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Original Article

Medical Students' Knowledge, Attitude, and Practice toward Scientific Publication in King Faisal University, Kingdom of Saudi Arabia

Ibrahim Al Shikh Mubarak[1], Khaled Al Mulhim[1], Abdullah Al Naim[1], Abdullah Al Mulla[1], Sayed Ali[2]

[1]Medical Intern, Department of Medicine, College of Medicine, King Faisal University, Al Ahsa, Saudi Arabia, [2]Assistant Professor, Department of Family and Community Medicine, King Faisal University, Al Ahsa, Saudi Arabia

Abstract

Introduction: Physicians and medical students have a key role in the progress of scientific publications. Although the research work is mandatory in some medical schools, the number of publications does not meet the number of research.

Aim: In this study, we aim to evaluate the knowledge and attitudes of medical students in our college of medicine toward research and publication.

Materails & Methods: A cross-sectional questionnaire-based study conducted in King Faisal University College of Medicine in Al Hassa Province in Kingdom of Saudi Arabia. The self- administered questionnaire is aimed to assess the attitude and participation of medical students in scientific research and publication and to assess the differences between problem-based learning (PBL) curriculum and traditional curriculum.

Results: In a total sample of 574 medical students, 453 (78.9%) were studying in problem base PBL curriculum and 121 (21.1%) were studying in the traditional curriculum. Regarding the students view about the importance of research publications, 94.4% agreed that it is important to improve career prospects. 359 (62.5%) of the total number of students from both curricula have participated in a scientific research. 27 (4.7%) of the total students have published at least an article. Most of the students agreed that lack of the students (75.8%) agreed that there is lack of training in medical school. Females slightly showed higher participation in research than males, 69.2% compared to 57%.

Conclusion: PBL students scored higher in knowledge, attitude, and practice in regard to scientific publication. However, it was found that there is a significant lack in articles submission and publication among medical students.

Key words: Medical students, Scientific publications, Research, Problem Based Learning (PBL), Medical education

INTRODUCTION

Proficiency in research is an essential competency for a medical student, and part of being an effective researcher involves translating research into scholarship in the form of scientific publications.

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Since 2012 King Faisal University has adopted a competency - based and problem - based learning (PBL), curriculum based on the CANMEDs model and research is considered an integral competency of this curriculum. At present, we have two parallel batches in our college - one following a traditional, teacher-centered curriculum, and the other a competency- and problem-based, student-centered curriculum. Starting from the 1st year, medical students in the new problem-based curriculum are required to participate in a mandatory course of medical research under the supervision of professional mentors as a part of the curriculum. There is no formal training related to research in the older traditional curriculum.

Corresponding Author: Ibrahim Al Sheikh Mubarak, Hofuf, Al Ahsa, Saudi Arabia. Phone: +966555988880.
E-mail: ibrahim_almubarak@outlook.com

This study aimed to evaluate the knowledge and attitudes of medical students in our college of medicine toward research and publication. We also aimed to compare differences between the group in the PBL curriculum and the traditional curriculum.

METHODOLOGY

A cross-sectional questionnaire-based study conducted in King Faisal University College of Medicine in AlHassa Province in Kingdom of Saudi Arabia.

Instrument of Data Collection

A questionnaire validated by multiple experts and was adapted and distributed among medical students in King Faisal University. The SPSS 20 will be used for the statistical applications and data analysis.

Target Population

Medical students in King Faisal University under both PBL curriculum and traditional curriculum were selected.

Study Outcomes

The study will assess the attitudes of medical students toward scientific publications, in all academic years among both PBL curriculum students and traditional curriculum students, in both genders. As the PBL curriculum conducts more research sessions with professional mentors, researcher expects to find PBL students more aware and interested in scientific publications. Based on these results, a recommendation to support access to scientific publications and writing of scientific research will be provided.

RESULTS

A total sample of 574 medical students, 314 males (54.7%) and 260 females (45.3%), were selected. The study focus on three parameters: Gender, academic year in medical school, and curriculum; PBL; or traditional curriculum. Regarding academic year, 121 students (21.1%) from the 1st year participated in the study, 107 (18.6%) from the 2nd year, 112 (19.5) from the 3rd year, 113 (19.7%) from the 4th year, 62 (10.8%) from the 5th year, and 59 (10.3%) from the 6th year. From 574 students, 453 (78.9%) were studying in PBL curriculum, and 121 (21.1%) were studying in the traditional curriculum. Multiple questions concerning about medical students knowledge and participation in biomedical research and publications were included in the questionnaire. 167 students (29.1%) could define scientific hypothesis correctly, which is a logical deduction of the premises that may or may not be verified empirically. Moreover, 208 (36.2%) could define scientific theory correctly, which is a system of hypotheses logically connected to one another, with common background, some of which have been verified. About 388 (67.6%) of the total sample are reading scientific journals.

