Archives of Dental Research 2024;14(2):92–98

Content available at: https://www.ipinnovative.com/open-access-journals

Archives of Dental Research

Journal homepage: https://www.adr.org.in/

Original Research Article

Comparing the curriculum and academic structure of the Iraqi college of dentistry with Arab Universities, and conducting satisfaction surveys among Iraqi dentistry students and alumni

Sundus Abdull Wadood Aljazaeri[1]*, Reham Adnan Radhi[1], Husain lafta Abbas[2], Abbas Hafidh Abd Alzahra[2], Abbas Dawood Abdulnabi[2], Abdullah Ayoub Raheem[2], Ahmed Abdulmotleb Saiwan[2]

[1]*Dept. of Oral and Maxillofacial Surgery, University of Basrah, College of Dentistry, Basrah, Iraq*
[2]*Basra Health Department, Basrah, Iraq*

ARTICLE INFO

Article history:
Received 06-07-2024
Accepted 27-09-2024
Available online 23-12-2024

Keywords:
Bachelor of Dental Surgery (BDS)
American Dental Association (ADA)

ABSTRACT

Background: The Iraqi dental education program follows a standardized curriculum derived from the original College of Dentistry in Baghdad, which has undergone some recent revisions.
Aims: to determine the effectiveness of the Iraqi dental education program, identify areas for improvement, compare the program to an Arabic university and assess the satisfaction of graduates.
Materials and Methods: A comparative analysis was conducted at the College of Dentistry at the University of Basra in the academic year 2022-2023 between the curriculum of Basrah dental curriculum and that of four Arab dental colleges, involving 466 graduates and students from Iraqi dental colleges.
Result: Iraq's College of Dentistry follows an annual study system with a unified curriculum, which differs from Arab colleges; that follow the semester study system; in terms of basic sciences, pre-clinical dental subjects, clinical subjects, and clinical dental curricula. In contrast, basic sciences are taught in a preparatory year before studying in three Arab colleges, while basic medical sciences are taught in the first three years in all colleges except Iraq. A study of students and practising dentists from 466 dental colleges in Iraq found that the College of Dentistry was not the right place for students to study the first level of basic science. The program failed to effectively prepare students for the workplace.
Conclusion: Dental colleges need to change to the semester system instead of the annual one. The curricula need to be reviewed intensively in terms of the types of curricula and their distribution to the stages. Introducing a preparatory year for basic sciences before studying in dental colleges. Limiting the medical sciences in the first and second years. The third year is concentrated on preclinical for all dental subjects and the fourth and fifth years include all clinical dentistry with the addition of curricula such as research methodology, artificial intelligence approaches, medical ethics, patient rights and effective communication that can help dentistry colleges graduate students with well-rounded skills.

This is an Open Access (OA) journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International, which allows others to remix, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

1.1. Dental education in Iraq

In Iraq, dental education follows an annual calendar that typically spans from October to July. After finishing their studies, graduates must complete a one-year internship

* *Corresponding author*.
E-mail address: sundus.nima@uobasrah.edu.iq (S. A. W. Aljazaeri).

https://doi.org/10.18231/j.adr.2024.016
2277-3401/© 2024 Author(s), Published by Innovative Publication.

to gain practical experience before they can practice as licensed dentists.[1]

Although research on the effectiveness of dental education in Iraq is limited, existing studies suggest that while the curriculum provides sufficient knowledge and skills, it could benefit from improvements in evidence-based dentistry and critical thinking development.[2]

There is also increasing support for integrating innovative teaching methods, such as problem-based and case-based learning, to better equip students for real-world practice. Nonetheless, the profession in Iraq continues to face challenges, particularly in areas like educational investment and access to dental care.[2,3]

Different countries have their dental education systems. In Iraq, students earn a Bachelor of Dental Surgery (BDS) after five years, followed by a two-year internship without a licensing exam. By contrast, countries like Saudi Arabia, the UAE, and Jordan require five years of study as well, but graduates must pass a licensing exam to practice.[4–7] In Lebanon and Egypt, dental students complete six years of study, and a one-year internship, and must also pass a licensing exam to become licensed dentists.[8,9] In Iraq, the graduated student gets a bachelor's degree in dental surgery (BDS) after five years of dental college, the program course is divided into theoretical and applied components, to become licensed dentists, graduates must complete a two-year internship without a licensing examination.

