ORAL HYGIENE OF SANITARY WORKERS WORKING IN EDUCATIONAL INSTITUTIONS IN LUCKNOW CITY: A QUESTIONNAIRE STUDY

DISSERTATION

Submitted to the

BABU BANARASI DAS UNIVERSITY, LUCKNOW, UTTAR PRADESH

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Of

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In

PUBLIC HEALTH DENTISTRY

By

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BATCH: 2020-2023

DECLARATION BY THE CANDIDATE.

I hereby declare that this Thesis entitled **"Oral Hygiene Of Sanitary Workers Working In Educational Institutions In Lucknow City: A Questionnaire Study"** is a bonafide , & genuine research work carried out by me under the guidance of **Dr. Sugandha Agarwal, (Reader)** as a guide & **Dr. Anuradha P. (Professor & Head)** as Co-guide in the Department of Public Health Dentistry, Babu Banarasi Das College of Dental sciences, Babu Banarasi Das University, Lucknow, Uttar Pradesh.

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Place: Lucknow

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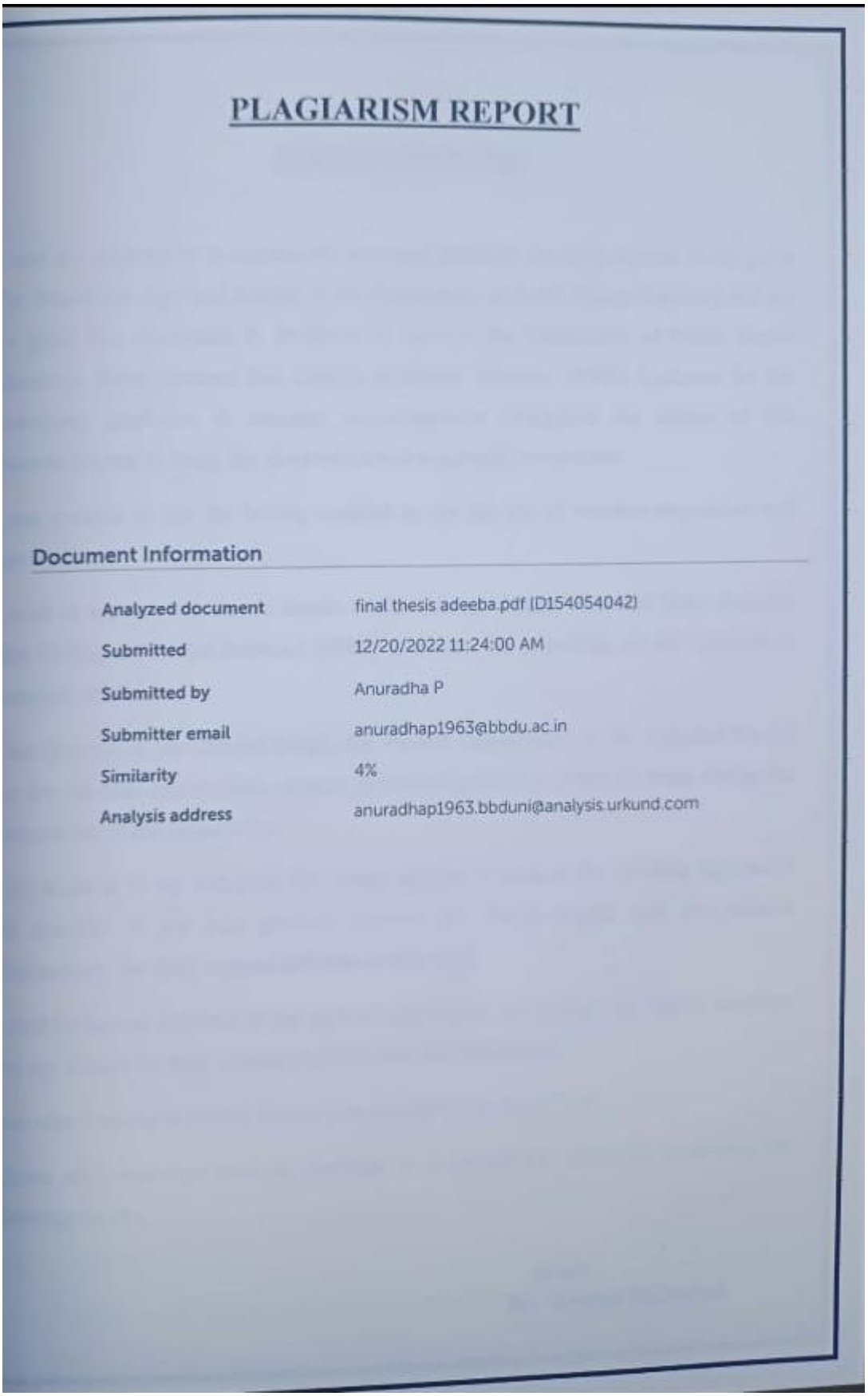

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LIST OF ABREVIATION

KAP	Knowledge, Attitude, Practice
WHO	World Health Organization
DMFT	Decayed Missing & Filled
OHIS	Oral Hygiene Index- Simplified
PPE	Personal Protective Equipment
ANOVA,	Analysis of variance
BPL	Below the poverty line
OHL	Oral Health Literacy

ABSTRACT

Introduction

Oral health is an important component of overall health and a valued asset for anybody. One of the key predictors of health is one's work environment. Certain working classes spend most of their time on wheels, migrating from one location to another without regular access to food, rest, recreation, or even sleep. These individuals operate in unusual climatic conditions, with frequent changes in day and night shifts, resulting in alterations in their schedules or lifestyles, which are exacerbated by delays and breakdowns. Dental caries is a worldwide disease that affects people in all parts of the world, regardless of their socioeconomic status. It is a multi-factorial disease in which three key components, the host, microbiota, and substrate, interact. In India, the prevalence of dental caries is 84.9 percent across all age categories

Materials & Methods

A cross-sectional study was carried out on 500 sanitary workers from Educational Institutions in Lucknow City. Simple random sampling was used to obtain desired sample size. All the participants were given a questionnaire. This was done to determine the feasibility of the study, the applicability and accuracy of the questionnaire, and to determine the amount of time required for study. Informed consent was obtained from the study participants after explaining the nature of the study The ethical clearance was obtained from the Institutional Ethical committee (IEC) of Babu Banarsi Das College Of Dental Sciences, Lucknow. Using the statistical program SPSS version 22.0, the data were Entered into the computer and subjected to statistical analysis.

Result

An association was seen with knowledge and age. Association with age and qualification was seen with attitude using chi square test. Practice was

associated with age and qualification on chi square test. An independent t test was applied on the same. A significant difference was noted between the response.

Conclusion

To raise public awareness of the risk factors for dental diseases, oral health education should be made available to the sanitary workers. The financial barriers to the utilization of the dental care services can be minimized by the provision of employed group benefits for dental care to this worker population.

Keywords: oral hygiene, sanitary workers

Introduction

Oral health is an important component of overall health and a valued asset for anybody. One of the key predictors of health is one's work environment. Certain working classes spend most of their time on wheels, migrating from one location to another without regular access to food, rest, recreation, or even sleep. These individuals operate in unusual climatic conditions, with frequent changes in day and night shifts, resulting in alterations in their schedules or lifestyles, which are exacerbated by delays and breakdowns.[1]

Dental caries is a worldwide disease that affects people in all parts of the world, regardless of their socioeconomic status. It is a multi-factorial disease in which three key components, the host, microbiota, and substrate, interact. In India, the prevalence of dental caries is 84.9 percent across all age categories. [2]

Industrial workers labour in a complex environment that is only getting more intricate as man's ingenuity grows in nature. Occupational diseases are growing increasingly prevalent as industries progress.[2]

The two most prevalent oral disorders worldwide are dental caries and periodontal disease and if left untreated, they can lead to tooth loss. However, information on its prevalence among various occupational categories and neighbourhood residents is limited. [3]

They often develop tissue abuse habits and ignore oral hygiene as a result of their physically demanding and tiresome employment, which can lead to worsening of their general and oral health.[3]

A healthy mouth and dentition not only helps a person to eat and speak properly, but it also boosts social confidence. It also reflects one's overall health. Oral health is no longer defined as the absence of disease or infirmity in the mouth. It is an important aspect of one's quality of life and is a component of daily life.[4]

Any institutions, non-teaching employees (staff nurses, receptionists, laboratory technicians, attenders, and housekeeping staff) are indirectly involved in community-based oral health awareness programmes. They serve as a connection between the dentist and the general public. As either assistants or spectators, they are frequently exposed to dental procedures and supplies.[5]

Globalization and social and economic changes are increasing the number of migrant workers around the world. Workers from less-developed economies frequently relocate to other countries in search of better jobs and greater wages.[6]

These migrant are particularly susceptible since they often come from less developed socioeconomic sectors and have just a basic degree of education, forcing them to work in low-skilled professions.[6]

Poor diet, personal cleanliness, customs, and cultural patterns are linked to sickness and death in emerging countries like India, where traditional lifestyles still exist. The oral cavity serves as a gateway to a variety of diseases of various origins, and its discrete specific features predispose it to occupational diseases in particular.[7]

