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Research / Araştırma Makalesi

Integration of Artificial Intelligence into Dental Education: Perspectives of Students and Academicians

Yapay Zeka'nın Diş Hekimliği Eğitimine Entegrasyonu: Öğrenci ve Akademisyenlerin Bakış Açısı

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ÖZ

Giriş: Yapay zekâ (YZ), son yıllarda sağlık eğitiminde giderek daha fazla yer edinmekte ve diş hekimliği alanında da çeşitli uygulamaları ile dikkat çekmektedir. Ancak, lisans düzeyinde YZ teknolojilerinin entegrasyonu ve kullanımı konusunda sınırlı sayıda çalışma bulunmaktadır.

Amaç: Bu çalışma ile diş hekimliği öğrencilerinin diş hekimliğindeki yapay zeka farkındalığı, uygulamaları ve kullanımında etik ve hukuk kurallarına ilişkin bilginin değerlendirmesi amaçlanmıştır.

Gereç ve Yöntem: Bu çalışma, yaşları 18 ile 60 arasında değişen 161 diş hekimliği öğrencisi ve akademisyen üzerinde, Google Forms anket platformu kullanılarak gerçekleştirilmiştir. Selçuk Üniversitesi Diş Hekimliği Fakültesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu tarafından onaylanan bu çalışmaya, Türkiye genelindeki 3., 4. ve 5. sınıf diş hekimliği öğrencileri ile diş hekimliği akademisyenleri e-posta ve sosyal medya aracılığıyla davet edilmiştir. Katılımcıların kişisel bilgileri kaydedilmemiş, veriler anonim olarak analiz edilmiştir. Anket; demografik bilgiler (3 soru), YZ farkındalığı (3 soru), YZ uygulamaları (17 soru), YZ uygulamalarının diş hekimliği eğitimine entegrasyon zorlukları ve etik zorluklar (6 soru) ile görüş ve öneriler (1 soru) olmak üzere 4 bölümden ve toplam 30 sorudan oluşmaktadır. Anket sonuçları Ki-Kare testi ve Kruskal-Wallis testi ile istatistiksel olarak değerlendirilmiştir.

Bulgular: Çalışmaya %12,4 u öğretim üyesi, %24,2 si 5.sınıf öğrencisi, %40,4 u 4. sınıf öğrencisi ve %23 u 3. sınıf öğrencisi katılım sağlamıştır. Katılımcıların %71,5 inin YZ ile ilgili bilgi seviyesi "kararsız", "hiç bilgi sahibi olmadıklarını" ya da "az bilgi sahibi olduklarını" belirtmişlerdir. Bununla birlikte katılımcıların 28'i (%17,5) konuya ilişkin eğitim ve seminere katılma durumlarının az olduğunu da bildirmişlerdir. Kişilerin eğitim düzeyi ile diş hekimliği eğitiminde YZ farkındalığı ve YZ uygulamaları ile arasında istatistiksel olarak anlamlı bir farklılık görülmemistir (sırasıyla p=0,671 ve p=0,496). "YZ'nın klinik eğitim alanında kullanılması gerektiğini" 4. ve 5. sınıf öğrenciler tarafından istatistiksel olarak anlamlı oranda daha fazla belirtilmiştir (p=0,015). YZ 'nın hasta mahremiyeti, gizlilik ve veri güvenliği konularında 3. sınıf öğrencileri ile öğretim üyeleri arasında istatistiksel olarak anlamlı bir fark görülmüştür (p=0,01). Katılımcılar, YZ'nın diş hekimliğine entegrasyonundaki zorluklar konusunda 1. sırada teknolojik alt yapı eksikliği ve 2. sırada ise yeterli eğitim materyallerinin olmaması olarak belirtmişlerdir. YZ uygulamalarının eğitim müfredatında daha fazla yer alması konusunu katılımcılardan 126'sı (%88,8) tarafından desteklemiştir.

Sonuç: Diş hekimlerinin ve diş hekimliği öğrencilerinin YZ ile ilgili bilgi eksikliğinin mevcut olduğu gözlenmiştir. Bu konuda hem eğitim hem de uygulama alanlarında YZ entegrasyonunun geliştirilmesi gerektiği ortadadır. Ancak veri güvenliği ve hasta mahremiyeti konularındaki kaygıların da giderilmesi için gerekli önlemlerin alınması önemli bir çalışma konusudur.

