Original Article

Sudanese Medical Students and Scientific Research

Moumin A K Mohamed[1], Abdelrazag M Elamin[1], Mazin M Almobashar[1], Elromysa Eltayeb[1], Sarah Omer[1], Sarah M A Diab[1], M. A. M. Ibnouf[2].

Abstract

Background: Most of developing countries face problems in assessment of their public health practices. Gain of this knowledge is orchestrated by research. Medical students can play an essential role in improving public database.

Objective: to explore knowledge, attitude and skills of medical students in the Faculty of Medicine and Health Sciences (FMHS), Omdurman Islamic University (OIU) towards research.

Materials and Methods: This is a descriptive, analytical, cross-sectional, institution-based study. A total of 442 students, equally from each batch participated in the study. Equal numbers of male and female were considered to eliminate gender and seniority bias. Structured pretested questionnaire was used for data collection. Data collected were fed to Statistical Package for Social Sciences (SPSS) version 15. Means, standard deviation and correlations were done where appropriate. Statistical significance was taken at $P = 0.05$.

Results: The mean knowledge score was 37% and attitude was positive in 77.1% of the students. Only 18.3% had attended research methodology workshop. The rate of internet navigation is directly proportional to the social class. Only 14.7% knew the engines used for finding medical literature.

Conclusion: The low knowledge score is due to lack of application of research in the academic curriculum; however, the students have a fairly positive attitude. The knowledge is expected to improve with the intended policy to include practical research in the curriculum.

Key Words: Public health, academic curriculum, Sudan

ADVANCES in biomedical research during the last decade have highlighted the necessity of attracting greater number of physicians to careers that include a research component[1]. The gap between developed and developing countries is very wide considering the numbers of publications, their quality, and the number of edited journals[2]. Health research is essential and helpful for planning of the national health policy. Considering the gap in knowledge in developing world, that should be filled; lots of efforts should be exerted to increase the number of researchers and the scientific production. Research capacity-building through special education programs is an important prerequisite to enable research in developing countries.

1. Medical student, Faculty of medicine, Omdurman Islamic University, Khartoum, Sudan.
2. Prof. of surgery, Faculty of medicine, Omdurman Islamic University, Khartoum, Sudan.

This study, to our best of knowledge, is the first that aims at exploring Sudanese medical students' knowledge, attitude and practice towards research.

Materials and methods:

Study Design: This is a prospective, descriptive, analytical, cross-sectional, institution-based study.

Set up: The Faculty of Medicine and Health Science (FMHS), Omdurman Islamic University (OIU) where the curriculum adopts problem-based learning (PBL) polices. The total number of students was about 1250 students and the graduated batch is about 250.

Study Population: The population of the study included 1800 students from all batches of under graduated and the last graduated batch.

Sampling technique and sample size: The sample type is stratified random sample taking almost equal number of students from each batch with almost equal number of male

and female students to eliminate the seniority and gender bias. A preliminary pilot study was distributed aiming at validation of the clarity of the items in the questionnaire.

A sample size of about 20% students of the each batch was chosen randomly. Therefore, we got a sample size of 304 students. As precaution 10% more questionnaires were added to compensate for the questionnaires which were not returned and another 10% for the questionnaires which were not completely filled. Therefore, a total of 600 questionnaires were distributed.

Variables: The variables explored were: age, gender, batch number, social class, knowledge and attitude towards health research, practice in health research, access and skills on internet usage.

Data Collection and Processing: A statistician was involved from the very beginning of this study and was consulted on the issues of sampling, data collection and processing. Data were collected in the period from September through December 2010, using the pre-designed, pretested structured anonymous questionnaire prepared for this purpose. A team of data collectors was briefed and trained on the process of data collection.

The Knowledge score: To get an idea about the level of students' familiarity with research, we proposed a knowledge score composed of 10 different items and we gave each item one mark.

Statistical analysis: The data collected were fed to Statistical Package for Social Sciences (SPSS) version 15. Means, standard deviation and correlation were considered where appropriate. Statistical significance was taken at $P \leq 0.05$.

Ethical Consideration: An ethical clearance was obtained from Ethical Committee of OIU.

Results:
A total of 442 (73.66%) participated in the study**.** They were 225 male and 217 female students. The students who know how to search in the internet in different frequency rates were 380 as shown in Fig 1.
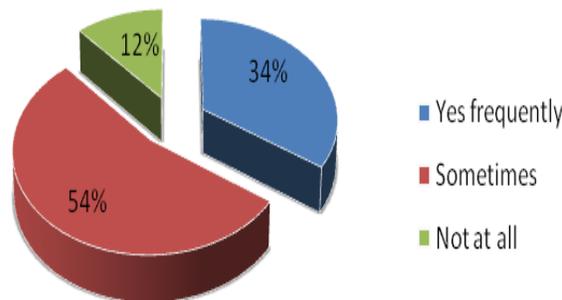

Figure 1: Frequency of searching the internet

Out of this number only about 14.7% correctly knew the research engines used for finding out medical literature. 32.5% of medical students infrequently read medical journals but only 14.9% were able to tell the correct name of the medical journal published by the FMHS OIU i.e. the *Sudan Journal of Medical Sciences*.

However, more than two thirds of the students were able to answer basic questions on research as shown in tables 1, 2, & 3)

Table 1: Definitions of the students for the word "Abstract".

The student response	Number	%
Research Summary	256	57.9%
Research Discussion	42	9.5%
Closing	13	2.9%
Introduction	14	3.2%
Do not know	117	26.4%
Total	442	100%

Table 2: Answers of students on the function of the questionnaire.

The student response	Number	%
Data collection	294	66.5%
Data discussion	58	13.1%
Description of aim of the research	28	6.3%
Results	17	3.8%
Do not know	45	11.2%
Total	442	100%

Table 3: Opinions of students who know the function of sampling methods in research.

