

CURRICULAR REFORM AND CAREER CHOICES
OF IRAQI MEDICAL STUDENTS

إصلاح المناهج التعليمية والخيارات المهنية لدى طلاب الطب العراقيين

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ملخص البحث

هدف البحث: دراسة الخيارات المهنية لدى طلاب الطب العراقيين الذين تابعوا عملية إصلاح المناهج الدراسية، وتحديد العوامل المحفزة المؤثرة عليهم، ومقارنة النتائج مع الخيارات التي تم اختيارها خلال فترة التدريس التقليدي.

طرق البحث: تم خلال العام الدراسي 2018-2019 إشراك طلاب السنة النهائية في كلية الطب الكندي بجامعة بغداد في دراسة استبائية، تضمن الاستبيان بيانات عن الجنس واختيار الاختصاص والسبب وراء الاختيار. تم استخدام اختبار كاي مربع واختبار Student's t-test لتحليل البيانات إحصائياً.

النتائج: سجلت خيارات التخصصات السريرية نسبة أعلى إحصائياً من تخصصات العلوم الطبية الأساسية (97.4% مقابل 2.6% على الترتيب). لوحظ وجود اختلافات إحصائية بين الجنسين في اختيار التخصصات السريرية. كانت التخصصات السريرية الأكثر اختياراً لدى كلا الجنسين هي الجراحة (بنسبة 36.7%)، الطب الباطني (بنسبة 35.3%)، أمراض النساء والتوليد (بنسبة 17.7%) وطب الأطفال (بنسبة 10.2%). تم اختيار تخصصات العلوم الطبية الأساسية لدى أربعة طلاب وهي التشريح لدى طالب واحد، علم الصيدلة وعلم الأمراض وعلم الأحياء المجهرية لدى ثلاث طالبات. شكلت الرغبة الشخصية (46.7%) وتنمية مهارات الإتقان المستقبلية المتوقعة (26.6%) أهم العوامل المؤثرة في الاختيار لدى الجنسين. كما ساهمت العوامل الأخرى بشكل أقل وتضمنت القدوة الكاريزمية (13.2%)، الدخل المرتقب المرتفع (8%)، الهيبة (3.6%) وتأثير الأسرة/الصديق (1.8%). لم تكن هناك فروق إحصائية هامة بين الجنسين ($p < 0.05$).

الاستنتاجات: كان لعملية إصلاح المناهج التعليمية تأثيراً كبيراً على خيارات الطلبة وجعل خيارات التخصصات السريرية تفوق تخصصات العلوم الطبية الأساسية. يمكن لصانعي السياسات أخذ نتائج هذه الدراسة بالاعتبار لدى تخطيط نظم الدراسات العليا ونظام الرعاية الصحية في العراق.

ABSTRACT

Objective: To study career choices of Iraqi medical students who followed curricular reform, determine motivational factors influencing them, and compare the results with choices chosen in the traditional teaching.

Methods: During the academic year 2018-2019, the final-year students at Al-Kindy College of Medicine, University of Baghdad were recruited in a questionnaire

survey. The questionnaire included data on gender, choice, and reason behind selecting that preferred choice. Chi-square and unpaired Student's t-test were employed to statistically analyze data.

Results: Clinical specialties (CSs) were statistically rated higher than basic medical sciences specialties (BMSSs) (97.4% versus. 2.6%), $p < 0.001$. There were gender differences in the clinical specialties ($p < 0.001$). The most chosen CSs by both genders were surgery (36.7%), internal medicine (35.3%), gynecology and

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obstetrics (17.7%), and pediatrics (10.2%). Choices in BMSSs were chosen by 4 students, namely anatomy in one male student and pharmacology, pathology, and microbiology in three female students. Personal interest (46.7%) and anticipated future mastering skills and development (26.6%) were rated as the most influential factors to the choice in both genders. Other factors were rated less and included: charismatic role models (13.2%), anticipated higher income (8%), prestige (3.6%), and family or spouse influence (1.8%). There were no statistical gender differences ($p>0.05$).

