

Structurofunctional analysis based on postinsertion problems with complete dentures in Moradabad, North India: A cross-sectional study

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Abstract

Background: Complaints with complete dentures is a common and expected phenomenon. However the type and character of complaint varies between population and is influenced by the socio economic condition, prevalent dental awareness etc. This study attempts to find the most common complaints with complete dentures, their causes and also presents a classification of the same.

Method: A cross-sectional analytical study was conducted by performing a survey on a sample of population over an 18 month period utilizing a customized questionnaire. The complaints were divided into four categories viz. discomfort, retention, esthetics and miscellaneous. Consequently each denture was evaluated for structural and functional defects. The findings were classified into error in denture base, physiopsychological, error in occlusion and teeth selection. The data was statistically analyzed.

Results: Error in denture base was the predominant cause of complaints. However physiopsychological and error in occlusion and teeth selection were also important second factors in certain groups of complaints. Highest number of complaints (23.07%) belongs to discomfort in mandibular posterior region. While the least number of complaints are concerned with speech as reported by both males and females (both at 2.02%).

Conclusion: Discomfort with complete dentures was the largest complaint reported followed by loss of retention with esthetics and miscellaneous complaints. Discomfort in mandibular posterior region was the most frequent complaint reported while speech related complaints were least in number. Most common cause of complaints was error in denture base.

Keywords: Complete denture, customized questionnaire, denture complaints classification, postinsertion

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INTRODUCTION

Postinsertion phase of complete denture therapy is invariably associated with a protracted complaints period and their incremental redressal. Most frequent complaints

reported are discomfort, pain on chewing, inability to chew or speak, looseness, and dissatisfaction with denture esthetics.^[1-11] Many textbooks are solely dedicated to the “troubleshooting” of these problems, and most of these

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problems are included in regular textbooks of complete dentures.^[12-15] Many studies have been conducted in various parts of the world to relate the patient's complaints to various factors and find out the underlying deficiency in the complete dentures causing the problem.^[2-3,6-11,16] The varying findings of these studies indicate that there might be a regional basis to the difference in common complaints reported which may include reasons such as patient's expectations with dentures, prevalent social mores regarding edentulism, level of dental awareness, and history of past dental visits.^[3-4,17-19]

Similarly determining the chief cause of a complaint is important not only for its redressal but also to avoid similar mistakes in future. No single factor appears to determine the patient's satisfaction with his complete dentures; rather, a concerted action of psychological, biological, anatomical, and technical factors is decisive. To pinpoint, the exact cause of complaint has been a challenge also due to the fact that there is no pattern or coherence in the complaints. The present study intends to bridge this gap by providing a structurofunctional assessment of complete dentures complaints as reported by patients and correlation of most commonly reported complaints with various social demographic factors in the Moradabad region of Uttar Pradesh state in North India. It was felt that such a study in North Indian setting would fill the lacunae in patient demographic data as related to denture complaints and provide an Indian perspective of similar research done

worldwide. Further, this database can help the general practitioner to fine-tune their practice to the needs and desires of the local population. The null hypothesis of the study is that there is no correlation between postinsertion complaints with complete dentures and factors such as sex, duration of use of dentures, place of fabrication, and number of previous dentures used. This is partially rejected because no statistically significant relation was seen between duration of use and any complaints. Furthermore, number of previous dentures used and place of fabrication showed no statistically significant relation with most of the complaints except retention. However, strong statistical significance was seen between sex and esthetic and miscellaneous complaints.

MATERIALS AND METHODS

A cross-sectional analytical study was planned to be conducted for a period of 1.5 years (October 2014–March 2016) to cater a convenience sample of 125 which was estimated based on number of complete denture complaints reported to the Department of Prosthodontics, Kothiwal Dental College, Moradabad. The inclusion criteria were (1) patients with both jaws edentulous, (2) patients who wear the complete dentures regularly, and (3) patients who had their complete denture made within the last 5 years. The exclusion criteria were (1) medically compromised patients, (2) patients suffering from psychological and neurological problems such as dementia, Parkinson's

