

Original Research

“A SURVEY TO EVALUATE DENTURE AESTHETICS AND SATISFACTION OF COMPLETE DENTURE PATIENTS IN HIMACHAL PRADESH GOVERNMENT DENTAL COLLEGE, SHIMLA”

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ABSTRACT:

A pleasant smile is an expression of joy. Restoring smile in edentulous patient may be considered as an achievement because smile is an integral part of the face and more generally of whole person it expresses beauty, age, personality and youth¹. Physical attractiveness is an important social issue in our culture which exerts significant influence not only in the social interactions but also self-concept, psychological well-being, and social behaviour of an individual. A complete denture allows the patient to return to normalcy and social well-being. The aesthetic concern and expectations of patients undergoing complete denture treatment were not fully satisfied as majority of people provided a lower rating for overall satisfaction with denture aesthetics; as a result, patient needs for denture aesthetics and denture base characterisation should be attended to and more weight should be placed on denture aesthetics.

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INTRODUCTION

A pleasant smile is an expression of joy. Restoring smile in edentulous patient may be considered as an achievement because smile is an integral part of the face and more generally of whole person it expresses beauty, age, personality and youth¹. Physical attractiveness is an important social issue in our culture which exerts significant influence not only in the social interactions but also self-concept, psychological well-being, and social behaviour of an individual. A complete denture allows the patient to return to normalcy and social well-being² Patient satisfaction with a complete denture is important for the patient's overall quality of life and remains the dentist's most desirable outcome.³

“Esthetics” is derived from the Greek word “Aesthesis.”⁴ In the era of implants and ceramics, the conventional denture needs to be updated¹For the aesthetic appearance of an artificial denture, characterisation of the denture plays a significant role.⁴According to the glossary of prosthodontics terms (GPT) “Denture characterization is modification of the form and colour of the denture base and teeth to produce a more lifelike appearance.”⁵In the era of implants and ceramics, the conventional denture needs to be updated¹For the aesthetic appearance of an artificial denture, characterisation of the denture plays a significant role.⁶. Complete dentures must be aesthetic as well as functional. Hardy stated that, “To meet the aesthetic needs of the denture patient, we should make the (denture) teeth look like (the patient's) natural teeth.”⁷

If we establish that many patients care about the appearance of the denture base and that the demand for denture base characterization is high, the techniques for denture base characterization will be accepted more widely and

patients' satisfaction and oral health-related quality of life might be enhanced by the increased availability of highly aesthetic removable prostheses.⁸ Meeting patient's expectations by giving importance to their demands is the most important criteria for complete denture success. Among these demands appearance and efficiency are predominant factors.⁴⁹

On basis of gender, age and level of education. Research data was collected by means of a questionnaire. An attempt was made to specify and quantify aesthetics demands and to determine the extent to which they contributed to patient's appreciation of their dentures. Therefore, the aim of this study was to investigate patient desire for denture esthetics and satisfaction in H.P Government Dental college, Shimla and create an awareness and importance of it.

AIMS AND OBJECTIVES

1. To assess the patient's satisfaction on denture base colour
2. To assess the patient's satisfaction on customization, and
3. To assess the patient's satisfaction on aesthetics

MATERIALS AND METHODS:

The sample of patients chosen for this study consisted of edentulous people whose treatment with complete denture was completed and who reported in the Department of Prosthodontics, Shimla HP.

A **questionnaire** which sought patient's awareness and preference for aesthetics in complete denture had been developed. All patients were comfortably seated on the dental chair, and the questions were asked in Hindi / English Patients were encouraged to give frank opinion about his/her denture. The questionnaire's design was based on previous studies and the questions are very simple. Questions were framed to help determine the awareness toward the denture base colour, customization, and aesthetics.⁵

STUDY DESIGN: This cross-sectional epidemiologic study was conducted in the edentulous patients aged between 44 years and 80 years (both males and females) to assess aesthetics and satisfaction of complete denture patients in H P government dental college in the city of Shimla, Himachal Pradesh - India.

THE SELECTION CRITERIA WAS AS FOLLOWS: -

Inclusion Criteria

1. The patients who received complete denture prostheses earlier and experienced users from the department were included in the study.
2. Patients with good physical and mental health.
3. Patients who were able to answer the questions.

Exclusion Criteria

1. Patient with implant-supported complete denture prostheses
2. Patient with removable partial denture prostheses
3. Patient with implant-supported partial dentures.
4. Those who are suffering from Oral Submucous Fibrosis (OSMF), Temporomandibular Joint (TMJ) dysfunction, neurological disorders, psychological defect and patients with extremely resorbed ridge were excluded.

Factors according to which patient were divided into subgroups: -

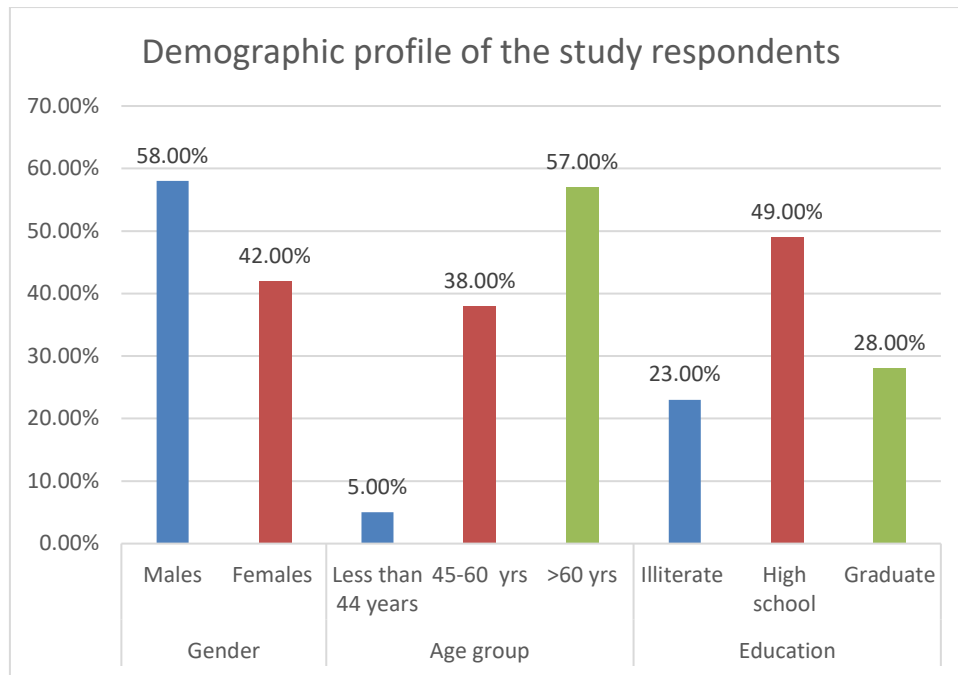
1. Gender – i) Male
ii) Female
2. Age - i) Less than 44 years
ii) 45 - 60 years
iii) 61-80 years
3. Level of education i) Illiterate
ii) School level
iii) Graduate

ETHICAL APPROVAL FOR THE STUDY:

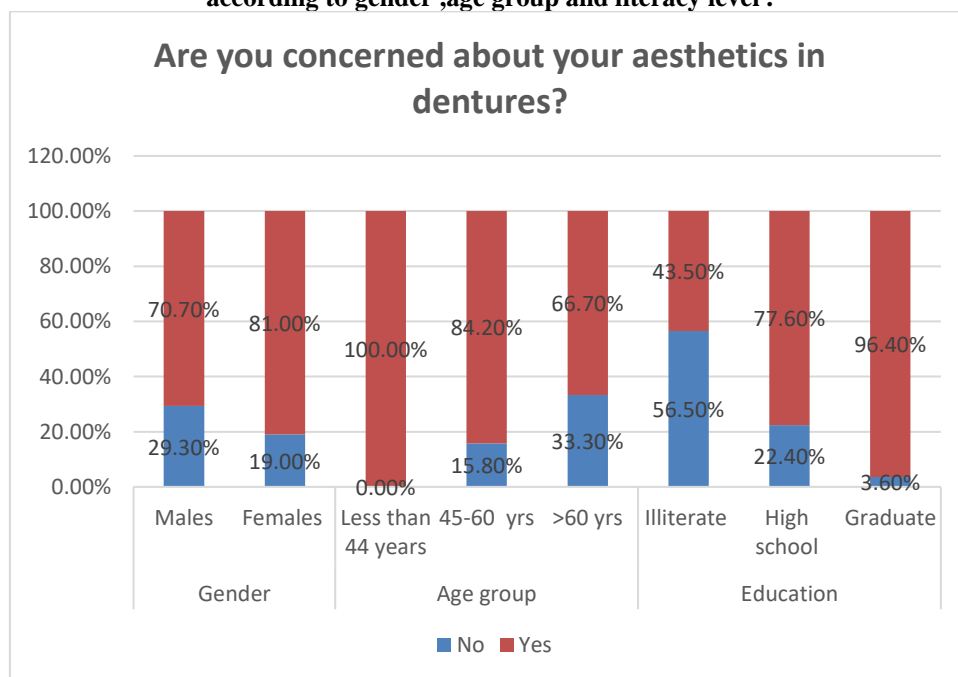
Ethical approval to conduct the study was obtained from the Institutional Ethical committee of H.P. Govt. Dental College and Hospital, Shimla

Inferential statistics were performed using non-parametric tests, i.e., **Chi-square test, Mann Whitney U test, Kruskal Wallis test and Spearman Correlation Coefficient.**

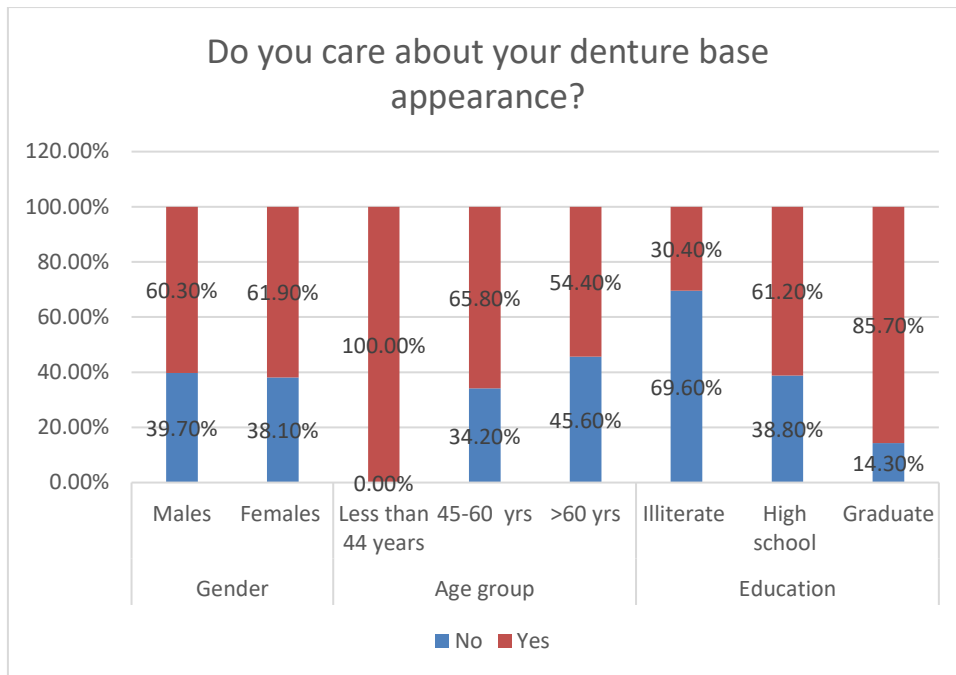
Graph 1: Graphical representation of demographic profile of study respondents according to gender, age, and literacy level



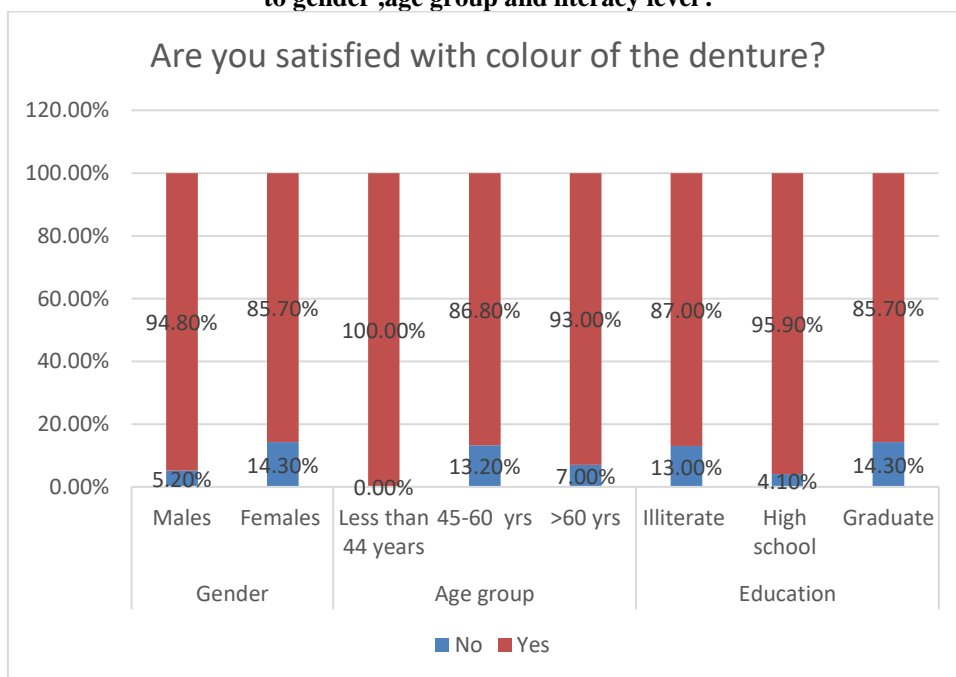
Graph 2 Graphical distribution of responses to ‘are you concerned about your aesthetics in dentures?’ according to gender ,age group and literacy level .



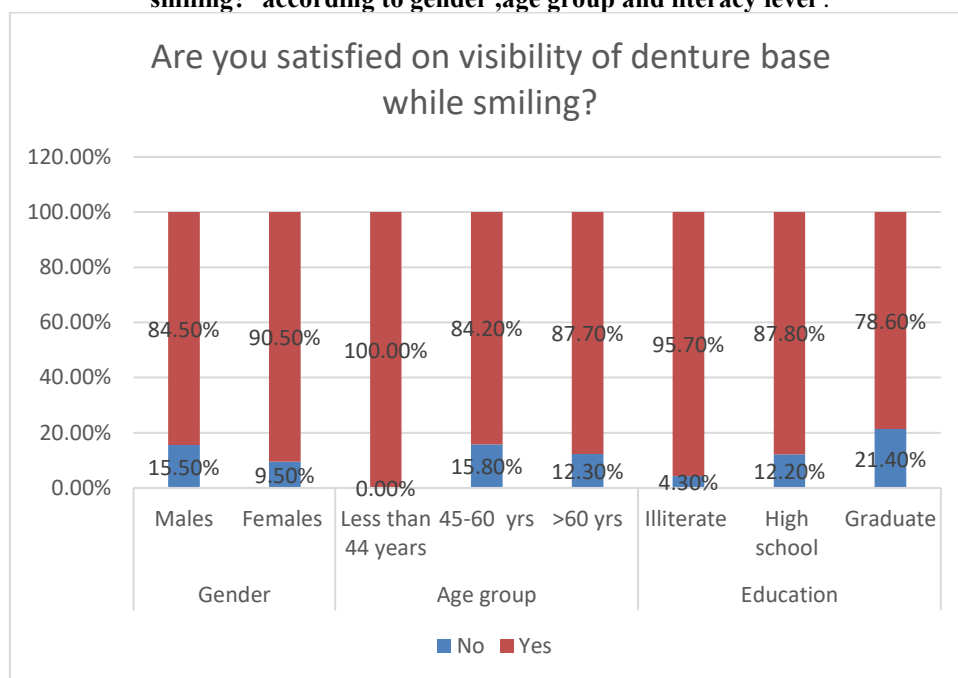
Graph 3 Graphical distribution of responses to ‘Do you care about your denture base appearance’ according to gender ,age group and literacy level .



