



Medical Students' Attitudes and Awareness toward Teaching and Participation in Formal Clinical Teaching in Iraq

Hussain Alsaffar^{1,2,3} Wasnaa Hadi Abdullah⁴ Nabeeha Najatee Akram⁴ Haider Nadhim³ Mayameen H. Salman⁵ Amal Adnan Laylani⁶ Farah Sameer Yahya⁷ Ali Ibrahim Rahim^{8,9} Aso Salih¹⁰ Duralhassan Jassim¹¹ Houreleen H. Salman¹² Hind Mutar Ibrahim¹³ Khalaf Gargary¹⁴ Ahmad Khalil Ibrahim¹⁹ Adyan Alsayegh¹⁵ Maysaa Nihad Ibrahim¹⁶ Jaafar D. Al-Dabagh¹⁷ Sawsan Issa Habeeb¹⁸

¹ Child Health Department, Paediatric Endocrine and Diabetes Unit, Sultan Qaboos University Hospital, Muscat, Oman

² Child Health Department, College of Medicine and Health Sciences, Sultan Qaboos University, Oman

³ Paediatric Department, College of Medicine, University of Wasit, Kut, Iraq

⁴ Paediatric Department, College of Medicine, Mustansiriyah University, Baghdad, Iraq

⁵ College of Medicine, University of Wasit, Iraq

⁶ Pediatric Department, Azadi Teaching Hospital, Kirkuk, Iraq

⁷ Department of Pediatrics, College of Medicine, University of Mosul, Mosul, Iraq

⁸ College of Medicine, University of Al-Ameed, Karbala, Iraq

⁹ IVF Center, Al-Kafeel Super-Specialty Hospital, Karbala, Iraq

¹⁰ Pediatric Department, College of Medicine, Sulaimani University, Al Sulaimaniyah, Iraq

Address for correspondence Hussain Alsaffar, FRCPCH, Child Health Department, Sultan Qaboos University Hospital, Muscat, Oman (e-mail: Hussaina@squ.edu.om).

¹¹ University of Kufa - College of Medicine, Najaf, Iraq

¹² Baghdad Teaching Hospital, Baghdad, Iraq

¹³ Paediatric Department, College of Medicine, University of Tikrit

¹⁴ University of Duhok, Dahuk, Iraq

¹⁵ College of Medicine, Jabir Ibn Hayyan Medical University, Najaf, Iraq

¹⁶ Paediatric Department, College of Medicine, Al-Iraqia University, Baghdad, Iraq

¹⁷ Medical Student at University of Baghdad, Faculty of Medicine, Baghdad, Iraq

¹⁸ Pediatrics, College of Medicine, University of Basrah, Basra, Iraq

¹⁹ Department of Pediatrics, College of Medicine, University of Ninawa, Iraq

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Abstract

Objective Clinical teaching is essential for the continuity of education of health care professionals. Developing teaching skills is highly required to communicate efficiently and transfer experience and knowledge to others. To our knowledge, medical students across Iraq did not give their perception of clinical teaching in a comprehensive way. Therefore, the aim of this study is to understand our students' perception of clinical teaching and to learn from their responses what subtypes of clinical teaching they may desire the most.

Materials and Methods An online survey was distributed among medical students in Iraqi universities between February and April 2022.

Results In all, 2,562 students (1,567 females and 995 males) responded from 24 of 26 colleges of medicine in Iraq. The majority of responders were senior students. In total, 73.3% of our students had no previous experience in teaching. Those willing to work in a teaching or academic hospital comprised 84.2% of the students, and 1,563 students

Keywords

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were interested in pursuing “clinical teaching” for medical students/residents upon completion of residency. Collective confidence in teaching abilities was rated as 3.4 out of 5. In total, 1,505 medical students felt they would be interested to have an elective period in medical education, and the majority voted for a 1-month period. Male students perceived more confidence in their variable teaching abilities compared to females ($p < 0.05$).

Conclusion This is the first study among Iraqi medical students that revealed a desire to avail of a 4-week elective in clinical teaching and become incorporated within the undergraduate curriculum of medical schools in Iraq.

Introduction

Clinical teaching is essential for the continuity of education of health care professionals. It is a way of communication between students and teachers outside the traditional didactic scope. All physicians, at some point during their careers, are responsible for teaching their peers or juniors.¹ Therefore, they are required, somehow at some point, to develop a teaching skill to communicate their knowledge efficiently. Otherwise, they will face difficulty in transferring their experience and knowledge. Hence, like any other life skill, early development and acquisition of skills with repetitive exposure may result in a good gain of efficiency and efficacy.