Individual health, in the end, reflects not only the solitary influence of biology, but also a complex array of other influences. Health begins in our homes, schools, communities, and places of worship in other words, where we live, work, learn, play, and pray.[8]

Due to a decrease in caries rates in some nations, erosion is now attracting more attention in clinical dentistry and research. Erosion is described as the loss of tooth substance caused by a chemical reaction that is not caused by microorganisms. Erosion was first documented in the 19th century, and since then, the incidence and frequency of dental erosion has been steadily growing. [9]

According to a joint committee of the WHO and the International Labor Organization, occupational health is defined as the promotion and maintenance

of the highest degree of physical, mental, and social well-being for employees in all vocations.[10]

Oral disease, particularly dental caries, has been identified as one of the most common occupational diseases among bakers and confectionery workers. This could also be linked to their low socioeconomic status and inadequate dental hygiene.[11]

At the population level, public health is the effort to improve physical and mental health as well as to avoid sickness, damage, and disability. It is concerned with the health care of all people and focuses on the overall health of a population rather than individual. [12]

So the purpose of this survey is to learn about oral health of a sanitation workers because good oral hygiene contributes to an individual's overall well-being. As sanitation workers in India are mostly uneducated and have low socioeconomic status, they may have little or no knowledge about oral self-care. [13]

So as to improve an oral health of a sanitation workers it is essential to have oral health related knowledge and for that we need to create awareness and educate them regarding oral diseases.[13]

Aim

To evaluate the Knowledge, Attitude, and Practice (KAP) of oral hygiene of sanitary workers working in Educational Institutions in Lucknow City.

Objectives

1. To assess the Knowledge of sanitary workers
2. To know the Attitude of sanitary workers towards oral hygiene
3. To know the common oral hygiene Practices of sanitary workers

Review of literature

1. Haldiya Kr , Sachdev R, Mathur M.L And Saiyed H.N 2005[16]. Conducted a study on Knowledge, Attitude and Practices Related to Occupational Health Problems among Salt Workers Working in the Desert of Rajasthan, India Direct sunlight, salt dust, and brine contact are hazards for salt industry workers. 205 salt employees were questioned about health risks and issues associated to their working circumstances, usage of preventive measures, and suggestions for their improvement in order to assess their awareness, attitude, and practises related to occupational health problems. Contrary to non-brine workers, who had a fair understanding of their occupational health issues (98.7%), protective measures (100.0%), and benefits (100.0%), the statistics for brine workers were 89.0%, 85.8%, and 78.7%, respectively. Unconventional precautions were taken by both brine workers (29.5%) and non-brine workers (31.5%) to avoid coming into contact with salty water, salt dust, raw salt, and glare.

2. Dileep CL, Basavaraj P, Jayaprakash K, Gupta BD 2007[11]. Conducted a study onDental caries experience and oral hygiene status of biscuit factory workers in Kanpur City. A 338 workers were randomly selected from biscuit factory in Kanpur city. The DMFT & OHIS index were recorded on a specially designed proforma. It was concluded that the direct exposure to sugar dust for longer duration of time and neglected oral hygiene were major factor for increasing the DMFT & OHIS score in production line workers of biscuit factory thus efforts should be directed towards preventive and curative approaches to meet the demand of industrial population.

3. Smyth E, Caamano F, Fernández-Riveiro P 2007[23]. Conducted a cross sectional study on Oral health knowledge, attitudes and practice in 12-year-old schoolchildren. The 1105 12-year-old students who participated in the study

were drawn at random from Galicia, Spain. Five teams of one dentist and one assistant were assembled to collect the data. While the assistant assisted the subjects in filling out the questionnaire, the dentist performed the physical examination. Indicators of oral health as well as knowledge, attitudes, and practise were evaluated. Variables affecting practise were found using multiple regression analysis (as measured by extent of plaque). It was concluded that Growing public awareness of the risk factors for dental disease is undoubtedly crucial for oral health education. However, if health initiatives do not directly influence attitudes and take into account elements connected to the environment, education, social position, and economic level of the targeted population, their effectiveness will be restricted.

4. Harikiran AG, Pallavi SK, Hariprakash S, Ashutosh, Nagesh KS 2008[19]. Conducted a study on Oral health-related KAP among 11- to 12-year-old school children in a government-aided missionary school of Bangalore city. The study group consisted of 212 kids (108 males and 104 females), ages 11 to 12, who were enrolled in a missionary school supported by the government in Bangalore. An online questionnaire that KAP participants self-administered was used to gather data on oral health. The Chi-square test was used to establish statistical significance. According to the poll, just 38.5% of kids wash their teeth twice a day or more. While dental appointments were infrequent, tooth pain and discomfort (35.1%) were regular. For 46.1% of the study participants, dental anxiety was the primary motivator for infrequent visits. Soft drinks (32.1%), milk with sugar (65.9%), and tea with sugar (56.1%) were the beverages that the majority of research participants said they consumed hidden sugar in at least once each day. The study's findings imply that the participants' oral health KAP needs to be improved. To improve the oral health KAP of schoolchildren, comprehensive community-based oral health promotion activities are required.

5. Humagain M 2011[27]. Conducted a study on Evaluation of knowledge, attitude and practice (KAP) about oral health among secondary level students of rural Nepal–A questionnaire study. The study included 1000 secondary school students (622 males and 378 females), who ranged in age from 13 to 18 years. Thirty self-administered, closed-ended questionnaires were used to collect information on oral health knowledge, attitudes, and practise. Only 35.1% of the survey sample reported cleaning their teeth at least twice daily, according to the study's findings, while 64.9% said they regularly brushed their teeth just once daily. Only 48% of the survey participants were aware of the importance of dental plaque, while 66.3% of participants understood that gingival bleeding indicates gingivitis. Only 20% of respondents claimed to visit the dentist frequently, and simply 19% went only when they experienced dental pain. The findings of this study indicated that there is a poor KAP for oral health among secondary school students in rural Nepal. The results of this study suggested that secondary school students should be the first structured intervention group to improve periodontal health status and decrease the prevalence of dental caries by improving their knowledge, attitude, and behaviour, with other groups following after.

6. Sakthi et.al 2011[22]. Conducted a study on periodontal health status and treatment needs among building construction workers in Chennai, India. Cluster sampling was used in a cross-sectional study with 321 construction workers that took place in four different construction firms that were chosen using simple random sample. The Statistical package of social science software was used to analyse the data, which were entered into a Microsoft Excel spreadsheet. For statistical analysis, the Kruskal Wallis test and Pearson's chi square were utilised. 95.4% of the study's participants had periodontal disease. The age groups 20 to 29 years had the highest rates of bleeding and calculus, whereas the age groups 35 to 54 years saw the highest rates of people with shallow and

deep pockets. 53.6% of the study participants needed scaling, 23.4% needed dental hygiene advice, and 18.7% needed complicated periodontal therapy.

7. Chandra Shekar BR, Reddy C 2011[38]. Conducted a study on Oral health status in relation to socioeconomic factors among the municipal employees of Mysore city. 1187 personnel who were available during the study period were all taken into account. The necessary information was gathered using the World Health Organization (WHO) Oral Health Assessment form (1997) and a pre-made questionnaire. The classification of people into various socioeconomic status (SES) categories using the modified Kuppuswamy scale with a modification of per capita income to match the current levels. Under the natural light of the day, data were gathered by a single, skilled, and calibrated examiner (dentist) using a mouth mirror and a community periodontal index (CPI) probe. Using SPSS for Windows version 10, data analysis was carried out. One-way analysis of variance (ANOVA) with Tukey's post hoc test was used to evaluate the quantitative data, and chi-square or the contingency coefficient was used to assess the qualitative data. SES and oral health status have the opposite link. In general, lower class individuals required more therapy than upper class individuals did.

8. Patil V, Shigli K, Hebbal M, Agrawal N 2012[36]. Conducted a study on Tooth loss, prosthetic status and treatment needs among industrial workers in Belgaum, Karnataka, India. 614 workers in all took part in the study. Information was gathered about how they practised oral hygiene. Following a clinical examination, the existence or absence of habits, the frequency and length of time since the last dental visit were noted. The chi-square test was employed to ascertain whether the factors and tooth loss were related in any way. The number of missing teeth in various age groups, cleaning techniques, smoking habits, and dental visits varied in a statistically significant way.

Regarding prosthetic status, only one employee had a mandibular arch fixed prosthesis. The study found links between dental visits, oral hygiene routines, and habits, and tooth loss. High treatment demands and poor prosthesis status were noted. This study highlighted the importance of better dental health education and the accessibility of dental services for industrial employees.

9. Sanadhya S. et.al 2013[15].Conducted a study on The Oral Health Status and the Treatment Needs of Salt Workers at Sambhar Lake, Jaipur, India. A cross-sectional, descriptive study of 979 Sambhar Salts Limited employees at Sambhar Lake, Jaipur, India, with ages ranging from 19 to 68 was undertaken. Of the individuals, 509 were male and 470 were female. Following a clinical examination to document the oral health status in accordance with World Health Organization recommendations, a demographic interview was conducted. The statistical analysis made use of the Chi-square test, t-test, one-way analysis of variance, and stepwise multiple linear regression analysis. Dental fluorosis (71.7%) and periodontal disease (96.4%) were substantially more common in females than in males (p 0.001). it was concluded that Oral illnesses are more prevalent in significant proportions among salt workers. Higher unmet treatment demands point to inadequate access to and availability of dental care, as well as limited uptake of preventative or therapeutic dental services.

