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Unconventional medical practices among Ghanaian students: A university-based survey

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ABSTRACT

Research on unconventional medical practices among students has proliferated lately in the global space, hitherto, little is known explicitly in Ghana. This paper teases out insights for recent utilisation patterns of traditional medical therapies at Kwame Nkrumah University of Science and Technology (KNUST), Ghana. A sample of 754, randomly selected undergraduates were involved in a retrospective cross-sectional survey. Data were analysed using multivariate logistic regression and Pearson's χ^2 test with $p < 0.05$ as significant. Overall prevalence of traditional therapies consumption was 89.1% in the last 12 months. Herbal-based products (67%), prayer healing (15%) and body-mind therapies (11%) were principally used and, accessed through purchases from pharmacy shops (29%) and encounter with faith healers (26%). Although students' knowledge on traditional therapies was acquired through family members (50%) and media (23%), literary materials remained significant information routes for Science related students compared to the Non-science related counterparts ($p < 0.001$). Pursuing Non-science-related programme [odds ratio (OR) 6.154 (95% confidence interval (CI) 3.745–10.111; $p < 0.001$)] and having Christian faith [OR 2.450 (95% CI 1.359–4.415; $p = 0.003$)] were strongly associated with students' traditional therapies use. Although students exhibited positive attitude towards unconventional therapies, there is an urgent need to validate the quality of traditional therapies through randomised clinical trials and regulatory practices to ensure quality control. Health forces should intensify efforts towards intercultural health care system in Ghana.

1. Introduction

Recent research continues to show the ascendance of use of unconventional medical therapies, including herbal cosmetics, herbal medicines, nutraceuticals, herbal pharmaceuticals, herbal health products and food supplements particularly in Africa and Asia. These modalities have been employed in the diagnoses, prevention and treatment of a wide range of illness dating into antiquity.[1–3] Traditional medicine (TRM; 補充與替代醫學 bǔ chōng yǔ tì dài yī xué) practice involves a multifaceted combination of activities, order of knowledge, beliefs and customs to generate the desired effects for the diagnosis, prevention or elimination of imbalances in physical, emotional or psychological and social well-being of individuals and societies.[1,4] Prescriptively, TRM involves a whole array of products, practices and approaches to health and ill-health, serving as the opium of the people. Millions of people globally use TRM therapies, often in the absence of scientific evidence of their safety and effectiveness and, in many cases, without including a medical professional in the decision-making process.[5] This elucidates the significant role traditional systems of medicine play beside the western conventional medicine for the majority in meeting basic health care needs.

Whilst the World Medicines Situation Report estimates that between 70% and 95% of the population in developing countries

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rely on TRM,[6] many figures have been quoted to gauge the scale of an increasing interest and acceptance of the complementary and alternative medicine (CAM) in the economically developed countries. For example, use of CAM ranges approximately from 42% among Belgians to 90% in the UK.[7,8] Bercovitz et al. also found in the US that nearly 45% of the adult American population consume CAM.[9] Similar prevalence has been observed in Canada, Australia and China, where estimates depict that about 65%, 69% and over 90% of the adult population access various forms of traditional medical remedies.[10–13] Various studies in the African context reported that up to 90% Ethiopians and Burundians, 85% South Africans, 75% Malians, 70% of people of Rwanda, Benin and Ghana depend on alternative therapies for their health care practices.[6,7,14] In Ghana, use of TRM among the general population is substantial in both rural and urban settings. Trading and commercialisation of TRM in Ghana is of considerable economic substance. For instance, a survey on the Ghana's herbal market found 951 tons of crude medicinal products in 2010, with a total value of US$ 7.8 million.[15]