To our knowledge, medical students at different colleges of medicine across Iraq needed to give their clinical teaching perception comprehensively. Therefore, we have decided to conduct this study collaboratively between representatives from different Iraqi universities, aiming to understand our students' perception of clinical teaching. This study recommends, to the educational authorities, some improvement plans, when necessary, to help our students develop their clinical teaching skills. The results of this study will be compared with results from a Canadian study, where 321 students from 13 of 17 Canadian medical schools demonstrated their interest in clinical teaching. No previous similar study was conducted in one of our neighboring countries to be used for comparison. The Canadian medical students had shown a lack of confidence in performing clinical teaching when they were surveyed in 2017. They needed some support; hence, they welcomed a 2-week elective period designated for medical teaching during their undergraduate course.²

Medical students generally see electives as a valuable and essential period during their undergraduate course,³ where they do have a choice on what to learn. It would be interesting to shed light on our students' willingness to use their electives in clinical teaching when possible and to learn from their responses what subtypes of clinical teaching they may desire the most. It is of great value that medical students develop different concepts in medical education: understanding teaching philosophy, learning theories and their application, teaching session planning, presentation skills, feedback/reflection, facilitating simulation sessions, etc. Moreover, the most important is getting their perception and being ready to take their opinion, as students' input matters heavily in the change process.⁴

Materials and Methods

An online survey using the SurveyMonkey platform was used to collect data. The questionnaire consists of 17 questions, including demographics, previous experience of teaching, confidence in delivering different teaching styles, and willingness to have an incorporated module of clinical teaching as an elective in the undergraduate curriculum. The first meeting between researchers was online using the Zoom platform in November 2021. The questions and how to distribute the survey link were agreed on during the meeting. Further meetings took place later to discuss this research's progress and answer any queries. Ethical approval was obtained from each participating university's research and ethics committee; each involved representative was responsible for achieving the approval of his or her institute. Participants in the survey gave informed consent, and they had the right to not respond or withdraw at any time. The survey was written in Arabic and English, the mother tongue and primary language used for teaching in universities, respectively. Written consent was taken from the original researchers who used this survey in the Canadian study to use the same survey in our cohort.

Further validation was performed. The reliability of the questionnaire was estimated using the test-retest approach with 18 responders. Cohen's kappa showed substantial agreement with Cohen's κ of 0.7, for which the questionnaire was considered reliable. Data were then collected centrally and analyzed using the preliminary analysis of the SurveyMonkey platform, which gives some descriptive analysis, followed by further analysis using Social Science Statistics to identify the statistical significance.⁵ A p -value of less than 0.05 was considered statistically significant. Data collection began in February 2022 and was completed 2 months later. A single-entry option from each device was activated through the survey platform to avoid multiple entries by the same person.

Results

Participants' Characteristics

The respondents were 2,562 students (1,567 females and 995 males) from 24 of 26 colleges of medicine in Iraqi universities (**► Table 1**). Most responses came first from Mustansiriyah University (580, 22.6%), followed by the University of Wasit

Table 1 Demographics of respondents

Characteristics of participants	n (%)
Total number of participants	2,562
Gender	
Male	995 (38.8)
Female	1,567 (61.2)
Grade	
Year 1	198 (7.7)
Year 2	183 (7.1)
Year 3	250 (9.8)
Year 4	691 (26.9)
Year 5	673 (26.3)
Year 6	567 (22.1)
University	
Mustansiriyah University, Baghdad	580 (22.6)
University of Wasit	239 (9.3)
University of Kirkuk College of Medicine	207 (8.1)
University of Mosul College of Medicine	194 (7.6)
University of Alameed, Karbala	185 (7.2)
University of Sulaimani, Sulaymaniyah	185 (7.2)
University of Kufa	145 (5.7)
Thi-Qar University College of Medicine, Nasiriyah	144 (5.6)
Tikrit University	129 (5)
University of Duhok	111 (4.3)
Ninevah University, Mosul	98 (3.8)
Jabir ibn Hayyan Medical University, Kufa	97 (3.8)
Al-Iraqia University College of Medicine, Baghdad	82 (3.2)
University of Baghdad College of Medicine	66 (2.6)
Basrah Medical College	57 (2.2)
University of Babylon, Hillah	24 (0.9)
Al-Nahrain University, Baghdad	4 (0.2)
Al-Kindy College of Medicine, University of Baghdad	3 (0.1)
University of Anbar, Ramadi	3 (0.1)
Ibn Sina University for Medical and Pharmaceutical Sciences, Baghdad	3 (0.1)
Hawler Medical University, Erbil	2 (0.1)
University of Fallujah	2 (0.1)
University of Kerbala College of Medicine	1 (0.1)
University of Misan Faculty of Medicine, Amarah	1 (0.1)