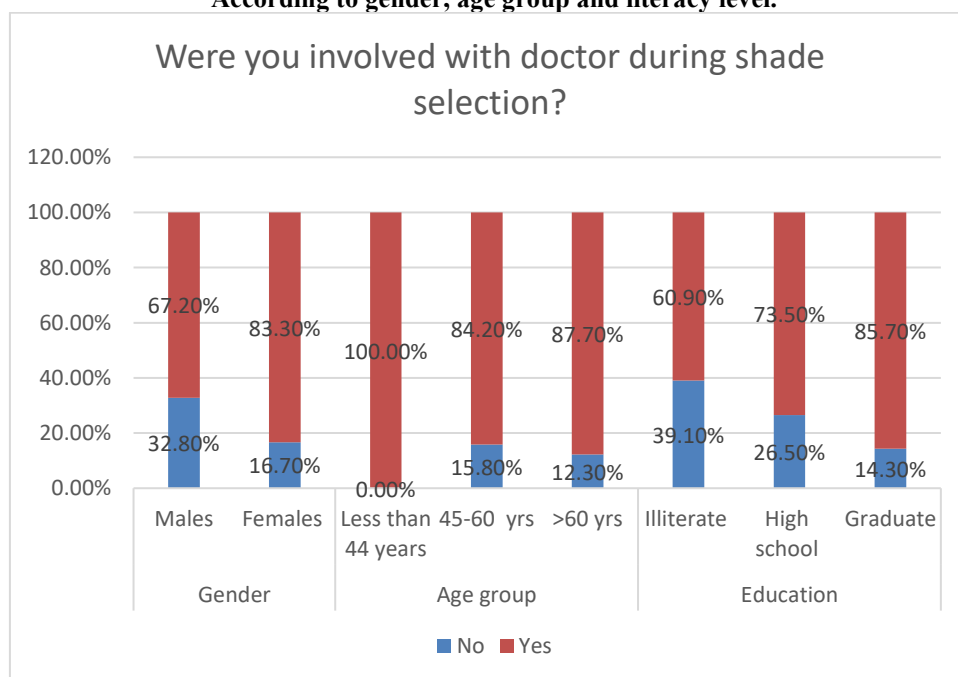
Graph 4 Graphical distribution of responses to ‘Are you satisfied with colour of the denture?’ according to gender ,age group and literacy level .



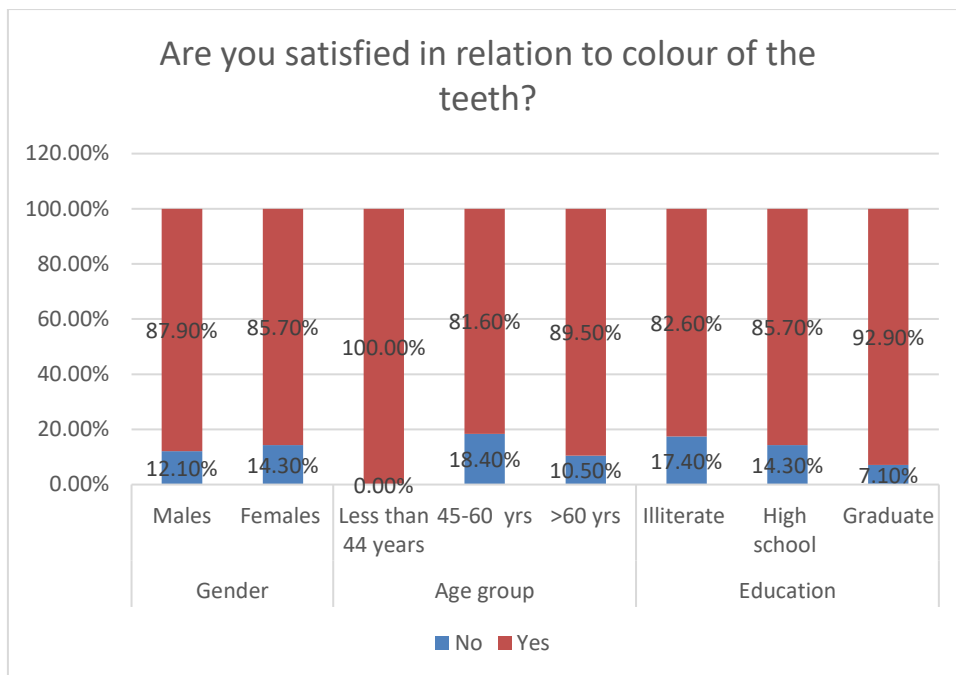
Graph 5 Graphical distribution of responses to ‘Are you satisfied on visibility of denture base while smiling?’ according to gender ,age group and literacy level .



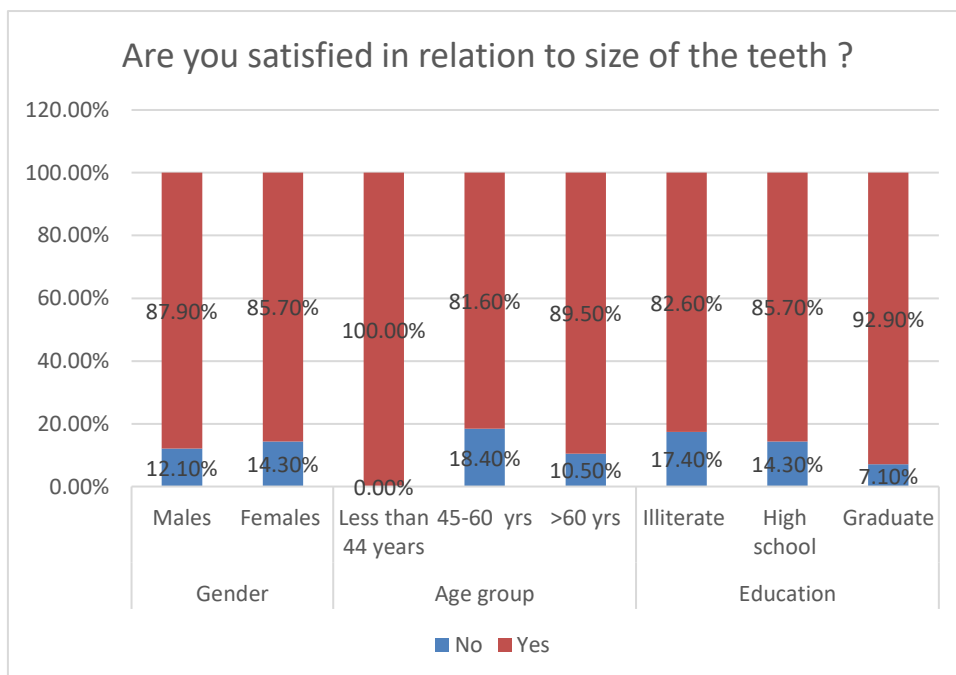
Graph 6 Graphical distribution of responses to ‘Were you involved with doctor during shade selection?’ ‘According to gender, age group and literacy level.