Like the general population, uptake of TRM is a growing phenomenon among students globally. Empirical studies on alternative medical practices by students have thriven, but the literature is polarised. Moreover, few studies have separately investigated TRM practices among students in developing countries.[2,16,17] Besides, limited research in Ghana only investigated knowledge and attitude towards CAM and largely considered Medical and Pharmacy students.[18,19] These studies make fundamental mistakes by cutting-off the standpoint of Non-medical students regarding TRM use. The understanding of the patterns, attitudes and determinants of TRM use among the general student population across various disciplines is therefore lacking. Given the inadequacies of findings of previous studies, this study analysed the prevalence and patterns of traditional therapies utilisation and the associated factors among multidisciplinary, multi-ethnic and culturally diverse undergraduate student population at KNUST in Kumasi, Ghana. This comprehensive knowledge bases may well help in the current debate on establishing policies to support the integrative medical system and intercultural health care delivery in Ghana.

2. Methods

2.1. Study design and context

This quantitative cross-sectional and university-based survey was conducted at the Kwame Nkrumah University of Science and Technology (KNUST). Established in 1952, KNUST is one of the public universities and the leading Science and Technology institution in Ghana. The university is located in Kumasi, the second largest city and the capital of the Ashanti Region of Ghana. It is found at 06°41′5.67N and 01°34′13.87W. KNUST has a student population of 23,591, of which 21,285 constitute undergraduates and academic and non-academic staff strength of 3706. This university provides an enabling environment for teaching, research and entrepreneurship training in science and technology for the industrial and socio-economic development not only in Ghana, but the entire African continent and other nations afield. KNUST also offers a wide range of programmes of study spanning Arts and culture, Business programmes, Social sciences, Science and Health sciences. Committed to offer service to the community, KNUST is open to all the people of Ghana and positioned to attract scholars, industrialists and entrepreneurs from Africa and the international community. In this regard, the institution attracts people from all parts of the country and other neighbouring countries with different socio-cultural traits who have the capacity to bring to bear different experiences, attitudes and knowledge on TRM.

2.2. Sample selection

The study considered individual undergraduate students at all levels; from Levels 100 to 400, across all age and gender categories. Students from the various colleges of the university, both Arts and Social Sciences, and Physical and Health Sciences were included in this study using a two-stage cluster and random sampling techniques. Out of approximately 21,285 undergraduate student-body, this study randomly selected 900 students, taking into consideration the programmes of study of the students. The sample was distributed to the programmes of study using population size as a yardstick. In this respect, 650 Non-science-related students (including Arts, Social science, Business) and 250 science students (including Physical Sciences, Engineering and Health Sciences) were enrolled. A total of 754 questionnaires were returned, excluding all those that were not completely filled out.

2.3. Research instruments and data collection procedure

Self-administered structured anonymous questionnaires were used as the main data collection tools. The outcome variable was use of TRM, operationalised as use or non-use of TRM therapies over the last 12 months preceding the survey. The participants were asked the question: “Have you used any form of TRM in the past one year”? The response was dichotomous, Yes = 1 or No = 0. In this regard, TRM was defined as any form of therapeutic approach that does not belong to the modern allopathic treatment provided by a medical professional. The questionnaire gathered information on respondents' demographic data (including age, gender, educational level, programme of study, religious affiliation and the monthly pocket income), knowledge, attitude and usage of TRM including the prevalence, pattern of TRM use as well as the attitudes towards TRM. Other variables included the perception, sources of information about TRM and diseases treated. For example, participants were asked whether their knowledge about TRM was obtained from friends, health care professionals, books and other academic materials, the media, or from an inherited knowledge from their family members and other relatives. Also, the questionnaire assessed the attitude to TRM modalities by a question based on the respondents' personal beliefs and perceptions regarding the effectiveness, safety and or side effects and the flexibility of use of TRM. The responses for the attitudinal items were rated on a 4-point scale (from 1 = very good to 4 = poor).

