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Evaluation of Students' Diagnostic Accuracy Regarding the Current Classification of Periodontal Diseases and Conditions

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Abstract

Objective

The current classification of periodontal and peri-implant diseases and conditions introduces significant conceptual changes in comparison to the previous classification. This study aims to evaluate the knowledge level and case-based diagnostic consistency of fourth- and fifth-year students at the Faculty of Dentistry of Suleyman Demirel University regarding the current classification of periodontal diseases and conditions.

Material and Method

In this study, fourth- and fifth-year students from our faculty voluntarily participated by completing a questionnaire prepared via Google Forms. The questionnaire consisted of 10 theoretical questions designed to assess knowledge level and diagnostic approach regarding the current classification of periodontal diseases and conditions (4 definition questions, 2 comparative questions [previous vs. current classification], and 4 questions on periodontitis staging and grading diagnostic criteria), as well as 7 cases constructed using clinical and radiographic data from real patients. The cases were defined as follows: clinical gingival health on an intact periodontium, generalized Stage 3 Grade C periodontitis, generalized Stage 4 Grade C periodontitis, clinical gingival health on a reduced periodontium, gingivitis on an intact periodontium, gingivitis on a reduced periodontium, and localized Stage 2 Grade B periodontitis.

Results

A total of 151 students participated in this study. Definition questions related to the previous and current classification were correctly answered by 42-95% of the students, whereas questions comparing the current and previous classifications and those related to staging and grading criteria were correctly answered at rates ranging from 31% to 74%. The diagnostic accuracy rate based on case scenarios ranged between 53% and 76%.

Conclusion

In this study, the percentage of correct responses to case-based questions suggests the necessity of case-based educational approaches. Case-based education can help integrate the theoretical knowledge required for learning the classification and treatment of periodontal dis-eases with practical applications, thereby enhancing participants' analytical thinking and problem-solving skills.

Keywords: Classification, Dentistry students, Periodontal disease

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Introduction

The classification of periodontal diseases and conditions, which are highly prevalent worldwide, is essential and useful for their diagnosis and appropriate treatment (1). The use of different classifications in periodontitis research has been recognized as a major problem that prevents meaningful comparison of findings obtained from different research groups, and this limitation has been a primary barrier to determining, comparing, and pooling estimates of periodontitis prevalence across different populations and countries. Moreover, it complicates the comparison of temporal changes within a population with those observed in other populations (2). Even though many classifications for periodontal diseases and conditions were proposed in the past, the "Classification of Periodontal and Peri-Implant Diseases and Conditions" was established in 2017 during the World Workshop jointly organized by the American Academy of Periodontology and the European Federation of Periodontology. In the new classification, a single periodontitis category was created, incorporating staging and grading dimensions that require detailed clinical and radiographic assessment (3). However, clinicians have experienced difficulties in adopting and implementing this new classification, and many clinicians reported challenges in rapidly determining the stage and grade of periodontitis in daily practice due to the large number of new clinical and radiographic factors to be considered, as well as the complexity of periodontal screening protocols (4). The fact that the previous classification had been used for approximately two decades has posed significant challenges not only in clinical practice but also in the educational implementation of the new classification (5). To overcome these challenges, simple and rapid decision flowcharts and algorithms were developed and introduced to enable clinicians to stage and grade periodontitis accurately and efficiently, while minimizing confusion and inconsistent diagnoses (4, 6, 7). Bumm et al. (7) investigated the effect of decision-making algorithms published by Tonetti and Sanz in 2019 on diagnostic accuracy in periodontal disease among dental students with varying levels of experience. Their findings demonstrated that the use of these algorithms significantly improved staging and grading accuracy and enabled even less experienced students to achieve higher diagnostic accuracy. Consequently, decision-making algorithms were shown to enhance the diagnostic accuracy of dental students.
Within the periodontology curriculum of the third- and fourth-year students at our faculty, in addition to previously used classifications, the 2018 classification of periodontal and peri-implant diseases and conditions has been included in theoretical courses since 2018 and is implemented in clinical training and internships. However, the systematic evaluation of students' knowledge levels and diagnostic consistency regarding the current classification remains limited to a few questions posed during theoretical examinations and clinical practice. Importantly, it is necessary not only to have theoretical knowledge of the current classification but also to implement it accurately in light of clinical and radiographic findings.

