

# Evaluation of anxiety in patients undergoing complete denture treatment

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## Abstract

**Aim:** To evaluate anxiety in patients undergoing complete denture treatment.

**Settings and Design:** The most overlooked factor during complete denture treatment is the patient's anxiety regarding the treatment. The awareness amongst dentists regarding such anxiety and its effects on the complete denture treatment is important to form a proper communication channel through which measures to ease this anxiety can be formulated and implemented.

**Materials and Methods:** A valid pre-structured questionnaire of 10 questions was presented to the patients desirous of receiving complete dentures after obtaining an informed consent. The questionnaire for the survey was filled and collected from 500 patients receiving complete denture treatment.

**Statistical Analysis Used:** Descriptive statistics.

**Results:** Reasons inducing anxiety included: materials used – 359 (71.8%), sight of instruments – 71 (14.2%), dental chair – 66 (13.2%), airtor – 4 (0.8%), denture breakage – 225 (45.0%), ill-fitting prostheses – 153 (30.6%), repeated removal and insertion of dentures 104 (20.8%), swallowing the denture 19 (3.8%). Factors aggravating anxiety included: gagging while impression making – 298 (59.6%), mouth fullness – 122 (24.4%), swallowing the impression material – 61 (12.2%), breathlessness – 20 (4%). 422 (84.4%) patients indicated comfort with the procedure being explained beforehand, 429 (85.8%) patients indicating more so in a language understood by them.

**Conclusion:** There is a greater need that the patient's expectations be understood and their doubts, concerns and fears be lessened by proper communication. Proper understanding of patient's mental attitude will help us improve the approach of dentists towards complete denture treatment in a more patient friendly way.

**Keywords:** Anxiety, attitude, communication, complete dentures

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## INTRODUCTION

The dentist plays a vital role in preserving and improving oral health as part of total health-care services available to the patients falling in the geriatric group.<sup>[1]</sup> Many geriatric patients seek far more than dental care when they visit their

dentist. They need acceptance and understanding, and the dentist is expected to treat not only the oral symptoms but also the emotional needs.<sup>[2]</sup>

When fabricating complete dentures, the dentist is faced with the possibility that the patient may not be able to

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adapt to the dentures. Various factors may be responsible for this – mainly anatomic, physiologic, and psychologic, psychologic being the most ignored. Fear, anxiety, and depression can have significant effects on adaptability.<sup>[3]</sup>

Patients fear the unknown. They fear the extractions, the waiting period, and most of all, they are horror-stricken at what they have seen in the mouths of others.<sup>[4]</sup> Anxiety due to prosthetic procedures can be largely associated with the materials and instruments used in the procedure, for example, impression trays, various impression materials, their taste and odor, or just the fear of swallowing those materials.

Therefore, this study aimed to evaluate anxiety in patients undergoing complete denture treatment by means of a survey with the following objectives:

- To evaluate the patient's anxiety levels for the complete denture treatment procedures
- To determine the cause for the patient's anxiety during and after treatment procedures
- To determine the outlook and preferences of the patient for prosthetic treatment options based on their anxiety levels.

## MATERIALS AND METHODS

A standardized, suitable, and reliable questionnaire [Questionnaire 1] was formulated and validated in a simple tick format consisting of ten questions.<sup>[5]</sup> A Cronbach alpha was calculated for our questionnaire. The survey was found to be highly reliable  $\alpha = 0.83$ .

This questionnaire was then distributed among the patients who were undergoing complete denture treatment in the Department of Prosthodontics to determine the cause for their anxiety during and after treatment. The variables included in the questionnaire were:

- Determine comfort of a patient in visiting a dentist, determining the primary reason of discomfort
- Assess previous experience of a patient with complete dentures and evaluating their comfort level with using complete dentures
- Evaluate reasons for the anxiety with respect to handling and use of the complete dentures and with respect to causes of anxiety while making impressions
- Consider other factors hindering the treatment access by the patient such as lengthy appointments, finances, communication, and language barrier.

This survey was a cross-sectional study carried out among 500 patients receiving complete denture treatment in the department of prosthodontics from July 2019 to February

2020. A pilot study was conducted to check the feasibility of the study and validity of the questionnaire on ten patients.

The sample size was calculated using the formula:

$$n = \frac{Z^2 p(1-p)}{d^2}$$

Where  $n$  = Sample size

$Z$  =  $Z$  statistic for a level of confidence,

$P$  = Expected prevalence or proportion (if the expected prevalence is 20%, then  $P = 0.2$ ), and

$d$  = Precision (if the Precision is 5%, then  $d = 0.05$ ).