(239, 9.3%) and the University of Kirkuk College of Medicine (201, 8.1%). Responses were received from medical students across different years of their course (years 1–6), with a

majority from the final year students: 567 (22%) from the sixth year students, 673 (26.3%) from the fifth year students, and 691 (26.9%) from the fourth-year medical students. Most students (870, 33.9%) still needed to choose a future specialty. However, a quarter of respondents were willing to specialize in surgery or one of its branches, and 400 students favored medicine, whereas 172 and 136 were willing to be either pediatricians or obstetricians, respectively.

Three-quarters of the students had yet to gain experience in teaching (1,880, 73.3%). Of 682 students with previous experience in teaching, 461 were tutors for peers, 66 were lecturers, and 24 were assistant teachers.

In all, 84.2% of responders were willing to work in a teaching or academic hospital, and 1,563 students were interested in pursuing clinical teaching for medical students/residents upon completion of residency. One thousand and twelve had an intrinsic interest in teaching others, 617 were willing to teach others to increase their confidence in teaching, 365 favored academic advancement, whereas 313 and 215 were motivated to teach because of a desire to “give back” and because of prestige, respectively. Collective confidence in teaching abilities was rated as 3.4 out of 5. **Table 2** describes the perceived confidence in teaching abilities. One thousand three hundred and twenty-four students felt confident in facilitating small group sessions. However, the number of confident students declined with other styles of teaching, such as presentations or performing bedside teaching, teaching sensitive issues with communication skills, and giving verbal or written feedback. When asked about presenting at a journal club, students’ confidence was reduced dramatically.

Most students (78.8%) reported that their universities were not allowing them to have an elective period during their final undergraduate years. However, 1,505 medical students felt they would be interested in having an elective period in medical education. For those who did not express their interest in doing electives in medical education or clinical teaching, they either pointed out having other interests (241 students) or were not interested in this subject at all (118 students). The other 44 students gave a variety of reasons. In all, 1,184 students thought having an elective of 1 month in medical education would be appropriate, whereas 366 students thought a 2-week period is enough, and 96 students went for 1 week. **Fig. 1** illustrates the choices of students for which topics in clinical teaching they would be interested to learn in their elective. The majority were interested in developing their bedside teaching skills.

Students’ Responses by Gender

There was variability in responses based on the gender of the medical students. Some of the responses showed a statistical significance on which we shed light. Most of the responders were female students (1,567 vs. 995 male students). The interest in future specialty program selection varied significantly. Twenty-one percent and 35.2% of male responders were willing to specialize in medicine and surgery, respectively, compared to 12.2 and 20.3% of female students, with a statistical significance ($p < 0.05$). More female students are

Table 2 Description of the perceived confidence in teaching abilities

	Strongly disagreed, N (%)	Disagree, N (%)	Neutral, N (%)	Agree, N (%)	Strongly agree, N (%)	Agree and strongly agree	Weighted average
I feel confident giving presentations	72 (3.52)	116 (5.68)	838 (41.02)	724 (34)	293 (14.34)	49.7%	0.51
I feel confident facilitating small group sessions	39 (1.91)	121 (5.92)	560 (27.4)	986 (48.24)	338 (16.54)	64.8%	0.72
I feel confident performing bedside teaching	50 (2.46)	165 (8.11)	736 (36.18)	835 (41.05)	248 (12.19)	53.2%	0.52
I feel confident teaching about sensitive issues, communication, and ethics	62 (3.04)	192 (9.42)	630 (30.9)	812 (39.82)	343 (16.82)	56.6%	0.58
I feel confident presenting at a journal club	62 (3.05)	266 (13.1)	831 (40.94)	664 (32.71)	207 (10.2)	42.9%	0.34
I feel confident giving verbal feedback	53 (2.61)	196 (9.66)	689 (33.96)	857 (42.24)	234 (11.53)	53.8%	0.5
I feel confident giving written feedback	41 (2.02)	174 (8.59)	717 (35.4)	841 (41.53)	252 (12.44)	53.9%	0.54
						Answered	2,052
						Skipped	510