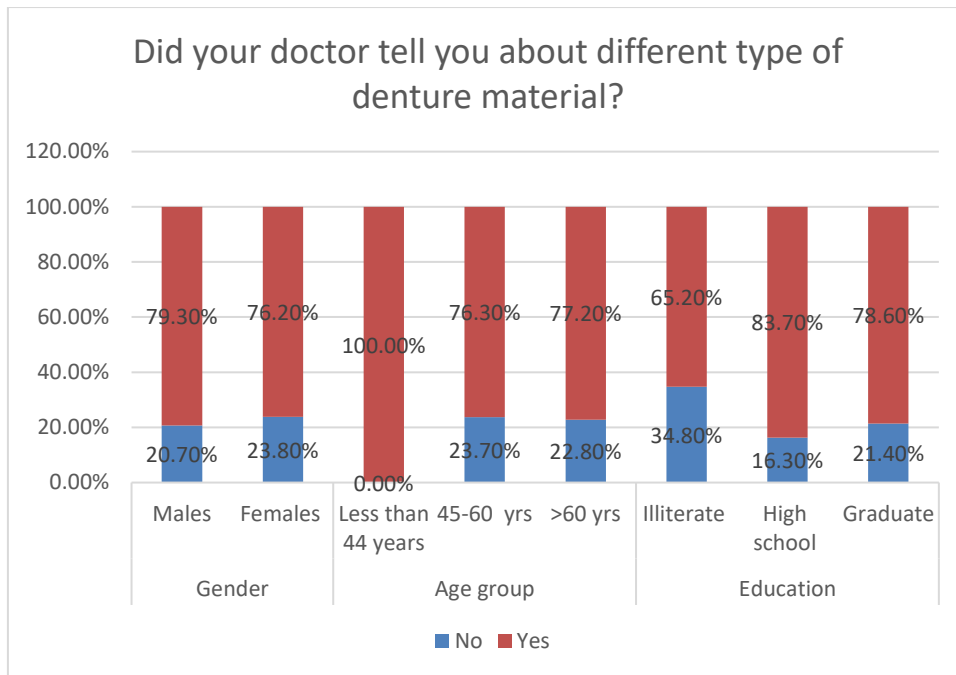
Graph 7 Graphical distribution of responses to ‘Are you satisfied in relation to colour of the teeth?’ according to gender ,age group and literacy level



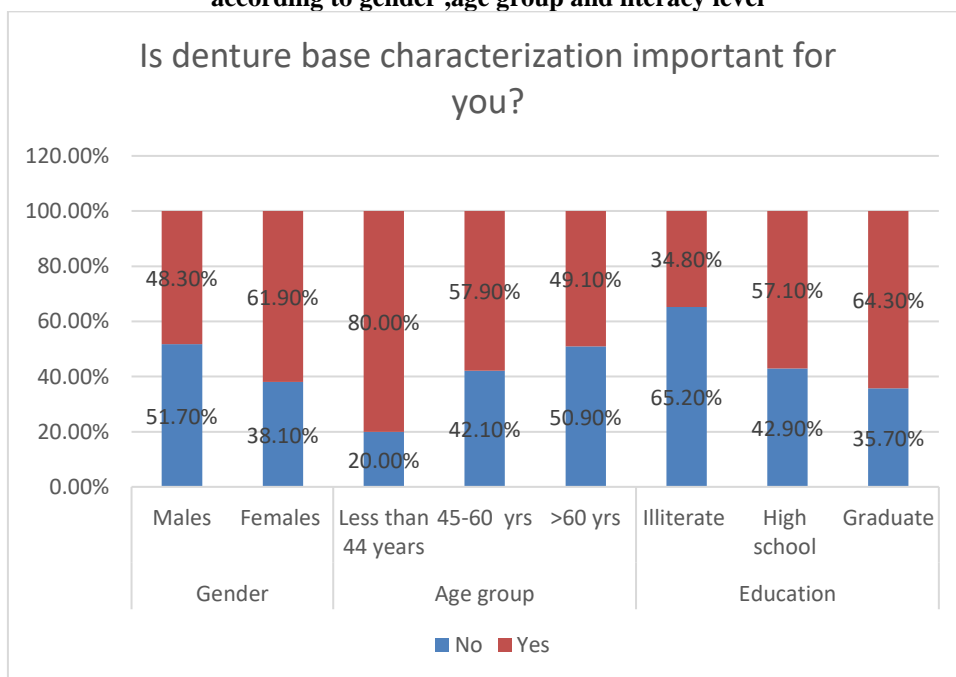
Graph 8 Graphical distribution of responses to ‘Are you satisfied in relation to size of the teeth’ according to gender ,age group and literacy level .



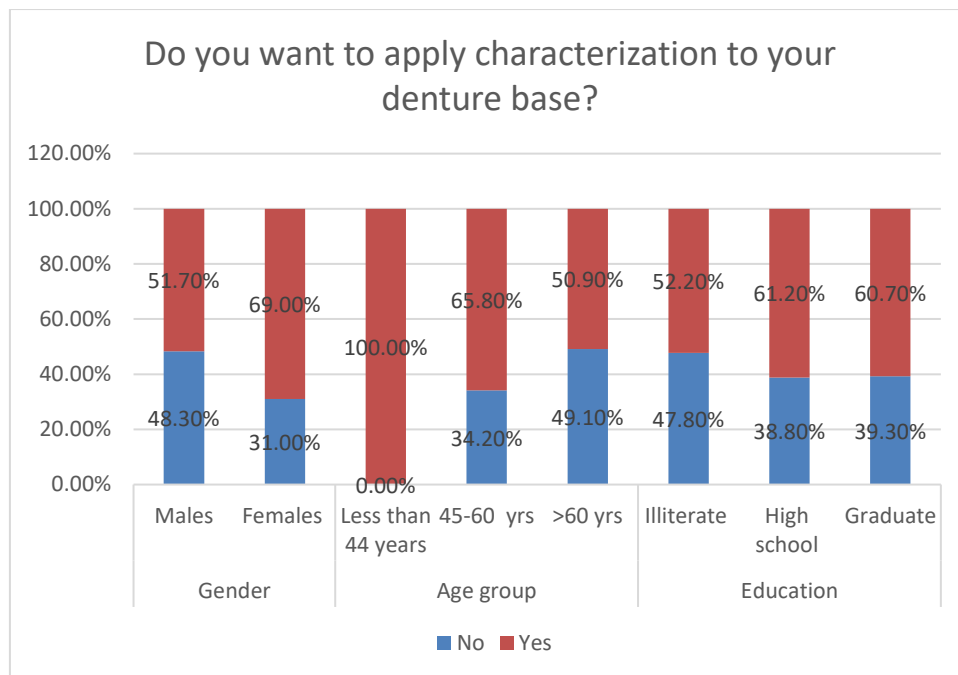
Graph 9 Graphical distribution of responses to ‘Did your doctor tell you about different type of denture material?’ according to gender ,age group and literacy level .