Anahtar Kelimeler: Yapay zeka, Diş hekimliği eğitimi, Farkındalık

ABSTRACT

Introduction: In recent years, artificial intelligence(AI) has increasingly gained prominence in healthcare education, attracting attention with its various applications in the field of dentistry. However, studies examining the integration and utilization of AI technologies at the undergraduate level remain limited.

Objective: This study aims to evaluate dental students' awareness of AI in dentistry, its applications, and their knowledge regarding the ethical and legal frameworks governing its use.

Materials and Methods: The study was conducted using the Google Forms survey platform with the participation of 161 dental students and academicians aged between 18-60. Ethical approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Selçuk University Faculty of Dentistry. Third-, fourth-, and fifth-year dental students, as well as dental academicians from various institutions across Turkey, were invited to participate via email and social media. Personal data were not recorded, and responses were analyzed anonymously.

The survey consisted of four sections with a total of 30 questions:(1) demographic information(3 questions),(2) AI awareness(3 questions),(3) AI applications(17 questions),(4) challenges in integrating AI into dental education and ethical concerns(6 questions), and (5) opinions and recommendations(1 question). The survey results were statistically analyzed using the Chi-Square test and the Kruskal-Wallis test.

Results: Among the participants,12.4% were academicians,24.2% were fifth-year students,40.4% were fourth-year students, and 23% were third-year students. A total of 71.5% of participants reported their level of AI-related knowledge as "uncertain," "having no knowledge,"or"having little knowledge." Additionally,28 participants(17.5%) stated that they had limited experience attending AI-related training or seminars. There was no statistically significant difference between educational level and AI awareness or AI applications in dental education(p=0.671 and p=0.496, respectively). However, the perception that "AI should be utilized in clinical education" was statistically significantly higher among fourth- and fifth-year students(p=0.015). A statistically significant difference was observed between third-year students and academicians regarding concerns over AI's impact on patient privacy, confidentiality, and data security(p=0.01).

Participants identified the primary challenge in integrating AI into dental education as the lack of technological infrastructure, followed by the insufficiency of educational materials. Additionally,126 participants(88.8%) expressed support for the inclusion of more AI-related content in the dental curriculum.

Conclusion: The findings indicate a knowledge gap among dental students and professionals regarding AI. The need for improved integration of AI into both education and clinical practice is evident. However, addressing concerns related to data security and patient confidentiality remains a critical area of focus in future research and implementation strategies.

Keywords: Artificial intelligence, Dentistry education, Awareness

INTRODUCTION

Artificial intelligence is defined as the development of computer systems that aim to mimic human intelligence[(1)].In recent years, AI has been increasingly utilized in the fields of medicine and dentistry, integrating not only into clinical applications but also into educational processes[(2)]. AI algorithms contribute to more accurate diagnoses and the development of personalized treatment plans by analyzing dental

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imaging and patient records. Furthermore, the use of AI in dental education provides students with the opportunity to enhance their clinical skills through virtual simulations, eliminating any potential risks associated with real-patient interactions[3].

AI is also employed to assess the knowledge levels of dental students, enhance knowledge retention, and offer personalized learning experiences[4]. Educational games, assessments, and intelligent tutoring systems increase student motivation while promoting the effective use of technological innovations in education[5]. However, the integration of AI into dental education presents certain ethical and practical challenges[6]. Over-reliance on AI may negatively impact students' critical thinking and problem-solving skills. Additionally, ensuring the accuracy and impartiality of AI algorithms is crucial to preventing erroneous diagnoses and treatment decisions[7].

Another major concern regarding the use of AI in education relates to academic integrity. AI-powered tools may provide students with an unfair advantage in academic assessments, potentially undermining the credibility of the education system[8]. Therefore, universities must develop preventive policies within the framework of academic ethical standards to regulate the use of AI in educational settings[9].

This study aims to assess the awareness of AI among dental students and academicians, examine its applications in dentistry, and assess their knowledge regarding the ethical and legal dimensions of these technologies.

METHODS

This study was conducted on 161 dentistry students and faculty members aged between 18 and 60, using the Google Forms survey platform. The study was approved(Ethics approval number 2025/21) by the Non-Interventional Clinical Research Ethics Committee of Selçuk University Faculty of Dentistry. Dental students in their 3rd, 4th, and 5th years, as well as dentistry faculty members from various institutions across Turkey, were invited to participate via email and social media. Participants' personal information was not recorded, and the data were analyzed anonymously.

