

SURVEY OF DENTAL STUDENTS' SELF-PERCEIVED PRACTICE, ATTITUDE, AND KNOWLEDGE TOWARD EVIDENCE-BASED DENTISTRY IN INDONESIA

Ahmad Haidar Baqir^{1*}, Dani Rizali Firman², Fidya Meditia Putri³

¹Faculty of Dentistry, Universitas Padjadjaran, Bandung – INDONESIA

²Department of Oral Biology, Faculty of Dentistry, Universitas Padjadjaran, Bandung – INDONESIA

³Department of Dental Public Health, Faculty of Dentistry, Universitas Padjadjaran, Bandung – INDONESIA

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ABSTRACT

Background: Currently, evidence-based dentistry (EBD) is considered as the “gold standard” in providing oral healthcare. EBD integrates the best scientific evidence with the dentist’s clinical expertise and patient’s value. The aim of this study was to assess dental students’ practice, attitude, and level of knowledge toward EBD in Indonesia.

Methods: In this descriptive cross-sectional study, dental students in Indonesia who were at least in their third semester of the clinical program were asked to fill out an online questionnaire. Samples were obtained using the convenience sampling technique. The instruments used were the Indonesian version of Student Evidence-based Practice Questionnaire (S-EBPQ) and a set of sociodemographic questions. Descriptive analysis was conducted in this study.

Results: Three hundred eighty-one dental students from 22 dental schools in Indonesia completed the questionnaire and met the criteria needed. The means score of practice, attitude, knowledge in retrieving & reviewing evidence, and knowledge in sharing & applying evidence were 5.02 ± 0.96 , 5.75 ± 0.99 , 4.86 ± 0.88 , and 5.22 ± 0.87 .

Conclusion: Dental students in Indonesia believe that their level of knowledge and frequency in practicing steps in EBD were tolerable. They also showed a positive attitude toward the implementation of EBD in clinical practice.

Keywords: Evidence-based dentistry, practice, attitude, knowledge, dental students

PRACTICE POINTS

- Evidence-based dentistry helps dentists to improve their performance and close the gap between research and daily practice.
- Understanding the practice, attitude, and knowledge of evidence-based dentistry among dental students may help plan their training appropriately.

*corresponding author, contact: ahmad17018@mail.unpad.ac.id

INTRODUCTION

Dentists have the autonomy to make treatment and intervention decisions on their own. However, it is constrained by the obligation of always prioritize the patient's good and do no harm by providing care based on the most up-to-date scientific evidence.¹ Currently, evidence-based dentistry (EBD) is considered as the "gold standard" in oral healthcare management.² EBD integrates scientific evidence relevant to the patient's previous history and medical status, with the dentist's clinical expertise and patient's needs and priorities in making a clinical decision.^{2,3} Even if the term 'evidence-based practice' has been disseminated, implementing the best available evidence is still infrequent.⁴ The previous study reported that most practitioners were not familiar with EBD and tended to rely on their own experiences or colleagues' experiences rather than the most up-to-date research evidence.⁵

The extensive advancements in tools, materials, and methods have made dentistry much more complex and challenging.⁶ Practitioners must keep up-to-date with the latest information to avoid a knowledge gap.⁷ Furthermore, in this digital era, people can easily search for health information through the Internet and make it as the first source of information.⁸ Also, the need of giving valid and recent information to answer daily clinical questions is increasing since the patients are more knowledgeable.^{2,6}

According to the Indonesian Dentist Competency Standards,⁹ one of the competencies that dentists should have to support their professionalism is using the EBD approach in providing dental and oral health management. Therefore, dental schools are expected to facilitate their students in understanding the concept of EBD and use it in clinical practice to perform an accurate diagnosis and treatment.¹⁰ The competency standards that must be achieved also affect the need for research that investigates whether the quality of the dental curriculum that has been implemented thus far has improved. The condition where dental schools in Indonesia are widely spread across the country has become a challenge to create the same output that is in accordance with the standards. Despite there has been a competency exam as an "exit gate" to ensure

the quality of the graduates, the standardization of the quality remains a crucial issue. Understanding the current dental students' practice, attitude, and knowledge regarding EBD can play a key role as an input in planning their training appropriately.⁶

It also has previously been mentioned in a study conducted in Indonesia that dental students have a medium to a high level of self-directed learning ability.¹¹ It becomes more imperative in dentistry for dental students to have a high level of self-directed learning readiness and ability as they are faced with many challenging clinical scenarios, where they must ensure and critically appraise the relevance of the sources of information used before applying it to the case.¹² But no further attempt has been made to investigate whether that level of self-directed learning ability is in line with the EBD implementation.

