

## Original Research

### Assessment of orthodontist's awareness and attitude towards evidence based practice- A questionnaire survey

<sup>1</sup>Vaibhav G. Taksande, <sup>2</sup>Sumit Gandhi, <sup>3</sup>Javed Sodawala, <sup>4</sup>Shaheen Hamdani, <sup>5</sup>Ulupi Panat, <sup>6</sup>Ashlesha Mehar

<sup>1,5,6</sup>PG student, <sup>2</sup>Professor & HOD, <sup>3</sup>Professor, <sup>4</sup>Reader, Department of Orthodontics and Dentofacial Orthopaedics, Rungta College of Dental Sciences and Research, Bhilai, Chhattisgarh, India

#### ABSTRACT:

**Aim-** To evaluate the attitude and awareness of orthodontists towards Evidence Based Practice. **Material and methods-** A survey consisting of demographic data and 14 close questions relating to orthodontics and scientific evidence were designed online questionnaire using Google Form having unique link which was sent to 350 Orthodontists who are academicians, clinical practitioners and consultants of the different parts of country. All data was collected and presented as percentage using pie-charts and tables and bar diagrams. Data of all respondents was kept confidential. **Results-** A total of 216 responses were received (response rate, 61%) across different regions of the country and all responses summarized in tables and pie-charts and bar diagrams. Younger orthodontists were more aware, especially females, they had more knowledge and awareness than more experienced practitioners. The majority of responders currently consult their peers when facing with clinical concerns, and professional guidance was the most commonly cited justification for switching a practice philosophy. **Conclusion-** The current profits expressed by orthodontists in Evidence Based Practice suggests that now is the perfect time to initiation of educational programs which will improve their understanding, knowledge and use of it.

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**Corresponding author:** Vaibhav G. Taksande, PG student, Department of Orthodontics & Dentofacial Orthopaedics, Rungta College of Dental Sciences and Research, Bhilai Chhattisgarh, India

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#### INTRODUCTION

It has been said that “...the art (of dentistry) is in using the science and matching it with the patient's characteristics and needs...” (Ismail, 2002). Recent developments in dental practice are bringing an increased awareness of the importance of research evidence.<sup>1</sup>

As dentistry in the **21st century**, crossroads is looming in orthodontics, too, as dentistry faces the philosophical dilemma of evidence-based practice. It has traditionally been an uncomfortable endeavor for orthodontics to be located in the middle of elective cosmetology and oral health care. As societal and cultural values have increasingly shifted toward facial and anterior tooth esthetics, dentists view orthodontics primarily as a way to correct tooth alignment and occlusion.<sup>2</sup>

The American Dental Association defines "evidence-based dentistry," or EBD, using EBM principles in dentistry: “an approach to oral health care that requires the judicious integration of systematic

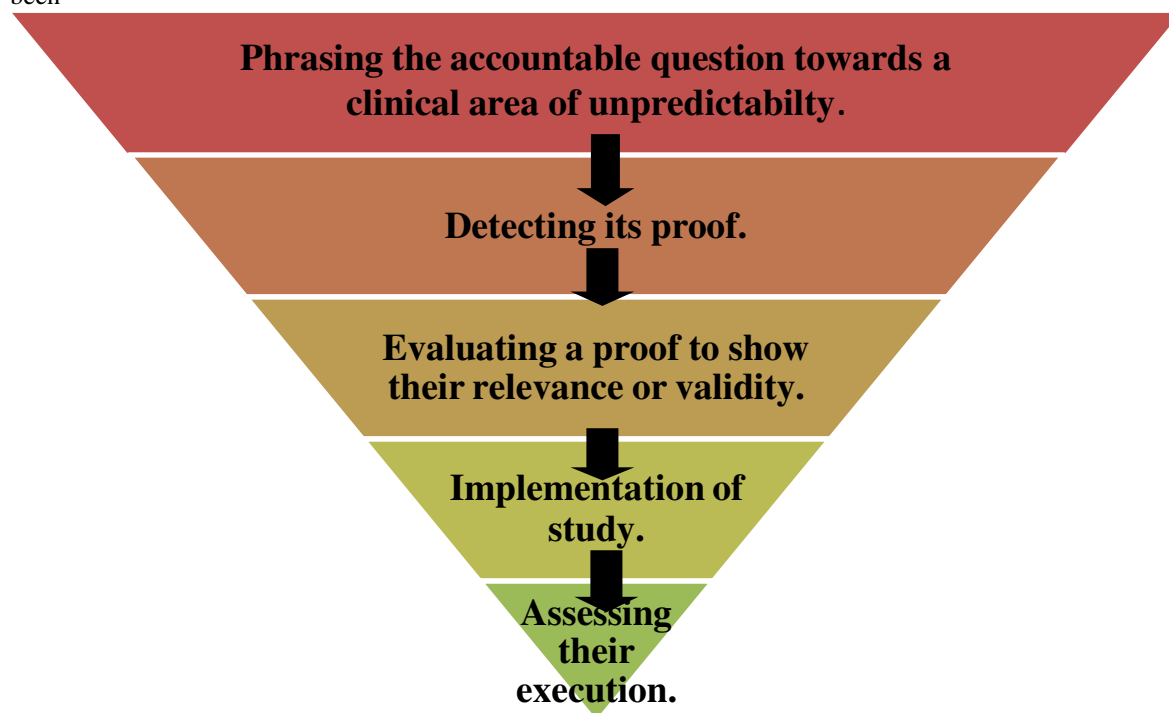
assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences.”<sup>3</sup>