Conclusions: *Reform seemed to influence choices and made CSs highly outnumbered BMSSs. Policy makers could consider study results in planning postgraduate studies and healthcare system in Iraq.*

INTRODUCTION

One of the most challenging decisions the undergraduate students have to take is to choose a medical specialty. The decision on a particular specialty starts during the clinical years as a student. After graduation, the second phase involves the student's specialty that constitute the basis of their professional career.¹

Choices of students are individualized and complex process. Motivational factors affecting students to pursue medical choices vary per country. Literature review on that aspect revealed that these factors were relevant to Maslow's hierarchy of needs theory of motivation. They included societal (job security, prestige, financial security), scientific (social interest and academia, interest in science/medicine, work independence, and flexible work hours), and humanitarian (serving the poor and under privileged) in high, upper-middle, and lower-middle income countries.²

In Iraq, the shortage and maldistribution of physicians by specialty is a substantial problem in the health care system due to the antecedent 40 years of continual conflict.³ Choices of Iraqi medical students who followed traditional teaching were previously studied. The study showed that clinical specialties (CSs) outnumbered basic medical sciences specialties (BMSSs) as career choices, while personal interest

and an anticipated higher income were the most determinants contributing to choices.⁴

The positive impact of curricular reform on the academic performance of students is well-understood.^{5,6} However; its impact on career choices is not yet fully-known. In Iraq, curricular reform was introduced in 2013, so that students will have less clinically related lectures, sessions, and hospital visits in the early phases while studying the basic sciences. Moreover, certain achievements were made in terms of the introduction of integral learning among different disciplines, clinical skills, small group teaching, log books, formative assessment, early clinical exposure, research modules, elective sessions, and community-based training.⁷ After six years of implementing the reform, students were graduated in 2019. We aimed in the present study to investigate choices of Iraqi medical students, determine factors influencing them, and compare results with choices chosen in traditional teaching.

METHODS

During the academic year 2018-2019, the final-year students at Al-Kindy College of Medicine, University of Baghdad, were asked to complete a self-report questionnaire. Verbal consents were taken after explaining the study design and objectives to the students. The questionnaire included the variables of gender, career choice, and the reason behind selecting choices. The statistical Package for Social Sciences (SPSS) for windows (version 17, SPSS, Chicago) was employed for the statistical analysis of data. Chi-square and unpaired Student's *t*-test were employed to test the significance between variables within each group and in different groups, respectively. The statistical significance was set at the level of $p\leq 0.05$. The scientific and ethical committee at Al-Kindy College of Medicine approved the study.

RESULTS

Out of 174 final-year students included in the study, 153 accepted to take part with a respondent rate of 87.9%. The cohort involved 56 (36.6%) males and 97 (36.4%) females, with a male to female ratio of 0.6: 1.

Their age group was 24-26 years. Willingness to pursue postgraduate studies was reported in 151 (98.7%) students, while the remaining 2 (1.3%) preferred to become general practitioners (GPs).

The study showed that CSs were statistically chosen higher in 147 (97.4%) students compared to BMSSs in 4 (2.6%), (unpaired Student's t-test, $p < 0.001$). Gender differences were statistically noticed in CSs choices (Chi-square, $p < 0.001$). The most chosen CSs by male students were surgery 36 (24.5%), internal medicine 14 (9.5%), pediatrics 3 (2%), and gynecology and obstetrics (OB-GYN) 1 (0.7%); while those most chosen by female students were internal medicine 38 (25.8%), OB-GYN 25 (17%), surgery 18 (12.2%), and pediatrics 12 (8.2%), Table 1. Only 4 (2.6%) students chose BMSSs, namely anatomy in one male student and pharmacology, pathology, and microbiology in the remaining three female students.

Matching the personal interest in 105 (46.7%) students, anticipated future mastering skills and development in 60 (26.6%) students were rated as the most influential factors to choices in both genders.

Other influencing factors were rated less and included: charismatic role models in 30 (13.2%) students, anticipated higher income in 18 (8%), prestige in 8 (3.6%), and family/or spouse influence in the remaining 4 (1.8%). There were no statistical gender differences (Chi-square, $p > 0.05$), Table 2.

