



Original Research Article

Public awareness, knowledge, attitude and acceptance of dental implants as a treatment modality among patients visiting dental college setups in the state of Himachal Pradesh, India: A pilot study

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ABSTRACT

Background: Edentulism is one of the most commonly encountered condition affecting the oral cavity. Dental implants have emerged as a widely accepted prosthetic treatment option. However, lack of public awareness and cost of the treatment act as barriers which limit their applicability.

Materials and Methods : A questionnaire-based survey was conducted in five dental colleges in the state of Himachal Pradesh, India to assess the knowledge, attitude and perception of participants regarding the importance of replacing missing teeth and dental implants.

Statistical analysis Used: Epi-info software version 7.

Results: Majority of the patients were partially edentulous and believed that replacement of missing teeth is important but only half of participants had undergone treatment for the same. A large number of patients were aware about tooth replacement options but the awareness regarding dental implants was scarce.

Conclusion: High cost and lack of information seem to be the major barriers in delivering dental implant treatment. Efforts are needed to educate and spread the awareness about implants among general population.

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1. Introduction

Oral health reflects the overall health of an individual. It can be defined as a functional, structural, aesthetic, physiologic and psychosocial state of well-being and is essential to an individual's general health and quality of life.¹ There are various oral diseases ranging from simple dental caries to life threatening conditions like oral cancer, but edentulism is most common condition and also the final marker of disease burden for oral health.² Numerous treatment modalities are available to treat this condition but dental implant has become an increasingly popular treatment option for missing teeth replacement.³ Even though evidence suggests that dental implants are a safe and convenient way to

replace lost teeth with natural looking results but lack of information, awareness, patients perception, cost of treatment and fear of surgery acts as a barrier and limits their applicability.^{4,5} Although the success, survival and failure of dental implants depends on various factors like patient health, gender, lifestyle, oral hygiene and various age groups but complete knowledge about treatment modality for missing teeth replacement must be provided to the patients, as lack of awareness can limit the access of public to existing sources.^{6,7}

Himachal Pradesh (H.P.) is a hilly state with the population density of 123 per square km with 10.03% residing in urban areas while 89.97% in rural areas.⁸ Overall literacy rate of HP is 83.7% holding 11th rank as per the Census completed in 2011.⁸ HP scores overall 6th rank in health index based on reference year 2019. Despite the

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fact that the state government has taken various steps with a commitment of providing appropriate oral health care facilities, a large population of the state is either partially or completely edentulous which is reflected in the high rate of prevalence of edentulism in the state which ranges from 56% to 80%.⁹

Even though the State government along with NRHM has initiated a project named 'Muskan' to rehabilitate completely edentulous patient, there is still lot of scope to provide better treatment option like dental implants for the treatment of edentulism. Moreover, there is a need to evaluate the importance of missing teeth replacement and knowledge and acceptance of dental implants as a replacement option. The present study was thus undertaken to assess the knowledge, acceptance and attitude of patients about dental implant therapy.

2. Materials and Methods

A questionnaire-based study was undertaken with the primary aim to assess the awareness, knowledge, attitude and acceptance of dental implants as a treatment option for missing teeth. In addition to this, it was designed to provide dental education for developing positive attitude among the population of Himachal Pradesh. Institution Ethical Clearance was obtained prior to commencement of the study. Before finalising the survey questionnaire a pilot study was conducted in the Department of Periodontology. Considering the educational, economical background and demographic profile of the state a questionnaire of 21 questions was formulated, which comprised of Section I (Q1-6) that included the demographic details of patient, section II (Q7-11) was regarding awareness, perception and practice about missing teeth, section III comprised of 10 questions to assess the perception about dental implants and information about dental implants among the patients. All the five dental colleges in the state of Himachal Pradesh participated in the survey. On receiving the filled questionnaires, responses of the participants were collected and the results were further analysed by calculating the overall scores and percentages of correct responses in relation to the knowledge and awareness about replacement of missing teeth by means of dental implants using a statistical software.

3. Results

At the end of study period a total 1768 of filled survey questionnaires were received. The responses of the participants were analysed using Epi-info software version 7.

Out of total participants 53.39% were males while 46.6% were females. Almost 45% of participants belonged to the age group of 26-40 years and only 3.7% were above the age of 60 years. When the literacy rate of the

participants was compared it was found that about 98% were educated. Among these almost 60% had an education level up to graduation and above. Majority of the population had a family income up to 40,000(58.6%). Among all the participants 21% were working in Government sector while rest were either working in private sector or were unemployed.

When the participants were asked regarding the awareness of missing teeth, majority of the participants had more than one missing teeth (72.2%) (Figure 1). When enquired about replacement of missing teeth only 50% of them reported to have the missing teeth replaced by means of dental prosthesis. Almost 70% of surveyed participants considered replacement of missing teeth to be very important and 64.70% knew about various treatment options available, with major source of information being dentists 69.97%. An important finding was that majority of the population who participated in the study preferred replacement of missing teeth with fixed prosthesis (Figure 2).

