparison of response of participants about the barriers that limit the appropriate use of supplementary and alternative medicine

No.	Source	1 ST YEAR	2 ND YEAR	3 RD YEAR	4 TH YEAR
1	Small number of trained personnel to use SAM	236	489	557	887
2	Lack of scientific knowledge in SAM	289	501	587	1070
3	Lack of scientific evidence to use SAM	334	626	879	1037
4	Lack of reliable sources of information	270	525	778	826
5	Need a long time of treatment	142	201	330	396
6	Lack of time	263	370	512	601
7	Lack of interest in SAM	114	297	442	590
8	There is no obstacle	48	99	103	219

Table 10c: Association between demographic data and the response using Chi square test (p value)

No.	Do you believe this to be a barrier to the use of SAM?	Age	Gender	Year of study	Locality	SES
1	Small number of trained personnel to use SAM	0.07	0.65	0.43	0.23	0.03
2	Lack of scientific knowledge in SAM	0.45	0.35	0.006	0.16	0.32
3	Lack of scientific evidence to use SAM	0.32	0.87	0.045	0.43	0.07
4	Lack of reliable sources of information	0.07	0.34	0.04	0.054	0.34
5	Need a long time of treatment	0.21	0.032	0.01	0.10	0.99
6	Lack of time	0.43	0.221	0.03	0.22	0.21
7	Lack of interest in SAM	0.33	0.44	0.01	0.11	0.11
8	There is no obstacle	0.71	0.01	0.02	0.09	0.54

Graph 9: Percentages of participants about the barriers that limit the appropriate use of supplementary and alternative medicine



DISCUSSION

As Western medicine has experienced an ever-growing expansion of scientific knowledge, basic science research and technology, the interest in Supplementary and Alternative Medicine (SAM) has also increased dramatically over the past decade. Although these numbers have been increasing in recent years, the debate about the clinical effectiveness of unconventional methods has been controversial among many medical professionals.

India is the birth place of one of the oldest systems of medicines, Ayurveda, which had its origin around 2000 years back. Ayurveda, Yoga, Siddha and Unani and Homeopathy are recognized in India as the Indian systems of medicines. Despite the recognition by the Government of India and easy availability of SAM it is still not a part of the conventional medical curriculum in majority of medical colleges in India. As a result the medical graduates lack awareness about SAM. Although SAM has been practiced in India for thousands of years, there is limited literature available on the extent of use, attitude and perception of medical students utilizing SAM services in India.¹¹ Therefore, we set out to investigate the knowledge, attitude, beliefs, and perception of SAM among medical students, for they are the future holders of this responsibility. As far as we know, this was the first study conducted on medical students regarding their knowledge on SAM in Lucknow.

The most commonly used SAM modalities as reported by the medical students were Yoga (97.59%) and meditation (97.51%) followed by Homeopathy (74.93%). Statistically significant difference ($p < 0.05$) was found in the result findings based on the year of study of the participants. The study findings show differences among the different types of Complementary and Alternative Medicines used by medical students as reported by **Frass M et al**⁶ in which the most used therapies found by the different authors were Chiropractic, followed by phytotherapy/herbal medicine massage and homeopathy and another study done by **Baughniet J et al**¹⁷ in which the top three self-administered therapies were herbal medicine (22.3%), aromatherapy (4.8%), and homeopathy (2.9%). Another study done by **Akansel N et al**¹⁴ among hypertensive patients suggest that most of the patients (78.7%) reported using some form of practices related to nutrition followed by cognitive and behavioral approaches (55.1%)

and by **Ray J et al**¹⁶ in which 57.2% participants have used Complementary and Alternative Medicine at least once in their life-time.

