

# A STUDY OF MENTAL HEALTH DETERMINANTS IN COOPERATIVE ORTHODONTIC PATIENTS

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## Abstract:

*Mental health is a key determinant in the outcome of orthodontic treatment. This study was conducted to evaluate the mental status of the patients undergoing orthodontic treatment and to find out the various factors which determine cooperation for orthodontic treatment. The sample consisted of 62 subjects, 28 males and 34 females. Their age varied from 9 years to 22 years. Data was obtained by interviewing each patient and one of the guardians separately. Clinical examination was done by two psychiatrists independently for mental health assessment, and psychometric testing was done by a clinical psychologist. The results showed that (1) Patients who are unhappy with their appearance/ or who perceive the need for orthodontic treatment are more likely to come for orthodontic treatment. (2) Parents, self and dental surgeons are important motivating factors for orthodontic treatment. (3) There is a significant association between sex and cooperation, with females being more cooperative than males. (4) Males under 14 years of age are more cooperative than males above 14 years of age. (5) Patients who are indifferent to their appearance, who do not perceive the need for orthodontic treatment and who do not have any knowledge about orthodontic treatment prior to first consultation are more likely to be uncooperative. (6) Patients who have more neurotic traits and psychological problems like anxiety neurosis and personality problems are more likely to be uncooperative.*

## INTRODUCTION

The key to success or failure in many orthodontic cases is the operators knowledge, not only of the physical health but also of the mental health of one's patient.

Each patient is an individual with a unique personality. His attitudes, emotions, perceptions, intelligence, motivations and total personality would be different from those of any other person. An orthodontist has a better scope of understanding his patient as the duration of orthodontic treatment is sufficiently long. Understanding the patient's personality puts the orthodontist in a better position to treat the patient successfully. Some dental problems actually may be secondary symptoms of more

pervasive psychological problems. Recognizing that some of these problems exist can help the orthodontist avoid failure in orthodontic treatment. More important, the patient will be greatly helped if the orthodontist can make use of other medical and paramedical services in coordination with orthodontic treatment. This liaison and teamwork can provide long term benefits for the welfare of the patient. The present study was conducted to: (1) evaluate the mental status of the patients undergoing orthodontic treatment, (2) study the various factors, affecting cooperation of the patients during treatment, and (3) study the factors motivating the patients undergoing orthodontic treatment in a public dental hospital attached to a teaching institution.

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**Table. 1.** Distribution according to age and sex.

Age	9-14 yrs.	15-22 Yrs	total	mean
Males	21	7	28	13.07
Females	14	20	34	15.11

## MATERIAL AND METHOD

The sample consisted of 62 patients, 28 of whom were males and 34 were females. Their age varied from 9 years to 22 years. The duration of treatment varied from 1 month to 3 years and 3 months. (Table. 1)

Each patient and one of his or her guardians was interviewed separately till the necessary data was collected and the pre-designed proforma was filled up.

Assessment of patient cooperation was based on the opinion of one of the senior staff members and the post-graduate student treating the patient. Cooperation was assessed by four criteria, namely, (1) Regularity of appointments (2) Maintenance of oral hygiene (3) Maintenance of the appliance, and (4) Wearing of elastics, plates, myofunctional appliances or headgear as instructed.

Clinical examination was done by two psychiatrists independently for mental health assessment till the needed data was obtained. Detailed psychometric testing was done by a clinical psychologist.

Results were then tabulated and interpreted with statistical analysis.

## RESULTS AND DISCUSSION

Cooperation is a social mechanism which deals with one-to-one or one-to-group transactions and interactions. Cooperation in socio-dynamics has proved to be a great success. Very foundation of favourable response in orthodontic treatment between patient and orthodontist not only makes ongoing regular

**Table.2.** Distribution of cooperation according to sex

	very coop.	coop.	total	uncoop.	very uncoop.	total
Males	5%	26%	31%	13%	1%	14%
Females	18%	32%	50%*	5%	0%	5%
	Cooperative		81%	uncooperative		19%

\*  $2 = 6.947 > 6.63$

treatment more regular but prevents drop-outs and assures a more perfect aesthetic outcome.