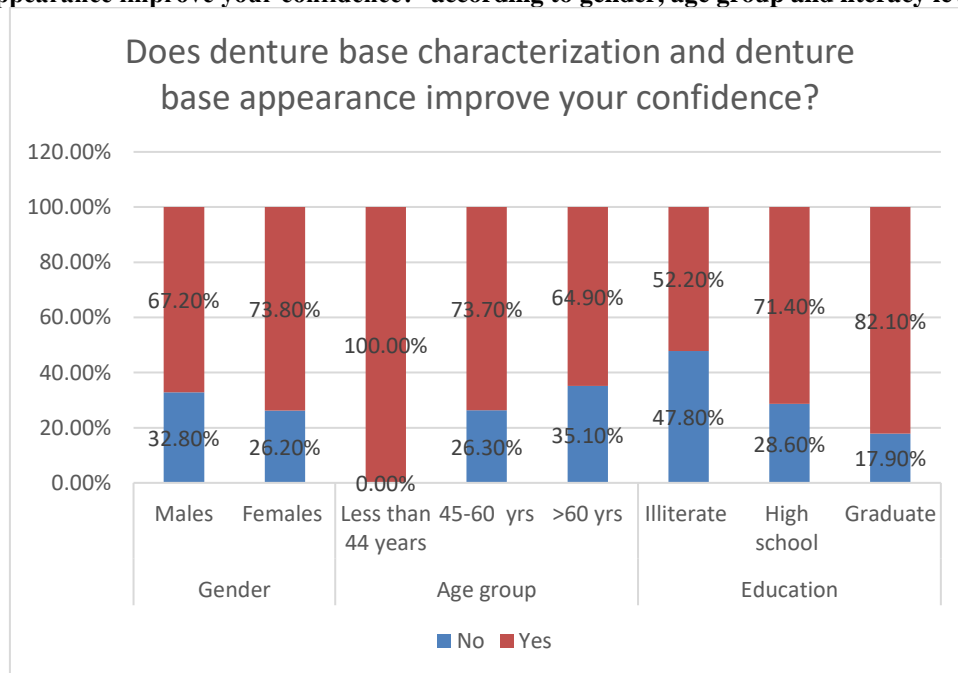
Graph 10 Graphical distribution of responses to ‘ Is denture base characterization important for you?’ according to gender ,age group and literacy level



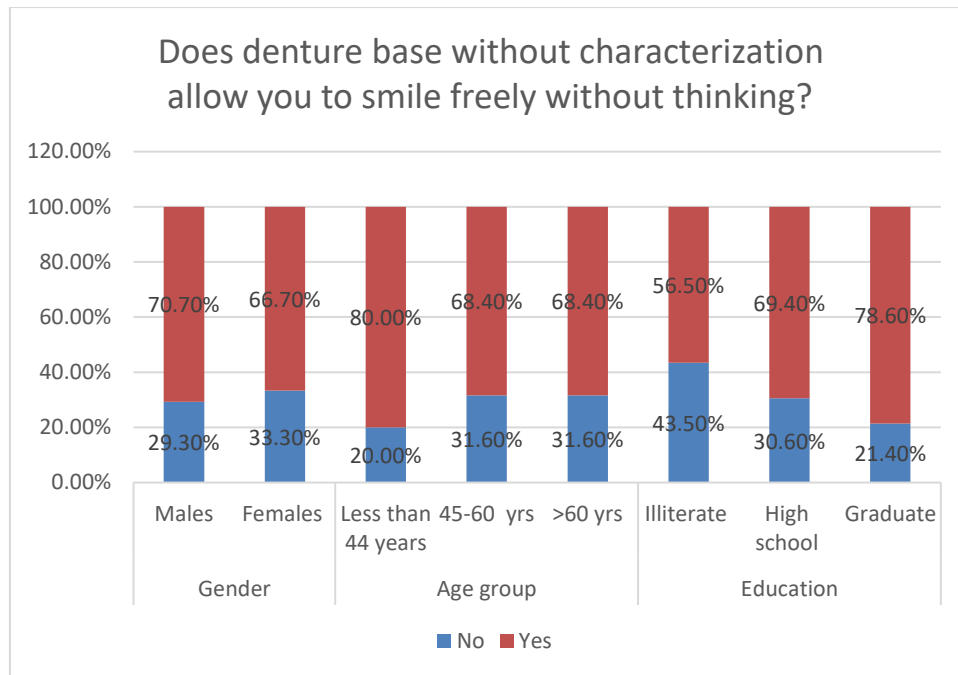
Graph 11 Graphical distribution of responses to ‘Do you want to apply characterization to your denture base?’ according to gender ,age group and literacy level .



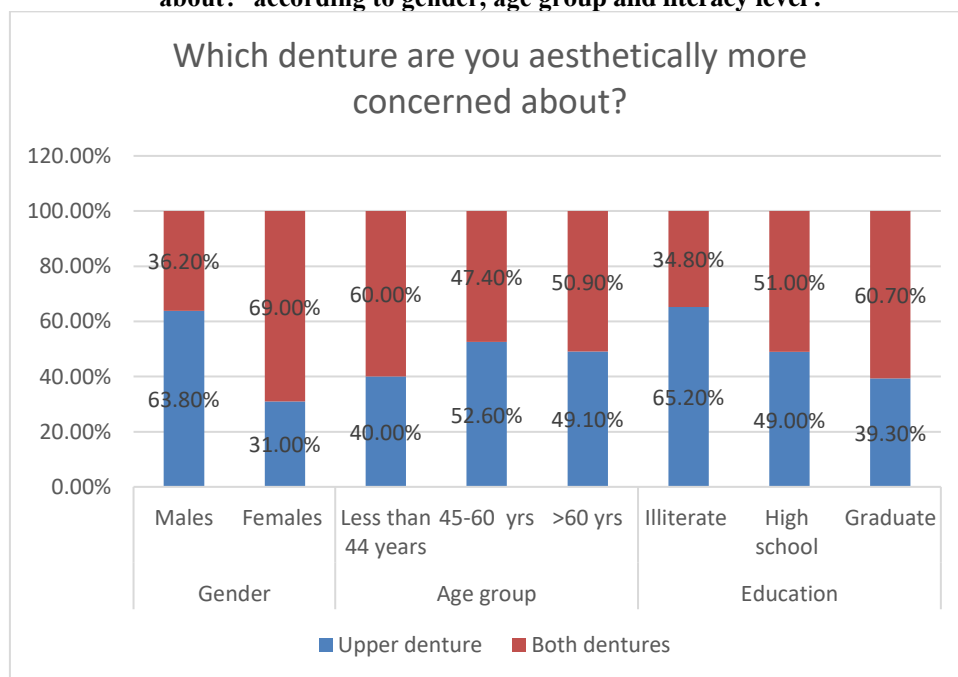
Graph 12 Graphical distribution of responses to ‘Does denture base characterization and denture base appearance improve your confidence?’ according to gender, age group and literacy level .



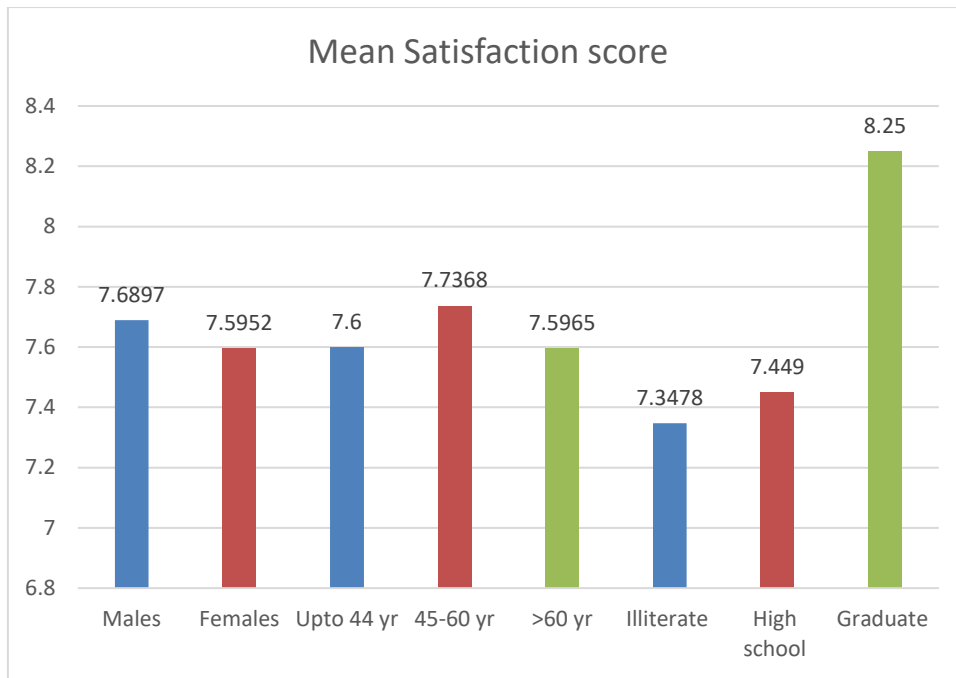
Graph 13 Graphical distribution of responses to ‘Does denture base without characterization allow you to smile freely without thinking of prosthesis?’ ‘According to gender, age group and literacy level.



