


English or Arabic in Healthcare Education: Perspectives of Healthcare Alumni, Students, and Instructors

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Background: Using English as a medium of instruction (EMI) in non-English speaking countries to teach healthcare subjects has been questioned in various international healthcare educational contexts, despite the numerous benefits it offers to students and institutions.

Purpose: The present study collected data to examine the impact of the EMI policy and analyze the experiences of students and instructors in a healthcare course in Saudi Arabia.

Methods: The study used three instruments: alumni records ($n = 3,044$), instructors' questionnaires ($n = 134$), and students' questionnaires ($n = 358$). The participants were from different majors in five colleges at a Saudi University: College of Medicine, College of Dentistry, College of Pharmacy, College of Nursing, and Applied Medical Sciences.

Results: The results of alumni data from healthcare colleges of the last five years revealed that the cumulative grade point average (GPA) can be predicted by the first semester grades of the students in the intensive English proficiency program. The results of the questionnaires indicate that the healthcare students' perspectives and healthcare instructors' views demonstrate that using EMI to teach healthcare subjects presents certain obstacles that have a negative impact on students' academic achievement, especially if the students lack fluency in English.

Conclusion: Policymakers should focus on improving the English proficiency of students and provide ongoing English language learning opportunities for the complete duration of the healthcare programs.

Keywords: medical education, English as a medium of instruction, Arabic in healthcare education, Saudi medical education, English in health professions training

Introduction

The language of instruction is an important consideration and a global concern for policymakers in undergraduate medical education and training healthcare programs. Two options are available in terms of the language of instruction in healthcare colleges. The first option is the use of students' native language, for example, Arabic in Saudi Arabia, and the second option is the use of a foreign language as the medium of instruction, such as English in Arab countries. Even though the language of instruction plays a significant role in healthcare education, it has not received adequate attention in medical education research. English as a medium of instruction (EMI) is a commonly used term to refer to the use of English to teach academic subjects (other than English) in countries where the first language of the majority of the population is not English, for example, in Egypt.¹ When using EMI, healthcare students and instructors face several challenges such as understanding instructions.^{2,3}

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Thus far, limited research has been conducted to understand the influence of EMI on the academic achievement and attitude of students and instructors in healthcare colleges, in non-English speaking countries like Saudi Arabia. This study examines to what extent fluency in the language of instruction influences the academic achievement of healthcare students who speak English as a foreign language. Furthermore, it explores the attitudes of healthcare instructors, students, and the society toward the use of EMI and Arabic in healthcare colleges in Saudi Arabia.

Literature Review

While examining the influence of the language of instruction in medical education is important, most of the language studies in the field have focused on the communication between the doctors and patients in the workplace environment.⁴⁻⁶ The language of instruction in healthcare education has drawn the attention of only a few researchers around the globe and scholars have examined it in terms of graduate medical doctors in the United States and the United Kingdom⁷ conducted a study on the use of English in the medical profession in the United States, the United Kingdom, and Australia and they encouraged the collaboration between applied linguists and medical professionals to support the needs of international medical students who speak English as a foreign language.

Teaching healthcare subjects in a foreign language presents numerous challenges for medical schools. A study by⁸ is one of the early attempts that focuses on the influence of the language of instruction in medical education learning outcomes and it stated that the use of EMI at the University of Hong Kong presented a potential barrier for the medical students' academic learning in the anatomy course. By investigating the impact of the quality of students' language skills on their anatomy class tests, they found that students' entrance levels in English correlated well with their final examination results and that the quality and quantity of their English language knowledge was also highly correlated with their scores in the in-class tests. The researchers concluded that language can act as a barrier for the academic success of students in the anatomy department and that the available teaching material in other languages may create extra challenges to comprehending texts.

