

Dental prosthetic status, prosthetic needs in relation to socioeconomic status of the state government employees in Shimla city (Himachal Pradesh) - A cross sectional study

V. K. Bhardwaj, K. L. Veerasha¹, K. R. Sharma²

Departments of Preventive and Community Dentistry and ²Pedodontics H.P. Govt. Dental College and Hospital, Shimla, Himachal Pradesh, ¹Preventive and Community Dentistry, M.M.C.D.S. and R. Mullana, Ambala, Haryana, India

Corresponding author (email:<dr.viney@gmail.com>)

Dr. Vinay Kumar Bhardwaj, Department of Preventive & Community Dentistry, H.P. Govt. Dental College & Hospital, Shimla, Himachal Pradesh -171 001, India.

Abstract

Objective: To know the dental prosthetic status, prosthetic needs in relation to socioeconomic status (SES) of the state government employees in Shimla city, Himachal Pradesh. **Materials and Methods:** The study was carried on 1008 (705 males and 303 females) state government employees in Shimla city between February 25, 2009 and April 10, 2009. Type III examination was conducted and the prosthetic status and prosthetic needs were recorded on W.H.O. format 1997. Modified Kuppusswamy scale, with readjustment of the per capita income to suit the present levels, was used for SES classification. **Results:** 10.3% of the subjects in the study had prosthesis of some kind. The prosthetic status was better in the upper middle and upper SES category as compared with the other categories and the findings were statistically significant. Prosthetic need in the study population was 33.2%, which was maximum for the subjects in the lower SES category and minimum for the higher SES category. Awareness on the provision of reimbursement for dental care was highest among the upper class and negligible in the lower SES category. **Conclusions:** Present study shows a direct relationship between SES and percentage of the subjects having prosthesis of some kind. SES shows an inverse relationship with prosthetic need and awareness on the provision of reimbursement of dental care.

Key words: Prosthetic needs, prosthetic status, Shimla, state government employees, socioeconomic status

INTRODUCTION

Health is a common theme in most cultures and is a fundamental human right without distinction of race, religion, and political belief, economic and social condition.^[1] Oral health is a standard of health of the oral and related tissues that enables an individual to eat, speak and socialize without active disease, discomfort, or embarrassment and contributes to the

general well being. It is concerned with maintaining the health of craniofacial complex, the teeth and gums as well as the tissue of the face and head that surrounds the mouth.^[2] It was recognized both in the developed and developing countries that the standard of health services which the public expected was not being provided.^[3] The responsibility for health does not end with individual and community effort, but state assumes the responsibility for health and welfare of its citizens, which is being provided by the constitution of India.^[4] Health has improved significantly over the last century, being considerably greater among the privileged population, with little among the lower class people.^[5]

Oral health is an integral part of general health and socioeconomic status (SES) plays a vital role in its determination. Several studies in the past have revealed

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an association between socioeconomic factors and oral health.^[6-10] Loss of teeth substantially reduces the quality of life.^[11] The loss of teeth is an end product of oral disease and reflects the attitude of the patients, the dentists, the availability and accessibility of dental care, as well as the prevailing philosophies of dental care.^[12] Restoration of missing teeth by appropriate prosthetic treatment is important for the rehabilitation of oral function, chewing ability, esthetic, and maintenance of oral and general health.^[13]

State government employees have free access to oral healthcare facility at government dental college and hospital, regional hospital Shimla. Government employees do have healthcare privileges such as paid holidays for the medical and dental care, reimbursement of cost of denture being fabricated at government hospital or at recognized private hospital.^[14]

There is no literature on the dental prosthetic status, prosthetic needs, and relationship with SES of the state government employees in Himachal Pradesh. The state government employees in Shimla city are the true representative of employees in the entire state of Himachal Pradesh. Hence, this study has been taken up to assess prosthetic status and prosthetic needs of the state government employees in Shimla city and the influence of SES on it. So, outcome of the study will be an eye opener for planning better oral health care for the employees and to extend more facilities.

MATERIALS AND METHODS

Shimla is the capital of the state of Himachal Pradesh in India with total area of 32.30 Sq. km and with population of 1,42,535. It is situated at an altitude of 2400 m above sea level with a temperature range of 4° to 25°C. Being capital of the state, it harbors the head offices of all the departments.^[15] Total number of state government employees in Shimla city is 10 908. Relative percentage of employees in some major departments is, education 33.8%, public works 17.5% irrigation and public health 11.5%, health and ayurveda 8.2%, police 7.2%, and others 17.3%.^[16]

After getting ethical clearance and consent from concerned authorities, a pilot study was done on 50 government employees. The study was conducted on 1008 subjects of 10908 government employees, accounting for about 10% of the universe. A proportionate sample was taken from each department and cadre. Inclusion criteria were the state government employees in Shimla city who were present on the

day of examination and willing to participate in the study. Exclusion criteria were employees not willing to participate in the study.

