Patient's expectations of orthodontic treatment at first visit

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Abstract

Objectives: To access the patient's expectations of orthodontic treatment at first visit.

Design: A questionnaire survey of 120 adolescent patients attending for their first consultation. In the Department of Orthodontics and Dentofacial Orthopedics, Rural Dental College, PIMS.

Subjects and Methods: A total of 120 subjects (60 boys and 60 girls) completed a valid questionnaire measure of orthodontic expectations at first visit that was tested for reliability and validity. The subjects were aged 10 to 25 years. The responses of the subjects and differences between boys and girls were examined using parametric statistical methods.

Results: This study provides a psychometrically validated measure of orthodontic expectations in 10 to 25 year-old adolescent patients in India (Maharashtra). Indian patients had higher expectations of check-up and diagnosis or discussion about treatment at their initial visit. They expected more orthodontic fixed appliances, straight teeth, better smile and its effects on speech and mastication. They expected that wearing braces would be painful and there would be more dietary and drinking restrictions. They were undecided for the reaction from the other people. Significant differences between males and females were found for pain, dietary and drinking restrictions, career improvement, treatment time and type of orthodontic treatment.

Conclusion: Since the expectations of patients differ on several aspects, effective communication between the orthodontist and patient is considered to be essential.

Key words: Patients Expectations at First visit, Orthodontic Treatment, Questionnaire Study.

Introduction

With the changing pattern of dentistry there will be inevitably an increase in demand for orthodontic treatment and a greater awareness amongst the consumers and better results from orthodontic treatment will be expected. An important factor in a person's decision to seek orthodontic treatment is the desire to improve dentofacial aesthetics[(1)]. Improvements in social life and self-confidence are additional potential benefits as seen by patients[(2)]. People who are satisfied with their face appear to be more self-confident and have a higher self-esteem[(3)]. Due to these psychological aspects, it's important to further consider patient's expectations of orthodontic treatment[(4)]. It has been recognized that individuals with malocclusions might develop feelings of shame and may feel shy in social contacts[(5)].

Phillips et al[(6)] found that patient's main reason for seeking orthodontic treatment is to correct dentofacial disharmony. Females are generally more dissatisfied with the appearance of their dentition and perceive a need for braces more often than male[(7,8)]. Adults are more dissatisfied with their appearance than the children[(9)].

Previous studies have measured subject's expectations of orthodontic treatment after their initial consultation or during the treatment[(10,11)] or measured only parent's expectations of the orthodontic treatment[(12)]. There is little understanding of patients' expectations of the orthodontic treatment process and their anticipation of likely sequel of orthodontic treatment aside from pain[(13,14)]. Greater understanding of patients' expectations of the orthodontic treatment process and how it affects their day-to-day living or quality of life is important in many ways. Their expectations of treatment, often unfounded, may discourage them from seeking care.[(15,16)]

Materials and Methods

The study sample consisted of 120 adolescents (60 females and 60 males) aged between 10-25 years (table 1 and 2), randomly selected among the patients seeking orthodontic treatment at the Department of Orthodontics and Dentofacial Orthopedics, Rural Dental College, PIMS, Loni – 413736, Tal. Rahata, Dist. – Ahmednagar, Maharshtra, India. They had no previous history of orthodontic treatment. Informed written consent was obtained from these patients. The typical time taken for completion of the questionnaire and consent was 5-8 minutes. The approval of the study was taken from the ethical committee of the Institute.
The study was in three phases:

Table 1: Distribution of the study population according to Gender

Gender	Number of Subject	%
Male	60	50.0
Female	60	50.0
Total	120	100.0

Table 2: Distribution of the study population according to age (years)

Number	Mean	Median	Std. deviation	minimum	Maximum
120	16.54	16	4.144	10	25

Phase 1: Interviews and modifications of questions, if needed

The first phase consisted of 25 new patients participating in open-ended interviews. Information from these interviews was used to check the validity of questionnaire. Finally a modified questionnaire consisting of 10 questions was obtained. The subject is asked the question to which they were supposed to answer in 'YES', 'NO' and 'DON'T KNOW' about that particular question or issue. Except for the question 9 and 10, these questions were having different options.

Phase 2: Pilot questionnaire

The questionnaire was tested on 25 patients. No changes were made in the question list.

Phase 3: Questionnaire distribution

Patients aged between 10-25 years seeking to orthodontic treatment at the Department of Orthodontics and Dentofacial Orthopedics, Rural Dental College, PIMS, Loni – 413736, Tal. Rahata, Dist. – Ahmednagar, Maharshtra, India were given the questionnaire. The questionnaire was explained to the patient in his/her own vernacular language and were guided to fill the same. Following completion of the questionnaire, they continued their first consultation with an orthodontist working at the Department of Orthodontics.