More recently,⁹ conducted a cross-sectional study with 103 preparatory year students in Saudi Arabia. The study compared the students' scores in the English as a foreign

language (EFL) course and the introductory medical course in the first year of study and found a significant positive correlation between scores in both courses. Since Latin is the root of nearly all medical terms, much of the terminology in medical textbooks is unfamiliar even to native English-speaking students. However, English contains many commonly used words that derive from Latin or Greek. Therefore, to native English-speaking students, medical terms may be unfamiliar, but not completely impenetrable, as they have a large store of semantic and morphological knowledge to draw on in their interpretation of new words.¹⁰

A number of researchers have analyzed the influence of the language of instruction on specific learning skills such as writing, speaking, and reading. For example,¹¹ found that medical students do not completely understand the information in the English textbooks and this results in lack of interest.¹² found that answering essay type questions might be difficult for students in anatomy courses. Additionally,¹³ found that poor English language skills (for example, vocabulary deficiency, difficulty in reading) of healthcare students hindered the development of their communication, presentation, and information-handling skills. Moreover, low English proficiency affected healthcare students' behavior in terms of classroom participation and approaching their teachers. The study concluded that as English is the international language of medical education, addressing the language deficiency among medical students is imperative to improve the quality of education.

Similarly,¹⁴ assessed the relationship between language proficiency and the verbal working memory of medical students at an Australian university. The study found that the working memory of non-English speakers is not as good as that of native English speakers. Studying in a foreign language decreases students' ability to remember the course content. Consequently, these students might achieve lower scores than their native English-speaking peers. Mann et al suggest that an immersion program should be introduced which would force international students to speak and think in the host country's language to garner a better understanding of the language and the culture.¹⁵ found a relationship between the interest of the Japanese dental students to study abroad and their proficiency in English. It was observed that the students interested in studying abroad were highly motivated and studied English independently, while those students with limited English proficiency indicated that they did not want to study abroad in an EMI context.

It is evident from the existing literature that using EMI in healthcare colleges has certain limitations. However, using the first language of the students also presents certain challenges. For instance, medical learning resources in Arabic are limited.¹⁶ Analyzed the difficulties in translating medical terms and how these were addressed by postgraduate translation students who were competent in medical translation and professional Arabic translators who worked in the medical field. The results indicate that the translation of these terms poses numerous difficulties and challenges for postgraduate translation students and inexperienced professional translators. Argeg concluded that literal translation, the heavy use of transliteration, inconsistency, students' lack of sufficient experience and practice in medical translation, and lack of the latest information regarding the English-Arabic medical dictionaries were a few of the factors that hindered the translation process.

In Egypt,¹⁷ found that medical students had a positive attitude toward the Arabization of medical terms and the students also preferred to take the medical history of patients in Arabic. Similarly,¹⁸ found that although Lebanese medical students study medicine in a foreign language, students prefer to take the medical history of patients in their mother tongue [Arabic]. The researchers concluded that despite receiving medical education in a foreign language, the majority of students in Lebanese medical schools are more confident in taking the medical history of patients in their native language. In Libya,¹⁹ observed that the majority of the participants in their study, which included 254 medical and dental students, preferred that the core subjects were taught in both Arabic and English as this could facilitate the understanding of the material and enable them to improve their English language skills.

In Saudi Arabia,²⁰ interviewed eight decision-makers in higher education institutions regarding the usage of English for medical instruction. The interviewees expressed a positive attitude toward the use of EMI in medical colleges, but they also supported the introduction of an Arabic curriculum in the future, if the existing obstacles could not be addressed adequately. The availability of medical learning resources emerged as the main factor that influenced the opinion of the decision-makers regarding the choice of language. Similarly,²¹ explored the attitude of students and instructors in a Saudi university and found that most of the participants agreed that

studying in English ensures better access to medical information and offers more job opportunities.