Dental colleges use various academic structures. In the Annual System, students take exams at the end of each of two semesters, with a final exam that covers all the material. The Semester System splits the year into two 16-week terms, with exams at the end of each.[10] The Trimester System divides the year into three periods of 10-12 weeks, followed by exams.[11] Another method is the Modular System, which allows students to move through smaller, more focused units at their own pace.[12] Meanwhile, the Bologna System, common in Europe, structures higher education into bachelor's, master's, and doctorate degrees, focusing on standardizing education and improving student mobility.[13]

2. Aims and Objectives

The goal of this research is to identify weaknesses in the educational system and curriculum of the dental college by comparing it with curricula from other Arabic institutions that have international accreditation. A survey was sent to students and graduates to gather their opinions on the subject. The research aims to provide recommendations and solutions to improve the curriculum.

3. Materials and Methods

Following the guidelines for research involving human subjects, the Basrah Dental College Institutional Ethics Committee approved this study. To thoroughly evaluate the performance of the dentistry curriculum at the Iraqi Dental Colleges.

3.1. Curriculum comparison

Institutions with international academic accreditation dental colleges were chosen from the Arab Gulf, Egypt, and Jordan to compare the Basrah Dental College curriculum with the curricula of these colleges. The University of the Kingdom of Jordan (Jordan), King Saud University (Saudi Arabia), Ajman University (UAE), and Cairo University (Egypt) were the institutions selected. These colleges' curricula were taken from their websites for comparison.

3.2. Questionnaire

Information on the efficacy of the program was gathered using a closed-ended questionnaire with no need for a Likert Scale. During the academic years 2022–2023, the study was conducted at the University of Basrah, College of Dentistry. Based on the researcher's conclusions regarding the efficacy of the Iraqi curriculum, the questionnaire for this study was developed and authorized by other studies.[3,14–16] Online surveys with 15 questions were distributed to Iraqi dentists (specialists and practising), and fourth- and fifth-year dental students.

3.3. Statistical analysis

Descriptive statistical analyses of the data were performed as part of SPSS Statistical Version 29. Statistically significant differences were determined when the p-value was less than 0.05.

4. Results

4.1. Curriculum comparison

The curriculum of the College of Dentistry in Iraq when compared with the curricula of respectable dental colleges in the following: the University of the Kingdom of Jordan (Jordan), King Saud University (Saudi Arabia), Sharjah University (UAE), and Cairo University were the institutions selected (Egypt). These colleges' curricula were taken from their websites for comparison. Dental colleges in Iraq follow a unified curriculum approved by the Committee of Deans of Dental Colleges in Iraq. Comparing the Iraqi dental curriculum with the curricula of Arab colleges that have been chosen shows that:

1. **First year :** the subjects of the first stage in all Arab colleges do not include basic sciences except Jordan College in which the curriculum includes three basic sciences (chemistry, physics, and biology), in Iraq the first stage includes all basic sciences in addition to human anatomy and dental anatomy.

2. **Second year :** subjects that were covered in the first year in Ajman, Saudia and Jourden colleges are same studied in the second year in Iraq and Jordan, while the second year in Ajman and King Saud included most of the medical sciences, and in Cairo included some of the medical sciences.
3. **Third year :** In Ajman and King Saud College all the pre-clinical dental subjects are covered with the remains of the medical science, in Cairo College the curriculum covers five dental subjects with medical sciences subjects but in Iraq and Jordan the third stage includes three to four preclinical dental subjects only with basic and medical sciences.
4. **Fourth stage:** all clinical subjects are studied in Arab dental colleges, in Iraqi dental colleges have only four clinical dental subjects covered (oral surgery, prosthodontic, periodontic and conservative dentistry) in addition to basic medical sciences like (oral pathology, general surgery, and general medicine), which are included in the first three years in Arab colleges.
5. **Fifth year :** Ajman and Saudia dental colleges, the clinical component of dentistry as well as the most advanced and contemporary technologies for all specialised fields are concentrated at these universities. In addition, their curriculum includes systematic lessons on topics not covered in the curriculum of the Iraqi Dental College, such as general dentistry, geriatrics dentistry, scientific research foundations, professional ethics, and patient and colleague communication skills. While in Iraq, Cairo and Jordan's dental colleges included clinical dental subjects with some minor differences.

