The Issue of the Reading Skills in Medical Schools during the Coronavirus Pandemic[1]

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Abstract

Beginning in early 2020, the world began experiencing the first effects of the Coronavirus (COVID-19) pandemic. As with other new emerging infectious diseases, it had been noted that a medical student's ability to read about and learn the correct reactions to this kind of event is urgent (Al-Mohrej & Agha, 2017). Therefore, medical school students should educate themselves and read the information provided by the World Health Organization (WHO) in order to fully comprehend different features of the emerging disease as well as highlighting its early recognition and the important components of prevention. Hence, the purpose of this paper is to emphasize medical students' need to investigate new sources of information and how their success or failure in doing so depends on their reading comprehension strategies. For example, many medical students around the world lack the required knowledge pertaining to the recommended infection control measures. In Saudi Arabia, it has been revealed that medical students lack background knowledge in the basic sciences as well (Al-Mohrej and Agha, 2017). However, they showed a noticeable lack of awareness regarding the clinical features of MERS-CoV during the 2012 epidemic (Zaki et al., 2012). Additionally, problems relating to understanding the patient's medical condition, delayed diagnoses, and inadequate preventive services usage were complicated by their reading hardships. In addition, the medical college curricula lacked explicit instruction in reading comprehension strategies skills because the programs in medical education only included limited constituents of research skills. Such programs even today include very little explicit instruction of academic literacy for medical research (Roberts & Klamen, 2010; McNamara, 2010). Thus, medical students should educate themselves by reading the information provided by WHO and a call for more explicit instructional programs tackling the reading strategies pertaining to medical topics and research should be conducted.

Resumen

A principios de 2020, el mundo comenzó a experimentar los primeros efectos de la pandemia de coronavirus (COVID-19). Al igual que con otras enfermedades infecciosas emergentes, se ha observado que la capacidad de un estudiante de medicina para leer y conocer las reacciones correctas a este tipo de evento es urgente (Al-Mohrej y Agha, 2017). Por lo tanto, los estudiantes de medicina deben instruirse por sí mismos y leer la información proporcionada por la Organización Mundial de la Salud (OMS) para comprender las diferentes características de la nueva enfermedad, así como su pronto reconocimiento y los componentes importantes para su prevención. Así, el propósito de este artículo es enfatizar la necesidad de los estudiantes de medicina de investigar nuevas fuentes de información en situaciones críticas y cómo su éxito o fracaso depende de sus estrategias de comprensión lectora en inglés. Por ejemplo, muchos estudiantes de medicina en todo el mundo carecen de los conocimientos necesarios sobre las medidas de control de infección recomendadas. Se ha descubierto que en Arabia Saudita los estudiantes de medicina también carecen de conocimientos previos en ciencias básicas (Al-Mohrej y Agha, 2017). Por ejemplo, estos estudiantes mostraron una notable falta de conciencia sobre las características clínicas del MERS-CoV durante la epidemia de 2012 (Zaki et al., 2012). Además, los problemas relacionados con la comprensión de la condición médica del paciente, diagnósticos tardíos y el uso inadecuado de servicios preventivos se complicaron por las dificultades de lectura por parte de los estudiantes. Asimismo, se encontró que el plan de estudios de la facultad de medicina carecía de instrucción explícita en las habilidades de estrategias de comprensión lectora porque los programas de educación médica solo incluían componentes limitados de habilidades de investigación. Estos programas, incluso hoy en día, contienen poca instrucción explícita de alfabetización académica para la investigación médica (Roberts y Klamen, 2010; McNamara, 2010). Como resultado, los estudiantes de medicina deben educarse a sí mismos leyendo la información proporcionada por la OMS y se debe realizar un llamado para crear programas de instrucción más explícitos que aborden las estrategias de lectura relacionadas con los temas médicos y la investigación.

Introduction

Every country in the world experienced the Coronavirus disease (COVID-19). Because of its rapid global diffusion, the World Health Organization (WHO) declared that Covid-19 had become a global concern and was a critical public health emergency (WHO, 2020). To control its spread, many nations took early precautionary measures involving the suspension of educational institutions, schools, international flights, and other social activities. For both the public in general and medical students in particular, it became