The previous studies about EBD in dental students have been conducted in several countries. However, a similar study in Indonesia is still limited, even though almost all dental schools in Indonesia should have implemented EBD in their curriculum¹³ and the importance of using the EBD approach has been mentioned as a dentist's basic competence. The only study regarding EBD that has been conducted in Indonesia is a study by Fadhila and Kusumo¹³ in 2019, which was conducted to determine the association between sex, knowledge, and education level of evidence-based dentistry behavior among dentistry students in Airlangga University. Hence, this study aimed to assess further dental students' practice, attitude, and knowledge in Indonesia in implementing EBD by involving various dental schools.

METHODS

This is a descriptive study with a cross-sectional approach. The study was conducted online from March to July 2021 after receiving ethical clearance from the Ethics Committee of Universitas Padjadjaran (064/UN6.KEP/EC/2021) and permission from the Association of Indonesian Dental Faculties (745/Adm/AFDOKGI/VI/2021).

Based on the Indonesia Higher Education Database, there were 9553 clinical dental students in Indonesia when the study was performed. The sample size was

calculated using Krejcie and Morgan’s formula¹⁴: $s = X^2NP(1 - P) \div d^2(N - P) + X^2P(1 - P)$, with an assumption of 95% confidence level ($X^2 = 3.84$), $d =$ degree of accuracy (5%), the estimation of the proportion of population is 50% ($P = 0.50$), and $N =$ population of clinical dental students in Indonesia (9553). Based on the formula, the minimum needed samples for this study were 369 clinical dental students. However, this study was able to collect data from 381 clinical dental students. The convenience sampling technique was used in obtaining the samples. The questionnaire link was sent to all dental school deans/study program coordinators through the Association of Indonesian Dental Faculties, which oversees 32 dental schools in Indonesia. Then, we asked them to forward the questionnaire link to their dental students. Dental students who were at least in their third semester of the clinical program and completed the questionnaire were selected as samples.

The instrument used in this study consisted of two main sections. In the first section, there were six sociodemographic questions: name/initial, email address, gender, dental school origin, age, and the number of semesters. The second section was Student Evidence-based Practice Questionnaire (S-EBPQ) developed by Upton et al.,¹⁵ S-EBPQ contains 21 items adopted from the Evidence-Based Practice Questionnaire (EBPQ), which were developed to measure healthcare professionals’ knowledge, practice, and attitude toward evidence-based practice. This study used S-EBPQ in Indonesian, whose translation was adopted from the Fajarini et al’s¹⁶ validated Indonesian EBPQ. Prior to data collection, the Indonesian version of S-EBPQ was tested on 29 first-year clinical dental students. The test showed that the questionnaire was reliable with the Cronbach’s alpha of 0.851. All the participants also found no difficulty in understanding the questionnaire. Items in S-EBPQ were divided into four domains: frequency of practice, attitude, knowledge in retrieving and reviewing evidence, and knowledge in sharing and applying evidence. Each item was scored on a seven-point Likert scale (1 – 7), with a higher score associated with more positive attitude and better frequency of practice

and knowledge of EBD. Based on the previous study, responses of each item were considered positive if the scores were greater than four.¹⁷

The questionnaire and data collection for this study were performed using Qualtrics XM software (Qualtrics, Provo, UT). Descriptive analyses were conducted using IBM SPSS Statistics for Windows, version 25.0 (IBM Corp., Armonk, NY, USA).

RESULTS AND DISCUSSION

A total of 381 dental students from 22 dental schools who were at least in their third semester of the clinical program completed the questionnaire. Universitas Syiah Kuala has the largest respondents, with 103 dental students (Figure 1).