In three Arab colleges, basic sciences are taught in a preparatory year before entering dental school, unlike in Jordan and Iraq. In all Arab colleges except Iraq, basic medical sciences are covered in the first three years, with the fourth and fifth years dedicated to clinical dental curricula.

4.2. Questionnaire analysis

A total of 466 participants completed the questionnaire, including dentists, and students of stages four - to five from several dental colleges in Iraq. Students held the majority of the 266 (57.1%) duties, followed by practising dentists with 138 (29.6%) and specialists with 62 (13.3 %) (Figure 1).

The findings of the research did not show significant differences except for question two; a difference in the results was very significant to the outcome.

Q1: The first stage of fundamental science, according to 368 (79 %) of the participants, is not appropriate for study at the College of Dentistry. Q2: According to 353 (75.5%), it does not meet the requirements of the study for the students. Q3: In contrast to 222 participants who believed it was a fundamental lesson, 244 (52.4%) were certain that it did not complement the fundamental lessons of the advanced stages. Q4: 323 participants (69.3%) concurred that the students were not adequately prepared for the challenges they would face in their dental curriculum. Q5: According to 245 (52.6%) participants, the curriculum did not provide students with the information and abilities needed to treat patients with chronic medical disorders.

Q6: A total of 305 participants (65.9 %) believed that the students could not handle difficulties at work and did not improve their self-evaluation. Q7: Does the curriculum teach students how to interact with patients and coworkers? Does it meet the needs of the students? 204 respondents (43.8%) chose "yes," while 262 (56.2%) chose "no". Q8: 316 respondents (67.8%) concur that the students did not learn the abilities required to effectively describe a medical condition or deliver an interactive presentation. Q9: 350 participants (75.1 %) responded negatively to the question "Does the learner acquire the capacity for scientific investigation, creation, and innovation". Q10: 275 (59 %) of participants confirmed that the curriculum did not cover topics about professional ethics, patient rights, or coworker rights.

Q11: A total of 302 people (64.8%) believed that the amount of practical experience students receive in educational labs and clinics is insufficient for them. In terms of the educational system, Q12: 157 (33.7%) opted for the annual system, 156 (33.5%) for the semester system, 83 (17.8%) for the tri-semester system, 40 (8.6%) for the modular system, and 30 (6.4%) for the Bologna system. A total of total of 302 people (64.8%) believed that the amount of practical experience students receive in educational labs and clinics is insufficient for them. Q13: A total of 302 people (64.8%) believed that the experience students receive in educational labs and clinics is insufficient for them. Q14: 301 individuals (64.6%) selected a five-year study time because they felt it was necessary to complete their studies in dentistry, compared to 89 participants (19.1%) who selected a six-year study period and 76 people (16.3%) who selected a four-year study period.