| QUESTIONNAIRE | Classification & Evaluation Of Problems | ESTHETICS |
|---|---|----------------|
| GENERAL INFORMATION | | |
| Name <input type="text"/> | | |
| Age <input type="text"/> | | |
| Sex <input type="text"/> | | |
| Case Paper # <input type="text"/> | | |
| Occupation <input type="text"/> | | |
| Religion <input type="text"/> | | |
| Address <input type="text"/> | | |
| Chief complaint | | |
| Food Habits <input type="checkbox"/> Vegetarian <input type="checkbox"/> N. Vegetarian <input type="checkbox"/> Mixed | | |
| Medical History | | |
| Any regular medication <input type="checkbox"/> Yes <input type="checkbox"/> No Details (if any): | | |
| Respiratory Disorder <input type="checkbox"/> Yes <input type="checkbox"/> No Details (if any): | | |
| Cardiovascular Disorder <input type="checkbox"/> Yes <input type="checkbox"/> No Details (if any): | | |
| Lifestyle Disease <input type="checkbox"/> Diabetes mellitus <input type="checkbox"/> Hypertension <input type="checkbox"/> Any Other <input type="checkbox"/> NA | | |
| Neurological Disorder <input type="checkbox"/> Yes <input type="checkbox"/> No Details (if any): | | |
| Complete Denture related Questions | | |
| Reason(s) for using denture <input type="checkbox"/> Chewing <input type="checkbox"/> Esthetics <input type="checkbox"/> Phonetics | | |
| Duration of existing denture use <input type="checkbox"/> Upper <input type="checkbox"/> Lower | | |
| Number of dentures used previously <input type="text"/> Upper <input type="text"/> Lower | | |
| Where were the dentures fabricated <input type="checkbox"/> Institute <input type="checkbox"/> Private practice | | |
| <input type="checkbox"/> Under Graduate <input type="checkbox"/> Post Graduate | | |
| Do you like your dentures <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Can't Say | | |
| Any problem being faced with the dentures <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Which Denture <input type="checkbox"/> Upper <input type="checkbox"/> Lower | | |
| RETENTION | | |
| Is it loose <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Which one is loose <input type="checkbox"/> Upper <input type="checkbox"/> Lower | | |
| Location where felt loose <input type="checkbox"/> Upper <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| <input type="checkbox"/> Lower <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| Does it fall on its own <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Does it fall/lift while opening mouth <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Does it fall/lift while speaking <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Does it fall while eating/drinking <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| DISCOMFORT | | |
| Does the denture cause any pain <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Cause of pain <input type="checkbox"/> Chewing <input type="checkbox"/> Other cause | | |
| At any particular point <input type="checkbox"/> Upper <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| <input type="checkbox"/> Lower <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| Are there any sore spots <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Location (If present) <input type="checkbox"/> Upper <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| <input type="checkbox"/> Lower <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| Any other lesion(s) <input type="checkbox"/> Yes <input type="checkbox"/> No Details: _____ | | |
| Duration Of the lesion <input type="checkbox"/> Short <input type="checkbox"/> Long | | |
| Location of lesion <input type="checkbox"/> Upper <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| <input type="checkbox"/> Lower <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| Is there cheek/tongue biting <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Any tingling pain/sensation <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Location (If present) <input type="checkbox"/> Upper <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| <input type="checkbox"/> Lower <input type="checkbox"/> Front <input type="checkbox"/> Back | | |
| MISCELLANEOUS | | |
| Teeth clattering <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Unable to close mouth <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Food lodgment <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Lisping ("s" sound) <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Whistling ("s" sound) <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Gagging <input type="checkbox"/> Yes <input type="checkbox"/> No | | Details: _____ |
| Do you think your dentures look good <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Teeth shape <input type="checkbox"/> Bad <input type="checkbox"/> Good | | |
| Teeth color <input type="checkbox"/> Bad <input type="checkbox"/> Good | | |
| Tooth Size <input type="checkbox"/> Unseemly <input type="checkbox"/> Appropriate | | |
| Lip support/fullness <input type="checkbox"/> Unseemly <input type="checkbox"/> Adequate | | |
| Sunken cheeks appearance <input type="checkbox"/> Yes <input type="checkbox"/> No | | |

Figure 1: Customized questionnaire

disease, and motor neuron diseases, and (3) patients who had undergone jaw restructuring surgeries. Prior permission was obtained from the Institutional Ethical Review Board.