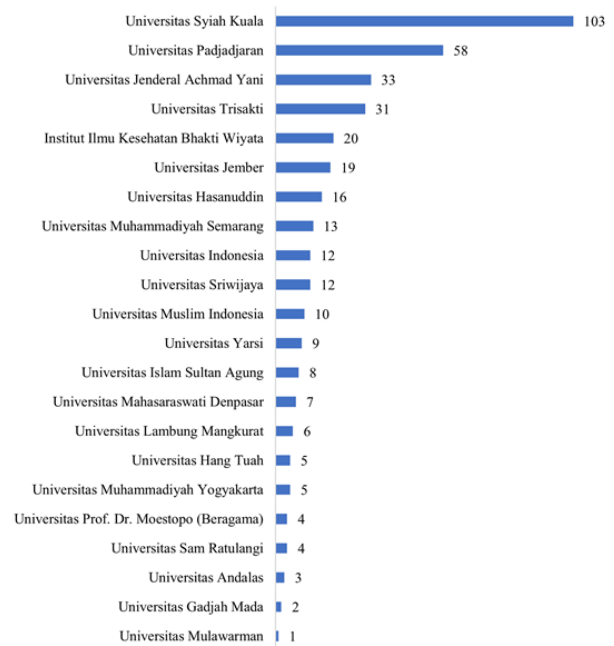


Figure 1. Number of Respondents from Each Dental School (N=381)

Table 1 presents the sociodemographic characteristics of the students. The majority of students were female (83.2%). The age of the students ranged from 21 to 30 years, with a mean and the largest group was 24 years old dental students. The students in this study were in the third semester to the tenth semester of their clinical program, with a mean of the fourth-semester students, and most of the students were in the third semester (34.6%).

Table 1. Sociodemographic Characteristics of Respondents (N = 381)

Characteristics	n (%)
Gender	
Male	64 (16.8%)
Female	317 (83.2%)
Age	
(mean ± SD = 24 ± 1.4; min. = 21; max. = 30)	
<23 years	43 (11.3%)
23 years	113 (29.7%)
24 years	118 (31.0%)
25 years	67 (17.6%)
>25 years	40 (10.5%)
Number of Semester	
(mean ± SD = 4 ± 2; min. = 3; max. = 10)	
3	132 (34.6%)
4	115 (30.2%)
5	58 (15.2%)
6	48 (12.6%)
>6	28 (7.3%)

The practice domain mean score was 5.02 ± 0.96. As shown in Figure 2, the highest one for the practice was “tracked down the relevant evidence once you have formulated the question” with a mean of 5.38 ± 1.17. Among all the items in the S-EBPQ, the lowest score was in this domain, which was “critically appraised, against set criteria, any literature you have discovered” (4.66 ± 1.25).

With an overall mean of 5.75 ± 0.99, the attitude domain was the highest among all domains. The highest mean score among all the S-EBPQ items was for the item “evidence-based practice is fundamental to professional practice” (6.03 ± 1.23), with almost half of the students (47.5%) strongly agree with that statement (Figure 3). Another item related to attitude toward EBD also showed positive results. Most of the students were welcome to question on their practice (30.2% agree and 30.4% strongly agree), and their practice has changed because of evidence they have found (28.6% agree and 26.5% strongly agree).