The CDA has task force for Evidence-Based Dentistry which defined as EBD drawn from the Oral Health in America through (Report by the U.S. Surgeon General, which is consistent with the American Dental Association's defined guidelines. According to Evidence Based Dentistry, clinicians integrate their expertise and experience with critical appraisals of relevant exterior clinical substantiation from systematic research, while taking into consideration their preferences and needs of patients. It emphasizes three essential elements: a dentist's clinical judgment and expertise, literature-based clinical evidence, and the informed patient's preference. The dentist's experience is essential in a dental practice that follows an evidence-based methodology because it is up to her or him to view all three aspects while deciding the best

outcome. Preferably, evidence based treatment is consisted of criss-crossing of these three elements.<sup>4</sup> According to evidence-based practice, applying the findings from pertinent clinical research along with the physicians' experience and patients' values may aid in making better therapeutic judgements.<sup>5</sup> An strategy called evidence-based practice places a strong emphasis on locating and utilizing the best available research information to inform decisions about patient treatment. Giving patients modern therapy that has been

scientifically proven to be efficient, safe, and successful is the aim of evidence-based practice. Evidence-based practice ultimately seeks to continuously enhance patient care in light of recent advancements in the field of science.<sup>6</sup>

Evidence Based Practice (EBP) defined as ‘the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patient’s and seem as a five-stage process:<sup>7</sup>



Evidence based orthodontics (EBO) is thought to play a significant role in the rapidly evolving orthodontic practice environment of the twenty-first century. Since its origin, during the past two to three decades, deliberate attempts have been made to adopt EBO and transform orthodontics from being seen solely as an art form to one that is both an art and a science, with a foundation in science that can survive the scrutiny and rigour of science. It has been included into orthodontic education and training through a variety of means, including exhortations in prestigious orthodontic journals, raising awareness at professional meetings and specialty conferences, and specialized conferences and meetings of orthodontic societies.<sup>8</sup>

**AIM**

The aim of this study was to evaluate the attitude and awareness of orthodontists towards Evidence BasedPractice.

**OBJECTIVES**

**INCLUSION CRETIERIA**

1. Respondents must be orthodontist
2. Respondents must age between 25- >60
3. Respondents must be in clinical practice or academics in the different parts of country

**EXCLUSION CRETIERIA**

1. Respondents should not be a general dental practioner
2. Respondents should not be Masters from other dental specialty

**MATERIAL AND METHODS**

A survey consisting of demographic data and 14 closequestions relating to orthodontics and scientific evidence were designed online questionnaire using Google Form having unique link ([https://docs.google.com/forms/d/e/1FAIpQLSeV\\_owwnS253vSuw8ywVhnNROBK10Vd8slWQpnF1GjASVGDZQ/viewform](https://docs.google.com/forms/d/e/1FAIpQLSeV_owwnS253vSuw8ywVhnNROBK10Vd8slWQpnF1GjASVGDZQ/viewform) )(ANNEXURE 1) which was sent to 350Orthodontists who are academicians, clinical practitioners and consultants of the different parts of country. Each respondent’s age, clinical practice, and either she/he was actually involved as educating were ascertained.