10. Nagarajappa R. et.al 2013[17]. Conducted a study on Assessment of the Periodontal Status among Kota Stone Workers in Jhalawar, India. A cross-sectional descriptive survey of the Kota stone employees who worked in the Jhalawar, India, factories located in the Ricco Industrial Area was carried out. There were 420 participants in the study who ranged in age from 21 to 60. A self-administered, closed-ended questionnaire and a clinical evaluation using the CPI index were used to gather the data. The results of this study's observations suggest that dental care services should be reoriented to place more of an emphasis on preventive care for this demographic.

11. Nagarajappa R, et al 2013[31]. Conducted a study on The oral health status and the treatment needs of salt worker at sambhar lake, Jaipur, India. There were 420 participants in the study who ranged in age from 21 to 60. A self-administered, closed-ended questionnaire and a clinical evaluation using the CPI index were used to gather the data. Chi-square, Student's t-test, One-Way Analysis of Variance (ANOVA), and Multiple Logistic Regression were among the statistical tests performed. In the studied population, all sociodemographic factors were shown to be substantially correlated with periodontal status (P 0.05), with the exception of gender. The results of this study suggest that dental care services should be reoriented to place more of an emphasis on preventive care for this demographic.

12. Singh GR, Kaur SR, Singh G, Brar R, Singh H, and Kakar H 2014[1]. conducted a cross-sectional study on the dental health and oral hygiene habits of Indian public transportation workers. 72 sanitation employees from Saveetha Dental College and Sri Ramachandra Medical College in Chennai were given a questionnaire that evaluated their knowledge of oral hygiene. Their answers were noted, examined, and their KAP level was assessed. The survey of sanitary personnel revealed that only 13% had a formal education. Neem sticks are thought to be the best tool for cleaning teeth by 55% of the illiterate sanitary employees**.** Among the sanitation workers, tobacco addiction controls 50% of them. 50 percent of those who don't go to the dentist attribute it to their work. 52.83 percent of the sanitary employees in the survey had a KAP score of 50 or higher. The KAP level of oral hygiene of these sanitation employees was shown to be a reflection of their educational level and their incapacity to pay for dental visits because of their employment circumstances. Therefore, free dental clinics and the provision of oral hygiene supplies can significantly improve the oral hygiene condition of sanitary employees.

13. Shetty M, V Bhat, KK Shenoy 2014[5]. Conducted a study on Oral Health Awareness Among Non Teaching Staff of A Dental Institution in Dakshina, Kannada the dental college's non-teaching personnel indirectly participates in community-based oral health awareness programmes. The study's goals are to determine the level of oral health awareness among the non-teaching staff at the institution and to use the information gathered to develop a training programme for them as well as a starting point for additional community-based oral health awareness initiatives. In a medical facility, 150 non-teaching staff members received a written oral health questionnaire. The statistical programme SPSS-10 was used to analyse the data. Although the employees shown sufficient knowledge, some shortcomings were observed. By providing them with the necessary education and involving them in activities that would improve their quality of life and oral health, the knowledge gaps in their repertoire could be filled.

14. Sharma A, Thomas S, Dagli RJ, Solanki J, Arora G, Singh A 2014[10]. Conducted a cross-sectional study on Oral health status of cement factory workers, Sirohi, Rajasthan, India Sirohi, Rajasthan. There were 90 study participants in total. They were all male, permanent workers at the cement factory, ranging in age from 20 to 58. The DMFT & OHIS Index are used, respectively, to record the state of dental caries and oral hygiene. Also noted were disorders that cause waste. Chi-square was used to determine the relationships between age, education, brushing behaviour, frequency of brushing, and tobacco use and dental caries, oral hygiene status, oral lesions, and wasting illnesses. It was deemed statistically significant at P 0.05. It was concluded that The majority of the factory workers had oral health issues, including dental caries. 50 % of them had worn teeth. There is a need for oral health amenities on the property as well as oral health education and encouragement for these employees.

15. Singh M, Navin AI, Kaur N, Yadav P, Ingle E, Charania Z 2015[7].Conducted a study on Dental Caries Status and Oral Hygiene Practices of Lock Factory Workers in Aligarh City Data from each patient were gathered using the 2013 version of the WHO Oral Health Assessment questionnaire. The ultimate sample size was composed of 850 individuals. In addition to conducting clinical exams, information about oral hygiene habits was gathered. The data were examined using the Chi-square test and descriptive analysis. The study's findings demonstrated that tooth cavities and poor oral hygiene among factory workers are significant public health issues. Making primary oral health services like dental screening and oral health education mandatory will help to avoid the manufacturing workers' healthcare needs from building up over time.

16. Gupta VV, et.al 2015[9]**.** Conducted a descriptive cross-sectional survey on the assessment of oral hygiene practises, habits, and tooth wear among 965 male employees of the fertiliser industry in Bathinda, India's northern region whose ages ranged from 19 to 58. A clinical examination using Type III examination to document tooth wear was followed by an interview on the patient's demographics, oral hygiene routines, and bad habits. The statistical analysis made use of the Chi-square test and a Stepwise multiple linear regression analysis. The p-value and confidence interval were both set at 0.05 and 95%, respectively. The prevalence of tooth surface loss has been found to be significantly greater in workers at fertiliser factories. This may be helpful in developing studies that seek to further examine the reasons behind these findings and, more significantly, in planning programmes to promote oral health using both preventive and remedial measures.

17. Kumaresan DG, Kumar S 2016[20].Conducted a study on Awareness among school going children’s in Chennai about dental health care. Randomly chosen participants in the study ranged in age from 8 to 16 years old. A total of 200 kids were chosen, 92 of them male and 108 of them female. The findings revealed that 55.50% of kids brush their teeth twice a day, 100% of participants

use tooth brushes and paste to clean their teeth, 66.50% of participants switch brushes once per month, 20.25% of participants switch brushes once per two months, and 9.25% of participants switch brushes once per three months. 39.50% of participants frequently brush their teeth and use tongue cleaners. After consuming sticky foods and chocolate, 26.50% of kids cleanse their mouths. 10.5% of kids visit the dentist every six months for a checkup. 99.5 percent of participants were aware that tobacco usage was bad for their dental and overall health.

18. Rao BV, Babu AMS, Kamalsha SK, Rao SM, and Karthik K 2017[8]. Conducted a descriptive study on Oral Health Status and Treatment Needs of Gunj Marketing Yard Laborers of Raichur City, Karnataka. In Raichur city's Gunj marketing yard, 550 workers participated in a descriptive research. A carefully designed questionnaire was employed to evaluate the oral hygiene habits and demographic factors. The WHO assessment form from 1997 was used to evaluate oral health status. The state of oral hygiene was evaluated using the Simplified Oral Hygiene Index (1964). This study shows that a significant amount of these labourers' unmet dental needs are due to poor oral hygiene, a high prevalence of periodontal disorders, and tooth caries.

19. Biswas G, Bhattacharya A, Bhattacharya R 2017[18]. Conducted a study on Occupational health status of construction workers: A review. The majority of these unorganised construction workers are migrant labourers who originate from various towns across the nation. To meet the requirements in a relatively short amount of time, they must labour 10 to 12 hours every day. Throughout their everyday work schedule, they are exposed to a variety of physical, chemical, biological, mechanical, and psychosocial risks. Musculoskeletal problems are prevalent among them as a result of the extended maintenance of bad working postures, bending positions, manual handling of heavy weights with repeated work, and lack of rest. After a long day of laborious work, lower back pain, shoulder pain, and other bodily aches are common. These people

frequently suffer fatal accidents and injuries at work as a result of weak body mechanics, carelessness, inappropriate PPE usage, overexertion, and subpar working procedures. It's interesting to note that musculoskeletal symptoms at the beginning of a worker's career are the most significant occupational hazard for young construction workers. To monitor occupational health, "best practises" for lowering musculoskeletal problems must be implemented. The combined knowledge could spark additional investigation into construction workers' occupational health.

20. Baishya B, Satpathy A, Nayak R, Mohanty R 2018[3]. Conducted a study on the periodontal health, oral hygiene condition, and oral hygiene routines of Odisha brick kiln employees. Participants in the survey included 408 individuals (300 men and 108 women), ages 22 to 65, with a mean age of 33.44 2.34 years, who worked in several brick kilns in the Khordha district of Odisha. Data were gathered through in-person interviews and medical exams. The results of the study among brick kiln workers showed that their dental hygiene was subpar, they had improper oral hygiene habits, and the majority of them had periodontal disease.

21. GV, Villinates YL, Pusod ML, Lasutaz ME 2018[12]. Conducted a cross-sectional study on Basic Oral Health Care Knowledge of Primary Health Workers Appraisal for Oral Health Education Program. 137 class III and IV employees of the dentistry college participated in a study REALD-30 for calculating OHL, and information on oral hygiene practises such toothpaste usage, frequency of brushing, and use of any other oral hygiene assistance were collected. After that, the state of the patient's periodontal health was assessed and divided into three categories: severe, moderate, and mild periodontitis (health). SPSS 11.5 was used for the analysis. The chi-square test was used to determine the relationship between periodontal health status and OHL scores, oral hygiene practises, and demographics. It was concluded that low socioeconomic level individuals—class III and IV workers in the current

study—are more susceptible to periodontitis. The burden of oral diseases in India will decline as OHL in this population increases. Keywords: Periodontitis, Oral health literacy, and dental professionals.

