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Research Article

PROSTHETIC STATUS AND DENTAL SERVICE UTILIZATION AMONG SMALL SCALE INDUSTRIAL WORKERS IN TAMIL NADU, INDIA

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ABSTRACT

A cross sectional descriptive study was conducted among 600 cashewnut industrial workers in Kanyakumari District, Tamil Nadu, India to assess their prosthetic status and treatments needs, and also, their utilization of dental services. The prosthetic status and treatment needs were examined using a proforma designed with the help of WHO basic oral health survey 1997. Utilization of dental services was assessed using structured pretested questionnaire. The alpha error (Type I error) was assumed to be 0.01. 99% confidence limit was set for the above analysis. Chi-square tests were done to check association between prosthetic status and division of work. Results showed 371(61.8%) of the study population had not visited any dentist before. On examination of Prosthetic status it was found that 81(13.5%) workers were edentulous in the upper arch and 136(22.67%) were edentulous in the lower arch. The need for multiunit prosthesis is more in both upper and lower arches when compared to full dentures. The present study has revealed that utilization of dental services is poor and need for dental prosthesis is more among cashewnut industrial workers in Kanyakumari district. Oral health promotion programmes at workplace will improve the unmet backlogs of these workers.

Keywords: Work Place, Dental Health Surveys; Nuts, India

INTRODUCTION

In today's era, industrial growth and human health is of significant concern, as both play a significant role in indicating a countries development. To assess how a certain condition or disease affects an individual, the concept of, "Quality of life" was postulated. Though subjective, the term "quality of life" covers various concepts like health status, function, and life conditions¹. Studies have showed that Oral health also influences the Quality of life of an individual²⁻⁵. Teeth play an important role in maintaining the facial appearance, speech and mastication. Loss of teeth affects not only the oral function but also the social life and daily activities of an individual, thus affecting their quality of life⁴. On the other hand, replacement of missing teeth using dental prostheses will improve psychological well-being of an individual⁶.

Studies conducted by Musacchio E et al(2007)⁷ and Makhviladze G(2016)⁸ reports that loss of teeth and replacement of missing teeth is greatly influenced by socioeconomic factors, access to dental care and utilization of dental services. In India, the dental health care system is usually a fee-for-service payment. This system affects people

of low socioeconomic status usually the semiskilled and unskilled workers who are paid in daily wages.

The present study was carried out among cashew nut industrial workers in Kanyakumari District, Tamil Nadu, the southern coast of India. Although this district has two dental colleges and dental clinics, there is no data regarding the prevalence of dental diseases in this district. Cashew nut industrial workers constitute a cohort, representing the total population of Kanyakumari district. Hence, this study was undertaken to assess the prosthetic status and treatments needs of cashew nut industrial workers and how they utilize the dental services available.

MATERIALS AND METHODS

The study was done after obtaining approval from the Institutional Review Board of Ragas Dental College and Hospital, Chennai. A cross sectional study was performed among 600 cashewnut industrial workers selected by cluster random sampling. 150 study samples were selected from four zones which was divided based on legislative constituency. From each zone, 50 workers were selected from shelling division, 50 workers from peeling and 50 from grading division. Permission from the proprietors of the small scale

industries and informed consent from the participants were obtained before the start of the study. A pretested closed ended questionnaire was used to assess the utilization of dental services. The prosthetic status and treatment needs of the participants were assessed using a proforma designed with the help of WHO basic oral health survey(1997)⁹. Clinical examination was performed under bright natural light. Type-III clinical examination as recommended by American Dental Association (ADA) specification was followed. The data recorded were entered in Windows Microsoft Excel (2007) and statistical analysis was done using SPSS 11.5. The alpha error (Type I error) was assumed to be 0.01. 99% confidence limit was set for analysis. Chi-square tests were done to check the association between prosthetic status and division of work.

RESULTS

The present study was done among 600 cashew nut industrial workers. Majority of the study population 575(95.8%) were females and only 25(4.2%) were males. From Table 1 it is

evident that majority i.e., 371(61.8%) of the study population have not visited any dentist before. Of those who had visited, i.e., 229(38.17%), majority of them have visited dentist for tooth ache. Table 2 shows distribution of study population based on their prosthetic status. Among the total population 81(13.5%) workers were edentulous in the upper arch and 136(22.67%) were edentulous in the lower arch. 10(1.7%) workers had full removable denture in the upper arch and 6(1%) workers had full removable denture in the lower arch. None of the participants had bridge, more than one bridge, partial denture and both bridge and partial denture. Statistical test showed no significant difference between prosthetic status and working division.

Table 3 and 4 illustrates the need for prosthetic treatment in upper and lower arches and it was found to be significant with respect to the division of work. The need for multiunit prosthesis is more in both upper and lower arches when compared to full dentures.