**STATISTICAL ANALYSIS**

All data was collected and presented as percentage using pie-charts and tables and bar diagrams. The SPSS Statical package was used for data analysis (IBM SPSSSoftware of Windows, Version 16.0 Chicago SPSS

Inc).For effective responses use Chi-square test. The frequency of tables was generated to illustrate the responses of patient. A p-value <.05 was consider significant. Data of all respondents was kept confidential.

**RESULTS**

A total of 216 responses were received (response rate, 61%) across different regions of the country and all responses summarized in tables and pie-charts and bar diagrams in ANNEXURE 2. A summary of the respondents' demographic traits are in Table1 and 2, Diagram 1 respectively. Younger orthodontists were more aware, especially females, they had more knowledge and awareness than more experienced practitioners.

Respondents those involved in clinics or academics having less than 10years of experience were more aware and had a greater understanding than those having more experience. (Table-3)

Respondents involved in academics/joined any academic institution were acquainted and had a greater knowledge than those not involved with teaching. (Table- 4) And maximum respondents read scientific peer-reviewed journals weekly and monthly. There is also good numbers of respondents who daily read journals. (Table- 5, Diagram- 2)

Maximum respondents agree that research articles influences your daily work. (Table- 6, Diagram- 3)Most of the respondents used Pubmed/Medline in there day to day clinical practice. (Table- 7) Maximum respondents agree that currently, peer-reviewed publications offer the strongest proof. Which

can be incorporated in their practice. (Table- 8) And was attentive in clinical practice guidelines which may better mentor them in decision governing related to their treatment plan. (Table-9)

Most of the respondents agree that it is tough for them to keep up to date with present evidence related to their clinical practice. (Table- 10, Diagram- 4) Maximum respondents think and give neutral reaction on clinical practice recommendations found in the literature and maximum respondents agree that there weren't enough clinical practice guidelines in the literature. (Table- 11)

Most of the respondents keep their decision on neutral,they think that some were good literature and some were conflicting. And large number of respondents thinks that the literature which is available is conflictingand ambiguous. (Table 12)

A good numbers of respondents keep the copies of published research papers related to their clinical practice. (Table 13) And when respondents asked abouttheir present knowledge and practice and were it sufficient in the clinics or academics for treating different cases so maximum shows neutral reaction. (Table 14)

When asked for their practice philosophy most of the respondents gets expert advice rather than going to the literature or clinical journals they think that experts give them best solutions. (Table 15, Diagram- 5) And when asked about clinical uncertainties and emergencies when they face in their clinical practice maximum responses on consult with colleague for solutions. (Table 16, Diagram- 6)

Age group					
		Frequency	Percent	Percent	Cumulative Percent
	25-40 years	192	88.9	88.9	88.9
	41-60 years	21	9.7	9.7	98.6
	Above 60 years	3	1.4	1.4	100.0
	Total	216	100.0	100.0	

TABLE- 1

Gender					
		Frequency	Percent	Percent	Cumulative Percent
	Male	83	38.4	38.4	38.4
	Female	133	61.6	61.6	100.0
	Total	216	100.0	100.0	

TABLE- 2

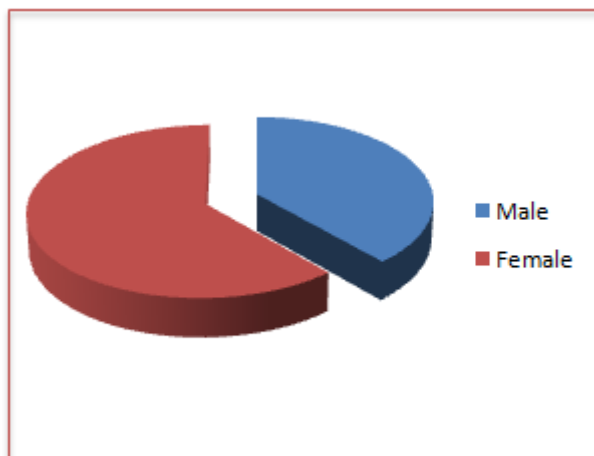


Diagram- 1

Q1-How many years of clinical or academic experience do you have ?				
	Frequency	Percent	Percent	Cumulative Percent
0-10 years	181	<b>83.8</b>	83.8	83.8
11-20 years	26	12.0	12.0	95.8
Above 20 years	9	4.2	4.2	100.0
Total	216	100.0	100.0	