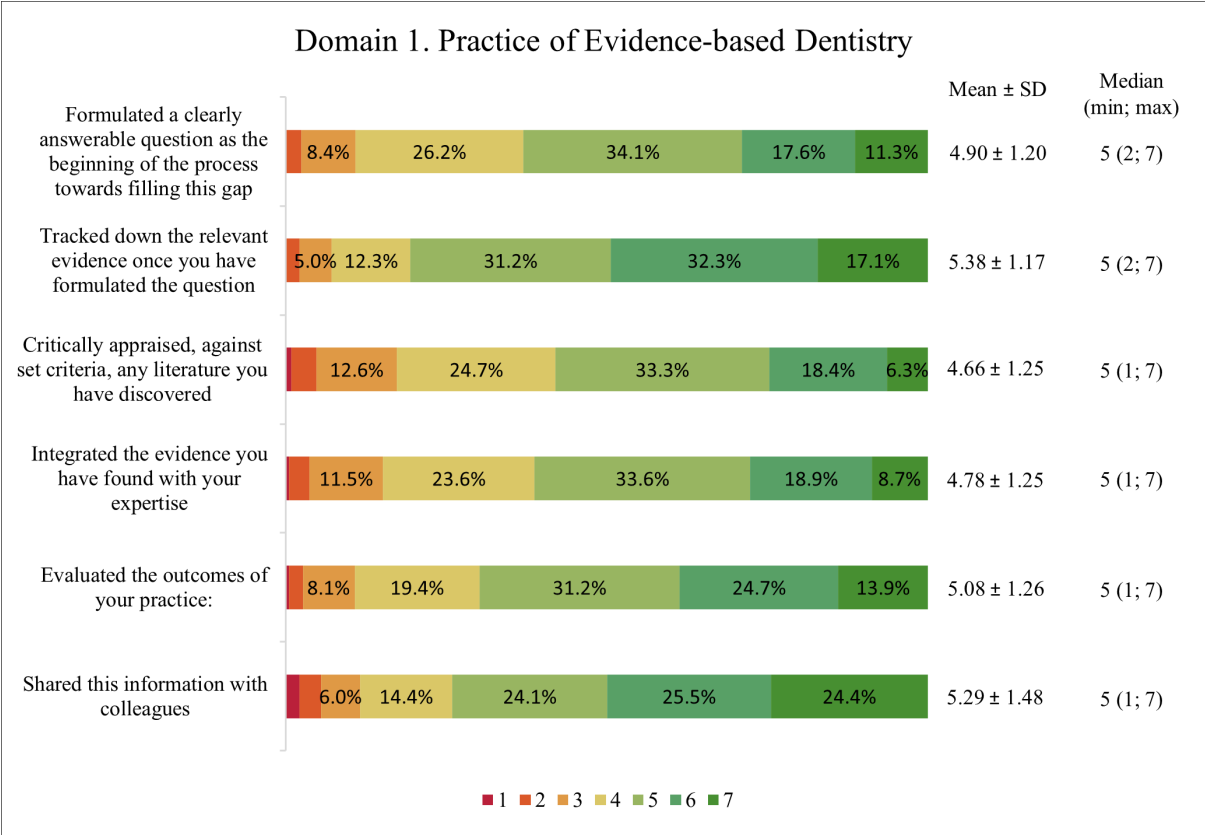


Figure 2. Results of the Domain 1

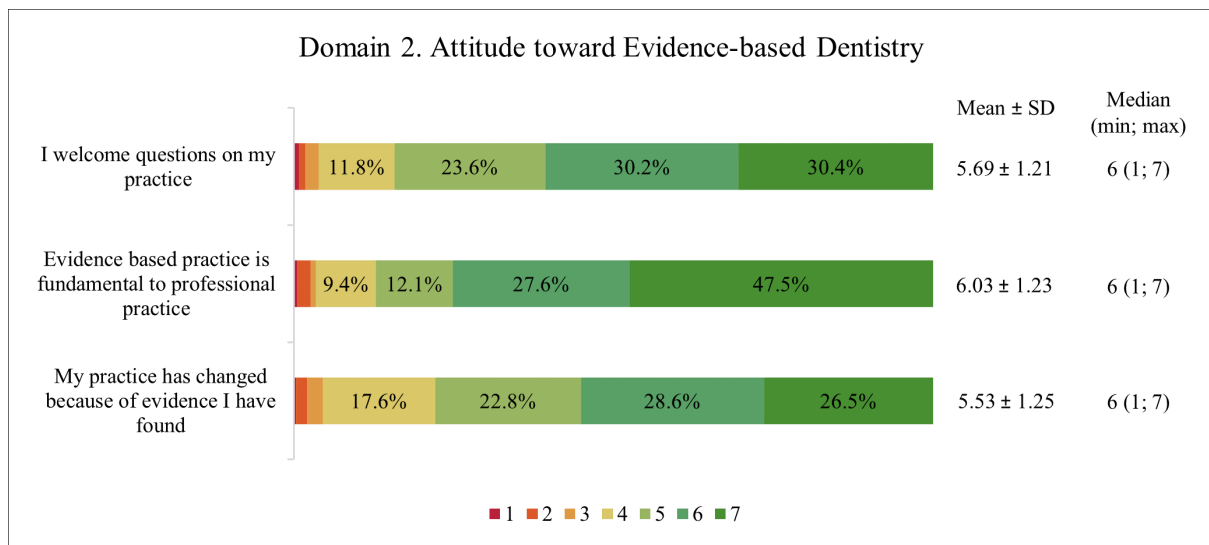


Figure 3. Results of the Domain 2

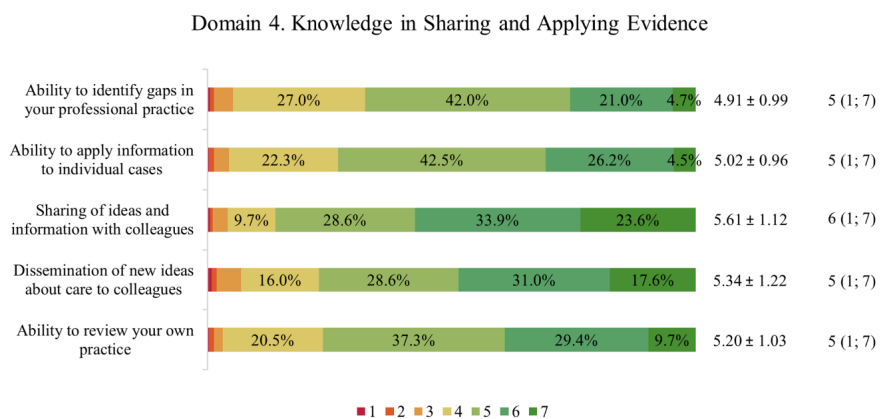
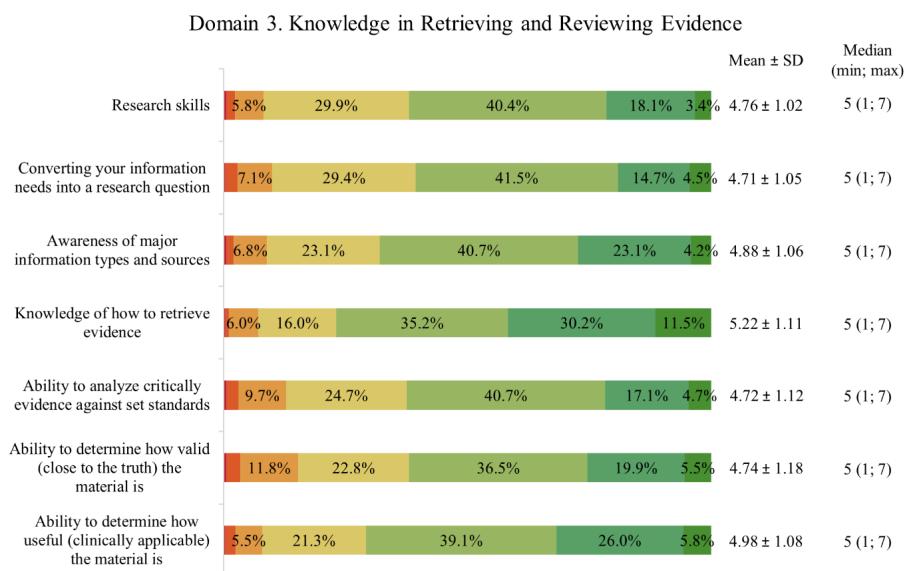


Figure 3. Results of the Domain 2

The results of the knowledge domain are shown in Figure 4. The overall mean scores for retrieving and reviewing the evidence (domain 3) and sharing and applying evidence (domain 4) were 4.86 ± 0.88 and 5.22 ± 0.87 , respectively. The highest mean score in domain 3 was for item “knowledge of how to retrieve evidence,” and for domain 4 was “sharing of ideas and information with colleagues”. The mean scores for these items were 5.22 ± 1.11 and 5.61 ± 1.12 , respectively.

This study set out with the aim of assessing the frequency of practice, attitude, and knowledge of EBD among dental students in Indonesia. The respondents, whom women dominated, reflect the majority of dental students in Indonesia. According to the results obtained from the practice domain, dental students in Indonesia frequently used the EBD approach in providing oral healthcare. This finding is contrary to Bahammam and Linjawi,¹⁸ who found that 85% of final-year dental students in King Abdulaziz University Saudi Arabia did not use the EBD approach in ordering tests or treatment.

Most dental students in Indonesia often searched for relevant evidence to answer their clinical questions. However, they appeared to be less frequent in critically appraise the evidence. These findings accord with the previous study,¹⁹ which assessed practice, attitude, and knowledge of dental faculty members in Brazil using EBPAQ. Studies by Khami et al.,³ and Straub-Morarend et al.,⁴ also showed that dental students had a low confidence level and were less capable of conducting the critical appraisal. This result may be explained by the fact that assessing the quality of the literature takes more time and effort, as well as a thorough grasp of the study design, statistical tests, evaluating bias, and other important issues regarding the critical appraisal. However, critically appraising the literature's quality is crucial in EBD practice to obtain the best relevant scientific evidence.¹⁹

This study revealed that the overall dental students had a positive attitude toward the implementation of EBD, with the majority strongly agree that evidence-based practice is fundamental to professional practice. These results are in line with those previous studies in other countries.^{4,10,20} Most dental students in the United States⁴ and Saudi Arabia²⁰ also expressed their interest in its integration into the learning curriculum.

