

Knowledge and attitude of medical students towards sports medicine

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Abstract. *Background.* Sport is a large part of the Nigerian culture. A huge proportion of her people are involved either as a form of relaxation or as employment. Individuals involved in sports require special care that enfolds education on injury prevention, treatment of sport-related injuries and rehabilitation of patients with sport-related injuries. The management of such patients should therefore be of significant importance to healthcare providers. *Methodology.* This was a descriptive cross-sectional study. Stratified random sampling method was used and data collection was done using pre-tested, self-administered questionnaires which were analyzed using Statistical Packages for Social Sciences (SPSS) version 15.0. *Results.* The College of Medicine of the University of Lagos (CMUL), Nigeria, was the area of study in this research. Two hundred and forty-five (245) medical students took part in this study. The response rate was 89%. Mean age was 21 ± 2.8 years. Over half (50.6%) of the respondents were females. Most of the respondents were single (99.2%), Christian (80.7%) and of the Yoruba ethnic group (72.3%). It was found in the overall knowledge score that most of the respondents (63.7%) had good knowledge of sports medicine. A large proportion of the respondents (79.2%) were aware of sports medicine having school (52.8%) as their main source of information. The factors found to influence the overall knowledge of respondents were curriculum ($p=0.000$) and level ($p=0.000$). Overall, almost all the respondents (99.2%) had a positive attitude towards sports medicine. Majority (95.0%) of the respondents felt training in sports medicine is essential however; about half of them (46.7%) felt that medical students are not adequately trained in sports medicine. *Conclusion.* Majority of the medical students of the College of Medicine, University of Lagos (CMUL) are aware of sports medicine and have a positive attitude towards it. They would only need to build on this knowledge and attitude to be adequately skilled to manage patients involved in sports and physical activity. It is recommended that sports medicine be incorporated into the medical curriculum of the CMUL as this would boost the level of knowledge and encourage specialization in sports medicine among medical students.

Key words: *students, questionnaire, physical activity, medicine.*

Introduction

Nigeria has a population of about 150 million people of which young people make up the largest part. Young people enjoy sports; students play and they are involved in inter-school competitions, youths participate in games organized in their communities. Some play for local and international clubs and some represent the nation at international competitions.

Sport is a large part of the Nigerian culture. A huge proportion of her people are involved either as a form of relaxation or as employment. But with sports and exercise, comes the risk of injury and disability.

Individuals involved in sports require special care that enfolds education on injury prevention,

treatment of sport-related injuries and rehabilitation of patients with sport-related injury. The management of such patients should therefore be of significant importance to doctors, such that even in the emergency room they can be offered quality care. This minimizes disability and improves quality of life.

Sports medicine is a field of medicine concerned with caring for sports and exercise-related matters.

In the United Kingdom (UK) and some other countries, it is known as sports and exercise medicine. Sports and exercise medicine embraces the health needs of physically active people of all ages and abilities (1).

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This discipline is concerned with providing a holistic approach to addressing medical conditions and injuries in those who wish to exercise; preventing further injuries by providing advice on the safe use of physical exercise in the treatment and prevention of illness; and promoting general wellness through the increased use of exercise and physical activity (2).

Sports medicine specialists may also be family doctors, general practitioners, cardiologists, orthopedic physicians or surgeons, rheumatologists, or specialists in public health medicine amongst other things. Each may be a specialist in sports medicine, but with very different knowledge and skills, viewing sport from many different personal or professional angle.

They may care for the elite athlete, the top national teams and individual Olympians, or the everyday recreational athlete and each may have a different, yet legitimate, understanding of sports medicine (2). Sports medicine treats competitive athletes, but it also crosses into the realm of activity and health (3).

Statement of the problem. It is expected that medical students would be interested in sports medicine as a topic, as sport is such a large part of our culture, and in future practice, they may require this skill to manage patients with sport-related problems (4). It is also expected that medical schools would offer sports medicine training as part of an integrated undergraduate curriculum in order to affiliate medical students with the basics and skills of sports medicine (4). Also, few medical schools offer training in sports medicine as a part of undergraduate curriculum. Consequently, many medical students have little idea what sports medicine is and do not realize that it encompasses much more than treatment of injury (5). Sports medicine is not even offered as postgraduate training in Nigeria.