TABLE- 3

Q2-Have you joined any academic institution?				
	Frequency	Percent	Percent	Cumulative Percent
Yes	132	<b>61.1</b>	61.1	61.1
No	84	38.9	38.9	100.0
Total	216	100.0	100.0	

TABLE- 4

Q3 -How often do you read scientific peer-reviewed journals?				
	Frequency	Percent	Percent	Cumulative Percent
Daily	28	13.0	13.0	13.0
Weekly	63	<b>29.2</b>	29.2	42.1
Monthly	58	26.9	26.9	69.0
Rarely	55	25.5	25.5	94.4
Not at all	12	5.6	5.6	100.0
Total	216	100.0	100.0	

TABLE- 5

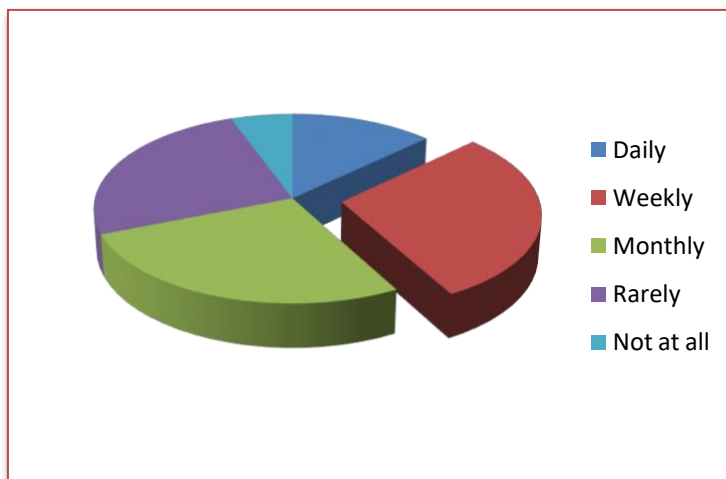
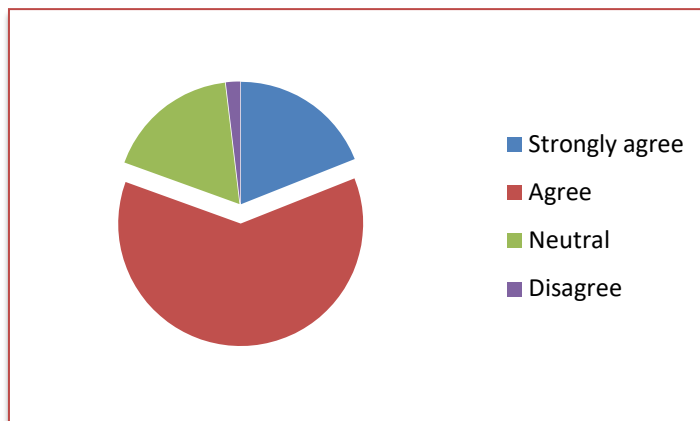


Diagram- 2

<b>Q4-Do research influences your daily work?</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Percent</b>	<b>Cumulative Percent</b>
	Strongly agree	41	19.0	19.0	19.0
	Agree	133	<b>61.6</b>	61.6	80.6
	Neutral	38	17.6	17.6	98.1
	Disagree	4	1.9	1.9	100.0
	Total	216	100.0	100.0	

**TABLE- 6**



**Diagram- 3**

<b>Q5-Do you take references from PubMed/Medline in your clinical practice?</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Percent</b>	<b>Cumulative Percent</b>
	Yes	173	<b>80.1</b>	80.1	80.1
	No	43	19.9	19.9	100.0
	Total	216	100.0	100.0	

**TABLE- 7**

<b>Q6-Do you think Peer-reviewed journals provide the best current evidence which can be incorporated in your practice?</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Percent</b>	<b>Cumulative Percent</b>
	Strongly agree	32	14.8	14.8	14.8
	Agree	128	<b>59.3</b>	59.3	74.1
	Neutral	50	23.1	23.1	97.2
	Disagree	6	2.8	2.8	100.0
	Total	216	100.0	100.0	