The survey consisted of four sections with a total of 30 questions: demographic information (3 questions), AI awareness (3 questions), AI applications (17 questions), challenges in integrating AI into dental education and ethical concerns (6 questions), and opinions and suggestions (1 question). The survey results were statistically analyzed using the Chi-Square test and the Kruskal-Wallis test.

RESULTS

The sociodemographic distribution of participants were presented in Table1. An analysis of the data obtained from the study reveals that 81.1% of the participants were women aged between 18 and 24 years. Additionally, 86.5% of the participants were students.

Table 1. The sociodemographic distribution of participants.

Gender	Male	111 (%67,7)
	Female	52(%31,7)
	Not mentioned	1(%0,6)
Age	18-24	133(%81,1)
	25-34	22(%13,4)
	35-44	4(%2,4)
	45 +	5(%3)
Title	Academician	22(%13,4)
	Class 3	37(%22,6)
	Class 4	66(%40,2)
	Class 5	39(%23,8)

Three questions were asked to assess the participants' awareness of artificial intelligence. The questions and the distribution of responses are presented in **Table 2**. Accordingly, participants' levels of knowledge, seminar attendance, and awareness regarding AI applications were evaluated.

Table 2. The responses of participants regarding the awareness of artificial intelligence.

How do you assess your level of knowledge about artificial intelligence?					
	No Knowledge	**Limited Knowledge**	**Undecided**	**Have Knowledge**	**High level of Knowledge**
Class 3	4(%11)	13(%35)	14(%38)	6(%16)	0(%0)
Class 4	3(%5)	24(%36)	17(%26)	21(%32)	1(%2)
Class 5	4(%10)	16(%41)	7(%18)	11(%28)	1(%3)
Academician	2(%9)	7(%32)	4(%18)	8(%36)	1(%5)
Have you attended any training sessions or seminars on the use of artificial intelligence in dental education?					
	Yes			**No**	
Class 3	4(%11)			33(%89)	
Class 4	17(%26)			49(%74)	
Class 5	5(%13)			34(%87)	
Academician	5(%23)			17(%77)	
Are you knowledgeable about the applications of artificial intelligence in dental education?					
	No Knowledge	**Limited Knowledge**	**Undecided**	**Have Knowledge**	**High level of Knowledge**
Class 3	9(%24)	15(%41)	10(%27)	3(%8)	0(%0)
Class 4	11(%17)	21(%32)	16(%24)	17(%26)	1(%2)
Class 5	7(%18)	20(%51)	7(%18)	5(%13)	0(%0)
Academician	1(%5)	9(%41)	3(%41)	8(%36)	1(%5)

The analyses conducted for all these aspects revealed no statistically significant differences ($p > 0.05$). This indicates that, in general, participants possess a comparable level of knowledge concerning artificial intelligence.

In this study, various applications of artificial intelligence (AI) in dentistry (including clinical skill development, accuracy and efficiency, personalized treatment planning, early diagnosis and treatment, database creation, simulations and inactive learning tools, and performance monitoring) were evaluated. For this purpose, 17 questions were administered to the participants, and the distribution of the questions and their corresponding responses is presented in **Table 3a**. Statistical analysis revealed no significant differences in the evaluation of these AI application areas among third-, fourth-, and fifth-grade students and academicians ($p>0.05$). This finding suggests that participants hold similar views regarding the role of AI in dental education and professional practice.

Participants were asked about the areas in which artificial intelligence is currently being used, and the distribution of their responses is presented in **Table 3b**. Results indicated that the majority of participants agreed on the necessity of AI applications in diagnosis and treatment planning, dental imaging and analysis technologies, clinical training simulations, AI-assisted treatment applications (such as CAD/CAM and orthodontic aligner treatments), robotic surgery, and AI integration, patient management, and appointment systems, as well as data analysis and patient risk assessment methods. However, participants largely expressed that AI should not be used in student performance evaluation, forensic dentistry, and ethical-legal matters. Notably, in student performance evaluation, academicians supported the use of AI, whereas students predominantly opposed it, and this difference was statistically significant ($p=0.042$).

Table 3a. The responses of participants regarding artificial intelligence applications.

