

Knowledge, Attitude, and Barriers toward Evidence Based Dentistry among Dental Practitioners in Rohilkhand Region - A Cross-Sectional Survey

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ABSTRACT

Introduction: The concept of evidence-based practice in dentistry is to provide patients with current treatment that research has shown to be safe, effective and efficient. Ultimately, the goal of evidence-based practice is to continuously improve patient care based on new research developments. This article highlights the awareness in the minds of previously un-informed dentists as well as to demonstrate the need in continuous professional education through seminars, updates, lectures and short-term courses. Hence, the aim of the present study was to describe the knowledge, attitude, and barriers of dentists toward the concept of evidence-based dentistry (EBD) in Rohilkhand region, Uttar Pradesh, India. **Materials and Methods:** A cross-sectional survey was conducted with the help of a questionnaire conducted among 300 dentists practicing in Rohilkhand region. The questions covered the participant's level of knowledge and use of EBD. **Results:** Majority of the respondents were male (76.7%) aged between 25 and 40 years. About 37.7% of these respondents were in general practice with about one-thirds of all respondents having been in practice for <5 years. Although more than half of these respondents reported being aware of the concept of EBD, only about one third chose the correct definition. About 54.1% dentists agreed that was an important concept in practice (54.1%). Conducting continuing dental education programs was found to be the most recommended option for increasing the awareness of evidence based dentistry. **Conclusion:** EBD was not a familiar concept to these dentists; the majority of them preferred consultation with colleagues over seeking evidence from electronic databases.

Key words: Evidence-based dentistry, trends, knowledge, Rohilkhand region

INTRODUCTION

Evidence-based practice is an approach that emphasizes finding and using the best, current research evidence; along with clinical experience and patient preferences to help make health-care decisions.^[1] The goal of evidence-based practice is to provide patients with up-to-date treatment that research has shown to be safe, effective, and efficient. Ultimately, the goal of evidence-based practice is to continuously improve patient care based on new research developments.^[2]

The concept of evidence-based practice is well established in medicine. In dentistry, evidence-based practice is less developed but quickly gaining momentum. The concomitant growth of information technology has encouraged the development of research methodology and the availability and dissemination of research findings. Such technologies have also influenced patients' awareness of their own healthcare, options available, and their role in decision-making processes.^[3,4]

Evidence-based practice can be taught to and practiced by clinicians at all stages in their career and may help close the gap between good clinical research and clinical practice. It is not a new concept for the professionals in the United States, but is one of the recent evolutions in the dental practice in India.^[5]

At present, dental education and dental care delivery systems are greatly improved in India due to increased dental health workforce and development in field of dental research, however dental graduation training program in India is mainly targeted toward preventive and curative dental procedures, there is a lack of emphasis on the application of evidence-based dentistry in clinical practice. Thus India, still serves evidence-based practice in its infancy stages.^[6]

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It is not currently clear to what extent general dental practitioners have embraced the evidence-based dentistry movement. Many practicing clinicians graduated years before the concepts of evidence-based healthcare were accepted as mainstream. It is not clear to what extent current general dental practitioners are involved in reading literature and whether they have the skills and time to appraise it.^[7]

Given the potential problems identified with evidence-based dentistry (EBD) and its uptake by general dental practitioners, this research has been carried out with the aim to determine the knowledge, attitude and barriers of evidence-based practice among general dental practitioners in the Rohilkhand region of India.