The review of the existing literature indicates that there are few studies that investigated the influence of EMI policy in healthcare colleges and sometimes these studies presented contradictory results. Previous studies did not address the use of EMI in healthcare colleges as their main objective. They discussed EMI as one of the factors alongside other educational factors like learning strategies, lack of sleep, and nutritional and dietary disorders (see²²). Furthermore, researchers^{4,24} found that students' attitudes, their self-efficacy, and the attitudinal beliefs of the social groups around them affected their attitudes in language learning contexts. Previous studies on EMI have not explored the impact of students' beliefs on the choice of the language of instruction. The present study attempts to bridge the gap in the existing literature by examining the correlation between the academic achievement of healthcare college alumni and their English proficiency level as well as the perspectives of practicing healthcare instructors and students in a variety of medical majors in order to understand their views. The following research questions guided the present study:

Q1: Is there any correlation between the healthcare alumni's cumulative GPA and their English proficiency during their first year of study?

Q2: What is the attitude of healthcare students toward the EMI policy, and how do the healthcare students' attitudes and self-efficacy as well as the attitudes of the social groups around them affect their preferred language of instruction?

Q3: What are the perspectives of healthcare instructors regarding the EMI policy based on their experiences in the classroom?

Methodology

Context

This research study was conducted in a public university in Saudi Arabia and included five healthcare colleges: College of Medicine, College of Dentistry, College of Pharmacy, College of Nursing, and Applied Medical Sciences. Each college has several provincial campuses. Students are admitted to these colleges based on their high school GPA, their scores on the Scholastic Achievement Admission Test (Science), and their scores on the General Aptitude Test. All healthcare students at the university, irrespective of the college, study the same courses in the first semester: an intensive

English course, Arabic language skills, and Islamic Culture. Although students in Saudi Arabia begin learning English in elementary school, their proficiency in the language, in general, is low at the time of university enrolment.²⁵ Low proficiency means that students need to take more English learning courses to be able to communicate with their instructors in English. The students are not required to take any standardized English proficiency test such as IELTS or TOEFL in order to be admitted to the university. So, it is impossible to draw conclusions about the students' proficiency level at the time they start their undergraduate program.

The first year intensive English course is a six-hour credit course and includes 20 hours of weekly contact for one semester (15 hours for general English and five hours for medical terminology). This course is intended to improve the English language proficiency of the medical students. The level of the course textbooks varies between A2 and B1 on the Common European Framework of Reference (CEFR) for languages. Specifically, the course aims to familiarize students with terminology and communication related to the medical field. Several textbooks are used to develop students' language learning skills such as reading, writing, listening, and speaking. The course is graded as follows: 17% for the first progress test; 18% for the second progress test; 15% for assignments and quizzes; and 50% for the final exam.

Participants

There are three groups of participants in the study. The first group comprised undergraduate healthcare students. Their age, at the time of the study, ranged between 18 and 22 years. Most of them were Saudi and they spoke Arabic as their native language. A total of 358 students, 209 male and 149 female students, enrolled in eight healthcare majors, participated in the questionnaire. The second group of participants comprised healthcare alumni. Records of 1,520 female and 1,524 male alumni were collected from the Deanship of Admission and Registration. The third group of participants comprised the instructors of the English intensive course. They were from a range of countries such as Bangladesh, the UK, Canada, Egypt, India, Jordan, Pakistan, Saudi Arabia, South Africa, Sudan, and the US.

Data Collection Instruments & Procedures

The study used three instruments: Alumni records, an instructors' questionnaire, and a students' questionnaire.

The students' and teachers' questionnaires utilized items from previously published research.^{23,24} These items were adapted to the context of this study and translated into Arabic. Both questionnaires were sent to six reviewers who had a Ph.D. in Applied Linguistics to check the validity of the items in Arabic and English. The questionnaire items were revised based on the reviewers' comments and suggestions. Moreover, the reliability of both questionnaires was checked using Cronbach's alpha after obtaining the results. Later, we will present the Cronbach's alpha results. The student questionnaire was posted online on the healthcare students' Blackboard site with assistance from the Deanship of E-Learning. Additionally, the other questionnaire was emailed to the healthcare instructors at the same university. Additionally, a request was sent to the Deanship of Admission and Registration for permission to access the alumni data, and the details regarding their GPA and their intensive English course grades in the last five years.

