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The Association between Sex, Knowledge, and Education Level of Evidence-Based Dentistry Behavior among Dentistry Students

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Abstract

Background: Almost all faculties of dentistry have implemented Evidence Based Dentistry (EBD) curriculum to improve students ability to provide the best treatment for patients supported by the best research evidence, but there is still little data to show evaluations in their use. **Objective:** The aim of this study was to determine the association between sex, knowledge, and education level of evidence-based dentistry behavior among dentistry students. **Method:** The study was a cross sectional survey and has received ethical approval. Self-administrated questionnaires distributed to second, third and fourth year students of the Faculty of Dental Medicine, Universitas Airlangga, Surabaya. Contingency Correlation analysis was performed to determine the association between sex and behavior, Spearman's correlation analysis was performed to determine the association between knowledge, education level and behavior. All data were analyzed with a significance level of 95%. **Result:** A total of respondents filled out and returned the questionnaire were 221. Eighty five percent of respondents were females. Based on statistical analysis, there is association between sex and behavior of the implementation of EBD with 0,000 significance value, there is association between the knowledge and behavior of the implementation of EBD with 0.008 significance value, and there is no association between the level of education and behavior of the implementation of EBD with a significance value of 0.458. **Conclusion:** There is association between sex and with behavior, but there is no association between the level of education of dentistry students with evidence-based dentistry behavior.

Key Words: *evidence-based dentistry, dentistry students*

Introduction

In the current 4.0 revolution era, most fields of human life are supported¹ by digitalization manufacturing and exploitation of the potential of new technologies², including in the health sector³, peoples will find out about their health conditions through digital references⁴. The health workers can also take advantage of this technology to always find out about the latest and best treatment developments⁵, but not all sources we get through digital technology can be trusted⁶. Important

to close the gap between research results and dentist practices to optimize the information available so that it can provide the best care⁷. This gap can be closed by formulating evidence-based clinical guidelines for the best treatment that can be performed by dentists and can be conveyed in simpler language that can be easily accepted by patients⁸.

Evidence-based medicine were introduced in the 19th century and are referred to the best use of evidence in making decisions about patient care for each individual carefully, clearly, and wisely⁹. With the evidence-based application¹⁰, it is expected that there will be continuity between patient needs and a good treatment plan from the dentist, so they can provide best treatment¹¹. According to the American Dental Association (ADA)¹², Evidence-Based Dentistry (EBD)

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is an approach in the field of dental and oral health that requires a systematic overall understanding of clinically relevant scientific evidence, relating to the condition and health history of the whole body, teeth and the patient's mouth, with the clinical condition discovered by the dentist, as well as the patient's care needs and preferences. Not all reference can be evidence-based for treatment or decision making¹³. Among the sequence of evidence-based results that we can make reference are systematic reviews and meta-analysis which occupies the top position which is considered as the highest level of evidence-based, then followed by randomized clinical trials (RCT). After that there are non-RCT studies, cohort studies, case-control studies, cross-over studies, cross-sectional studies, case studies or case reports, and expert opinions⁶.

Many dentists believe they practice evidence-based dentistry (EBD), but in reality the dental profession lags behind many other health professionals in making evidence-based treatment decisions¹⁴. In 2013, The US Institute of Medicine report that available evidence-based information was rarely applied to improve the quality of treatment, especially when evidence-based treatments for prevention and management were disseminated¹⁵. Almost all faculty of dentistry in Indonesia as an initial line to produce the next generation of dentists, have implemented evidence-based in the curriculum as a mechanism to educate students to be able provide best treatment to patients supported by research evidence, not just based on experience¹⁶. Survey conducted on dental students in Saudi Arabia showed that only 6.3% of students routinely read journals and 85% did not apply evidence-based in patient care¹⁷.

If knowledge is an important factor but the supporting factors are not enough to understand and apply evidence-based dentistry, then we need to conduct research to find out the application of evidence-based behaviour to improve patient treatment. Therefore, we first need to understand the association between sex, knowledge, and education level of evidence-based dentistry behavior among dentistry students.

Methods

The study was a cross sectional survey¹⁸. The questionnaire already used in a previous study carried out by Nazir et al.¹⁹ was selected to obtain responses from

the participants. The questionnaire included questions which enquired demographic information and level of education of the respondents. Respondents were asked about knowledge including critical appraisal and access of practicing EBD, awareness about three components of EBD, selection of best evidence, and capability of patients in clinical decision making process.

Simple random sampling technique was employed to collect data. Ethical approval was obtained from respective institutes. Self-administrated questionnaires distributed to second, third and fourth year students of the Faculty of Dental Medicine, Universitas Airlangga, Surabaya. Informed consent was distributed and filled out by respondents before completing the questionnaire. The respondents were assured about their confidentiality during collection, analysis and reporting of research findings. The distribution and collection of questionnaires were carried out during the months of September – December 2019.

Contingency Correlation analysis was performed to determine the association between sex and behavior, Spearman's correlation analysis was performed to determine the association between knowledge, education level and behavior. All data were analyzed with a significance level of 95%.