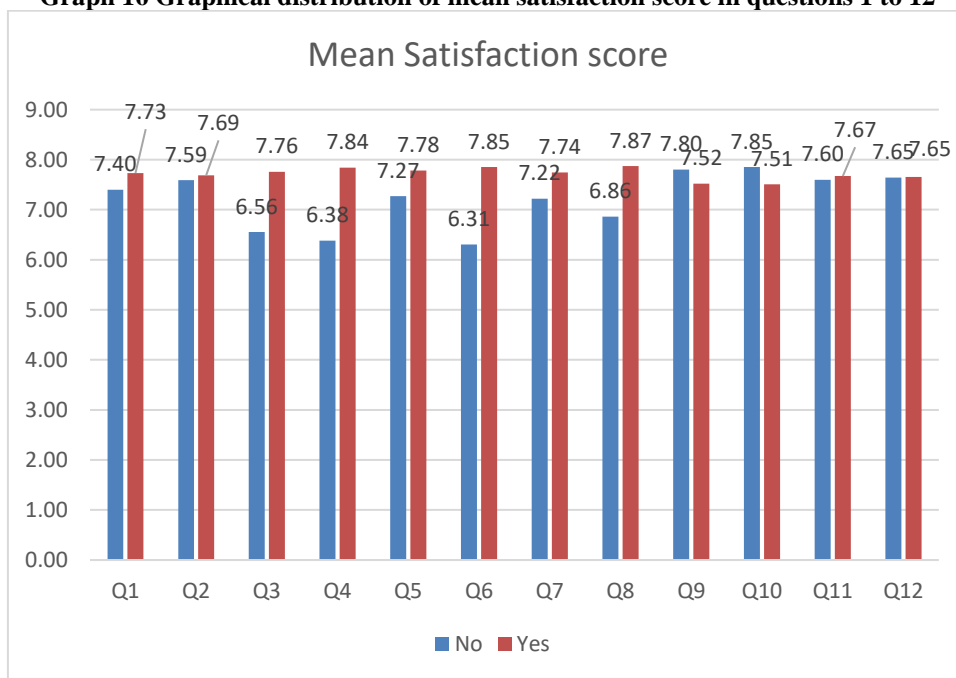
Graph 14 Graphical distribution of responses to ‘Which denture are you aesthetically more concerned about?’ according to gender, age group and literacy level .



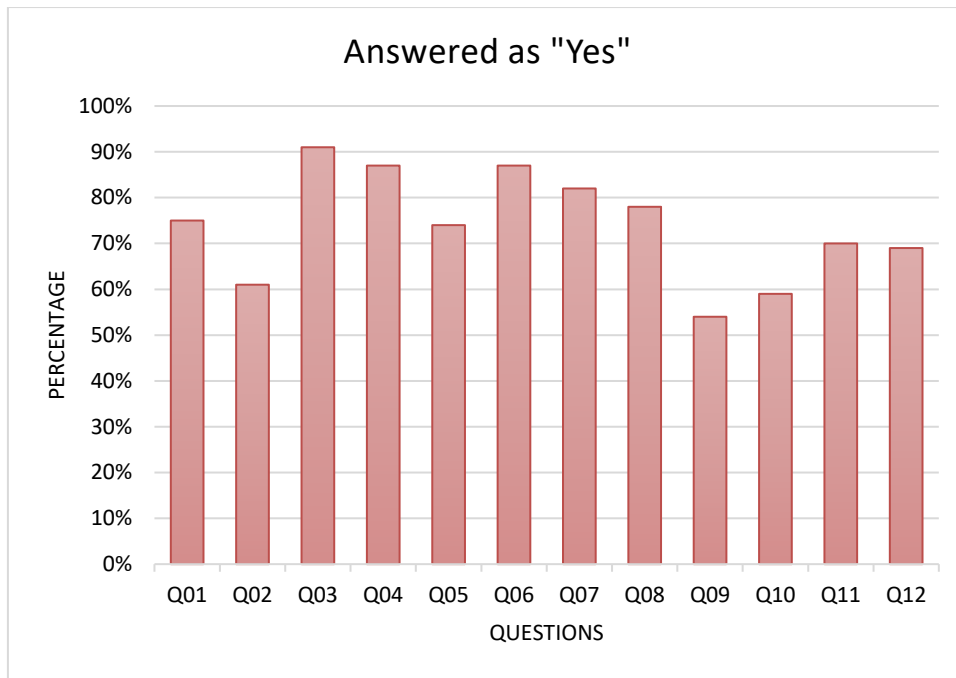
Graph 15 Graphical distribution of mean satisfaction score according to gender, age group and literacy level



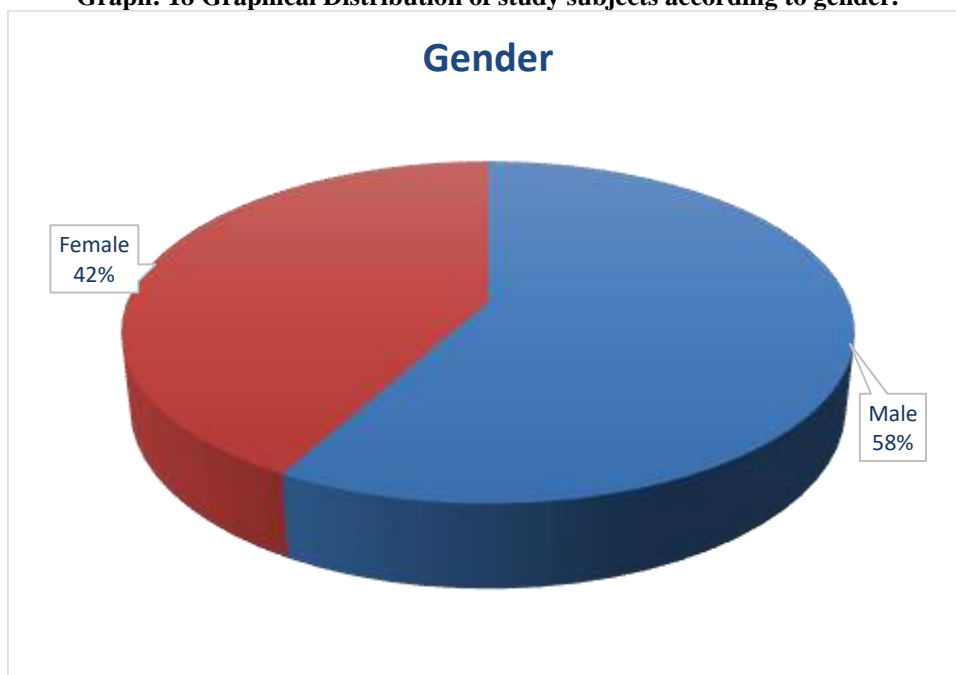
Graph 16 Graphical distribution of mean satisfaction score in questions 1 to 12