Study done by **Roy V et al**¹¹ amongst the doctors, Homeopathy (34%) was the most commonly utilized alternative medicine, followed by Ayurveda (29%), Yoga (21%), Home remedies (14%), Unani (1%) and others (4%). The study finding is similar to the study done by **Kanadiya MK et al**¹ in which the most commonly used modalities were meditation/yoga/relaxation/imagery (59.8%), massage (59.1%), and spirituality/prayer (50.7%). Also another study done by **Stub T et al**¹⁸ suggest that to prevent COVID-19 infection, the respondents most likely recommended vitamin C followed by relaxation techniques (3.1%); prayer for own health (2.1%); psychotherapy/counseling (1.9%); Ginger (1.9%), and Omega 3, 6, and 9 (1.2%).

When asked if participants would advise patients to use different types of SAM, a positive attitude towards Meditation (93.95%) and Yoga (97.06%) followed by Massage therapy (68.86%) and Herbal medicine (64.70%) was more frequent than any other SAM type, and they were least likely to advise using Chiropractic, Faith healing, Hypnosis and Reflexology. The existing literature demonstrates a difference between medical students from different countries. In a local study done in Saudi Arabia, magnetic therapy and spiritual healing were the most known CAM modalities, whereas in Turkey it was herbal medicine and acupuncture²¹. In Kuwait, prayer/ Quran reciting and herbal medicine were the most popular types²².

In this study, social media was the most popular source for SAM knowledge reported by 72.67% of the participants, followed by the internet (67.33%) and relatives (60.53%). Whereas only 37.02% of the participant acquired their knowledge from a doctor and even less than that acquired this knowledge from scientific magazines (25.16%) or books (21.92%). Statistically significant difference ($p < 0.05$) was found in the result findings based on the year of study of the participants. This is similar to the study conducted by **Kanadiya MK et al**¹ in which the main source of educational materials cited by osteopathic medical students included the Internet (88.8%), journals (59.9%), and books (52.7%); and in contrast with the study conducted **Camurdan C and Gul A**⁹ in which the sources of information were firstly

books/magazines (65.5%) and school (60.3%); and by **Pandey L et al**²⁰ in which it was reported that most of the patients (67.9%) were suggested by their family members and friends, while other sources of information were the prior experience of CAM usage for benign diseases (21.0%) and advertisements (11.0%)

When participants were asked about SAM modalities they would recommend exercise came at the top recommended by 91.67% of the participants, followed by massage (68.89%) and nutritional supplements (67.23%). Chiropractic (25.31 %), praying (29.15%), fasting (35.69%) and honey (36.80%), on the other hand, were the least likely modalities to be recommended. This is in contrast with the study conducted by **Akan H et al**⁷ in which a larger proportion of female participants reported that they would recommend acupuncture and Ayurveda compared to males. A larger proportion of the 1st year students reported that they would recommend herbal treatment, acupuncture, manipulative and body-based practices including massage, meditation, shiatsu and Ayurveda compared to 5th and 6th year students; and another study conducted by **Camurdan C and Gul A**⁹ in which hot and cold application (51.6%), massage (50.9%) and exercise (48.7%) were the most chosen methods by students, to use in patient care and to recommend them to the patients.

The most agreed upon statement among participants (75.05%) was one that emphasized the need for scientific evaluation before using SAM followed by a statement highlighting the importance of asking the patient about any SAM modality use (68.88%). No Statistically significant difference was found based on age, gender, type of residency and the families' monthly income of the participants. This is in contrast to study conducted by **Awad AI et al**⁸ in which over 25% of respondents neither agreed nor disagreed on whether CAM therapies that have been shown to be ineffective in most evident studies should be banned (42.5%), therapies that are not tested in a scientific manner should be discouraged (26.2%), and that a number of approaches hold promise for treatment of symptoms/diseases (25.8%); and another study by **Alzahrani SH et al**¹² in which it was observed that most of the students (75.2%) agreed that physicians should be consulted before using alternative therapy. Almost two-thirds of them (64.5%) stated that conventional medicine can benefit from Complementary medicine. More than half of them agreed that CAM therapies should not be used unless they are tested for

efficacy (59.1%) and that further clinical care should include only those therapies that have produced the best results (57%).

