



RESEARCH ARTICLE

UTILIZATION OF DENTAL HEALTH CARE SERVICES AND ITS BARRIERS AMONG THE WHITE-COLLAR PORT WORKERS IN NELLORE, INDIA- A CROSS-SECTIONAL QUESTIONNAIRE STUDY

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ARTICLE INFO

Article History:

Received 06th November, 2017
Received in revised form
23rd December, 2017
Accepted 14th January, 2018
Published online 28th February, 2018

Key words:

Communication barriers,
Port workers,
Dental health services,
Utilization.

ABSTRACT

Introduction: Dental diseases are generally not self-limiting. If untreated, dental conditions may affect the person's well-being and overall quality of life.

Aim: To assess the level of utilization of dental health care services and to determine barriers that prevent utilization of dental health care services among the white-collar port workers in Nellore, India.

Materials and Methods: A cross-sectional study was carried out among 300 port workers aged 30 years and above, who were willing to participate during the month of May 2017 in Nellore District. A multistage sampling method was followed. The source of data was primary in nature and it was obtained through self-administered questionnaire. Data obtained were analyzed using descriptive statistics chi square test, regression analysis using SPSS version 20.

Results: Only 36% of patients had visited the dentist in the last 12 months. The most common reported reasons for the last dental visit were pain or a dental emergency (71%), followed by restorative treatment (17 %) and other reasons by (12 %). The most commonly reported reasons for not seeking dental care were "Not needed unless have pain" by 360 (60%), "I do not think dental diseases are very serious" by 304 (51%), "I have fear of dental procedures" by 290(48.6%), "Lack of time" by 235(45.6%), "Dental treatment is expensive" by 200(33.3%), "The dentist is at a long distance" by 158(26.8%).

Conclusions: Our findings suggest that only a small portion of population visited dentist in previous year. Most of them believe that visiting dentist is necessary only for pain relief.

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Citation: Dr. Rafi Shaik, Dr. P. Nagarjuna, Dr. Sameeulla Shaik, Dr. Sai Praveen, K. N. V., Dr. Dandu Siva Sai Prasad Reddy, Dr. Sharath Kumar, P. 2018. "Utilization of dental health care services and its barriers among the white-collar port workers in Nellore, India- a Cross-sectional Questionnaire study", *International Journal of Current Research*, 10, (02), 65603-65607.

INTRODUCTION

Health has been considered as a basic human right and it is also a wider social goal (Jain *et al.*, 2013). Oral health is critical but an overlooked component of overall health and well-being among children and adults (Ramandeep Singh *et al.*, 2013). According to WHO, Oral health means more than just good teeth: it is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity (WHO, 2016). Dental diseases are generally not self-limiting. If untreated, dental conditions may affect the person's well-being and overall quality of life. Regular home oral care and a yearly dental check-up are the best means for saving one's own teeth (Jain *et al.*, 2013). Dental service use can be defined as an annual number of dental visits per person or the proportion of persons visiting a dentist within a year or reported first dental visit within a series

of visits or lack of dental visits within a specific period of time or aggregated expenditures for dental visits or routine vs. emergency care (Pedersen *et al.*, 2005). This information will help in planning and implementation of oral health services in a community. Krishnapatnam port is one of the 14 notified non-major deep water ports on the East coast of India located in Nellore, Andhra Pradesh. It performs different activities including processing of coal and coke, food and agro, fertilizers, carbon black, LPG/LNG, POL products, petrochemical products, specialty chemicals and edible oil, transport of automobiles, amenities, utilities etc. Therefore, a large number of employees, especially engineers are necessary for proper functioning of the activities in the port. The employees will be given particular deadlines and responsibilities for handling the equipment and transportation. Reaching these goals is important for proper functioning of the port. Oral health problems are emerging as a major public health problem in developing countries like India. There are many sea ports in India with good health facilities for the workers. The workers unable to utilize these facilities due to various reasons. There are limited studies on the utilisation of

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dental health care services and its barriers among white-collar port workers in Nellore, India. So the present study was carried out to assess the Utilization of dental health care services and its barriers among the white-collar port workers in Nellore, India.

MATERIALS AND METHODS

A descriptive cross-sectional study was carried out during the month of May 2017, to assess the utilization of dental health care services and its barriers among the white-collar port workers in Nellore, India.

Source of data

The source of data was primary in nature and it was obtained through self-administered questionnaire.