**TABLE- 8**

<b>Q7-Are you interested in clinical practice guidelines which may better guide you in decision making regarding your treatment plan?</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Percent</b>	<b>Cumulative Percent</b>
	Strongly agree	61	28.2	28.2	28.2
	Agree	140	<b>64.8</b>	64.8	93.1
	Neutral	11	5.1	5.1	98.1
	Disagree	4	1.9	1.9	100.0
	Total	216	100.0	100.0	

**TABLE- 9**

<b>Q8-Does the practical demands of work make it difficult for you to keep up to date with current best evidence related to your practice?</b>					
		<b>Frequency</b>	<b>Percent</b>	<b>Percent</b>	<b>Cumulative Percent</b>
	Strongly agree	20	9.3	9.3	9.3
	Agree	105	<b>48.6</b>	48.6	57.9

	Neutral	71	32.9	32.9	90.7
	Disagree	16	7.4	7.4	98.1
	Strongly disagree	4	1.9	1.9	100.0
	Total	216	100.0	100.0	

TABLE- 10

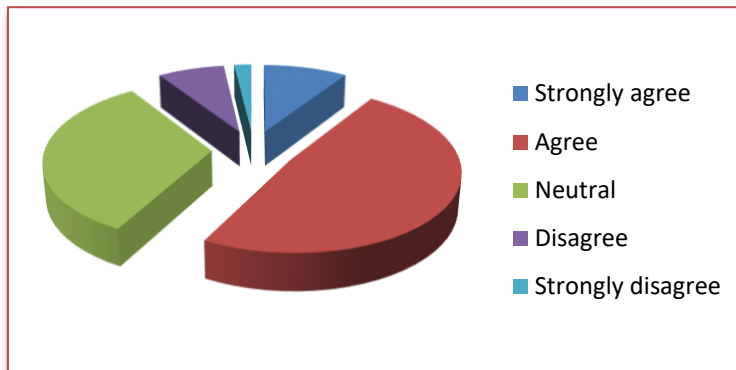


Diagram- 4

<b>Q9-Do you feel that there aren't enough clinical practice guidelines in the literature ?</b>					
		Frequency	Percent	Percent	Cumulative Percent
	Strongly agree	16	7.4	7.4	7.4
	Agree	71	32.9	32.9	40.3
	Neutral	84	<b>38.9</b>	38.9	79.2
	Disagree	40	18.5	18.5	97.7
	Strongly disagree	5	2.3	2.3	100.0
	Total	216	100.0	100.0	

TABLE- 11

<b>Q10-Is literature often conflicting and ambiguous?</b>					
		Frequency	Percent	Percent	Cumulative Percent
	Strongly agree	20	9.3	9.3	9.3
	Agree	87	<b>40.3</b>	40.3	49.5
	Neutral	88	<b>40.7</b>	40.7	90.3
	Disagree	21	9.7	9.7	100.0
	Total	216	100.0	100.0	

TABLE- 12

<b>Q11-Do you keep copies of published research papers related to your clinical practice?</b>					
		Frequency	Percent	Percent	Cumulative Percent
	Yes	118	<b>54.6</b>	54.6	54.6
	No	98	45.4	45.4	100.0
	Total	216	100.0	100.0	

TABLE- 13

<b>Q12-Are you satisfied with your current knowledge and practice and feel if it is sufficient ?</b>					
		Frequency	Percent	Percent	Cumulative Percent
	Strongly agree	8	3.7	3.7	3.7
	Agree	43	19.9	19.9	23.6
	Neutral	100	<b>46.3</b>	46.3	69.9
	Disagree	56	25.9	25.9	95.8
	Strongly disagree	9	4.2	4.2	100.0
	Total	216	100.0	100.0	

TABLE- 14

<b>Q13-You change your practice philosophy based primarily on?</b>					
		Frequency	Percent	Percent	Cumulative Percent

Colleague advice	32	14.8	14.8	14.8
Expert advice	97	<b>44.9</b>	44.9	59.7
Reading clinical journals	50	23.1	23.1	82.9
Literature review	27	12.5	12.5	95.4
Other	10	4.6	4.6	100.0
Total	216	100.0	100.0	