About 359 (62.5%) of the total number of students from both curriculum have participated in a scientific research. Moreover, 83 (14.5%) of the total sample have submitted at least an article for publication in scientific journals. 27 (4.7%) of the total students have published at least an article. 434 (75.6%) have been taught how to conduct a research and write an article.

Regarding the students view on the importance of the scientific publication, 542 (94.4%) agree that it is important to improve career prospects. 533 (92.8%) agreed that it is an important skill to learn as a doctor. 536 (93.4%) of the total students agreed that it is important to spread scientific information.

Which of the following are barriers to scientific publication at the undergraduate level, according to you?. A question that was directed to all the students to identify the barriers toward scientific publication. 435 (75.8%) agreed that there is lack of training. 192 (33.4%) had a neutral opinion about lack of incentive as one of the barriers. Regarding lack of good mentors or role models, 135 (23.5%) disagreed. 405 (70.6%) agreed that there is lack of facilities that contributed to the lack of research and publications. For language problems, it has been found that there was a difference in the response of participants as 236 (41.1%) disagreed, 112 (19.5%) neutral, and 226 (39.4%) agreed.

Gender [Table 1]

Regarding gender, 57.0% of male students have participated in a scientific research, and 43.0% have not. 69.2% of females have participated in a scientific research, and 30.8% have not [Figure 1].

For males, 80.6% answered with yes about the question. Do you think undergraduate students can plan and conduct a research project and write a scientific paper? 19.4% answered with no. For females, 80.8% answered with yes and 19.2% answered with no.

15.6% of males have submitted at least an article for publication, and 84.4% have not submitted. For females, 13.1% have submitted, and 86.9% have not submitted. 5.7% of males published a scientific article, 94.3% have not published. 3.5% of females have published a scientific article, and 96.5% have not published, which shows that there is a significant lack of article submission and publication among medical students [Figure 2]

Curriculum [Table 2]

About 69.3% of PBL students participated in in a scientific research and 30.7% did not participate. 37.2% of students in traditional curriculum participated in a scientific research, and 62.8% did not participate [Figure 1]. 83.2% of students in PBL curriculum answered the question do you think undergraduate students can plan and conduct a research project and write a scientific paper? with yes and 16.8% with no, and on the other hand, 71.1% of students in the traditional curriculum answered with yes and 28.9% with no. This shows that PBL students are exposed more to the research field which reflected on their confidence in conducting a research.

Only 15.3% of PBL students submitted an article for publication. Moreover, 84.7% have not. And 11.6% of traditional curriculum students have submitted and 88.4% have not. Out of these students, only 4.6% of PBL students have published a scientific article, and 95.4% have not published. For traditional students, 5.0% have published, and 95.0% have not published [Figure 2].

As for the training on how to conduct a scientific research, 329 (72.9%) of the PBL curriculum students have been taught how to write an abstract and a paper. Moreover, 104 (86%) from the traditional curriculum have been taught on how to write an abstract and a paper.

Table 1: Gender

Question	Chi-square	df	*P*
Do you understand the word "impact factor"	4.409[a]	3	0.221
Have you ever participated in a scientific research (as part of the research team) ?	9.073[a]	1	0.003
Do you think undergraduate students can plan and conduct a research project and write a scientific paper?	0.004[a]	1	0.953
Do you feel confident in interpreting and writing a research paper and publication?	10.232[a]	1	0.001
Do you read journal articles?	8.477[a]	1	0.004
Do you feel you know the process of submitting an article?	4.231[a]	1	0.04
Have you ever submitted an article for publication?	0.735[a]	1	0.391
Have you published any scientific articles?	1.636[a]	1	0.201
Why it is important to you to publish? To improve career prospects	5.627[a]	3	0.131
Why it is important to you to publish? Important skill to learn as a doctor	3.486[a]	3	0.323
Why it is important to you to publish? To improve spread of scientific information	3.979[a]	3	0.264
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of training	13.414[a]	4	0.009
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of incentive	2.813[a]	4	0.59
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of good mentors/role models	12.229[a]	4	0.016
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of facilities	18.684[a]	4	0.001
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Language problems	2.958[a]	4	0.565