A customized questionnaire was prepared for the purpose of the study [Figure 1]. General information, complete denture-related information and complaint-related information was elicited from the questionnaire. Classification of all complaints was done into four categories, namely, retention, discomfort, esthetics, and miscellaneous. These were further subdivided into categories based on anatomic location, nature of the complaint, and clinical observations as applicable. Retention and discomfort complaints were subdivided on the basis of location into maxillary and mandibular and further in to anterior and posterior. In case of retention, the patient was asked about the location where loss of retention was felt and instances of loss of retention. This included loss of retention on opening mouth, while speaking, eating, or drinking.

In case of discomfort, questions asked included complaint of pain, sore spots, lesions, and tingling sensation. Complaint about tongue biting/cheek biting was also noted. In the esthetics section, complaints regarding tooth shape, size, and color were elicited. These were called as tooth factors. Secondly, complaint about sunken cheek appearance and improper lip support were asked. These constituted soft-tissue factors. Finally, in the miscellaneous complaints section, complaints were divided into speech and gagging. Speech-related questions included lisping (on “s” sound), whistling (on “s” sound), and teeth clattering. This was an attempt to include as many complaints as possible.

Informed consent was taken from all the patients before conducting any procedure or filling the survey form [Figure 2]. During the survey process, a single operator asked questions in patient's native language. Consequently, the same operator analyzed the complete dentures of the patient for structural defects and the intraoral and extraoral structures for functional inadequacies. Having a single operator eliminated operator bias. The causal link between the complaint and denture-related factors was explored, and this was termed as “structurofunctional analysis (SFA) factors” of the complaint. These were noted in a separate sheet [Figure 3].

SFA is an attempt to find out the causes of the complaints which were reported by the patients. Structural component deals with a structural defect of the denture (pain due to a sharp nodule or edge on the denture, faulty design, incomplete finishing and polishing, etc.) and functional component with other problems such as physiological

अवगत सहमती पत्र

निम्नलिखित पत्रानो का उत्तर दे कर आप "AN ASSESSMENT OF COMMON PROBLEMS ASSOCIATED WITH COMPLETE DENTURE BASED ON A SURVEY OF COMPLAINTS MADE BY PATIENTS REPORTING TO A TEACHING HOSPITAL IN MORADABAD" नामक शोध कार्य में भाग ले रहे हैं। आपकी सहभागिता के लिये मात्र ५ मिनटों की आवश्यकता है। इस सर्वेक्षण से आपको कोई असुविधा नहीं होगी और इस के कोई जानत दुष्प्रभाव भी नहीं हैं। इस सर्वेक्षण के दौरान अगर आपमें कोई मौखिक रोग या उसका लक्षण मिलता है तो यह जानकारी आपके लिये लाभदायक होगी। इस शोध कार्य में भाग लेना आपके लिये पूर्णतया स्वैच्छिक है। यदि आप कभी भी इस शोध कार्य का हिस्सा नहीं बनना चाहते हैं तो आप किसी भी समय इसे त्याग सकते हैं। आपके द्वारा दी गयी जानकारी पूर्णतया गुप्त राखी जायेगी और कोई भी उपनयन हुआ अकिया डाता कम्प्यूटर्स में सुरक्षित रखा जाएगा। इस शोध से सम्बन्धित कोई भी जानकारी सार्वजनिक किये जाने पर आपका नाम अथवा ऐसी कोई भी जानकारी जिससे आपकी पहचान हो सके, उसे प्रकट नहीं किया जाएगा। इस शोध का निष्कर्ष, सारांश इत्यादि अगर किसी भी पत्रिका, सम्मेलन, मंत्रणा इत्यादि में प्रस्तुत किया गया तो इस के लिये आपसे दोबारा अनुमति नहीं ली जायेगी।