In which areas do you think artificial intelligence should be utilized?					
					Academicians and Students
Diagnosis and treatment planning					127(%77,4)
Artificial Intelligence Technologies in Dental Imaging and Analysis					143(%87,2)
Clinical Training Simulations in Dentistry					117(%71,3)
Artificial Intelligence in Treatment Applications (CAD/CAM, Orthodontic Clear Aligners)					135(%82,3)
Robotic Surgery and Artificial Intelligence Integration in Dentistry					82(%50)
Student Performance Evaluation in Dentistry					58(%35,4)
Patient Management and Appointment Systems in Dentistry					122(%74,4)
Data Analysis and Patient Risk Assessment Methods in Dentistry					111(%67,7)
Use of Data Analysis and Artificial Intelligence in Forensic Dentistry					67(%40,9)
Artificial Intelligence Applications in Ethical and Legal Issues in Dentistry					50(%30,5)
Others					1(%0,6)
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	2(%5)	8(%22)	17(%46)	10(%27)
Class 4	2(%3)	3(%5)	17(%26)	30(%45)	14(%21)
Class 5	0(%0)	2(%5)	9(%23)	16(%41)	12(%31)
Academician	0(%0)	0(%0)	3(%14)	13(%59)	6(%27)
Artificial intelligence analyzes dental data, such as imaging and patient records, to detect conditions more quickly and accurately, assisting in diagnosis. It also supports accuracy and efficiency.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	1(%3)	7(%19)	20(%54)	9(%24)
Class 4	2(%3)	1(%2)	14(%21)	35(%53)	14(%21)
Class 5	0(%0)	3(%8)	8(%21)	18(%46)	10(%26)
Academician	0(%0)	0(%0)	3(%14)	12(%55)	7(%32)
Artificial intelligence helps create personalized treatment plans based on the specific needs of patients.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	1(%3)	7(%19)	21(%57)	8(%22)
Class 4	1(%2)	3(%5)	15(%23)	31(%47)	16(%24)
Class 5	0(%0)	3(%8)	8(%21)	18(%46)	10(%26)
Academician	0(%0)	2(%9)	3(%14)	10(%45)	7(%32)
Artificial intelligence helps predict the likelihood of specific dental issues and diseases based on patient data, contributing to their prevention, early diagnosis, and treatment.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	1(%3)	1(%3)	7(%19)	18(%49)	10(%27)
Class 4	1(%2)	0(%0)	18(%27)	35(%53)	12(%18)
Class 5	0(%0)	4(%10)	6(%15)	19(%49)	10(%26)
Academician	0(%0)	1(%5)	1(%5)	15(%68)	5(%23)
Artificial intelligence can be used to enhance information sharing by collecting large amounts of data to create a database consisting of methods and practices that can be compared with outcomes.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	2(%5)	5(%14)	18(%49)	12(%32)
Class 4	2(%3)	1(%2)	10(%15)	40(%61)	13(%20)
Class 5	0(%0)	0(%0)	4(%10)	24(%62)	11(%28)
Academician	0(%0)	0(%0)	3(%14)	12(%55)	7(%32)
AI-based tools help students acquire practical skills in dental education through simulations, interactive learning tools, and various scenarios.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	0(%0)	9(%24)	16(%43)	12(%32)
Class 4	1(%2)	1(%2)	15(%23)	31(%47)	18(%27)
Class 5	0(%0)	2(%5)	4(%10)	23(%59)	10(%26)
Academician	0(%0)	0(%0)	4(%18)	13(%59)	5(%23)
Artificial intelligence can provide feedback by monitoring students' performance, optimizing the learning process.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	0(%0)	11(%30)	19(%51)	7(%19)
Class 4	2(%3)	3(%5)	15(%23)	31(%47)	15(%23)
Class 5	1(%3)	1(%3)	10(%26)	19(%49)	8(%21)
Academician	0(%0)	1(%5)	5(%23)	10(%45)	6(%27)
Artificial intelligence minimizes all risks by creating scenarios similar to those involving live patients, simulating clinical work performed on patients, and providing training experiences without the associated dangers.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	2(%5)	15(%41)	16(%43)	4(%11)
Class 4	1(%2)	4(%6)	16(%24)	34(%52)	11(%17)
Class 5	0(%0)	3(%8)	7(%18)	21(%54)	8(%21)
Academician	0(%0)	2(%9)	6(%27)	10(%45)	4(%18)
Artificial intelligence helps students develop their skills and better prepare for real patient interactions by providing virtual patient feedback before clinical practice.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	3(%8)	5(%14)	22(%59)	7(%19)
Class 4	2(%3)	1(%2)	20(%30)	31(%47)	12(%18)
Class 5	0(%0)	1(%3)	7(%18)	24(%62)	7(%18)
Academician	0(%0)	1(%5)	3(%14)	12(%55)	6(%27)
Artificial intelligence predicts an individual's age by analyzing dental development and erosion in the fields of forensic medicine and anthropology.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	3(%8)	11(%30)	15(%41)	8(%22)
Class 4	1(%2)	2(%3)	21(%32)	33(%50)	9(%14)
Class 5	1(%3)	2(%5)	9(%23)	20(%51)	7(%18)
Academician	0(%0)	2(%9)	5(%23)	10(%45)	5(%23)
AI-powered systems can manage patient requests and alert dentists in emergency situations.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	1(%3)	12(%32)	19(%51)	5(%14)
Class 4	1(%2)	3(%5)	239%35)	29(%44)	10(%15)
Class 5	0(%0)	1(%3)	9(%23)	23(%59)	6(%15)
Academician	0(%0)	1(%5)	6(%27)	10(%45)	5(%23)
AI-powered chatbots can assist patients in making appointments, answering questions, and receiving education on dental care.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	2(%5)	7(%19)	19(%51)	9(%24)
Class 4	2(%3)	2(%3)	13(%20)	32(%48)	17(%26)
Class 5	0(%0)	1(%3)	4(%10)	26(%67)	8(%21)
Academician	0(%0)	1(%5)	0(%0)	12(%55)	9(%41)
The AI-supported virtual dental assistant application performs various tasks in the dental office more accurately and with fewer errors, requiring less human labor for its functions.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	5(%14)	10(%27)	17(%46)	5(%14)
Class 4	3(%5)	4(%6)	20(%30)	27(%41)	12(%18)
Class 5	3(%8)	2(%5)	4(%10)	25(%64)	5(%13)
Academician	0(%0)	2(%9)	4(%18)	13(%59)	3(%14)
The AI-supported virtual dental assistant application is used in clinical diagnosis, treatment planning, appointment scheduling, organizing insurance and paperwork, and many other tasks in virtual dental practice.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(0%)	3(%8)	8(%22)	19(%51)	7(%19)
Class 4	2(%3)	4(%6)	19(%29)	26(%39)	15(%23)
Class 5	0(%0)	3(%8)	5(%13)	25(%64)	6(%15)
Academician	0(%0)	2(%9)	5(%23)	11(%50)	4(%18)