Study setting and study population

The study was conducted among port employees working in Krishnapatnam port, Nellore, Andhra Pradesh. Krishnapatnam port is one of the 14 notified non-major deep water ports on the East coast of India. There are 40 departments in the port performing different activities. The white-collar workers working in different departments who were willing to participate and gave informed consent were included in the study.

Inclusion criteria

White-collar port workers who were willing to participate in the study and who agreed for oral clinical examination and who gave an informed consent were included in the study.

Validation of the questionnaire

The 51 item self-administered questionnaire which was designed for this study was validated by checking content validity before conduction of pilot survey using content validity index with Davis criteria 1992 {1- not relevant, 2- somewhat relevant, 3- quite relevant, 4- highly relevant}. It was given to two experts in the field of dental research and their response was recorded, item and scale content validity was checked and Item Content Validity Index score (Lynn 1986) was 1.0 and 0.9 for two experts respectively and Scale Content Validity Index score (Waltz & Bausell 1981) was 0.9 for both experts which was acceptable.

Pilot survey

A pilot survey was conducted among the 20 white-collar port workers in Nellore district to assess the reliability of questionnaire by using test-retest design. It was given to same patients twice with seven days apart. Reliability was assessed for knowledge, attitude and ranking questions in the questionnaire. The Cronbach's alpha statistics was 0.8734*, 0.7369* and 0.9999* which indicated significant correlation.

Sampling

The participants who were available at the time of the study, willing to participate and who gave informed consent were included in the study.

Variables

The socio-demographic data of the participants was recorded using Kuppaswamy's socio-economic scale (Gururaj, and Maheshwaran, 2014). A specially designed and pretested questionnaire was used to collect data regarding oral hygiene practices, last dental visit history of participants and the factors affecting the utilization and non-utilization of dental services. The questionnaire was filled in presence of the investigator, who gave required information whenever needed.

Statistical analysis

Statistical analysis was performed using appropriate statistical tests and SPSS software programme. Descriptive statistics were used to summarize the results. Association between the socio demographic factors was tested using chi-square test. Multiple logistic regression analysis was performed using questions related to the barriers as independent variables. A significant relationship was assumed to exist if the p value was found to be less than 0.05.

RESULTS

This present study was done on 300 subjects. The mean age of the participants was 35 ± 7.50 years. Males comprise of about 57.83 % and females comprises of about 42.17 %. Majority of the population come under Upper Lower Class 53.6% (322) (Table 1). Of the respondents, 108 (36 %) visited a dentist in the last 12 months. The most common reported reasons for the last dental visit were pain or a dental emergency (213, 71 %), followed by restorative treatment (51, 17 %) and other reasons (36, 12 %) like oral prophylaxis, prosthesis etc (Table 2).

Table 1. Distribution of study participants according to age, gender and socio-economic status

Variables	No Of Respondents (%)
Age groups	
<=30yrs	97 (32.50)
30-40yrs	132 (44)
40+yrs	70 (23.5)
Gender	
Females	126(42.17)
Males	171 (57.83)
Socio-economic status (SES)	
Lower class	159 (53.67)
Upper lower class	88 (29.33)
Lower middle class	42(14.67)
Upper middle class	4 (1.67)
Upper class	2 (0.67)
Total	300 (100)

Table 2. Oral hygiene practices and previous dental visit history

Variable	Number
Cleaning aid	
Tooth brush	261(87.5%)
Finger	15(5%)
Neemstick	21(7.5%)
Frequency of brushing	
Once a day	225(75%)
Twice a day	75(25%)
Last dental visit in 12 months	
Yes	108(36%)
No	384(64%)
Reason for the last dental visit	
Pain	213(71 %)
Restorations	51(17 %)
Other reasons	36(12%)

Table 3. Reasons for not utilizing the dental services

Reason	Number(%)
Lack of time	135(45.8%)
Dental treatment is expensive	100(33.3%)
Not needed unless have pain	180(60%)
I have fear of dental procedures	145(48.6%)
The dentist is at a long distance	78(26.3%)
I do not think dental diseases are very serious	153(51%)

Table 4. Regression analysis of factors associated with not having a dental visit in the last 12 months