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essential that they clearly understood what this pandemic implied. One of the fundamental components of information transmission in most societies depends on the public's literacy to create the prior knowledge that comes from reading. (Alfaki & Siddiek, 2013). Of course, prior knowledge also comes from our past experience as well as from reading. (Alfaki & Siddiek, 2013). Brown (2001) confirmed that the role of reading is to convey knowledge, culture, emotion, and information to the written text. In a health care context, medical students and those working in the health care environment often lack the required knowledge pertaining to the recommended infection control measures (Al Mohaissen, 2017). In Saudi Arabia, when the Middle East respiratory syndrome coronavirus (MERS-CoV) was recognized in 2012 (Zaki et al., 2012), it became urgent for programs to be developed to address the awareness of the Saudi Arabian public in relation to infectious diseases since this knowledge dramatically helps controlling the spread of the virus. (Al Mohaissen, 2017). As a result, medical students' reading skills, curiosity, and reactions to the epidemic needed be encouraged (Al-Mohrej & Agha, 2017). Again in early 2020, there was also an urgent need to improve the knowledge of health care workers and the public in general towards COVID-19. Medical school students in the first place needed to able to read the information provided by the WHO in order to fully comprehend the emerging disease, as well as recognizing its symptoms and promoting its prevention (Al-Mohrej & Agha, 2017; WHO, 2015).

Literature Review

For the sake of communication with their colleagues and professors, medical students are required to develop their skills in reading (Al-Jamal, 2018), which can lead them to success in the future (Kern & Friedman, 2008). For example, to understand medical research publications, research has shown that medical students need to be aware of reading strategies, as well as just trying to comprehend the text (Kling et al., 2017). In Saudi Arabia, much of the reading students do is not in Arabic, but in English.

In general, students enroll in medical degree programs having considerable general knowledge of English language skills. However, in their previous programs, their practice in using English language noticeably concentrated on speaking, writing, and reading with respect to topics mostly related to fiction (Kling et al., 2017). In the curricula of the early stage of this program, it is important to note that medical students need to focus on reading to improve fundamental comprehension on the one hand, and reading to learn through linking new knowledge with already existing information on the other. Interestingly, in the case of the interaction with practical medical research, Trites and McGroarty (2005) argued that "readers must integrate the rhetorical and contextual information found across the texts and generate their own representation of this interrelationship" (p.176). Hence, having limited knowledge of the skill of reading research, large numbers of medical students find it difficult to critically analyze the discussion, particularly in empirical research. As a result, it is advisable for them first to comprehend the basic foundation of medical practice, including understanding and reading research articles. In doing so, medical students need to read and understand scientific research. This skill is needed since medical practice significantly depends on rigorous scientific studies (Kelly & Shanley, 2010). Unfortunately, medical schools wrongly claim that medical students reach an acceptable level, having the required knowledge, as well as the skill of comprehending scientific texts (Roberts & Klamen, 2010).

In a study conducted by Bitran et al. (2012), the researchers identified the strategies deployed by medical students from non-English speaking countries to try to comprehend scientific medical research. Their study, however, did not address the reading comprehension abilities specifically related to the medical students' curricula. In another study, Alsuliman et al. (2019) discussed previous studies arguing that instructional language should be used in medical education courses. Concerning the English as a foreign language (EFL) medical students' selection of the language of communication inside medical school classes, the discussions were carried out using the students' mother tongue (Arabic) and the English language for handling the written texts of medical education. The authors concluded that using simplified Arabic language along with terminology in English probably provides a practical alternative technique for understanding English texts dealing with medical education directed to Arabic-speaking medical students.

From the outset, the ability of students to comprehend scientific articles has caused great concern in the literature. Medical students need to carefully read and understand essential scientific articles to comprehend clinical practice in scientific research. These two skills, reading and understanding, form a basic requirement since medical practice substantially depends on scientific research (Kelly & Shanley, 2010). Unfortunately,

medical schools have made a wrong assumption concerning students' background knowledge of research text materials and the ability to understand scientific texts at an acceptable level (McNamara, 2010; Roberts & Klamen, 2010). Thus, medical students do not develop an adequate basis of knowledge to start understanding the research texts. Additionally, they are not able to connect this knowledge with the new knowledge of research texts in general.

It should be noted that students' lack of knowledge of technical terms and the structural features of scientific texts lead to difficulty and challenge in tackling scientific articles (Phillips & Norris, 2009). Another aspect involves the lack of reading comprehension strategies among young students (McNamara, 2010). It is important to indicate that a language barrier represents a major difficulty for a large number of non-native English speakers due to the fact that most scientific research papers are written in the English language (Bitran et al., 2012). Furthermore, those non-English speaking medical students who study medicine in English experience difficulties with respect to medical vocabulary and hardships in practice as a result of the difference in cultural expectations occurring between the two languages (Frank, 2000).