Approval from the university's IRB committee was obtained and permission from the university administration was granted to access data and distribute the questionnaires among students and instructors. Additionally, the researchers used an online consent form to inform the students and teachers that their participation is voluntary. The students' consent form was composed in Arabic to ensure that the students understood, without any language barriers. The instructors' consent form was provided in both Arabic and English to help them understand the content better.

Results and Discussion

The Healthcare Alumni Results

A total of 3,044 (1,520 female and 1,524 male) healthcare alumni records were accessed. The records were in Excel format and contained the name of the alumnus, university ID, college details, information about majors, gender, GPA, and the score in the intensive English learning course. The English course grades were converted into points using the university system. The alumni included in the study had graduated within the last five years from the healthcare colleges in 13 healthcare majors, as shown in [Table 1](#).

Alumni's GPA and English Proficiency

Before conducting the linear regression test, the data were examined for the assumption that there is a linear relationship between the independent variable (English Course scores) and the dependent variable (GPA) and that there is no outlier as the linear regression is sensitive to the

Table 1 Healthcare Alumni Descriptive Statistics (N = 3,044)

Colleges	Major	Female	Male	Total
College of Medicine	Doctor of Medicine & Surgery	201	391	592
College of Dentistry	Doctor of Oral & Dental Medicine Surgery	140	203	343
College of Pharmacy	Doctor of Pharmacy	116	94	210
	Pharmaceutical Sciences	202	193	395
College of Nursing	Nursing	182	22	204
Applied Medical Sciences	Diagnostic Radiography	142	122	264
	Dental Technology	0	112	112
	Anesthesia Technology	0	13	13
	Emergency Medical Services	9	19	28
	Public Health	114	95	209
	General Nursing	139	0	139
	Physiotherapy	163	139	302
	Medical Laboratory Sciences	112	121	233

outlier effect. Next, the data were checked for multivariate normality and to ensure that there was no multicollinearity as there was only one independent variable. After the required assumptions to conduct a linear regression test were met, the potential correlation between the medical alumni's grades in the English intensive course and their GPA was examined using Pearson's r . The correlation of the two variables was at $r(3,042) = 0.39$, $p < 0.01$, $r^2 = 0.15$. The English course grades ranged from 1 to 5 ($M = 3.69$, $SD = 0.97$, $N = 3,044$). The GPA rating ranged from 1 to 5 ($M = 3.59$, $SD = 0.67$, $N = 3,044$). A linear regression analysis was used to predict medical alumni's GPA from their intensive English learning course grades, $F(1, 3,042) = 540.40$, $p < 0.01$, with a slope of 0.27 and a Y-intercept of 2.60. The variable, healthcare alumni's grades in the intensive English course, significantly predicted their GPA ($p < 0.01$). Table 2 illustrates the GPA

mean based on the English intensive course grade of the alumni.

The regression test results indicate that the grades of the healthcare alumni in the first-year intensive English program can significantly predict their cumulative GPA, ie, students achieved a better GPA when they obtained higher grades in the English intensive course. These results echo those of,⁸ who found a correlation between English entrance level students' test results and their anatomy course scores. The results are also in agreement with those of other studies (for example)^{9,22} and demonstrate the importance of English proficiency for those who use it as a foreign language. The results also imply that healthcare students may fail or obtain low grades in healthcare courses due to the lack of adequate proficiency in the language of instruction rather than because of their ability or inability to understand the healthcare concepts.

Proficiency in the language of instruction does not only influence the grades but it also has an impact on the students' behavior inside the classroom as illustrated in.¹³ Poor proficiency in the language of instruction can have a negative impact on most of the aspects of academic life within the healthcare schools. Therefore, it is imperative for healthcare education policymakers and education-alists to devote considerable attention to this factor.

