

Different Modes to Gather Information of Orthodontic Treatment: A Questionnaire Based Study

Rakesh Pawar¹, Nitin Gulve², Amit Nehete³, Hrushikesh Aphale⁴, Deepali Deore⁵, Ashok Pawar⁶

1- Post Graduate student, Dept. of Orthodontics and Dentofacial Orthopaedics, M.G.V.'s K.B.H. Dental College and Hospital, Panchavati, Nashik- 422002. 2-Professor and Head , Dept. of Orthodontics and Dentofacial Orthopaedics, M.G.V.'s K.B.H. Dental College and Hospital, Nashik, India. 3- Professor, Dept. of Orthodontics and Dentofacial Orthopaedics, M.G.V.'s K.B.H. Dental College and Hospital, Nashik, India. 4- Lecturer, Dept. of Orthodontics and Dentofacial Orthopaedics, M.G.V.'s K.B.H. Dental College and Hospital, Nashik, India. 5- Post graduate Student, Dept of Oral and Maxillofacial Prosthesis, M.G.V.'s K.B.H. Dental College and Hospital, Nashik, India. 6- Professor and Head of Dept of Electronics, Vice Principal, S.S.V.P.S's, P R Ghogrey Arts, Science and Commerce College, Dhule.

Correspondence to:

Dr. Rakesh Pawar, Post Graduate student, Dept. of Orthodontics and Dentofacial Orthopaedics, M.G.V.'s K.B.H. Dental College and Hospital, Panchavati, Nashik- 422002, Contact Us: www.ijohmr.com

ABSTRACT

Introduction: Gathering information for achieving good health is hardly mentioned in any literature and in orthodontics very few articles are related to it. Aim of this study was to investigate how patients gather information about their orthodontic treatment, need for this information, and they preferred source of this information. **Methods:** Thorough interviews were conducted with 15 subjects, 10 to 20 years old, who were undergoing orthodontic treatment. These interviews would help to develop a questionnaire which in turn would lead to investigate information-seeking behavior. The questionnaire was distributed to 50 adolescent orthodontic patients. **Results:** The sources of information were talking to parents (22%), dentist(18%), media(14%) leaflets(12%), friends(12%), net(10%), pamphlet(8%), siblings(6%), audiovisual information(4%), Orthodontist(2%). The preferred source of information were talking to orthodontist(42%), parents(20%), dentist(36%), siblings(4%). **Conclusions:** Verbally patients preferred information to be available followed by written, media, worldwide-net and audio-visual. Media should be commonly used for promoting oral health and dental education.

KEYWORDS: Information, Audio-visual, Verbal

INTRODUCTION

Health information-seeking behavior has been defined in the literature as the "purposive search for health-related information to satisfy a query".¹ Information is an important part of the health care pathway because it is a method of educating patients and to allow them to participate in choices about their health and treatment. Educating patients might encourage their involvement in their own health care decisions and also ensure that they understand the rules, rights, and obligations of health organizations.^{2,3}

Miller⁴ and more recently , Lambert et al^{5,6} researched on health-information-seeking behavior. They divided patients into "monitors" and "blunters". Those who were monitors actively sought information about their medical condition, and the information helped to reduce anxiety and offer reassurance. Blunters, on the other hand, actively avoided information and preferred less information by distracting themselves from the situation. Thus, tailoring information to a patient's coping style is thought to benefit him or her both psychologically and physiologically. Patients who were monitors fared better

with more information that helped to reduce anxiety and offer reassurance, whereas the blunters preferred less information because they distracted themselves from threatening situations.⁴

Different age groups have different levels of understanding, and this should be a consideration when planning to provide information.^{7,8} It has been proposed that information provision before a medical procedure can have a positive effect on a child's anxiety. Claar et al⁹ found that improving a child's knowledge about a forthcoming medical procedure allowed him or her to understand what to expect; therefore, this might reduce the fear of the unknown and also the anxiety level, stress, and pain.

Dental education has been shown to improve children's knowledge and reduce concerns about treatment, all of which might impact on the patients' compliance. Habiban et al¹⁰ found that children who were undergoing orthodontic treatment often had little knowledge of their treatment. For a patient to provide a valid consent to treatment, he or she must be able to understand, have time to consider, and be able to ask questions about the type, purpose, benefits, and risks of the procedures.

