

Attitude and Knowledge of Awareness of Edentulism among Adults of Bidar- An Epidemiological Study

Chava Narayana¹, Rutika Naik², A Sowjanya Godavarthi³, Shashank Chitikeshi⁴, Lalit kiran Kondaveeti⁵, Harika Yeleti⁶

¹Reader, Department of Prosthodontics and Implantology, S B Patil Dental College and Hospital, Naubad, Bidar, Karnataka, India.

²Senior Lecturer, Department of Conservative Dentistry and Endodontics, S B Patil Dental College and Hospital, Bidar, Karnataka, India.

³Reader, Department of Prosthodontics and Implantology, Gitam Dental College, Vishakhapatnam, Andhra Pradesh, India.

⁴Senior Lecturer, Department of Prosthodontics and Implantology, S B Patil Dental College and Hospital, Bidar, Karnataka, India.

⁵Senior Lecturer, Department of Prosthodontics and Implantology, St Joseph Dental College, Duggirala, Eluru, Andhra Pradesh, India.

⁶Assistant Professor, Department of Prosthodontics and Implantology, Lenora Institute of Dental Sciences, Rajahmundry, Andhra Pradesh, India.

Received: November 2020

Accepted: November 2020

ABSTRACT

Background: To improve the oral health and quality of life among older adults, besides the prevalence of dental caries, it is necessary to know their prosthodontics status and needs for prosthodontics treatment. Aims and Objectives: The present study was planned to assess the level of edentulousness, cause of edentulousness, denture wearing and denture needs of the middle and elderly in the society and study was correlated between habits and socioeconomic variables, diet and body mass index. **Methods:** 400 patients reporting to the department of Prosthodontics, SB Patil Dental College & hospital, Bidar, Karnataka, were selected for the study. A questionnaire was developed and for all the subjects the study purpose was explained, interviewed and questions were filled personally. The personal details and address of the subject were recorded. Educational status, socioeconomic status was also recorded. Height and weight of each subject was recorded to calculate body mass index (BMI) as an indicator of nutritional status. The level, cause and duration of edentulousness were recorded. The effect of loss of tooth on esthetics, mastication and phonetics as felt by the subject were evaluated. **Results:** Of the total 400 respondents, 220 (55%) were males and 180 (45%) were females in the age group of 18-70 years. Majority of patients (35.25%) were in the age group of 36-55 years and the mean age group was 44.1 years. 185 knew about complete dentures, 105 subjects had knowledge of complete dentures and removable/cast partial dentures, 80 people knew about complete dentures, removable/cast partial dentures and fixed partial dentures while 30 people had information about complete dentures, removable/cast partial dentures, fixed partial dentures and implants. **Conclusion:** Conducting surveys, dental education and motivation are important tools in the rural elderly to enlighten the availability of prosthetic services and to thoroughly eradicate the misconception that 'Tooth loss' is an unavoidable and inevitable part of the ageing process.

Keywords: Missing Teeth, Edentulism, Awareness, Epidemiology, Prosthodontics status, Elderly.

INTRODUCTION

Tooth loss has always been a part of the aging process that is inevitable. The twentieth century has witnessed a wide array of changes in the rate of edentulism between the developed and the developing countries. Edentulism is the state of having lost one's natural teeth (partial or total). The poor oral condition particularly has a significant impact on the edentulous people. Extensive tooth loss reduces masticatory performance and affects the choice of food of an individual. Hence edentulous people tend to avoid dietary fiber and often prefer soft foods rich in saturated fats and cholesterol. Thus edentulism is considered to be an indicator of oral health of a person.^[1-3]

Bone loss is ongoing process following tooth loss. Edentulism leads to resorption of the alveolar bone which in turn changes the soft tissue profile and facial appearance. Mastication is also affected by edentulism. The mastication and the intake of food affect the nutrition status, gastrointestinal health and general condition of the individual. Hence we planned a cross-sectional study for accessing the awareness of missing teeth and its effect on the general and oral health among partial edentulous patients.^[2,4]