It was calculated to be 384 patients with 95% confidence intervals and 5% precision. We had a 20% dropout rate. Considering the dropout rate, the sample size calculated to be 480 patients. Hence, we took 500 patients in our study, where  $P = 0.5$ . The proposal, including the ethical views, was approved by the Institutional Ethical Committee.

## Inclusion criteria

1. Patients undergoing complete denture treatment
2. Patients anticipating to seek complete denture treatment
3. Patients who were “philosophical” according to House classification.

## Exclusion criteria

1. Patients who were partially edentulous
2. Patients who were not “philosophical” according to House classification or found to be “exacting,” “hysterical,” “indifferent” during the course of treatment
3. Patients who were not willing to participate
4. Patients who did not understand the local language and needed an intermediate person to convey their opinions
5. Patients with a known history of psychological problems.

Only patients who met the inclusion criteria were approached with the questionnaire at their appointments at the beginning and collected at the end. Study objectives were described to the participants in the language preferred by them, after which a participation information sheet was provided and the survey questionnaire was presented. Informed consent was taken by voluntary completion of the consent form.

## Statistical evaluation

The data obtained from the patients after completion of the questionnaire were compiled in Microsoft Excel. Data

was formulated into tables, charts, and graphs and evaluated in terms of percentages.

**RESULTS**

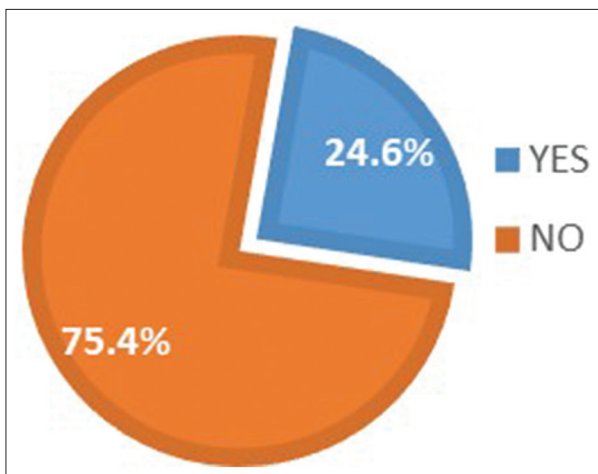
Out of the 500 edentulous patients surveyed, 273 (54.60%) patients were females and 227 (45.40%) were males. Data obtained from the survey questionnaire with respect to different aspects of a complete denture treatment were compiled and calculated in the form of percentages to the total 500 surveyed patients.

**Comfortable while going to see a dentist**

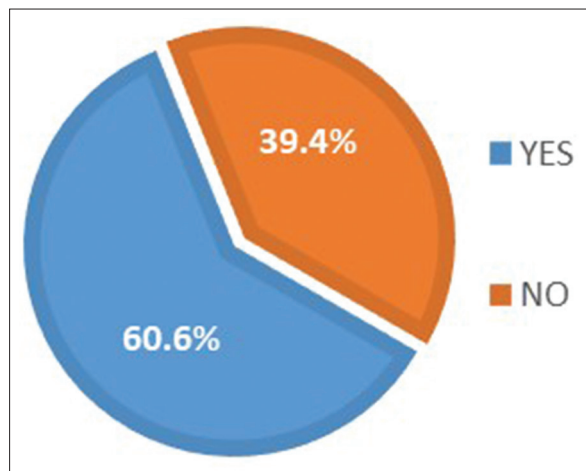
The data revealed that only 123 (24.6%) of the patients were comfortable with the idea of visiting the dentist, whereas 377 (75.4%) of the patients were not comfortable [Figure 1].

**Anxiety level while visiting dentist**

Patients were asked to rate their anxiety level on the Visual Analog Scale–Anxiety (VAS–A)<sup>[6,7]</sup> scale of 0–10, with 0



**Figure 1:** Pie chart showing patients comfortable while going to see a dentist



**Figure 3:** Pie chart showing previous denture users

being *not at all anxious* to 10 being *very anxious*. Data showed distribution in various ranges predominantly between score 4 with 129 (25.8%) patients and score 8 with 112 (22.4%) patients, followed by score 3 at 84 (16.8%) patients [Figure 2].

