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Arab Medical Students' Attitudes Toward the Arabization of Medical Education: A Multiregional Cross-Sectional Study

Nour Edin Darwish
Faculty of Medicine, Mansoura University, Mansoura, Egypt https://orcid.org/0009-0009-5527-4539

Yusof Mohamed Omar
Faculty of Medicine, Mansoura University, Mansoura, Egypt https://orcid.org/0009-0003-1857-0589

Mohamed Ashraf Elsaadany
Faculty of Medicine, Cairo University, Cairo, Egypt https://orcid.org/0009-0005-2050-215X

Yousuf Darwish
Mansoura Manchester Program for Medical Education, Faculty of Medicine, Mansoura University, Mansoura, Egypt https://orcid.org/0009-0009-4913-5196

Omar Johar
omar.johar@damascusuniversity.edu.sy
Faculty of Medicine, Damascus University https://orcid.org/0009-0004-9863-5668

Hala Alhussein
College of Medicine, Vision Colleges, Riyadh, Saudi Arabia

Ilham oumeddour
Faculty of Medicine, Annaba, Badji Mokhtar University, Algeria

Abdel-Hady El-Gilany
Public Health and Community Medicine Department, Faculty of Medicine, Mansoura University, Mansoura, Egypt https://orcid.org/0000-0001-9376-6985

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Abstract

Background: Although English remains the dominant medium of medical instruction in the Arab world, literature regarding students' attitudes toward Arabization is largely fragmented and lacks cross-regional evaluation. This study examined Arab medical students' attitudes toward the Arabization of medical education and associated sociodemographic and career-related factors.

Methods: A cross-sectional survey was conducted from August to October 2025 among medical students across four Arab regions: Maghreb (Algeria, Mauritania), Levant (Syria), Nile Valley (Egypt), and Arabian Peninsula (Saudi Arabia). A bilingual online questionnaire collected sociodemographic data, curriculum and teaching language preferences, perceived advantages and disadvantages of Arabization, and anticipated barriers. Multinomial logistic regression was used to identify factors associated with preferred curriculum language.

Results: A total of 1,727 students participated (56.5% female, mean age 21.8 years). Regarding curriculum language, Arabic-medium students (Syria) preferred Arabic (73.7%), English-medium students (Egypt, Saudi Arabia) preferred English (76.1% and 72.5%), and French-medium students (Algeria, Mauritania) mostly preferred Arabic (43.5%). The main perceived advantages of Arabization were better patient/team communication (66.0%) and improved understanding/retention of medical concepts (56.4%), while the main disadvantages were harder preparation for international exams (65.6%) and limited access to medical advances/resources (56.7%). Expected barriers included difficulty keeping an Arabized curriculum updated (51.2%) and insufficient faculty expertise (49.9%). Students favored Arabizing patient-facing subjects (e.g., ethics, communication skills) over basic sciences. Multivariable regression showed that a preference for Arabic was independently associated with male sex, rural residence, earlier academic years, Arabic pre-university education, currently studying in an Arabic curriculum, and lacking plans to practice/study medicine abroad.

Conclusion: Arab medical students exhibit conditional, subject-specific support for Arabization, balancing the need for local clinical competence with transnational career aspirations. Implementing a structured bilingual framework may optimize cognitive comprehension without compromising global professional competitiveness.

Introduction

Language is the primary tool for learning and acquiring knowledge. In fields such as medicine, the language of instruction influences not only how information is presented but also how effectively students understand and retain it [1, 2]. Evidence suggests that learning in one's native language reduces unnecessary cognitive load [3, 4], allowing students to focus on problem-solving and developing clinical reasoning. Therefore, aligning the language of instruction with a student's mother tongue can enhance learning efficiency. Nevertheless, despite the cognitive advantages of native-language instruction, English remains the dominant language of medical education and practice globally [5, 6].

In the Arab world, the shift toward English as the medium of instruction was adopted and sustained as it was widely perceived to facilitate alignment with Western medical advances, improve access to international research, and enhance global competitiveness [7, 8]. Consequently, most medical schools across the region currently use English as the primary language of instruction [6]. However, the impact of teaching future physicians in a language other than their mother tongue remains debated [9–11].