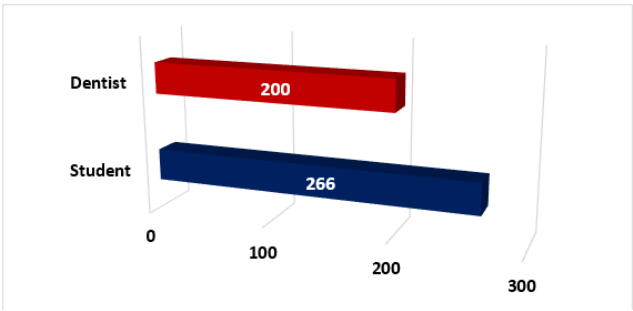

Figure 1: Number of participants who answered the survey

Table 1: Answers to the quiestions that particepants submmite

Questions	Answers	status		Total
		dentist	student	
1. To what extent do students benefit from the subjects taught in the first stage, especially physics, chemistry, and biology	benefit	60 12.9%	38 8.2%	98 21.0%
	not benefit	140 30.0%	228 48.9%	368 79.0%
2. Do these subjects in the first stage meet the requirements of studying in the College of Dentistry	yes	62 13.3%	51 10.9%	113 24.2%
	no	138 29.6%	215 46.1%	353 75.8%
3. Are the subjects of the first and second stages considered complementary to basic lessons in the advanced stages	yes	100 21.5%	122 26.2%	222 47.6%
	no	100 21.5%	144 30.9%	244 52.4%
4. Do dental curricula meet students' ability to solve the problems they face in their scientific career	yes	64 13.7%	79 17.0%	143 30.7%
	no	136 29.2%	187 40.1%	323 69.3%
5. Do you give the student the ability to deal with the medically compromised patient	yes	98 21.0%	123 26.4%	221 47.4%
	no	102 21.9%	143 30.7%	245 52.6%
6. Does the student develop the ability to face difficulties at work and self-evaluation	yes	68 14.6%	93 20.0%	161 34.5%
	no	132 28.3%	173 37.1%	305 65.5%
7. Do you give the student communication skills with the patient and colleagues	yes	79 17.0%	125 26.8%	204 43.8%
	no	121 26.0%	141 30.3%	262 56.2%
8. Does the arrangement of study materials in stages meet the needs of the student in dentistry	yes	94 20.2%	110 23.6%	204 43.8%
	no	106 22.7%	156 33.5%	262 56.2%
9. Does the student develop the ability to present the medical condition and give lectures	yes	70 15.0%	80 17.2%	150 32.2%
	no	130 27.9%	186 39.9%	316 67.8%

Continued on next page

Table 1 continued

10. Does the curriculum include a subject related to professional ethics, patient rights and colleagues' rights	yes	76 16.3%	115 24.7%	191 41.0%
	no	124 26.6%	151 32.4%	275 59.0%
11. Does the student develop the ability to scientific research, development and innovation	yes	51 10.9%	65 13.9%	116 24.9%
	no	149 32.0%	201 43.1%	350 75.1%
12. Is the number of practical hours sufficient in educational laboratories and clinics	yes	63 13.5%	101 21.7%	164 35.2%
	no	137 29.4%	165 35.4%	302 64.8%
13. Which system do you prefer to study	annual	61 13.1%	96 20.6%	157 33.7%
	semester 3 months	70 15.0%	86 18.5%	156 33.5%
	semester 6 months	28 6.0%	55 11.8%	83 17.8%
	credits	20 4.3%	20 4.3%	40 8.6%
	Bologna	21 4.5%	9 1.9%	30 6.4%
14. The number of years required to complete the study of dentistry	4 years	29 6.2%	47 10.1%	76 16.3%
	5 years	124 26.6%	177 38.0%	301 64.6%
	6 years	47 10.1%	42 9.0%	89 19.1%
15. Does the curriculum keep pace with what is in force in regional and international countries	yes	37 7.9%	58 12.4%	95 20.4%
	no	163 35.0%	208 44.6%	371 79.6%

Q15: 371 of the participants, or 79.6%, affirm that the curriculum is out of date in terms of regional and international regulatory standards; detailed information about the survey is found in (Table 1).

5. Discussion

Foundational knowledge in basic sciences is critical for both studying and practising dentistry. According to the American Dental Association (ADA), dental programs must include at least two semesters each of biology, general chemistry, organic chemistry, and physics, along with one semester of biochemistry. This ensures that students entering dental school have a solid understanding of essential scientific concepts.

Research on how basic science courses in Iraqi dental schools' undergraduate programs support advanced coursework is limited. Arabic college curricula typically include basic science courses like anatomy, physiology, biochemistry, microbiology, pharmacology, pathology, general surgery, and general medicine, which are essential for understanding the human body and oral cavity. Surveys reveal that Iraqi dental curricula are less effective in equipping students to address real-world problems (31.5%) compared to Pakistan (37%). This may be due to inadequate curriculum depth and insufficient practical experience.[17]

Although the dental curriculum in Iraq is generally effective, incorporating modern teaching methods and a more student-centred approach could be beneficial,[18–20] this is consistent with the results of this research. However, the curriculum does not adequately prepare students for treating patients with chronic medical conditions, indicating a need for greater focus on this area.[21]

The results on the questions of the student's ability to face difficulties in work, self-evaluation and communication skills with the patient and colleagues did not agree with a study that assessed the perception of preparedness for dental practice among dental graduates in Saudi Arabia, dental graduates generally felt prepared to deal with challenges at work.[22–24]

Regarding practical training hours, 37% of Iraqi participants felt the time allocated was insufficient, consistent with other studies advocating for increased practical hours in labs and clinics.[25] This contrasts with a study of Saudi dental graduates who felt prepared but desired more practical training.[26]

Iraqi students showed mixed preferences for annual and trimester systems Students in Saudi Arabia and Yemen preferred the semester system.[27] Regarding research methods, students felt that they were not adequately trained in research skills and the dental curriculum be revised to include more research training and opportunities for students to develop their capacity for scientific investigation, creation, and innovation.[28]

The Bologna Process, which influences European higher education, has not yet been adopted by Arab colleges,[29] this system is not followed by any Arab college, it requires specific infrastructure and academic and technical staff.