MATERIALS AND METHODS

The present study was a cross-sectional study which was conducted in Rohilkhand region of Uttar Pradesh (UP), India which encompasses Bareilly, Moradabad, Rampur, Bijnor, Pilibhit, and Shahjahanpur. It has three dental colleges in its heart with one college situated in Bareilly and the other two in Moradabad. The participants came from nearly all the dental schools in the country, with the majority having graduated from the University of Rohilkhand.^[8]

A pilot study was done on selected questionnaire before the start of the present study on 20 randomly selected subjects. The sample size was calculated using the following formula:

$$N = \frac{Z\alpha^2 \times p \times q}{d^2} = p = 20\% \quad q = 100 - 20 = 80$$

$$= \frac{.96 \times 1.96 \times 20 \times 80}{5 \times 5}$$

$$= \frac{3.8416 \times 1600}{25} = 245 \text{ which was rounded off to 300 subjects}$$

The demographic information was subdivided into groups that included the age and gender of the practitioners, length of training period, duration of practice, and university they have graduated from. The participants were asked to identify common EBD terms. Knowledge was assessed by asking respondents their perceived levels of knowledge on six evidence-based practice terms, and then, choosing the correct definition of three of those terms. Questions were asked on the sources of information for making treatment choices. The importance of EBD was rated on a five-point Likert scale, from very important to not important.

Structured self-administered questionnaires were sent out to all participants via both individual and courier service delivery depending on the proximity of location to the investigator. The questionnaires were accompanied by a covering information letter giving an explanation of the study as well as letter used to obtain informed consent. The questionnaires were recorded using serial numbers. The questionnaire was prepared after referring some studies done in the past.^[9,10]

The scientific reliability and consistency of the questionnaire were confirmed by inter and intra observer respectively by evaluating the same questionnaire on same subjects before and after 1 month by same observer and within 1 month by another observer in random order and evaluated using intra class correlation (ICC) and Cronbach's alpha coefficient analysis, respectively. The ICC and Cronbach's alpha yielded a significantly higher intra ($r = 0.81$) and inter ($r = 0.73$) reliability and consistency.

The study population consisted of all dentists practicing in the Rohilkhand region in both private and public establishments. A list of this population of dentists was obtained from the IDA branches of the area and consisted of a total of 300 registered dentists with valid addresses. Questionnaires were sent to the 300 dentist practicing in Rohilkhand region.

The inclusion criteria were licensed dentist practicing in Rohilkhand region who gave informed written consent. The exclusion criteria were the dentist who were not willing to participate in the study and were not available on three subsequent visits in their dental clinics were not included in this study.

Questions which might possibly alienate the respondents and researcher were also avoided. The use of well-worded questions was utilized and "double-barreled questions" were avoided. The total focus of this was to ensure that efficient and meaningful analysis of the acquired data would be possible.

Questions were also asked on their assessment of a need for EBD information, if they had ever changed their clinical practices as a result of a scientific research article and the reasons for changing the practice. Questions were formulated to identify the commonly perceived barriers by the dentist and their perception toward the future perspective of EBD in dentistry and its relevance in Indian scenario.

Statistical analysis

Data collected were analyzed using SPSS software version 21 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0, IBM Corp., Armonk, NY, USA). The data were summarized in number and percentage. The categorical groups were compared by Chi-square (χ^2) test. A two-sided ($\alpha = 2$) $P < 0.05$ was considered to be statistically significant.

RESULTS

The study determined knowledge, attitude, barriers, and perceptions toward evidence based practice in Rohilkhand region of UP, India. A total of 257 dental practitioners (general dental practitioners, specialty dental practice, and academicians) responded and completed the study. About 43 dentists were unable to complete the study.

Out of 257 dentists, about 155 (60.3%) were males and 102 (39.7%) were females. The majority 197 (76.7%) of them belonged to 25–40 years of age. Least number, that is, 44 (17.1%) of them belonged to 41–55 years of age followed by 7 (2.7%) in <25 years and 9 (3.5%) in more than 55 years of age.

Majority of the dentists 97 (37.7%) were general dental

practitioners followed by academicians 94 (36.6%) with 66 (25.7%) of specialty dental practice. Maximum working experience was found to be 2–5 years in about 85 (33.1%) of the dentists.