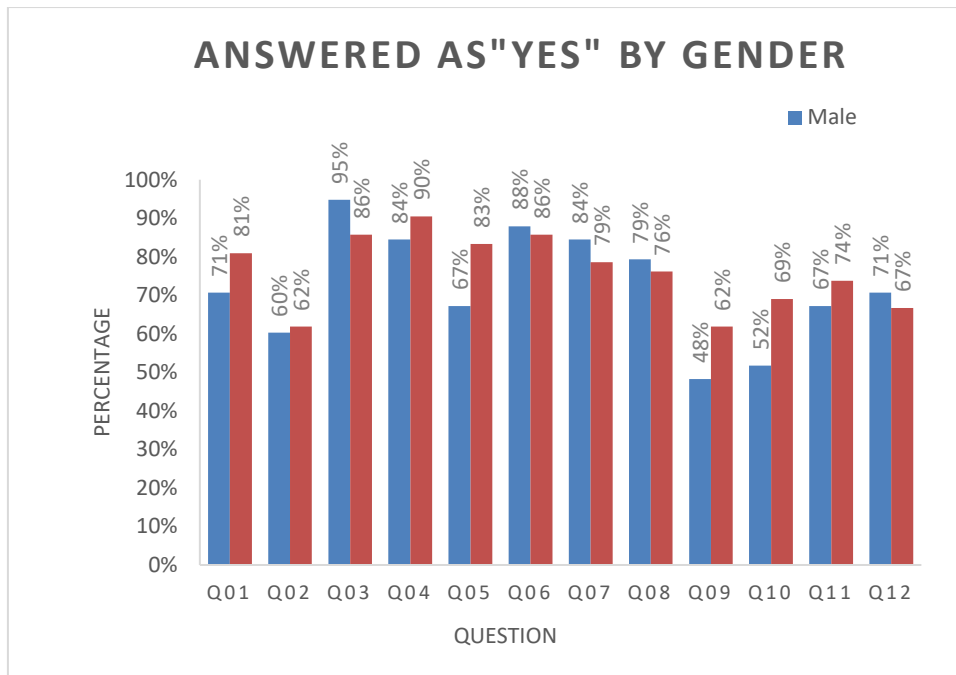
Graph 17 Graphical distribution of subjects responding 'Yes' ranging from questions 1 to 12



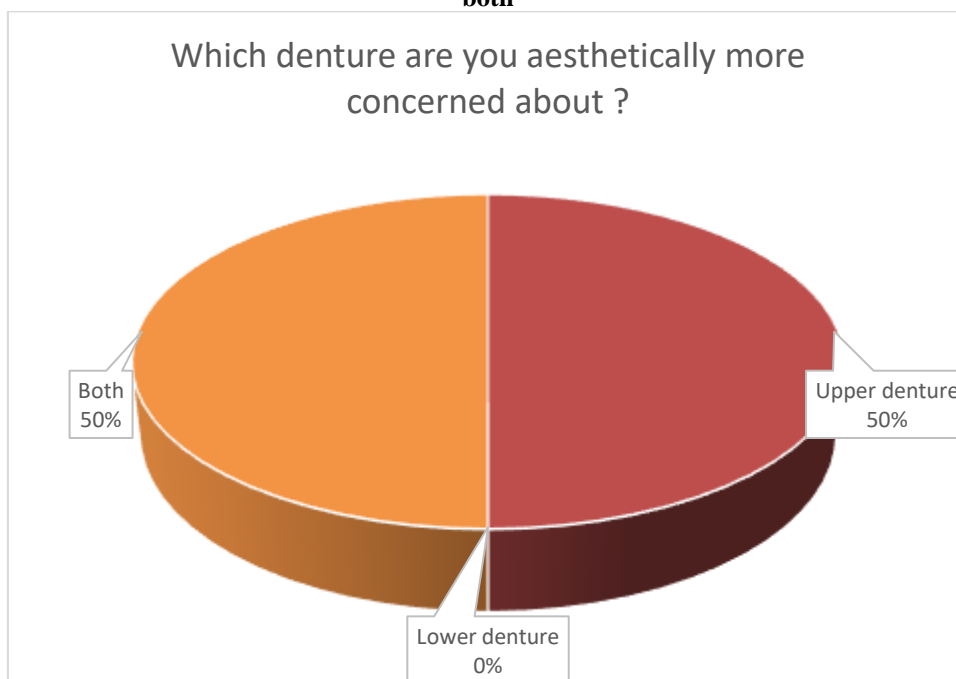
Graph: 18 Graphical Distribution of study subjects according to gender.



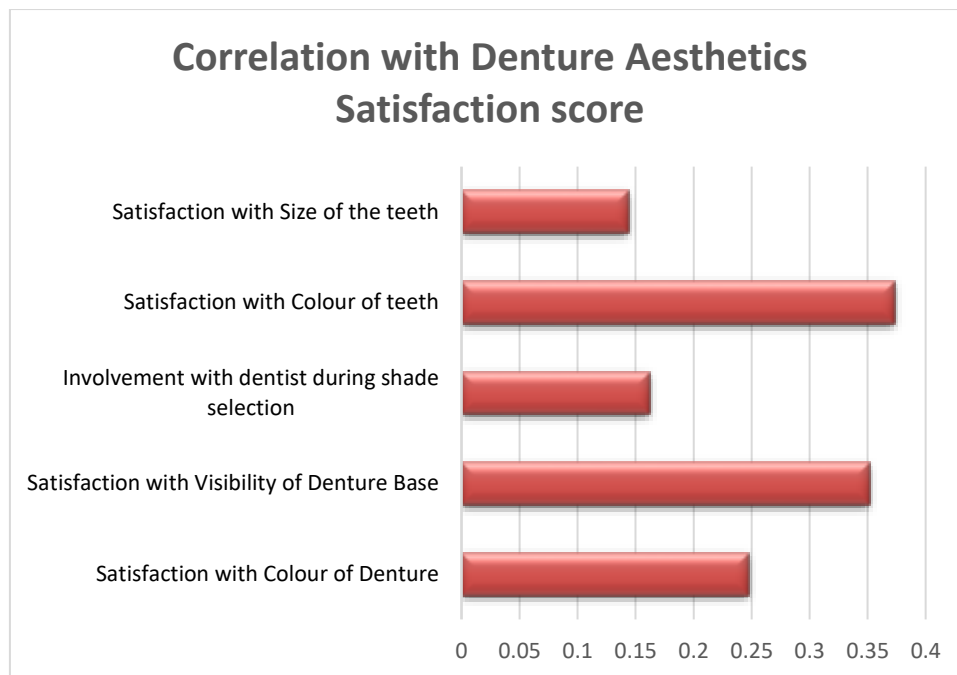
Graph 19 Comparison of answer yes among Males and Females



Graph 20: Distribution of study subjects who were concerned about upper denture, lower denture and both



Graph 21: graphical distribution of correlations of denture aesthetics with size of teeth, colour of teeth, involvement with the dentist during shade selection, visibility of denture base, colour of denture



DISCUSSION

Prosthodontists deal with a balance sheet primarily composed of losses-loss of teeth, alveolar processes, tonicity of musculature, elasticity of skin, as well as loss or impairment of functions¹⁵Poor esthetics is one of the primary reasons for non-success of maxillary dentures.³¹ Patients often choose the smooth, highly polished denture base in preference to the natural-appearing one.⁹ For hundreds of years, research has been carried on in the field of human reactions to beauty and the physical qualities they recognize to designate a thing or object beautiful.¹⁰ In this modern day, the public has come to realize more and more the value of esthetically functioning dentures. This realization has brought a demand to the profession for more research and further study of the problem.¹¹ Despite the numerous treatment modalities available for the rehabilitation of edentulous people, a considerable number of patients, out of necessity or choice, receive conventional complete dentures. Moreover, in spite of the quality of such fabricated dentures, a patient's ability to wear them almost always is a challenging process³⁷ Carlsson et al found that esthetics was the factor most responsible for complete denture success⁴¹

This study was undertaken to investigate patient desire for denture esthetics and satisfaction in H.P Government Dental College, Shimla and create an awareness and importance of it in 100 edentulous subjects including 58 Males and 42 females belonging to the population of Himachal Pradesh possessing complete denture prostheses earlier from the department, with good physical and mental health and who will be able to answer the questions. Participants in the study did not possess implant-supported complete denture prostheses or removable partial denture prostheses or implant-supported partial dentures and who were not suffering from Oral Submucous Fibrosis (OSMF), Temporomandibular Joint (TMJ) dysfunction, neurological disorders, psychological defect and did not have an extremely resorbed alveolar ridge. Himachal Pradesh has 7 lakh persons aged 60 years and above, constituting 10.2% of its total population, which is higher than the national average of 8.6% (Census 2011).⁵³ In response to the inquiry "**Are you satisfied with the colour of the denture?**"(graph 4), 91 participants replied positively, compared to 9 who did not As the majority of participants responded positively, it indicates that most of the patients are concerned about the colour of their dentures. And, there were no gender-, age-, or education-related disparities in the response to this question.