If sports medicine is integrated into the curriculum, every physician would have enough knowledge to manage sport and sport-related problems, to recognize cases that should be referred to specialists and to refer appropriately. He would also be trained to educate his patients on the importance of physical activity as a lifestyle intervention and key to disease prevention. Greater exposure at the undergraduate level is also likely to spark further interest and recruitment to what is a new and exciting area of medicine (4). In developed countries like United Kingdom, Australia and New Zealand,

sports medicine is a recognized specialty. Medical students are exposed to sports medicine and are taught basic skills. Doctors actively participate in exercise counseling and they are more enlightened on issues relating to physical activity and health (6).

But in developing countries like Nigeria, medical students are not so exposed to this specialty. They only know of the common specialties which they have rotations in during their training. They do not know its importance and so do not train further in it, neither do they have the necessary skills to manage sporting and physically active patients (7). When during practice, they are faced with sport and sport-related problems; they are ill-equipped to handle it. They fail to realize the role of physical activity in the prevention of ill-health and so do not prescribe it. This worsens the health status of a country struggling to meet the health demands of its people.

Sports and sport-related problems can therefore be properly managed with appropriate skill and unnecessary complications can be prevented (8). The Nigerian public can be educated on the importance of physical activity to total wellness and the usefulness of activity in the prevention of chronic diseases. If physical activity is accepted and practiced, the burden of non-communicable diseases would be reduced, mortality would be reduced (9, 10). The Nigerian populace would be physically fit and absenteeism from work would be reduced, and work productivity would also be improved (11, 12). Thus, there would be economic growth and development. However, the aim of this research is to determine the knowledge and attitude to sports medicine among medical students of the college of medicine of the University of Lagos, and the factors influencing their knowledge and attitude towards sports medicine.

Material and Method

The College of Medicine of the University of Lagos (CMUL) was the area of study in this research. It was established in April 1962, as the first medical school in Nigeria.

This hospital provides hands-on training for students of the college. It is located between Mushin Local Government & Surulere Local Government areas of Lagos state. It was founded to produce highly trained medical manpower to provide specialized medical services and to conduct research into health related problems. The

College’s mission statement is to be a world-class research intensive medical school, to deliver teaching and facilitate learning of the highest quality and; to play a leading role in health and economic development of Nigeria. It has three faculties: Basic Medical Sciences, Clinical Sciences and Dental Sciences.

Courses offered by the college include; medicine and surgery, dental science, physiology, physiotherapy, radiography. Medical education is split into five levels in the college and one at the university’s main campus.

This research was a descriptive cross-sectional study designed to assess the knowledge and attitude of medical students in the college to sports medicine. This was merely an observational study. The study population of this research was medical students of this college. A sample size of

two hundred and seventy-five was used for this study.

Results

Two hundred and seventy-five (275) questionnaires were distributed to the medical students of the College of Medicine, University of Lagos (Nigeria) and two hundred and forty-five (245) were returned appropriately filled; giving a response rate of 89%.

Socio-demographic characteristics of the respondents (table I): the mean age of the respondents was 21±2.8 years; majority of the respondents were between 16 20 years (48.2%); most of the respondents practice Christianity (80.7%); about three-quarter of them were Yoruba (72.3%); the largest percentage of the students (35.5%) was in 200 level.

Table I. Socio-demographic characteristics of the respondents

Variable	Frequency	Percentage
Age (Years)		
16-20	108	48.2
21-25	102	45.5
26-30	13	5.8
31-35	1	0.4
Total	224	100.0
Sex		
Male	118	49.4
Female	121	50.6
Total	239	100.0
Religion		
Christianity	196	80.7
Islam	46	18.9
Traditional	1	0.4
Total	243	100.0
Ethnic group		
Hausa	1	0.4
Igbo	38	16.0
Yoruba	172	72.3
Others	27	11.3
Total	238	100.0
Marital Status		
Single	238	99.2
Married	2	0.8
Total	240	100.0
Level		
200	87	35.5
300	57	23.3
500	53	21.6
600	48	19.6
Total	245	100.0

In the overall knowledge of sports medicine (table II), about two-thirds of the respondents (63.7%) had good knowledge. Another 15.5% respondents

had a fair knowledge of sports medicine while 20.8% respondents had no idea whatsoever about sports medicine.