Table 5. Opinions of participants about the role of artificial intelligence in the educational curriculum.

Artificial intelligence applications should have a more prominent role in the educational curriculum.					
	Completely disagree	Disagree	Undecided	Agreed	Completely Agreed
Class 3	0(%0)	2(%5)	9(%24)	16(%43)	10(%27)
Class 4	1(%2)	1(%2)	13(%20)	30(%45)	21(%32)
Class 5	1(%3)	1(%3)	4(%10)	27(%69)	6(%15)
Academician	0(%0)	0(%0)	2(%9)	15(%68)	5(%23)

DISCUSSION

As in other fields, artificial intelligence (AI) used in the healthcare sector has rapidly gained momentum. In this context, the level of consideration and awareness of AI applications in dentistry among faculty members and students is of significant importance[10]. Shortly, dental students and practicing dentists are expected to play key roles not only in the utilization but also in the development of AI technologies. The literature includes several studies aimed at assessing the knowledge levels of dental students about the applications of artificial intelligence in dentistry[11, 12].

In the survey study conducted by Taşsöker and Akyüz with the participation of 259 students, 76.8% of the respondents answered "no" to the question, "Are you aware of the topics of artificial intelligence and deep learning discussed in radiology?"[13]. Similarly, in a study conducted by Özel and Büyükçavuş on 236 dental students, 76.27% of the participants responded "no" to the question, "Are you aware of developments related to artificial intelligence in the field of radiology?"[14]. In our study, 72.34% of students and 52.63% of faculty members stated that their knowledge about artificial intelligence was insufficient. These findings are consistent with the results reported in the literature.

Thanks to artificial intelligence, which enhances diagnostic accuracy, personalizes treatment approaches, and organizes data more efficiently, dentistry is undergoing a significant transformation[15, 16].Various branches of dentistry benefit from AI tools in numerous ways, such as enabling earlier detection of diseases. However, for the successful integration of artificial intelligence into dental practice, challenges related to data management, processing capacity, and ethical considerations must be addressed[17].

