Medical students' perceptions of introducing medical terms in Arabic within a curriculum taught in English: a descriptive study

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Received 2 March 2023
Revised 12 April 2023
Accepted 11 June 2023

Abstract

Purpose – All colleges of medicine in the Gulf Cooperation Council (GCC) adopt English as a language of instructions. This study aimed to examine medical students' views on introducing medical terminology in Arabic within an English-based curriculum.

Design/methodology/approach – This descriptive study targeted preclinical second- and fourth-year students in the College of Medicine and Medical Sciences at the Arabian Gulf University, during the academic year 2022–2023 (n = 407). Within the pharmacology teaching material in unit I (second year) and unit VIII (fourth year), which are taught in English, students were provided with medical terms in Arabic. At the end of these two units, students' views were sought by using a self-administered questionnaire.

Findings – The number of respondents was 263 (response rate 64.1%: 22.2% males, 77.8% females). Most participants received their school education mainly in Arabic (78.8%). A significant percentage of students believed that providing Arabic terms helped their learning (79.8%). If pharmacology is taught exclusively in English, majority of the students anticipated to face difficulties when explaining drug treatment to their patients in the future (71.3%). Most respondents expected this intervention to help them communicate with patients (86.7%), and preferred to include it in the clinical skills training (82.2%). The second-year students and those whose school education was mainly in Arabic were more likely to agree to the intervention ($p < 0.05$ for both).

Originality/value – The introduction of medical terms in Arabic is an acceptable alternative to complete Arabization, and is believed to help students in their learning and communication with their patients.

Keywords Medical education, Pharmacology, Medical terminology, Arabic language

Paper type Research paper

1. Introduction

Pedagogues believe that using student's mother tongue in the learning process is the most effective approach for acquiring and retaining knowledge in various fields of science, including medicine (Kim *et al.*, 2002; Ardila, 2003; Xue, Dong, Jin, & Chen, 2004). The vast majority of medical schools in the Arab countries, including those located in the countries of

The authors would like to extend their thanks and appreciation to the participating students for their cooperation with the research team.

Arab Gulf Journal of Scientific Research
Emerald Publishing Limited
e-ISSN: 2536-0051
p-ISSN: 1985-9899
DOI 10.1108/AGJSR-02-2023-0090

the Gulf Cooperation Council (GCC), offer medical education to students in foreign languages, especially English or French, which are considered as second languages for them (Hamdy *et al.*, 2010). Indeed, this is the reason why candidates who apply to medical colleges are required to pass foreign language proficiency tests as a prerequisite for admission (Alnasir & Jaradat, 2011), because poor language command predisposes them to difficulties during their studies and after graduation (Holtzman, Swanson, Ouyang, Dillon, & Boulet, 2014). A study conducted in Saudi Arabia, reported that the language barrier was ranked second among the difficulties faced by medical students in the first year of their studies (Almoallim, Aldahlawi, Alqahtani, Alqurashi, & Munshi, 2012). Interestingly, another study showed that graduates of medical schools, which adopted a foreign language, face another language barrier following the graduation, when communicating with their patients. That is, they experience a reverse language barrier when taking medical history and explaining diseases or treatments to patients using their original language, because they received their medical education using a different language (Alnahdi *et al.*, 2021). The same conclusion was reported by a study at the United Arab Emirates, which showed that 72% of medical students believed that they could take medical history in English, compared to 27.8%, who reported that they were not confident in obtaining medical history in Arabic (Mirza & Hashim, 2010). The negative impact of the language barrier in medical education does not only affect students during the undergraduate level but also it extends to the graduates'` professional life. The results of two studies conducted in the United States and Australia showed that doctors coming from countries that speak languages other than English, faced obstacles in passing the clinical exams for the medical practice test, and the reason for their failure was their poor performance when communicating with patients in English (Henderson, McGrath, & Patton, 2017; Fernandez, Wang, Braveman, Finkas, & Hauer, 2007).