Table 3 depicts summary distribution of various variables among the students following integrated teaching (present study) and traditional teaching (Al-Mendalawi study).⁴

DISCUSSION

The present study showed that 1.3% of students declined to pursue postgraduate studies and preferred to become GPs compared to 13.9% reported in students in traditional teaching, Table 3. The reason why fewer students decided to become GPs is unknown. However; it was found that poor working conditions resulting in increased dissatisfaction among GPs, decreasing prestige of GPs caused by changed personal and occupational values and attitudes within the society, and poor representation and image of general practice

Clinical specialty	Male student	Female student	Total
	No. (%)	No. (%)	No. (%)
Surgery	36 (24.5%)	18 (12.2%)	54 (36.7%)
Internal medicine	14 (9.5%)	38 (25.8%)	52 (35.3%)
Gynecology & obstetrics	1 (0.7%)	25 (17%)	26 (17.7%)
Pediatrics	3 (2%)	12 (8.2%)	15 (10.2%)
Total	54 (36.7%)	93 (63.2%)	147 (100%)

Table 1. Distribution of the chosen clinical specialties, ($p < 0.001$).

Reason	Male student	Female student	Total
	No. (%)	No. (%)	No. (%)
Personal interest	40 (17.8%)	65 (28.9%)	105 (46.7%)
Anticipated future mastering skills and development	23 (10.2%)	37 (16.4%)	60 (26.6%)
Charismatic role models	10 (4.4%)	20 (8.8%)	30 (13.2%)
Anticipated higher income	9 (4%)	9 (4%)	18 (8%)
Prestige	4 (1.8%)	4 (1.8%)	8 (3.6%)
Family or spouse influence	2 (0.9%)	2 (0.9%)	4 (1.8%)
Total	88 (39.1%)	137 (60.8%)	225 (100%)

Table 2. Distribution of the studied choices according to the reasons behind choosing choices, ($p > 0.05$).

Variable	Traditional teaching (Al-Mendalawi study) ⁴	Integrated teaching (Present study)
	No. (%)	No. (%)
Total No.	108	153
GPs	15 (13.9%)	2 (1.3%)
Pursuing a career	93 (86.1%)	151 (98.7%)
CS _s	25 (26.9%)	4 (2.6%)
BMSS _s	68 (73.1%)	147 (97.4%)
Reason behind selecting a specialty	Traditional teaching (Al-Mendalawi study) ⁴	Integrated teaching (Present study)
	No. (%)	No. (%)
Personal interest	31 (33.3%)	105 (46.7%)
Anticipated future mastering skills and development	10 (10.7%)	60 (26.6%)
Charismatic role models	7 (7.5%)	30 (13.2%)
Anticipated higher income	27 (29%)	18 (8%)
Prestige	13 (14%)	8 (3.6%)
Family or spouse influence	5 (5.4%)	4 (1.8%)

GPs: General practitioners, CS_s: Clinical specialties, BMSS_s: Basic medical sciences specialties.

Table 3. Distribution of various variables among the students following integrated teaching (present study) and traditional teaching.

as a discipline within the medical curriculum could influence students' decision to become GPs.⁸

The present study revealed that CSs were statistically chosen higher in 97.4% of students compared to 2.6% for BMSSs ($p < 0.001$). Among students in traditional teaching,⁴ CSs (73.1%) were rated higher than BMSSs (26.9%), Table 3. Gender differences were statistically noticed in CSs choices in the present study ($p < 0.001$). The most chosen CSs by male students were surgery (24.5%), internal medicine (9.5%), pediatrics (2%), and OB-GYN (0.7%); while those most chosen by female students were internal medicine (25.8%), OB-GYN (17%), surgery (12.2%), and pediatrics (8.2%), Table 1. Among students in traditional teaching,⁴ gender differences were statistically noticed in CSs choices. Male students preponderantly choose surgery (25%), internal medicine (20.6%), pediatrics (16.2%), and OB-GYN (1.5%); while OB-GYN (19.1%), pediatrics (8.8%), and internal medicine (8.8%), were predominantly chosen by female students.⁴ There is a correlation between students' gender and their preferred choices. It has been found that among female gender only, "technical and research specialty" was associated

negatively with choice for general medicine/family medicine (GM/FM) and OB-GYN, and "job security" was associated positively for GM/FM and negatively for psychology. However, among male gender only, "educational experience" and "personal reasons" were positively, and "job security" was negatively associated with choice for pediatrics. For both genders, "work-life balance" was associated positively with choice for controllable lifestyle specialties.⁹