इस सहमती पत्र पर हस्ताक्षर करने का अर्थ है कि आप १८ वर्ष या उसे अधिक की आयु के हैं तथा आपको उपरोक्त दी गयी सारी शर्तें मान्य हैं।

| | |
|-----------|--------|
| हस्ताक्षर | दिनांक |
|-----------|--------|

INFORMED CONSENT

By answering this questionnaire you are taking part in a research survey about "AN ASSESSMENT OF COMMON PROBLEMS ASSOCIATED WITH COMPLETE DENTURE BASED ON A SURVEY OF COMPLAINTS MADE BY PATIENTS REPORTING TO A TEACHING HOSPITAL IN MORADABAD". Your participation will require approximately 5 minutes. There are no known risks or discomforts associated with this survey. Detection and treatment of any oral disease and its complication at an earlier date will be beneficial to you. Taking part in this study is completely voluntary. If you choose to not be in this study, you can withdraw at any time. Your responses will be kept strictly confidential, and any digital data generated will be stored in secure computer files after it is entered. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified. The result(s), summary etc. of this study may be presented at conferences or other gatherings for medical and scientific purpose and your permission will not be sought for the same again. **Signing this informed consent indicates that you are 18 years of age or older and indicates your consent to participate in the research.**

| | |
|----------------------|-------|
| SIGNATURE OF SUBJECT | DATED |
|----------------------|-------|

Figure 2: Informed consent form

(patient's low-pain threshold), psychological dysfunction, or even error in occlusion which prevent optimal denture use. In addition, it was seen that the same complaint (say painful lower denture) was reported in multiple ways by different patients based on their verbosity. Furthermore, the same problem on many occasions had multiple causative agents, (for example, pain in lower posterior region due to faulty occlusion, nodule on the tissue surface, or denture roughness). As a result, all the possible causes were condensed into three SFA factors, namely, error in denture base, error in occlusion, and physio-psychological.

Each complaint was assigned a code there were total 12 codes (R1, R2, and R3 for retention-related complaints; D1, D2, and D3 for discomfort-related complaints, and so on). R1 meant problem of retention in that patient was caused due to error in denture base (which in turn may be any one of the multiple things such as rough denture base, nodules, unpolished denture base broken edge, and so on) similarly say E3 meant that esthetics-related complaint in that case was caused due to physio-psychological issues. That is to say no error in denture base or occlusion or teeth selection was evident (yet patient had a complaint), so the cause was attributed to altered physiology (muscle tone,

| COMPLAINT PRESENTED BY PATIENT | | | STRUCTURO FUNCTIONAL ANALYSES | |
|--|--|----------------------------|-------------------------------|--|
| R E T E N T I O N | M A X I L L A R Y | General looseness | | |
| | | Loose anteriorly | | |
| | | Loose posteriorly | | |
| | | Falls on its own | | |
| | | Falls while speaking | | |
| | | Falls during mastication | | |
| | | | | |
| | M A N D I B U L A R | General looseness | | |
| | | Loose anteriorly | | |
| | | Loose posteriorly | | |
| | | Lifted while speaking | | |
| | | Lifted while opening mouth | | |
| | | Lifted while eating | | |
| | | | | |
| D I S C O M F O R T | M A X I L L A R Y | Generalized pain | | |
| | | Pain anteriorly | | |
| | | Pain posteriorly | | |
| | | Generalized sore spots | | |
| | | Sore spots anteriorly | | |
| | | Sore spots posteriorly | | |
| | | Lesion(s) | | |
| | | Cheek/tongue biting | | |
| | | Tingling sensation | | |
| | | Redness | | |
| D I S C O M F O R T (C O N T D.) | M A N D I B U L A R | Generalized pain | | |
| | | Pain anteriorly | | |
| | | Pain posteriorly | | |
| | | Generalized sore spots | | |
| | | Sore spots anteriorly | | |
| | | Sore spots posteriorly | | |
| | | Lesion(s) | | |
| | | Cheek/tongue biting | | |
| | | Tingling sensation | | |
| | | Redness | | |
| E S T H E T I C S | M A X I L L A R Y | Size of teeth | | |
| | | Shape of teeth | | |
| | | Shade of teeth | | |
| | | Arrangement of teeth | | |
| | | Lip support | | |
| | M A N D I B U L A R | Size of teeth | | |
| | | Shape of teeth | | |
| | | Shade of teeth | | |
| | | Arrangement of teeth | | |
| | | Lip support | | |
| M I S C. | | Food lodgement | | |
| | | Lisping on "s" sound | | |
| | | Whistling on "s" sound | | |
| | | Gagging | | |