This study aims to evaluate the knowledge level of fourth- and fifth-year students at the Faculty of Dentistry of Suleyman Demirel University regarding the current classification of periodontal diseases and conditions, their ability to distinguish the key conceptual differences between the current and previous classifications, and the agreement between their diagnoses and reference diagnoses based on patient scenarios constructed using clinical measurements and radiographic findings. The study hypotheses are that students' levels of knowledge and diagnostic accuracy regarding the current classification will not be consistent across all question and case types, and that they will demonstrate lower performance particularly in areas requiring more complex evaluation.

Material and Method

Participation in this study was voluntary, and the study was carried out in line with ethical principles and the Declaration of Helsinki. Following approval from the Ethics Committee of the Faculty of Medicine at Suleyman Demirel University (SDU) (12.29.2023; decision no: 390), a questionnaire was administered to fourth- and fifth-year students of our faculty via Google Forms. The data collection process was conducted between March 2024 and May 2024. This study was designed as a descriptive study, and no prior power analysis was conducted for sample size due to the voluntary nature of participation. The questionnaire consisted of a total of 10 theoretical questions aiming to evaluate knowledge level and diagnostic approach regarding the current classification of periodontal diseases and conditions, along with 7 cases constructed using clinical and radiographic data from real patients. The theoretical questions included 4 definition questions, 2 comparative questions (previous vs. current classification), and 4 questions on periodontitis staging and grading diagnostic criteria. The cases encompassed clinical gingival health on an intact periodontium, generalized Stage 3 Grade C periodontitis, generalized Stage 4 Grade C periodontitis, clinical gingival health on a reduced periodontium, gingivitis on an intact periodontium, gingivitis on a reduced periodontium, and localized Stage 2 Grade B periodontitis.

The questionnaire was developed by the researchers in line with the study objectives. The correct answers to the theoretical questions and cases included in the questionnaire were determined based on the consensus evaluation of experts experienced in the field of periodontology. Reference diagnoses for the cases were established by three experienced periodontology specialists through joint evaluation of clinical and radiographic data, based on consensus (EU, ITB, ZYA). Within the scope of this study, fourth- and fifth-year students were evaluated within a single pooled group in order to provide a comprehensive assessment of their overall diagnostic competence regarding the current classification. As responses were not coded according to class level during data collection in line with the study objectives, no statistical comparisons were made between class levels. Students in the fourth and fifth years were informed that participation in this study was voluntary. After completion of the study, the data were analyzed based on the percentage of correct responses to the questions.

Results

A total of 151 out of 250 fourth- and fifth-year students voluntarily participated in this study and completed all survey questions. Since this study was carried out during the Spring Semester of the 2023-2024 Academic Year, all fourth-year students had theoretically learned the current classification, and nearly all of them had established diagnoses on patients in clinical practice. Fifth-year students, on the other hand,

Table 1 Categorization of survey questions and correct response rates

Definition Question		
Question Number	**Specific Content / Diagnosis**	**Correct Answer Percentage**
1	Current periodontal classification	95%
3	Concept of reduced periodontium	47%
5	Definition of periodontitis	42%
6	Staging of periodontitis	68%
Comparative Question		
Question Number	**Specific Content / Diagnosis**	**Correct Answer Percentage**
2	Comparison of the 1999 and 2018 classifications	31%
4	Comparison of aggressive and chronic periodontitis	88%
Stage-Grade Diagnostic Criteria Question		
Question Number	**Specific Content / Diagnosis**	**Correct Answer Percentage**
7	Criteria for periodontitis staging	74%
8	Principles of stage determination	31%
9	Criteria for periodontitis grading	72%
10	Indirect evidence for grade determination	71%
Case Scenario		
Question Number	**Specific Content / Diagnosis**	**Correct Answer Percentage**
11	Clinical gingival health in intact periodontium	71%
12	Generalized stage 3 grade C periodontitis	67%
13	Generalized stage 4 grade C periodontitis	76%
14	Clinical gingival health in reduced periodontium	54%
15	Gingivitis in intact periodontium	53%
16	Gingivitis in reduced periodontium	68%
17	Localized stage 2 grade B periodontitis	67%

learned the current classification during their fourth-year theoretical course and had the opportunity to make clinical diagnoses on patients in both their fourth and fifth years.

Table 1 presents the percentages of correct responses according to the questions. While the percentage of correct responses for definition-based questions related to the current classification ranged from 42% to 95%, the percentage of correct responses for questions comparing the current and previous classifications and for those related to stage-grade criteria ranged between 31% and 74%. In this study, the diagnostic accuracy rate based on case scenarios presented to students was determined to range between 53% and 76% (Table 1).