The questionnaires were distributed to the study participants during their normal lecture periods. For a better understanding, various items were explained to students by trained field research assistants recruited from the Department of Geography and Rural Development, KNUST. To help check call back challenges, the distribution, completion and collection of questionnaires were done by hand and in the same day. This provided the avenue to improve on the response rate of participation. Data collection processes were closely monitored by the researchers during the field survey. Also, spot-checks and re-checks on completed questionnaires were done by the research assistants to ensure quality control. The completion of each questionnaire lasted 35 min on the average. The Committee on Human Research Publication and Ethics, KNUST and Komfo Anokye Teaching Hospital (KATH), Kumasi, Ghana provided the ethical approval for the study (CHRPE/AP/260/14). Also, an informed verbal consent was obtained from all respondents. No identifying variables were provided on the questionnaire items so as to minimise any potential harm to the respondents. Participation in the research was therefore voluntary and respondents were assured of strict confidentiality of their responses.

2.4. Data analysis

Data were subjected to validation checks and then entered into an electronic database and analysed statistically through the Predictive Analytics Software (PASW) for Windows application programme (version 17.0). Descriptive statistics were first performed to describe the study participants. Non-parametric Pearson's Chi-square test was performed to establish the differences between the study variables. A multivariate logistic regression was carried out to estimate the associations between the use of TRM (the outcome variable) and the predictor variables. All test results were considered significant at $p < 0.05$. Data were organised and presented in a form of graph/chart, frequencies and percentage counts.

3. Results

3.1. Sample demographic profile

Table 1 presents the characteristics of the study participants. Overall, 754 students completely filled up all items and returned the questionnaires. Whilst the overall response rate was 83.8% that of the Non-science students and the Science students were respectively 89.1% and 69.6%. Majority of the participants were males (478, 63%), within the age group of 20–25 years (617, 82%), single (732, 97%) and had monthly income of GH¢100–200 (300, 40%). Approximately, two in five were Level 100 students and a significant proportion of them professed Christian faith (628, 83%). There was a statistical significant difference between male and female participants (63.4% vs. 36.6; $p < 0.001$).

3.2. Prevalence and pattern of unconventional therapies use among students

Overall, 89% of the respondents reported use of at least one form of TRM or another in dealing with their health problems in the last 12 months preceding the survey (see Table 2). Over one-half of the respondents used TRM in irregular intervals (annually or occasionally—as and when they are afflicted). It is observed from Fig. 1 that the major forms of TRM accessed by students were biologically-based therapies, particularly in the form of herbal mixtures (concoction and decoction) (67%), prayer or faith healing (15%) and body-mind therapies (11%). These medicinal interventions were chiefly sourced from the involvement in physical activities, purchases from chemical and or pharmacy shops (29%) and consultations with traditional/faith healers (campus prayer groups) (26%) for a wide range of reasons including disease treatment, curative, health promotion and preventive purposes (see Table 2). The study found that majority, approximately 60% of the sample used TRM for two or more times over the last 12 months. These discoveries showed statistically significant differences among the various income levels of students ($p < 0.001$) from Pearson's Chi-square analysis conducted. Students with lower monthly pocket income relied relatively much more on traditional medical treatments.

3.3. Students' knowledge and sources of awareness of unconventional therapies

Fig. 2 shows that overall, family members and other relatives (338, 50%) were the most common sources of knowledge about TRM. Other major sources of information about TRM were mass media (145, 22%) and health care professionals (86, 13%). However, friends (7.7%) and academic materials (7.5%) were reported as less important sources of knowledge regarding TRM. A closer look at Fig. 2 shows that unlike the literary materials, family, media, health providers, and friends provided TRM awareness to the Non-science-related students compared to the Science related counterparts and these differences were statistically significant ($p < 0.001$) (see Table 2). The study again revealed that about 30% of the respondents had used TRM in conjunction with orthodox medicines. However, majority (87%) of the respondents who practised medical pluralism reported no immediate side effects with the use of both western and unconventional therapies. We found that use of TRM reduced with an increasing level of schooling.

3.4. Students' attitudes to and perceptions of unconventional therapies

Unconventional medicines were effective in treating, curing and preventing a wide range of 'tropical' and 'neglected' ill-health, viz. typhoid fever, waist and bodily pains, malaria, boils, headaches, chicken pox, piles, infertility and low sperm count, based on respondents' self-report. As shown in Table 3, respondents perceived

Table 1
Background characteristics by gender of the study participants.

