

Original Research Article


A survey to assess the knowledge, awareness regarding the role of phonetics in fabrication of complete dentures among the undergraduate students and house surgeons

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Abstract

Phonetics plays a major role in the fabrication of prosthesis. This study aimed to assess the knowledge and awareness of third and Final Year students, Interns, House Surgeons regarding the role of phonetics in denture fabrication and to improve the educational process and the clinical application. The study was conducted at the Department of Prosthodontics and Crown and Bridge, Indira Gandhi Govt. Dental College, Jammu and involved a survey of total 80 participants. The questionnaire contained 12 closed ended questions. The data was collected and analyzed statistically latter on.

Key words

Phonetics, Complete Denture, Dental Students.

Introduction

Fabrication of Complete dentures is an art but thorough knowledge behind its each component is of utmost importance. One of the goals for fabrication of complete denture is restoration of phonetics [1]. This involves observing the movement of oral tissues during speech and more importantly listening and analyzing the speech of the patient. Many factors affect phonation, including mechanical, muscular, aerodynamic, and auditory factors [2]. The maxilla and mandible show a characteristic relationship during speech which can be used to determine the vertical dimension. A dentist should be well versed with the principles of phonation to deliver a prosthesis that allow proper speech [3]. Therefore this cross-sectional study was conducted amongst the future dentist to assess their knowledge and awareness regarding the role of phonetics in the fabrication of Complete Dentures.

Materials and methods

The present epidemiological study was conducted in the Postgraduate Department of Prosthodontics and Crown & Bridge, using a self-structured questionnaire survey. The sample comprised of undergraduate students and house surgeons of the college. The questionnaire form was circulated among undergraduate students of third year, final year, interns and House surgeons to assess their knowledge and awareness regarding the role of phonetics in the fabrication of complete dentures.

Inclusion criteria:

- Dental undergraduate students of Jammu region
- House surgeons

Exclusion criteria:

- Dental Postgraduate Students
- Dental practitioners
- Undergraduate Students outside Jammu
- Dental hygienist and Dental assistants

The questionnaire comprised of 12 close ended questions and was based on general knowledge and awareness regarding the role of phonetics in the fabrication of Complete Dentures. The answers were coded and data entry was initially completed using Microsoft excel. The statistical analysis was done using IBM SPSS statistics.

Questionnaire

Q1: Does phonetics play an important role in the fabrication of complete dentures?

- a. Yes
- b. No
- c. Don't know

Q2: Are you aware in which stage of complete denture fabrication, phonetics is used as an aid?

- a. Yes
- b. No
- c. Don't know

Q3: Is phonetics used to evaluate the position of anterior teeth?

- a. Yes
- b. No
- c. Don't know

Q4: Should upper and lower teeth contact while pronouncing the "s"?

- a. Yes
- b. No
- c. Don't know

Q5: Are you aware that the position of the anterior teeth is determined by the position of the maxilla when the patient pronounces words beginning with "f or v"?

- a. Yes
- b. No
- c. Don't know

Q6: Are you aware of the "whistling" sounds in complete denture?

- a. Yes
- b. No
- c. Don't know

Q7: Are you aware of labio-dental sounds in complete denture?

- a. Yes
- b. No
- c. Don't know

Q8: Are you aware of the role of linguo alveolar sounds in complete dentures?

- a. Yes
- b. No
- c. Don't know

Q9: Are you aware about the role of Silverman's closest speaking space in the role of complete denture fabrication?

- a. Yes
- b. No
- c. Don't know

Q10. Are you aware that palato lingual sounds are made with palate and tongue?

- a. Yes
- b. No
- c. Don't know

Q11. Do you think palatal rugae plays any role in phonetics in CD?

- a. Yes
- b. No
- c. Don't know

Q12. Do you think that increasing the interarch space will affect the production of Bilabial sounds?

- a. Yes
- b. No
- c. Don't know

Statistical analysis

The recorded data was compiled and entered in a spreadsheet (Microsoft Excel) and then exported to data editor of SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). Categorical variables were summarized as frequencies and percentages. A P-value of less than 0.05 was considered statistically significant.