Also, 23.05% participants believed that the results of supplementary medicine is mainly due to placebo effect which is in contrast with the study done by **Awad AI et al**⁸ in which CAM results are placebo effect was reported by 37.1% participants and another study done by **Baugniet J et al**¹⁷ in which 42.6% medical students reported that the results of CAM are in most cases due to a placebo effect.

The most cited factor which play a motivational role for the participants to recommend SAM use was less expensive product (75.43% of the participants citing it), followed by the SAM modality having a limited number of side effects (71.97%) and the positive feedback on the modality by the patients (53.16%). Statistically significant difference ($p < 0.05$) was found in the result findings based on the year of study of the participants. This is similar to study conducted by **Sharma E et al**¹⁵ in which efficacy was the most commonly perceived attribute followed by safety, cost-effectiveness, and easy availability; and in contrast with another study done by **Jaiswal K et al**¹⁰ in which among the users of CAM, 52.17% stated the reason for use as good previous experience while 32.60% mentioned as less treatment complications.

As for barriers that limit the use of SAM as perceived by the participants, the lack of scientific evidence in regard to the use of SAM was the most cited factor, recognized by 72.15% of the participants, followed by the lack of scientific knowledge on SAM (by 61.38%) and the lack of reliable source of information of SAM (by 60.18%). No Statistically significant difference was found based on age, gender, type of residency and the families' monthly income of the participants. This is similar to study conducted by **Awad AI et al**⁸ in which the anticipated barriers to the appropriate use were reported to be lack of trained professionals (79.7%), lack of scientific evidence for practice (76.9%) and long time for treatment (51.5%).

The results suggest that medical students' knowledge on SAM was inadequate. This finding is in line with the results of many studies conducted on medical students in particular and university students in general in many countries including Malaysia²³, Kuwait⁸, and Pakistan²⁴. The reason for such findings could be the insufficient exposure of medical students to the topic of SAM during their education and training. Additionally, the differences in knowledge

between medical students based on their year of study, was found to be statistically significant in the results of this study. This difference could be due to the lack of proper education and courses on SAM which does not allow students' level of knowledge on SAM to culminate as they progress through the years of study and training.

In the present study, all participants reflected a good attitude towards SAM where 79.0% agreed that it is necessary to ask all patients about any previous SAM use and 53.86% agreed that patients have the right to choose between SAM and orthodox medicine. Also, 61.33% of the participants believed that SAM is beneficial to the health-care system. Statistically significant difference ($p < 0.05$) was found in the result findings based on the year of study of the participants. This is similar to study conducted by **Akan H et al**⁷ in which overall attitude among the students was positive; they believed that knowledge would be useful and current CAM practitioners were not well-trained and they had to be medically qualified; and in contrast with another study conducted by **Singh A and Kamath A**¹⁹ which suggest that positive attitude towards the desirability of Complementary, Alternative and Integrative Medicine therapies was significantly lower among faculty compared with students.

The study findings also suggest that 69.96% participants agreed that as a future doctor, they will recommend SAM to the patients and 67.68 % participants will encourage the use of SAM together with other medicine which is similar to the studies conducted worldwide^{7,25}. Also more than half, that is, 54.64% agreed to be trained more on SAM after becoming a doctor and 50.35% agreed that SAM should be introduced in medical course which is in contrast with the study conducted by **Frass M et al**⁶ in which medical students reported the least consultation with a CAM practitioner (10%) and also stated the lowest interest in CAM training and another study done by **Rajashree R et al**¹³ in the students have showed positive attitude favouring inclusion of CAM topics in the medical curriculum in India.