Table 2: Curriculum

Questions	Chi square	df	*P*
Do you understand the word 'Impact factor'	50.231[a]	1	0
Have you ever participated in a scientific research (as part of the research team) ?	42.069[a]	1	0
Have you ever participated in a scientific research (as part of the research team) ?	42.069[a]	1	0
Have you ever participated in a scientific research (as part of the research team) ?	42.069[a]	1	0
Do you feel confident in interpreting and writing a research paper and publication?	12.935[a]	1	0
Why it is important to you to publish? Important skill to learn as a doctor	24.844[a]	3	0.000
Do you think undergraduate students can plan and conduct a research project and write a scientific paper?	9.035[a]	1	0.003
Why it is important to you to publish? Important skill to learn as a doctor	24.844[a]	3	0
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of incentive	44.747[a]	4	0.000
Why it is important to you to publish? To improve spread of scientific information	36.756[a]	3	0
Which of the following are barriers to scientific publication at the undergraduate level, according to you? Lack of facilities	15.391[a]	4	0.004
Do you feel confident in interpreting and writing a research paper and publication?	12.935[a]	1	0

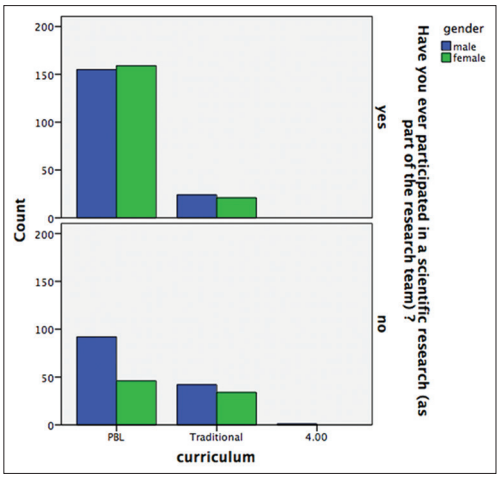

Figure 1: Have you ever participated in a scientific research (as part of the research team)

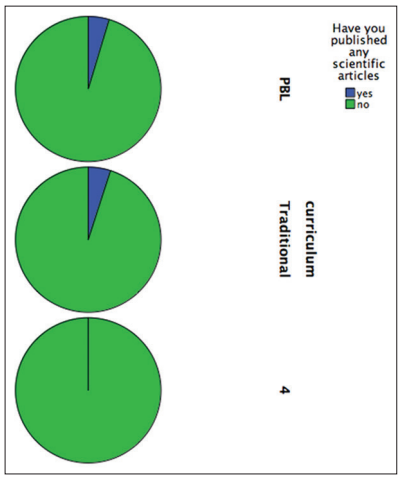

Figure 2: Have you published any scientific articles

Medical Year

Regarding participation in scientific research, 22.3% from the 1st year students participated in medical research, 67.3% from the 2nd year, 97.3% from a 3rd year, 93.8% from a 4th year, only 22.6% from the 5th year, and 52.5% from the 6th year.

Do you think undergraduate students can plan and conduct a research project and write a scientific paper? 80.2% of 1st year students agreed that an undergraduate student is able to conduct and write a scientific paper, 82.2% from 2nd year, 90.2% from 3rd year, 80.5% from 4th year, 56.5% from 5th year, and 86.4% from 6th year.

Regarding attempt for publication, only 14.5% have submitted a paper for publication, 7.4% of the 1st year students, 5.6% of the 2nd year, 24.1% from the 3rd year, 23.9% from 4th year, 6.5% from fifth, and 16.9% of the 6th year medical students. Only 4.7% have published a scientific paper, 0.8% from 1st year, 0.9% from 2nd year, 7.1% of 3rd year, 9.7% from 4th year, 4.8% of the 5th year, and 5.1% of the 6th year students. 434 students (75.7%) have been taught how to write an abstract and a paper, 53.7% of the 1st year students, 61.7% of the 2nd year students, 88.4% of 3rd year students, 89.3% of the 4th year students, 80.6% of the 5th year, and 91.5% of 6th year students Tables 1,2 and Figures 1,2.

DISCUSSION

The study focused on the attitude of medical students toward scientific publications, the importance of this study is to assess the attitude toward scientific publications and the barrier preventing medical student from publishing medical articles. Furthermore, comparison between two different learning curricula in terms of research participation to identify the significance of learning modality in the research work and publication.