This cross-sectional study was conducted between February 25, 2009 and April 10, 2009 as per prescheduled time and at the working place of employees. Examiner was calibrated before conducting the study. Type-III type of examination was conducted. Prosthetic status and prosthetic needs were recorded on W.H.O. format 1997.^[17] Modified Kuppuswamy scale, with readjustment of the per capita income to suit the present levels, was used for classifying the individuals into one of the five socioeconomic categories.^[18] Instruments were sterilized by autoclaving in the college before leaving to the field and in the field, chemical sterilization was done. The subjects were also educated regarding maintenance and benefits of good oral hygiene. The needy were motivated to seek treatment at government dental college and hospital, Shimla. Data were analyzed using SPSS package-13. The significance of the difference between the two proportions was assessed with Pearson's chi-square test.

RESULTS

A total of 1008 subjects were examined, of which 705 were males and 303 were females. The age range of the study population was 18 to 58 years, with a mean age of 41.35 years with a standard deviation of 8.31. Maximum subjects belong to middle and minimum to the lower SES category [Tables 1 and 2].

Prosthetic status

10.3% of the subjects in the study had prosthesis of some kind. Of all, 22.1% subjects in the upper middle SES category possess prosthesis, while none of the subjects in the lower SES category had prosthesis. The prosthetic status was better in the upper middle and upper SES category compared with the other categories. The findings were statistically significant. The results were true even when the males and females in different SES categories were compared separately [Table 3].

Prosthetic need

Prosthetic need in the study population was 33.2%. Some kind of prosthesis was required in the subject of lower SES. The prosthetic need was 52.9% in the upper lower and 20.5% in the upper SES category. The prosthetic need increased with decreasing SES. The findings were statistically significant. The same was observed even when the comparison was made between

Table 1: Age-wise distribution of the study population among different socioeconomic categories

SES categories	Age groups (years)											
	18-24		25-34		35-44		45-54		55-58		Total	
	N*	%	N*	%	N*	%	N*	%	N*	%	N*	%
Upper	2	2.7	15	20.5	33	45.2	20	27.4	3	4.1	73	7.2
Upper middle	5	1.7	60	1.7	107	36.7	107	36.7	12	4.1	291	28.9
Middle	9	2.1	90	21.3	156	36.9	149	35.3	18	4.3	422	41.8
Upper lower	3	1.3	32	14.5	101	45.7	79	35.7	6	2.7	221	21.9
Lower	1	100.0	0	0.0	0.0	0.0	0	0.0	0	0.0	1	0.9
Total	20	1.9	197	19.5	397	39.4	355	35.2	39	3.9	1008	100.0

Mean age- 41.35 ± 8.31 years N* = Number of subjects

Table 2: Gender-wise distribution of the study population among different SES categories

SES categories	Gender				Total	
	Male		Female		N*	%
	N*	%	N*	%		
Upper	50	68.5	23	31.5	73	100.0
Upper middle	204	70.1	87	29.9	291	100.0
Middle	296	70.1	126	29.9	422	100.0
Upper lower	154	69.6	67	30.4	221	100.0
Lower	1	100.0	0	0.0	1	100.0
Total	705	69.9	303	30.1	1008	100.0

Contingency co-efficient: 0.178**

N* = Number of subjects, ** = Statistically significant,

Table 4: Prosthetic needs gender wise among different SES categories

SES categories	Gender				Total	
	Male		Female		N*	%
	N*	%	N*	%		
Upper	2	4.0	2	8.69	4	20.5
Upper middle	27	13.2	20	22.9	47	16.2
Middle	110	37.1	58	46.1	168	39.8
Upper lower	81	52.5	36	53.73	117	52.9
Lower	1	100.0	0	0	1	100.0
Total	221	31.3	106	34.9	337	33.2

Contingency coefficient: 0.276** Contingency coefficient: 0.291** Contingency coefficient: 0.284**

N* = Number of subjects, ** = Statistically significant

different SES categories in both the gender separately [Table 4].

Awareness on the provision of reimbursement for dental care

State government employees in Himachal Pradesh had been provided with the facility of reimbursement for certain dental procedure including dentures.^[14] 37.6% of the subjects in the study were aware about the provision of reimbursement for dental care. This awareness was 100% in the upper SES, followed by 85.5% in the upper

Table 3: Prosthetic status gender wise among different SES categories

SES categories	Gender				Total	
	Male		Female		N*	%
	N*	%	N*	%		
Upper	11	22	4	17.4	15	20.5
Upper middle	48	23.5	18	20.6	66	22.1
Middle	14	4.7	5	3.9	19	4.3
Upper lower	4	2.6	2	2.9	6	2.7
Lower	0	0	0	0	0	0
Total	77	10.9	29	9.5	106	10.3