In the present study (Table.2) 81% of the patients were found to be cooperative or very cooperative. Apparently in a group where self-motivation is high with strong positive involvement, a large percentage of population is expected to cooperate.

Problems one faces in day to day orthodontic practice is with irregular uncooperative patients. Analysis of the uncooperative patient group not only throws light on this phenomenon of uncooperativeness but also indicates preventable factors which, when and if attended will result in practically all patients becoming cooperative, making cooperation a rule and non-cooperation an exception.

A number of studies have been reported on cooperation in orthodontics. It is well established by various authors like Heren<sup>7</sup>, Crowley<sup>6</sup>, Baldwin and Barnes<sup>2</sup> that age, sex, psychological traits and personality of the patient determine the cooperation for orthodontic treatment. Jarabak<sup>8</sup>, Martinec<sup>11</sup>, Tweed<sup>13</sup> observed that lack of cooperation results in prolonged duration of treatment. Allen and Hodgeson<sup>1</sup> found that a male patient under<sup>14</sup> years of age is more cooperative than one above 14 years of age. Weiss and Eisser<sup>14</sup> concluded that older children are psychologically more resistant to the demands of orthodontic treatment.

Similar observations were made in the present study (Table.3) where the age analysis of the patients showed that males

**Table .3.** Distribution according to age and sex

	cooperative	uncooperative
Males below 14 years	72% *	28%
Males above 14 years	57%	43%
Females below 14 years	92%	8%
Females above 14 years	90%	10%

\* Z = 2.23 &gt; 1.645

above 14 years of age were less cooperative. Probably this reflects adolescence crisis in males after 14 years of age, making them more rebellious against any authority or established system. Reverse was found in females where cooperativeness was as high as 90- 92% for the two age groups. This reinforces the hypothesis that socio- cultural factors dictate female behaviour. This social pressure to achieve social acceptability and status make them cooperate more.

All the studies dealing with cooperativeness in children and adolescents reveal females as more cooperative than males; Stambach and Kaplan<sup>12</sup>, Clemmer and Hayes<sup>5</sup>, Brockman<sup>4</sup>. Most of them feel that females are more easy to train and they surrender to authority instructions with high degree of cooperation and more favourable outcome. The present study is in agreement with these observations where only 25% were females 75% were males in the uncooperative group. Anticipating this, male clients need extra attention, counseling, and mobilized motivation to reinforce cooperation throughout the treatment programme.

*Motivation* is a goal directed behaviour. Goals are set either by self or by a guiding authority like parents or by an expert in that particular field. The present study indicated the same when self 65%, parents 89% and dentists

**Table .4.** Motivating factors

	Patients
1. self	65%
2. parents	89%
3. Dentists	47%
4. Family Physicians	5%
5. Relatives, friends etc.	15%
6. Any other	6%
Only one motivating factor	18%
2 or more motivating factors	82% *

\* Z + 5.08 &gt; 2.33

47% motivated the patients for orthodontic treatment. (Table.4)

Motivation is reinforced by more than one agency influencing the particular behaviour. In this study two or more than two factors dictated the motivation in 82% of the patients. Under such circumstances dropout is likely to be the least and cooperation the best. If one has to apply this to orthodontic practice, all the available sources should be utilized to motivate the patient.

Baldwin and Barnes<sup>2</sup> indicated that the mother is usually the deciding factor for orthodontic treatment. Although which of the parents motivated the patient was not differentiated in the present study, parents (89%) have definitely played a major role in motivating the patients.

Analysis of self motivation (Table. 5) revealed 83% of the cooperative patients to be self-motivated as against only 58% in the uncooperative group. This under lines the need for the orthodontist to ensure self-motivation from the patients.

Unhappiness about the dental appearance is comparable in the two groups but indifference is significantly higher in the uncooperative patients. These are the same 42% of the patients who were not self-motivated.