22. Nagarajan K, Ganapathy MD 2019[13]. Conducted a study on the knowledge, attitude, and practise of Chennai's sanitation workers' oral hygiene. 72 sanitation employees from Saveetha Dental College and Sri Ramachandra Medical College in Chennai were given a questionnaire that evaluated their knowledge of oral hygiene. Their answers were noted, examined, and their KAP level was assessed. These sanitation employees' KAP oral hygiene levels are a reflection of their educational backgrounds and their inability to pay for dental appointments because of the nature of their jobs. Therefore, free dental clinics and the distribution of oral hygiene supplies can significantly improve the oral hygiene of sanitary employees.

23. Puja CY, Mahesh J, Garima S, Jan W H, Gayathrinath G and Elizebeth R 2019[2]. A cross-sectional study on the prevalence of dental caries among sugar mill workers was conducted with the intention of determining its prevalence in the Davangere area of Karnataka, India. The study participants provided voluntarily given written informed consent. Utilizing pretested study Performa, information on demographics, oral habits, dietary habits, caries experience, and oral hygiene status were all gathered (DMFT Index and OHI S Index). For the purpose of recording indices, examiners underwent training and calibration. Mann Whitney U tests, Kruskal Wallis ANOVA, and linear regression analysis were employed in the statistical analysis. It was determined that among sugar industry workers in the Davangere district, dental caries prevalence and mean DMFT were both high. The incidence of caries was higher among employees who washed their teeth less frequently, maintained poor oral hygiene, and drank beer and chewed on pans. Compared to high and middle class categories, those in low socioeconomic groups had much more dental problems.

24. Nadar B, Prasanna S, Puranik N, Dhingra S, Deshpande R, Subbarayalu 2020[4]. Conducted a Descriptive, cross-sectional survey on Assessment of Oral Health Awareness among Supporting Staff of a Dental Institution by using a validated, structured, 36-item self-/interviewer-administered questionnaire, 179 members of the dental institution's supporting staff participated in a descriptive, cross-sectional study to assess their awareness of oral health. To draw the conclusion, data were collected and rigorously examined. The response rate to the survey was 74%. Approximately 65 participants (49.3%) correctly counted the number of tooth sets. 107 people (81.1%) knew that keeping sugary foods between the teeth causes tooth decay, however 91 people (68.9%) didn't know that fluorides had an anti-caries effect. Nearly 90 (68.2%) of the participants had no idea that plaque is a soft coating on the surface of the tooth or teeth. Nearly 118 employees (89.3%) supported routine dental exams, and 122 (92%) said smoking and using tobacco were bad habits. It was concluded that supportive staff members were practising good oral hygiene, had a moderate level of knowledge, and had a favourable attitude toward oral hygiene. The findings only apply to this group because the study was limited to a single dental facility.

25. Traisuwan Wirongrong 2021[6]. Conducted a study on cross sectional study on Oral health status and behaviors of pregnant migrant workers in Bangkok, Thailand. A hospital based tcross-sectional investigation was carried out in a Bangkok public general hospital. Their initial antenatal appointment, pregnant migrant workers were randomly enrolled in the study; local pregnant women were also randomly included to serve as a control group. All pregnant women who were eligible had their dental health status assessed in accordance with WHO guidelines, and a structured questionnaire was used to evaluate their oral health practises. With the help of the Chi-Square test, Student's t test, Mann-Whitney U test, Fisher's exact test, and multiple logistic regression, the oral health condition and behaviours of the two pregnant groups were compared. It

was concluded that compared to pregnant local women, pregnant migrant workers had worse oral health habits, more dental caries and periodontal disease, fewer access to oral health facilities, and less awareness of good oral hygiene. Their oral health could be significantly improved by comprehensive antenatal oral health screening and treatment, as well as proper systematic antenatal health education.

26. Prabu D, Sindhu R, Raj Mohan M, Bharathwaj V V, Savitha S 2022[14]. Conducted A Study On Prevalence Of Dental Caries And Oral Hygiene Status Of Biscuit Factory Workers In Madurai City among 100 employees of a biscuit Factory workers, 56 of whom were men and 44 of whom were women, all between the ages of 19 and 50. John C. Greene and Jack R. Vermillion used the oral hygiene index simplified to evaluate their oral hygiene state. Henry Klein and Carol E. Palmer used the DMFT index to evaluate their dental caries, and the Sweet Score was used to evaluate their sugar intake.

The findings indicate that dental caries is extremely common among employees in biscuit factories and that it rises with sugar intake. This results from widespread dental hygiene neglect and exposure to sugar dust.

Materials & Methods

A cross-sectional study on sanitation workers from educational institutions in Lucknow City was conducted. The Lucknow City was divided in to 5 zones (East, West, North, South And Central). Since most sanitation workers in India lack formal education and come from low socioeconomic backgrounds, it's possible that they know little to nothing about oral self-care. It is crucial for sanitation employees to have knowledge of oral health issues in order to enhance their oral health. To do this, we must raise awareness of oral diseases and teach workers about them.

Study Area

The study was conducted in the different Educational Institutions of Lucknow Uttar Pradesh. Lucknow is the capital city of Uttar Pradesh

The city is situated at an elevation of 123 meters (404 ft) above sea level. Lucknow district Covers an area of 2,528 square kilometres (976 sqm)

It is surrounded on Eastern side by district Barabanki, on the western side by district Unnao, on southern side by Raebarelli and on the northern side by Sitapur and Hardoi

According to provisional Year report of India, Lucknow city had a population of 2,815601, of which 1,470,133 were men and 1,345,468 women. This was an increase of 25.36% compared to the 2001 census report of India

The city has a total literacy level in 2011-2022 of 82. 50% compared to 69.7% for Uttar Pradesh as a whole

Study Design

A Cross-Sectional survey was conducted to assess Knowledge, Attutude & Practice of oral hygiene of sanitary of sanitary workers working in Educational Institutions in Lucknow city

Study Population

The study population was consisted of 500 Sanitary Workers Working In Educational Institutions in Lucknow City. Simple random sampling method was used for sample selection. Out of total sample collected 299 were males and 201 were females

Sampling Technique

Sample selection for the present study was done by simple random sampling from all the Sanitary workers working in Educational Institutions in Lucknow City.

Lucknow city was divided into 5 zones : East, West, North, South And Central.

From each zone 100 sanitary workers was selected randomly.

Pilot Study

A pilot study was conducted in Babu Banarsi Das College of Dental Sciences, BBDU, Lucknow in the month of April 21. A total of 50 participants were recruited for the pilot study to check the feasibility of the study and the subjects who were included in the pilot study were excluded from the final result of the study.

All the participants were given a questionnaire. The questionnaire consist of 20 variable, closed ended, self administered questionnaire which was translated into local language (Hindi) and then translated back to English for checking linguistic validity. Training of the investigator was done for conducting the pilot study.

This was done to determine the feasibility of the study, the applicability and accuracy of the questionnaire, and to determine the amount of time required for study.

The questionnaire was pretested on the target population to check for reliability and modifications were done. Cronbach's Alpha will be used to determine reliability.

Sample Size Estimation

The sample size determination was carried out using the previous literature. The data required for determining the sample size was obtained from a previous literature,[1] keeping confidence interval at 95%, margin of error of 5% and proportion to 52.8% with power of the study at 80%, the total sample size came to 383.

- $n= z^2p*q/d^2$
- $=(1.96)^2*52.8*47.2/(0.05)^2=383$
- Where
- z=level of confidence at 95% confidence interval
- P=estimated proportion for infinite population
- d= margin of error
- q=1-p
- The sample size will be increased to 500 for generalizability.
- On the basis of the pilot survey, the sample size was fixed at 500.

Ethical Consideration

The ethical clearance was obtained from the Institutional Ethical committee (IEC) of Babu Banarsi Das College Of Dental Sciences, Lucknow. List of Educational Institutions will be obtained from the Education Department of Lucknow city.

The required official permission to select and collect the relevant data from selected subjects was solicited and obtained from the Principal of the respective Institutions.

Consent

Informed consent was obtained from the study participants after explaining the nature of the study Consent form was presented both in English and Hindi languages for easy understanding and acceptance of the study participants. Workers who were unable to read consent form were explained thoroughly by the examiner and the consent was obtained. All the data collected were recorded in a proforma.

Inclusion Criteria

- Both genders.
- Participants who agreed to take part in the study
- Participants present on the day when the study will be conducted.

Exclusion Criteria

- Participants who declined to take part in the study.
- Participants included in the pilot study.