The student responce	Number	%
Study all the population	22	5.0%
Study of researcher surroundings	10	2.3%
Random Sampling	358	81.0%
Study 50% of the population	27	6.1%
Do not know	25	5.7%
Total	442	100%

The mean (±SD) knowledge score was 37% ± 17 % as depicted in fig. 2. About 207(50.4%) students rated themselves to have low level of knowledge and skills for performing research. Also, 74.4%% of the students had knowledge score less than 45%.
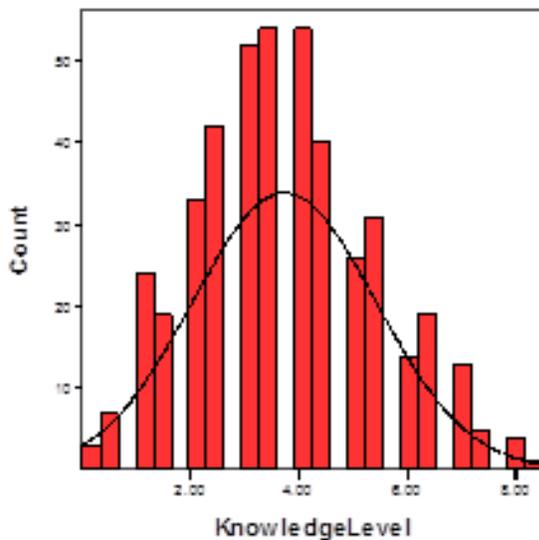

Figure 2: Histogram and normal curve showing the knowledge distribution:

The vast majority of the student (90.9%) claimed that they can perform research with help and/or supervision. More than two thirds of the students (77.1. %) rated research methodology workshops as important, and they would like to participate in a research either during or after graduation. Moreover, 45.7% showed an immediate desire to participate in a research if they have a chance to do so (fig.3). All the students except

28(0.3%) comprehend the impact of the research in their future. In the other hand, only 18.3% had actually attended a research methodology workshop. All students are well oriented on the cost and cost-effectiveness of research but, two thirds of them mentioned that the academic load of work has reduced their chances of participation in research.
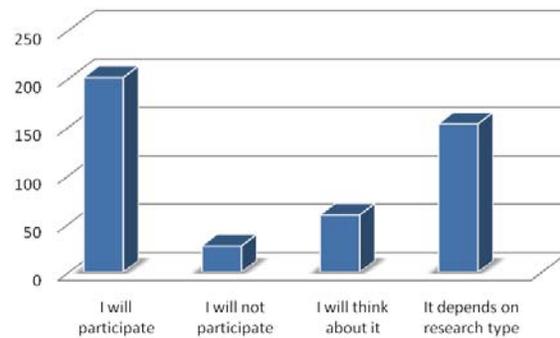

Figure 3: Frequency of students who will participate in a research if they have a chance

Discussion and Conclusion:

Before developing new strategies involving research as a tool for medical education in FMHS, we opted to document the current situation analysis. Therefore, the purpose of this study was to explore knowledge, attitude and skills of medical students in the FMHS, OIU towards research. The responders who complete the questionnaires were 442 participants. The response rate was 73.66%. Therefore, with 95% confident level our confident interval is 3.92. We found that; the rather low level of knowledge on research is confined to the basic principles of research. However, the students showed a very positive behavior toward research. This is true because 380 students can search the internet and 32.5% read - though infrequently- medical journals while the vast majority like to participate sooner or later in some kind of research. Nevertheless, the mean knowledge score (37%) was lower than that of the Pakistani (53%)[3] and Croatian (44%)[4] medical students. We think this is due to the delay of application of research in the academic curriculum of the FMHS. This score is expected to improve with

introduction of research methodology followed by participation in real research as part of elective or compulsory course of the academic activities. We found that two thirds of the students claimed that the academic workload has negative impact on their desire to participate in research. So, it would be fairly better to introduce the research during the curricular development.

Despite the rather low knowledge score, medical students of the FMHS, OIU have fairly positive attitude and intensions (77.1%) towards research compared to both Pakistani (39.2%)[3] and Croatian (62.5%)[4] medical students. The reason of the low knowledge score can be explained by the fact that only 18.7% students had attended a research methodology workshop. The positive attitude is expected to improve by early introduction of research methodology and practical research in the academic activity. This postulation is supported by the fact that the literature showed strong association of the increasing postgraduate research initiatives with involvement in research in the undergraduate period[5,6]. About 45% of our students want to get involve themselves in a research as soon as they get a chance. Almost all the students knew the impact of research on their future, which is good news for the third millennial generation who deserve new millennial educational strategies. In a poor developing country it is not odd to find about 12% of medical student do not know how to use the internet; because such ability could be affected by the social class. In our case this is in direct proportion with the social class of the student (P 0.0120). This puts down the responsibility on the Faculty to augment the current facilities and to introduce appropriate training.

Although the Faculty publishes and distributes the most famous Sudanese medical journal (Sudan JMS) only about 2% of student bother themselves in reviewing issues of this journal. We suggest that in semesters seven up to ten some articles published in Sudan JMS are better forwarded for students for appraisal. Also, to encourage students and for their satisfaction suggest to publish at least one article written by students in every issue of SUDJMS. Moreover, we suggest introducing a MEDICAL QUIZ for students in Sudan JMS with a small incentive as writing the name of the student who mentions the correct answer in the following issue.

Nevertheless, like others[7], our study had many limitations because we could not correlate the variables in our study with the student academic performance and grades.

The results of this study may not be generalized for all Sudanese medical students but it can be a good reflection for more generalized studies in order to develop a national research-based educational strategy.

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