Fig 1 illustrates that 65% of the general knowledge questions assessing knowledge level and 65% of the case-based questions were answered correctly. Considering overall knowledge level, 57% of the comparison questions, 63% of the definition questions, and 62% of the questions related to stage-grade criteria were answered correctly. For case-based questions, the correct response rate was found to be 70% for cases involving periodontitis and 61% for cases not involving periodontitis.

Discussion

This study aims to evaluate the knowledge level and diagnostic consistency of SDU fourth- and fifth-year dental students regarding the current classification of periodontal diseases and conditions. The findings revealed that students did not perform uniformly across all question types and experienced a higher level of difficulty in certain topic areas, thereby supporting the study hypothesis.

Adequate knowledge and diagnostic consistency are fundamental and indispensable prerequisites for the proper management of periodontal and peri-implant diseases and conditions, which are highly prevalent worldwide. The differences between the current classification and the previous classification were established in consideration of epidemiological studies and technological advancements (8). When educating students on the classification of periodontal diseases and conditions, comparing the previous and current classifications and understanding their differences are very important for better comprehension of the current system and its underlying rationale. For this reason, both the previous and current classifications, as well as the differences between them, are explained within the periodontology curriculum of our faculty.

In this study, two comparative questions were posed to assess the extent to which the classifications and their differences were learned. The finding that the correct response rate for one of these questions was 31% suggests that students particularly struggled to evaluate information related to the distinction between aggressive and chronic periodontitis in the previous classification. Unlike definition-based questions, comparative questions require not only the recall of a single piece of information but also the simultaneous evaluation of previous and current classification systems, the ability to distinguish conceptual changes

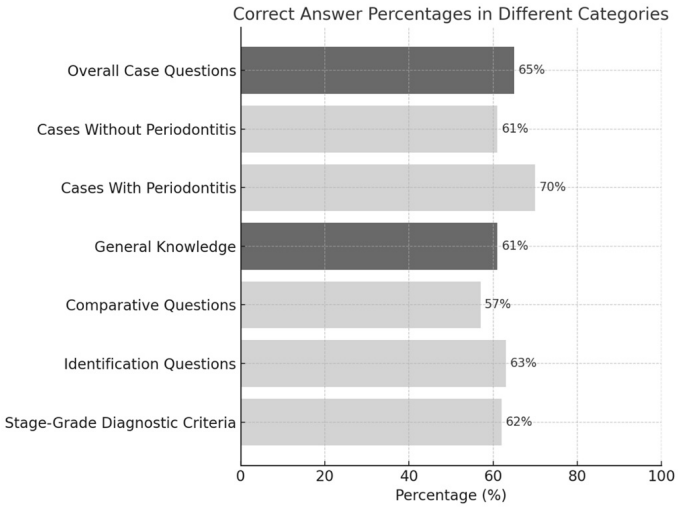

Figure 1
The percentages of correct answers by the question categories.

between them, and the interpretation of the rationale underlying these changes. This likely contributed to a higher cognitive load for these question types and, consequently, lower correct response rates compared to other question categories.

Within the scope of Periodontology II at our faculty, in the course titled Classification of Periodontal Diseases, classifications developed and used from past to present are taught in terms of their purpose, how they differ from preceding classifications, and the specific gaps they address. The 1999 Classification of Periodontal Diseases and Conditions, which was used for approximately 19 years, is still occasionally encountered in the literature with the terminology of aggressive and chronic periodontitis. For this reason, and since it represents the classification immediately preceding the current one, it was included in the comparative questions in this study. When evaluating the findings achieved in this study, the low correct response rates in comparative questions may be attributed to the fact that students predominantly use the current classification during their clinical training, leading to certain details of the previous classification (no longer in active use) remaining secondary. In particular, the absence of aggressive and chronic periodontitis as independent disease categories in the new classification may have further complicated students' ability to establish a relationship between the two systems. This finding suggests that even though students are able to implement the current classification in practice, they may not have fully internalized the conceptual transition between classification systems.

In the definition-based questions, students were asked about the diagnostic criteria for clinical gingival health on intact/reduced periodontium, gingivitis, periodontitis, and the staging of periodontitis within the current classification. The accuracy rates of 31% and 42% indicate that the concept of intact versus reduced periodontium has not been fully understood by students. One of the most challenging aspects for students/clinicians within the current classification may be the correct identification of clinical attachment loss, given that it can arise due to periodontitis, as a result of periodontal treatment, or from non-periodontal causes.

