

How to teach medical students to critically appraise a published article in the public health domain

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ABSTRACT

The core part of evidence-based medicine (EBM) is the ability to critically appraise published articles on a given subject. Medical students, especially within the developing world, usually do not learn how to critically appraise a published article since this is not part of their designed curriculum. This paper is reporting an innovative approach on how to teach critical appraisal skills to medical students, from an Iranian Medical School.

Key words: Critical appraisal, epidemiology, evidence-based medicine, medical school

INTRODUCTION

The rapid development of evidence-based medicine (EBM) during the recent decades has changed substantially the practice of medicine.^[1-7] Based on EBM strategy, the treatment of patients or solving of a public health problem in the community must be based on the most up-to-date and scientifically accepted evidence published in peer reviewed and valid journals. However, in order to apply such evidence in practice, one should be familiar with the skill of critical appraisal.

Critical appraisal is the skill that the science of epidemiology offers to scientists and specialists in different disciplines including medicine.^[8-10] It enables the user to evaluate the positive and negative aspects of a published article in terms of its methodology and results. Based on this evaluation, the

user could decide how much he/she can rely on the results of the article and, therefore, shall or shall not use the results of that article in his/her practice.

Therefore, the skill of critical appraisal is the fundamental core of EBM. Everybody, who uses EBM, must get to know this skill. For medical doctors, the best time to learn this skill is during their studentship, especially within their undergraduate period. However, evidence suggests that medical students, especially within the developing world, do not appropriately learn this important skill since this is not defined as an established part of their curriculum.^[11,12]

The chief aim of the present paper is to report an innovative approach on how to teach critical appraisal skills to medical students, from an Iranian Medical school, which is called Rafsanjan Medical School (RMS).

Introducing Rafsanjan Medical School

RMS is located in Kerman province in the southwest of Iran in a city called Rafsanjan [Figure 1].

The school was established in 1997, and each year, on average, it accepts up to 50 new students. The official period for medical students to finish their period of education in all Iranian medical schools is defined at 7 years. The first 2½ years are devoted to basic sciences. After that, and for a year, all the students enter into their second phase of study, in which they learn about the physiopathology of the diseases. The third phase of their study, which consists of two years, is

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devoted to the period of studentship. Finally, the fourth phase of their study is devoted to the period of internship and lasts for 1½ years.

Based on the present curriculum, there is no place for teaching critical appraisal skills during all 7 years. In order to remedy this shortcoming and from 10 years ago, I introduced an innovative approach as follows:

Part of the internship period, which encompasses one month, is devoted to public health and social medicine issues. During this one month, and after taking part in an initial one-day workshop, the interns go into the community and work as a member of a health team in either an urban or rural health center.

Iran has an established and well-known primary health care network, which covers all the population, especially within rural areas. This network facilitates one-month public health and social medicine internship for medical students by providing a unique environment, in which medical students can work as a member of a health team under the supervision of their faculties. During this period, they learn how to work with a health team, how to determine the public health issues and problems of their served community, prepare a short-term plan to deal with the most important problem, implement their plan and to evaluate the implemented plan.

In RMS, we usually have 2 to 6 students each month taking a one-month public health and social medicine internship. From 10 years ago, I have devoted a session (2 hours) from their initial workshop to teach them the basics of critical appraisal skills. In this session, I first ask them to work in their small group on different parts of a published article and the most fundamental issues in writing each identified part. After each group reports their results, I discuss the alphabet of critical appraisal and introduce different checklists for critically appraising a published article.

Then, I will ask each student to find a relevant published article in the field of public health or social medicine and to critically appraise it using the appropriate checklist. Each student should complete and hand out a written appraisal by the end of their one-month public health and social medicine internship. I also ask the students to gather in a final session and report back to the group the results of their appraisal. In this session, we usually discuss about how well each student carries out his/her task.

The topics, which students usually choose, are relevant to the most important public health problems of their served communities. The importance of such relevancy is discussed in the initial workshop. By choosing a relevant topic, students have this opportunity to not only gain a better understanding from the underlying causes of the given public health problem but also use more appropriately their experiences to better appraise the chosen article and to focus on the health needs of the local/served community.



Figure 1: The location of Rafsanjan city in Kerman province of Iran

The official feedback that I have received from the students highlighted that they appreciate the opportunity. They believe that such training will help them make better and informed decisions, based on the existing evidence, in their future practice.

CONCLUSION

Critical appraisal is a vital skill that every person in the health domain should be familiar with. Medical doctors, as one of the most important members of health teams, also should learn such skills. Since in some countries, especially in developing ones, teaching critical appraisal still is not part of medical school curriculum; faculties must use every possible opportunity to remedy this shortcoming. In RMS, I teach successfully this important skill to medical student during their one-month public health and social medicine internship.

Since there are other forms of and needs for critical appraisal of articles in medicine e.g., evaluating drug company claims on the efficacy of their products, evaluating consultations and adverse events/outcomes, evaluating claims of equipment vendors and evaluating the efficacy of the screening tests, etc., I suggest that the same approach is taken in other relevant internship periods. This helps medical students to not only get familiar with the essence of critical appraisal skills in different scenarios but also to better understand the fundamental of medicine.

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