Figure 3: Structurofunctional analysis sheet

saliva flow, and saliva quantity) or psychological causes. The phrase “physio-psychological” is a portmanteau of physiological and psychological.

RESULTS

Out of 125 participants, the data of 119 participants were analyzed as eight participants did not satisfy the inclusion criteria due to the duration of their denture use (more than five years). There were 74 males and 45 females in the sample population and 104 had dentures fabricated in the institute while 15 had got the dentures made in private clinics. On the basis of qualification of operating doctor, a comparable number was fabricated by postgraduate (56) and undergraduate students (49) while in case of 14 participants the qualification of the operator could not be determined. The participants were asked to rate the reason for fabrication of their dentures among three options: mastication, esthetics, and phonetics. Based on this a large majority (87.39%)

gave first priority to mastication, while esthetics and phonetics were chosen as first priority by 10.08% and 2.52% participants, respectively. First-time denture users (63) far outnumbered those who had used a complete denture once before (37). More than one denture was used previously by 19 patients. On the basis of duration of current denture use, 84.03% patients had used their dentures for <1 year and 10.92% had used it for three to five years and only six patients reported with complaints with dentures older than 3 years. An overwhelming 66.39% of complaints were related to mandibular dentures while 18.49% were related to both maxillary and mandibular dentures and 15.13% with only maxillary dentures.

Table 1 and Figure 4 show the segregated distribution of the complaints according to the SFA conducted. It was seen that the most number of complaints were under the first category, that is, error in denture base, while the last category, physio-psychological had the least number for all

Table 1: The segregated distribution of complaints according to SFA

| | Retention | | | Discomfort | | | Esthetics | | | Miscellaneous | | |
|-------------------------|-----------|-------|------|------------|-------|-------|-----------|-------|------|---------------|------|-------|
| | R1 | R2 | R3 | D1 | D2 | D3 | E1 | E2 | E3 | M1 | M2 | M3 |
| No. of cases | 45 | 14 | 02 | 66 | 15 | 10 | 09 | 08 | 05 | 14 | 02 | 07 |
| % of complaint category | 73.77 | 22.95 | 3.28 | 75.52 | 16.48 | 10.99 | 40.90 | 36.36 | 5.49 | 60.87 | 8.69 | 30.43 |

Table 2: Segregated distribution of all the complaints reported according to the four complaint classes

| | Retention | | | | Discomfort | | | | Esthetics | | | | Miscellaneous | | | |
|------------|-------------------|-------|------------|-------|------------|-------|------------|-------|---------------|-------|---------------------|-------|---------------|------|---------|-------|
| | Maxillary | | Mandibular | | Maxillary | | Mandibular | | Tooth factors | | Soft tissue factors | | Speech | | Gagging | |
| | Ant | Post | Ant | Post | Ant | Post | Ant | Post | M | F | M | F | M | F | M | F |
| | No. of complaints | 21 | 08 | 32 | 15 | 06 | 13 | 27 | 57 | 04 | 09 | 09 | 12 | 05 | 05 | 09 |
| % of total | 8.50 | 3.24 | 12.96 | 6.07 | 2.43 | 5.26 | 10.93 | 23.07 | 1.62 | 3.64 | 3.64 | 4.86 | 2.02 | 2.02 | 3.64 | 6.07 |
| % of class | 27.63 | 10.52 | 42.11 | 19.74 | 5.83 | 12.62 | 26.21 | 55.34 | 11.76 | 26.47 | 26.47 | 35.29 | 14.7 | 14.7 | 26.47 | 44.18 |