A healthy mouth and replacing missing teeth are necessary for the overall health of an individual. Awareness is important in determining and maintaining overall oral health of a person. The loss of teeth affects various vital functions as mastication, phonetics, esthetics, dietary intake and nutrition status. It compromises and affects general health. We have heard and seen that epidemiological surveys have been conducted in India and abroad on dental caries and periodontal problems but Prosthodontic field has never shown any interest to scholars. Thus lack of awareness

Name & Address of Corresponding Author

Dr Chava Narayana

Reader,

Department of Prosthodontics and Implantology,

S B Patil Dental College and Hospital,

Naubad, Bidar, Karnataka.

E-Mail: marvelviks@gmail.com

prevents people from availing of treatment in prosthodontic field.^[5,6]

Questionnaire prior to beginning of treatment not only assists the edentulous subject to reveal their problems but also to derive treatment planning addressing awareness of need and expectation of complete denture patients. Prosthetic dentistry has a very dominant role in restorative dentistry. The prime objective of dental care is maintaining a natural functional dentition for life. The percentage of edentulous people is expected to decrease in the coming decades as a result of improved oral health, whereas the number of edentulous people will increase as a result of the strong increase in the aging population. Therefore, this study was planned to evaluate the level of edentulousness, denture wear habits and denture needs of adult population.^[3-6] It was planned to study the differences according to age and sex. As socioeconomic variables can influence the level of edentulousness, denture wearing and denture needs, these variables were also involved in the study.

MATERIALS AND METHODS

Selection of samples:

The patients reporting to the department of Prosthodontics, SB Patil Dental College & hospital, Bidar, Karnataka, were selected for the study. The cluster of villages close to this hospital made it logistically ideal to study the edentulous state of the population.

Sample size:

400 subjects (random sampling) from the dental OP for a period between January 2019 to December 2019.

Methodology:

A questionnaire was developed and for all the subjects the study purpose was explained, interviewed and questions were filled personally. The examination was conducted using basic diagnostic tools. (Mouth mirror, straight probe, explorer No 21). The operator examined the subjects by wearing mouth mask and disposable gloves. The personal details and address of the subject were recorded. Educational status was listed as illiterate, school or college. Socioeconomic status was graded as low, middle or high based on the income of the subject. Socioeconomic status was recorded based on the guidelines set by Income Tax Department (Union of India). Dietary preferences (veg or mixed diet) are recorded to assess its relation to level of edentulousness and denture wearing habits. The correlation of systemic diseases like diabetes, hypertension, etc. with edentulism was analyzed. Height and weight of each subject was recorded to calculate body mass index (BMI) as an indicator of nutritional status. The level, cause and duration of

edentulousness were recorded. The effect of loss of tooth on esthetics, mastication and phonetics as felt by the subject were evaluated. The subject past experience with prosthodontic treatment modality was analyzed.

Statistical software SPSS for windows (Version 20) was used for data analysis, Chi-square tests were performed and p-values were calculated for each parameter and the results were tabulated.

RESULTS

Of the total 400 respondents, 220 (55%) were males and 180 (45%) were females in the age group of 18-70 years [Table 1 & Figure 1].

Table 1: Gender distribution of the sample

Male	220	55%
Female	180	45%
Total	400	100%

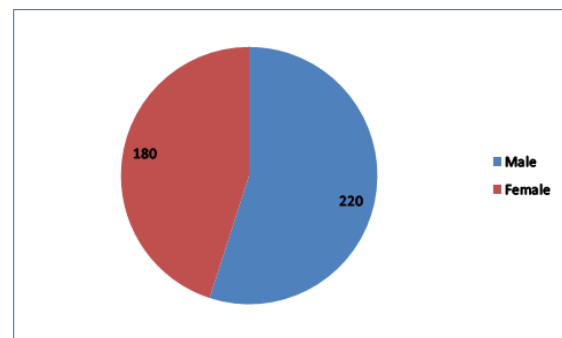


Figure 1: Gender distribution of the sample

Majority of patients (35.25%) were in the age group of 36-55 years and the mean age group was 44.1 years [Table 2 & Figure2].