Statistical methods

The responses provided by patients to the questionnaire were entered and analysed using SPSS Version 19 (Statistical Package for Social Sciences Corporation, Chicago, USA). A P value <0.05 was considered statistically significant. Descriptive statistics were used to describe the responses concerning the patient's expectations. The differences between boys and girls were tested using Till Mann-Whitney test.

Results

Three hundred twelve (n = 120) patients completed the questionnaire, no one refused to participate. The mean age of the patients was 16.54 years (SD 4.144). The data obtained from the study sample was evaluated for:

Patient's expectations

Table 3 to Table 12 shows the percentage and frequency of responses to each questionnaire item. Most of the patient's expected check-up and diagnosis or discussion about treatment at their initial appointment, fixed type of orthodontic treatment, orthodontic treatment will be painful and restrict what they eat or drink, orthodontic treatment does not affect speech or eating, orthodontic treatment produce better smile. Also, most of the patient's don't expect tooth removal as a part of orthodontic treatment. Almost all the patient's expected that orthodontic treatment will straighten their teeth. They were undecided for the reaction from the other people.

Comparison of boys and girls

On comparison by Till Mann-Whitney test, many differences were found between boys and girls (Table 13). Compared to the boys, girls had lower expectations with regard to removable type of orthodontic treatment, most of the girls expected pain with orthodontic treatment, girls had greater expectations of restrictions with regard to what they could eat or drink as a result of orthodontic treatment, most of the girls did not know how long orthodontic treatment will take, girls had significantly higher expectations with regard to career improvement.

We also checked the reliability of questionnaire using Spearman's correlation coefficient. The scores produced were correlated using Spearman's correlation coefficient. The responses recorded on two occasions were statistically significant using Spearman's Rank Correlation Coefficient with no statistically significant difference in mean scores suggesting that scores are reliable over time. Test-retest reliability of questions 9and 10 were analysed using weighted Kappa because of their ordinal nature. Question 8 and 9 has weighted Kappa of 0.89 and 0.92 respectively. This indicates that a very good level of agreement between the two responses has been achieved. (Table 14)

Internal consistency of questionnaire, measured by inter-item and item-scale correlation coefficients. Internal consistency of questionnaire measured by Cronbach's alpha coefficient is 0.93. (Table 15)

Table 3: Distribution of the study population regarding expectation of orthodontic treatment to

Expect orthodontic treatment to	Number of subjects (n=120)	%
A. straighten your teeth		
• yes	120	100
• no	0	0
• don't know	0	0
B. produce a better smile		
• yes	120	100
• no	0	0
• don't know	0	0
C. gives you confidence socially		
• yes	36	30

• no	48	40
• don't know	36	30
D. improve your chances of a good career		
• yes	45	37.5
• no	36	30
• don't know	39	32.5
E. make it easier to eat		
• yes	33	27.5
• no	47	39.2
• don't know	40	33.3
F. making it easier to speak		
• yes	39	32.5
• no	48	40
• don't know	33	27.5
G. make it easier to keep teeth clean		
• yes	93	77.5
• no	18	15
• don't know	9	7.5

Table 4: Distribution of the study population by assessing views on their expectation at initial appointments

Expectation at initial appointment	Number of subjects (n=140)	%
A. have braces fitted		
• yes	96	80
• no	24	20
• don't know	0	0
B. have check-up and diagnosis		
• yes	81	67.5
• no	15	12.5
• don't know	24	20
C. have discussion about the treatment		
• yes	93	77.5
• no	9	7.5
• don't know	18	15
D. have x-ray		
• yes	66	55
• no	30	25
• don't know	24	20
E. have impression		
• yes	36	30
• no	39	32.5
• don't know	45	37.5
F. have discussion about payment		
• yes	90	75
• no	21	17.5
• don't know	9	7.5

Table 5: Distribution of the study population by assessing views on the type of orthodontic treatment

Type of orthodontic treatment	N	%
A. Removable		
• Yes	30	25
• No	90	75
B. Fixed		
• Yes	90	75
• No	30	25

Table 6: Distribution of the study population by assessing views on their expectation that orthodontic treatment will give any problem in following regards

Orthodontic treatment will affect	N	%
A. Speech		
• Yes	87	72.5
• No	33	27.5
• Don't know	0	0
B. Salivation		
• Yes	90	75
• No	30	25
• Don't know	0	0
C. Ulceration		
• Yes	45	37.5
• No	66	55
• Don't know	9	7.5
D. Restricted jaw movement		
• Yes	15	12.5
• No	93	77.5
• Don't know	12	10

Table 7: Distribution of the study population by assessing views on whether wearing a brace will be painful

Wearing a brace will be painful	N	%
a) Yes	105	87.5
b) No	12	10
c) Don't know	3	2.5

Table 8: Distribution of the study population by assessing views on whether orthodontic problem will produce problems with eating