Although 70.25% participants had heard about dental implants but when asked to describe it, a variable response was received from various participants. Although a majority of respondents thought dental implant to be a screw (37.7%) or a piece of metal (20%) there were people who had no clue what an implant was (40%) and where it was placed (37%).

A large number of participants were interested to know more about dental implants (61.4%) and thought implants as a good treatment option for replacing missing teeth, while one third of the participating population viewed implant as an expensive and unaffordable treatment option. 63% of the participants did not have a clear perception regarding maintenance of dental implants (Figure 3). While permanent replacement and function were considered biggest advantages (Figure 4) of dental implants, high cost and fear of surgery were the two commonly rated disadvantages of dental implants (Figure 5). Almost all the participants who were entitled for medical reimbursement wanted implant treatment should be subsidized and included in the reimbursement list.

On correlating various factors related to awareness of the respondents about importance of replacing missing teeth and dental implants, it was observed that almost each age group considered replacement of missing teeth to be important but the awareness about replacing missing teeth with implants was minimum in the elderly patients (Figure 6) although the difference between various age groups was not statistically significant. Both males and females were equally aware about replacing missing teeth by means of dental implants. The knowledge and awareness about implants was lowest among the participants who were uneducated or had education below the matriculation level moreover, graduates and post graduates showed higher level of awareness and were also more interested in gaining

knowledge about implants (Figure 7). Knowledge and awareness was maximum in the participants who belonged to income 40,000 and above, although there was no statistically significant difference between various income groups.

Table 1: Showing demographic attributes of participants (n=1768)

	Attributes	Number of participants	Percentage (%)
1	Age		
	18-25 Years Young adults	454	25.7%
	26-40 Years Adults	793	44.9%
	41-60 Years Mature Adults	455	25.7%
	>60 Years Older adults	66	3.7%
2	Gender		
	Male	944	53.4%
	Female	824	46.6%
	Others	0	0%
3	Level of education		
	No response	15	0.8%
	Uneducated	27	1.5%
	Secondary	674	38.1%
	Graduate	759	42.9%
	Post graduate	293	16.6%
4	Income		
	No response	237	13.4%
	BPL	397	22.5%
	upto 40,000/month	1036	58.6%
	40,000-1lac/month	94	5.3%
	>1lac/month	4	0.2%
5	No. of missing teeth		
	No Response	1	0.06%
	0	490	27.7%
	≥1	1277	72.2%
6	Occupation		
	No Response	3	0.1%
	Unemployed	701	39.8%
	Govt. Job	375	21.2%
	Pvt. Job	689	38.9%

4. Discussion

Oral health is multifaceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and diseases of craniofacial complex.¹⁰ Among the various diseases affecting the oral cavity one of the most commonly encountered condition is edentulism.¹¹ Despite advances in preventive dentistry, edentulism is still a major public health problem worldwide resulting in a series of deleterious consequences for oral and general health.¹² Various treatment options are available for treating edentulism, most common choice