A study was conducted in the internal medicine department in AlTaif University showed that Saudi Arabia is lagging behind as the 16th among other countries in article publication per one million citizen.[1] In the branch of medicine, 16196 research papers were published in the period 1996–2012.[2] In our study, 27 (4.7%) of the students in King Faisal University have at least one scientific publications, although 83 (14.5%) of the students have submitted an article for publication. Comparing this result with a study conducted in Alfaisal University in Riyadh, seventy-three articles were published in the period between 10 September 2008 and 13 December 2014.[3]

A study was done in Pakistan Medical College of the Aga Khan University, 75 (89.3%) from PBL curriculum and 48 (73.8%) participated in scientific research.[4]

Comparison between conventional and PBL curricula in a different scales regarding medical research showed that not only PBL students scored higher in attitude toward health research (75.5% compared to 66.7%) but also they scored higher in the participation scale (89% compared to 74%). In our study at King Faisal University, 314 (69.3%) of PBL students participated in in a scientific research while 45 (37.2%) only of students in traditional curriculum participated in a scientific research because in PBL curriculum a mandatory research is required from the students in the 2nd year. In terms of participation, females have participated more in writing research. PBL students are more confident in writing research and publication. Males as well are more confident in their ability to conduct a research paper.

To the best of our knowledge, no data in the literature found to compare attitudes toward research and publication with regard to the type of medical curriculum - PBL versus conventional LBL curriculum. The present study shows

that the level of publication is similar in both curriculum. 4.6% of PBL students have published a scientific article compared to 5.0% of the traditional curriculum. However, the two selected groups from PBL curriculum and the conventional curriculum were from different years of study. However, the submission of papers to scientific journals was significantly higher in PBL. Comparison between conventional and PBL curricula in a different scales regarding medical research showed that not only PBL students scored higher in attitude toward health research (75.5% compared to 66.7%) but also they scored higher in the participation scale (89% compared to 74%). In Saudi Arabia, a study conducted in King Saud University among one hundred and seventy-two students showed that the majority of the students agreed that research is important in the medical field (97.1%). The majority also agreed that conducting research during medical school is important (87.7%).[5]

Regarding attitudes and prospects, majority of the students agreed that the most important factor in publication is to improve career prospects. A study was conducted in British medical school regarding publication practice showed similar results that their main goal for publication is career progression.[6] The results imply that PBL students have more positive attitudes toward research publication. For prospects, four parameters were assessed in the study and PBL students scored higher in all those parameters. Postgraduates who were involved and participating in medical research in medical school have a better attitude and participation scale than others with more negative attitude.[7]

Most of the students outlined that lack of training is the main barrier for scientific publication. Despite that some studies demonstrate that training on research and abstract writing have a positive outcomes in terms of increasing rate of publication.[8] Students also stated that lack of facilities, lack of good mentors, lack of incentive, and language problems in this order as other barriers against participating in research and publication

CONCLUSION

PBL students scored higher in knowledge, attitude, and practice in regards to scientific publication. However, it was found that there is a significant lack in articles submission and publication among medical students.

REFERENCES

1. Al-Bishri J. Evaluation of biomedical research in Saudi Arabia. Saudi Med J 2013;34:954-9.
2. Meo SA, Hassan A, Usmani AM. Research progress and prospects of Saudi Arabia in global medical sciences. Eur Rev Med Pharmacol Sci 2013;17:3265-71.
3. Alnajjar A, Khan TA, Mina S, Alkattan K, Abu-Zaid A. The student-authored biomedical publications at Alfaisal University, Saudi Arabia: A 6-year descriptive analysis. Springerplus 2015;4:754.
4. Khan H, Taqui AM, Khawaja MR, Fatmi Z. Problem-based versus conventional curricula: Influence on knowledge and attitudes of medical students towards health research. PLoS One 2007;2:e632.
5. Alghamdi KM, Moussa NA, Alessa DS, Alothimeen N, Al-Saud AS. Perceptions, attitudes and practices toward research among senior medical students. Saudi Pharm J 2014;22:113-7.
6. Griffin MF, Hindocha S. Publication practices of medical students at British medical schools: Experience, attitudes and barriers to publish. Med Teach 2011;33:e1-8.
7. Segal S, Lloyd T, Houts PS, Stillman PL, Jungas RL, Greer RB 3rd, *et al.* The association between students' research involvement in medical school and their postgraduate medical activities. Acad Med 1990;65:530-3.
8. Jackson, D. Mentored residential writing retreats: A leadership strategy to develop skills and generate outcomes in writing for publication. Nurse Educ Today 2008;29:9-15.

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