Variable	OR	CI	P value
Age			
25-35 years	1.00	1.18-1.68	0.002
36-45 years	1.43		
Gender			
Female	1.00	1.14-1.64	0.005
Male	1.39		
Education			
College education	1.00	1.22-1.72	0.005
High school or less	1.47		
Socio-economic status			
Low	1.00	1.01-1.67	0.021
High	1.21		
Lack of time			
No	1.00	1.39-1.89	<0.001
Yes	1.64		
No need unless no pain			
No	1.00	1.71-2.22	<0.001
Yes	1.95		
Fear of dental treatment			
No	1.00	1.27-1.78	<0.001
Yes	1.51		

OR – Adjusted odds ratio; CI – 95% confidence interval

Table 3 explains the reasons for not visiting the dentist in last 12 months. Majority of them 180 (60 %) felt that “no need to visit dentist unless there is pain” and no gender difference was seen for this statement. 153 (51 %) of them felt “dental diseases are not serious” and 137(45.8 %) of them felt “lack of time” as a reasons which were commonly reported by males ($p<0.05$). 145 (48.6 %) of them felt “fear about dental treatment” as a reason which was commonly by females ($p<0.05$).33.3 % of them believe “Dental treatment is expensive” and 26.3 % felt “The dentist is at a long distance” as reasons for not visiting the dentist in last 12 months. Logistic regression analysis showed that the strongest factors for not visiting dentist were, belief that there is “no need unless pain was present” (OR: 1.95, CI: 1.71-2.22), “lack of time” (1.64; 1.39-1.89), “fear of dental procedures” (1.51; 1.27-1.78). Also older respondents (35-45 years), female gender, higher socio economic status and those having only basic education were less likely to visit a dentist in the previous one year (Table 4).

DISCUSSION

This study carried out among the white-collar port workers in Nellore, India provides valuable information about whether the location of dental clinics play a role in the utilization of dental services or not. Early diagnosis, provision of preventive care and treatment of oral diseases can be achieved through regular dental visits (Denloye *et al.*, 2010). Preventive dental visits are recommended biannually in order to reduce the burden of oral diseases. In the present study, many of the participants had not visited the dentist and very few visited the dentist for preventive care. The poor utilization of dental services reported in this study may be attributed to ignorance or

perceived lack of need for treatment. Utilization of the dental service among the white-collar port workers was very low (36%). This finding was similar to the findings from other studies (Umashankar Gangadhariah Kadaluru *et al.*, 2012; Shaileefotedar *et al.*, 2013; Devraj and PranatiEswar, 2012; Manavjot *et al.*, 2014) and in other countries like China (20%) (Lo *et al.*, 2001) and Spain (34.3%) (Pizzaro *et al.*, 2009). In contrast, dental service utilization is high in a study (67%) (SijanPoudyal *et al.*, 2010) and in developed countries like Denmark(61%) (Petersen, 1984), UK(47%) (McGrath *et al.*, 1999), Finland(56%) (Murtomaa, 1983) and Singapore(43%) (Lo, 1993). Health insurance which covers dental services in these countries can be speculated for the high utilization, which is non-existent in India. Insurance schemes either at micro level or at macro level for oral health services for our population should be considered. In the present study, the younger age group visited the dentist more regularly in comparison to the older age group which was similar to other studies [9,10, 21-23]. This may be due to the fact that the younger age group had more knowledge and fewer barriers. However, a study [11] from India and other countries (Denloye *et al.*, 2010; Kelly *et al.*, 2000; Locker *et al.*, 1991) reported that older dentate adults were more likely to attend a dentist on a regular basis than the younger ones. Females showed higher dental fear which was seen in some studies (Waltz and Bausell, 1981; Murtomaa, 1983; Fukai *et al.*, 1999). This may be one of the reasons of dental visit being lower in females in the present study in comparison with the male population. This is because, in our population, females are largely dependent on other family members, and decisions regarding matters such as visits to the dentists are made by others. But other studies show opposite trend (Manavjot *et al.*, 2014; Murtomaa, 1983; Liddell and Locker, 1997; Manski and Magader, 1998). Higher education group showed higher dental visits than the lower education group in this study because the education may be correlated with high health awareness, which in turn stimulates preventive behaviour such as regular visits for a check-up. This is similar to the findings of other studies (Denloye *et al.*, 2010; Umashankar Gangadhariah Kadaluru *et al.*, 2012; SheljaVashisth *et al.*, 2012). Tooth brushing is a health behaviour, which indicates oral health attitudes. The present study shows that only 25% of the subjects used to brush twice daily. The positive association between tooth brushing frequency and utilization of dental services was also supported by a study (Denloye *et al.*, 2010).