Questionnaire

- A structured, pre-tested questionnaire was given to the sanitary workers to know the oral hygiene practices. All the questions were explained

individually in their local language (hindi), and the answers were recorded by the examiner himself

- The questionnaire consisted of 20 variable, closed ended, self administered questionnaire.
- The questionnaire consisted of 3 parts
- The first part consisted of Knowledge related to oral hygiene of Sanitary Workers Working in Educational Institutions In Lucknow City.
- The second part consisted of Attitude related to oral hygiene of Sanitary Workers Working In Educational Institutions In Lucknow City .
- The third part consisted of practices of oral hygiene of Sanitary Workers Working in Educational Institutions In Lucknow City.
- The entire questionnaire was explained to the Sanitary Workers and total confidentiality was assured. Participants in the study were told to select just one response for each question.

Schedule of the Survey

- The collection of data was carried for 3 months between September – November 2022
- As a guideline a questionnaire recording of sanitary workers usually takes 10 minutes.
- The questionnaire was given to the sanitary workers working in Educational Institutions in Lucknow City & were instructed to choose only a single answer to each question.
- They were asked to fill the questionnaire and data was collected. Qualitative data were analysed using frequency and percentage. Chi square test was used on qualitative data. T test was applied after converting qualitative data to quantitative data

Statistical Analysis

- The data were collected in IBM SPSS statistics version 22.0.
- Using the statistical programme SPSS version 13, the data were Entered into the computer and subjected to statistical analysis.
- The distribution of responses for each research variable was evaluated using a preliminary descriptive analysis, and the connection between the dependent and explanatory factors was evaluated using a Chi square test.
- Statistical significance for study was set at $P < 0.05$.

Result

Data were analysed on SPSS 22.0

Qualitative data were analysed using frequency and percentage. Chi square test was used on qualitative data. T test was applied after converting qualitative data to quantitative data.

The table shows gender-wisewise distribution of the participants. 64.2% were male whereas 35.8% were female.

Table 1 DEMOGRAPHIC DISTRIBUTION OF PARTICIPANTS

	Frequency	Percentage(%)
Male	201	40.2%
Female	299	59.8%
Total	500	100.0%

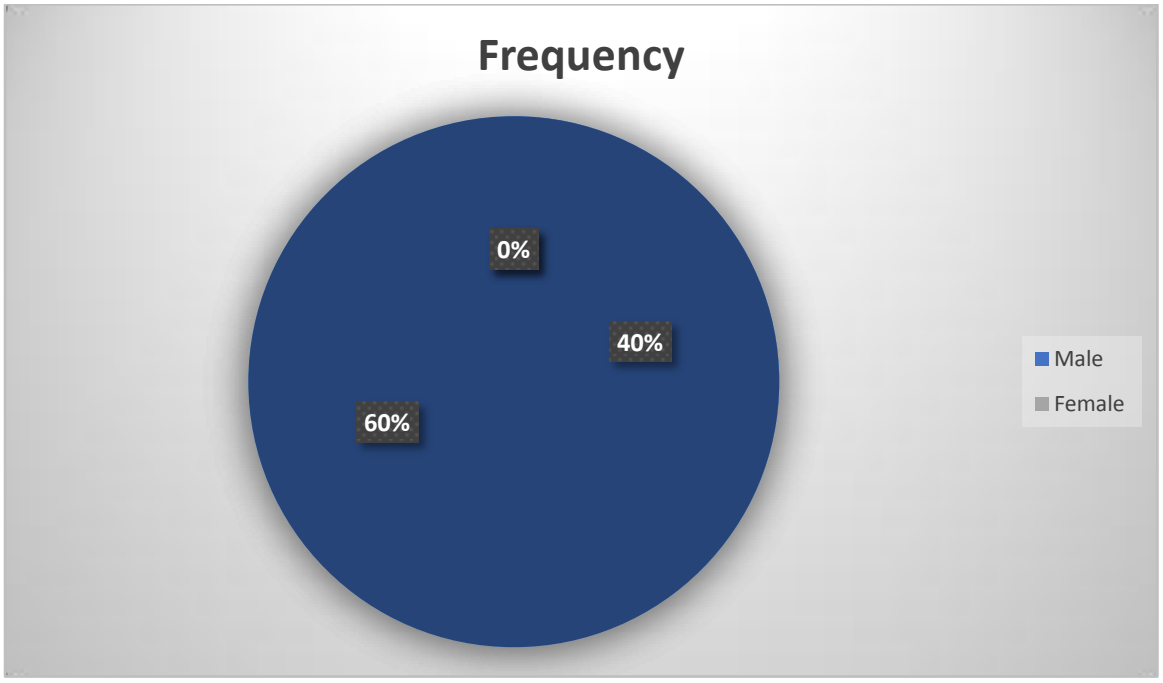
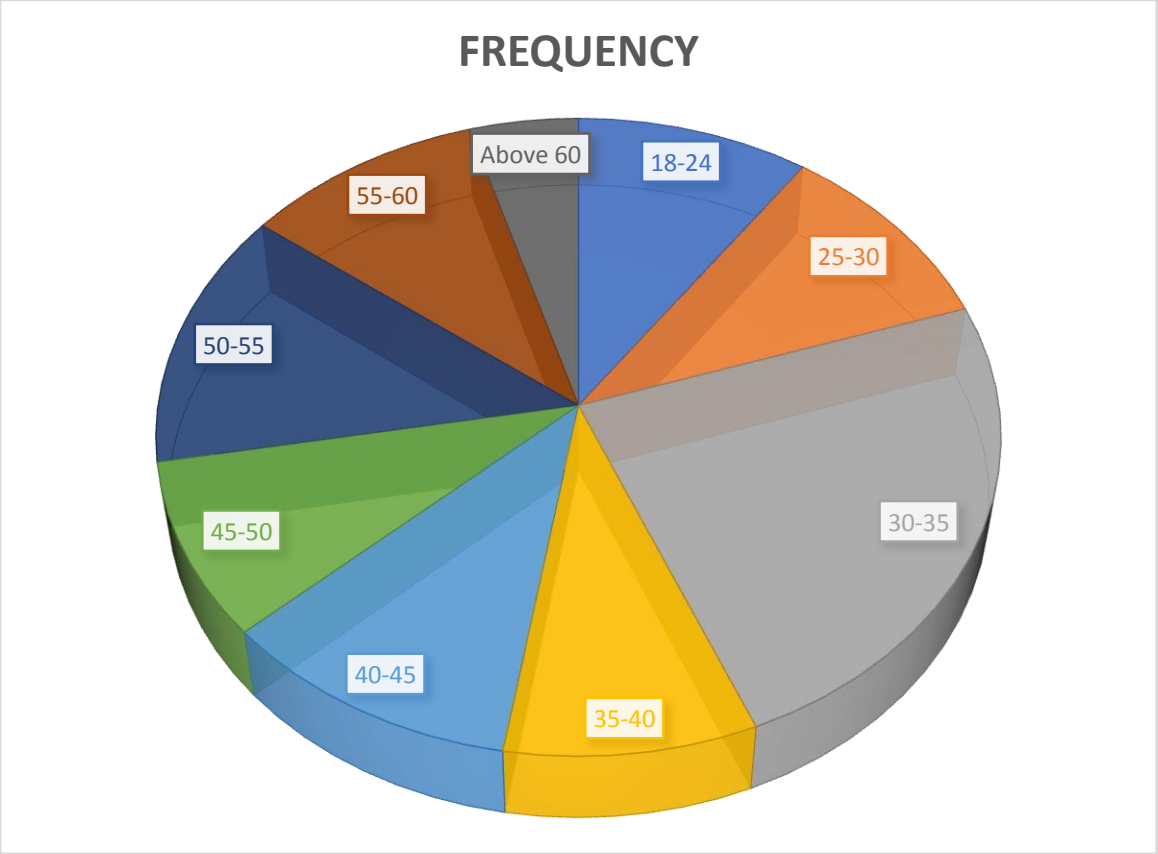


Table shows age distribution of the participants. Maximum population consisted of 30-35 years while the least was above 60 years.

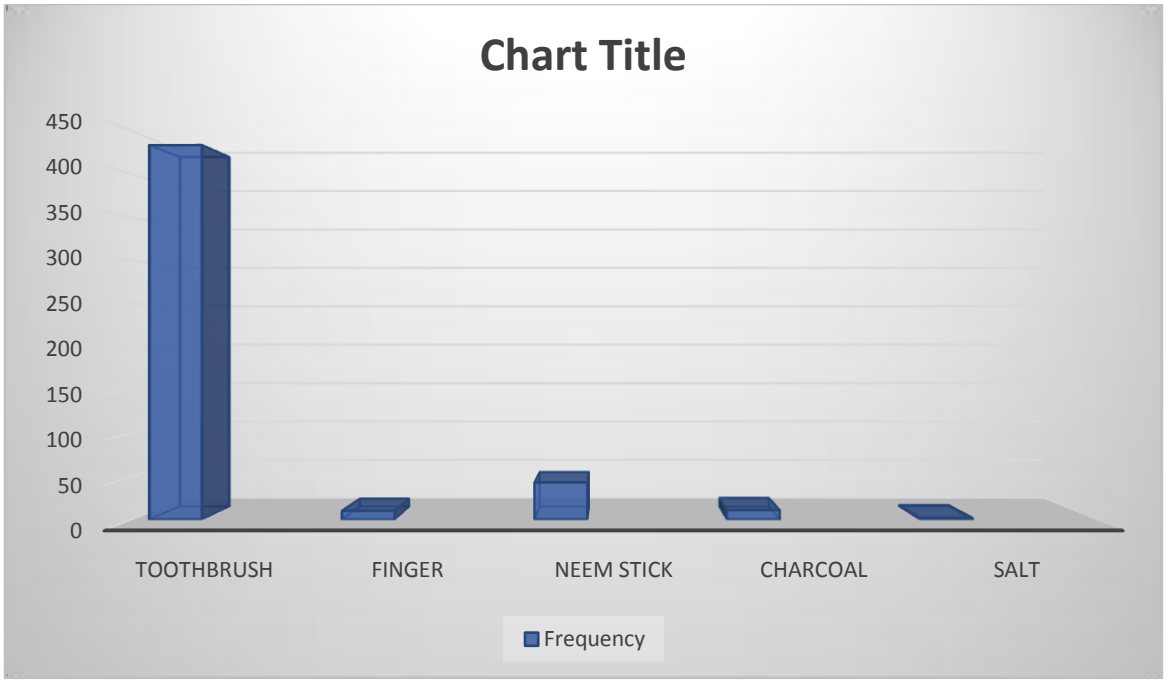
Age	Frequency	Percentage %
18-24	32	6.4
25-30	33	6.6
30-35	78	15.6
35-40	29	5.8
40-45	35	7
45-50	29	5.8
50-55	43	8.6
55-60	33	6.6
Above 60	15	3