		Gender		
		Male	Female	Total
		n (%)	n (%)	N (%)
Age	<20	35 (7.3)	20 (7.2)	55 (7.3)
	20–25	381 (79.7)	236 (85.5)	617 (81.8)
	26–31	37 (7.7)	14 (5.1)	51 (6.8)
	32–37	25 (5.2)	6 (2.2)	31 (4.1)
Marital status	Single	464 (97.1)	268 (97.1)	732 (97.1)
	Married/Co-habited	14 (2.9)	8 (2.9)	22 (2.9)
Monthly pocket money	<Ghc100	197 (41.2)	63 (22.8)	260 (34.5)
	Ghc100–200	182 (38.1)	118 (42.8)	300 (39.8)
	Ghc201–300	99 (20.7)	95 (34.4)	194 (25.7)
Level of student	100	179 (37.4)	115 (41.7)	294 (39.0)
	200	75 (15.7)	19 (6.9)	94 (12.5)
	300	184 (38.5)	104 (37.7)	288 (38.2)
	400	40 (8.4)	38 (13.8)	78 (10.3)
Religious background	African traditional religion	37 (7.7)	27 (9.8)	64 (8.5)
	Christianity	399 (83.5)	229 (83.0)	628 (83.3)
	Islamic religion	30 (6.3)	20 (7.2)	50 (6.6)
	Other religions	12 (2.5)	0 (.0)	12 (1.6)

Table 2
Use of TRM by income level.

		Monthly pocket money				
		<GHC100	GHC100–200	GHC201–300	Total	*p*-value
		n (%)	n (%)	n (%)	N (%)	
Status of TRM (Past 12 months)	Yes	220 (84.6)	278 (92.7)	173 (89.2)	671 (89.0)	<0.001
	No	40 (15.4)	22 (7.3)	21 (10.8)	83 (11.0)	
Sources of TRM	Self-application	54 (24.5)	42 (15.1)	37 (21.4)	133 (19.8)	<0.001
	Consult faith healer	35 (15.9)	86 (30.9)	56 (32.4)	177 (26.4)	
	Self appliance	41 (18.6)	62 (22.3)	16 (9.2)	119 (17.7)	
	Pharmacy shops	62 (28.2)	81 (29.1)	53 (30.6)	196 (29.2)	
	Open market	28 (12.7)	7 (2.5)	11 (6.4)	46 (6.9)	
Reason(s) for using TRM	Prevention of illness	38 (17.3)	34 (12.2)	16 (9.2)	88 (13.1)	<0.001
	Treating of illness	111 (50.5)	135 (48.6)	95 (54.9)	341 (50.8)	
	Improvement of health	57 (25.9)	21 (7.6)	37 (21.4)	115 (17.1)	
	To maintain health	4 (1.8)	84 (30.2)	25 (14.5)	113 (16.8)	
	Other	10 (4.5)	4 (1.4)	0 (.0)	14 (2.1)	
Information sources about TRM	Family member	120 (54.5)	148 (53.2)	70 (40.5)	338 (50.4)	<0.001
	Friend	11 (5.0)	23 (8.3)	18 (10.4)	52 (7.7)	
	Literature	25 (11.4)	25 (9.0)	0 (.0)	50 (7.5)	
	Mass media	26 (11.8)	66 (23.7)	53 (30.6)	145 (21.6)	
	Health care provider	38 (17.3)	16 (5.8)	32 (18.5)	86 (12.8)	
Frequency of TRM use	Daily	17 (7.7)	32 (11.5)	7 (4.0)	56 (8.3)	<0.001
	Weekly	15 (6.8)	68 (24.5)	25 (14.5)	108 (16.1)	
	Monthly	72 (32.7)	32 (11.5)	37 (21.4)	141 (21.0)	
	Annually	59 (26.8)	67 (24.1)	15 (8.7)	141 (21.0)	
	Occasionally	57 (25.9)	79 (28.4)	89 (51.4)	225 (33.5)	
Times of TRM in the last 4 sicknesses	Not at all	49 (22.3)	82 (29.5)	69 (39.9)	200 (29.8)	<0.001
	Once	26 (11.8)	37 (13.3)	35 (20.2)	98 (14.6)	
	Two times	114 (51.8)	80 (28.8)	15 (8.7)	209 (31.1)	
	Three times	11 (5.0)	55 (19.8)	38 (22.0)	104 (15.5)	
	Four times	20 (9.1)	24 (8.6)	16 (9.2)	60 (8.9)	