Orthodontic treatment produce problem with eating	N	%
a) Yes	96	80
b) No	24	20
c) Don't know	0	0

Table 9: Distribution of the study population by assessing views on their expectation that orthodontic treatment will restrict their eating and drinking pattern

Orthodontic treatment restrict eating and drinking pattern	N	%
a) Yes	45	37.5
b) No	75	62.5
c) Don't know	0	0

Table 10: Distribution of the study population by assessing views on whether people will react to them wearing a brace

Will people react to wearing a brace	N	%
a) Yes	24	20
b) No	48	40
c) Don't know	48	40

Table 11: Distribution of the study population by assessing views on their expectation of time will be taken for orthodontic treatment to complete

Time required for completion of orthodontic treatment	N	%
a) Don't know	3	2.5
b) 1 Month	21	17.5
c) 3 Months	30	25
d) 6 Months	45	37.5
e) 1 Year	15	12.5
f) 1 Year 6 Months	6	5
g) 2 Years	0	0

Table 12: Distribution of the study population by assessing views on how many times they need to come for check-up

No. of referrals will be required	N	%
a) Don't know	3	2.5
b) Once a week	27	22.5
c) Once in a two week	30	25
d) Once a month	54	45
e) Once in a three months	6	5

Table 13: Comparison of Boys and Girls by Mann Whitney

Questions	p-value by Mann Whitney
1a	<0.0001*
1b	<0.0001*
1c	<0.0001*
1d	<0.0001*
1e	0.354
1f	0.162
1g	0.051
2a	<0.0001*
2b	<0.0001*
2c	<0.0001*
2d	<0.0001*
2e	<0.0001*
2f	0.001*
3a	0.206
3b	0.207
4a	<0.0001*
4b	<0.0001*
4c	<0.0001*
4d	0.006*
5	<0.0001*
6	<0.0001*
7	0.572
8	<0.0001*
9	0.085
10	0.046*

Table 14. Reliability of questionnaire using Spearman's correlation coefficient

Question No.	Time 1	Time 2	Rho value	*P* value
1(a)	36.4 ± 1.83	35.43 ± 2.67	0.92	<0.0001*
1(b)	29.54 ± 2.37	30.17 ±1.96	0.95	
1(c)	31.67±1.67	32.33±2.1	0.89	
1(d)	25.67±1.23	23.87±1.38	0.94	
1(e)	35.8±1.87	29.76±2.3	0.98	
1(f)	28.62±1.76	26.76±2.54	0.91	
1(g)	34.71±3.45	33.19±1.65	0.97	
2(a)	29.78±1.63	30.54±3.2	0.99	
2(b)	25.76±4.54	27.89±2.34	0.94	
2(c)	32.45±2.3	34.24±0.78	0.95	
2(d)	38.74±0.89	39.43±1.76	0.87	
2(e)	45.65±1.87	47.64±2.4	0.95	
2(f)	24.67±1.93	26.43±3.5	0.97	
3(a)	32.18±4.1	33.67±2.4	0.94	
3(b)	36.45±2.1	34.87±1.7	0.91	
4(a)	31.7±4.2	29.78±5.3	0.88	
4(b)	29.8±3.4	31.56±0.34	0.94	
4(c)	24.67±3.01	25.98±1.78	0.97	
4(d)	33.27±1.67	34.89± 2.3	0.98	
5	26.89±2.4	28.43±1.89	0.91	
6	34.56±1.8	36.1±1.95	0.87	
7	24.76±2.87	22.65±2.89	0.94	
8	36.78±1.45	35.89±1.78	0.96	

Table 15: Internal consistency of questionnaire, measured by inter-item and item-scale correlation coefficients

	1	2	3	4	5	6	7	8	total
1	--	0.67	0.59	0.74	0.58	0.64	0.81	0.74	0.75
2	--	--	0.71	0.84	0.64	0.73	0.57	0.63	0.79
3	--	--	--	0.68	0.61	0.59	0.71	0.55	0.66
4	--	--	--	--	0.58	0.64	0.64	0.62	0.63
5	--	--	--	--	--	0.72	0.74	0.57	0.67
6	--	--	--	--	--	--	0.76	0.46	0.58
7	--	--	--	--	--	--	--	0.72	0.53
8	--	--	--	--	--	--	--	--	0.59

APPENDIX (Questionnaire)

What did you expect orthodontic treatment to?

	Yes	No	Don't know
Straighten your teeth			
Produce a better smile			
Give you confidence socially			
Improve your chances of a good career			
Make it easier to eat			
Make it easier to speak			
Make it easier to keep your teeth clean			

At your initial appointment what did you expect to?

	Yes	No	Don't know
Have brace fitted			
Have check-up and diagnosis			
Have discussion about the treatment			
Have x – rays			
Have impression			
Have discussion about the payment			

What type of orthodontic treatment did you expect?