Table 2: Distribution of the sample according to age

Age Group	Number	Percentage
18-35	70	17.5%
36-55	145	35.25%
56-70	85	21.25%
Total	400	100%

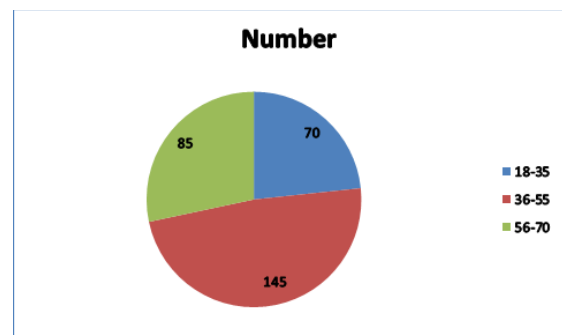


Figure 2: Distribution of the sample according to age

30% of the population were uneducated/illiterate, while 45% of the subjects studied upto tenth or completed their higher secondary schooling and 25% were graduates [Table 3 & Figure 3].

Table 3: Distribution of the sample according to Educational status

Educational status	Number	Percentage
Illiterate	120	30%
≤ secondary school	180	45%
Graduates	100	25%
Total	400	100%

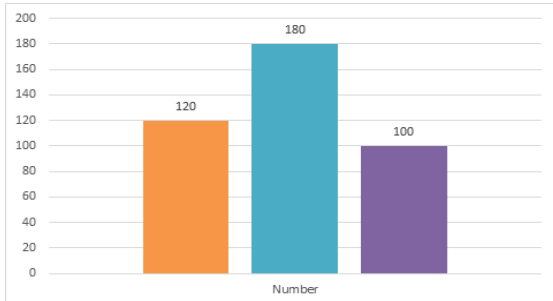


Figure 3: Distribution of the sample according to Educational status

In this study 220 subjects (55%) were of low income group, 140 subjects (35%) were of middle income group and there were mere 40 subjects (10%) who belonged to high-income group [Table 4 & Figure 4].

Table 4: Distribution of the sample according to Socioeconomic Status

Socioeconomic status	Number	Percentage
Low income group	220	55%
Middle income group	140	35%
High income group	40	10%
Total	400	100%

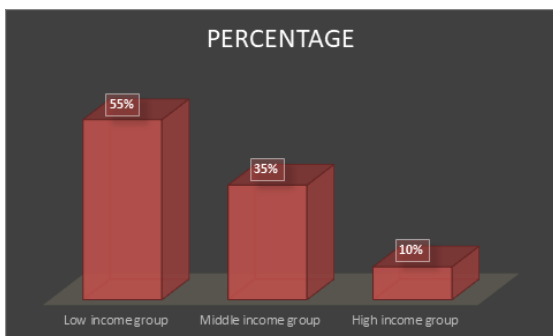


Figure 4: Distribution of the sample according to Socioeconomic Status

The dentulous subjects were 187, those with less than 5 teeth missing were 189, 63 subjects had 5-15 teeth missing, and 61 subjects had more than 15 teeth missing or were completely edentulous [Table 5 & Figure 5]. Older people make extensive use of medical facilities but they seem to underuse dental facilities.

Table 5: Level of Edentulism

Number of teeth missing	Number	Percentage
<5	125	31.25%
5-10	75	18.75%
11-15	80	20%
>15	40	10%
Total Edentulous	80	20%
Total	400	100%

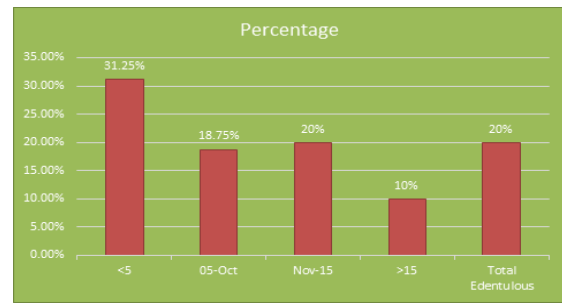


Figure 5: Level of Edentulism

47 subjects reported missing teeth in maxillary arch while 34 subjects had edentulism in mandibular arch. 232 subjects had missing teeth in both arches [Table 6 & Figure 6].