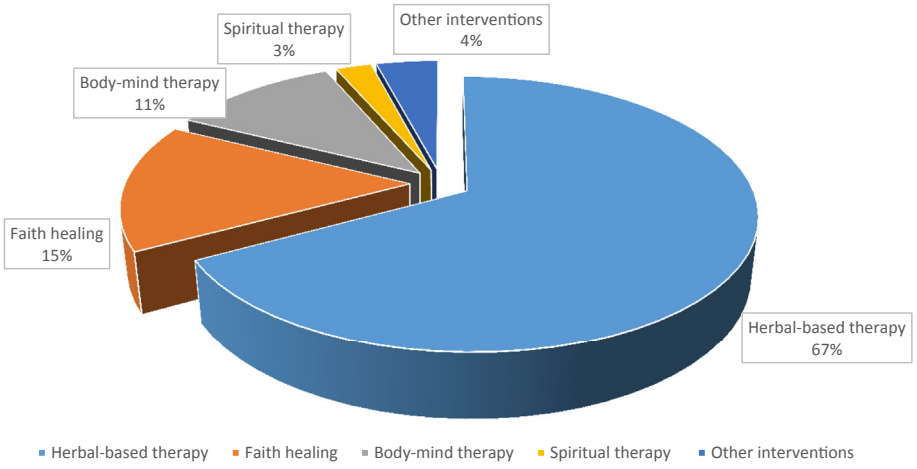

Fig. 1. Forms of unconventional medicines accessed by students.

TRM as effective (very good/good; 74%) and some 56% rated the safety of TRM as very good or good. These were subject to the trust in the potency and minimal side effects of the various modalities of TRM accessed by the respondents. The study found that whereas perception on effectiveness of TRM increased with increasing student level, the trust for safety among students declined with increasing class level ($p < 0.001$). Respondents again scored the flexibility of use of TRM as very good/good (58%) and poor (10%). Differences in the rating categories were statistically significant ($p < 0.001$) (See Table 3).

3.5. Factors influencing unconventional therapies use among students

In multivariate analysis, the study found that reading/pursuing a Non-science related programme had the highest odds of using unconventional medicines [OR 6.154 (95% CI 3.745–10.111; $p < 0.001$)]. In addition, professing to other religious beliefs (Islam and African Traditional Religion), than Christianity [OR 2.450 (95% CI 1.359–4.415; $p = 0.003$)] was associated with unconventional therapies uptake among the university students (see Table 4).

4. Discussion

Using the same methodology for investigating the pattern of unconventional therapies consumption and other comprehensive measures, this study surveyed a large sample of undergraduate university students at KNUST, Ghana. The study found, across different programmes of study and all academic levels, a high prevalence of indigenous therapies utilisation, which is largely comparable with the findings of previous studies among university students in the low, middle and high income economies.[18,20–22]