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Patients should also be able to retain the information they are given to prove that they have sufficient understanding of the procedures. Thomson et al¹¹ investigated retention of information in children and parents after an initial orthodontic consultation. Parents responded better to verbal information than did children, and it was suggested that verbal information given to children should be reinforced with either written or visual information. Patel et al¹² found that patients who received verbal information supplemented by audiovisual information had better retention of it than those who received verbal information supplemented by written information. However, a more recent study found that supplementing verbal information with written information had no effect on patient anxiety in orthodontic clinics.¹³

Different methods of delivering information have been used in health care. Information leaflets are a popular method of supplementing information given by clinicians. However, health literacy can be a barrier to delivery of information; for those with low reading ability, including young patients, it might be time to move away from the traditional information leaflet and use a different method to provide information.¹⁴ The aim of this study was to investigate how patients gather information about their orthodontic treatment and the preferred source of this information.

MATERIAL AND METHODS

Ethical approval was granted, and written parental and patient assent was obtained. Patients were included if they were aged between 10 and 20 years, willing to participate in the study, accompanied by a parent or legal guardian who consented to their inclusion, and either had not started treatment or were within 8 weeks of starting fixed appliance treatment. Patients were excluded if they were receiving multidisciplinary treatment, had undergone a previous course of fixed appliance treatment, or were receiving only removable appliance or headgear treatment. A sample size calculation was not appropriate because this study was investigating patients' opinions, and no hypothesis was being tested. The study was conducted in 2 stages: part 1 used qualitative methods to investigate information-seeking behavior and develop a patient-centered questionnaire, and part 2 involved piloting and distributing the questionnaire.

In part 1, in-depth interviews were conducted with 15 patients who had not yet begun treatment (8 girls, 7 boys; mean age, 14.5 years) to collect qualitative data and identify themes that could be used to develop a patient-centered questionnaire.

All interviews were recorded into Word format themes and concepts that arose during the interviews that were relevant to the research question but not in the guide were also fully explored. Interviews were carried out informally with no time pressure, and the interview ended when patients all doubts were considered and all relevant topics had been explored. The interviews continued until no new themes arose. Transcripts of all the interviews

were read several times and analyzed by the researcher so the interviews were coded into themes (Figure 1).

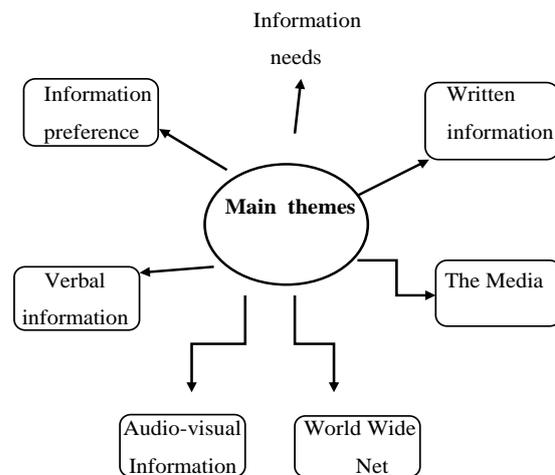


Fig 1

Each participant was allowed to provide additional information after each section, if by chance his or her views were not included.

The questionnaire was pilot tested on 8 patients to assess its acceptability, and they were asked to make suggestions for improvement.

The questionnaire was then distributed in person to 50 patients as they attended a routine appointment. The patients either had not started treatment or were within 8 weeks of commencing treatment, as described in the inclusion criteria. They were asked to answer the questions in questionnaire immediately after their appointment.

RESULTS

For part 1, questionnaire development, 15 patient interviews were undertaken; the content analysis identified 7 main themes. The questionnaire was also divided into 7 sections representing the main themes identified.

1. Information needs: what patients wanted to know and any anxieties or concerns regarding forthcoming treatment.
2. Written information: if, how, and why patients obtained information in this format.
3. Verbal information: if, how, and why patients obtained information in this format.
4. The World Wide Web: investigated patients' usual Internet activity, how they use the Internet to search for information, and their concerns regarding the reliability of information on the Internet.
5. Patients' attitudes toward the media.
6. Patients' attitudes toward audiovisual information.
7. Preferred source: patients were asked to specify their single preferred method for receiving information about orthodontic treatment.