In their systematic review of educational language barriers in countries using a foreign language for instruction, Hamad et al. analyzed 56 studies, most of which were conducted in Arab countries, and identified two key themes: academic barriers and clinical communication barriers [6]. Academically, students frequently struggled to comprehend textbooks, lectures, and examinations [12–14], resulting in poorer performance [15, 16], higher stress [16, 17], and increased dropout rates [18]. Clinically, students reported that foreign-language instruction limited their ability to communicate effectively with patients in their native language, affecting empathy, history-taking, and overall confidence in patient care [19–23],

The literature on Arab medical students' attitudes toward Arabization presents a complex and evolving picture, reflecting a tension between pedagogical efficiency and global competitiveness. Historically, students showed strong support for instruction in their mother tongue; for example, a 1996 study reported that 70.3% of Saudi medical students preferred Arabic, noting that it reduced their study time by nearly half [24]. More recent evidence, however, suggests a marked shift toward English as the preferred medium instruction, with 83.4% of Libyan students and over 85% of Saudi students now favoring English to access updated global resources and succeed in international licensing examinations [8, 25]. At the same time, institutional initiatives continue to shape the discourse. For instance, in early 2025, Egypt's Al-Azhar University announced a formal feasibility study on Arabizing its medical, pharmacy, and dentistry curricula [26], while Algeria phased out French in favor of English across schools and universities to align with global academic and economic standards [27]. The contrast between evolving student preferences and ongoing policy shifts underscores the need for contemporary, large-scale data to inform regional medical education strategies.

Despite extensive debate, research on medical students' attitudes toward Arabization remains largely limited to small, single-institution studies with primarily descriptive analyses, with socio-demographic and career-related determinants of language preferences remaining underexplored at a regional level. To address these gaps, this study examined medical students' attitudes toward Arabization, their preferences for the language of medical education, and the socio-demographic and career-related factors associated with these views among Arab medical students, with data collected across five countries representing the four major Arab regions. It further investigated perceived advantages and disadvantages and subject-specific language preferences, providing broader evidence to inform language policy in Arab medical education.

Methods

Study design and period

A descriptive cross-sectional study with an analytical component was conducted from August 2025 to October 2025. This study followed the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines [28].

Target population and settings

The study targeted medical students across four major Arab regions: the Maghreb, the Levant, the Nile Valley, and the Arabian Peninsula. From each region, one or two countries were included based on the availability of collaborators: Algeria and Mauritania from the Maghreb, Syria from the Levant, Egypt from the Nile Valley, and Saudi Arabia from the Arabian Peninsula.

The included countries also represent the three curriculum languages used in medical education across the Arab world: Arabic (Syria), English (Egypt and Saudi Arabia), and French (Algeria and Mauritania).

Sample size

The sample size was calculated using R [29] with the samplingbook package [30] based on the primary outcome of the study (preferred curriculum language). We estimated that 50% of students would prefer a specific language, which yields the most conservative sample size calculation. Using a 95% confidence level and a 5% margin of error, the minimum required sample size was calculated to be 385 participants per region Since the study included four regions, the total target sample size was 1,540 (385 × 4). A total of 1,727 participants completed the questionnaire, exceeding the target.

Sampling method and data collection approach

A convenience sampling approach was used in data collection. Students participated in the study by answering the questionnaire online on Google Forms. These forms were distributed through official student channels and groups on Telegram and other social media platforms. At least one author was responsible for data collection in each country, with additional collaborators assisting in some countries. The questionnaire was disseminated in official groups for all academic years, guaranteeing extensive reach and making it accessible to all students. Participants were able to answer the questions freely and anonymously.

Study questionnaire

We used a self-administered anonymous online questionnaire to gather information. The questionnaire was developed in a bilingual format (Arabic and English), with each question and response option presented in both languages. A copy of the questionnaire is provided as a supplementary file (Supplementary File 1).

In the first section, we collected sociodemographic characteristics of the studied population: age, sex, place of residence, and academic year. We also collected the primary language of the curriculum in pre-university education.