	Yes	No
Removable		
Fixed		

Do you expect orthodontic treatment will give you any problem?

	Yes	No	Don't know
Speech			
Salivation			
Ulceration			
Restricted jaw movement			

5. Do you think wearing a brace will be painful?
a. Yes b. No c. Don't know

6. Do you think orthodontic treatment will produce problems with eating?
a. Yes b. No c. Don't know

7. Do you expect orthodontic treatment to restrict what you eat or drink?
a. Yes b. No c. Don't know

8. How do you think people will react to you wearing a brace?
a. Yes b. No c. Don't know

9. How long do you expect orthodontic treatment to take?
(Please tick in front of the appropriate box)

Don't know	
1 Month	
3 Months	
6 Months	
1 Year	
1 Year 6 Months	
2 Years	

10. How often do you think you will need to come for check-up?
(Please tick in front of the appropriate box)

Don't know	
Once a week	
Once in a two week	
Once a month	
Once in a three months	

Discussion

There have been numerous studies published regarding expectations of patients from orthodontic treatment. But these expectations differ in urban and rural population. So, in this study was conducted Maharashtra rural population. An adolescent group of participants were chosen for the study. Also, younger age group was included and their responses were obtained from their parents. For adolescents and adults patients were asked directly to participants so that they reflect their true feelings rather than parent's expectations being imposed on them. There were significant differences in opinion between males and females regarding pain, dietary and drinking restrictions, career improvement, treatment time and type of orthodontic treatment. Totally acceptable and valid comparisons could not be done between the present study and already reported studies in the literature due to variations in the study designs, methods and certain other constraints. Nevertheless a sincere attempt is done to compare wherever possible and to the extent feasible.

Bernabe et al[17] reported orthodontic treatment seldom causes pain or discomfort and similar response was obtained in our study. The discomfort caused by orthodontic treatment may affect patient's compliance during the course of the treatment. In the present study, most of the participants expected pain with orthodontic treatment. Similar findings were reported by Krukemeyer et al.[18]

Firestone et al.[13] reported that orthodontic treatment had significant effect on the dietary pattern of the participants. But in the present study participants expected pain and greater restrictions with regard to the types of food and drink that they could consume during orthodontic treatment.

Klages et al.[5] reported that regularity of dental arches might facilitate oral hygiene, preventing caries and periodontal disease in young adults. In accordance with literature, in the present study, adolescent participants did expect an improvement in oral hygiene by having proper access to all the tooth surfaces, but did not expect improvement in eating and speaking after orthodontic treatment. The difference may be due to the differences in age groups.

Tung and Kiyak[10] stated that parents expected the orthodontic treatment will help in increasing the social acceptance and confidence. In the present study, adolescent participants did not expect that orthodontic treatment can improve their self-confidence and chances for good career. Some of the participants in the present study felt that orthodontic treatment improves their chances of good career, which is in accordance with a study conducted by Shaw et al[11] , in which they found that majority of the subjects found that orthodontic treatment improve their chances of good career.

Strengths of the study: The questionnaire is both valid and reliable and based on an Indian (Maharastrian) adolescent population. Also, the sample size was adequate.

Weaknesses of the study: The findings reflect the responses of patients attending the Institute for orthodontic treatment; therefore, the results may not reflect the views of orthodontic patients in general. Reliability and validity of a study are threatened by biases and errors.[19] In this study, bias could have resulted from mood bias (people in low spirits may under-estimate their health status), random measurement error (the respondent guesses the answer or gives an unpredictable response), recall (memory)

bias (participants remembering responses from previous questionnaire),response style bias (participants responding to questions in the same manner regardless of the question) and selection bias (only 10 to25 year old adolescent patients were investigated).

Clinical Implications: The questionnaire could be used to assess unrealistic expectations and ascertain if pre-treatment counselling is required before embarking an orthodontic treatment. It could also be used as an aid for consent and treatment planning. All these factors help to improve the quality of orthodontic treatment provided to the patient, because it helps to bridge the gap between their expectations of health and their experience of it. It has been suggested that orthodontists should ask their patients how they feel about their dental appearance and their expectations regarding orthodontic treatment.

Conclusions

This study provides a psychometrically validated measure of orthodontic expectations in 10 to 25 year-old adolescent patients in India (Maharashtra). Indian patients had higher expectations of check-up and diagnosis or discussion about treatment at their initial visit. They expected more orthodontic fixed appliances, straight teeth, better smile and its effects on speech and mastication. They expected that wearing braces would be painful and there would be more dietary and drinking restrictions. They were undecided for the reaction from the other people.

Significant differences between males and females were found for pain, dietary and drinking restrictions, career improvement, treatment time and type of orthodontic treatment. Since the expectations of patients differ on several aspects, effective communication between the orthodontist and patient is considered to be essential.

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