willing to do pediatrics or obstetrics and gynecology (8.1 and 8.5% vs. 4.5 and 0.3%, respectively; $p < 0.05$). Male students had more prior experience in teaching compared to females (34.7 vs. 21.4%, $p < 0.05$), with overall more male lecturers (15.3 vs. 8.6%, $p < 0.05$). Male students were significantly higher than female students in wishing to pursue clinical teaching for medical students/residents upon completion of the residency (82.1 vs. 72.4%, $p < 0.05$). Academic advance-

ment was the primary motivation among male students (26.1 vs. 17.7%, $p < 0.05$), followed by a desire to give back (23.3 vs. 14.6%, $p < 0.05$). Males perceived more confidence in their varying teaching abilities than females ($p < 0.05$). Three hundred and fifty-nine female students were not interested in medical education as an elective compared to 188 male students (28.6 vs. 23.7%, $p < 0.05$). Among the group of students who were not interested in this elective, more

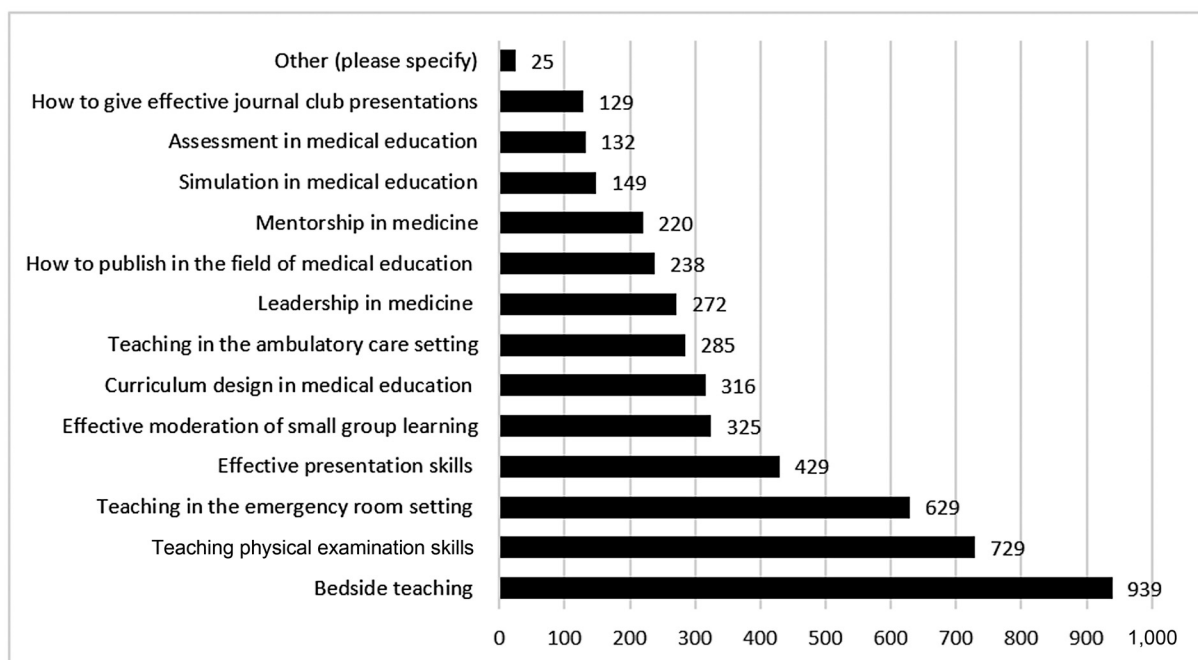
**Fig. 1** Preferred clinical teaching elective topics.

Table 3 Preferred elective topics based on gender

Elective topic	Male students (n = 652)	Female students (n = 1,002)	Total responders	Statistical significance <i>p</i> < 0.05 is significant
	N (%)	N (%)		
Bedside teaching	416 (63.8)	523 (52.2)	939	<0.001
Teaching physical examination skills	307 (47.1)	422 (42.1)	729	<0.001
Effective moderation of small group learning	139 (21.3)	186 (18.6)	325	0.167
Mentorship in medicine	109 (16.7)	111 (11.1)	220	<0.001
Effective presentation skills	169 (25.9)	260 (25.9)	429	0.99
Simulation in medical education	74 (11.4)	75 (7.5)	149	0.007
Leadership in medicine	120 (18.4)	152 (15.2)	272	0.08
Assessment in medical education	69 (10.6)	63 (6.3)	132	0.001
Teaching in the ambulatory care setting	100 (15.3)	185 (18.5)	285	0.1
Teaching in the emergency room setting	214 (32.8)	415 (41.1)	629	0.004
How to give effective journal club presentations	51 (7.8)	78 (7.8)	129	0.97
Curriculum design in medical education	141 (21.6)	175 (17.5)	316	0.357
How to publish in the field of medical education	100 (15.3)	138 (13.8)	238	0.37
Others	10 (1.5)	15 (1.5)	25	0.95