In our study, no statistically significant difference was observed among participants regarding the impact of artificial intelligence applications in dentistry on clinical skill development, accuracy and efficiency, personalized treatment planning, early diagnosis and treatment, database creation, simulations, inactive learning tools, and performance monitoring ($p > 0.05$). This result indicates that participants hold similar views on the role of artificial intelligence in dental education and professional practice.

Participants were asked in which areas of dentistry artificial intelligence is most commonly used. The responses revealed that they shared largely similar opinions regarding the necessity of AI utilization in areas such as diagnosis and treatment planning, dental imaging and analysis technologies, clinical education simulations, AI-assisted treatment applications (e.g., CAD/CAM systems, orthodontic clear aligner treatments), robotic surgery and AI integration, patient management and appointment systems, and data analysis for patient risk assessment. Based on these findings, there appears to be a consensus that artificial intelligence should be utilized as a supportive tool in nearly all areas of the dental profession excluding primarily surgical and operative procedures. Nonetheless, our study also revealed that participants expressed concerns regarding bias and privacy about artificial intelligence. In a study conducted by Kim et al., it was emphasized that ethical, impartial, responsible, and clinically validated algorithms are crucial for maximizing the benefits of artificial intelligence while minimizing the risks it poses to both patients and practitioners[3]. The same study also highlighted that artificial intelligence curricula should not only teach students how to interact with, use, and manage AI programs[18]. Still, it should also encourage critical thinking by guiding dental educators to train students in making visual estimations before consulting AI to interpret results correctly and avoid potential errors[19]. Additionally, it was suggested that curricula should include aspects related to data protection, privacy, and potential third-party interference[20].

CONCLUSION

Today, artificial intelligence has become an indispensable part of the healthcare system, promising higher quality healthcare services while also providing high efficiency and rapid access to information. Within the field of dentistry, AI-driven applications are transforming clinical practice, diagnosis, treatment planning, and patient management. Yet, the integration of AI into dentistry education requires a proactive and strategic approach to ensure its safe, ethical, and effective implementation. This study highlights that while AI awareness is growing among students and academicians, concerns regarding bias, data privacy, and ethical considerations persist. Addressing these concerns is crucial to fostering a learning environment where future dental professionals can harness AI's potential while maintaining patient safety, professional integrity, and equitable healthcare delivery.

For AI to be successfully integrated into dental curricula, it is essential to provide structured educational programs that not only enhance technical proficiency but also encourage critical thinking and ethical decision-making. Dental educators must guide students in understanding AI's capabilities and limitations, ensuring they can interpret AI-generated data effectively and avoid over-reliance on automated systems. Furthermore, curricula should incorporate modules on data protection, algorithmic transparency, and third-party interventions to equip students with a comprehensive understanding of AI-related challenges. By adopting a forward-thinking approach, dental education can align itself with technological advancements, preparing future professionals to leverage AI responsibly and ethically for the benefit of both patients and practitioners.

Değerlendirme / Peer-Review

İki Dış Hakem / Çift Taraflı Körleme

Etik Beyan / Ethical statement

Bu çalışma 20-22 Şubat 2025 tarihlerinde Bolu Abant İzzet Baysal Üniversitesi'nde düzenlenen UDEG 3. Uluslararası Diş Hekimliği Eğitimi Kongresi'nde "sözlü bildiri" olarak sunulmuştur.

Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.

This study was presented as an "oral presentation" at the UDEG 3rd International Dentistry Education Congress held at Bolu Abant İzzet Baysal University on 20-22 February 2025.

It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited are stated in the bibliography.

Benzerlik Taraması / Similarity scan

Yapıldı – ithenticate

Etik Bildirim / Ethical statement

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Çıkar Çatışması / Conflict of interest

Çıkar çatışması beyan edilmemiştir.

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Veri Toplanması | Data Acquisition: MSV %40, SÖ %40, SB %10, NÜ %10
Veri Analizi | Data Analysis: MSV %40, SÖ %40, SB %10, NÜ %10
Makalenin Yazımı | Writing up: MSV %60, SÖ %10, SB%10, NÜ %20
Makale Gönderimi ve Revizyonu | Submission and Revision: MSV %70, SÖ %10, SB %10, NÜ %10

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