TABLE- 15

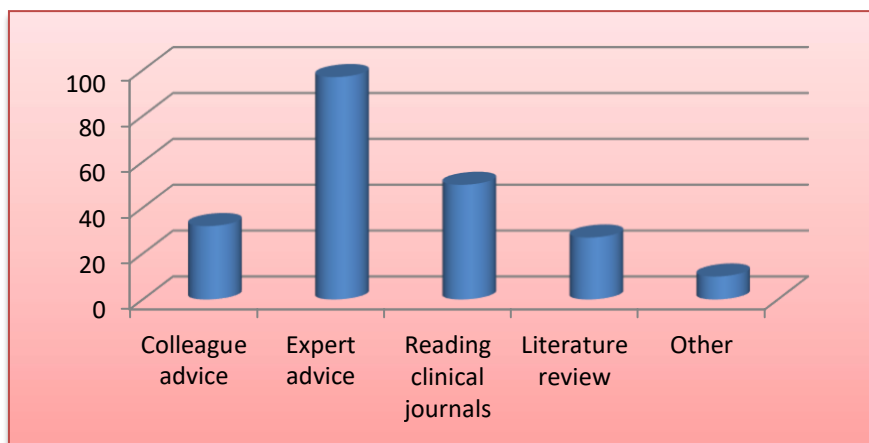


Diagram- 5

Q14-When you are faced with any clinical uncertainties, you usually prefer to?				
	Frequency	Percent	Percent	Cumulative Percent
Consult with colleague	101	<b>46.8</b>	46.8	46.8
Consult textbooks	27	12.5	12.5	59.3
Consult the literature	60	27.8	27.8	87.0
Proceed with best judgement	23	10.6	10.6	97.7
Refer	5	2.3	2.3	100.0
Total	216	100.0	100.0	

TABLE- 16

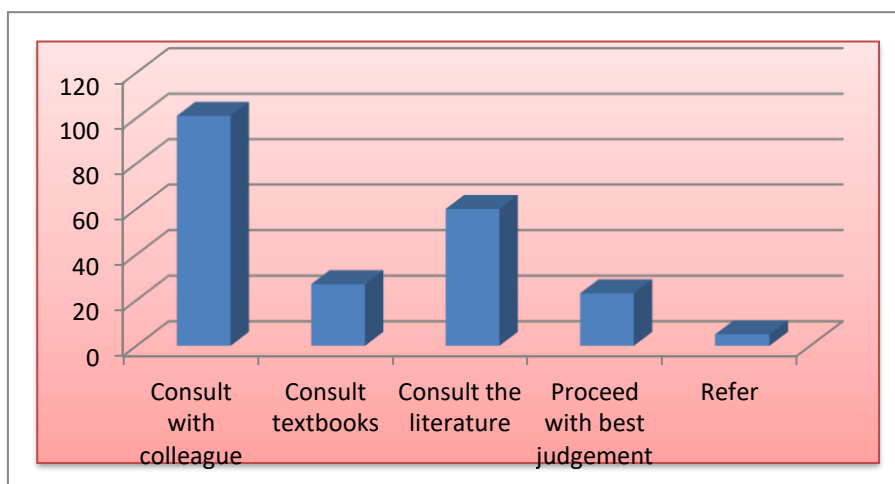


Diagram- 6

Test Statistics													
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q 10	Q 11	Q 12	Q 13
Chi-square	10.66 7 <sup>a</sup>	45.2 50 <sup>b</sup>	169.7 41 <sup>c</sup>	78.24 1 <sup>a</sup>	153.33 3 <sup>c</sup>	218.4 07 <sup>c</sup>	171. 454 b	107. 565 b	83. 14 8 <sup>c</sup>	1.85 2 <sup>a</sup>	134.2 31 <sup>b</sup>	102.5 65 <sup>b</sup>	133. 167 <sup>b</sup>
D f	1	4	3	1	3	3	4	4	3	1	4	4	4

P value	.001	.001	.001	.001	.001	.001	.001	.001	.001	.001	.174	.001	.001	.001
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## DISCUSSION

This study's response rate was 61%, which is typical for all evidence-based surveys carried out in related domains. The survey's response rate was between the reported range of 2% and 88%. Importantly, the makeup of our sample and questionnaire closely matched the demographics of current orthodontic patients described in the study itself, as well as the 2011 survey of Madhavji et al.<sup>6</sup>

The majority of respondents reported present practices as being encouraging and had good attitudes towards the use of scientific evidence in clinical practice. However, a significant resource that needs more exposure among orthodontists is shown by the majority of respondents' awareness of use of PubMed/Medline. An essential source of the best recent literature, PubMed/Medline offers systematic reviews on all topics related to health care.