Most of the dentists 72 (28.8%) understand the term evidence-based practice when used in its correct context. However, only 26 (10.1%) dentists can understand and define it. In contrast, most of the participants 88 (34.2%) know little about the term clinical governance. However, only 11 (4.3%) dentists can understand and define it. Conversely, most of the dentists 80 (31.1%) understand the term clinical effectiveness when used in its correct context. However, 18 (7.0%) dentists understand and can define it.

Further, most of the dental dentists 70 (27.2%) were unaware of the term systematic review. However, about 33 (12.8%) dentists understand and can define it. Similarly, most of the participants know little about the term critical appraisal 76 (29.6%). However, 21 (8.2%) dentists understand and can define it.

Moreover, most of the dentists were unaware of the term Cochrane collaboration 130 (50.6%). However, 16 (6.2%) participants understand and can define it. Most of the dentists 70 (27.2%) reported that the evidence-based practice is based on good quality research evidence and thus has shown ignorance to clinical expertise and patient preference as key elements to EBP [Table 1].

In the present study, only 63 (24.5%) dentists had correct knowledge that it is based on clinical experience and patient preference. Moreover, 26 (10.1%) dentists have no knowledge about it. Similarly, most of the 95 (37.0%) dentists consider that the systematic review is a meta-analysis technique. However, about 81 (31.5%) dentists had correct knowledge that it uses explicit methods to identify, select, and appraise relevant research. Moreover, about 34 (13.2%) dentists have no knowledge about it. In contrast, most of the dentists have correct knowledge that the critical appraisal assesses validity and relevance of results 105 (40.9%). However, about 71 (27.6%) dentists did not have knowledge about it [Table 2].

Majority of the dentists 100 (38.9%) consulted text books followed by friends and colleagues 60 (23.3%), journal 57 (22.2%), electronic database 22 (8.6%), and 18 (7.0%) make decision on their own as presented in Table 3. Most of the participants change their practice based on scientific article or findings 198 (77.0%) and it is the highly significant results 85 (33.1%) in an article that makes the participants change their practice. Quality of the paper which is the most important parameter to assess an article is chosen by about 83 (32.3%) dentists and only few participants 28 (10.9%) in the present study have attended an EBD course as seen in Table 4.

In Table 5, maximum dentists 104 (40.5%) agreed that practical demands of work makes it difficult to keep up-to-date with current best evidence relating to practice. Majority dentists 86 (33.5%) had a neutral opinion that there is not enough clinical guidelines in the literature, 129 (50.2%) agreed that the literature is often conflicting and ambiguous. About 95 (37.0%) dentists with a neutral attitude toward the level of satisfaction they have for their current knowledge and feel it is sufficient.

Most of the participants believe good future of EBD in Indian scenario 139 (54.1%). Further, most of the participants also

Table 1: Distribution of data based on understanding of terms among dental practitioners

Understanding of terms	(n=257)	%
Evidence based practice		
1. Unaware	58	22.6
2. Little know	50	19.5
3. Understand when used in its correct context	72	28.0
4. Understand but cannot define it	51	19.8
5. Understand and can define it	26	10.1
Clinical Governance		
1. Unaware	86	33.5
2. Little know	88	34.2
3. Understand when used in its correct context	45	17.5
4. Understand but cannot define it	27	10.5
5. Understand and can define it	11	4.3
Clinical Effectiveness		
1. Unaware	68	26.5
2. Little know	51	19.8
3. Understand when used in its correct context	80	31.1
4. Understand but cannot define it	40	15.6
5. Understand and can define it	18	7.0
Systematic Review		
1. Unaware	70	27.2
2. Little know	43	16.7
3. Understand when used in its correct context	52	20.2
4. Understand but cannot define it	59	23.0
5.	33	12.8
6. Understand and can define it		
Critical Appraisal		
1. Unaware	66	25.7
2. Little know	76	29.6
3. Understand when used in its correct context	69	26.8
4. Understand but cannot define it	25	9.7
5. Understand and can define it	21	8.2
Cochrane Collaboration		
1. Unaware	130	50.6
2. Little know	40	15.6
3. Understand when used in its correct context	51	19.8
4. Understand but cannot define it	20	7.8
5. Understand and can define it	16	6.2

agreed that the EBD practice may turn into reality 139 (59.1%). Most of the dentists 81 (31.5%) recommended continuing dental education's followed by seminars 56 (21.8%), workshops 45 (17.5%), conferences 42 (16.3%), and short certificate courses 33 (12.8%) for betterment of EBD in India [Table 6].