Results and Discussion

Results depicted as per **Table – 1** and **Table – 2**. Speech is very sophisticated independent and unconscious activity. The loss of teeth and supporting structures alters the main articulatory cavity and produces a significant effect on the speech pattern proportionate to the location and magnitude of alterations. If dentures are to contribute effectively to the functions of speech, dentists should use studies in the speech science

field to increase their clinical knowledge of the phonetic factor in denture fabrication [4, 5, 6].

The loss of one or more teeth can alter phonetics. Spaces created by tooth loss are, at times, closed by the tongue, lips or cheeks. Phonetic articulation is often difficult, and can cause increased salivation. There are various causes of speech sound problems in complete denture wearers [7, 8].

A satisfactory result can only be achieved if the natural structure of the arch (before tooth loss) is restored with the new prosthesis. A correct prosthetic treatment plan should include detailed occlusal, functional, aesthetic, and phonetic analysis [9, 10, 11, 12].

This study was aimed to evaluate the awareness of the students of third year, final year, interns and house surgeons regarding the role of phonetics in the fabrication of complete dentures. The study showed a significant difference amongst the students regarding the knowledge of phonetics in the fabrication of complete dentures. Out of 80 students, 20 were 3rd year students, 20 were final year students, 20 were interns and 20 were house surgeons. When asked about if phonetics play an important role in the fabrication of complete dentures, 75% of third year students answered yes, 20% answered no, and 5% answered that they don't know about this. From final year students, 95% answered yes, 5% answered no. Among interns, 90% answered yes, 5% answered no and 5% answered don't know. Among house surgeons, 85% answered yes, 5% answered no and 10% answered don't know.

When asked, if they were aware in which stage of complete denture fabrication, phonetics is used as an aid, 70% of third year students answered yes, 25% answered no, and 5% answered that they don't know about this. From final year students, 85% answered yes, and 15% answered that they don't know. Among interns, 75% answered yes, 5% answered no and 20%

answered don't know. Among house surgeons, 75% answered yes, 5% answered no, and 20% answered don't know.

In case of awareness regarding the use of phonetics to evaluate the position of anterior teeth, 45% of third year students answered yes,

and 55% answered that they don't know about this. From final year students, 85% answered yes, and 15% answered that they don't know. Among interns, 70% answered yes, 5% answered no and 25% answered don't know. Among house surgeons, 60% answered yes and 40% answered don't know.

Question	Response	3rd Year		Final Year		Intern		House Surgeon	
		No.	%age	No.	%age	No.	%age	No.	%age
Q1	Yes	15	75	19	95	18	90	17	85
	No	4	20	1	5	1	5	1	5
	Don't Know	1	5	0	0	1	5	2	10
Q2	Yes	14	70	17	85	15	75	15	75
	No	5	25	0	0	1	5	1	5
	Don't Know	1	5	3	15	4	20	4	20
Q3	Yes	9	45	17	85	14	70	12	60
	No	0	0	0	0	1	5	0	0
	Don't Know	11	55	3	15	5	25	8	40
Q4	Yes	3	15	16	80	11	55	14	70
	No	0	0	0	0	1	5	0	0
	Don't Know	17	85	4	20	8	40	6	30
Q5	Yes	2	10	14	70	13	65	12	60
	No	0	0	0	0	1	5	0	0
	Don't Know	18	90	6	30	6	30	8	40
Q6	Yes	0	0	14	70	16	80	16	80
	No	5	25	2	10	0	0	0	0
	Don't Know	15	75	4	20	4	20	4	20

Then they were asked, if upper and lower teeth contact while pronouncing the "s," 15% of third year students answered yes, and 85% answered that they don't know about this. From final year students, 80% answered yes, and 20% answered that they don't know. Among interns, 55% answered yes, 5% answered no and 40% answered don't know. Among house surgeons, 70% answered yes and 30% answered don't know.