Table 1: Utilization of dental services

Dental visits	Reason for last dental visit	Shelling (n= 200)	Peeling (n=200)	Grading (n=200)	Total (n=600)
Visited 229 (38.17%)	Check up	3(1.5%)	3(1.5%)	5(2.5%)	11(1.8%)
	Cleaning of teeth	6(3%)	2(1%)	1(0.5%)	9(1.5%)
	Toothache	76(38%)	40(20%)	56(28%)	172(28.7%)
	Filling of teeth	9(4.5%)	8(4%)	12(6%)	29(4.8%)
	Dentures	1(0.5%)	3(1.5%)	4(2%)	8(1.3%)
Not visited		105(52.5%)	144(72%)	122(61%)	371(61.8%)
χ^2 test = 25.573; p=0.004 (significant)					

Table 2: Division wise distribution of study groups based on their prosthetic status

Division of work	n	Upper		Lower	
		No prosthesis	Full removable denture	No prosthesis	Full removable denture
Shelling	200	199(99.5%)	1(0.5%)	199(99.5%)	1(0.5%)
Peeling	200	197(98.5%)	3(1.5%)	199(99.5%)	1(0.5%)
Grading	200	194(97%)	6(3%)	196(98%)	4(2%)
Total	600	590(98.3%)	10(1.7%)	594(99%)	6(1%)
χ^2 test		$\chi^2 = 3.864; p=0.145$ (not significant)		$\chi^2 = 3.030; p=0.220$ (not significant)	

Table 3: Need for prosthetic treatment in upper arch

Division of work	n	No prosthesis	One-unit prosthesis	Multiunit prosthesis	Combination of one and/or multi unit prosthesis	Full prosthesis
Shelling	200	155(77.5%)	12(6%)	25(12.5%)	0	8(4%)
Peeling	200	186(93%)	3(1.5%)	11(5.5%)	0	0(0%)
Grading	200	178(89%)	10(5%)	10(5%)	0	2(1%)
Total	600	519(86.5%)	25(4.2%)	46(7.7%)	0	10(1.7%)
χ^2 test		χ^2 value = 27.928; p= 0.000(significant)				

Table 4: Need for prosthetic treatment in lower arch

Division of work	n	No prosthesis	One-unit prosthesis	Multiunit prosthesis	Combination of one and/or Multiunit prosthesis	Full prosthesis
Shelling	200	132(66%)	26(13%)	30(15%)	0(0%)	12(6%)
Peeling	200	168(84%)	14(7%)	13(6.5%)	1(0.5%)	4(2%)
Grading	200	164(82%)	10(5%)	26(13%)	0(0%)	0(0%)
Total	600	464(77.3%)	50(8.3%)	69(11.5%)	1(0.2%)	16(2.7%)
χ^2 test		χ^2 value = 36.224; p=0.000(significant)				

DISCUSSION

In spite of the presence of 2 dental colleges and more number of private dental clinics in Kanyakumari district there is scarcity in literature to show the prevalence of dental diseases. The main intention of this study was to obtain a baseline data about the prevalence of prosthetic status and treatment needs and also the utilization of dental services among this population. The data obtained will help in planning and implementing oral health care programmes. Hence this study was carried out to examine cashewnut industrial workers in Kanyakumari District, Tamil Nadu, India.

There are about 262 cashew processing units in Kanyakumari district with approximately 75 workers working in each unit. A cluster random sampling method was done to select representative sample from all geographic area of Kanyakumari District. There were 3 divisions in cashewnut processing units, namely; shelling, peeling and grading. 50 workers from each division were selected from all four zones obtained based on state legislative constituency. This was done to check whether the division of work affected any variables.

Utilization of dental services:

Of the total study population 371(61.8%) workers had not visited any dentist before. As majority of the workers were females lack of time to visit dentist might be a factor for not utilizing the dental services as working time is less flexible for these workers. However, there can be other factors also which might have influenced the utilization of dental services like, for example, workers would have felt healthy dental status, lack of dental awareness and income. This was similar to the study done by Srikandi TW, Carey SE and Clarke NG (1982)¹⁰ Kawamura M and Iwamoto Y (1999)¹¹ who reported that their study population did not visit the dentist due to lack of time. Results from the present study showed majority 172(28.7%) visited due to toothache. This is in accordance with the previous study conducted by Amin NM and Al-Omouh SA (2001)¹⁹ where workers visited dentist mainly for tooth extraction due to lack of education and lack of time. It is evident from the present study that people gave dental health a low priority in their lives, especially for the more expensive dental treatment thus, extraction of teeth was the most common treatment modality among people of low socioeconomic status.

Prosthetic status and treatment needs:

The present study showed 81(13.5%) workers had missing teeth in upper arch and 136(22.67%) had missing lower teeth of which 10(1.7%) workers needed full removable denture in upper arch and 16(2.7%) needed full removable denture in lower arch. The need for one unit and multiunit dental prostheses is more in upper and lower arches when compared to complete dentures. This situation can be attributed due to the lack of visit to dentists, low socioeconomic status, lack of time and lack of awareness about the need to replace their lost teeth timely. This is in agreement with the studies done by Sakki TK and Knuuttila MLE(1994)¹² and Doughan B, Kassak K, and Bourgois DM(2000)¹³ which concluded that due to low socio – economic conditions, study subjects were in greater need of dentures. However, a systematic exploration is

required to understand and uncover the reasons for the unmet treatment needs among the industrial workers. An oral health promotion at the workplace might be one of the chances for the cashew nut industrial workers to obtain clinical examination, health counselling and general dental information

CONCLUSION

The present study has revealed that need for one unit and multiunit prosthesis is more in upper and lower arches than the need for complete dentures among cashewnut industrial workers in Kanyakumari district. The unmet need for treatment can be attributed due to lack of utilizing dental services.

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