Instructors' and Students' Questionnaire Results

Both the online surveys were analysed using SPSS. The six-point Likert scale of the survey was transformed into numbers in order to conduct statistical tests, from

Table 2 Healthcare Alumni GPA Mean Based on English Course Grades (N = 3,044)

Grades	GPA Alumni Mean	N	Std. Deviation
A+	4.10	161	0.54
A	3.94	461	0.62
B+	3.72	472	0.64
B	3.62	531	0.65
C+	3.57	482	0.63
D+	3.36	269	0.59
C	3.35	379	0.64
D	3.13	214	0.56
F	2.89	75	0.43

1=Strongly Agree to 6=Strongly Disagree. The reason that one (1) reflected the “strongly agree” positive response and six (6) reflected the “strongly disagree” negative response is due to the culture of the participants. Saudi students are familiar with the number one being associated with positive views. This idea is present in the Saudi educational system; in the student evaluation reports, the number one is equivalent to an A and the number four is equivalent to an F.

Next, the reliability of the questionnaires was checked using Cronbach’s alpha. Cronbach’s alpha was also used to measure the internal consistency of items in each construct (that is, how closely related the items were as a group). In general, the Cronbach’s alpha results indicate the high reliability of the scale in the instructors’ questionnaire and the students’ questionnaire, which included, the instructors’ views of EMI (6 items; $\alpha = .92$), students’ attitudes (3 items; $\alpha = .91$), the associated societal attitudes

(3 items; $\alpha = .89$), and student self-efficacy (3 items; $\alpha = .90$). Before conducting the correlation test and the simple regression linear test on both questionnaires, the data were checked to meet the following assumptions: the questionnaire’s variables were continuous; they had a linear relationship; there were no significant outliers; and, the questionnaire items were normally distributed. After the questionnaire items met these assumptions, the tests were conducted.

Healthcare Instructors’ Questionnaire

A total of 134 healthcare instructors responded to the questionnaire. The participants were from four colleges, namely, Medicine and Surgery (N = 35), Dentistry (N = 24), Pharmacy (N = 34), and Applied Medical Sciences (N = 41). Table 3 presents the instructors’ views regarding the students’ English proficiency.

Table 3 Instructors’ Questionnaire Results

Instructors’ Views Regarding Students’ Proficiency in EMI (N = 134)					
Q 1: Most of the healthcare students in the undergraduate program understand everything I say in English.					
Strongly Yes 21 (15.7%)	Quite Yes 54 (40.3%)	Slightly Yes 34 (25.4%)	Slightly No 6 (4.5%)	Quite No 13 (9.7%)	Strongly No 6 (4.5%)
Q 2: Most of the healthcare students in the undergraduate program can read and understand course material and related textbooks in English.					
Strongly Yes 17 (12.7%)	Quite Yes 60 (44.8%)	Slightly Yes 32 (23.9%)	Slightly No 7 (5.2%)	Quite No 14 (10.4%)	Strongly No 4 (3%)
Q 3: Most of the healthcare students in the undergraduate program can read and understand examination instructions in English.					
Strongly Yes 25 (18.7%)	Quite Yes 61 (45.5%)	Slightly Yes 28 (20.9%)	Slightly No 10 (7.5%)	Quite No 5 (3.7%)	Strongly No 5 (3.7%)
Q 4: Most of the healthcare students in the undergraduate program can answer examination questions in English.					
Strongly Yes 30 (22.4%)	Quite Yes 50 (37.3%)	Slightly Yes 33 (24.6%)	Slightly No 12 (9%)	Quite No 5 (3.7%)	Strongly No 4 (3%)
Q 5: Most of the healthcare students in the undergraduate program can speak English.					
Strongly Yes 9 (6.7%)	Quite Yes 29 (21.6%)	Slightly Yes 45 (33.6%)	Slightly No 28 (20.9%)	Quite No 15 (11.2%)	Strongly No 8 (6%)
Q 6: Most of the healthcare students in the undergraduate program can participate in healthcare discussions in English.					
Strongly Yes 12 (9%)	Quite Yes 24 (17.9%)	Slightly Yes 32 (23.9%)	Slightly No 31 (23.1%)	Quite No 19 (14.2%)	Strongly No 16 (11.9%)
Q 7: Do you think that the students may fail in healthcare subjects because of their low proficiency in English?					
Yes 54 (40.3%)	Maybe 49 (36.6%)			No 31 (23.1%)	

To understand the instructors' perspective regarding the EMI policy, their answers were converted into two categories, positive views and negative views. Positive answers (Strongly Yes, Quite Yes, Slightly Yes) were categorized as YES which implies that the instructors had a positive view. Negative answers (Slightly No, Quite No, Strongly No) were categorized as NO which implies that the instructors had a negative view. Figure 1 illustrates the instructors' perspectives toward the EMI policy in the healthcare college based on their experiences.