male students felt such an elective was a waste of time (5.5 vs. 1.6%, $p < 0.05$; ►Table 3).

Medical Students' Views by Seniority

Years 4 to 6

There were 1,931 responders in years 4 to 6 of their undergraduate course. No statistical significance was noted in the sex distribution among this group of students, their prior experience of teaching, their interest in future working within teaching hospitals, or their interest in teaching juniors. It was noted that fourth-year students were significantly more willing to specialize in medicine than sixth-year students (20 vs. 14.6%, $p < 0.05$). Fifth-year students seemed to be doing more peer tutoring than students in other grades, 90.1 versus 81.1 and 75.8% of sixth and fourth-year students ($p < 0.05$). Fourth-year students assisted teachers more than fifth-year students (7.6 vs. 1.8%, $p < 0.05$). Confidence in facilitating small group sessions was more among year 5 and 6 students compared to year 4 students (54 and 50 vs. 42%, respectively, $p < 0.05$). The higher the seniority, the higher the confidence in giving feedback or performing bedside teaching ($p < 0.05$).

Years 5 and 6

In total, there were 1,240 students in their final two years (years 5 and 6), consisting of 500 males and 740 females). Only 28.2% had previous experience in teaching (86% peer tutors, 11.9% lecturers, and 2.7% assistant teachers). Eighty-four percent were planning to work in an academic hospital. Those interested in teaching in the future comprised 75.8% students, and 60% had an intrinsic factor behind their passion

for teaching. Confidence in teaching abilities was rated 3.5 out of 5. Seventy-two percent were interested in having an elective in medical education. While 68.8% suggested 4 weeks for this elective, the majority (61.6%) wanted to expand their skills in bedside teaching.

Impact of Previous Experience in Teaching

In all, 682/2,562 (26.6%) of responders, comprising, 346 males and 336 females, had some previous experience of teaching. Captivatingly, determining which specialty to choose in the future was better among the group with previous experience in teaching than among the group with no experience (70.4 vs. 64.4%, $p < 0.05$). A similar observation was noted among those who willing to specialize in surgery (29.6 vs. 24.7%, $p < 0.05$) and emergency medicine (1.6 vs. 0.69%, $p < 0.05$). The first group also had more interest in working in an academic hospital (87.3 vs. 82.9%, $p < 0.05$) and was more willing to continue teaching in the future (89.6 vs. 71%, $p < 0.05$). Intrinsic interest, prestige, and increasing confidence in teaching were the primary motivations for this group of students who had previous experience in teaching. Also, they had undertaken research in medical education (40.5 vs. 32.8%, $p < 0.05$). Their perceived confidence in teaching abilities was higher among others in all different types and styles ($p < 0.05$). Not surprisingly, the vast majority, 80.9% of this group, are interested in taking electives in medical education if available, compared to 70.4% of the students who have no previous experience in teaching ($p < 0.05$). Interestingly, the non-previously expert students suggested a longer duration of the elective in medical education of 1 month (72.5 vs. 65.7%, $p < 0.05$). The desire of the expert group to

Table 4 Response of medical students to a selection of preferred topics in medical education for the electives based on their former experience in teaching (answered by 1,654 students and skipped by 908 others)