Thus, educating health-care professionals about SAM has an important role in ensuring patients' safety and improving patients care. Educational initiatives have been carried out in some countries and surveys coming from these countries have been showing a rising prevalence of SAM education in medical schools and residency programs²⁶⁻³². It was also reported that the

registration in a CAM course can positively impact knowledge and attitude regarding CAM³³ but not much literature about SAM use and knowledge among medical students in India is available which could support the study findings. Hence, further studies involving students from different part of the country should be carried out to assess the knowledge and attitude of medical students towards different SAM modalities.

LIMITATIONS

- ❖ The study was conducted using self-administered questionnaire for the collection of data hence, the study is subjected to response bias.
- ❖ For Social desirability among the medical students, they have to answer appropriately about the awareness of different SAM modalities and they might present a positive attitude regarding the same which leads to variation in their response causing bias in the study result.
- ❖ This study was limited to medical students of Lucknow city only, so it is difficult to study trends which reflect attitudes of the population on a larger scale. Therefore, further studies involving larger sample over a wide geographic area should be carried out to facilitate the generalisability of the findings.
- ❖ Moreover, the cross-sectional design of the study has the inability to clarify the causation relationship and the impact of SAM course on students' attitude, practice or knowledge and tells only the association between different variables.

CONCLUSION

In India, the traditional systems of medicine such as Ayurveda, Siddha, and Unani are widely practiced. During the COVID-19 pandemic, people mainly relied on use of herbs for primary self-care, building immunity and preventing them from attack of the deadly virus. In addition, supplementing with certain vitamins, minerals and other substances become popular among the medical practitioners and general population. But limited research exists from human clinical trials in regard to the effectiveness of SAM in prevention, treatment or symptom relief in COVID-19. Gathering data on common information queries received in community pharmacies, other healthcare settings and those described in internet forums will enable the development of evidence-based information sources that can support effective patient counselling and communication practices.

As this was the first study conducted on the medical students of Lucknow, much data is not available. The studies conducted in other countries focused mainly on the use of Complementary and alternative medicine.

The findings of this study suggest that medical students' knowledge on SAM was inadequate and their perception and attitudes regarding SAM was mixed. Overall, most students had positive attitudes towards SAM; they wanted to receive training on the subject; and they are likely to recommend SAM methods to their patients in their future professional lives.

Currently, none of the medical curriculum in India has a structured standard SAM training. With a gradual scientific development and increasing popularity, there appears a need for a coordinated policy in integrating SAM into the medical curriculum, and expectations of and feedback from medical students should be taken into consideration in setting educational standards.

RECOMMENDATIONS

- ❖ As this was the first study conducted on the medical students regarding their knowledge on SAM in Lucknow, much literature is not available in this context and hence, the study was unable to clarify the causation relationship and the impact of SAM course on students' attitude, practice, or knowledge. Therefore, we encourage future prospective studies involving students from different parts of the country to explore these grounds.
- ❖ We also suggest integrating material on SAM in the curriculum of medical students in order to bridge their knowledge gap and acquire the necessary tools to meet the patients' expectations and needs in relation to SAM use.
- ❖ Also, the unreliable nature of the data sources (social media and internet) for scientific knowledge, especially on a topic such as SAM, necessitates the need for a proper form of education on SAM such as university courses based on evidence-based science and medicine.

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INSTITUTIONAL RESEARCH COMMITTEE APPROVAL

BABU BANARASI DAS COLLEGE OF DENTAL SCIENCES (FACULTY OF BBD UNIVERSITY), LUCKNOW

INSTITUTIONAL RESEARCH COMMITTEE APPROVAL

The project titled "Use and Acceptance of Supplements and Alternative Medicine (SAM) among Medical Students in Lucknow, Uttar Pradesh: A Cross-Sectional Study" submitted by Dr Archita Agarwal Post graduate student from the Department of Public Health Dentistry as part of MDS Curriculum for the academic year 2020-2023 with the accompanying proforma was reviewed by the Institutional Research Committee present on 12th October 2021 at BBDCODS.