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A large proportion of the respondents (79.2%) were aware of sports medicine. Information on sports medicine for most respondents was mostly

gotten from school (52.8%), followed by the mass media (20.7%), and friends (15.5%).

Table II. Respondents' awareness of sports medicine and source of information

Variable	Frequency	Percentage
Awareness of sports medicine		
Yes	194	79.2
No	51	20.8
Total	245	100.0
*Source of Information		
Friends	30	15.5
Family	4	2.1
School	102	52.8
Health Centre	5	2.6
Internet	7	3.6
Mass Media	40	20.7
Others	4	2.1
Total	193	100.0

*Respondents were asked to tick only one option

Response on the various knowledge questions are presented in table III. Over half (55.6%) of the respondents identified wrongly that sports medicine is not a widely recognized specialty. Majority of the respondents (92.1%) correctly identified that sports medicine is the management of sports injuries. A larger proportion of the respondents (80.2%) rightly identified that sports medicine is the prevention of sports injuries and

most of the respondents (84.4%) also correctly identified that sports medicine is the promotion of exercise.

A larger proportion of the respondents (88.4%) correctly identified that the use of performance enhancing drugs is not allowed in sports. About two-thirds of the respondents (65.3%) were aware of the list of drugs in sports (table IV).

Table III. Respondents' knowledge of sports medicine

Variable	Frequency	Percentage
Sports medicine is a widely recognized specialty		
Yes	84	44.4
No	105	55.6
Total	189	100.0
Sports medicine is the management of sports injuries		
Yes	176	92.1
No	15	7.9
Total	191	100.0
Sports medicine is the prevention of sports injuries		
Yes	154	80.2
No	38	19.8
Total	192	100.0
Sports medicine is the promotion of exercise		
Yes	157	84.4
No	29	15.6
Total	186	100.0
Sports medicine treats both athletes and non-athletes		
Yes	135	71.8
No	53	28.2
Total	188	100.0
Sports reduce the risk of non-communicable diseases		
Yes	109	58.0
No	79	42.0
Total	188	100.0

Table IV. Respondents' knowledge of performance enhancing drugs in sports

Variable	Frequency	Percentage
The use of performance enhancing drug is allowed		
Yes	22	11.6
No	167	88.4
Total	189	100.0
Awareness of the list of prohibited drugs		
Yes		
No	124	65.3
Total	66	34.7
	190	100.0

Overall, almost all the respondents (99.2%) had a positive attitude towards sports medicine with only 0.8% who had negative attitudes (table V). Respondents' attitude to sports medicine is presented in table 5. Less than half (45.3%) of the respondents strongly agreed that sports medicine is not restricted to physiotherapists. Majority (95.0%) of the respondents felt training in sports medicine is essential. A paltry of the respondents (13.4%) felt that they would like to further in sports medicine, the majority (40.6%) was unsure and a quarter (23.0%) disagreed.

More than half of the respondents (54.8%) agreed that sports medicine should be a recognized specialty in Nigeria. About half of them (46.7%) felt that medical students are not adequately trained in sports medicine.

Table VI shows the test of association between sports participation, curriculum, level and overall knowledge of respondents. There is a significant association between sports medicine in curriculum and overall knowledge of respondents and respondent's level and overall knowledge (p=0.000).

Table V. Respondents' attitude to sports medicine

Variable	Agree	Disagree	I don't know	Strongly agree	Strongly disagree	Total
Sports medicine is not only for physiotherapists	93 (38.3%)	17 (7.0%)	17 (7.0%)	110 (45.3%)	6 (2.5%)	243 (100.0%)
Sports medicine training is important	121 (49.8%)	1 (0.4%)	11 (4.5%)	110 (45.3%)	0 (0%)	243 (100.0%)
Doctors should be skilled in sports medicine	136 (56.0%)	3 (1.2%)	18 (7.4%)	86 (35.4%)	0 (0%)	243 (100.0%)
I would like to further in sports medicine	32 (13.4%)	55 (23.0%)	97 (40.6%)	18 (7.5%)	37 (15.5%)	239 (100.0%)
Sports medicine should be a recognized specialty in Nigeria	132 (54.8%)	2 (0.8%)	16 (6.6%)	91 (37.8%)	0 (0%)	241 (100.0%)
Promoting exercise is a part of a doctor's job	123 (51.0%)	2 (0.8%)	8 (3.3%)	108 (44.8%)	0 (0%)	241 (100.0%)
Medical students are adequately trained in sports medicine	21 (8.7%)	113 (46.7%)	61 (25.2%)	14 (5.8%)	33 (13.6%)	242 (100.0%)