Table 3: Kruskal-Wallis test application on the structurofunctional analysis data

| Attribute | No | Mean Rank | Chi Square Value |
|--|-----|-----------|--------------------|
| Retention | | | |
| R1 (Error in denture base) | 119 | 216.00 | 0.000, significant |
| R2 (Error in occlusion) | 119 | 169.50 | |
| R3 (Physio-psychological) | 119 | 151.50 | |
| Discomfort | | | |
| D1 (Error in denture base) | 119 | 232.50 | 0.000, significant |
| D2 (Error in occlusion) | 119 | 156.00 | |
| D3 (Physio-psychological) | 119 | 148.50 | |
| Esthetics | | | |
| E1 (Error in denture base) | 119 | 181.50 | 0.534 |
| E2 (Error in occlusion including selection & arrangement of teeth) | 119 | 180.00 | |
| E3 (Physio-psychological) | 119 | 175.50 | |
| Miscellaneous | | | |
| M1 (Error in denture base) | 119 | 188.50 | 0.006, significant |
| M2 (Error in occlusion) | 119 | 170.50 | |
| M3 (Physio-psychological) | 119 | 178.00 | |

complaints except miscellaneous, in this case, error due to occlusion accounted for least number of problems.

Table 2 shows the segregated distribution of all the complaints reported according to the four classes – retention, discomfort, esthetics, and miscellaneous. The sum of all the values in the sections mentioned above (247) is more than the total number of participants surveyed (119). This is because of considerable overlapping and reporting of more than one complaint by several participants. It can be seen that highest number of complaints (23.07%) belongs to discomfort in the mandibular posterior region, while the least number of complaints are concerned with speech as reported by both males and females (both at 2.02%).

Table 3 shows relative mean ranks based on Kruskal–Wallis test. According to this, test errors in denture base were significantly high statistically as far as retention-, discomfort-, and miscellaneous-related complaints were concerned with the mean rank value of 216.00, 232.50, and 188.50, respectively. Although the same factor

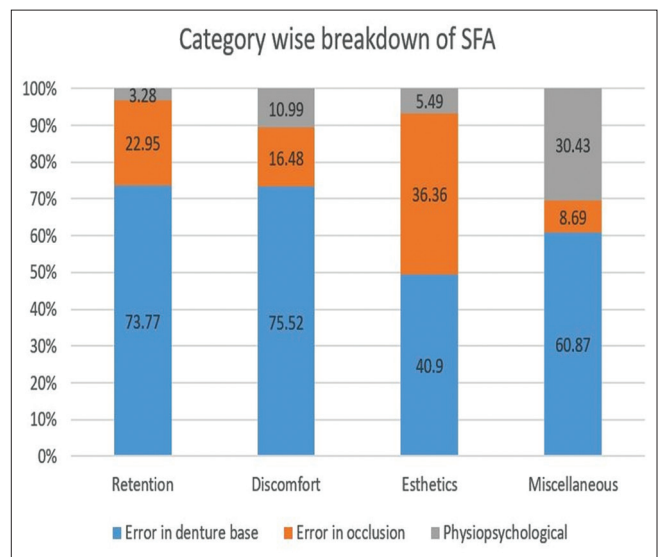


Figure 4: Distribution of structurofunctional analysis subfactors in relation to different complaints

(error in denture base) was high for esthetics, it was not found to be statistically significant.

Figure 4 graphically illustrates the category wise breakdown of the SFA. It shows how each complaint is divided between the selected SFA criteria.

DISCUSSION

Interpreting denture complaints is as difficult as treating them or fabricating a well-functioning set of dentures at the first place. As a result, common denture complaints and their causes should be known to clinicians in their practice. The null hypothesis of the study that there is no correlation between postinsertion complaints and factors such as sex, duration of use of dentures, place of fabrication, and the number of previous dentures was partially rejected. This was partially rejected because no statistically significant relation was seen between duration of use and any complaints. Furthermore, number of previous dentures

and place of fabrication showed no statistically significant relation with most of the complaints except retention. However, strong statistical significance was seen between sex and esthetic and miscellaneous complaints.