When asked What should be ideally used for cleaning teeth, 86.5% said they used a tooth brush for cleaning

What should be ideally used for cleaning teeth?

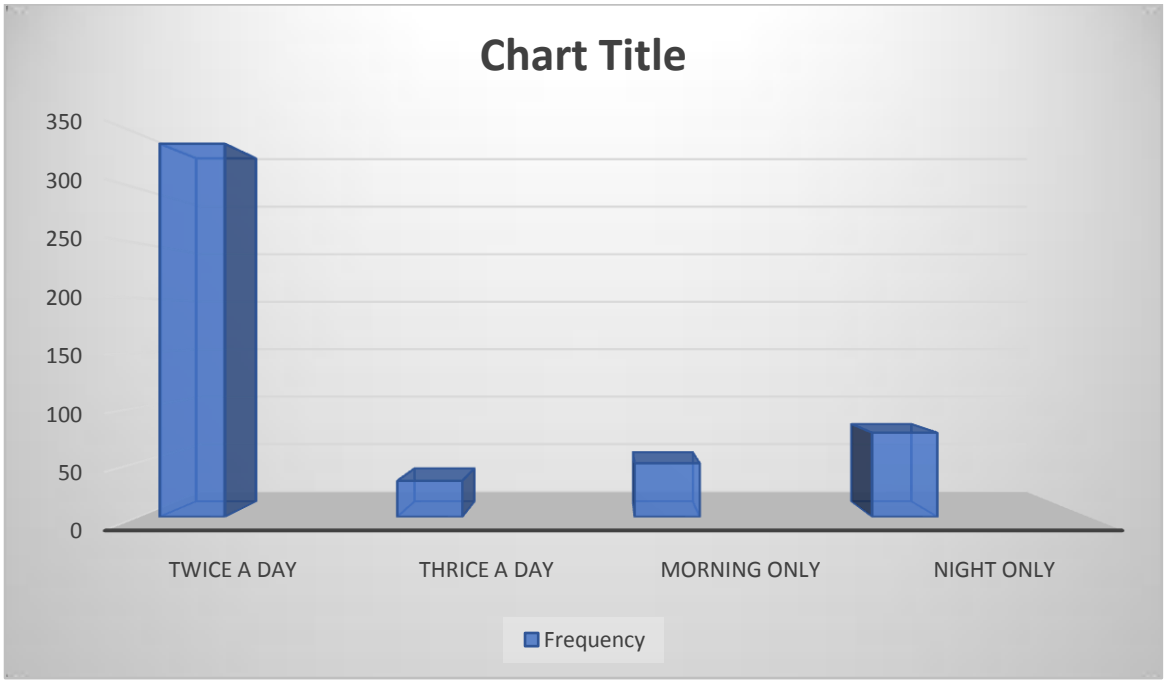
	Frequency	Percentage %
Toothbrush	434	86.5
Finger	10	2
Neem stick	43	8.6
Charcoal	11	2.2
Salt	2	0.004



68.2% said they should brush twice a teeth, 15.4% said at night.

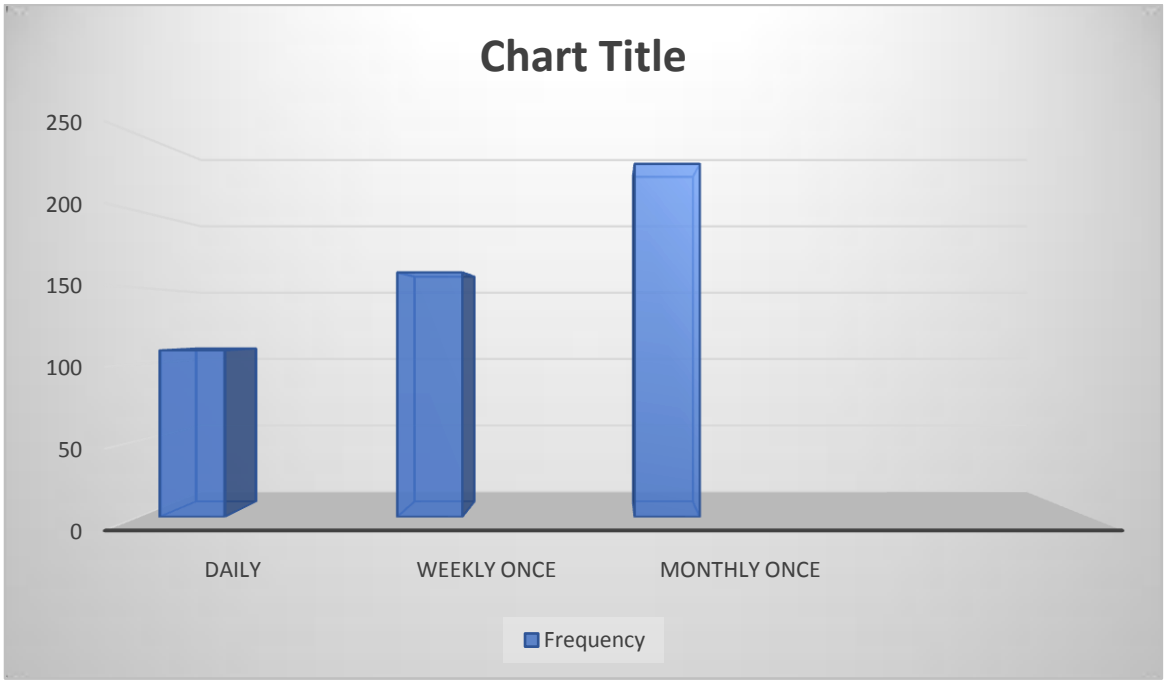
How many times in a day you should brush your teeth?

	Frequency	Percentage
Two times a day	340	68.2
Morning only	49	9.8
Night only	77	15.4
Three times a day		



46.2% said to floss/rinse monthly whereas 1.8% said daily.

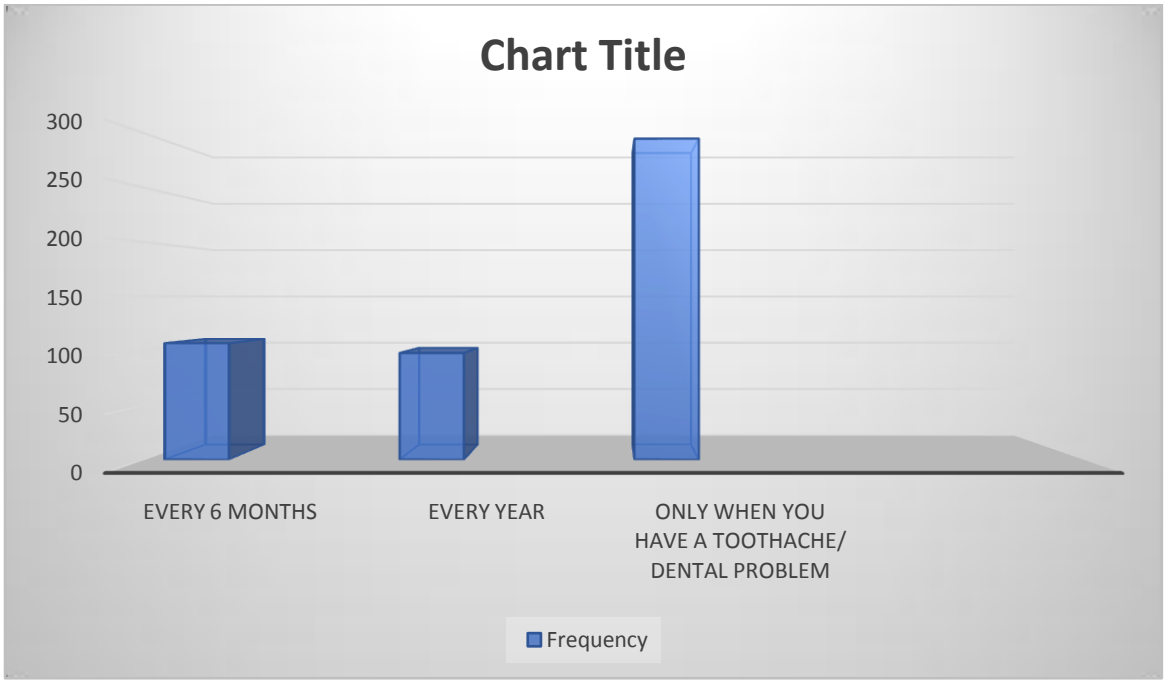
	Frequency	Percentage %
Daily	109	1.8
Weekly once	160	32
Monthly Once	231	46.2



59% said they visit dentist only in case of pain or dental problem.

