Reviewer's report

Title: Level of awareness of Saudi medical students of the internet-based health-related information seeking and developing to support health services

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Reviewer's report:

Thank you for the opportunity to review this paper on the knowledge, attitudes and awareness of eHealth, of medical students at a university in Saudi Arabia. A cross-sectional survey of 440 medical students was undertaken using a previously validated survey tool used in a study in Kuwait.

Several issues arise.

The first relates to the definition and the authors' understanding of eHealth. No clear definition is given. The authors state that eHealth was recently defined by Shaw et al, in a 2017 paper. The definition provided is a slightly shortened version of Eysenbach's 2001 definition, as quoted in Shaw's paper. An old version of the World Health Organization's definition of eHealth is provided. The more recent and succinct iteration is, "the use of information and communication technologies for health". This is an all-encompassing definition as it includes all forms of information and communication technologies and all aspects of health, from maintaining well-being to disease management. The authors go on to provide another definition, "E-health was also defined as internet-based health-related information seeking and developing to support health services locally, regionally, and globally," citing Ilic, 2010. Ilic's paper is specifically about patients seeking health information on the Internet. The paper provides no definition of eHealth, the nearest being the opening sentence of the abstract, "e-Health encompasses a broad range of health disciplines that use the Internet and associated technologies to deliver information and health service." It makes no mention of local, regional or global services. The paper on the validation of the survey instrument used, by Alkhatlan et al 2016, has the following opening sentence in the abstract, "E-health refers to internet-based health care and information delivery and seeks to improve health locally, regionally and worldwide." Which definition has been used? This influences the interpretation of the paper. I have to stress the issue of definition because questions in the survey tool refer to the Internet and as such are limiting and in some instances confusing. What, for example, is the correct answer to the double statement related to the question, What is e-health? - "Organization of health care for patients, including surgical operations via the Internet."?

It is stated in the abstract that none of the previous studies on awareness of patients and health care providers on eHealth were conducted in Saudi Arabia. This is repeated in paragraph 5 of the background. A cursory check of PubMed, using the search terms (Saudi Arabia AND (ehealth OR e-health)) returns 141 papers, some of which are relevant. The authors go on to state in the Background, para 2, line 2, that at as of the end of 2011 there were 659 studies on e-health to be found in PubMed. Searching PubMed on (ehealth OR e-health OR "ehealth" OR "e-health") until 31 December 2011 returns 1,688 papers. These discrepancies need to be addressed and resolved.
Background, para 5, lines 1-2: reference 11 is to the validation study of the survey instrument used and is not about levels of awareness.

This highlights another issue. The literature cited is limited, in some instances dated, and not always relevant to the statement being supported.

Data collection, paras 2, 3 and 4: why was 'satisfactory' defined as being equal to or greater than 75% for Knowledge, but greater than 75% for Attitude and Practice?

Data analysis. Several statistical methods are mentioned, but only multiple regression analysis was used in the paper.

Table 1: questions 3, 4 and 5 have asterisks next to them. To what do they refer? No explanation is provided.

Table 1: questions 8, 9 and 10 relate specifically to the Internet. What have the authors taken as the correct answers to question 8 and 9? The answers are dependent on the definition of eHealth.

Table 1: Overall knowledge. According to para 3 of the results, "Only 43.6% of all students reported satisfactory level of knowledge about eHealth". How was the percentage of 43.6 calculated? Presumably, 43.6% of students averaged over 75% for each of the three sections. This is not stated, obvious, or explained in the table.

Results, para 2, line 8: "the majority incorrectly agreed that video games… are applications of ehealth." There are many examples of video games used for rehabilitation, both mental and physical. These video games are part of eHealth and the statement is then incorrect. The incorrect interpretation may be due to the question being poorly constructed or lack of knowledge of the scope of telemedicine and eHealth, bearing in mind that telemedicine is a subset of eHealth.

Results, para 2, lines 12 and 13: there are many who argue that use landline telephones and facsimiles are forms of telemedicine and thus eHealth. Transmission of images of CT scans, ECGs and prescriptions by fax are all cited examples of telemedicine.

Results, para 4, lines 2-4: what is the 'correct' answer to "I think that doctor use of computer during patient interview saves time." There are several studies indicating that computer use adds time to consultations, while others argue that access to an EMR during consultation saves time.

Discussion, para 1, lines 1-6: while the percentages reported in the current study are similar to the Sri Lankan study, are they relevant, as the Sri Lankan study was published in 2007? This is not discussed.

The paper needs careful English editing, including consistent use of tenses, spell checking, layout and consistency of font size.

When data are collected as whole numbers their average should not be presented to more than one decimal place.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
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