Furthermore, the findings of this study demonstrated that the majority of students were open to criticism of their practice and did not dismiss the possibility of changing their practice as a result of new evidence. This mindset would help provoke students' curiosity in learning and provide more opportunities to learn more. The welcoming attitude toward EBD shown by many dental students indicated that they had realized the importance of EBD in clinical practice.

Dental students in Indonesia considered themselves to have relatively good knowledge about EBD, especially in sharing and applying scientific evidence domain. This finding is contrary to previous studies that have found that most dental students¹⁰ and dental faculty members²¹ in Iran consider had a low level of knowledge. This difference may be related to the difference in education systems. Another possible explanation is that this study assessed the level of knowledge regarding EBD in general, from formulating clinical questions to applying evidence to each case and evaluating the results. In comparison, the study in Iran focused on “critical appraisal” in assessing the level of knowledge.

Interesting findings in this study were that dental students knew how to retrieve scientific evidence, and it appeared that they did so regularly. However, it was among the lowest, both in the practice and knowledge domain, when it comes to critical appraisal. In accordance with the present findings, previous studies have confirmed the significant association between EBD knowledge and practice. The higher the students' knowledge will be followed by the better skills and implementation of EBD.^{10,13}

There were different findings regarding the level of knowledge in students with the higher semester. Dental students in Iran showed a significant increase in knowledge and practice among students with a higher semester.¹⁰ However, the previous study in Indonesia¹³ showed no association between the level of education and the implementation of EBD because once the students understand the concept of EBD, they can put it into their practice effectively.

The generalisability of the current results is subject to certain limitations. For instance, almost one-third of the participants came from one specific

institution and there were limited participants from other institutions. The participant's motivation and enthusiasm in participating in this study have become the important keys. In the same vein, a previous study in the United States faced the same limitation that there was a small sample size in each school that took part in the study.⁴ This study was also limited by the fact that all responses were dental students' self-perceived which might be led to bias. Previous studies have discovered a contrast between self-assessed and actual knowledge. This could be because students overestimated themselves or did not correctly assess themselves, resulting in a belief that they had a lack of knowledge about EBD.^{10,21} The absence of negative questions can also increase the tendency of respondents to answer on the same side without reading the questions carefully. Furthermore, the lack of open-ended qualitative questions may limit the questionnaire to provide richer information on students' attitude and practice of EBD. Moreover, as a descriptive study, the current findings have not been able to provide associative results.

Although the findings should be interpreted with caution, one of the strengths of this study is that it represents a comprehensive assessment of the fundamental steps in implementing EBD. This study also plays an important role as a preliminary study that provides an overview of how the results of the dental curriculum that has been applied thus far. Hopefully, the current results can increase the awareness of the importance of evaluating the current dental education process for all parties and strengthen the foundation of scientific evidence for better EBD implementation in Indonesia.

CONCLUSION

Within the aforementioned limitations, it can be concluded that dental students in Indonesia believe that their knowledge and frequency in practicing steps in EBD were tolerable. They also showed a positive attitude toward the implementation of EBD in clinical practice.

RECOMMENDATION

Considering the welcoming attitude and the enthusiasm in learning more about EBD, this

study supports the idea that more EBD courses, particularly in critical appraisal, should be provided by dental schools in Indonesia. Faculty members are also supposed to urge their students to use an EBD approach when discussing the treatment plans that will be performed on their patients. Further study should be undertaken to investigate the actual knowledge, types of sources used to obtain scientific evidence and frequently encountered barriers in implementing EBD among dental students in Indonesia.

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COMPETING INTEREST

The authors declare that there are no competing interests related to the study.

AUTHORS' CONTRIBUTION

Ahmad Haidar Baqir – project planning, data collection, data analysis, manuscript draft, and manuscript submission

Dani Rizali Firman – project planning, project permission, data collection, manuscript review

Fidya Meditia Putri – project planning, data collection, manuscript review

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