The expansion of dental education in Iraq has not been matched by a proportional increase in postgraduate programs and support staff, indicating a need for more dental technicians and hygienists.[14]

The study found that 65.2% of participants preferred a five-year academic program, consistent with other studies suggesting this duration is adequate for clinical practice preparation in Iraq.[30] which agrees with studies.

Finally, the current curriculum in Iraq does not fully align with regional and international standards. Efforts are being made to improve this through the National Council for the Accreditation of Iraqi Dental Colleges.[31]

6. Suggestions and Recommendations

Designing an academic curriculum based on semesters: Engage students, instructors, and administrators in a cooperative methodology. The main areas of focus include needs assessment, curriculum development, integration of fundamental and clinical sciences, and continuous quality assurance. Systematically collect and respond to input from all parties involved.

Fundamental Scientific Preparation: Guarantee a solid groundwork by completing a preparation year and taking a properly designed admission exam. Incorporate a variety of instructional approaches and thorough evaluations into the curriculum design.

Advantages of an Academic Semester System: Optimises knowledge retention, hands-on training, adaptability, and comprehensive academic assistance.

Required Improvements to the Curriculum: Incorporate principles of communication, medical ethics, research methodologies, advanced and general dentistry, and artificial intelligence.

6.1. Guarantee that these improvements are effortlessly integrated with practical training and continuous evaluation

Proposal for the Establishment of a Unified Basic Sciences College

A primary college focused on basic sciences where all applicants for medical group colleges study for one year, after which they take a comprehensive exam; successful candidates are then admitted to their chosen college.

7. Conclusions

Dental schools should switch to semesters and alter their curricula. A year of fundamental sciences is required before dentistry school, with medical sciences in the first two years. The third year should encompass preclinical dentistry,

while the fourth and fifth years should focus on clinical dentistry. Research methodology, artificial intelligence, medical ethics, patient rights, and communication skills should be imparted to cultivate well-rounded graduates.

8. Source of Funding

None.

9. Conflict of Interest

None.