The results of the healthcare instructors' questionnaire indicate that instructors support the EMI policy. The instructors' views are in line with those of the decision-makers in.²⁰ This could be because the instructors and policymakers may not be aware of the students' low proficiency in English. Most of the instructors that participated in the study were unaware of any language barriers and linguistic challenges faced by students in healthcare colleges as we can infer from their answers in Table 3. The instructors believed that the students can adequately read and understand healthcare content available in English as we can see in the results of questions 2 and 3 in Table 3. However,¹¹ found that most of the students are not interested in reading healthcare textbooks because of their low English proficiency. Students' attitudes and participation in classes influence their grades and achievement of learning outcomes. Negative attitudes toward the language of instruction might demotivate students to participate in class activities. Consequently, students may achieve a low GPA. Moreover,¹³ found that proficiency in English has a positive impact on the healthcare students' behavior such as their participation in discussions in the classroom.

The participating instructors' lack of awareness of students' challenges could be because they may be using

Arabic to translate unfamiliar terms or when the students ask them for definitions of certain words or terms.¹⁹ Instructors also use Arabic when introducing new and important terms that students should know, or when students complain that they cannot understand a particular topic. They use Arabic to explain important topics in-depth and to emphasize important points as it is assumed that students will use Arabic with Arab patients.¹⁷

Healthcare Students' Questionnaire

The descriptive statistics of the healthcare students' questionnaire results are shown in Table 4. A total of 358 students, 209 male and 149 female, enrolled in eight healthcare majors, responded to the questionnaire.

Linear regression was used to predict the healthcare students' preferred language of instruction from the mean score of their attitude, the attitude of the society, and their self-efficacy ($N = 358$). The three variables considered together significantly predicted the preferred language of instruction, ($F(3, 354) = 155.16, p < 0.01$), with a 57% overlap between the three predictors and the outcome of the language of instruction. The three predictors remain significant with students' attitude at a slope of 0.15 ($p = 0.00$), societal attitude at a slope of 0.04 ($p = 0.03$), and students' self-efficacy at a slope of 0.05 ($p = 0.02$). A total of 0.84 quantified the Y-intercept for the regression equation.

Students' Questionnaire: The Preferred Language of Instruction

In the first question, the participants were asked about the language of instruction that they prefer. English was chosen by 138 participants (38.5%), while 220 participants (61.5%) chose Arabic. The second question asked the

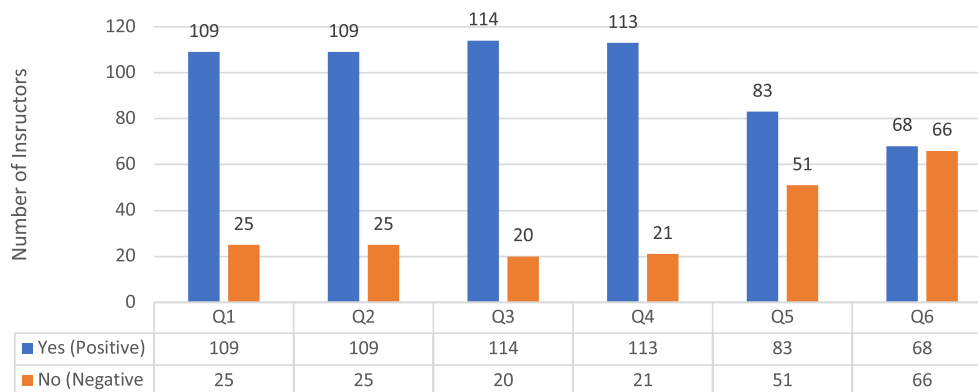


Figure 1 Summary of instructors' views on the EMI policy.