Thus, the language obstacle is regarded as one of the difficulties in non-English speaking countries because too many scientific studies are written in English. Another challenge is that university professors are not fully aware of what their medical students do when they face reading difficulties related to a medical scientific article (Bitran et al., 2012). In spite of the significance of understanding critical scientific studies, formal education aiming at developing essential skills is not unfortunately part of the curricula of many medical schools (Roberts & Klamen, 2010). Consequently, McNamara (2010) points out that, in medical schools, specific reading strategies to teach the skill of reading a medical scientific article, are proposed.

To shed more light on reading strategies, the literature has provided various studies dealing with this topic. For example, Bitran et al. (2012) proposed relevant, different reading comprehension strategies, such as remedial actions and post-reading activities. They also suggested focusing on problems medical students face when trying to understand a scientific research article. In addition, other strategies including re-reading difficult passages, reading speed reduction, and activation of prior knowledge were adopted by a high percentage of medical students. For instance, one of the major strategies related to text comprehension is activation of prior knowledge. This strategy is adopted by a very high percentage (more than 95%) of medical students. As a result, in order to tackle difficult passages and words, most of them adopted remedial strategies (Bitran et al., 2012).

It is interesting to consider that Bitran et al. (2012) revealed that a fair percentage of medical students underlined the main ideas, read the publication from beginning to end, looked up new words on the Internet, took notes, examined their ideas with a classmate, and swiftly reviewed the article after reading it. In short, the researchers proposed that medical students use different specific and general reading comprehension strategies involving post-reading activities, and remedial actions if they initially experience a difficulty of comprehending scientific biomedical papers. In addressing difficult words and passages, it is crucial to note that a large number of students adopt remedial strategies as an appropriate technique to handle difficult words and text passages.

Discussion

The knowledge of the topic, vocabulary, and structure of a text form background knowledge for an individual and sometimes this is known as prior knowledge (Alfaki & Siddiek, 2013). It is interesting to indicate that prior knowledge probably emerges from reading comprehension or from our experience. In the process of prior knowledge activation, a reader connects what he is already aware of to the text he is presently reading since the text alone does not include the required and adequate information as well as meaning (Alfaki & Siddiek, 2013). The same researchers argued that prior knowledge will have a main, significant role in the achievement of EFL readers. Similarly, Brown (2001) confirmed that the role of public readers is to convey knowledge, culture, emotion, and information to the written text.

Thus, the knowledge, beliefs and conduct of health care workers and public readers as well as critical and frequent infectious diseases should be assessed (Al Mohaissen, 2017). Based on such knowledge and conduct, health care workers can basically offer data to control and prevent such kinds of diseases via the evaluation of past prevention influence undertaken by the government. Guidance service presented for those who need more interventions can also be conducted to avoid infectious diseases (Liu et al., 2013). For

instance, in Saudi Arabia, the Middle East respiratory syndrome coronavirus (MERS-CoV) was identified in 2012 (Zaki et al., 2012). It is crucial to note that few studies tackled the attitude and awareness of the public of Saudi Arabia in relation to infectious diseases since public awareness of infectious diseases significantly assists in limiting the power of the infection. Moreover, the literature has asserted that the absence of sensible knowledge causes delayed treatment, discrimination, and low detection rates (Al Mohaissen, 2017; Liu et al., 2013). Consequently, there is an urgent need to address the knowledge of health care workers and the public in general towards infectious diseases, such as MERS-CoV and COVID-19.

To shed more light on the situation in Saudi Arabia, Al Mohaissen (2017) conducted a study aimed at gauging the level of faculty members, staff, and female students' awareness of Middle East respiratory syndrome coronavirus (MERS-CoV) in one of the female Saudi Arabian universities. It should be noted that students from the health college participated in the study. She used a self-administered questionnaire, including questions related to knowledge of MERS-CoV. Her findings were not satisfactory; awareness of disease epidemiology, fatality rate, treatment, and severity were extremely low in general. Moreover, poor knowledge of the recommended precautions that should be practiced was reported when dealing with patients to prevent this disease. Hence, she concluded that societal public awareness, including medical students, in Saudi Arabia related to this infectious disease had not been addressed. In another study conducted in the clinical phase of medical school, Al-Mohrej and Agha (2017) made an assessment for medical students using an online questionnaire. The participants showed noticeable knowledge concerning the clinical levels of MERS, such as diagnosis, prevention, etiology, and management. Nevertheless, the study revealed that the level of knowledge required in the basic sciences was low.

