16

MEDICAL STUDENTS ASSESSMENT OF EARLIER STUDYING AND PRACTICING CONCEPTS OF MEDICAL EDUCATION

^{1,2}Mohammed Ahmed Abdelrahman, ¹Tarig Sideeg, ¹Marouf Mohammed. ¹Faculty of Medicine and Health Sciences, Omdurman Islamic University, Khartoum, Sudan; ²Educational Development Center-Sudan Medical Specialization Board, Khartoum, Sudan

10.1136/bmjebm-2019-EBMLive.97

Objectives The aim of this work is to assess undergraduate medical student's opinions on the new trends in medical education course, and to test the effect of medical student's assessment of medical education course comparing male and female students.

Method Analytical cross-sectional institutional based study conducted at Faculty of Medicine (FMHS), Omdurman Islamic University (OIU), 2018. It was total coverage for all students of first level, therefore, 346 male and female medical students asked to fill pretested questionnaire that contains 9 questions of three domains of knowledge and skills was used to collect the data. The data collected were analyzed using (SPSS) version 20. Frequencies, percentage, Chi-square were obtained to identify the correlations as analytical statistics between variables of the study. The confidence interval is 95% was taken as significant at P -value ≤ 0.05 .

Results There is no statically significant difference between male and female medical students regards assessment of trends in medical education course (P -value > 0.05), in spite they are taught separately. Both male and female students' assessment revealed positive responds with high percentage in cognitive knowledge, psychomotor and behavioral skills that studied in the course.

Conclusions Almost all students were ensured their agreement particularly in Self-learning, Small Group Work and Problem Based Learning (PBL) in the course.

In conclusion, no statistical difference between male and female medical students' assessment of trends in medical education course in this study.

17

SCIENCE IS CONCEPTUALLY DYNAMIC AND CONSTANTLY TRYING TO RE-INVENTING ITSELF

Augusto Cesar Soares dos Santos Junior^{1,2,3}. ¹Unimed-BH, Belo Horizonte, Brazil; ²Hospital das Clinicas, Belo Horizonte, Brazil; ³Prefeitura Municipal, Contagem, Brazil

10.1136/bmjebm-2019-EBMLive.98

Science is conceptually dynamic and constantly trying to re-inventing itself. Since the beginning humankind has always been struggling on whether to go more general in its beliefs or to acknowledge diversity, allowing the construction of different solutions tailored to local particularities. Currently, it seems that researchers, patients, the pharmaceutical industry, governments, other stakeholders, are in midst of a debate where social, cultural and environmental characteristics have been historically overlooked as factors to be considered in the art of research and decision making. For decades we have built a framework where patients are being deliberately forced to fulfill a standard and reproduce the results of a study published elsewhere. Shouldn't it be the other way around? This failure to navigate between the search for universal truths and personalized healthcare has taken the patient from the center of the driving force of innovation. This dynamic allowed too

much power in the hands of a few which have deliberately been trying to dictate the standards on how we behave and consume healthcare resources, opening the doors to incoherence, bias, conflicts of interests and frustration. Hopefully, in the near future, this search for truths, which forcibly must be applied to all, will be acknowledged as an oversimplified approach especially in the scenario of a world full of inequities and economic disparities. In this context, science is being called to shift its paradigms and acknowledge the complexity and diversity of humans. The overemphasized appeal of international publications, the irrational sophistication of the $p < 0.05$ statistics, the increasing importance of surrogate outcomes, the lack of transparency in research and the prohibitive costs of innovative treatments are just some of the hurdles which are leading communities around the globe to question current scientific practices. A feasible plan to be put into action is to bring research to the local level and acknowledge that humankind remains diverse in terms of expectations and experiences while challenged by illnesses or death. It's crucial to implement strategies fostering a broad education program in evidence-based medicine accompanied by funding disclosure from all involved parties and the creation of local real-world databanks. In addition, local talks, allowing all parties to clearly discuss the sustainability of the system and address issues like access and budget priorities must be put into the agenda. Taken together, these actions will clearly lead to a more balanced scenario, allowing more comprehensive local policies with less room to poor science. This new approach will hopefully be more sustainable, reduce the distance to good practices, increase bench-to-bedside research and correct the current framework which has historically neglected the importance of local background characteristics and beliefs. Acknowledging the diversity and allowing the construction of scientific solutions tailored to local particularities is the next wisest step to be further explored in the future developments of the evidence-based medicine movement. Unquestionably, this new approach will present a new set of challenges however it will also allow a new exciting outlook in the face of our current scientific practices.

18

METHODOLOGY AND REPORTING QUALITY OF STUDIES USING MACHINE LEARNING MODELS FOR MEDICAL DIAGNOSIS: A METHODOLOGICAL SYSTEMATIC REVIEW

¹Mohamed Yusuf, ^{2,3,4}Ignacio Atal, ^{2,3}Jacques Li, ⁵Phil Smith, ^{2,3,6}Philippe Ravaud, ¹Michael Callaghan, ¹James Selfe. ¹Manchester Metropolitan University, Manchester, UK; ²INSERM, Methods, Université Paris Descartes, Paris, France; ³Cochrane France, Paris, France; ⁴Centre for Research and Interdisciplinarity (CRI), Université Paris Descartes, Paris, France; ⁵Manchester Metropolitan University, Manchester, France; ⁶EQUATOR-Network, Paris, France

10.1136/bmjebm-2019-EBMLive.99

Objectives Over the past decade, due to access in large sums of clinical data and the development of new machine learning (ML) techniques, there has been a rise in the application of ML methods to medicine. Due to their propensity to facilitate and promote timely and objective clinical decision-making, ML methods have been applied to gain insights into clinical diagnosis. Despite their popularity, these promising techniques have pitfalls. Studies using ML for diagnosis may contain errors in both design and execution. Additionally, it appears ML researchers are not familiar with the agreed practices of the medical research community.