In the present study, only 4 (2.6%) students chose BMSSs, namely anatomy in one male student and pharmacology, pathology, and microbiology in the remaining three female students. Among BMSSs chosen in students in traditional teaching,⁴ statistical gender differences were found. The most preferred choices chosen by male students were microbiology (12%), physiology (8%), anatomy (8%), pharmacology (8%), pathology (4%), and biochemistry (4%), while those most chosen by female students were microbiology (20%), pharmacology (16%), pathology (12%), physiology (4%), and biochemistry (4%).⁴ The low motivation of students to choose BMSSs in the present study could be attributed to the early recruitment of students into the

hospital atmosphere as a part of “early clinical exposure”, an important element introduced into the reform. This recruitment has probably inspired students to choose CSs more than BMSSs. This explanation is supported by the observation that students in the clinical phase of their study were found to be three times more likely to report on their choice decision-making compared to students in the basic medical sciences phase.¹⁰

In the present study, matching the personal interest (46.7%) and anticipated future mastering skills and development (26.6%) were rated as the most influential factors to choices in both genders. Other influencing factors were rated less, namely charismatic role models (13.2%), anticipated higher income (8%), prestige (3.6%), and family/or spouse influence (1.8%). There were no statistical gender differences ($p>0.05$), Table 2. Among students in traditional teaching,⁴ matching the personal interest (33.3%) and anticipated higher income (29%) were ranked as the most determinants controlling choices in both genders. Other determinants were prestige (14%), anticipated future mastering skills and development (10.7%), charismatic role models (7.5%), and family/or spouse influence (5.4%), Table 3. No statistical gender differences were noted. Various studies have shown that personal interest continues to represent the most common reason for choosing a particular specialty.¹¹⁻¹³ However; this interest is not perpetual and might alter later in life on exposure to work experiences.

In Iraq, medical education has greatly eroded due to wars, violence, limited resources, corruption, poor administration, political and socioeconomic instability, and mass exodus of teaching staff. Efforts are continuously made to reform medical teaching, promoting medical skills, setting opportunities for development, and building a new healthcare system. These efforts have probably inspired students to anticipate future mastering skills and development and ranked it as the second most common reason in choosing choices (26.6%).

Charismatic role models (13.2%) was the third most common reason affecting choice selection. Actually, role

models with professional attitudes and expertise in their specialty are influential on selecting students' choice across generations. A doctoral thesis and project and electives have also affected students' decisions, mainly due to the meeting a role model in their supervisor.¹⁴

Personality type of students could influence their career choices. For instance, extroverted-sensing-feeling-perceptive (2.8%), extroverted-sensing-thinking-judging (3%), extroverted-sensing-feeling-judging (1.3%), introverted-sensing-feeling-judging (1.5%), introverted-sensing-thinking-perceptive (1.8%) were found to have the preference for surgery, medicine, OB-GYN, pediatrics, and cardiology, respectively.¹⁵ Regrettably, the personality of the students in the present study could not be assessed.

In reform, clerkships were encouraged to introduce active learning principles, improve medical students' performance on external examinations, and enhance their clinical skills. Clerkships could play a vital role in the identification of the future physicians.¹⁶⁻¹⁸ Clinical experience through attending clerkships has been noticed to affect students' choices. The main predictor of choices was positive evaluation of work-intrinsic factors in terms of work content, type of patients, and lifestyle options.¹⁹

The present study has the following limitation. It was carried out in a single medical college and, therefore, study results can't be considered representative of the students in all medical colleges in Iraq.

CONCLUSIONS

The present study revealed that CSs greatly exceeded BMSSs as preferred choices. Personal interest and anticipated future mastering skills and development were the main factors contributing to career choices. We believe that changing choices is likely related to the reform. From a practical perspective, the study results must not be taken as dogma but do provide a guide to students and clerkships. Policy makers could take into consideration the study results in setting a balance among foreseeable choices of students, health care needs of the community, and introducing postgraduate

studies. Additional studies recruiting more students from other medical colleges across the country are suggested.

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