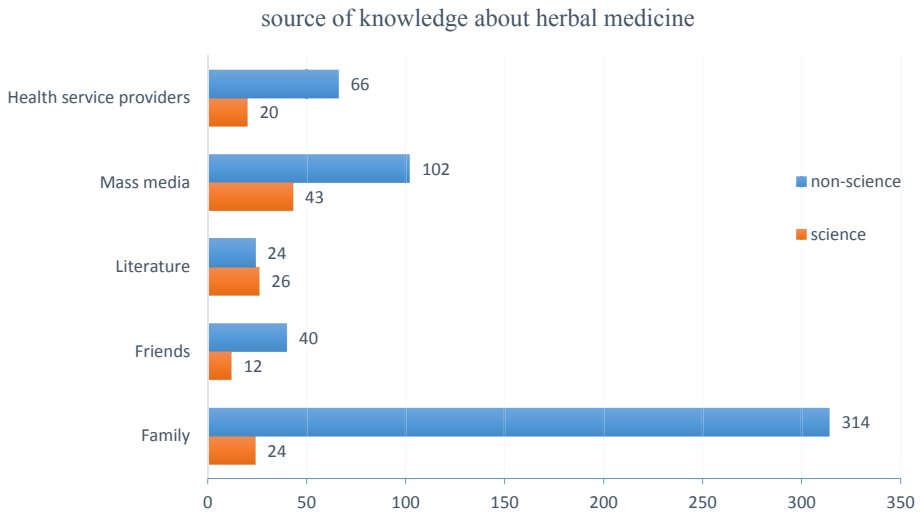

Fig. 2. Knowledge and awareness of unconventional medicines by programme of study.

Table 3
Students' attitudes towards TRM.

		Level of student					*p*-value
		100	200	300	400	Total	
		n (%)	n (%)	n (%)	n (%)	N (%)	
Rate of effectiveness of TRM	Poor	18 (6.4)	22 (30.6)	4 (1.6)	7 (10.8)	51 (7.6)	<0.001
	Satisfactory	48 (17.1)	7 (9.7)	47 (18.5)	24 (36.9)	126 (18.8)	
	Good	72 (25.7)	24 (33.3)	86 (33.9)	31 (47.7)	213 (31.7)	
	Very good	142 (50.7)	19 (26.4)	117 (46.1)	3 (4.6)	281 (41.9)	
Rate of safety of use of TRM	Poor	36 (12.9)	18 (25.0)	20 (7.9)	15 (23.1)	89 (13.3)	<0.001
	Satisfactory	46 (16.4)	15 (20.8)	109 (42.9)	34 (52.3)	204 (30.4)	
	Good	170 (60.7)	24 (33.3)	78 (30.7)	10 (15.4)	282 (42.0)	
	Very good	28 (10.0)	15 (20.8)	47 (18.5)	6 (9.2)	96 (14.3)	
Rate of flexibility of TRM	Poor	27 (9.6)	18 (25.0)	16 (6.3)	7 (10.8)	68 (10.1)	<0.001
	Satisfactory	60 (21.4)	23 (31.9)	110 (43.3)	19 (29.2)	21 (31.6)	
	Good	147 (52.5)	27 (37.5)	109 (42.9)	29 (44.6)	312 (46.5)	
	Very good	46 (16.4)	4 (5.6)	19 (7.5)	10 (15.4)	79 (11.8)	
Co-use of TRM and OM	Yes	86 (30.7)	21 (29.2)	71 (28.0)	24 (36.9)	202 (30.1)	0.557
	No	194 (69.3)	51 (70.8)	183 (72.0)	41 (63.1)	469 (69.9)	
Side effects of TRM use	Yes	20 (7.1)	4 (5.6)	46 (18.1)	14 (21.5)	84 (12.5)	<0.001
	No	260 (92.9)	68 (94.4)	208 (81.9)	51 (78.5)	587 (87.5)	

Table 4
Socio-economic factors associated with unconventional medicines use among students in multivariate analysis.

Variables	β	OR (95.0% C.I)	*p*-value
Level of student			
Less or equal to Level 200	0.363	1.00	0.175
More than Level 200		1.438 (0.850–2.432)	
Religious background			
Others religious groups	0.896	1.00	0.003*
Being a Christian		2.450 (1.359–4.415)	
Programme of student			
Science	1.817	1.00	<0.001*
Non-science		6.154 (3.745–10.111)	

OR = odds ratio; CI = confidence interval;* = statistically significant at $p \leq 0.05$. 1.00 = Reference group.