This study revealed that error in denture base was the most common cause of denture complaints. It was the largest factor in all four categories as presented above. What was different was, however, its lead over the rest when seen in different complaint categories. In retention and discomfort, there was a clear dominance of error in denture base factor (73.77% and 75.52%, respectively). In esthetics-related complaint, the second category (error in occlusion and teeth selection) was almost as dominant as an error in denture base. Finally, in miscellaneous complaints, physio-psychological causes accounted for almost a third of complaints while denture base errors maintained the lead at 60.87%.

Structural defects and design faults have been implicated as cause for denture complaints by many other authors. Laurina and Soboleva^[3] found that in most instances, complete denture patients present with complaints only when there is a real design fault. Incorrect denture extension as a causative factor for retention and discomfort complaints has also been claimed by other authors.^[5,7,20,21] Furthermore, Smith and Hughes^[5] reported such problems as being universally present in agreement with Lawson.^[21] Smith and Hughes^[5] also ascribed retention loss, pain, and stability problems to denture base errors while Morstad and Petersen^[20] and Brunello and Mandikos^[1] recognized it as causing retention loss problem. Similarly error in occlusion as defined by incorrect centric relation and vertical dimension was quoted by Yemm^[7] as chief cause of denture complaints and even more importance was given by Brunello and Mandikos.^[1] Morstad and Petersen^[20] also attributed interceptive occlusal contacts as causing loss of retention. In case of physiological causes, path-breaking work was done by Skinner and Chung^[22] and Östlund^[23] in relating denture stability and retention to physiological factors such as saliva. Lastly, psychological factors have also been discussed in detail by many authors.^[2,24,25] Postmenopausal emotional changes have been cited as cause by Langer *et al.*,^[26] Winkler,^[13] Rahn and Heartwell,^[27] and Powter and Cleaton-Jones.^[28] Fiske *et al.*^[29] stated that there is a social dimension to denture complaints, especially the persistent ones in the elderly, as a visit to the dentist for adjustment provides these elderly patients opportunity to go out.

To find the relative importance among the different SFA factors, a Kruskal–Wallis analysis of the data was performed. This clearly indicated the preponderance of error in

denture base factors by showing a statistically significant relation in three categories (all except esthetics) and largest mean rank in all four categories, indicating that denture base errors were the most important cause of the complaints than errors in occlusion and physio-psychological factors. The study, however, had certain limitations. In a populous country such as India, a study this nature needs to be carried out on a larger geographical scale to include different races and regions. Not only hospitals and health-care institutions but private clinics should also be included in the study to reflect the complete spectrum of treatment being provided. Categorization of complaints meant that individual complaints could not be studied in detail as also mentioned by Lechner.^[6] Finally, the social dimension of the problem of edentulism and consequent complaints with complete dentures was not considered as has been advocated by Fiske *et al.*^[29] and others.^[30]

Further studies which explore the limitations mentioned above and are conducted over a larger area with different representative groups of patients can provide a clearer picture of the enormity of the problem of common denture complaints.

CONCLUSION

Within the limitations of the study, following conclusions were drawn: complaints with complete dentures are a common and universal phenomenon. A suitable method to classify denture complaints is in four categories, namely, retention, discomfort, esthetics, and miscellaneous. Discomfort with complete dentures was the largest complaint reported (41.7%) followed by loss of retention (30.77%), with esthetics (13.77%), and miscellaneous complaints (13.77%) taking the third spot. Discomfort in the mandibular posterior region was the single largest complaint reported while speech-related complaints were least in number. A significant difference was seen between retention-related complaints on the basis of number of previous dentures used. No significant relation was seen between complaints and categorization on the basis of duration of use. Greater discomfort- and retention-related complaints were seen in patients from private practice than with dentures fabricated in the institute and this difference was significant in case of retention complaints. Females reported with more complaints of discomfort and significantly more gagging and esthetics complaints than males. Most common cause of complaints was an error in denture base, with an error in occlusion and teeth selection being the second largest cause in all but a miscellaneous category. The physio-psychological cause was the second largest in the miscellaneous category.

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Conflicts of interest

There are no conflicts of interest.

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