Elective topic	Previous experience in teaching (n = 473)	No previous experience in teaching (n = 1,181)	Total responders	Statistical significance p < 0.05 is significant
	N (%)	N (%)		
Bedside teaching	290 (61.3)	649 (54.9)	939	0.01
Teaching physical examination skills	210 (44.4)	519 (43.9)	729	0.86
Effective moderation of small group learning	122 (25.8)	203 (17.2)	325	<0.001
Mentorship in medicine	73 (15.4)	147 (12.5)	220	0.1
Effective presentation skills	160 (33.8)	269 (22.8)	429	<0.001
Simulation in medical education	60 (12.7)	89 (7.5)	149	<0.001
Leadership in medicine	98 (20.7)	174 (14.7)	272	0.002
Assessment in medical education	41 (8.7)	91 (7.7)	132	0.51
Teaching in the ambulatory care setting	80 (16.9)	205 (17.4)	285	0.82
Teaching in the emergency room setting	166 (35.1)	463 (39.2)	629	0.11
How to give effective journal club presentations	44 (9.3)	85 (7.2)	129	0.14
Curriculum design in medical education	116 (24.5)	200 (16.9)	316	<0.001
How to publish in the field of medical education	86 (18.2)	152 (12.8)	238	0.005

go for bedside teaching, moderating small group sessions, presentation skills, simulation in medical education, leadership in medicine, curriculum designing in medical education, and how to publish in the field of medical education was statistically significant ($p < 0.05$) and details can be seen in ► **Table 4**.

Discussion

By graduating from medical school, junior doctors are generally expected to have gained some teaching skills, for which they are expected to get engaged in the educational program and participate in educating others during their residency.¹ Therefore, it was proposed almost 20 years ago to incorporate medical education into the undergraduate curriculum.⁶ Iraqi medical students still need to receive formal training during their undergraduate courses. This study is to reveal the willingness of Iraqi medical students from different universities to have formal training in clinical teaching during their course.

Our study demonstrated that about a quarter of the total surveyed students and 28.2% of the senior students have a previous experience in teaching, compared to 74% of the Canadian senior medical students who reported previous teaching experience.² This is a marked difference between the two cohorts, and considerable attention must be paid to this because a lack of previous experience in teaching combined with the absence of formal training in medical school about clinical teaching may result in worsened outcomes postgraduation. A previous review of 30 studies analyzed the impact of teaching experience, had concluded that teaching experience matters as it is associated with

better student achievement.⁷ Therefore, having a culture and opportunity in Iraq to encourage young adults to get involved in teaching may help give our medical students some experience and skills even before or soon after joining their medical school. Thereafter, the elective medical education programs will solidify their skills, consolidating them and building up on the basics they have, which could be better than starting from scratch.

Three-quarters of Iraqi students (75.8%) are interested in pursuing clinical teaching for medical students/residents upon completion of residency, compared to 95% of the surveyed Canadian students. The passion of Iraqi medical students to deliver clinical teaching in their careers is less than that of Canadian students; 57.6% of our senior students felt confident in conducting bedside teaching, compared to only 47% of the Canadian students. Only 41% of our students and 42% of the Canadian students were comfortable in the journal club teaching activity, which is an expected competency in residency. Lack of passion among a quarter of our responding medical students warrants further elucidation. Some expected contributing factors include a deficit in orientation and signposting, lack of support, and nonexistence of formal clinical teaching electives, which could play a major role in shifting the paradigm, as we predict.

Eighty-four percent of respondents are planning to work in an academic or teaching hospital; these facilities are distinguished from other health care facilities by the quality and quantity of teaching, education, and research, for which there are higher expectations from the junior doctors in their education engagement, and therefore their clinical teaching skills.

Similar response rates were found in Iraqi and senior Canadian students about taking an elective in medical education if it became available, 72 vs. 75%, respectively. Most Canadian students suggested 2 weeks for the elective of medical education, whereas 68.8% of Iraqi respondents suggested 4 weeks. A 4-week elective in medical education was previously considered adequate by other cohort of learners in another study.⁸

There are some limitations of our study as we are yet to get a response from all Iraqi universities. A few responses were received from some other universities—there are no similar studies from the Middle East to give us a chance for a better comparison.

Conclusion

This is the first study among Iraqi medical students that revealed a desire to avail of a 4-week elective in clinical teaching and become incorporated within the undergraduate curriculum of medical schools in Iraq. Most Iraqi medical students are willing to be recruited in academic or teaching hospitals in the future, and they are passionate about improving their teaching skills.

Author Contributions

H.A. coordinated the study, designed the survey, obtained permission to reuse the Canadian study, and analyzed the data. All the co-authors obtained ethical approvals from each university, distributed the questionnaires, and collected data. H.A. and W.H.A. drafted the manuscript. All the others reviewed the manuscript and approved its final version.

Compliance with Ethical Principles

The study was approved by the ethics committee from each institute, and we distributed our questionnaires. Informed consent was received from the participants before they took the questionnaire.

Funding and Sponsorship

None.

Conflict of Interest

None declared.

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