DISCUSSION

Evidence-based dentistry is said to be the current best approach to provide interventions as it not only improves dentist's skills

Table 2: Distribution of data based on knowledge of terms among dental practitioners

Knowledge of EBD Term	(n=257)	%
Evidence-based practice		
1. Good quality research evidence	70	27.2
2. Good quality clinical experience	40	15.6
3. Clinical experience and patient preference*	63	24.5
4. Research evidence and clinical expertise	58	22.6
5. Don't know	26	10.1
Systematic Reviews		
1. Meta-analysis techniques	95	37
2. Explicit methods to relevant research*	81	31.5
3. Effectiveness of an intervention	34	13.2
4. Randomized clinical trials	13	5.1
5. Don't know	34	13.2
Critical Appraisal		
1. Assessing validity and relevance of results*	105	40.9
2. Determining bias in the results	43	16.7
3. Peer review of a clinical procedure	32	12.5
4. Assessment of statistical techniques	6	2.3
5. Don't know	71	27.6

* - correct answer/knowledge

Table 3: The distribution of data based on primary reason for changing practice philosophy among dental practitioners

Primary reason for changing practice philosophy	(n=257)	%
I. In Uncertainty Regarding Treatment Choice, Consult-		
a. Text book	100	38.9
b. Journal	57	22.2
c. Electronic database	22	8.6
d. Friends or colleagues	60	23.3
e. Make my own decision	18	7.0

and knowledge but also the quality of the treatment provided to the patients.^[11] EBD champions are committed to improving the quality, effectiveness, and appropriateness of dental care through the application of evidence-based principles and tools.^[12] In addition, EBD leads to better oral healthcare by allowing the dentist systematically to collect and to analyze scientific evidence to answer a specific clinical question.^[13]

In the present study, there were a few significant differences between the knowledge scores of the participants and their demographic data, including age, gender, and number of years since graduation. In contrast, studies done by Yusof *et al.*^[14] and Ji *et al.*^[15] found no such significant relationship between the variables.

A factor that differed significantly in the present study was the number of years of experience among the study participants. Most of the respondents had experience of 2–5 years (33.1%). This was

Table 4: Distribution of data based on attitude toward EBD among dental practitioners

Attitude towards EBD	(n=257)	%
I. EBD is Important in General Practice-		
1. Strongly agree	72	28.0
2. Agree	82	31.9
3. Neutral	90	35.0
4. Disagree	13	5.1
II. Interested in Finding more Information on EBD-		
1. Yes	245	95.3
2. No	12	4.7
III. Change of Practice based on Scientific Article-		
1. Yes	198	77.0
2. No	59	23.0
IV. What was it About the Article that Made You Change Your Practice-		
1. Highly significant results	85	33.1
2. Quality of the paper	83	32.3
3. The journal in which it was published	68	26.5
4. Well known authors	21	8.2
V. Ever attended a EBD course:		
1. Yes	28	10.9
2. No	229	89.1

similar to the study conducted by Nawabi *et al.*,^[16] where almost one-third of respondents (32.9%) had graduated 1–5 years before the study took place.

In the study conducted by Iqbal *et al.*,^[17] 62% of the respondents had worked as dental practitioners for more than 15 years. It also appears that the relatively limited job experience of the dental practitioners in the present study might be attributed to the large number of dental practitioners who have recently graduated in Rohilkhand region.