References

1. Al-Zubaidi AL, Al-Saedi RM, Mohammed AA. Dental education in Iraq: A review of the literature. *Iraqi J Commun Med*. 2016;29(1):1–7.
2. Kadamani AA, Al-Saedi RM. Perceptions of dental students and faculty members about the dental curriculum at the University of Baghdad. *Eur J Dent Educ*. 2016;20(3):160–5.
3. Al-Timimi JH, Al-Khatib SJ. Dental education in Iraq. *J Dent Educ*. 2012;76(5):614–7.
4. Agili A. A review of studies on dental education in Saudi Arabia. *J Dent Educ*. 2012;76(11):1465–73.
5. Al-Rawi NH, Al-Shehri HA, Al-Ghamdi S. Dental education and practice in the Kingdom of Saudi Arabia: Opportunities and challenges. *J Dent Educ Pract*. 2017;10(1):17–25.
6. Al-Shasim M, Bryant SR. Dental education in the United Arab Emirates: developments and future directions. *Eur J Dent Educ*. 2014;18:1864.
7. Hassona Y, Hammad O. Dental education in Jordan: present and future. *BMC Oral Health*. 2017;17(1):143.
8. Tantawi ME. Egyptian dental education and curricula: Current status and future challenges. *J Dent Educ Pract*. 2017;10(7):484–91.
9. Yared FG, Sabbagh HJ. Dental education in Lebanon: present and future perspectives. *East Mediterr Heal J*. 2018;24(5):514–21.
10. Nishimura M, Miyake Y. The effectiveness of the semester system in dental educationNo Title. *J Dent Educ*. 2016;80(7):821–7.
11. Kersten H, Roth NW. The trimester system in dental education: Students' and teachers' perspectives. *J Dent Educ*. 2015;79(6):700–8.
12. Spilka R. Modularization of education - an answer to lifelong learning?No Title. *Eur J Open Dist e-Learning*. 2016;19(2):1–12.
13. The European Higher Education Area in 2018 - Publications Office of the EU; 2018. Available from: https://ehea.info/Upload/BP2018.pdf.
14. Khoshnevisan MH, Albujeer A, Taher A, Almahafdha A. Dental education in Iraq: issues, challenges and future. *J Contemp Med Sci*. 2017;3(11):260–3.
15. Albujeer A, Taher A. Dental education and oral health service in Iraq. *Iran J Public Health*. 2017;46(5):713–4.
16. Al-Bayati RJ, Al-Obaidi WA. Teaching and learning approaches in dental education in Iraq. *Int J Dent Sci Res*. 2018;6(2):22–6.
17. Ayalew MZ. Quality Assurance Manual for Higher Education in Pakistan. *Am J Educ Res*. 2007;4(12):872–7.
18. Al-Dhaher A, Al-Aboudi IS, Al-Khalidi RA. Effectiveness of dental curriculum in Iraq: students' perspectives. *J Baghdad Coll Dent*. 2019;31(4):82–8.
19. Al-Sudani DH, Nader NR, Al-Dabbagh RH. A comparative study of dental curriculum between the University of Baghdad and the University of Jordan. *Iraqi J Dent Sci*. 2017;3(2):45–9.
20. Al-Sharqi AM, Al-Sarraf M, Al-Momani FA. Comparison between dental education in Iraq and the United States: A critical analysis. *J Educ Pract*. 2020;11(14):50–60.
21. Al-Rawi NH, Al-Dhaher AS, Al-Khalidi RA. Effectiveness of dental education in Iraq: students' perspectives. *J Baghdad Coll Dent*. 2018;30(4):45–51.
22. Alrahlah A, Alsayed M, Almutairi M, Alghamdi M, Alhusain F. & Alelyani M. Perception of preparedness for dental practice among dental graduates in Saudi Arabia. *Eur J Dent*. 2021;15(1):183–9.
23. Al-Hazmi A. & AlAmri MD. Perceptions of communication skills training among undergraduate dental students in Saudi Arabia: A cross-sectional study. *J Dent Educ Pract*. 2021;2(1):6–11.
24. Alqahtani DA, Alshehri M. Communication skills training for dental students in Saudi Arabia: A systematic review. *J Taibah Univ Med Sci*. 2019;14(2):126–33.
25. Al-Maliky RA, Al-Ward NM. Time devoted to clinical skills training in the undergraduate dental curriculum in Iraq. *J Dent Educ Pract*. 2018;9(6):6–10.
26. Al-Rawi NH, Al-Naama LM. Students' perception of preclinical laboratory sessions in a dental school in Iraq. *J Dent Educ Pract*. 2016;7(8):18–22.
27. Al-Khatib IA, Almasri MA. Dental students' attitudes toward professionalism and ethics in a Jordanian public university. *J Dent Educ Pract*. 2016;5(3):1–6.
28. Al-Nuaimi AS, Al-Abdulwahab SS. Dental students' perceptions of research experiences in a Saudi dental school. *J Dent Educ Pract*. 2016;7(10):19–24.
29. Nattestad A. The Bologna Process and its implications for dental education in Europe. *Eur J Dent Educ*. 2013;17(4):139–46.
30. Al-Saleh S, Al-Rawi NH, Al-Rawi AM. Dental education in Iraq: Challenges and solutions. *J Dent Educ*. 2016;80(5):557–63.
31. Al-Azzawi SS, Al-Khalidi HA, Al-Kaissi AM, Kareem SH. Evaluation of dental curriculum adequacy in Iraq. *Iraqi J Med Sci*. 2020;18(2):115–20.

Author's biography

Sundus Abdull Wadood Aljazaeri, Researcher https://orcid.org/0000-0003-4058-2618

Reham Adnan Radhi, Researcher https://orcid.org/0000-0001-8067-7406

Husain lafta Abbas, Researcher

Abbas Hafidh Abd Alzahra, Researcher

Abbas Dawood Abdulnabi, Researcher

Abdullah Ayoub Raheem, Researcher

Ahmed Abdulmotleb Saiwan, Researcher

Cite this article: Aljazaeri SAW, Radhi RA, Abbas H, Hafidh Abd Alzahra A, Abdulnabi AD, Raheem AA, Saiwan AA. Comparing the curriculum and academic structure of the Iraqi college of dentistry with Arab Universities, and conducting satisfaction surveys among Iraqi dentistry students and alumni. *Arch Dent Res* 2024;14(2):92-98.