In the second section, we assessed students' language preferences, including the preferred primary language of the medical curriculum (e.g., textbooks, handouts) and the preferred primary language of teaching and explanation (e.g., lectures, practical sections, clinical rounds). We also collected information on self-reported factors that may be associated with language preference, including plans to practice or study medicine abroad after graduation and medical research involvement.

In the third section, we explored students' perceptions of Arabization through four multi-choice questions where respondents could select more than one option. These addressed the perceived advantages of Arabizing the medical curriculum, the perceived disadvantages, the subjects or topics preferred for Arabization, and the expected barriers to Arabizing the medical curriculum. Each question also included a free-text "Other" option. Students already studying an Arabic curriculum (Syrian students) were excluded from the questions on preferred subjects and expected barriers.

Ethical approval

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Institutional Review Board of the Faculty of Medicine at Mansoura University, under the reference number R.25.06.3211.R2. Participation was voluntary, with no financial incentives offered. Electronic informed consent was obtained from each participant. Data were collected anonymously through an online questionnaire, maintaining strict confidentiality and protecting participants’ privacy throughout the study.

Statistical analysis

In this study, R [29] was used for statistical analysis. The gtsummary package [31] was used for generating descriptive and analytical summary tables. Categorical data were presented as frequencies and percentages, whereas continuous data were presented as means and standard deviations (SD). For multi-choice questions (advantages, disadvantages, barriers, and preferred subjects), percentages were calculated based on the total number of respondents, as participants could select more than one option.

Bivariable analysis was performed by stratifying the study sample by preferred primary curriculum language using Pearson's chi-square test (without continuity correction) for categorical variables with all expected cell counts ≥5, and Fisher's exact test (with Monte Carlo simulation using 10,000 replicates) for categorical variables with any expected cell count <5. Row-wise percentages were used for the stratified analysis.

Firth-penalized multinomial logistic regression was used to examine factors associated with the preferred primary curriculum language, using the brglm2 package [32]. English was set as the reference category for the outcome variable. Results are presented as adjusted odds ratios (AOR) with their corresponding 95% confidence intervals (CI). A p-value less than 0.05 was considered statistically significant.

Results

Participant characteristics

A total of 1,727 Arab medical students completed the survey. The mean age of participants was 21.8 years (SD = 2.0). Over half were female (56.5%), and the majority resided in urban areas (86.3%). Participants were distributed across four geographical regions: Levant (27.0%), Maghreb (25.7%), Arabian Peninsula (23.8%), and Nile Valley (23.5%). The majority of participants had Arabic as their pre-university education language (73.0%), followed by English (15.6%) and French (10.7%). Current curriculum languages were English (47.3%), Arabic (27.0%), and French (25.7%). Most participants had no medical research involvement (64.6%), and the most common future plan was being undecided about practicing or studying medicine abroad (37.5%) (Table 1).

Curriculum and teaching language preferences

The preference for primary medical curriculum language varied across regions (Table 2). In the Levant (Syria; Arabic curriculum), Arabic was the most preferred curriculum language (73.7%; 95% CI = 69%, 78%). In the Nile Valley (Egypt; English curriculum) and the Arabian Peninsula (Saudi Arabia; English curriculum), English was the dominant preference (76.1%; 95% CI = 72%, 80% and 72.5%; 95% CI = 68%, 77%, respectively). In the Maghreb (Algeria and Mauritania; French curriculum), preferences were more evenly distributed, with Arabic being the most preferred (43.5%; 95% CI = 39%, 48%).

Regarding teaching language, nearly all students who preferred Arabic as a curriculum language also preferred Arabic for teaching (96.2%). Among those preferring English as a curriculum language, the teaching language preference was split between Arabic (47.6%) and English (45.5%). Among those preferring French, the majority preferred French for teaching (70.5%), while a quarter preferred Arabic (25.0%) (Table 2)..

Perceived advantages and disadvantages of Arabization

The most frequently endorsed advantages of Arabizing the medical curriculum were improving communication with patients and healthcare teams (66.0%), better understanding and retention of medical concepts (56.4%), and preserving cultural and religious identity (55.4%). Conversely, 12.6% reported seeing no advantages (Table 3).