Result

A total of respondents filled out and returned the questionnaire were 221 from 456. Consists of 120 second year student, 40 third year student, and 61 fourth year students. Eighty five percent of respondents were females. From the table above, it can be seen that female students who implement good behavior of EBD 167 respondents (89%) and not good 35 respondents (11%). While male students who implement good behavior of EBD 17 respondents (42%) and not good 16 respondents (48%). Total students who implement good behavior of EBD 184 respondents (83%) and those who implement not good behavior of EBD 37 respondents (17%). Total respondents analyzed were 221 respondents. The contingency correlation coefficient shows a value of 0.266. This means that the level of strength of the relationship (correlation) between sex and the behavior of the implementation of EBD is 0.266 or weak. The

contingency correlation coefficient has a positive value of 0.266 so that the association between the two variables is in the same direction. Based on the above results, it is known that the significance is 0.000, that is ≤ 0.05 , it means that there is an association between sex and the implementation behavior of EBD.

From the table above, it can be seen that the 2nd year students who implemented good behavior of EBD 94 respondents (78%) and not good 26 respondents (22%). The 3rd year students who implemented good behavior of EBD 35 respondents (88%) and not good 5 respondents (12%). The 4th year students who implemented good behavior of EBD 55 respondents (91%) and not good 6 respondents (9%). Total students who implemented good behavior of EBD 184 respondents (83%) and those who not good 37 respondents (17%). Total respondents analyzed were 221 respondents. The Spearman correlation coefficient shows a value of 0.05 means the level of strength of the association (correlation) between education level and behavior of the Implementation of EBD is 0.05 or very weak. The Spearman correlation coefficient has a positive value of 0.05 so that the two variables are in the same direction. Based on the above

results, it is known that the significance is 0.458, that is ≥ 0.05 , it means there is no association between the level of education and the behavior of the implementation of EBD

From the table above, it can be seen that students who have high knowledge and implement good behavior of EBD 176 respondents (79%) and not good 26 respondents (12%). Students who have low knowledge and implement good behavior of EBD 8 respondents (4%) and not good 11 respondents (5%). Total students who implement good behavior of EBD 184 respondents (83%) and those who not good in implementing EBD 37 respondents (17%). Total respondents analyzed were 221 respondents. The Spearman correlation coefficient shows a value of 0.177. This means that the level of strength of the association (correlation) between knowledge and behavior of the application of EBD is 0.177 or very weak. The correlation coefficient value is positive that is 0.177 so the two variables are in the same direction. Based on the above results it is known that the significance of 0.008 is ≤ 0.05 , that meaning there is an association between knowledge and behavior of the implementation of EBD.

Table 1. The association between sex, knowledge, and education level of evidence-based dentistry behavior among dentistry students

Behavior	Sex		Education Level			Knowledge	
	Women	Men	2nd	3rd	4th	High	Low
Not Good	21	167	26	5	6	26	11
Good	16	17	94	35	55	176	8
Total	33	188	120	40	61	202	19
Sig.	.000		.458			.008	
Correlation Coefficient	.266		.050			.177	

Discussion

In this study, it was found that 89% of female students implement good behavior of EBD while only 42% of male students implement good behavior of EBD. A significance of 0.000 is known that is ≤ 0.05 ,

meaning that there is an association between sex and the implementation behavior of EBD. These results are consistent with research conducted by Fedorowicz et al (2004)²⁰. A woman has a broader orientation towards information and depends on compromise in meeting her needs so that it is possible to implement EBD well because

the EBD concept is to find the best research evidence to provide maximum care for patients²⁰. Whereas men are more aggressive, independent, and competitive in meeting their needs, so they tend to choose a faster path with a minimum analysis according to EBD. But this result is the opposite of the research conducted by Nazir et al. that is, men implement EBD better than women¹⁹. A man spends less time accessing the internet, but a large proportion of his internet access is used to search various information, in contrast to women who spend more time on internet access but most of the proportion is used to socialize¹⁹.

In this study, it was found that the results of more than 75% of the 2nd, 3rd, 4th years students implement good behavior of EBD. A significance of 0.458 is known as ≥ 0.05 , meaning that there is no association between the level of education and the behavior of the implementation of EBD. These results contradict the research conducted by Nazir et al. (2015) which states that the higher the level of education the better it will be in implementing EBD. This is because the higher the level of education it is possible to have more experience in implementing EBD so that it can be more confident in implementing EBD than the lower level of education¹⁹. This shows at any y years level, when they have received EBD learning, students can be implement good behavior of EBD.

From the above data, it can be seen that students who have high knowledge and implement good behavior of EBD 176 people (79%) and not good 26 people (12%). Students who have low knowledge and implement good behavior of EBD 8 people (4%) and not good 11 people (5%). Based on the above results it is known that the significance of 0.008 is ≤ 0.05 , it means that there is a significant association between the variable level of knowledge and behavior of the implementation of EBD. These results suitable with Fedorowicz et al (2004) and Nazir et al. (2015)^{19,20}. Knowledge is a repository of information in one's mind. Student knowledge of EBD learning concepts will help the success, completeness of learning material in a more complex and detailed manner so that it can improve the application of EBD well¹⁹. Then the higher the knowledge of someone, the better the implementation of EBD.