To enhance and support comprehension, communication, and awareness among users of health care system and medical physicians, some senior faculty have encouraged their medical students to use the native language in learning medicine. For instance, Sebai (1982) noted that some students use their native Arabic language when learning medicine, which has been supported by some high-ranking faculties in Saudi Arabia. Given that there are benefits and drawbacks of teaching and learning medicine in a non-native language, the impact of the use of Arabic on the process of learning has not yet been completely tackled in Saudi Arabia (Telmesani et al., 2011). Therefore, in medical education, arguments have emerged in several non-English speaking countries regarding the issue of selecting the language of instruction that is better to be used inside medical classrooms. This poses the question whether it is better for medical students to use their native language or English. Supporters of English-based education contended that English is the dominant, global language of medicine and research. They claimed that it is a precious tool for learners who plan to study and practice abroad. It is also a critical instrument for the continuation of Medical Education (Alsuliman et al., 2019). As a result, medical colleges should essentially address and introduce teaching medicine in a foreign language, particularly English, to practically increase medical students' awareness of infectious diseases, namely COVID-19.

In another study, to gather data on medical students' self-perception and awareness of English reading strategies for academic purposes, Kling et al. (2017) adopted a revised form of the Metacognitive Awareness of Reading Strategies Inventory (MARSI). The researchers pointed out that this MARSI "is a self-report instrument designed to assess adolescent and adult readers' metacognitive awareness and perceived use of reading strategies while reading academic or school-related materials" (p. 2). It should be noted that the MARSI involves various strategies, including Global Reading Strategies (GRS), Problem-Solving Strategies (PSS), and Support Reading Strategies (SRS). It is interesting to note that the purpose of GRS is to initiate the reading act stage. The PSS can be identified as repair strategies or focused problem solving, and it is utilized when medical students find a text difficult to understand and read due to problems in the development of textual information. As for the SRS, it refers to the use of the outside reference materials, aiming to support answers and responses pertaining to reading. At the end of their study, the researchers revealed that the use of problem-solving reading strategies gains the highest percentage in comparison with global reading strategies and support reading strategies. Thus, the reading comprehension strategies play a fruitful role in enhancing the reading skill among medical students at medical institutions.

In a recent study in Jordan, Al-Jamal (2018) examined the relation between medical students' use of linguistic contextual clues and their reading comprehension. To improve medical students' reading

comprehension, Al-Jamal pointed out that medical students choose the strategies of acquiring implicit and explicit vocabulary teaching. The effective use and instruction of implicit and explicit vocabulary offered a substantial importance in understanding the expressions and complex words. It should be noted that comprehension of medical texts is regarded as a difficult task when medical students need to understand and learn technical terms (Abdullah, 2013). Medical students often face various complicated words while reading a medical text. One of the strategies of understanding a text is to guess and infer the meaning of unfamiliar vocabulary (Wulandari, 2016). Hence, medical students are dramatically encouraged to learn while using the strategies of reading comprehension (Al-Jamal, 2018). For example, when they used such strategies, they did not need any extra effort to understand the comprehension of medical texts. In a word, Al-Jamal (2018) concluded that there is a need for language intervention programs for the sake of improving medical students' reading comprehension.

Studies related to the general public are also enlightening since the knowledge of medical students is still not developed. Also, reading problems in a patient's native language which hinder understanding are only increased when reading in a foreign language. While investigating medical students' reading comprehension, Manchanayake et al. (2018) conducted a cross sectional study investigating patients' reading ability using their understanding of dosing instructions of their own medicines. To assess patients' ability, the researchers asked them to read dosing instructions, and answer a cross-sectional questionnaire. The same researchers concluded that comprehension of dosing instructions did not reach 100% and it varied with the patients' education level. This indicates that some patients experience hardships at the time of reading and understanding dosing instructions.

In another study, Raynor and Knapp (2000) identified the number of patients who retain, view, and read the leaflets. In their research, 215 patients collecting their medical prescriptions from 3 pharmacies were approached, alongside with telephone follow-up at their residence. Their findings showed that 134 patients, representing 83%, noticed the leaflet and 120 participants, representing 74%, kept it. Furthermore, the researchers chose one specific leaflet and reported that it was read by 64 participants, representing 40% and 34 of them, representing 21%, read it all according to their claim. The researchers concluded that the percentage of participating patients reading the leaflets is not encouraging, but expected. As for those who had the same leaflet every month, it was found that 60 of the patients who did not read it claimed that in the past they did so. Since memories are short, and precautions and warnings can be modified, this issue can be critically considered as a potential problem.