How often should one go for dental checkup?

	Frequency	Percentage %
Every 6 months	107	21.4
Every year	98	19.6
Only when you have a toothache/ dental problem	295	59



64.2% said dental health can aggravate systemic disease, while 20 % said it doesn't.

How much do you think dental disease can affect your general health?

	Frequency	Percentage%
Can aggravate systemic diseases	321	64.2
Doesn't affect	100	20
Affects mildly	79	15.8

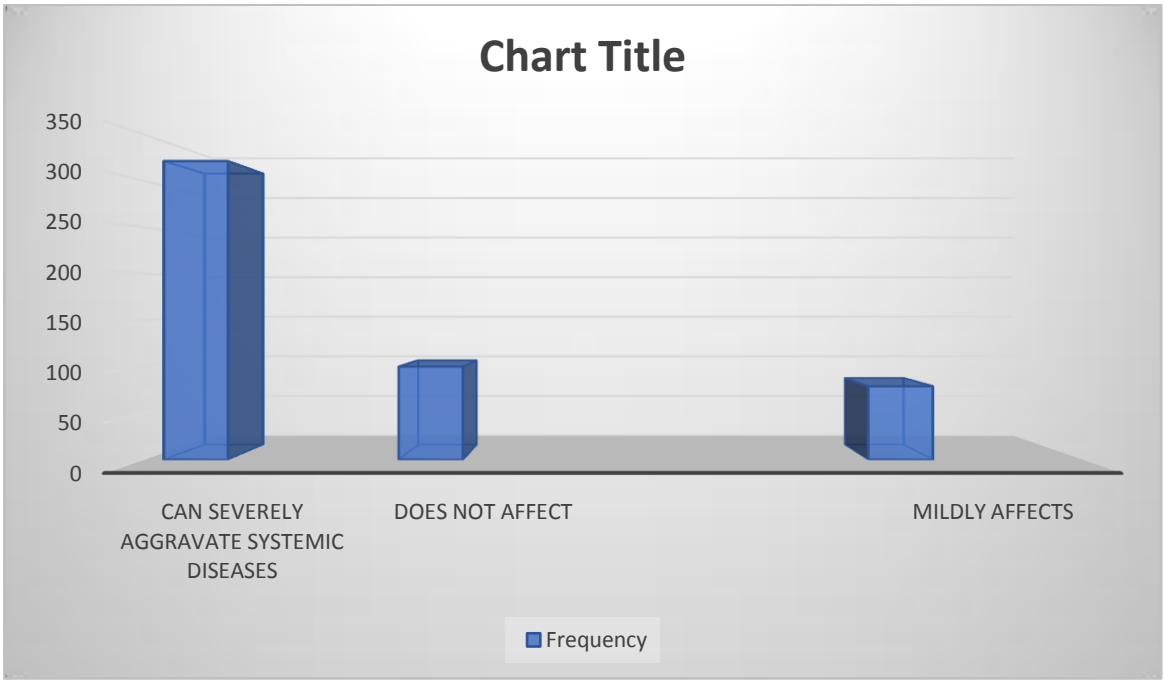
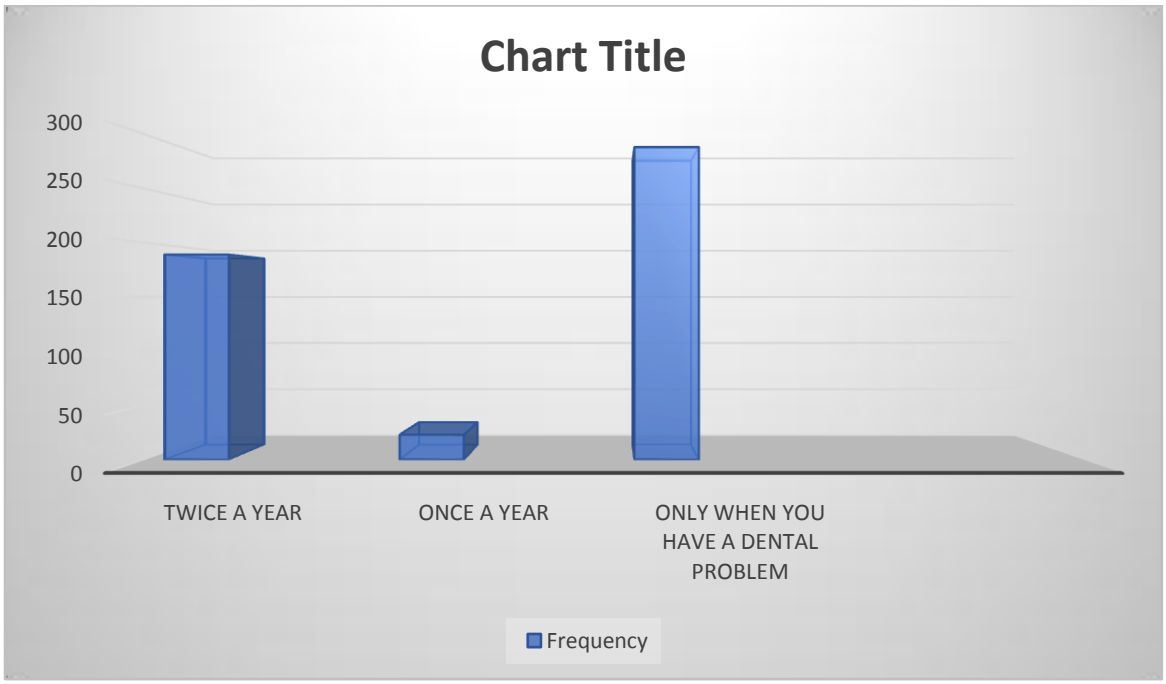


Table shows 57.6% visit dentist only when they have problem

How often should one visit a dentist?

	Frequency	Percentage %
Two times in a year	189	37.8
Once time in a year	23	4.6
Only when you have a problem	288	57.6

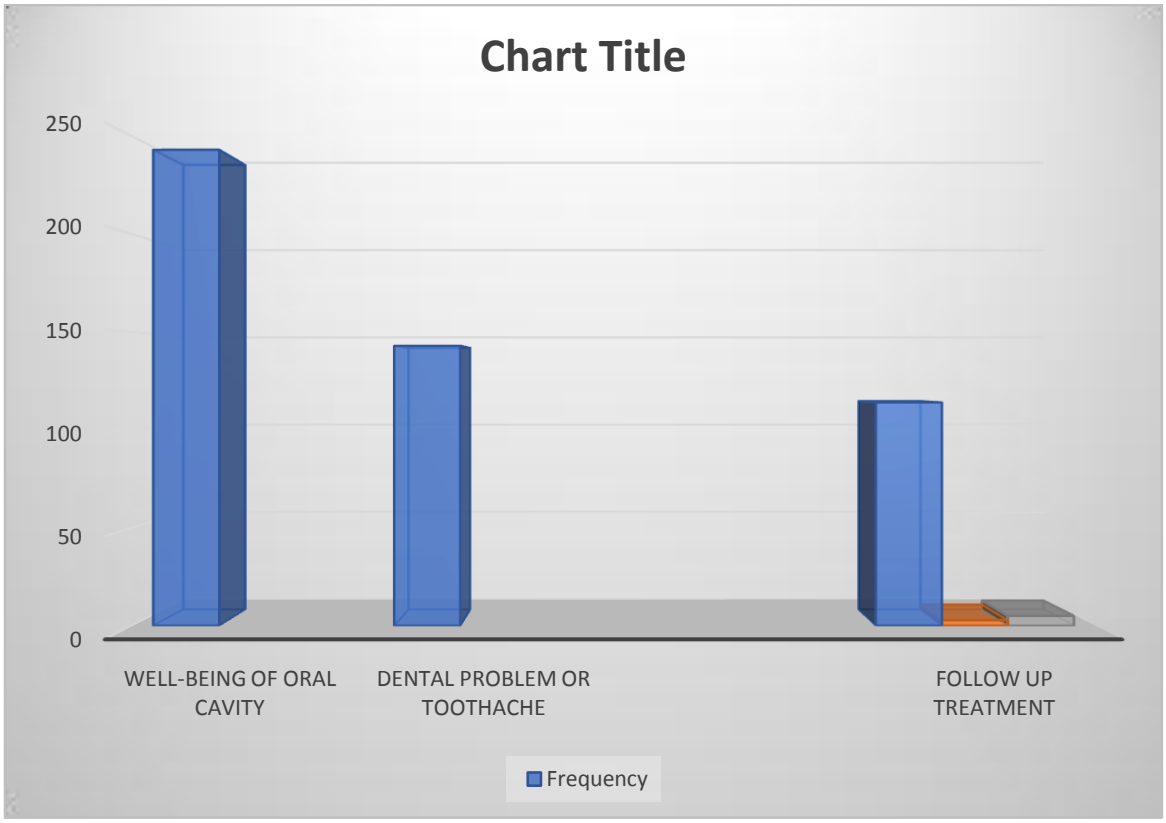


ATTITUDE

48.6% visited dentist for Well-being of oral cavity

Why did you last visit a dentist?