Table 6: Edentulism Archwise Distribution

Arch	Number	Percentage
Maxillary Arch	80	20%
Mandibular Arch	120	30%
Both Arches	200	50%
Total	400	100%

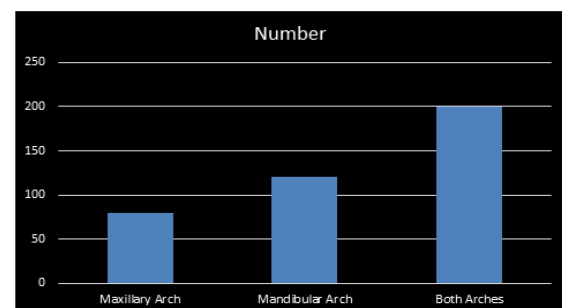


Figure 6: Edentulism Archwise Distribution

In the present study caries (60%) contributed mainly to loss of the tooth followed by periodontal reasons (14.5%), trauma (12.8) [Table 7 & Figure 7].

Table 7: Etiology of Edentulism

Cause of Edentulism	Number	Percentage
Dental Caries	84	21%
Periodontal Problems	36	9%
Trauma	48	12%
Combination of all three or any two	232	58%
Total	400	100%

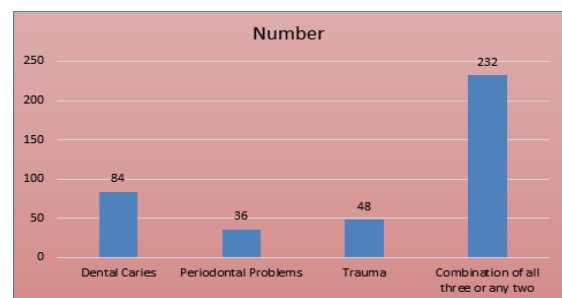


Figure 7: Etiology of Edentulism

The problems suffered due to absence of teeth were that 126 subjects reported it was mastication, 17 subjects gave esthetics as the problem, 2 subjects had discomfort, 25 subjects had combined problems in esthetics and mastication, 20 subjects had problems in mastication and phonetics and 33 subjects gave problems in all 3 esthetics, mastication and phonetics [Table 8 & Figure 8].

Table 8: Problems due to Edentulism

Problem	Number	Percentage
Mastication	126	31.5%
Esthetics	38	9.5%
Discomfort	6	1.5%
Mastication & Esthetics	84	21%
Mastication & Phonetics	46	11.5%
Mastication, Phonetics & Esthetics	100	25%

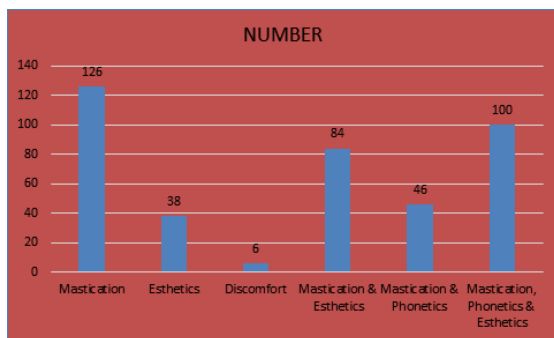


Figure 8: Problems due to Edentulism

Table 9: Awareness and Knowledge about Prosthetic replacement among study sample

Prosthetic replacement	Number	Percentage
complete dentures,	185	46.25%
complete dentures and removable/cast partial dentures	105	26.25%
complete dentures, removable/cast partial dentures and fixed partial dentures	80	20%
complete dentures, removable/cast partial dentures and fixed partial dentures and implants	30	7.50%
Total	400	100%

The reason given for not replacing teeth was lack of awareness in 185 people, cost in 47 subjects, sickness in 13 subjects, no conveyance in 24 subjects and no facilities in 15 subjects. 34 people had no time and 68 subjects felt no need of it. 6 people lived in fear while 8 subjects believed in myths. This showed that lack of awareness was the primary cause of edentulous state.