A similar issue was observed in questions regarding the staging and grading criteria of periodontitis, where it was determined that evaluations concerning clinical attachment loss were not fully mastered. Students demonstrated a low accuracy rate (31%) on one of the most fundamental principles of periodontitis staging in the current classification, namely, that staging should be based on the percentage of involvement across the entire dentition rather than on the tooth with the most severe involvement. Considering the results obtained in this study, it can be clearly seen that students do not have sufficient command of the differences between previous and current classifications, the definitions within the new classification, and the staging and grading criteria of periodontitis. Even though the formal education they received may have been applied in practice, it seems to have been insufficient for accurately answering the questions.

In addition to formal education, an instructional approach based on case discussions, also referred to as case-based learning or case-oriented learning, is implemented in our faculty (9). In this method, clinical cases play a central role in the instructional process, providing students with opportunities to interact with "clinical patients" within a controlled educational environment. This approach improves students' clinical problem-solving and decision-making skills and encourages them to consider the patient's overall condition when planning and delivering treatment. By organically integrating theoretical knowledge with clinical practice, this method adds a more realistic dimension to the learning process (10, 11). At our faculty, following formative theoretical training beginning in the third year, students engage with a large number of patients during their clinical practice/internship in the fourth and fifth years, classify periodontal diseases and conditions, develop treatment plans, and complete their learning processes through cases. Therefore, in addition to questions measuring classification knowledge, this study also included questions requiring students to establish diagnoses based on case scenarios. In comparison to general knowledge questions, the percentage of correct responses was higher for case-based questions. Among these, case questions involving periodontitis had the highest correct response rate. Examination of responses to these case questions revealed patterns similar to those observed in knowledge-based questions: students struggled with questions based on the distinction between reduced and intact periodontium and failed to utilize the critical criterion for differentiating clinical gingival health from gingivitis, namely that the percentage of bleeding on probing is 10%. It was also observed that students did not consider differences in probing depth and furcation involvement when transitioning between stages or when distinguishing between Stage 3 and Stage 4, and that they graded cases in diabetic patients with HbA1c values below the threshold of 7 as Grade A. For example, in the question, "A 20-year-old patient presenting to our clinic was found to be systemically healthy and a non-smoker based on medical history. Periodontal examination revealed a maximum

probing depth of 3 mm, bleeding on probing of 76%, less than 15% alveolar bone loss, and no furcation involvement or clinical attachment loss. Which of the following is the patient's periodontal diagnosis? The patient was diagnosed with 'gingivitis on a reduced periodontium.' This seems to originate from the interpretation of the statement "alveolar bone loss is less than 15%" as indicating its presence rather than its absence. However, despite the explicit statement that no clinical attachment loss was present, this error is thought to result either from inattentive reading of the question or from students relying solely on the written scenario without evaluating radiographic findings. For instance, Lanning et al. (12) examined variations among faculty members in the diagnosis and management of common periodontal diseases. Their study included 27 clinical instructors who evaluated three web-based cases and completed a brief survey focusing on radiographic interpretation, periodontal diagnosis, and treatment planning. The findings indicated that postgraduate students demonstrated a higher level of consistency in periodontal diagnostic assessments compared with periodontology and dental hygiene faculty members. Additionally, significant differences were found between preventive dentistry and periodontology faculty members and periodontology postgraduate students in the interpretation of clinical findings, periodontal diagnosis, and treatment planning. However, radiographic evaluation in that study was also conducted online. In contrast, the present study evaluated undergraduate students, and assessments were based on written clinical scenarios. It is thought that if the evaluation had been conducted using clinical measurement records and radiographs, students might have answered more accurately those questions they misinterpreted due to misunderstandings of the written descriptions.