The Committee has granted approval on the scientific content of the project. The proposal may now be reviewed by the Institutional Ethics Committee for granting ethical approval.



Prof. Vandana A Pant
Co-Chairperson



Prof. B. Rajkumar
Chairperson

ETHICAL CLEARANCE FORM INSTITUTIONAL ETHICAL COMMITTEE

Babu Banarasi Das University
Babu Banarasi Das College of Dental Sciences,
BBD City, Faizabad Road, Lucknow – 226028 (INDIA)

Dr. Lakshmi Bala
Professor and Head Biochemistry and
Member-Secretary, Institutional Ethics Committee

Communication of the Decision of the IXth Institutional Ethics Sub-Committee

IEC Code: 08

BBDCODS/04/2022

Title of the Project: Use and Acceptance of Supplements and Alternative Medicine (SAM) among Medical Students in Lucknow, Uttar Pradesh: A Cross-Sectional Study.

Principal Investigator: Dr Archita Agarwal

Department: Public Health Dentistry

Name and Address of the Institution: BBD College of Dental Sciences Lucknow.

Type of Submission: New, MDS Project Protocol.

Dear Dr Archita Agarwal,

The Institutional Ethics Sub-Committee meeting comprising following four members was held on 07th April, 2022.

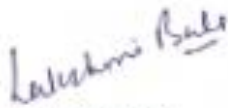
- | | |
|---|---|
| 1. Dr. Lakshmi Bala
Member Secretary | Prof. and Head, Department of Biochemistry, BBDCODS, Lucknow |
| 2. Dr. Amrit Tandon
Member | Prof. & Head, Department of Prosthodontics and Crown & Bridge, BBDCODS, Lucknow |
| 3. Dr. Rana Pratap Maurya
Member | Reader, Department of Orthodontics, BBDCODS, Lucknow |
| 4. Dr. Akanksha Bhatt
Member | Reader, Department of Conservative Dentistry & Endodontics, BBDCODS, Lucknow |

The committee reviewed and discussed your submitted documents of the current MDS Project Protocol in the meeting.

The comments were communicated to PI thereafter it was revised.

Decisions: The committee approved the above protocol from ethics point of view.

Forwarded by:



(Dr. Lakshmi Bala)
Member-Secretary

IEC

Member-Secretary
Institutional Ethics Committee
BBD College of Dental Sciences
BBD University
Faizabad Road, Lucknow-226028


(Dr. Puneet Ahuja)
Principal

PRINCIPAL
BBDCODS
Babu Banarasi Das College of Dental Sciences
BBD City, Faizabad Road, Lucknow-226028

Study questionnaires on Use and acceptance of Supplements and Alternative Medicine (SAM) among medical students in Lucknow, Uttar Pradesh: A cross-sectional study

Part one: Demographic Characteristics of participants

1. Age _____. 2. Gender: Male ____, Female ____.
3. Year of study: 1st ____, 2nd ____, 3rd ____, 4th ____ 4. Locality you grew up in: Rural ____, Urban ____
5. In what category does your family's monthly income fall?
 1 Rs.7533 and above 2 Rs.3766-7532 3 Rs.2260-3765 4 Rs.1130-2259
 5 Rs.1129 and below

Part two: Knowledge regarding Supplements and Alternative Medicine (SAM)

1. Please answer the following questions with (yes), (no), or (I don't know).

No.	Question	Yes	No	I don't know
1	Senna contraindicated in case of pregnancy and children under 12 years.			
2	Eating Spinach is safe for kidney patients.			
3	Fenugreek increases the risk of elevated blood sugar so it should be avoided in diabetes patients.			
4	Garlic increase the possibility of bleeding when used with warfarin.			
5	Bronchoconstriction is a side effect of caffeine.			
6	Ginger is effective in decreasing PMS.			
7	Echinacea is used to suppress immunity.			
8	The use of digoxin with bran will increase the concentration of digoxin.			