From a pedagogic point of view, learning using students' native language (Arabic in the case of the Arab countries) is more effective. However, English is the main language of scientific communication in today's world, because the vast majority of scientific studies and reference books are published in this language. In addition, most medical schools in the Arab world have adopted English or French for decades or since their inception. Thus, complete Arabization of medical curricula is expected to be a difficult process, at least in the foreseeable future. In light of the imminent complexities of changing the language of medical education in the Arab countries, attempts in this direction were generally rare. In fact, attempts which aimed for complete Arabization of medical programs, as is the case in the University of Gezira in Sudan, led to many difficulties on the part of students and academic staff, and eventually ended with abandonment of the idea (Mahmdani & Abdel Rahman, 2006). We therefore believe that it is prudent to adopt less aggressive approaches to minimize the negative impact of the language barrier in medical education, with minimal changes in the language used in teaching.

The current study adopted an innovative approach, represented by partial Arabization that neither requires switching the language adopted in medical education nor does it lead to depriving the students from the advantages of learning in English. We aimed to identify the perceptions of medical students at the Arabian Gulf University about an approach that included keeping pharmacology teaching in English with the addition of medical terms in Arabic to the reading material.

2. Methods

2.1 Ethical approval

Prior to data collection, formal approval was obtained from the Research and Medical Ethics Committee at the Arabian Gulf University in the Kingdom of Bahrain. Before distributing the questionnaire to the students, the objectives of the study were explained using an information leaflet. Participation in the study was completely anonymous and voluntary, and

participating students were given the opportunity to withdraw from the study at any time, without justification. It was also emphasized that the option to participate or withdraw from the study had no effect on the students.

2.2 Settings

The College of Medicine and Medical Sciences, affiliated to the Arabian Gulf University, offers the first degree in medicine (MD). Every year, the college accepts about 200 students who are citizens and residents of the GCC. One of the admission requirements is that the candidate for admission must pass an English proficiency test. Students who are not adequately competent to pass the test, are enrolled in the foundation year program, which consists of two semesters, during which the intensive English language courses are offered in order to help the student achieve the required level in this language before joining the program (Alnasir & Jaradat, 2011).

The study plan in the College of Medicine and Medical Sciences is divided into three phases. The basic sciences phase (first year), which includes the following courses: medical physics, biology, sociology, psychology, epidemiology and biostatistics, computer science, Islam and medical ethics, English and biochemistry. The pre-clerkship phase, which lasts for three years (second to fourth year), in which horizontally and vertically integrated courses are offered. Those courses (called units) are introduced by using a problem-based learning approach that is student-centered and community-oriented. During this phase of the program, small groups' problem-based tutorials are conducted. In addition, faculty members in the college give focused discipline-based lectures (called resource sessions), covering theoretical aspects in one large group of students. As for the practical aspects of the curriculum, they are presented through laboratories and professional (clinical) skills sessions. The third phase is the clinical clerkships, which lasts for two years (fifth and sixth years); in which students learn clinical skills by rotating over the different clinical courses in the hospitals which are affiliated with the university. Students' evaluation during the program is based on written, practical (laboratory) exams and exams measuring the clinical skills.

2.3 Study sample

This descriptive study targeted the second- and fourth-year students in the pre-clerkship phase (total number 407: 220 (54.0%) from the second year, 187 (46.0%) from the fourth year). Those two groups were selected because the principal investigator is responsible for teaching pharmacology to them during the academic year in which the study was conducted (2022–2023).

2.4 Study instrument

During the pharmacology resource sessions in unit I (second year) and unit VIII (fourth year), pharmacology was taught in English in the class. However, within the study material, medical terms were offered to the students in Arabic, in addition to English for self-study. At the end of those two units, students' views were sought in one occasion and within the classroom by using a self-filled paper questionnaire. The questionnaire included questions related to the demographic data of the participants (gender, academic level and nationality), the language of instructions at school and enrollment in the foundation year. In addition, we investigated students'` perceptions of this educational intervention and its impact on learning and communicating with patients during the clerkship phase and future practice. To answer the questions related to participants' perceptions, students were asked to choose one of the following options: strongly disagree, disagree, neutral, agree or strongly agree. To avoid potential bias, the students had not been aware of the conduction of the study before administering the questionnaire.