Conclusion

There is association between sex and with behavior, but there is no association between the level of education of dentistry students with evidence-based dentistry behavior.

Conflict of Interest : None

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Ethical Clearance : This study was approved by the Universitas Airlangga, Faculty of Dental Medicine Health Research Ethical Clearance Commission

References

1. Muda I. The effect of supervisory board cross-membership and supervisory board members' expertise to the disclosure of supervisory board's report: Empirical evidence from Indonesia. *Eur Res Stud J.* 2017;20(3):702–16.
2. Nasution MKM. Information Retrieval Optimization Based on Tree of Social Network. In: A.Y. A, editor. 1st International Conference on Industrial and Manufacturing Engineering, ICI and ME 2018 [Internet]. Fakultas Ilmu Komputer Dan Teknologi Informasi, Universitas Sumatera Utara, Padang Bulan, Medan, 20155, Indonesia: Institute of Physics Publishing; 2019.
3. Lubis HF, Laturiuw HP. Socioeconomic status and orthodontic treatment need based on the Dental Health Component. *Dent J (Majalah Kedokt Gigi).* 2018;51(3):119.
4. Rojko A. Industry 4.0 Concept: Background and Overview. *Int J Interact Mob Technol [Internet].* 2017;11.
5. Palutturi S, Rutherford S, Davey P, Chu C. Professional challenges to strengthen partnerships in the implementation of healthy cities in Indonesia: A case study of Makassar. *Res J Med Sci.* 2014;8(4):126–32.
6. Ismail AI, Bader JD. Evidence-based dentistry in clinical practice. *J Am Dent Assoc.* 2004;135(1):78–83.
7. Pratiwi R, Akbar FH, Abdullah A, Mareta YA. Knowledge and self perception about preventive dentistry among Indonesian dental students. *Pesqui Bras Odontopediatria Clin Integr.* 2018;18(1):1–6.

8. Thomas M V., Robinson FG, Nihill P. Evidence-Based Curriculum Reform: The Kentucky Experience. *Dent Clin North Am.* 2009 Jan;53(1):1–13.
9. Konsil Kedokteran Indonesia. *Pedoman Kompetensi Dokter Gigi.* Jakarta; 2006.
10. Hidayatullah T, Agustiani H, Setiawan AS. Behavior management-based applied behaviour analysis within dental examination of children with autism spectrum disorder. 2018;71(32):71–5.
11. Hendricson WD, Rugh JD, Hatch JP, Stark DL, Deahl T, Wallmann ER. Validation of an Instrument to Assess Evidence-Based Practice Knowledge, Attitudes, Access, and Confidence in the Dental Environment. *J Dent Educ.* 2011;75:131–44.
12. American Dental Assosiation. Policy on Evidence-Based Dentistry [Internet]. American Dental Assosiation. 2013 [cited 2020 Feb 25]. Available from: <https://www.ada.org/en/about-the-ada/ada-positions-policies-and-statements/policy-on-evidence-based-dentistry>
13. Yulianto K, Rukmini E, Kedokteran F, Katolik U, Jaya A. Refleksi Pembelajaran Aplikasi Medical Writting Presentation pada Mahasiswa Semester Satu Fakultas Kedokteran. 2014;3(2):120–31.
14. Niederman R. Guest editorial: Evidence-based dentistry finds a new forum Exelauno. Vol. 140, *Journal of the American Dental Association.* Elsevier; 2009. p. 272–4.
15. Smith M, Saunders R, Stuckhardt L MJ. *A Continuously Learning Health Care System - Best Care at Lower Cost - NCBI Bookshelf.* National Academies Press (US). 2013.
16. Bertolami CN. Creating the dental school faculty of the future: a guide for the perplexed. *J Dent Educ.* 2007 Oct [cited 2020 Feb 25];71(10):1267–80.
17. Bahammam MA, Linjawi AI. Knowledge, attitude, and barriers towards the use of evidence based practice among senior dental and medical students in western Saudi Arabia. *Saudi Med J.* 2014 Oct 1;35(10):1250–6.
18. Bahirrah S. Relationship of crowded teeth and Oral Hygiene among urban population in Medan. In: 4th International Conference on Friendly City 2017 [Internet]. Orthodontic Department, Faculty of Dentistry, Universitas Sumatera Utara, Kampus USU, Jl. Alumni No 2, Medan, 20155, Indonesia: Institute of Physics Publishing;2018.
19. Nazir, M A ; Almas K. Knowledge and practice of evidence-based dentistry among dental professionals: an appraisal of three dental colleges from Lahore – Pakistan – Virtual Health Sciences Library. *Pakistan Oral Dent J.* 2015;35(3):466–71.
20. Fedorowicz Z, Almas K, Keenan J V. Perceptions and attitudes towards the use of Evidence-based Dentistry (EBD) among Final year students and Interns at King Saud University, College of Dentistry in Riyadh Saudi Arabia. Correspondence to. *Braz J Oral Sci.* 2004 Dec 31;3(9).