The most commonly perceived disadvantages were making preparation for international medical exams more difficult (65.6%), hindering direct access to medical advances and learning resources (56.7%), and reducing opportunities for working or specializing abroad (51.6%). Conversely, 13.9% reported seeing no disadvantages (Table 4).

Expected barriers to Arabization

Among the 1,261 students not currently studying an Arabic curriculum, the most frequently anticipated barriers were difficulty keeping an Arabized curriculum updated with global medical advances (51.2%),

insufficient faculty expertise for teaching in Arabic (49.9%), and inadequate Arabic terminology and learning resources (49.0%). Conversely, 11.6% expected no barriers (Table 5).

Subjects preferred for Arabization

Among the same 1,261 students, the subjects/topics most frequently preferred for Arabization were Ethics (40.5%), Communication skills (35.0%), and Medical law (33.0%), followed by History taking (29.4%). Notably, 27.8% expressed a preference for all subjects/topics to be Arabized, while 15.1% preferred no subject/topic to be Arabized. The least preferred subjects for Arabization were from the basic sciences, such as Histology (2.3%), and Parasitology (2.4%) (Table 6).

Factors associated with preferred curriculum language

Multivariable Firth-penalized multinomial logistic regression was used to identify factors independently associated with preferred primary curriculum language, with Arabic as the reference category (Table 7).

English vs. Arabic

Male students had lower odds of preferring English over Arabic compared to female students (AOR = 0.63; 95% CI = 0.49, 0.80). Rural residence was associated with lower odds of preferring English (AOR = 0.62; 95% CI = 0.44, 0.88). Compared to 1st-year students, those in the 2nd year (AOR = 1.46; 95% CI = 1.02, 2.09), 3rd year (AOR = 2.01; 95% CI = 1.40, 2.89), 4th year (AOR = 1.76; 95% CI = 1.25, 2.47), and 5th year (AOR = 1.76; 95% CI = 1.17, 2.65) had higher odds of preferring English. Students with English pre-university education had higher odds (AOR = 1.64; 95% CI = 1.14, 2.36), whereas those with French pre-university education had lower odds (AOR = 0.45; 95% CI = 0.28, 0.73), both compared to those with Arabic pre-university education. Students currently studying in an Arabic curriculum had markedly lower odds of preferring English (AOR = 0.14; 95% CI = 0.10, 0.19), and those in a French curriculum also had lower odds (AOR = 0.38; 95% CI = 0.26, 0.55), both compared to English curriculum students. Regarding future plans, students planning to go to a non-Arab country (AOR = 3.58; 95% CI = 2.57, 4.98) and those who had not decided yet (AOR = 1.53; 95% CI = 1.13, 2.07) had higher odds of preferring English compared to those planning to stay in their country (Table 7).

French vs. Arabic

Male students had lower odds of preferring French over Arabic compared to female students (AOR = 0.27; 95% CI = 0.13, 0.52). Compared to 1st-year students, those in the 3rd year had higher odds of preferring French (AOR = 2.51; 95% CI = 1.21, 5.23). Students currently studying in a French curriculum had substantially higher odds of preferring French (AOR = 47.87; 95% CI = 10.31, 222.25) compared to English curriculum students. Regarding future plans, students planning to go to a non-Arab country had higher odds of preferring French compared to those planning to stay in their country (AOR = 2.84; 95% CI = 1.41, 5.76) (Table 7).

Discussion

This study examined medical students' preferences toward the language of education and their attitudes toward the Arabization of the medical curriculum across four Arab regions, representing Arabic-, English-, and French-based curricula. Our findings revealed that curriculum language preferences are strongly shaped by students' current curriculum language, and vary by sex, residence, academic year, and career aspirations. Participants were most supportive of Arabizing patient-facing subjects (e.g., ethics, communication skills, medical law). The primary perceived benefits of Arabization were improved communication with patients and healthcare teams, alongside better understanding of medical concepts. Conversely, the main perceived disadvantages were making preparation for international medical exams more difficult and hindering direct access to medical advances and learning resources. Collectively, these findings provide evidence for informing language policy decisions in Arab medical education.