For part 2, in the pilot study, the questionnaire took an average of 15 minutes to complete. Answers to the questionnaire are grouped into themes from the framework analysis. Out of fifty patients; 54% were female, and 46% were male. The average age was 15.6 years

The second section enquired how patients found information about orthodontics and what they wanted to know about wearing an appliance. Patients obtained information about their future treatment by talking to their parents (22%), dentist (18%), orthodontist (2%) friends (12%), and from reading an information leaflet (12%). Fewer patients had talked to other family members, siblings (6%), watched television (4%) or looked on the Internet (10%) for information. Most patients wanted to know whether having a brace fitted hurts (86%), whether a drill would be used (66%), how will my teeth look after treatment (66%), how to brush their teeth once a brace had been fitted (44%), and whether it would affect their eating (32%) or speech (42%). Some patients wanted to know exactly how a brace was fitted (52%), and whether they would be awake during this procedure (36%). Forty two percent of the patients also wanted to know if they need to take their teeth off.

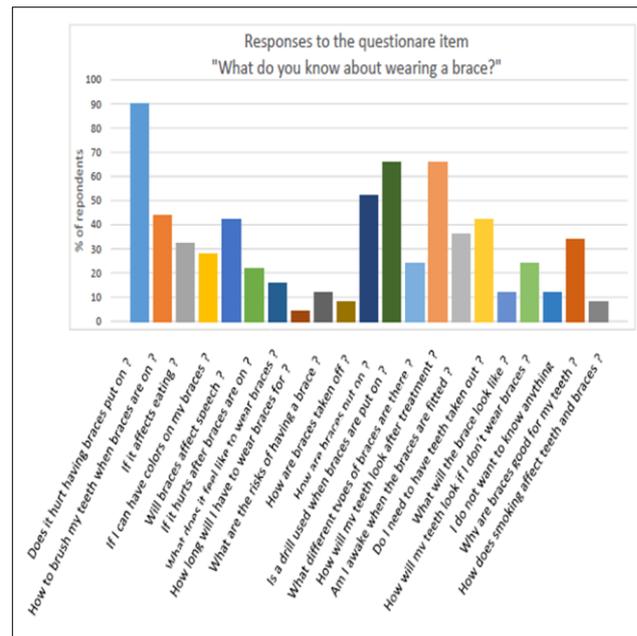
Twenty percent of the patients had written information about the orthodontic treatment. Patients had read the information leaflet that is routinely sent with their initial appointment letter. They thought that information leaflets were generally useful because they explained what would happen and gave advice.

The section regarding the Internet showed that patients used it either every day (69%) or at least once or twice a week (31%). Nearly all patients used the Internet for social networking (88%). However, only a few patients (10%) said that they had used the Internet to look for orthodontic-related information. Most patients said they would use Google for information about their treatment, and 40% said they would use the word "braces" as the primary search term. 60% patients said they would search using "orthodontist" (Graph 1).

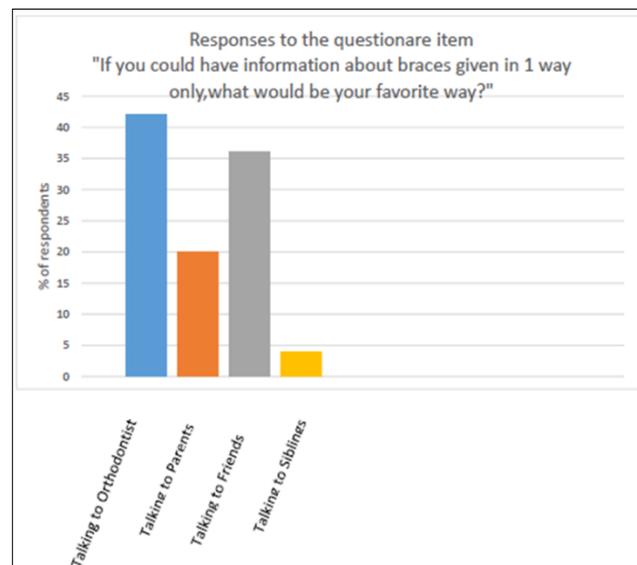
The final section of the questionnaire asked patients to select their single preferred method for receiving information about orthodontics. The overall preferred method was verbal information: talking to an orthodontist (42%), followed by talking to their dentist (32%) parents (20%) and siblings(4%) (Graph 2).