2.5 Validity and reliability

Prior to data collection, the questionnaire was piloted by presenting it in its final form to a group of medical students at the college to verify the clarity and relevance of the items. In addition, the reliability of the questionnaire was confirmed by using the "Cronbach alpha" coefficient, by applying it to a survey sample of 15 male and female students. The reliability coefficient was 0.9.

2.6 Statistical analysis

The collected data was analyzed by using the Statistical Program for Social Sciences (SPSS) version 25. Simple descriptive statistics were used to calculate the frequencies and percentages. In addition, the "Chi-Square" test was used to verify the relationship between the students' responses and the different variables of the study. Relationships were considered statistically significant if the p value was less than 0.05.

3. Results

The number of participating students was 263 (response rate 64.1%: 22.2% males, 77.8% females). Based on their academic level, there were 133 participants from the second year (50.6%), while 130 students were in their fourth year (49.4%) (Table 1). Most respondents received their school education mainly in Arabic (78.8%), and were not enrolled in the foundation year at the university (73.4%). Regarding the countries of origin of the students, Kuwaiti students ranked first with a percentage of 36.8%, followed by Bahrainis (28.0%), Saudis (20.7%) and finally Omanis (14.6%).

The results obtained on the students' perceptions of the educational intervention showed that if pharmacology was taught exclusively in English, most of the respondents are expected to face difficulties when explaining drug treatment and adverse effects to their patients in the future (71.3%) (Table 2). The majority of participants believed that learning medical terms in Arabic helped their learning in general (79.8%), improved their self-learning (71.6%) and

Table 1. Participants distribution according to certain variable (n = 263)

Variable	n	(%)	Total (n)
Gender			
Male	58	22.2	261
Female	203	77.8	
Nationality			
Kuwait	96	36.8	261
Bahrain	73	28.0	
Saudi Arabia	54	20.7	
Oman	38	14.6	
Academic level			
Year 2	133	50.6	263
Year 4	130	49.4	
Enrollment to foundation year			
No	190	73.4	259
Yes	69	26.6	
Main school language			
Arabic	193	78.8	245
English	52	21.2	

Source(s): Table by the authors

Item	Response n (%)					Total (n)
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	
If pharmacology learning is performed exclusively in English, I expect to face difficulty in communicating pharmacotherapy and adverse effects to patients	102 (38.9)	85 (32.4)	33 (12.6)	26 (9.9)	16 (6.1)	262
Adding medical terms in Arabic to pharmacology material helped me understand concepts	143 (54.6)	66 (25.2)	31 (11.8)	14 (5.3)	8 (3.1)	262
Adding medical terms in Arabic to pharmacology material made studying enjoyable	125 (47.5)	56 (21.3)	57 (21.7)	14 (5.3)	11 (4.2)	263
Adding medical terms in Arabic to pharmacology material improved my self-learning	122 (46.7)	65 (24.9)	44 (16.9)	21 (8)	9 (3.4)	261
I think that adding medical terms in Arabic to pharmacology material will improve my performance in exams	105 (40.1)	57 (21.8)	50 (19.1)	33 (12.6)	17 (6.5)	262
Adding medical terms in Arabic to pharmacology material will help me communicate with patients during the clerkship phase	170 (64.6)	58 (22.1)	25 (9.5)	6 (2.3)	4 (1.5)	263
I agree to add medical terms in Arabic to other disciplines	140 (53.2)	39 (14.8)	48 (18.3)	16 (6.1)	20 (7.6)	263
I agree to add medical terms in Arabic to clinical skills teaching	154 (58.6)	62 (23.6)	26 (9.9)	12 (4.6)	9 (3.4)	263

Source(s): Table by the authors

Table 2. Medical students` perceptions of including medical terms in Arabic in pharmacology reading material (n = 263)

made the learning process enjoyable (68.8%). Most participants expected that this approach would help them improve their performance in exams (61.9%) and improve communication with patients in the clerkship phase (86.7%). The majority of students preferred adding Arabic terms to other disinclines in addition to pharmacology (68.0%), and expressed their desire that it should be included in the clinical skills training (82.2%).