**Table . 5** Self-motivation

	Cooperative	Uncooperative
Yes	83 % *	58 %
No	17 %	42 %

\*  $Z = 1.85 > 1.645$ *Detail analysis of self-motivation**i) Dental Appearance*

	very happy	happy	indifferent	unhappy *	very unhappy
Coop.	2%	16%	26%	48%	8%
Uncoop.	0%	0%	42%	50%	8%

\*  $Z = 3.919 > 2.33$ 

Teasing experience was not found to be a strong motivating factor in any of the groups. This finding is in agreement with that of Baldwin and Barnes. They found that almost half a large group of orthodontic patients had never been teased about their malocclusion.

78% of the cooperative patients perceived the need for orthodontic treatment, clearly visualizing presumed and assured outcome for better aesthetic outcome. This was a strong positive emotion which motivated the behaviour of high selectivity, persistence, repetitiveness and increased bearing for discomfort and pain. In the uncooperative group 42% were unsure or definitely did not want orthodontic treatment.

Motivation and co-operation are further reinforced by knowledge about orthodontic treatment prior to the first consultation. In achievement of desired results, clarity of treatment procedure and its outcome has powerful positive impact. Prior knowledge not only makes the patient regular but also effective in bearing with difficulties that the treatment procedure may have. (Table. 6)

Emotions affect motivation. An emotionally upset patient is not likely to be motivated strongly. Guiding authority like the

*(ii) Teasing experience*

	Never	Once in a while	frequent	Everyday	More than 5 times a day
Cooperative patients	64%	18%	16%	2%	0%
Uncooperative patients	75%	0%	16%	0%	9%

\*  $Z = 2.54 > 2.33$ *(iii) Perceived Orthodontic treatment need*

	Definitely No	Probably No	Not Sure	Probably yes	Definitely yes*
Coop.	2%	6%	14%	8%	70%
Uncoop.	16%	0%	26%	16%	42%

\*  $Z = 3.81 > 2.33$ **Table . 6** Pre-Treatment knowledge of Orthodontics

	Cooperative	Uncooperative
Some knowledge	90% *	58%
No Knowledge at all	10%	42%

\*  $\chi^2 = 7.173$ 

orthodontist binds emotions and motivation strongly. This is much stronger when both patients and parents involved have knowledge about treatment prior to reporting. This not only reduces the drop out but also reduces the repeated counseling by the orthodontist, needed for sustaining motivation and counteracting negative emotions, if any. In the present study 90% of the parents and patients had some knowledge about orthodontic procedures whereas the corresponding figure is only 58% in the uncooperative group.

On objective testing, the psychologist reported significantly high incidence of superior, above average and average intellectual capacity in the cooperative group at 94% as

Table 7. Analysis of Mental Status Psychometric testing

<i>(a). I. Q.</i>			<i>(b). School record</i>			
Normal population (9)	Cooperative patients	Uncooperative patients		Cooperative	Uncooperative	
Superior + above average + average	75%	94% *	58%	Brilliant + Good	68% *	50%
Below average + dull + borderline retardation.	25%	6%	42%	Average + dull backward	32%	50%
					* Z = 2.72 > 2.33	
	* Z = 3.309 > 2.33					
<i>(c). Neurotic traits</i>			<i>(d). Psychological examination</i>			
No. of traits	Cooperative Patients	Uncooperative Patients		Cooperative Patients	Uncooperative Patients	
0 to 3	78%	50%	Personality problems			
4 and more	22%	50%	Anxiety	48%	75%	
				Well adjusted	52%	
Average neurotic trait per patient	2.54	4.08 *	Average psychological problems per patient	1.62	2.16 *	
	* t = 1.818 < t.05 (62) = - 1.67			* t = - 3.0095 < - 2.045		

compared to the general population which is 75%. Probably intellectual ability makes the patients perceive the aesthetic aspect of the self. When the uncooperative group is compared, the incidence of below average, dull and border line retardation is as high as 42%. It is quite obvious that the patients with low intelligence are not likely to possess the finer sense of aesthetics as compared to the patients with high intellectual abilities. This view is strengthened when one recollects that 42% of the uncooperative patients are indifferent to their dental appearance and have not perceived the need for orthodontic treatment.