Our systematic review assessed the reporting quality of studies developing/validating ML models for clinical diagnosis, with a specific focus on the reporting of information concerning the participants on which the diagnostic task was evaluated on.

Method We searched Core Clinical Journals for studies published between 2015 to 2018. Two reviewers independently screened the retrieved articles, applying eligibility criteria to the title, abstract and full text accordingly. A third reviewer resolving discrepancies. To extract information regarding participants on which the ML test were evaluated on, two reviewers independently extracted the data from the eligible articles. Additional reviewers checked and verified the extracted data.

The following items were extracted; data source, method for partitioning the evaluation set from the training data, evaluation set eligibility criteria, diagnostic criteria, baseline characteristics, participant flow diagram, distribution of disease severity in diagnosed patients, distribution of alternative diagnosis for non-diagnosed patients and use of reporting guideline. Additionally, we extracted information on the time difference between the conduct of the ML test and reference standard, as well as if the evaluation group corresponded to the setting in which the ML test will be applied.

Results The search results yielded 161 papers, of which 28 conformed to the eligibility criteria. Detail of data source was reported in 86% of the papers while all of the papers reported methods for partitioning the evaluation set from a larger dataset. 82% of studies reported eligibility criteria for the evaluation set. Information on the diagnostic/non-diagnostic classification was reported well (82%). The least reported items were the use of reporting guideline (0%), distribution of disease severity (29%), patient flow diagram (34%), distribution of alternative diagnosis (36%) and baseline characteristic (64%). A large proportion of studies (82%) had a delay between the conduct of the reference standard and ML tests, while 4% did not and 14% were unclear. For 54% of the studies, it was unclear whether the evaluation group corresponded to the setting in which the ML test will be applied to.

Conclusions We found that all eligible studies in this review failed to use reporting guidelines and a large portion of the studies lacked adequate detail to replicate, assess and interpret study findings.

19

A TALE OF ILL-MANAGED PAIN AND THE OPIOID EPIDEMIC

¹John Mikhael, ²Alexander Huang, ²Hance Clarke, ²Marcin Wasowicz. ¹University of Toronto – Faculty of Medicine, Toronto, Canada; ²University Health Network – Toronto General Hospital, Toronto, Canada

10.1136/bmjebm-2019-EBMLive.100

The use of opioids to treat chronic non-cancer pain has increased dramatically in the last decade. Simultaneously, this surge in prescribing practices has been correlated to an almost four-fold increase in opioid-related deaths. Despite recent efforts to control the distribution of opioids and the introduction of abuse-deterrent opioid formulations, the epidemic is still yet to be fully targeted with a multi-factorial approach. In order to better understand how this crisis exists, it is important to examine patterns beginning in the 1980s. At that time, pharmaceutical companies marketed the use of opioids to treat

pain and assured clinicians that the addiction profile was low, but these claims were not based on evidence-based medicine. Within a few years, the same companies promoted these drugs for use in long-term non-cancer pain, despite the lack of good evidence. Regardless, this ‘mentality’ was adapted by clinicians based on the pharmaceutical companies’ misrepresentation, which sparked the first of three major waves of increased opioid prescribing. The number of opioid prescriptions increased among primary care clinics and hospitals, and an increased amount of opioid diversion took place. Pharmaceutical companies responded to the public outcry by developing abuse-deterrent formulations such as an extended release oxycodone (OxyContin). These prescribing practices led to increased rates of opioid over-sedation and opioid-related deaths. The second wave began around 2010, as efforts were made to decrease opioid prescribing, leading to the increased popularity of a cheap, widely available option – heroin. Finally, the last resurgence was seen in 2013 due to newer synthetic opioids such as fentanyl. When a patient undergoes a surgical procedure, some level of pain is anticipated post-operatively, and the level of severity and duration varies patient-to-patient. Indirectly related to the illicit opioid epidemic, opioid-prescribing in the postoperative period has increased dramatically, feeding yet another epidemic. Although opioids are often prescribed to address the need for pain management, this is often done without a long-term plan to eventually wean off these medications. As a result, patients are ultimately left with inappropriately managed chronic pain and almost half of these patients continue to use opioids as more of a ‘band-aid’ solution. The issue becomes more complex as these patients seek care from their primary care physicians who may not have experience in weaning patients off opioids. Although some success has been seen with the implementation of prescribing guidelines and educational interventions, new programs need to be implemented to address this systemic issue. This led to the concept of a Transitional Pain Service with a focus on high-risk patients with complex pain management and opioid weaning. This is managed through an interdisciplinary team which is led by anesthesiologists with the goal of minimizing the risk of developing chronic pain post-operatively and long-term opioid use. Through the Transitional Pain Service, patient’s pain management needs are being addressed through a multidisciplinary model and programs are being implemented to combat the growing opioid epidemic that stemmed from a lack of evidence-based medicine.

20

SYSTEMATIC REVIEW REGISTRATION IN HEADACHE DISORDERS

Sarah Tanveer. Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

10.1136/bmjebm-2019-EBMLive.101

Objectives The principles of the Evidence Based Medicine (EBM) manifesto focus in part on: identifying and fixing problems with research evidence, improving the quality of evidence, increasing research transparency, and reducing research waste¹. Systematic Reviews (SRs), one method of synthesizing existing evidence, can be used to inform clinical practice guidelines (CPGs) and policy decisions. With the advent of SR registries such as PROSPERO², and the ability to prospectively register SR protocols, there has been an increased awareness regarding registration and transparency in the