Table 4 Student Participants' Healthcare Major (N = 358)

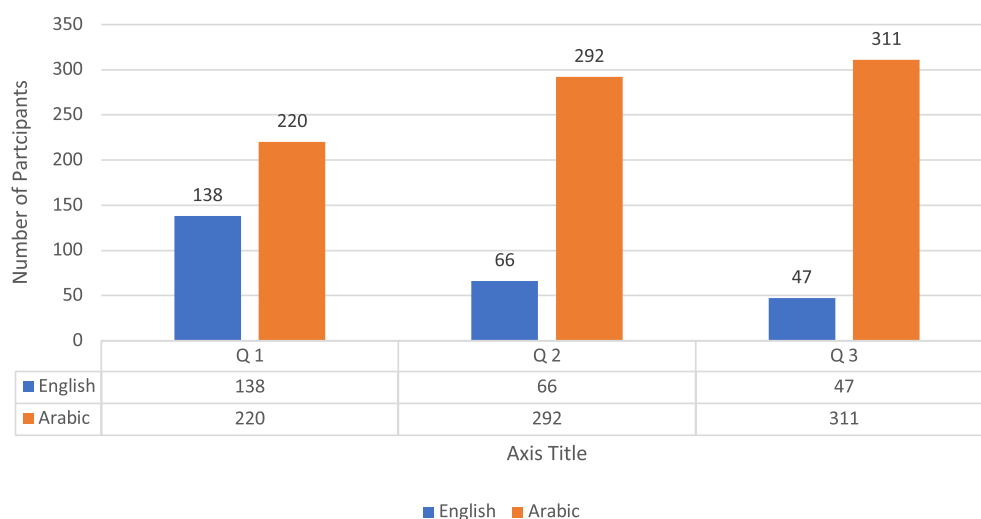
Majors	N	%
Medicine and Surgery	126	35.2
Medical Labs	83	23.2
Physiotherapy	65	18.2
Public Health	25	7
Nursing	21	5.9
Radiology	17	4.7
Pharmacy	13	3.6
Dentistry	8	2.2
Total	358	100

participants' whether they thought that their cumulative GPA would be higher than their current GPA if they studied healthcare courses in the Arabic language. A total of 66 participants (18.4%) responded negatively, while 292 participants (81.6%) gave a positive response. In the third question, the participants were asked about their experiences in healthcare exams with regard to the language of instruction. Students were asked if they had ever an exam question that they could not answer because understanding the question and writing the answer in English was difficult. A total of 47 participants (13.1%) responded negatively, while 311 participants (86.9%) responded positively. Figure 2 summarizes the language of instruction preferred by healthcare students based on the above three questions.

The results of the healthcare students' questionnaire indicated that the majority of the participants prefer Arabic as the language of instruction in healthcare subjects. This finding contradicts the instructors'

questionnaire results. This result can be assimilated from the students' attitude, the attitude of the society, and the students' self-efficacy beliefs. The regression test indicates that students' attitude is the most important factor among the three categories. The results indicate that the students' preference of language is determined on the basis of their attitude toward the language and its speakers; the attitude of their instructors, parents, friends, and classmates; and the students' self-efficacy beliefs regarding whether they think that they can learn healthcare subjects using English as the language of instruction. These results contradict the findings of,²¹ in another Saudi university and,¹⁷ in an Egyptian university.²¹ found that a majority of healthcare students and faculty members preferred EMI for healthcare education and did not believe that teaching medicine in Arabic should be a future goal.¹⁷ found that many students [56.3%) did not consider learning medicine in English an obstacle, and 44.5% of staff considered it an obstacle only in the first year of medical school.¹⁷ concluded that that despite the general strong decline in Arabization, teaching in the Arabic language was appropriate for certain specialties.