Of the people who knew about dental treatment, 224 subjects were informed by those who had been treated, 76 were told by a dentist and technicians and RMP practitioners, while 24 people came to know through internet. 76 subjects were informed of Prosthodontic treatment by other sources.

185 knew about complete dentures, 105 subjects had knowledge of complete dentures and removable/cast partial dentures, 80 people knew about complete dentures, removable/cast partial dentures and fixed partial dentures while 30 people had information about complete dentures, removable/cast partial dentures, fixed partial dentures and implants [Table 9 & Figure 9].

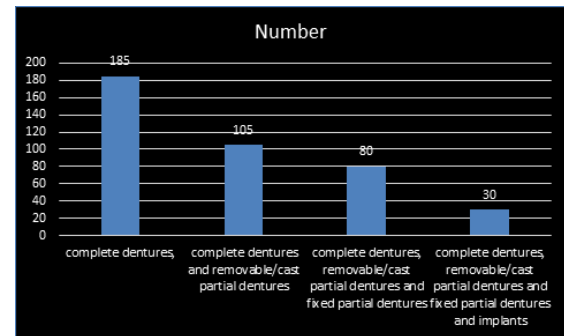


Figure 9: Awareness and Knowledge about Prosthetic replacement among study sample

DISCUSSION

Epidemiology is concerned with the course and outcome of diseases in individuals and groups in human population. The survey can be performed at small town level population or large national level population. According to the World Health Organization (WHO), adults should have a minimum of 21 functional teeth to provide the ability to experience a good dietary intake without the need for dentures. It has been shown that edentulism considerably reduces the quality of life. Slade and Spencer reported that compared to dentate people, edentulous ones experienced more social and psychological impacts on their quality of life including feeling self-conscious and avoiding social interactions.^[6,7]

Social-behavioral risk indicators may play a substantial role in edentulism. Potential risk factors for edentulism are low level of education, older age, gender, and marital status. Burt et al. evaluated risk factors of tooth loss over a period of 28 years and found that the effect of social-behavioral risk factors was more evident in the complete edentulous individuals compared to the group with partial edentulism.^[8]

Low income has also been suggested to be a risk factor for edentulism. Caries experience, attachment loss, and cigarette smoking are other major risk indicators of tooth loss. In addition, patterns of tooth loss vary by gender and population.^[9]

Kathleen D' souza, et al. and Nadia Khalifa found that prevalence of partial edentulism is slightly more in females (54.9%) and slightly less in males (45%).^[9,10]

The study by Isha Rastogi infers that not marked sex predilection is observed as per the tooth loss is concerned.^[1] This study showed similar results. Accordingly Kathleen D' Souza, et al.^[9] and Isha Rastogi in their respective study showed that subjects with basic educational group contributed majority with partial edentulous state. Nadia Khalifa, et al.^[10] in the study also shows congruent results as per the educational status is considered. This study enlightens similar result i.e., 51.7% of subjects with basic educational group were partially edentulous. Literacy plays important role to maintain proper oral health and in turn the tooth loss. 98.9% subjects had knowledge of missing teeth. 68.3% out of them had complete knowledge about missing teeth.