In case of Q no. 5, Are they aware that the position of the anterior teeth is determined by the position of the maxilla when the patient pronounces words beginning with "f or v", 10%

of third year students answered yes, and 90% answered that they don't know about this. From final year students, 70% answered yes, and 30% answered that they don't know. Among interns, 65% answered yes, 5% answered no and 30% answered don't know. Among house surgeons, 60% answered yes and 40% answered don't know.

When asked, if they were aware of the "whistling" sounds in complete denture, interns and house surgeons are aware about the whistling sounds as 80% of them answered yes and third years are not aware about the whistling sounds in complete denture.

Table 2: Knowledge about Phonetics among various groups

Q	Response	3rd Year		Final Year		Intern		House Surgeon	
		No.	%age	No.	%age	No.	%age	No.	%age
Q7	Yes	5	25	9	45	16	80	17	85
	No	12	60	0	0	0	0	0	0
	Don't Know	3	15	11	55	4	20	3	15
Q8	Yes	5	25	4	20	9	45	16	80
	No	11	55	3	15	2	10	1	5
	Don't Know	4	20	13	65	9	45	3	15
Q9	Yes	6	30	16	80	17	85	18	90
	No	3	15	0	0	0	0	0	0
	Don't Know	11	55	4	20	3	15	2	10
Q10	Yes	3	15	18	90	19	95	19	95
	No	4	20	1	5	0	0	0	0
	Don't Know	13	65	1	5	1	5	1	5
Q11	Yes	2	10	17	85	18	90	17	85
	No	3	15	0	0	1	5	1	5
	Don't Know	15	75	3	15	1	5	2	10
Q12	Yes	6	30	17	85	19	95	18	90
	No	2	10	0	0	0	0	0	0
	Don't Know	12	60	3	15	1	5	2	10

The best score for next question i.e. Are they aware of labio-dental sounds in complete denture, was given by house surgeons and interns. Among interns 80% answered yes and among house surgeons, 85% students answered yes.

Of all the participants, 80% of third year students don't know about the role of linguo alveolar sounds in complete denture and on the other hand, 80% of house surgeons know about their role in complete dentures.

There were significant differences regarding the awareness of Silverman's closest speaking space between third years and all other groups. Among house surgeons, 90% of them are aware about role of Silverman's closest speaking space in complete dentures and only 30% of third year students know about this.

When asked about the palate linguo sounds, 90% of final year students, 95% of interns and 95% of house surgeons were aware about the role of palate lingo sounds, and only 15% of third year students were aware about role of palate linguo sounds in complete denture.

Next question is asked about the role of palatal rugae in phonetics in complete denture, 85% of final year students, 90% of interns and 85% of house surgeons answered yes that they are aware about the role of palatal rugae in phonetics.

Regarding then increasing inter arch space will affect the production of Bilabial sounds, 85% of final year students, 95% of interns and 90% of house surgeons answered yes. Among third years, only 30% students answered yes.

In general, 3rd year students had less knowledge as compared to interns who gave maximum right response. This can probably be attributed to their more clinical experience as compared to third years who are not able to implement their theoretical knowledge due to less clinical exposure. This is probably the reason why they have delivered the most negative responses. The final years students and interns on the other hand gave maximum positive response because of their better understanding due to clinical exposure [13, 14, 15]. House surgeons on the other hand gave a mixed response.

Limitations

The number of participants in this survey was less and requires large number to reach at specific conclusion. Secondly it was an closed ended questionnaire, inaccurate response might result in false estimation of result.

Conclusion

This study highlights the degree of awareness among undergraduate students and House Surgeons. Final Year and Interns performed better. Third year and House surgeons displayed a significant lack of awareness regarding role of phonetics in complete denture fabrication. The reason might be that House Surgeons duties are more into clinicals and less into academics whereas 3rd years don't have any theoretical or clinical exposure on complete denture fabrication procedure. Continue Dental education (CDE) programs to upgrade House surgeons and inclusion of clinical teaching & demonstrations of various steps involved in complete denture for third year students results in better understanding of the concepts.

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