**Previous denture users**

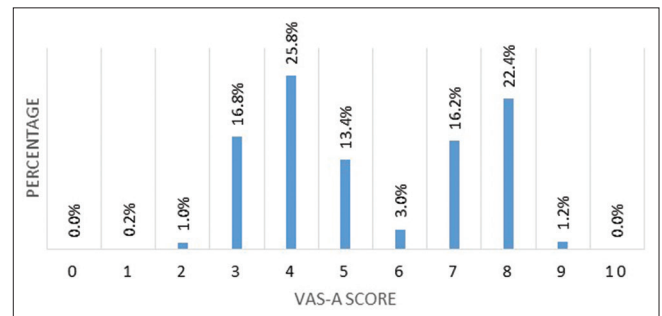
Out of the total 500 patients, 303 (60.6%) patients were previous denture users and 197 (39.4%) patients were getting the dentures fabricated for the first time [Figure 3].

**Comfortable with the denture or the idea of using a complete denture**

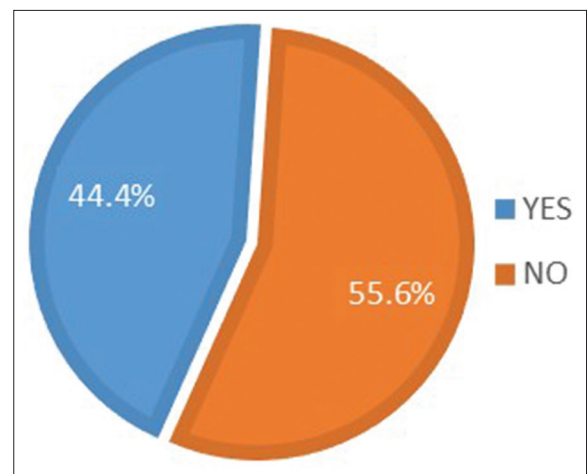
While 222 (44.4%) patients showed readiness with the idea of using a complete denture, the remaining 278 (55.6%) patients disliked the idea of using a complete denture [Figure 4].

**Reasons for anxiety in a dental setup**

Different materials used provoked anxiety in most patients, 359 (71.8%) total patients, followed by sight of instruments in 71 (14.2%) patients. Dental chair induced anxiety in 66 (13.2%) patients. Other factors such as sight of airtorator and smell constituted of 4 (0.8%) patients [Figure 5].



**Figure 2:** Bar graph showing anxiety level while visiting dentist (visual analog scale–Anxiety score)



**Figure 4:** Pie chart showing patients comfortable with the idea of using a complete denture

**Reasons provoking anxiety with the use of complete dentures**

Out of the total 500 patients, 225 (45.0%) patients feared breakage of the denture with use, 153 (30.6%) patients feared ill-fitting prostheses as outcome of the denture, and 104 (20.8%) patients resented the idea of wearing and removing the complete denture again and again. Fear of swallowing the denture constituted 19 (3.8%) patients [Figure 6].

**Factors aggravating anxiety while making impressions**

Sense of vomiting while making the impression was the primary reason for anxiety in 298 (59.6%) patients. Fullness of the mouth comprised 122 (24.4%) patients. Fear of swallowing the impression material constituted 61 (12.2%) patients with breathlessness being considered by 20 (4%) patients [Figure 7].

**Factors preventing the patient from undergoing complete denture treatment**

Number of visits were important for 356 (71.2%) patients, while 96 (19.2%) patients regarded time required in each appointment as a factor. Cost required for the

treatment was significant for 46 (9.2%) patients, and other factors such as distance traveled concerned 2 (0.4%) patients [Figure 8].

**Comfortable if the entire procedure was described beforehand**

Although 78 (15.6%) patients disregarded the idea as not relevant to them, 422 (84.4%) patients were of the opinion that they were more comfortable with the entire procedure being explained by the dentist before starting the procedure [Figure 9].

**Consider important that the doctor should understand their language**

Although 71 (14.2%) patients were of the view that it was not substantial for them that the doctor should understand their language, 429 (85.8%) patients considered that the doctor understanding their language is important for them [Figure 10].