Regarding preferred curriculum language, a consistent pattern emerged across regions, as students tended to prefer the language in which they were already studying. The high level of support for Arabic as the primary language of the curriculum among Arabic-medium students in our study is consistent with findings from two previous studies of Arabic-medium medical students, in which approximately two-thirds preferred Arabic as the primary language of instruction [1, 2]. Among students studying in English, the 25.3% preference for Arabic in our study is comparable to the 19.5% reported in an earlier Egyptian study [12], higher than the 16.6% observed in Libya [25] and the 15% in Saudi Arabia [8], and substantially higher than the 4% reported in Bahrain [33]. Notably, among French-medium students, Arabic was the most preferred language of instruction (43.5%), surpassing French. This strong inclination toward Arabization aligns with previous studies in Algeria reporting a low preference for French in university settings [34, 35]. Ultimately, this reflects a broader trend among francophone Arab countries reconsidering their linguistic policies in higher education, characterized by a shift away from French [27].

Notably, in our study, the preference for curriculum language did not necessarily align with the preferred language of teaching and explanation. Among students who preferred English as their curriculum language, nearly half preferred Arabic for teaching, while the vast majority of those preferring Arabic and French curricula preferred the same language for teaching. This dissociation between curriculum and teaching language preferences is consistent with the well-documented practice in non-native-medium educational settings, where instructors commonly use the local language for conceptual clarification alongside the formal language of instruction [6, 12]. One explanation is that learning complex medical content through a non-native language imposes additional cognitive demands, which can be partially alleviated through explanation in the mother tongue [3, 4]. Supporting this, 96.2% of Syrian students—whose curriculum is already Arabized—preferred Arabic for instruction, demonstrating near-complete alignment between curriculum and teaching language when both rely on the native tongue.

In our study, male students were significantly more likely to prefer Arabic curriculum, consistent with reports from Egypt [12], Jordan [36], and Palestine [37], which may be due to cultural factors making Arabic identity more salient for males. Additionally, we found that rural students were significantly more

likely than urban students to prefer Arabic as the primary curriculum language. This is consistent with a study among medical students in Jordan, which found that students living in suburban areas had significantly more positive attitudes toward Arabicized medical terms compared to urban students [36]. This may reflect rural students' greater exposure to patients from lower socioeconomic backgrounds with limited English proficiency, making Arabic a more practically relevant medium of instruction for both their anticipated clinical environment and their everyday clinical interactions. Notably, improved patient communication was the most commonly perceived advantage of Arabization (66.0%) and communication skills were the second most preferred subject to be Arabized (35.0%), lending further support to this interpretation.

We also observed that higher academic years were associated with increased odds of preferring English over Arabic. This shift may reflect the cumulative effect of years of exposure to English-language medical resources that progressively familiarize students with English-medium medical education. It is also possible that students who strongly prefer Arabic face greater challenges in English-dominant systems and may be less represented in advanced years due to survival bias. This aligns with previous studies in the Arab world, where English tends to be perceived as a barrier primarily in the early years of medical training [12, 38], though our cross-sectional design cannot confirm this. Additionally, students intending to practice outside the Arab world, and even those undecided about their future career intentions, had significantly higher odds of preferring English or French over Arabic compared to those planning to remain in their home countries. This suggests a strong inverse association between international career aspirations and preference for Arabic, aligning with evidence from studies among Arab medical students that favor English due to its perceived utility in passing international examinations and accessing global career opportunities [33, 37].

The main perceived advantages of Arabization in our study included improved communication with patients and healthcare teams (66.0%), better understanding and retention of concepts (56.4%), and reduced cognitive load of studying (48.7%). Similar patterns have been reported elsewhere: students in Bahrain [33] and Morocco [39] noted that Arabic terminology facilitates patient communication, while students in Sri Lanka [15] and Saudi Arabia [8] reported enhanced comprehension when learning in their native language. Conversely, the principal perceived disadvantages centered on difficulty preparing for international medical examinations (65.6%) and reduced opportunities for working or specializing abroad (51.6%), mirroring concerns documented among students in Jordan [36], Libya [25], Palestine [37], and Saudi Arabia [8], where English-medium instruction is regarded as essential for facilitating international licensure and postgraduate mobility.