Performance in the school or college can be taken as a guideline to evaluate the mental status. Cooperative group on an average fared better in their studies as compared to the uncooperative group.

Insecure, disturbed childhood results in neurotic behaviour pattern. Individuals may grow out of this with age and maturity.

Neurotic trait as an isolated symptom or behaviour manifestation may not connote presence of any significant psychopathology but when four or more than four neurotic traits are present in an individual, neuroticism is more evident. In the cooperative group 22% had 4 or more neurotic traits as against 50% of the uncooperative patients. The cooperative patients has 2.54 neurotic traits on an average versus the uncooperative patients who has 4.08 neurotic traits on an average.

Psychological examination revealed 52% of the cooperative patients to be well adjusted as against only 25% of the uncooperative group. In personality problems, the commonly observed personality traits were a com-

bination of quick temperedness, stubbornness, sensitiveness and lack of confidence.

Detail analysis of mental status thus explains uncooperativeness and its psychopathodynamics where incidence of mental illness like anxiety and personality problems were as high as 75%. This is significantly higher than the cooperative group. All these observations when put together imply adjustment problems throughout the childhood. It is not surprising then that the same group is uncooperative in orthodontic treatment. Another objective way of analysing the mental status is by psychometric testing and school performance. The cooperative patients on an average fared better than their ability or within the range of their ability versus large number of uncooperative patients not only had low score on intelligence testing but also had poor performance in the school.

It is quite obvious from the present study that the psychological aspects of the orthodontic patients cannot be neglected. It is the alert orthodontist who recognises the emotional reactions of the patient and treats not only the malocclusion but the maladjustments as well. The principle of knowing as much as possible about the patient, his family and his environment is a principle that all practitioners should keep in mind, for dentistry and specially orthodontics, like medicine, recognises that therapy is rarely successful unless the whole patient is treated.

Since orthodontics requires a high level of patient cooperation for success, orthodontists must develop better ways to motivate patients to accept responsibility for their own treatment.

Orthodontic treatment frequently requires two or more years of monthly visits, so the orthodontist can have a profound influence on the patients personality. Today's orthodontist should seek to learn about personality development and use psychologically sound methods in dealing with patients and their families. A detailed psychological evaluation

of the patient before starting orthodontic treatment can provide a valuable clue to the likely behaviour of the patient during the treatment.

## SUMMARY

The study was conducted to evaluate the mental status of the patients undergoing orthodontic treatment and to find out various factors which determine the cooperation for orthodontic treatment.

The sample consisted of 62 patients, 28 of whom were males and 34 were females.

A predesigned proforma was filled up by interview method. Clinical examination was done by two psychiatrists independently to evaluate the mental status and detail psychometric testing was done by a clinical psychologist.

Results were then tabulated and interpreted with statistical analysis.

## CONCLUSIONS

- 1) Patients who are unhappy with their appearance and/or who perceive the need for orthodontic treatment are more likely to come for orthodontic treatment.
- 2) There is a significant association between sex and cooperation. Females are more cooperative than males.
- 3) Males under 14 years of age are more cooperative than those above 14 years of age.
- 4) Patients who are indifferent to their appearance, who do not perceive the need for orthodontic treatment and who do not have any prior knowledge about orthodontic treatment are more likely to be uncooperative.
- 5) Patients who have more neurotic traits and psychological problems like anxiety neurosis and personality problems are more likely to be uncooperative.
- 6) Patients who have below average intelligence and poor performance in school/college are more likely to be uncooperative.

7) Detailed psychological history and mental health evaluation prior to orthodontic treatment is essential for assessing the cooperative-

ness of the patients and for detecting potential uncooperative patients.

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