**DISCUSSION**

This cross-sectional survey carried out among 500 patients reporting to the Department of Prosthodontics, gave us

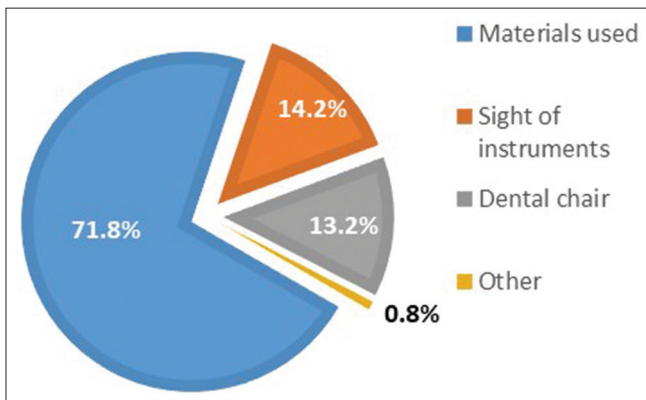


Figure 5: Pie chart showing reasons for anxiety in a dental setup

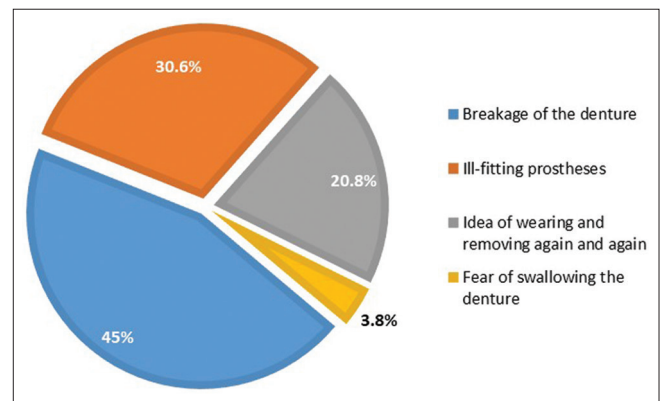


Figure 6: Pie chart showing reasons provoking anxiety with the use of complete dentures

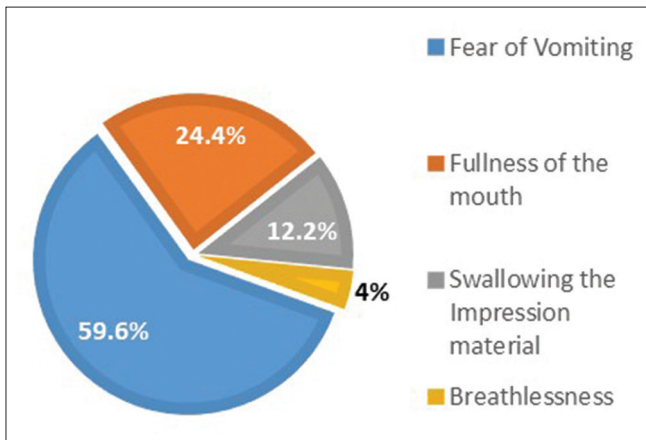


Figure 7: Pie chart showing factors aggravating anxiety while making impressions

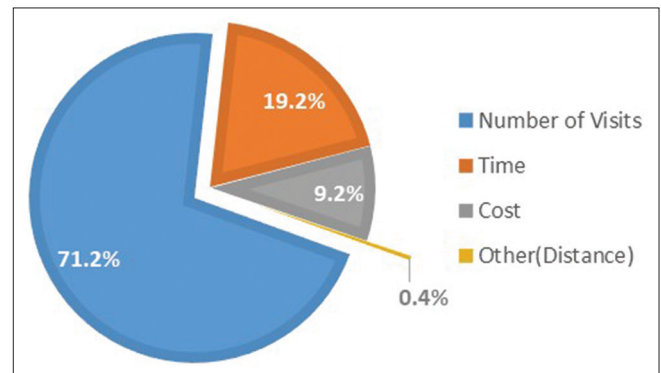
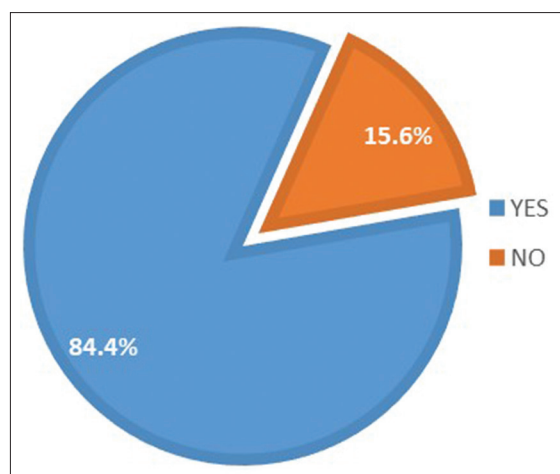
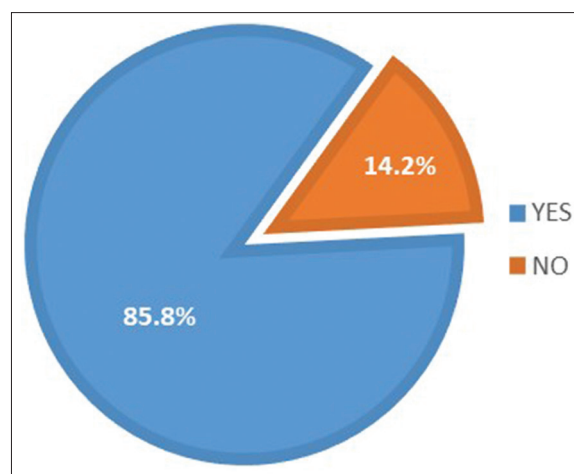