The current study also found that the majority of the students believed that they could score a better GPA in healthcare colleges if they studied in their mother tongue. The findings are in line with the alumni regression test results which demonstrated that lack of English proficiency hinders the students' performance in healthcare exams. The healthcare students may fail to answer or understand the question owing to the language barrier rather than their knowledge or background about

**Figure 2** Summary of students' preferred language of instruction.

healthcare subjects. This might improve if students could learn basic healthcare first in Arabic supplementing it with English for Specific Purposes glossaries, gradually introducing more and more English into content classes. It is very hard to learn new subjects and a foreign language at the same time, a problem many students face in the region.²⁶

By and large, the study findings indicate that in EMI healthcare programs using a language that can be easily understood is crucial. One suggestion is for the university to provide translation services for healthcare students to assist them in translating healthcare texts into Arabic. Arabization of healthcare terms could assist instructors and students when using Arabic in healthcare courses. However, previous research indicates that translation may be an ineffective solution¹⁶ as some medical terms do not have Arabic equivalents. In addition, instructors who learn through EMI will find it challenging to teach their course in Arabic. In Saudi Arabia, students who enter healthcare colleges usually graduate with high GPAs from high school, and even top in their classes. However, a few of them fail in the healthcare school and achieve a low GPA owing to a low proficiency in English. Students' questionnaire results reflect the participants' perception that their GPA could improve if they studied healthcare subjects in Arabic.

Conclusion

This study aimed to investigate the relationship between Saudi students' academic performance in healthcare courses delivered in English and their English language proficiency. It was found that the students' proficiency grades in the first-year intensive English program in healthcare colleges can predict their GPA. The results of the healthcare students' questionnaire demonstrate that the students' preferred language of instruction can be predicted by understanding three factors: students' attitudes, students' self-efficacy, and the attitudes of the social groups around the learners. The majority of the participants indicated that they prefer to study in their native tongue (Arabic) as it can increase their understanding and improve their cumulative GPA. In contrast to the students' views, the majority of the instructors support the EMI policy. They believe that Arabic offers limited advantages, and healthcare students should learn healthcare subjects in English as it is the lingua franca of healthcare education and science worldwide.

The EMI policy in higher education has brought about several challenges. While the present study sought to examine some of these challenges, it did so with some limitations. The study is limited to students who speak Arabic as their mother tongue in an Arab country. The study is also limited to undergraduate programs. Future studies could be conducted to compare the challenges that native and non-native English speakers encounter in the same higher education context regarding the language of instruction. They can also examine the feasibility of teaching healthcare subjects in colleges in the Middle East using Arabic. Similar studies are necessary to examine the effectiveness of the EMI policy in other countries where such programs are popular, such as Japan, France, and the Netherlands [see].^{27–29}

The study explored the use of EMI in the Arab Gulf Region to teach and learn healthcare subjects in higher education. In the Gulf region, researchers and policymakers should investigate and examine the effectiveness of EMI in higher education to improve the quality of education. Exploring the EMI policy in healthcare colleges and documenting students' and instructors' experiences will advance understanding of the impact EMI has on healthcare study programs. The results of the present study brought to light interesting information related to the language of instruction in healthcare programs of study and how students' attitude toward the language of instruction influences their preference of the language of study. These should be taken into consideration by policymakers when designing the curriculum. One thing is certain, that the language of instruction plays a vital role in the healthcare students' academic achievement and motivation to succeed in the requisite subjects.

Ethics Approval and Consent to Participate

This work involved human subjects or animals in its research. Approval of all ethical and experimental procedures and protocols was granted by the Research Ethics Committee at King Khalid University, (ECM#2020-207 (—(HAPO-06-B-001))).

Acknowledgments

The authors extend their appreciation to the Deanship of Scientific Research at King Khalid University for funding this work through General Research Project under grant number (G.R.P- 152 –40).

Author Contributions

All authors contributed to data analysis, drafting or revising the article, gave final approval of the version to be published, agreed to the submitted journal, and agree to be accountable for all aspects of the work.

Funding

This work was supported by King Khalid University [grant number G.R.P- 152 –40].

Disclosure

The authors report no conflicts of interest in this work.

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