According to study by Prabhu, et al.^[11] & Isha Rastogi, et al.^[1] dental Caries was primary reasons for tooth loss, followed by periodontal and traumatic reasons. According to the study by D'souza, et al. reasons for tooth loss predominantly was dental caries i.e., 83.85%, periodontal reason 10.25%, trauma 5.28%.^[9] Simhachalan Reddy et al,^[5] conducted a study which inferred that major reason for tooth loss was dental caries (37.45%). In the research on analysis for reasons for extraction by Manekar, et al.^[4] 55.67% tooth was extracted due to dental caries and its sequel, second most common reason was periodontal disease (23.59%). The results are congruent with the above mentioned studies. In study by Kathlin D'souza,^[9] found that mastication was chiefly affected due to partial edentulous condition i.e., 57.45% followed by aesthetics, speech and 34.4% subjects were of the opinion that more than one function was affected. Isha Rastogi, et al.^[1] also concluded that mastication was the major problem faced by the subjects. Results of this study go hand in hand with previous studies i.e., 48.3% had difficulty in mastication followed by aesthetics and speech problems. Simhachalan Reddy in his study concluded that mastication was major problem following the tooth loss, however 27.2% subjects agreed that they didn't have any complaint due to missing teeth.^[5]

Shigli et al reported that most people in India are aware of only mastication function served by the teeth. They are less aware of the esthetics and phonetics function of teeth.^[12]

Our findings are in agreement with findings by Annette Thomas-Weintraub who stated that masticatory difficulty was the most frequently voiced complaint and dentists too are responsible for this state as for the same population ratio, there are 10 times more dentists in cities than in villages in India.^[13]

Szentpetery A G et al noted that problems with eating and chewing dominated when subjects first sought Prosthodontic treatment.^[14] Tuominen also found financial constraints to be a main cause.^[15]

Studies by Georgia K Johnson,^[16] Jerome Haber et al,^[17] and Hanioka T et al,^[18] clearly mentioned the role of tobacco. Smoking is a risk factor for periodontitis. In this study, out of 500 subjects, 70 (14%) were smokers, 23 of them (4.6%) were tobacco chewers, 11 (2.2%) were pan chewers, 19 of them (3.8%) were both smokers and tobacco chewers and 377 samples (75.4%) did not have any habits. Statistical analysis, 'Chi-square' test showed significant p-values ($p < 0.05$) when the edentulousness and habits were compared. Smokers always had more cases in level of edentulousness than other habits. Another important finding seen in this study was that among the maxillary and mandibular arches, the edentulous state was more prevalent in mandibular arch (19.2%) as against the maxillary arch (12.2%). This was explained through previous studies.

Cahen PM et al stated that the permanent mandibular first molar that erupted first into the oral cavity was more prone to caries and food lodgement due to deep pits and fissures.^[19] Tennstedt et al reported disinterest as the most common cause for non-utilization of Prosthodontic treatment in New England. The most common myth in rural population was tooth loss is an extension of old age and eating tobacco helps to relieve dental pain. Also those only medicines can cure dental diseases. They had a fear that tooth extraction leads to loss of vision and oral prophylaxis causes loosening of teeth.^[20]

CONCLUSION

There is lack of awareness among people so education and motivation is the call of the hour. Also need of Prosthodontic care is expected to increase due to increase in average life span of adults. Misconceptions need to be eradicated that tooth loss is unavoidable and inevitable part of ageing process. There is dire need of providing correct information to rural population and targeted programmes have to be conducted. These should inform them of scientific dental practices that are necessary for them. Thus conducting surveys, promoting dental education and motivation are important for rural population so that they can identify availability of Prosthodontic services and treatment modalities.

REFERENCES

1. Isha Rastogi et al. (2017), Assessment of Prosthodontic Awareness and Edentulism in Populations of Lucknow- A Clinical Survey, *Int J Dent & Oral Heal.* 3:3, 23-30.
2. Saber Khazaei, A. H. Keshteli, Awat Feizi, Omid Savabi, Peyman Adibi, "Epidemiology and Risk Factors of Tooth Loss among Iranian Adults: Findings from a Large Community-Based Study", *BioMed Research International*, vol. 2013, Article ID 786462, 8 pages,