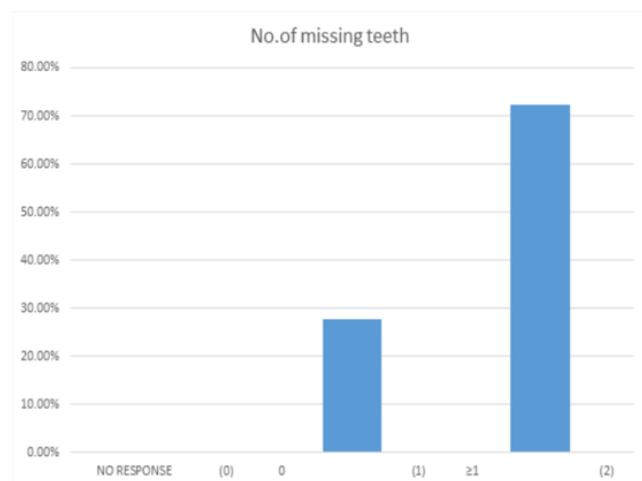


Fig. 1: Showing percentage of missing teeth in participants

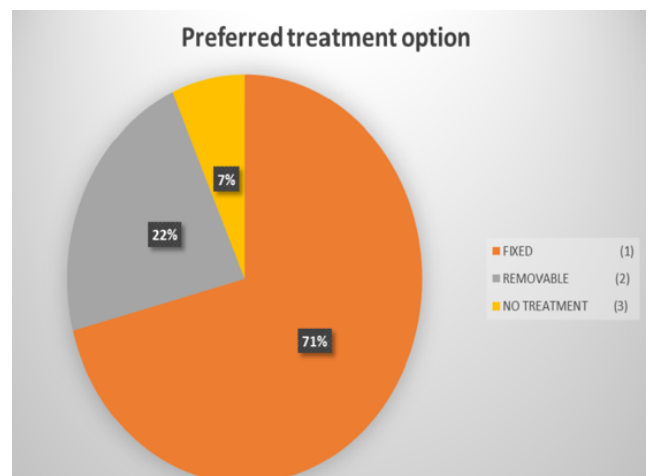


Fig. 2: Showing percentage of preferred treatment options by participants

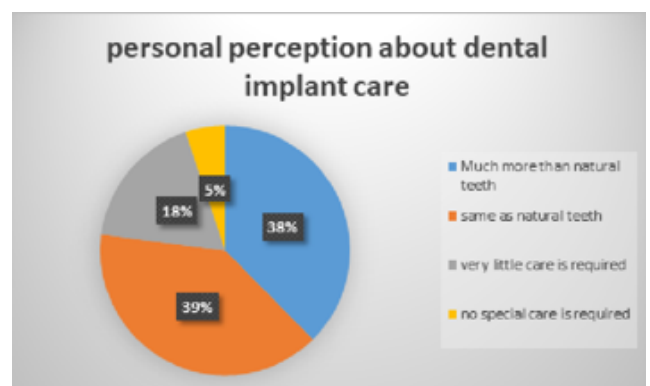


Fig. 3: Showing percentage of personal perception about dental implant care

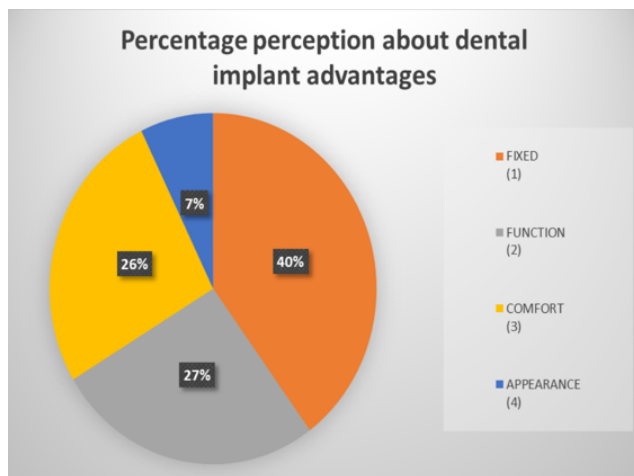


Fig. 4: Showing percentage perception about dental implant advantages

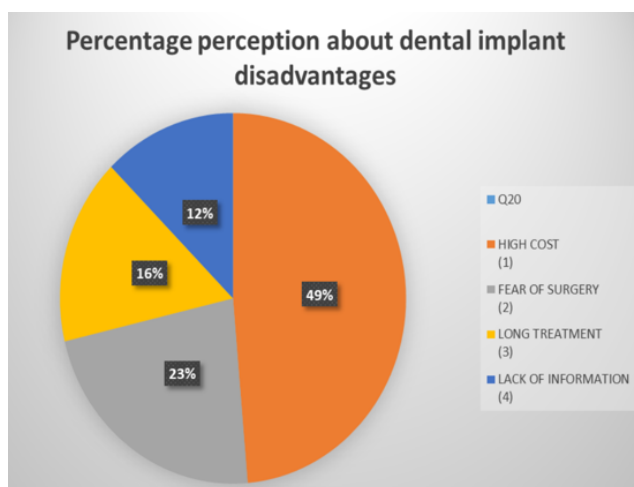


Fig. 5: Showing percentage perception about dental implant disadvantages

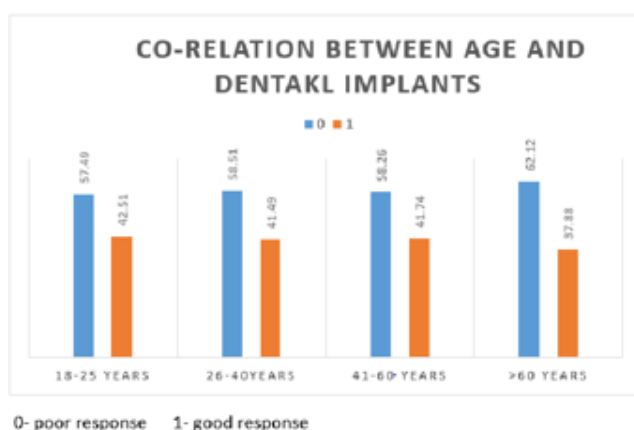


Fig. 6: Showing correlation between age and knowledge regarding dental implants

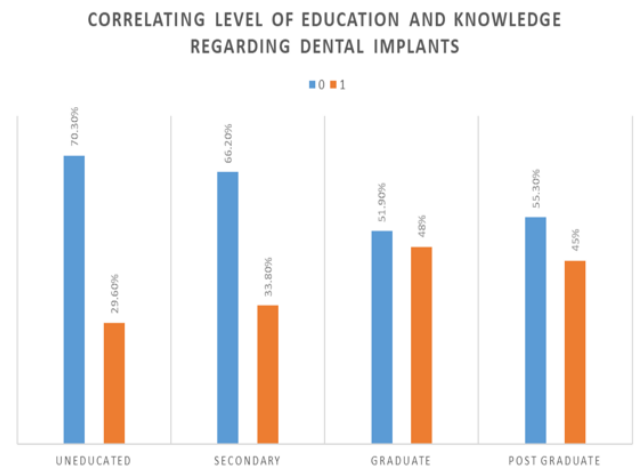


Fig. 7: Showing correlation between level of education and knowledge regarding dental implants

being fixed partial denture.^{13,14} A dental implant is a newer, near- natural tooth replacement option available to replace missing teeth and their use has become progressively important as most of the patients treated with dental implants have reported improvement in their quality of life.^{15,16} There are various advantages of dental implants which include permanent replacement, comfort, appearance, stability and functional efficiency over the other replacement options but high cost, fear of surgery, lack of knowledge and perception among population prevent affected population from getting benefits from the available sources.¹⁷ Recent scientific literature clearly emphasizes the need to remove the barriers associated with effective delivery of treatment modality specially among developing nations.^{3,7,17–20}

Himachal Pradesh, located in the Northern region of India, comprising of 68, 64,602 population and ranks fourth in respect of per capita income among the states of the Indian Union.⁸ Although the state is economically and socially sound with a high literacy rate, the awareness about dental implants among the population of Himachal Pradesh needs to be assessed as to the best of our knowledge no such study has been conducted till date. The present study was done to determine the knowledge, awareness and acceptance of dental implants among patients in the state of Himachal Pradesh.

At the end of the survey, it was interesting to know that majority of the participants who visited various dental colleges throughout the state for their dental treatment were below the age of 60 years and only 3.7% of the total participants were geriatric patients above the age of 60 years. This might be due to more awareness about oral health among the young adults and adults compared to the rest of the population.

It was encouraging to know that females had almost equal knowledge, awareness and perception about replacement of missing teeth and dental implants as compared to males. The reason for which could be equal opportunities and almost equal literacy rate among males and females.