The main reasons for the dental visits by the participants were tooth extractions or treatment of acute symptoms (71%), followed by restorations (17%) and other reasons (12%). This was similar to other studies (Gururaj, Maheshwaran, 2014; Denloye *et al.*, 2010; Umashankar Gangadhariah Kadaluru *et al.*, 2012; McGrath *et al.*, 1999) where the three most common treatments received in the subjects were last dental visits were extractions, restorations and dental prosthesis. In addition, extraction was the most common treatment performed with few patients seeking treatment for preventive oral health care. This supports the fact that dental visits are usually motivated by pain and the need for emergency treatment as reported by a study (Meng *et al.*, 2007). Several studies (Slack-Smith *et al.*, 2007; Ekanayake *et al.*, 2001) have also reported that low level of dental awareness is a major factor for underutilization of dental services, this may also be responsible for the late presentation of patients seeking treatment only when in pain or in need of extraction seen in this study thereby increasing the likelihood of receiving treatment. “There is no need unless

pain was present” was considered the most common barrier in the multivariate analysis. This finding was also observed in other studies (Denloye *et al.*, 2010; Lo *et al.*, 2001). So, we can say that the patient’s perceived need to visit a dentist was only if they had symptoms such as pain and emergency as can be seen from the present study. They also believe that dental diseases are not serious as reported by over half of the population. So, there is a need for increasing awareness and encouraging more positive attitudes towards oral health in the same population. Fear of dental procedures was another factor for not visiting the dentist in the present study. Here females showed higher dental fear which was also seen in other studies. (Denloye *et al.*, 2010; Manavjot *et al.*, 2014; SheljaVashisth *et al.*, 2012; Kelly *et al.*, 2001; Locker *et al.*, 1991). This may be one of the reasons of dental visit being lower in females in the present study in comparison with the male population. Unlike other studies (Manavjot Gill *et al.* 2014; Murtomaa, 1983; Manski and Moeller, 2002) where even though dental fear was more common in females, they utilized dental services more frequently than males possibly due to the fact that females have greater tendency to expect good outcome from dental attendance. Cost of dental treatment was also reported by the patients in this study which is similar to other studies (Umashankar Gangadhariah Kadaluru *et al.*, 2012; Shaileefotedar *et al.*, 2013). It is important to remove the barrier of high cost of health care by conducting free health camps, which have proved to be effective in screening for diseases and for providing preventive care. A free referral can also be provided to the participants in these camps when necessary.

Accessibility to dental care is a factor in the utilization of dental services (Denloye *et al.*, 2010). The finding of this study was at variance to this report. It would have been expected that the location of a dental center within the port would encourage dental service utilization, this was not so because of lack of awareness of its existence. This is indicative of the fact that though the location of the dental clinic is a factor in service utilization as reported, utilization may be influenced by awareness, educational level, poverty, anxiety and fear among others. Therefore, effort should be made to raise the level of awareness and educate the public on the need to utilize dental services and promote community participation and ownership. Lack of time was also reported as a barrier for not visiting a dentist in this study which was also reported by other studies (Denloye *et al.*, 2010; Shaileefotedar *et al.*, 2013; Lo *et al.*, 2001). While our study provides important information, there are some limitations. The utilization of health services is assessed by means of self-reporting, which could affect the validity of the information as the respondents may have difficulty recalling exact attendance. Studies of the frequency of dental visits are mostly based on self-reporting, and although individuals can overestimate actual consumption. But according to Gilbert *et al* (2011) this method is sufficiently valid for most important research questions. The people should be educated on basic oral care methods like proper brushing of teeth, use of fluoridated toothpaste and rinsing mouth after meals. They should also include education on effects of type and frequency of sweets intake. Dentists should educate the importance of oral health and motivate them to make regular dental visits.

Limitations of the study

The sampling was convenient sampling and only port workers from a single port were taken excluding other ports in Andhra

Pradesh. It is not known whether the results can be generalised to all white-collar port workers.

Conclusion

Only 36% of the population reported of having a dental visit in previous one year. About two thirds of the study population had never visited the dentist. The highly reported reason for not visiting a dentist in this study was “Not needed unless have pain” indicating the low felt need of the people. The cost of dental care, fear towards dental treatment, and patient’s self-care methods were identified as main barriers towards utilization of dental services. There is need to inform and direct the public on where to seek dental care, educate people on routine dental visits and reduce the burden of treatment cost through subsidy and social insurance scheme.

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