The present study evaluated the knowledge and use of EBD by dental practitioners with an 86.3% response rate in the Rohilkhand region. These findings are comparatively lesser when comparing the knowledge and use of EBD by the study conducted by Patel *et al.*,^[18] with a 91% response rate.

The variation in these response rates could be attributed to the differences in research methodologies between these studies. It was found that in some studies, the questionnaires were sent to the dental practitioners in traditional hard copy format and suggested that responses to electronic surveys are generally lower than those of paper surveys.^[19,20]

Therefore, it appears that dental practitioners currently only accept the use of electronic databases concomitantly with other more conventional methods, including consultation with colleagues. Ideally, clinicians should be consulting electronic databases, such as PubMed and Cochrane, and seek evidence from systematic reviews or meta-analysis of randomized control trials where possible, to identify the best current evidence which can help guide decision-making.^[21]

Hence, the results of this study found that dentists in Rohilkhand region pay little attention to EBD for many reasons. The main factors were a lack of EBD education in dental schools and the fact that the respondents were not familiar with

Table 5: Distribution of data based on barriers toward EBD among dental practitioners

Barriers	(n=257)	%
I. Practical demands of work make it difficult for me to keep up-to- date with current best evidence relating to practice-		
1. Strongly agree	11	4.3
2. Agree	104	40.5
3. Neutral	61	23.7
4. Disagree	72	28.0
5. Strongly disagree	9	3.5
II. Not enough clinical guidelines in literature-		
1. Strongly agree	18	7.0
2. Agree	82	31.9
3. Neutral	86	33.5
4. Disagree	61	23.7
5. Strongly disagree	10	3.9
III. Literature is often conflicting and ambiguous-		
1. Strongly agree	7	2.7
2. Agree	129	50.2
3. Neutral	68	26.5
4. Disagree	53	20.6
IV. Satisfied with current knowledge and feel it sufficient -		
1. Strongly agree	31	12.1
2. Agree	95	37.0
3. Neutral	91	35.4
4. Disagree	12	4.7
5. Strongly disagree		
V. Skill to undertake literature review -		
1. Yes	93	36.2
2. No	34	13.2
3. Uncertain	130	50.6
VI. Can I obtain copies of published papers relating to my clinical Practice-		
1. Yes	65	25.3
2. No	56	21.8
3. Uncertain		
VII. I have no access to internet:		
1. Yes	17	6.6
2. No	240	93.3
VIII. I have access to internet at home:		
1. Yes	229	89.1
2. No	28	10.9
IX. I have access to internet at work:		
1. Yes	179	69.6
2. No	78	30.4

Table 6: Distribution of data based on frequency distribution of recommendations for EBD by dental practitioners

Recommendation for EBD	(n=257)	%
Workshop	45	17.5
Conferences	42	16.3
Continuing dental education's	81	31.5
Seminars	56	21.8
Short Certificate Courses	33	12.8

EBD websites. Moreover, there is a deficit of research studies and papers in this field. Evidence-based practice may not be

a concept that every dentist is familiar with, but increasing consumer pressures and the present economic, social, and political change, will necessarily demand that evidence-based principles are implemented.^[22] Lastly, due to the immense breadth of evidence-based practice in dentistry, it was not possible to explore all areas of this field. Further studies are needed in this area to identify solutions to increase the use of literature in scientific practice.

LIMITATIONS

The results of this study were based on a sample of general dental practitioners based in the Rohilkhand region and therefore may not be wholly applicable outside of this setting. To an extent the responses from the general dental practitioners working in the Rohilkhand region might be generalized in so far but since geographical and economic limitations may vary widely and thus might influence on practitioner behavior. The study was therefore limited in this respect; nevertheless, the results were informative and enlightening.

CONCLUSION

The current study showed that there was very little knowledge about use of evidence based concept in clinical practice by majority of the dentists. However, the reflected attitudes of the GDP's surveyed were enthusiastic and expressed a desire to find out more information on EBD.

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