In a study comparing classification consistency among students at different academic levels, Abou-Arraj et al. (13) investigated the agreement in diagnosis and treatment planning among dental students with varying levels of education using the 2018 classification of periodontal diseases. Diagnosis and treatment decisions were compared across different periodontal cases via a survey administered to second- and fourth-year dental students, as well as orthodontics and periodontology postgraduate students. The results revealed that students tended to prioritize staging over grading, overestimate disease severity, and underdiagnose localized periodontitis. Second- and fourth-year dental students and orthodontic postgraduate students demonstrated lower agreement compared with periodontology postgraduate students; however, they were generally able to distinguish healthy tissue from disease, develop appropriate treatment plans, and tended to diagnose milder periodontal conditions. In the present study, diagnostic consistency was evaluated among fourth- and fifth-year students who were engaged in or had completed clinical practice, and no comparisons were made between different class levels. Similar to the aforementioned study, participants in the present study responded more accurately to case-based periodontitis-related questions, whereas their accuracy was lower for questions regarding gingivitis and clinical gingival health, particularly those involving distinctions between reduced and intact periodontium. In a study with a similar design, Lane et al. (14) evaluated the calibration levels of third- and fourth-year dental students in periodontal diagnosis and treatment planning across three dental schools (Indiana University School of Dentistry, Marquette University School of Dentistry, and West Virginia University School of Dentistry). Their findings demonstrated differences among students across institutions despite the use of the same American Academy of Periodontology disease classification system. In contrast, the present study was carried out solely with SDU students, and no comparisons were made with students from other faculties; therefore, the findings cannot be generalized to either our faculty or to fourth- and fifth-year dental students in other dental schools in Türkiye. A multicenter study designed similarly to the study carried out by Lane et al.[14] could also reveal the extent to which the current classification system has been internalized within periodontology education in Türkiye.

In a study evaluating more advanced professional groups, Marlow et al. (15) compared diagnostic and treatment planning decisions across four participant groups: full-time and part-time periodontology faculty at Indiana University School of Dentistry (IUSD), full-time and part-time general dentistry faculty (GPF) at IUSD, full-time private practice periodontists, and full-time private practice general dentists (GPs); these groups were further categorized as calibrated and non-calibrated. Their results showed that IUSD periodontology faculty who participated in calibration sessions demonstrated higher agreement and greater consistency in periodontal diagnosis and treatment planning compared with the other three groups. This study fundamentally differs from the present study in that it included a calibration component as part of pre-study training. Similarly, John et al. (16) measured variability in periodontal diagnosis and treatment planning among preclinical periodontology faculty after training and compared it with the variability observed among third- and fourth-year dental students. Their findings indicated a low level of agreement between faculty members and students in terms of diagnosis and treatment planning.

In the present study, although the students who participated had received the same theoretical instruction within their coursework, they were not subjected to any additional training before the study. While this may be considered a limitation, the primary objective of the present study was to determine the extent to which our students have internalized the current classification; therefore, their diagnostic consistency was evaluated within the framework of their existing theoretical knowledge and clinical experience. Another limitation is that no distinction was made between senior students and those with extended enrollment in the survey. However, since this study did not aim to compare diagnostic consistency/accuracy across different levels of experience, rather, it sought to determine the current state (i.e., knowledge level), such a comparison was not conducted. Because this study was carried out using a descriptive design based on voluntary participation, the sample size was not determined through a priori power analysis. In addition, the fact that this study was carried out at a single center and based on voluntary participation may limit the generalizability of the findings to broader student populations. Although a substantial proportion of the student population in our faculty participated in the study, the possibility that students who did not respond to the survey may differ in their knowledge levels and diagnostic approaches should not be overlooked. Even though the reference diagnoses for the cases were established through the consensus of experienced specialists in periodontology, no analysis of inter-observer or intra-observer agreement among the experts was performed. Similarly, no statistical analysis was conducted to address the agreement between student responses and expert evaluations. Therefore, the reliability of the reference assessment and the statistical dimension of student-expert agreement could not be further elucidated. In light of these considerations, it would be more appropriate to interpret the findings primarily within the context of the study population. Furthermore, the presentation of the findings predominantly in terms of percentages of correct responses may have limited a more in-depth interpretation of students' learning experiences and response patterns, resulting in evaluations that remained largely descriptive in nature.

In future studies, evaluating diagnostic consistency before and after educational interventions, assessing student groups with equivalent durations of clinical experience, or establishing groups with standardized clinical experience may shed light on different dimensions of the issue. In this context, the present study is important both for providing insights into education and assessment processes and for serving as a pilot study for future research.

Conclusion

The results obtained in this study indicate that there are still deficiencies in understanding newly introduced concepts in the classification, such as the reduced periodontium and the intact periodontium. Therefore, there is a need for clearer and more effective education on these topics. As also supported by the findings achieved in this study, case-based educational approaches play a very important role in learning and internalizing the classification of periodontal diseases and conditions.

Conflict of Interest Statement
The authors have no conflicts of interest to declare.

Ethical Approval
The ethics committee approval of the study was obtained from Süleyman Demirel University (SDU) Faculty of Medicine Ethics Committee with the approval decision dated 29.12.2023 and numbered 390. Participation in this study was voluntary, and the study was conducted within the framework of ethical rules in accordance with the Declaration of Helsinki.