Table VI. Test of association between sports participation, curriculum, level and respondents' overall knowledge

* Significant P-value ($p < 0.05$)

	Knowledge			TOTAL	χ^2	P-value
	Good	Fair	Poor			
Keen sports viewer						
Yes	79(69.9%)	14(12.4%)	20(17.7%)	113(100.0%)	2.773	0.249
No	76(59.8%)	23(18.1%)	28(22.0%)	127(100.0%)		
TOTAL	155(64.6%)	37(15.4%)	48(20.0%)	240(100.0%)		
Keen sports player						
Yes	49(73.1%)	8(11.9%)	10(14.9%)	67(100.0%)	3.145	0.208
No	106(60.9%)	30(17.2%)	38(21.8%)	174(100.0%)		
TOTAL	155(64.3%)	38(15.8%)	48(19.9%)	241(100.0%)		
Sports medicine in curriculum						
Aware	54(78.3%)	12(17.4%)	3(4.3%)	69(100.0%)	15.943	0.000*
Not aware	102(58.0%)	26(14.8%)	48(27.3%)	176(100.0%)		
TOTAL	156(63.7%)	38(15.5%)	51(20.8%)	245(100.0%)		
Level						
200	44(50.6%)	20(23.0%)	23(26.4%)	87(100.0%)	44.7085	0.0000*
300	27(47.4%)	6(10.5%)	24(42.1%)	57(100.0%)		
500	43(81.1%)	8(15.1%)	2(3.8%)	53(100.0%)		
600	42(87.5%)	4(8.3%)	2(4.2%)	48(100.0%)		
TOTAL	156(63.7%)	38(15.5%)	51(20.8%)	245(100.0%)		

Discussion

This study was carried out to assess the knowledge and attitude to sports medicine amongst medical students in the College of Medicine of the University of Lagos, where the response rate was 89%.

The study done in Britain, among general practitioners to assess knowledge, interest and attitude to sports medicine had a similar response rate of (87.6%) (13).

The mean age of the respondents in this study was 21 ± 2.8 years. The study done in France, among general practitioners to assess knowledge and attitude to doping had a mean age of 45.6 ± 5.6 years (14). This is because the study done in France was carried out among general practitioners who had a mean of 16 for the number of years of professional practice.

Another study carried out in Greece among trainee general practitioners to assess knowledge and attitudes to doping had a mean age of 28 years (15).

The study done in France among general practitioners had the study sample made up of (24.5%) females and (75.5%) males (14). Another study done in Italy among medical doctors had 67% male respondents (16). But in this study, more than half of the respondents (50.6%) were females. About eighty per cent of the respondents in this study indicated that they were Christians. Majority (99.2%) of the respondents were single.

This is probably because most of the respondents (48.2% and 45.4%) were aged between 16-20 and 21-25 years.

A larger proportion of the respondents (79.2%) were aware of sports medicine and the most commonly cited source of information was school (52.8%), followed by mass media (20.7%). The study done in Greece among trainee general practitioners showed that 99% of respondents cited newspapers as their main source of doping knowledge (15). The study done in Britain among general practitioners showed that majority of the respondents were uncertain about if sports medicine was a recognized specialty or not (13). Half (50.0%) of the respondents in this study believed that sports medicine is not a widely recognized specialty.

Most of the respondents (88.4%) in this study correctly identified that the use of performance enhancing drugs is not allowed in sports. In the study carried out in West Sussex among general practitioners, 18.0% of respondents had either prescribed or been asked to prescribe anabolic steroids for performance enhancement (17). A larger proportion of the respondents (65.3%) were also aware of the list of drugs prohibited in sports. The study done in Greece among trainee general practitioners showed that only a small proportion of the respondents (25%) knew of the World Anti-Doping Agency/International Olympic Committee

(WADA/IOC) banned list (15). In the study done in West Sussex, only one third of respondents were aware of information on prohibited substances in sport (17).