Figure 8: Pie chart showing factors preventing the patient from undergoing complete denture treatment





**Figure 9:** Pie chart showing patients comfortable if the entire procedure was described beforehand



**Figure 10:** Pie chart showing patients who consider it important that the doctor should understand their language

an insight into the mental attitude of these patients. We, as dentists, must fully understand our patients because such understanding predisposes the patients to accept the kind of treatment they need.

The first interaction between the dentist and the patient can divulge the presence of dental anxiety – anxiety associated with the thought of visiting the dentist, by means of history which can augment the diagnosis and aid categorization of these individuals as mildly, moderately, or highly anxious or dental phobics.<sup>[8]</sup>

In 1950, M. M. House devised a classification system for the patient’s psychological responses to becoming edentulous and adapting to dentures into the following four types: philosophical mind, exacting mind, hysterical mind, and indifferent mind.

Philosophical patients are rational, sensible, calm, and composed in different situations, comprehend the need for treatment with complete dentures, and are willing to rely on the dentist’s advice for diagnosis and treatment. They comply with the dentist when advised to replace their dentures. The best mental attitude for denture acceptance is the philosophical type.

Exacting patients typically have poor health, show resistance to accept dentist’s suggestions, doubt the dentist’s ability, and even try to dictate the treatment. They demand extraordinary efforts and “guarantees of treatment outcome.”

Hysterical patients are emotionally unstable, excitable, and excessively apprehensive. The prognosis is often unfavorable. The patient must be made aware that his/her problem is primarily systemic and that many of his symptoms are not the result of dentures.

Indifferent patients are those who have been forced by relatives/children to go for treatment. They are uninterested, unmotivated, and inattentive to instructions, will not cooperate, and are prone to blame the dentist for poor dental health.

As described previously, only “philosophical” patients were included in the study and any patient found to be “exacting,” “hysterical,” “indifferent” during the course of treatment were dropped from the study to prevent contamination of data.

Dental anxiety has been cited as the fifth most common cause of anxiety by Agras *et al.*<sup>[9]</sup> The current study was in agreement to this, as we found 377 (75.4%) to be not comfortable visiting a dentist. In addition, the patients were asked to rate their anxiety on the VAS–A scale,<sup>[5,6]</sup> with 0 being *not at all anxious* to 10 being *very anxious*. Data showed distribution in various ranges predominantly between score 4 with 129 (25.8%) patients and score 8 with 112 (22.4%) patients, followed by score 3 at 84 (16.8%) patients.

Out of the total 500 patients, 303 (60.6%) patients were previous denture users and 197 (39.4%) patients were getting the dentures fabricated for the first time. Studies done previously<sup>[10-12]</sup> have described anxiety as a result of (pain) expectations and concluded that patients having previous denture experience tended to have lower anxiety scores. In the current study, it was found that 249 out of 377 patients who were not comfortable visiting a dentist were previous denture wearers. Therefore, the present study found no correlation between previous denture wearers and dental anxiety.

A probable cause could be that patients may have had previous unpleasant dental experiences or may not be

comfortable with their dentures that the previous dentist fabricated; 104 patients out of the 249 were such that they were not comfortable with their dentures.

A dental setup is sufficient to provoke fear even in the nonanxious. The current study reported that anxiety was provoked due to different materials used in most patients, 359 (71.8%), followed by the sight of instruments in 71 (14.2%) patients. Therefore, it may be helpful if instruments not required for a certain procedure are kept away from the sight of the patient, for example, airtor and extraction forceps which are not required while impression making.

Dental chair induced anxiety in 66 (13.2%) patients, probably due to the vulnerable position of lying back in a dental chair. A solution to this could be avoiding sudden and brisk movements for chair positioning, informing the patient before adjusting the chair.