When we examined the factors associated with participants' perceptions of the intervention, we found that for all items, the second-year students and those whose school education was mostly in Arabic were more likely to agree to the intervention compared to the fourth-year students and those who were taught in English in school ($p < 0.05$ for both). The only exception to this observation was the students' response to the first question, which showed that there was no statistically significant difference between the second- and fourth-year students in terms of the difficulty of explaining drug therapy and adverse effects to patients if medical terms are taught in English only (Table 3) ($p = 0.087$). No statistically significant differences were observed in students' responses based on their gender or their enrollment to the foundation year.

4. Discussions

The presence of the language barrier in healthcare is a serious problem. In the United States, there are 42 million people whose mother tongue is Spanish. Out of those, 16 million people did not speak English while they received medical care by professionals who do not speak their

Item	Academic level: Year 4 (n = 130)	Academic level: Year 2 (n = 133)	Response	*p* value
If pharmacology learning is performed exclusively in English, I expect to face difficulty in communicating pharmacotherapy and adverse effects to patients	25 (59.5)	17 (40.5)	Disagree	0.087
	20 (60.6)	13 (39.4)	Neutral	
	84 (44.9)	103 (55.1)	Agree	
Adding medical terms in Arabic to pharmacology material helped me understand concepts	15 (68.2)	7 (31.8)	Disagree	0.023
	20 (64.5)	11 (35.5)	Neutral	
	94 (45)	115 (55)	Agree	
Adding medical terms in Arabic to pharmacology material made studying enjoyable	15 (60)	10 (40)	Disagree	0.009
	37 (64.9)	20 (35.1)	Neutral	
	78 (43.1)	103 (56.9)	Agree	
Adding medical terms in Arabic to pharmacology material improved my self-learning	19 (63.3)	11 (36.7)	Disagree	<0.001
	33 (75)	11 (25)	Neutral	
	77 (41.2)	110 (58.8)	Agree	
I think that adding medical terms in Arabic to pharmacology material will improve my performance in exams	38 (76)	12 (24)	Disagree	<0.001
	33 (66)	17 (34)	Neutral	
	58 (35.8)	104 (64.2)	Agree	
Adding medical terms in Arabic to pharmacology material will help me communicate with patients during the clerkship phase	8 (80)	2 (20)	Disagree	0.036
	16 (64)	9 (36)	Neutral	
	106 (46.5)	122 (53.5)	Agree	
I agree to add medical terms in Arabic to other disciplines	24 (66.7)	12 (33.3)	Disagree	0.028
	27 (56.3)	21 (43.8)	Neutral	
	79 (44.1)	100 (55.9)	Agree	
I agree to add medical terms in Arabic to clinical skills teaching	15 (71.4)	6 (28.6)	Disagree	0.035
	16 (61.5)	10 (38.5)	Neutral	
	99 (45.8)	117 (54.2)	Agree	

Table 3. Association between participants' responses according to the year of study (n = 263)

Source(s): Table by the authors

language (Carlson *et al.*, 2022). In the Arab countries, the situation is similar because most medical colleges have adopted languages other than the original language of their students since their inception. This has resulted in the emergence of the language barrier that has affected students' achievement, their integration at the university level and even after graduation. Attempts of switching the language of instructions in those colleges are difficult because it requires radical changes in the structure of institutions. This study maintained teaching medical curriculum in English, albeit with the addition of medical terms in Arabic. The results of the students' survey showed their acceptance of the intervention and their belief that it helps improve learning and ability to communicate more efficiently with patients.