In connection to the question "**Do you care about the aesthetics of your denture base?**" (graph 2), a total of 61 individuals responded affirmatively, while 39 did not.

From this result, it was concluded that participants with a high literacy rate were more concerned with the appearance of the denture base.

In a study by T. Nandhini (2018) in the Himachal Pradesh population, it was revealed that 64 patients are delighted with the colour of their dentures, the majority of patients were dissatisfied with the colour of their dentures, with 86 of them expressing dissatisfaction with the shade.⁴

In answer to the inquiry, "**Do you wish to apply characterisation to your denture base?**" (graph 11), 41 (41%) participants replied with a "No" whereas 59 (59%) participants responded with a "Yes". From this result, we can conclude that most patients are interested in applying denture base characterization to their prosthesis and there are no disparities related to gender, age group, or level of education for this preference.

In response to the question **“Does denture base characterization and denture base appearance improve your confidence?”** (graph 12), 30% of the subjects replied "No" whereas 70% of the subjects said "Yes. Thus, there were no disparities in the replies to this question based on gender, age group, or level of education.

In response to the question **“Does a denture base without characterization allow you to smile freely without thinking of prosthesis?”** (graph 13), 31 (31%) participants replied "No" whereas 69 participants replied "Yes". Therefore, it can be concluded that for most patients, denture base characterization gives them more confidence to smile freely and this attribute is not dependent upon age, gender, or education level.

According to the findings of my study, majority of participants wished to apply characterization to their denture bases and believed that characterisation was important. All the patients under 44 (i.e., the younger age group) replied favourably and the majority of female patients desired to apply characterization. They believed that characterization would boost their confidence and enable them to smile freely. Today, we can see that many dental practitioners have started to introduce denture base characterization in their prosthesis offering but the results of this study indicate that the demand for characterization is much higher than we expected. In the future, we can expect denture base characterization to become a norm in the dental practice.

Regarding the concern for aesthetics, in response to the question **“Do you worry about the appearance of your dentures?”** (graph 3), no significant gender or age group disparity was observed. But compared to other literate groups, a much larger percentage of participants in the high school group answered "yes" to this question. In relation to **“Satisfaction with visibility of denture base”** (graph 5), majority of the participants said "Yes" when asked if they were satisfied with the visibility of their denture base when smiling. There were no disparities in the replies to this question based on gender, age group, or level of education.

In relation to involvement **with the doctor during shade selection**, (graph 6) the majority of people said "Yes" in response to the question of being involved with the doctor during shade choosing. There were no gender or educational status disparities in the replies to this question. However, a much larger percentage of participants in the group of those aged 44 and under admitted that they had been extensively involved with the dentist during shade selection.

In relation to **“Satisfaction in relation to the colour of the teeth”** (graph 7), the majority of people said that they were satisfied with how their teeth looked. The replies to this question did not vary with gender, age group, or level of education. When these differences were analysed using the independent sample t-test, the p values for the gender, age, and educational distributions were each 0.771, which was not statistically significant (p-value > 0.05).

In relation to **“Satisfaction in relation to the size of the teeth”** (graph 8), most people said that they were satisfied with how big their teeth were. The replies to this question did not show any gender, age group, or educational status disparities. Size of teeth mainly depends on the type of patient and the condition of the supporting tissues. And hence, the selection of teeth is the responsibility of the dentist which he acquires through knowledge and experience 35

In relation to **“Doctor talking about the different type of denture materials”** (graph 9), the majority of people said "Yes" when asked whether doctors should discuss different types of denture materials with patient during treatment planning. There were no disparities in the replies to this question based on gender, age group, or level of education.

In relation to **“Denture subject of more aesthetic concern”**, (graph 14) exactly half of the respondents selected "upper denture," while the other half selected "both dentures" in response to the question - Which denture subjects are you more concerned about regarding aesthetics? The majority of men answered "Upper denture" whereas the majority of women answered "both dentures". It was determined that this difference was statistically significant. There were no age or educational status variations in response to this question.

When these disparities were analysed using the independent sample t-test, the p-values for the age distribution and educational distribution were not statistically significant (p>0.05) while the p-value for the gender distribution was statistically significant (p<0.05).

In a study by Matsuda in 2016, 70 % of participants were interested in denture base characterization. However, female participants cared significantly more than males about denture appearance and denture gum appearance. Patients under 75 years cared about denture appearance more than those 75 years or over 6

Discrepancy between the dentist's and the patient's perception of esthetic needs, which in some cases may result in an esthetic appearance lower than the patient's expectations, has been found. Thus, the attitude of the patient toward dental esthetics and preferences should be recognized in any treatment plan of the dentist in order to reach the expectations of his or her patient and to reduce the discrepancy between the dentist' assessment and the patient' perception of esthetic needs 42. Patient satisfaction with a complete denture is important for the patient's overall quality of life and remains the dentist's most desirable outcome 43

In the current study, there was a significant relationship between denture aesthetics and tooth colour, denture base visibility, and denture colour. Younger people (aged 44 and under) were more concerned with the appearance of dentures. The majority of the population worked with the doctor to choose the shade, expressed satisfaction with the visibility of the denture base when smiling, the colour and size of the teeth, and learned about the various

denture base materials from the dentist. One-half of the population was only worried about the upper denture, while the other half was bothered by the upper and lower dentures. The lower denture's appearance was unimportant to the general public.

The drawbacks of my study were the small sample size and being conducted in a small setup with limited factors for comparison. Results might get skewed if the questionnaire was not correctly understood by each participant. This study was carried out within the institutional setup and only 100 subjects belonging to the population of Himachal Pradesh were evaluated. Hence, the results may be applicable to just a small population.

SUMMARY AND CONCLUSION

The face is the most visible and expressive part of human anatomy and it is the face which determines our social acceptance. Loss of teeth not only affects facial appearance but also affects a person psychologically, hence it is essential that an aesthetically pleasing and functionally comfortable replacement of teeth should be provided. When selecting teeth for complete dentures or any other prosthesis, one of the important dimensions to be considered for artificial teeth is the mesiodistal width of anterior teeth as it plays a huge role in determining the aesthetic quotient of the prosthesis.

This study aimed to investigate patient desire for denture esthetics and satisfaction in H.P Government Dental College, Shimla and create an awareness and importance of it so that a scientific basis of characterised denture that is in harmony with the face could be arrived at.

There was a significant relationship between denture aesthetics and tooth colour, denture base visibility, and denture colour. Younger people (aged 44 and under) were more concerned with the appearance of dentures. The majority of the population worked with the doctor to choose the shade, expressed satisfaction with the visibility of the denture base when smiling, the colour and size of the teeth, and learned about the various denture base materials from the dentist. One-half of the population was only worried about the upper denture, while the other half was bothered by the upper and lower dentures. It was concluded the lower denture's appearance was unimportant to the general public.

Within the limitations of this study, it can be concluded that the aesthetic concern and expectations of patients undergoing complete denture treatment were not fully satisfied as majority of people provided a lower rating for overall satisfaction with denture aesthetics; as a result, patient needs for denture aesthetics and denture base characterisation should be attended to and more weight should be placed on denture aesthetics.

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