DISCUSSION

In order to understand people's behavior qualitative research is needed for collecting valuable data that is impossible to obtain without quantitative methods.¹⁶ Participant might feel more relaxed and confident in interview as it was 1-to-1 conversation; therefore, this might encourage participants to express their thoughts more readily. Part 1 of this study used 1-to-1 in-depth interviews to investigate patients' perspectives on the



Graph 1



Graph 2

subject, and detailed information came from a few patients. A large sample was not required because in-depth interviews provide much useful information if the data are analyzed appropriately. In this study 15 patients were interviewed; by that time, no new themes or concepts arose. This is a particularly useful technique to inform the development of a questionnaire, since it looks at the most common themes, which can then be used in the final questionnaire.¹⁵ Seven main themes were identified regarding information-seeking behavior; these themes were used to develop the questionnaire to enable more data to be collected and therefore generate trends.

The questionnaire was reviewed by orthodontists in the department, the ethics committee, and the 8 patients who took part in the pilot study; these reviews contributed to the validity.¹⁵

The most commonly used methods for obtaining information were talking to an orthodontist, talking to parents, and reading information leaflets. This is probably because patients use information that is easy to access; this highlights the importance of making information readily available. Surprisingly, few patients had sought information from the Internet, even though many of them (88%) used the Internet every day. Health information is increasingly delivered via the Internet because it can be provided to many people at minimum cost; it is convenient for the user and also allows the video transmission.¹⁶ However, patients should be cautious when obtaining information on orthodontic treatment from the Internet, since they could view Web sites that rank highly on a particular search engine list but do not necessarily provide high-quality information.¹⁷

Most patients said they would use the Google search engine to find information about orthodontics, and “braces” word was used most commonly. Currently, many reliable orthodontic Web sites (example: American Association of Orthodontists, Indian Orthodontic Society and British Orthodontic Society) only rank highly when the search term “orthodontics” is used. This highlights the importance of reliable orthodontic Web sites appearing high on the rankings when searching with “braces” and other patient-friendly terms, and this would be a recommendation for national societies in the future.

The majority of patients use social networking sites (88%); therefore, these routes could be used for delivering orthodontic information to adolescents in the future to improve access to high-quality and reliable information.

The information that patients most commonly wanted to know related to how an appliance is fitted and whether this process hurts, how to clean their teeth once the appliances are on, and how this might affect their diet and speech. This information is routinely given verbally, but these findings suggest that patients do not retain all of this information so parents should be given verbal information along with patients.¹¹ In addition, patients and parents should be encouraged to obtain information from secondary sources eg: leaflets, DVDs, and the Internet to enhance their knowledge and understanding.

Information leaflets were read by many patients, and sending them with the initial appointment might encourage patients to read them. For people with low literacy levels this can be a barrier to receiving appropriate information; this means that certain groups of patients and parents do not currently benefit from this mode of information.¹⁸ Some patients thought that the leaflets lacked information on how a brace is fitted, and they were unsure what instruments would be used. Some uncertainties might contribute to anxiety in some patients, especially before having fixed appliance placed; therefore, audiovisual information such as a DVD or an online video would be beneficial to provide a visual explanation of the procedures. It would also be a useful adjunct to verbal or written information given by

clinicians and might benefit patients with language barriers or low reading ability who find that information leaflets are difficult to read.

This study suggests that orthodontic information leaflets might not be appropriately tailored to all adolescent patients. Information leaflets could be improved by having different formats for different age groups or even producing individualized leaflets. In addition, reputable Web sites could be clearly recommended in the leaflets to help patients find further information if desired.

The preferred method for obtaining information was talking to an orthodontist (42%), presumably because patients believe that they have the greatest knowledge about orthodontic treatment. However, educating parents is important, because many children are also likely to seek further information from their family. It is important that parents are also directed to accessible and reliable information to aid their understanding of their child's treatment. This will enable them to reassure their child with confidence if the child is anxious or has uncertainties about the orthodontic treatment. These findings might vary in different settings; however, they illustrate the importance that all clinicians should provide information in the most appropriate way for their patients.

CONCLUSION

1. Patients used a variety of methods to find information about orthodontic treatment, including talking to their parents or dentist and reading information leaflets.
2. Most patients used the Internet for social networking; therefore, these routes should be used to provide information. Reliable orthodontic Web sites should also ensure that they rank highly on search engine listings.
3. The preferred modes of information provision were verbal, followed by written and media. Audiovisual information, to supplement verbal information, could be beneficial for those who find information leaflets difficult to read.
4. Few patients felt that they lacked information on some aspects of orthodontic treatment. A DVD or a YouTube (Google) link to a site covering some of these aspects might improve understanding and reduce anxiety in some patients.

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