This is subject, partly to the readily availability of traditional medicines on the one hand, and the modernisation or formalisation of herbal therapies into the conventional health system,[21,23] leading to an increased trust in traditional medical practices. The blanket utilisation of TRM may have implications for the health of the individual students since a substantial proportion claimed to have ever used unconventional medical practices in combination with conventional therapies.

Despite this utilisation convergence, other studies have reported otherwise.[17,24] These disparities are not astonishing due to the peculiarities in sample definition as well as the diversity of TRM modalities. For example, whilst some studies survey medical students or only a particular year group of students,[20,24] others may narrowly or broadly define what constitute TRM. Besides, the socio-cultural differences among various geographical milieus, coupled with different methodological approaches used in the various studies may have gauged a contribution to the diverse prevalence. Considering the enormous use of TRM,[25] various interventions in support of increasing the utility of traditional health services delivery are urgently needed.

The study found biologically-based products and the faith healing modalities as predominantly used by students in dealing with a wide range of medical and emotional and or psychological challenges and also for health promotion and rehabilitation purposes. This finding is congruent with previously reported discoveries in Ghana and other parts of Africa.[26,27] The major sources of the medical interventions to students include purchases from

pharmacy shops and prayer/faith healers. Students found it relatively easier obtaining medicinal products and herbal mixtures as much, within the school environment. The pharmacy shops within and around campus are mostly the first port of call for first aid in the form of herbal drugs. Previous studies have reported that community pharmacy is widely acknowledged as a common place in which the general population gets medicine and seeks health advice.[1] Beliefs in the distant or energy healing have grown overtime among students. This is not surprising as the preponderance (83%) of the respondents professed to Christendom. Most students nowadays embrace prayer sessions and religious activities on university campuses. The current practice is that students join prayer groups that converge at designated areas on campus. These groups mostly pray at the dawn and in the evening, and also offer healing interventions. Members with psychological problems and other health challenges are delivered through prayers and fasting. This finding is in consonance with a study in the US which found that about 82% of respondents believed in the healing power of prayer.[28] Students like the general public are gradually losing interest in the divination as Christianity and Islamic religious fraternities are being embraced by many.

In line with other previous studies,[1,18] this study reports students' family members, the mass media (both print and electronic) and the health care professionals as the significant knowledge sources and awareness proxies for TRM. Gyasi et al. in a study of prevalence and pattern of traditional medical therapies utilisation in Kumasi metropolis and Sekyere south district in Ghana resonate that traditional knowledge regarding herbal and other forms of indigenous medicine has been transferred orally through inheritance and training from older community members for well over many centuries.[1] Nworu et al. found that electronic and print media, friends, peers and families are important information sources about CAM among students.[29] The propagation of media outlets in a form of diverse radio waves, television telecasts and the widespread informal information points have emerged and contributed immensely to the outbreak of information about TRM through announcements and advertising modules. This fact has been observed previously.[30] Inconsistent with Gyasi et al.[1] it is rather intriguing that health care specialists such as doctors, nurses and pharmacist are now becoming keen advocates for, and therefore constituting major agents for TRM knowledge despite the perpetual rivalry and mistrust between the traditional medical healers and health professionals in the arena of health care practice. Our study uniquely observes that unlike other knowledge sources, literary materials such as books, magazines and articles are important TRM awareness route to the Science related students than the Non-science related discipline counterparts. Pharmaceutics, Pharmacology, Pharmacognosy, Food Science as well as Herbal Medicine are major sub-disciplines of Health sciences at KNUST. The respective syllabuses of these programmes may be tailored to unconventional medical treatments and therefore abound its knowledge for students at the expense of the latter.