Recommendations

Consequently, this paper recommends the development of medical students' research skills and reading comprehension skills. For example, in L2 reading strategy development and awareness, this kind of assistance for disciplinary learning is usually neglected in the Anglophone and non-Anglophone contexts in medical schools (Kling et al., 2017). One solution that may cope with this challenge involves constructing English language programs pertaining to explicit instruction of academic literacy for medical research and infectious diseases, namely COVID-19. In addition, the explicit teaching and instruction of reading strategies in college curricula and research papers may be significantly fruitful for medical students in the EFL setting.

Furthermore, studies showed that those medical students lack the essential skills of reading strategies pertaining to research papers. It is advisable to shed light on how to remove reading comprehension obstacles. To highlight this issue, it is important to consider and implement new instructional activities, involving reading comprehension as well as research publication skills. For example, a 'think-aloud' activity wherein a reader orally expresses how they are comprehending what they are reading expands a reader's thought and comprehension processes (Afflerbach, 2000). This strategy has been often employed by successful teachers teaching reading skills as it could help learners in understanding the reading strategies and processes. Hence, an efficient reader can use such an activity during the act of reading, and this activity could encourage learners to be strategic readers (Haq et al., 2019). In applying this activity, it potentially helps medical students understand the structure of the text through applying the skill of reading comprehension strategies so that they can develop their reading comprehension skill.

The current paper paves the way for more empirical studies that address reading comprehension strategies to enhance the awareness and literacy of medical students, health care workers, patients, and the public in

general. This paper has one pivotal implication for future progress. Medical students should focus on the skill of reading strategies in reading scientific medical research since this skill represents initial experience in comprehending academic scientific texts. Omar (2014) pointed out that reading strategies can be organized into three types: pre-reading, while-reading and post-reading. Some of the different activities provided in each type are as follows: In the pre-reading phase, an instructor can use different activities that include relating the title and illustration to the text, skimming, and reading the first sentence. The while-reading phase involve using the dictionary to look up every new word, using the dictionary only for significant words, making contextual guessing, and thinking aloud when reading. As for the post-reading phase, the instructor can use various activities that include the classification of words according to meaning, reading the text more than one time to remember the significant points, and summarizing the main points in the text.

It is important that medical students decide which strategy is best for them. Using all these types of reading strategies will dramatically enhance the ability of their reading comprehension ability. In the field of research, those who lack relevant reading comprehension skills may face a challenge and lose interest in scientific research articles. Thus, educational research programs based on reading strategies are likely to have more successful outcomes that benefit medical students' academic works.

Conclusion

The purpose of this study was to review research on the use of reading skills and comprehension strategies of medical students and health care workers in Saudi Arabia. It is obvious that using reading skills can help increase the ability of medical students, health care workers, and public in general in the crucial and analytical processes of reading comprehension. For example, Aksan and Kisac (2009) argued that reading skills, viewed as an essential component of learning, supports the public by gaining the required knowledge in practicing reading comprehension, which is seen as an example of reading activity. The function of reading activity is to formulate the ability to think and to be aware of the processes of comprehending, implementing, and expressing information in a text (Aksan & Kisac, 2009). Medical schools have a wrong assumption in that medical students attending higher education institutions have the required knowledge and skills appropriate for the understanding of scientific texts at an acceptable level (Roberts & Klamen, 2010). Consequently, McNamara (2010) posited that there are two strategies that tackle unsatisfactory approaches on reading. First, students should be provided with explicit training in effective reading. Second, reading materials relevant to reading skill and reader's knowledge should be selected. These two methods produce promise and support for the faculty members of medical schools, trying to enhance their students' level as well as help those who have reading hardships (McNamara, 2010).

All in all, medical students have little experience in practicing reading comprehension strategies during their academic years at their university (Al-Jamal, 2018; Bitran et al., 2012). Therefore, they need to enhance and develop their reading comprehension skills in the EFL environment. To enhance their reading comprehension, they can use various strategies including re-reading difficult passages, reading speed reduction, and activation of prior knowledge since a high percentage of students used such strategies (Bitran et al., 2012). Once they can read and discuss courses in their foreign/second language, they ought to deal successfully with the challenges of language and content in the academic context (Kling et al., 2017). In conclusion, the programs provided in medical education address primary elements of research articles including a problem-solving reading strategies element. Such programs rarely include explicit instruction of academic literacy, such as reading comprehension for medical research and curricula.

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