A larger proportion of the respondents (63.7%) in this study had good overall knowledge of sports medicine. The study carried out West Sussex among general practitioners showed that two - third of the respondents had poor knowledge of sports medicine (17). Most of the respondents (54.8%) in this study agreed that sports medicine should be a recognized specialty in Nigeria. The study done in Britain among general practitioners showed that majority of the respondents (60.4%) considered that sports medicine should be recognized as a specialty (13). Only a few respondents (13.4%) in this study agreed that they would like to further in sports medicine. The study done in Britain among general practitioners showed 22.9% of the respondents that agreed that they had an interest in sports medicine (13).

In the study done in Britain among general practitioners, most of the respondents (55.6%) agreed that encouraging people to exercise is a part of their job as doctors (13). The results obtained in this study showed that 51.0% of the respondents, who were medical students, agreed with the statement, 'promoting exercise is a part of a doctor's job'.

Almost half of the respondents (46.7%) in this study felt that they were not adequately trained in sports medicine. The study done in France among general practitioners revealed that most respondents (77.0%), considered themselves poorly trained in sports medicine (14). Also, in the study carried out in Ireland among general practitioners, only 9% of respondents felt adequately trained (18). The study carried out in Britain among general practitioners as well, also showed that 72.7% of respondents felt they lacked adequate training in sports medicine (13). In another study carried out among general practitioners in France, 83% of respondents felt poorly trained (19).

In this study, statistical significance ($p=0.0252$) was found between age and the knowledge of the respondents as most of the older respondents had a good overall knowledge of sports medicine.

In the study carried out in Britain among general practitioners, younger respondents were found to be more interested in sports medicine ($p = 0.001$) and to welcome further training ($p = 0.001$) (17). But in another study carried out in the United

Kingdom among general practitioners, it was found that age had no influence on the respondents' knowledge of prohibited substances in sports (20).

No statistical significance was found between the sex, religion, ethnic group and marital status of respondents and their overall knowledge. In the study done in the United Kingdom among general practitioners, there was no significant association between the sex of the respondents and their knowledge of prohibited substances in sports (20). There was also association ($p=0.000$) between the level (class) and the overall knowledge of respondents. Majority of respondents in 500L and 600L (81.1% and 87.5%) had a good overall knowledge. The study done in Thailand among medical students in a military medical school showed that the fourth, fifth, and sixth year medical students had better attitudes toward exercise than second year medical students ($p=0.05$) while the fifth and the sixth year medical students also had better attitudes than the third year students ($p=0.05$) (16).

No statistical significance ($p>0.05$) was found between sports participation of the respondents of this study and their knowledge of sports medicine. The study carried out in Britain among general practitioners showed that respondents who claimed to be sports participants were more likely to be interested in sport and exercise medicine ($p=0.001$), to have sought out further training ($p=0.001$), and to enjoy treating sports people ($p<0.001$) (13). Another study carried out in the United Kingdom also among general practitioners showed that a large proportion of general practitioners (71.0%) who participate in sports had a good awareness of the list of prohibited substances, compared to 47% of those who do not participate in sports (20).

Conclusion

The overall knowledge and attitude of the medical students of the College of Medicine, University of Lagos, assessed in this study was good. (63.7%) The students displayed a good knowledge of sports medicine including doping in sports. The commonest source of information cited was school (52.8%), followed by mass media (20.7%). The students also displayed a positive overall attitude to sports medicine (99.2%) agreeing with statements like "sports medicine training is important", "sports medicine is not for physiotherapists alone", "promoting exercise is a

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part of a doctor's job", and "doctors should be skilled in sports medicine".

The factors that were found to influence the respondents' knowledge were age ($p=0.0252$), level, ($p=0.0000$) and sports medicine as a part of their curriculum ($p=0.0003$). No statistical significance was found between sports participation and the knowledge of respondents ($p>0.005$). This study has shown that the average medical student has heard about sports medicine, probably in school, and is positively inclined towards it, and might pursue sports medicine as a chosen career after the basic medical sciences.

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