The study shows that students perceive TRM to be effective and safe; the majority scored the effectiveness and safety of TRM as very good and/or good comparable to the conventional drugs which are mostly perceived to be chemicalised. The effectiveness of TRM in disease prevention and health promotion is widely acknowledged in various surveys.[4,29,31,32] This study found that various 'tropical' diseases including malaria, typhoid fever, waist and bodily pains, boils, piles and dermatoid problems are relatively tackled effectively by alternative medical therapies. The self-rated safety of TRM hinges on the widespread belief that the herbal preparations are natural and consequently safe for human use. Studies report that users of TRM actually perceive it to be safer alternatives than the scientific medicine,[33,34] and therefore highly acknowledged among students and the general population. This finding provides evidence to suggest that students have positive attitudes towards TRM. We however observed that whilst the perception on effectiveness of TRM increases with increasing student level, the trust in the safety of unconventional therapies among students was declining with increasing class level. This finding disagrees with Jamal et al. who found that perceptions and knowledge on TRM among Pharmacy students differed with respect to their years of being into the university.[16] Despite these respondents' self-reports regarding effectiveness and safety of TRM, it is of a necessity to authenticate these claims through requisite randomised clinical trials and effective checks to be sure of the active chemical composition of the various herbal products so as to be able to safeguard the health of the users.

In this study, being a student of Non-science-related programme and holding a Christian belief were found to be strongly associated with the uptake of TRM. Non-science-related students were two times more likely than their counterparts from the Science-related programmes to use TRM. The Science-related students, with particular reference to the health and the aligned health science programmes, one way or the other have a direct connection with the orthodox medical system. These students, because of their medical perspectives and training/learning orientations consider traditional system of medicine as rudimentary and therefore perceive it with disdain and suspicion. This ultimately may influence the extent to which they access and use unconventional treatments. In the African context, religion has a strong connotation with the traditional medical system.[35,36] Students who practice Christian faith were more likely to utilise prayer and faith healing interventions than other students who share belief in other religious denominations. Most of these students believe in prayers through prayer meetings, gospel teachings and healing sessions by most charismatic prophets. This finding emerges to confirm some previous studies,[18,37,38] in terms of the strong influence of religion on TRM utilisation.

Some strengths of this study deserve comments. Our study was based in one of the largest public universities in Ghana, which typifies a multidisciplinary, multicultural and multi-ethnic groups representing well, the Ghanaian students' population. Besides, no study, to the best of our knowledge, has been conducted to examine the use of unconventional medicines among students with diverse study orientations. Our study has several limitations; hence the findings should be read with caution. The fact that the study adopted retrospective cross-sectional design and sourced its data from self-report by the participants, recall bias is inevitable. For this same reason, no definite statement on temporarily or causal conclusions can be drawn. The investigation was conducted with students from one university, but inclusion of other universities could have mayhap, resulted in different results. We however used a larger sample in order to improve the representativeness and generalisability of the findings. A report of events and experiences in relation to TRM use in 12 months period may include either over- or under-reporting. However, efforts were made to minimise research errors by the insights gained through collecting and analysing a large sample.

5. Conclusion

This paper examined the prevalence, pattern of use, and students' attitudes towards unconventional medicines and the associated factors. The study found, among a large sample of university students in Ghana, a high prevalence of unconventional therapies uptake for tackling an array of medical and psychological/spiritual problems. Biologically-based products, prayer healing and body-mind interventions were predominantly accessed by

students through purchases from pharmacy shops and faith healers. The factors strongly associated with students' unconventional medical therapies use were religious beliefs and the programme of study. Most of the students found unconventional therapies to be safe and effective; hence showed positive attitudes towards it through self-report. Despite the popularity of TRM and the belief of many of the respondents that TRM barely produces adverse effects and potential toxicities, there is an urgent need to evaluate the efficacy, safety and quality of unconventional therapies through randomised clinical tests and trials as well as rigorous regulatory practices by Ghana Food and Drugs Authority and other stakeholders to warrant the necessary quality control.[39] These mechanisms remain the forward match of, and the right way forward for strengthening traditional therapies service quality and to promote primary health care delivery in Ghana.

Conflict of interest

The authors state that they have no conflicts of interest to declare.

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