Most common fear among patients was breakage of the denture with use –225 (45%) crippling their day to day life,<sup>[13]</sup> followed by fear of ill-fitting prostheses and resulting discomfort<sup>[14]</sup> –153 (30.6%) patients, and finally, the resentment of the idea of wearing and removing the complete denture again and again –104 (20.8%) patients. Fear of swallowing the denture constituted 19 (3.8%) of the patients. Studies have reported that patients receiving their first dentures have more difficulties adapting to the dentures with respect to function, comfort, and appearance than those with a previous denture experience. As patients get habituated, their neuromuscular control becomes more highly developed.<sup>[10]</sup>

Sense of vomiting while making the impression was the primary reason for anxiety in 298 (59.6%) patients. Fullness of the mouth comprised 122 (24.4%) patients. Fear of swallowing the impression material constituted 61 (12.2%) patients with breathlessness being considered by 20 (4%) patients.

Patients usually feel more comfortable conveying their feelings, concerns, doubts, and fears regarding any aspect of the treatment in their language, as reported by 429 (85.8%) patients considering that the doctor understanding their language is important for them. Many symptoms are misunderstood due to a doctor being not able to relate to certain terms in patient's language. Making efforts to learn key defining words from the local language could prove helpful so that describing the procedure to the patients is manageable.

A vast majority of patients –422 (84.4%) reported that they were more comfortable with the entire procedure being

explained by the dentist before starting the procedure. Using a language understood by the patients, informing them the need to use a certain material, or what to expect during the use of that material may prove. Instruments such as the impression trays, impression materials, and procedural materials as well as the dental chair should be made well accustomed to the patients by informing the patient before performing a certain step. The Tell-Show-Do technique can be used while introducing new instruments and materials.<sup>[15]</sup>

Number of visits were important for 356 (71.2%) patients, while 96 (19.2%) patients regarded time required in each appointment as a factor. Cost required for the treatment was significant for 46 (9.2%) patients and other factors such as distance travelled concerned 2 (0.4%) patients. Dental treatment planning may be explained best by procedure and accompanied by a calendar of appointments. Instead of an appointment card, the patient could be given a calendar for the month with scheduled appointments highlighted on the calendar. In addition to words, symbols to represent the type of appointment (e.g., a denture to represent an appointment for a denture adjustment) could be used.<sup>[16]</sup>

Thus, helping highly anxious patients to overcome their dental anxiety is a challenge, however if achieved it will result in improvement of their oral health and overall quality of life.<sup>[8]</sup>

## CONCLUSION

There is a significant relation between denture satisfaction and anxiety. Proper recognition and diagnosis can significantly reduce many problems that may arise while treating a dentally anxious patient, thus preventing stress for both the dentist and the patient. Adopting proper measures to alleviate anxiety will go a long way in improving dental care for the elderly.

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## Conflicts of interest

There are no conflicts of interest.

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## QUESTIONNAIRE

### Questionnaire 1: Evaluation of anxiety in patients undergoing complete denture treatment – A survey

Kindly tick against the appropriate option.-All information is confidential.

1. Are you comfortable visiting a dentist?
  - (a) Yes
  - (b) No
2. Rate your comfort level on a scale of 0–10, with 0 being *not at all anxious* to 10 being *very anxious*
3. Have you ever got a set of complete dentures fabricated before?
  - (a) Yes
  - (b) No
4. Are you comfortable using a complete denture?
  - (a) Yes
  - (b) No
5. Which of the following things makes you uncomfortable?
  - (a) Sight of instruments
  - (b) Materials used
  - (c) Dental chair.
  - (d) Other
6. Which of the following options makes you uncomfortable?
  - (a) Fear of swallowing the denture
  - (b) Fear of loose denture
  - (c) Breakage
  - (d) Idea of wearing and removing again and again
  - (e) Other
7. While taking measurements what do you fear of?
  - (a) Swallowing the impression material
  - (b) Vomiting
  - (c) Fullness of the mouth
  - (d) Breathlessness
8. What may stop you from undergoing complete denture treatment?
  - (a) Time
  - (b) Number of visits
  - (c) Cost
  - (d) Other
9. Will you be more comfortable if the dentist explains you the entire treatment procedure beforehand?
  - (a) Yes
  - (b) No
10. Do you feel is it important that the doctor should understand your language?
  - (a) Yes
  - (b) No

To be evaluated by the operator:

According to House classification, patient is \_\_\_\_\_.

(Philosophical, Exacting, Hysterical, Indifferent)