2. Please complete the following table carefully.

Term	1. Is it familiar to you?	2. Have you ever used it?	3. Would you advice using it to patients?
Homeopathy			
Naturopathy			
Acupuncture			
Ayurvedic medicine			
Aromatherapy			
Chiropractic			
Faith healing			
Massage therapy			
Hypnosis			
Meditation			

Yoga			
Reflexology			
Herbal medicine			

3. In your own experience, which of the following sources provided you with information on SAM? (You can select more than one source.)

No.	Source	Select by drawing a mark
1.	Doctor	
2.	Relatives	
3.	Pharmacist	
4.	Social media	
5.	TV	
6.	Friends	
7.	Internet	
8.	Scientific magazines	
9.	Religious books	
10.	School	
11.	University	
12.	Scientific books	
13.	Others	

Part three: Attitude and beliefs towards Supplements and Alternative Medicine (SAM)

Please draw a tick mark for each of the following questions regarding attitude towards Supplements and Alternative Medicine (SAM).

No.	Question	Yes	No	No opinion
1	Do you believe that all types of SAM are beneficial to healthcare?			
2	As a future doctor, will you recommend SAM to a patient?			
3	Do you agree that patients have right to choose between SAM and orthodox medicine?			
4	As a future doctor, will you encourage the use of SAM together with other medicine ?			
5	Do you agree that SAM should be introduced in medical course?			
6	Will you be ready to be trained more on SAM after becoming a doctor?			
7	Do you agree that it's necessary to ask every patient of previous usage of SAM during history taking?			
8	As a future doctor, will you ask patient of previous SAM use?			

9	Do you agree that It is necessary for a doctor to have good knowledge of SAM?			
10	As a future doctor, will you have a positive reaction should a patient ask you to recommend a SAM?			

2. Please draw a tick mark each of the following items based on whether you, as a future doctor, will likely recommend each item to a patient or not.

No.	Will you recommend this item to a patient?	Yes	No	No opinion
1.	Exercises			
2.	Supplements			
3.	Honey			
4.	Massage			
5.	Herbs			
6.	Fasting			
7.	Praying			
8.	Music			
9.	Chiropractic			
10.	Acupuncture			
11.	Aromatherapy			

3. If you are to recommend a SAM modality/ item, which of the following would you consider as a motivating factor to your decision? (You can choose more than one factor.)

No.	Factor	Yes	No
1	Product efficacy is scientifically proven		
2	Positive responses from patients on the effectiveness of the product		
3	Fewer side effects		
4	Less expensive (Cheaper)		
5	Publicity of the product		
6	Highest profit		
7	Incentives from manufacturers		

4. Please draw a tick mark under the appropriate answer as to which degree you agree/ disagree with each of the following statements.

No.	Statement	Strongly agree	Agree	Disagree	Strongly disagree	No opinion
1	All kinds of supplementary medicine are safe and have very few side effects					
2	Conventional medicine doesn't offer the patient benefits offered by alternative medicine					
3	Results of supplementary medicine is mainly due to placebo effect					
4	I have full trust to debate with patients about terms of alternative and supplementary medicine					
5	Supplementary and alternative medicine not only cure the disease but will improve general health in other hand					
6	The doctor should continuously question whether the patient was used modalities of alternative medicine					
7	We need scientific evaluation before use supplementary and alternative medicine					

5. Please answer with (yes) or (no) as to which of the following you believe to be a barrier that limit the appropriate use of Supplements and alternative medicine (SAM).

No.	Do you believe this to be a barrier to the use of SAM?	Yes	No	No opinion
1	Small number of trained personnel to use SAM			
2	Lack of scientific knowledge in SAM			
3	Lack of scientific evidence to use SAM			
4	Lack of reliable sources of information			
5	Need a long time of treatment			
6	Lack of time			
7	Lack of interest in SAM			
8	There is no obstacle			