Although majority of the population reported to have multiple missing teeth and desired their replacement but only half of such patients had undergone some treatment for the same, reasons for which could be the high cost of treatment and lack of information regarding replacement options among the general population. Majority of the population did not take any treatment until they visit their dentist for missing teeth or other oral health related problems.

When asked about the preferred choice of replacing missing dentition many people believed that the replacement prosthesis should be similar to the natural teeth in aesthetics and function, probably this was the reason that majority of the participants preferred fixed prosthetic teeth compared to removable prosthetic option. These results were similar to a study conducted by Gbadebo et al in 2014.²¹

It was surprising to know that a very small percentage of participants had some knowledge about dental implants. This can be attributed to its high cost and concentration of good dental care services in urban areas and lack of implant clinics in small towns and villages where majority of population resides.²² Considering the fact that the sample population of the present study was collected from the patients visiting various dental colleges and belonged to different regions and areas of the state who were exposed to the same socio-economic barriers, the reasons cited above hold true for the present study, as well.

It was encouraging to educate people about dental implants as we received an overwhelming positive response from the patients who were willing to know more about dental implants. Similar results were seen in a study conducted by Ravi et al in Andhra Pradesh.²³

The results of our study also emphasize the need to increase the knowledge and awareness among the population regarding the dental implant procedure and maintenance of already placed dental implants. The study also underscores the fact that discussing the treatment options and dental implant procedures with the patient will greatly reduce the fear and associated anxiety with the surgery.²⁴

Although the importance of educating and creating awareness of dental implants cannot be underestimated, high cost of treatment involved with dental implant placement and maintenance seems to be one of the major reason preventing the needy patients from opting dental implants as a mode of replacing their missing teeth. The authors suggest that the policy makers must devise plans to subsidize or reimburse the cost involved in dental implant

treatment to make them more affordable and accessible for general population.

5. Conclusion

Results of the present study showed that there is a significant difference between the information about importance of replacing missing teeth and knowledge regarding recent replacement option available i.e. dental implants. Although implant dentistry has shown promising results but there is a need to spread awareness and overcome the associated barriers which limits the applicability of dental implants. A combined effort should be made by the dental health professionals and the government in this regard to overcome these barriers.

6. Conflict of Interest

None.

7. Source of Funding

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