Consent to Participate and Publish
Written informed consent to participate and publish was obtained from all individual participants or legal guardians included in the study.

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Availability of Data and Materials
Data sharing not applicable.

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The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of images, graphics, tables, or their corresponding captions.

Authors Contributions
AEÖ: Resources; Conceptualization; Data curation; Investigation; Writing-original draft.

OBV: Resources; Investigation.

EU: Resources; Investigation.

İTB: Methodology; Formal analysis; Conceptualization.

ZYA: Conceptualization; Methodology; Formal analysis; Supervision; Project administration; Writing-original draft; Writing – review & editing

References

1. Tonetti MS, Jepsen S, Jin L, et al. Impact of the global burden of periodontal diseases on health, nutrition and wellbeing of mankind: a call for global action. J Clin Periodontol. 2017;44(5):456-62. doi:10.1111/jcpe.12732.
2. Eke PI, Borgnakke WS, Genco RJ. Recent epidemiologic trends in periodontitis in the USA. Periodontol 2000. 2020;82(1):257-67. doi:10.1111/prd.12323.
3. Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: framework and proposal of a new classification and case definition. J Clin Periodontol. 2018;45(Suppl 20):S149-61. doi:10.1111/jcpe.12945.
4. Tonetti MS, Sanz M. Implementation of the new classification of periodontal diseases: decision-making algorithms for clinical practice and education. J Clin Periodontol. 2019;46(4):398-405. doi:10.1111/jcpe.13104.
5. Armitage GC. Development of a classification system for periodontal diseases and conditions. Ann Periodontol. 1999;4(1):1-6. doi:10.1902/annals.1999.4.1.1.
6. Huynh AV, Latimer JM, Daubert DM, et al. Integration of a new classification scheme for periodontal and peri-implant diseases through blended learning. J Dent Educ. 2022;86(1):51-6. doi:10.1002/jdd.12740.
7. Bumm CV, Wölfle UC, Keßler A, et al. Influence of decision-making algorithms on the diagnostic accuracy using the current classification of periodontal diseases: a randomized controlled trial. Clin Oral Investig. 2023;27(11):6589-96. doi:10.1007/s00784-023-05264-z.
8. Caton JG, Armitage G, Berglundh T, et al. A new classification scheme for periodontal and peri-implant diseases and conditions: introduction and key changes from the 1999 classification. J Clin Periodontol. 2018;45(Suppl 20):S1-8. doi:10.1111/jcpe.12935.
9. Kim S, Phillips WR, Pinsky L, et al. A conceptual framework for developing teaching cases: a review and synthesis of the literature across disciplines. Med Educ. 2006;40(9):867-76. doi:10.1111/j.1365-2929.2006.02544.x.
10. Miflin BM, Campbell CB, Price DA. A conceptual framework to guide the development of self-directed, lifelong learning in problem-based medical curricula. Med Educ. 2000;34(4):299-306. doi:10.1046/j.1365-2923.2000.00564.x.
11. Du GF, Li CZ, Shang SH, et al. Practising case-based learning in oral medicine for dental students in China. Eur J Dent Educ. 2013;17(4):225-8. doi:10.1111/eje.12042.
12. Lanning SK, Pelok SD, Williams BC, et al. Variation in periodontal diagnosis and treatment planning among clinical instructors. J Dent Educ. 2005;69(3):325-37.
13. Abou-Arraj RV, Kaur M, Alkhoury S, et al. The new periodontal disease classification: level of agreement on diagnoses and treatment planning at various dental education levels. J Dent Educ. 2021;85(10):1627-39. doi:10.1002/jdd.12636.
14. Lane BA, Luepke P, Chaves E, et al. Assessment of the calibration of periodontal diagnosis and treatment planning among dental students at three dental schools. J Dent Educ. 2015;79(1):16-24.
15. Marlow AK, Hamada Y, Maupome G, et al. Periodontal diagnosis and treatment planning among Indiana dental faculty, periodontists, and general practice dentists: a multi-group comparison. J Dent Educ. 2018;82(3):291-8. doi:10.21815/JDE.018.029.
16. John V, Lee SJ, Prakasam S, et al. Consensus training: an effective tool to minimize variations in periodontal diagnosis and treatment planning among dental faculty and students. J Dent Educ. 2013;77(8):1022-32. doi:10.1002/j.0022-0337.2013.77.8.tb05571.x.