Given the heterogeneous perceptions and non-uniform preferences regarding Arabization, a rigid monolingual transition may not be universally desired. Instead, our findings support a bilingual, stepwise approach. Initial implementation could prioritize patient-facing disciplines—such as communication skills, medical ethics, and history-taking—in Arabic, while preserving English for the basic sciences. This hybrid model effectively bridges the clinical communication gap while alleviating student concerns regarding global mobility and international licensure. Empirically, such models have proven successful

within the region; integrating Arabic explanations with English terminology significantly enhances scientific comprehension [2], and bi-nomenclature pedagogy has been shown to yield superior academic performance and knowledge retention [1]. Importantly, because language preferences vary significantly across sociodemographic lines and career aspirations, institutional stakeholders conducting situational analyses must utilize representative sampling to accurately capture the diverse needs of their student bodies before enacting curricular changes.

The recommendation for a hybrid model is further reinforced by the students' concerns about Arabization, including the challenge of keeping the curriculum aligned with global medical advances (51.2%), limited faculty expertise for Arabic instruction (49.9%), and the scarcity of Arabic medical terminology and learning resources (49%). These findings suggest that hesitation toward Arabization stems, at least partially, from perceived infrastructural deficits and the fear of academic isolation, rather than a rejection of the language itself. This is highly consistent with recent data from Jordan, where the unavailability of medical references in Arabic was identified as a primary barrier to Arabicization [36]. Similar concerns were also reported by decision-makers in Saudi Arabia, who noted that translating the massive, continuously evolving volume of medical literature requires immense institutional resources and specialized faculty [7]. Together, these considerations suggest that a carefully structured bilingual approach can enhance clinical communication without compromising students' access to up-to-date knowledge or international academic and professional opportunities.

Limitations

Several limitations should be considered when interpreting the findings of this study. The cross-sectional design precludes establishing causal relationships between sociodemographic factors and language preferences. Additionally, the reliance on a self-administered online questionnaire may introduce selection bias, potentially overrepresenting students who are more digitally engaged or those with a pre-existing interest in the Arabization of medicine. We also used convenience sampling, and thus the results may not be generalizable to all medical schools or universities within each country.

Conclusion

Arab medical students exhibit conditional, subject-specific support for Arabization. Rather than full curricular translation, they strongly favor Arabic for patient-facing subjects (e.g., communication, ethics) to enhance clinical practice, but prioritize English for basic sciences to safeguard global career mobility. Preference for an Arabic curriculum is significantly associated with pre- and current university curriculum language, male sex, rural residence, earlier academic years, and intentions to pursue a local career. Ultimately, a structured bilingual model—using Arabic for patient-facing and communication subjects and English for basic sciences and clinical subjects—appears to best align with students' academic and professional aspirations.

Declarations

Author contributions

ND: Conceptualization, methodology, formal analysis, visualization, writing – original draft, writing – review & editing. YMO: Conceptualization, methodology, visualization, writing – original draft, writing – review & editing. MAE, YD: Conceptualization, data curation, writing – original draft. OJ, HA, OI: Data curation, writing – original draft. AE: Conceptualization, methodology, supervision, writing – review & editing. Medical Education Arabization Collaborative: Data collection. All authors reviewed the manuscript and approved the final version for submission.

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Disclosure statement

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Data availability statement

The data of this study is available from the corresponding author upon reasonable request.

Ethical approval and consent to participate

Ethical approval was obtained from the Institutional Research Board (IRB) of Mansoura University's Faculty of Medicine (approval code: R.25.06.3211.R2), and the study was conducted according to the principles of the Helsinki Declaration. All participants were invited to voluntarily and anonymously complete an online survey, provided electronic informed consent, and were free to respond at their convenience.

Consent for publication

Not applicable.

Clinical trial registration

Not applicable.

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Tables

Tables 1 to 7 are available in the supplementary files section

Supplementary Files

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- SupplementaryFile1StudyQuestionnaire.docx
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