3. Sanjna Nayar, S. Bhuminathan, J. Sri Nisha, Ganesh Ramesh and K. Sujitha. Edentulism and Public Awareness - An Epidemiological Study. Biomed. & Pharmacol. J., Vol. 6(1), 77-81 (2013).
4. Mohril KR and Manekar VS. Attitude and Knowledge of the Awareness of Missing Teeth and its Effect among Partially Edentulous Patients. J Dental Sci 2018, 3(5): 000185.
5. Reddy NS, Reddy NA, Narendra R, Reddy SD. Epidemiological Survey on Edentulousness. J Contemp Dent Pract 2012;13(4):562-570.
6. Nikolovska J, Korunoska-Stevkovska V, Mijoska A, Popovska L. Prosthodontics Status and Treatment Needs among the Elderly in the Republic of Macedonia. Open Access Maced J Med Sci. 2018 May 20; 6(5):874-878.
7. G. D. Slade and A. J. Spencer, "Social impact of oral conditions among older adults," Australian Dental Journal, vol. 39, no. 6, pp. 358-364, 1994.
8. B. A. Burt, A. I. Ismail, E. C. Morrison, and E. D. Beltran, "Risk factors for tooth loss over a 28-year period," Journal of Dental Research, vol. 69, no. 5, pp. 1126-1130, 1990.
9. D'Souza KM, Aras M (2014) Association between socio-demographic variables and partial edentulism in the Goan population: An epidemiological study in India. Indian J Dent Res 25(4): 434-438.
10. Nadia Khalifa, Allen PF, Abu-bakr NH, Abdel-Rahman ME (2012) Factors associated with tooth loss and prosthodontic status among Sudanese adults. J Oral Sci 54(4): 303-312.
11. Prabhu N, Kumar S, D'souza M, Hegde V. Partial Edentulousness in a rural population based on Kennedy's classification: An Epidemiological study. J Indian Prosthodont Soc. 2009;9(1):18-23.
12. Kamal Shigli, Mamata Hebbal, G.S.Angadi. Attitudes Towards Replacement of teeth among patients at the Institute of Dental Sciences, Belgaum, India. Journal of Dental Education, Nov 2007, vol 71, no 11, page 1467-147.
13. Weintraub et al. Oral health status in the US: tooth loss and edentulism. J Dent Educ. 1985.
14. Szentpetery A G et al. Problems reported by patients before and after prosthodontic treatment. Int J Prosthodont. 2005 Mar Apr.
15. Tuominen R. Development of edentulousness in Finland during 1970s. Community Dent Oral Epidemiol. 1983;11:259-63.
16. Georgia K Johnson, Nancy A Slach. Impact of tobacco use of periodontal status. J Dent Edu 2001;65:313-18.
17. Jerome Haber, Julianne Wattles, Maureen Crowley, Robert Mandell, Kaumudi Joshipura, Ralph L Kent. Evidence for cigarette smoking as a major risk factor for periodontitis. J Periodontal 1993;64:16-23.
18. Hanioka T, Ojima M, Tanaka K, Aoyama H. Association of total tooth loss with smoking, drinking alcohol and nutrition in elderly Japanese: Analysis of national database. Gerodontology 2007;24:87-92.
19. Cahen PM, Frank RM, Turlot JC. A survey of the reasons for dental extractions in France. J Dent Res 1985;64:1087-93.
20. Tennstedt S L. Understanding dental service use by older adults: sociobehavioral factors vs need. J Public Health Dent 1994;54:211-9.

Copyright: © the author(s), 2020. It is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits authors to retain ownership of the copyright for their content, and allow anyone to download, reuse, reprint, modify, distribute and/or copy the content as long as the original authors and source are cited.

How to cite this article: Narayana C, Naik R, Godavarthi AS, Chitikeshi S, Kondaveeti LK, Yeleti H. Attitude and Knowledge of Awareness of Edentulism among Adults of Bidar- An Epidemiological Study. Ann. Int. Med. Den. Res. 2021; 7(1):DE01-DE06.

Source of Support: Nil, **Conflict of Interest:** None declared