The vast majority of the participants believed that learning pharmacology exclusively in English might lead to difficulties when communicating drug treatment and adverse reactions to patients in the future. Interestingly, for this particular item, there were no statistically significant differences between students, regardless of gender, academic level, language during school education or admission to the foundation year. Indeed, students welcomed this intervention as it maintains the use of the English language in education, which gives them the opportunity to benefit from the advantages of learning in this language, and at the same time, enables them to enjoy the advantages of using their native language in learning. Our data indicated that the students were satisfied with adding medical terms in Arabic to the pharmacology teaching material and expressed their desire to include it in the clinical training curriculum to facilitate communication with patients in the future. Indeed, communication between physician and patient is essential to providing quality healthcare. This includes explaining diseases, their risk factors, their pathophysiology, nondrug treatment, drug therapy and adverse reactions of treatment.

In the case of Arab medical students studying in medical colleges in the Arab countries, the educational process is conducted entirely in a foreign language. This leads to the language barrier that interferes with the learner's ability to communicate effectively with their patients, due to lack of knowledge of medical terms in their original language. A recent study was carried out in Saudi Arabia on the impact of medical education in English on the ability of medical students to take medical history in Arabic. This particular study showed that 33.8% of the students agreed that they are confident to take medical history in Arabic, whereas 31% said that they were not confident to do so. Out of the respondents, 47.6% expressed their desire to receive training for clinical exams using their native language (Alnahdi *et al.*, 2021).

The question, which remained unanswered, is whether students, academic faculty and institutions would accept complete Arabization of medical curricula. Al-Hajri surveyed the opinions of students and faculty members in one of the colleges of medicine in Saudi Arabia about adopting Arabic in their medical curriculum. The majority of participants in this study, both students and faculty, believed that teaching in English is better because, from their point of view, it provides learners with easier access to references and help them find a job after graduation. A small percentage of 15% of the students agreed to learn medicine in Arabic. In contrast, a larger percentage of the respondents agreed to use their mother tongue while learning medical history taking (68%) (Alrajhi *et al.*, 2019). Those data, in addition to the results of our study, showed that complete Arabization of medical curriculum has minimal chances of acceptance by the different stakeholders. Such an attempt took place at the University of Gezira in Sudan, which decided to abandon the use of the English language and adopt full Arabization of their medical curriculum. However, after several years of application it was evident that there were many obstacles, which ended with the abandonment of the initiative completely. Faculty members faced difficulties in translating their teaching material from English to Arabic due to lack of time and resources. Similarly, students had concerns about getting equal chances for postgraduate education and higher specialization (Mahmdani & Abdel Rahman, 2006). Following eight years of Arabization, this medical school decided to go back to using English as a language of instructions. Interestingly, however, the academic achievement of the students who were taught in Arabic was compared to those who received their medical education in English. This comparison revealed that the grade point average of the former was higher than that of the latter (Mahmdani & Abdel Rahman, 2006).

This study had certain limitations. First, it was conducted on the pre-clerkship students rather than on students within clinical rotations. Although the former—according to our curriculum—practice communication skills with patients as a part of their clinical skills training program, the latter are more likely to face difficulties related to communicating diseases and therapies in Arabic because they spend most of their time in hospitals. Second, the study was limited to one discipline, so we do not know if it can be generalized to other disciplines. Lastly, the study used medical terms in traditional Arabic language, which include jargons that could be difficult for patients to understand. Ideally, students should be able to communicate with patients using medical terms in spoken Arabic language.

5. Conclusions

Since the vast majority of medical schools in the Arab countries have adopted foreign languages in medical education since their inception, complete Arabization of the medical curricula may not have adequate chances of success. The inclusion of medical terms in Arabic is an acceptable alternative to shifting the language of instructions in medical colleges in the Arab countries. Learning medical terms in students' original language is expected to improve learning and doctor-patient communication.

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