Finding the obstacles is a critical first step in advancing Evidence Based Practice in the branch orthodontics. All orthodontists, obstacles which include the literature's unclear and contradictory nature, work pressures, and a lack of adequate clinical guidance. It can be challenging for practitioners to determine the most appropriate response to a clinical inquiry when the literature is unclear or contradictory. This may be the catalyst for the desire for additional clinical guidelines.<sup>12, 13</sup>

It can be challenging for practitioners to determine the most appropriate response to a clinical inquiry when the literature is unclear or contradictory. This may be the catalyst for the desire for additional clinical guidelines. Systematic reviews are a crucial tool in the evidence-based approach because they have the potential to reduce uncertainty relating to contradictory results.<sup>12, 13</sup> Systematic reviews strive to provide an unbiased and comprehensive assessment of the literature by adhering to specified, established protocols that reduce bias.<sup>12, 16</sup> Orthodontists reported being too overworked to sort through conflicting research due to the demands of clinical practice.

Younger orthodontists twenty to forty were more interested in, aware of, and familiar with evidence in practice, and had a better understanding of the terminology under examination than their more experienced colleagues. Orthodontists who are actively teaching reported that their current procedures were more in line with the evidence, had more favorable attitudes towards evidence in practice, and were more aware of it. Additionally, their improved access to publications and improved capacity for evaluating research may have caused them to become more dubious about the state of the art literature. It seems reasonable to assume that persons connected to a teaching institution are more likely to be aware of the most recent and reliable research.

Expert advice was commonly cited as the

justification for changing a practice philosophy, which is inconsistent with evidence-based practice. Experts can be biased even though they often have a lot of expertise. Without taking into account additional sources of information that are less slanted, practitioners run the risk of basing changes to their practice philosophy on inaccurate and unsupported information.<sup>14</sup> This could result in less effective treatment, higher treatment expenses, or unnecessarily cause the patient discomfort.

Most orthodontists who responded said that when presented with clinical uncertainties, they consulted with colleagues. This is congruent with general dentistry practitioners, who frequently turn to friends and co-workers for guidance when faced with clinical uncertainty.<sup>7, 12</sup> Although they might be a swift, affordable and handy source of assistance, colleagues can have conflicts of interest and may have biases.<sup>7, 14</sup> Additionally, recommendations from coworkers may be influenced by their own practices' experience rather than best practices.<sup>12</sup> It is advisable for clinicians to consult the electronic data bases, like Cochrane and PubMed, and look for proof from meta-analyses or systematic review of randomized control trials to determine the foremost available evidence.<sup>12</sup> These materials, however, are not always as readily available as those of your co-worker, and they might not address the beneficial area of interest.<sup>7</sup> We anticipate that as time flies and these resources receive more attention, more clinically unclear regions will be addressed. The hierarchy of the Evidence Based Practice shall guide for determination the top level proof that would be taken into consideration in the absence of systematic studies.

This study had certain restrictions. The most accurate way to get opinions from healthcare professionals on a complex topic is not to conduct a survey that requires self-completion of a questionnaire.<sup>11, 15</sup> Furthermore, it has been demonstrated that respondents' vocal and written responses to the same questions might differ. It would be challenging to collect data by extensive number of people through means than a survey.

Moreover, there might be differences between respondents' true attitudes, awareness, and current practices and those reported by them. Although the surveys were anonymous, respondents may have tried to attract attention rather than reveal their true opinions. Although participants could not decline to participate if they did not support using evidence in clinical practice. In such cases, the final results may have been biased towards the optimistic view of application of proof in routine orthodontic practice than the actual one. Finally, because orthodontic evidence-based practice encompasses such a vast range of subjects, it was not possible to cover every facet of this vast topic. It is necessary to conduct more research, particularly to find ways to expand the use of books in scientific practice.



## CONCLUSION

Orthodontists acknowledged the value of and showed understanding of evidence-based practice. However, grasp of the Pubmed/Medline database and evidence-based practice was strong. The majority of responders currently consult their peers when facing with clinical concerns, and professional guidance was the most commonly cited justification for switching a practice philosophy. Literature that was ambiguous or conflicting, lack of clinical suggestions, and practical appeal at work constituted the considerable barriers acknowledged in the study.

The current profits expressed by orthodontists in Evidence Based Practice suggests that now is the perfect time to initiation of educational programs which will improve their understanding, knowledge and use of it.

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