Contingency coefficient: 0.331** Contingency coefficient: 0.289** Contingency coefficient: 0.321**

N* = Number of subjects, ** = Statistically significant

Table 5: Awareness on the reimbursement of dental care facilities among different SES categories

SES categories	Gender				Total	
	Male		Female		N*	%
	N*	%	N*	%		
Upper	50	100.0	23	100.0	73	100.0
Upper middle	177	86.76	72	82.7	249	85.5
Middle	29	9.79	12	9.5	41	9.7
Upper lower	9	5.84	2	2.9	11	4.4
Lower	0	0	0	0	0	0.0
Total	265	37.5	109	35.73	374	37.6

Contingency coefficient: 0.643 *** Contingency coefficient: 0.681*** Contingency coefficient: 0.662***

N* = Number of subjects, *** = Statistically highly significant

middle. The subject in the lower category was unaware of the reimbursement provision. Direct association between the awareness of the reimbursement facility for dental care and SES was observed. The awareness increased with increasing SES. The findings were statistically highly significant when the comparison was made between different SES categories among the two genders separately [Table 5].

DISCUSSION

A significantly higher percentage of subjects in the upper SES categories had prosthesis of some kind, compared with those in the lower SES category. The social pressure of maintaining the esthetics and function may be the driving force that influences the subjects in the upper class to get their missing teeth replaced.^[11] In addition to this, the attitude and awareness toward dental care, and the cost of dental treatment might also be the significant factor that determines the prosthetic status of a person.^[13] Certainly, the attitude and awareness towards dental care was better among the subjects in the upper SES categories and this was evident when the utilization of dental services was assessed, which was also significantly better among the subjects in the upper class compared with those in the lower class.^[10] The awareness on the provision of reimbursement for dental care was also better among the subjects in the upper SES category. The finding of better prosthetic status among the subjects in the upper classes may be attributed to these factors. The results of our study are in agreement with the findings of a study by Hanson BS *et al.*,^[19] in which, they found that the percentage of subjects having the fixed bridges was significantly higher in the upper SES group (59.2%) compared with that in the lower SES group (16.7%). The study by Eklund SA and Burt,^[20] and Gilbert GA *et al.*,^[21] also found the prosthetic status to be better among the subjects in the upper classes, as was found in our study. However, Shigli K *et al.*,^[22] had shown an overall higher prosthetic status as compared with our study.

A significantly higher percentage of subjects in the lower SES (100%) category needed prosthesis of some kind compared with those in the upper SES category (20.5%). Higher prevalence of dental diseases such as dental caries and periodontal diseases which are thought to be the leading cause of edentulousness were found to be more prevalent among the subjects of the lower SES category.^[9,10] Along with this, the lack of perception of the fact that the teeth are saving, the cost barrier and the lack of awareness on the provision of reimbursement for dental care, which in turn leads to the lesser utilization of dental services, would have resulted in a higher need for prosthesis among the subjects in the lower SES category. The results were consistent with the study by Hanson BS *et al.*,^[19] who found a higher percentage of anterior open tooth spaces among the subjects in social class III (23.8%), compared with that in the social class I (14.1%). They also noticed a significantly less mean number of functioning teeth among the subjects in the social class III (13.5 ± 7.7)

compared with those in the social class I (21.5 ± 6.0).

The lack of social pressure and attitude to maintain the teeth in good health may be the factors responsible for lack of utilization as well as lack of awareness on the provision of reimbursement for dental care among the subjects in the lower classes. This highlights the fact that the lower SES people may not utilize the services even if the cost barrier is removed.^[23-25] SES adds a new dimension to the entire process of program planning. As an expression of attitudes, community groups, particularly the underprivileged, have clear feelings about the priorities in the health care field and the way the healthcare is rendered.^[26]

CONCLUSIONS

The relation between health and SES is widely recognized. This relationship is seen not only in specific occupational diseases, but also in general health of persons and families. The present study made an attempt to assess the relationship between socioeconomic factors and prosthetic status as well as needs. Present study found a direct relationship between SES and percentage of the subjects having prosthesis of some kind which emphasizes that higher the SES, more is the number of the subjects bearing some kind of prosthesis. An inverse relationship was observed between the SES and prosthetic need. The programmers to eliminate the SES inequality in oral health should not only concentrate on the treatment aspect, as would not accomplish the objectives in full. The socioeconomic inequality exists as long as the attitude and awareness toward dental care among the subjects in the lower classes changes. A comprehensive program, that take into consideration the promotive, preventive, curative, and rehabilitative services, needs to be thought about to educate and motivate government employees. More facility and incentives should be given to the government employees for dental care. Further study to find out the oral hygiene habits and association with the periodontal health and tooth loss should be carried out to find out the cause of edentulousness and its influence on prosthetic status.

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