	Frequency	Percentage %
Health of the oral cavity	243	48.6
Dental problem	143	28.6
Follow up	114	22.8



60.2% couldn’t visit dentist because of busy schedule.

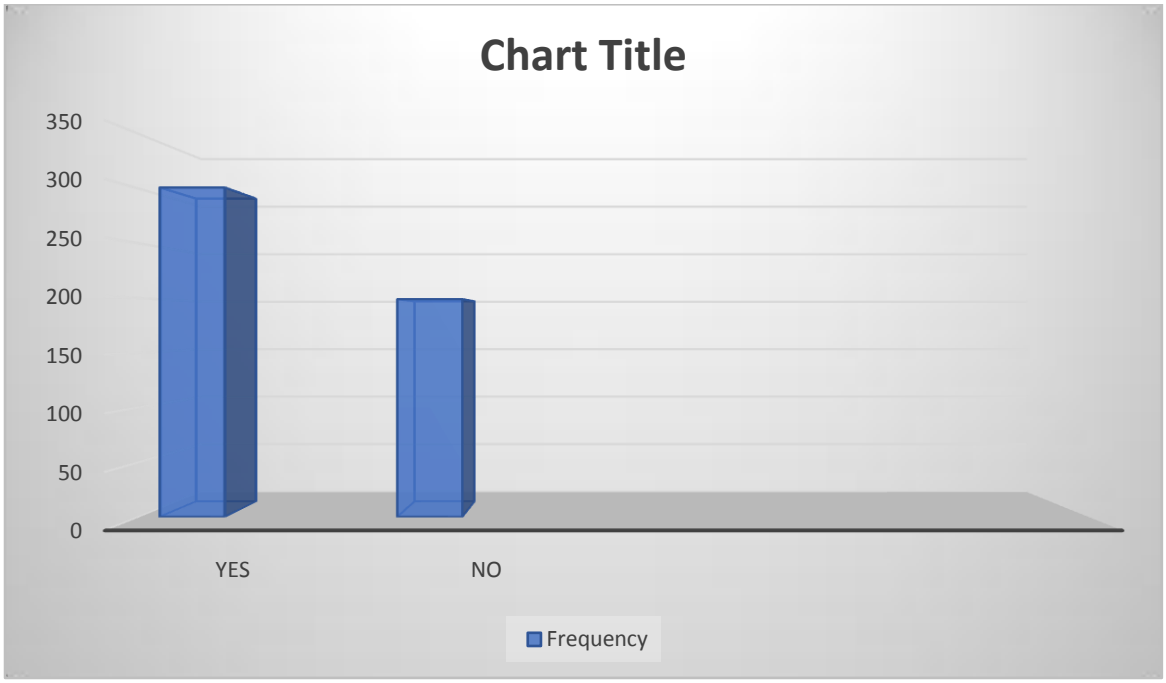
Why couldn't you get the necessary dental care, and what was the reason?

	Frequency	Percentage %
Was busy	301	60.2
Was too expensive	106	21.2
Pain was gone	93	18.6

60.2% thinks tobacco, betel nut chewing benefits your oral health

Do you believe that chewing betel nut or tobacco is good for your oral health?

	Frequency	Percentage %
Yes	301	60.2
No	199	39.8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350
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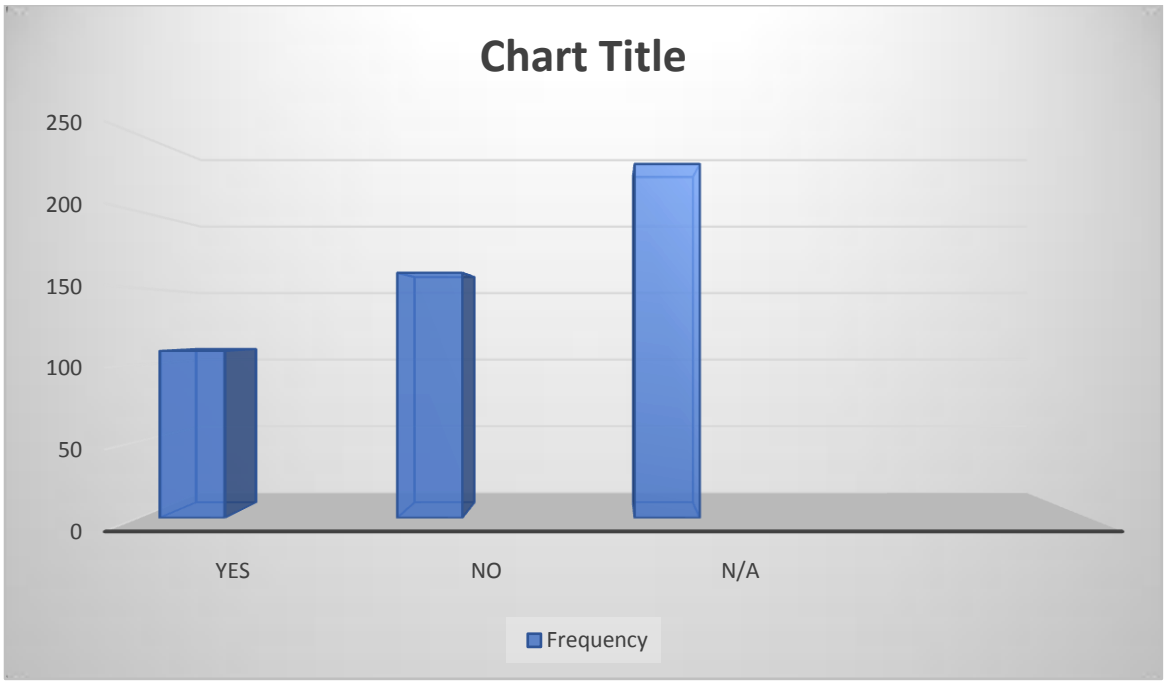
YES
NO
Frequency

32% did not give up any of your addictions

Have you ever given up any of your addictions?

	Frequency	Percentage
Yes	109	21.8
No	160	32
N/A	231	46.2

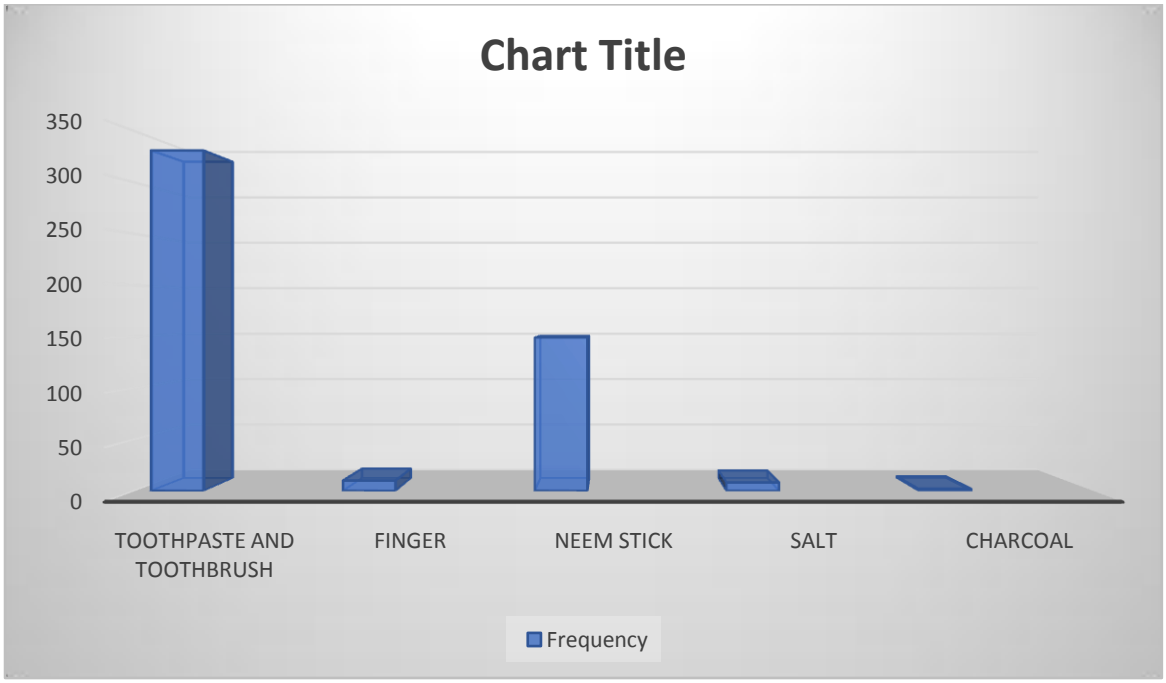


Practice

66.2% brushed twice a day.

How do you brush your teeth?

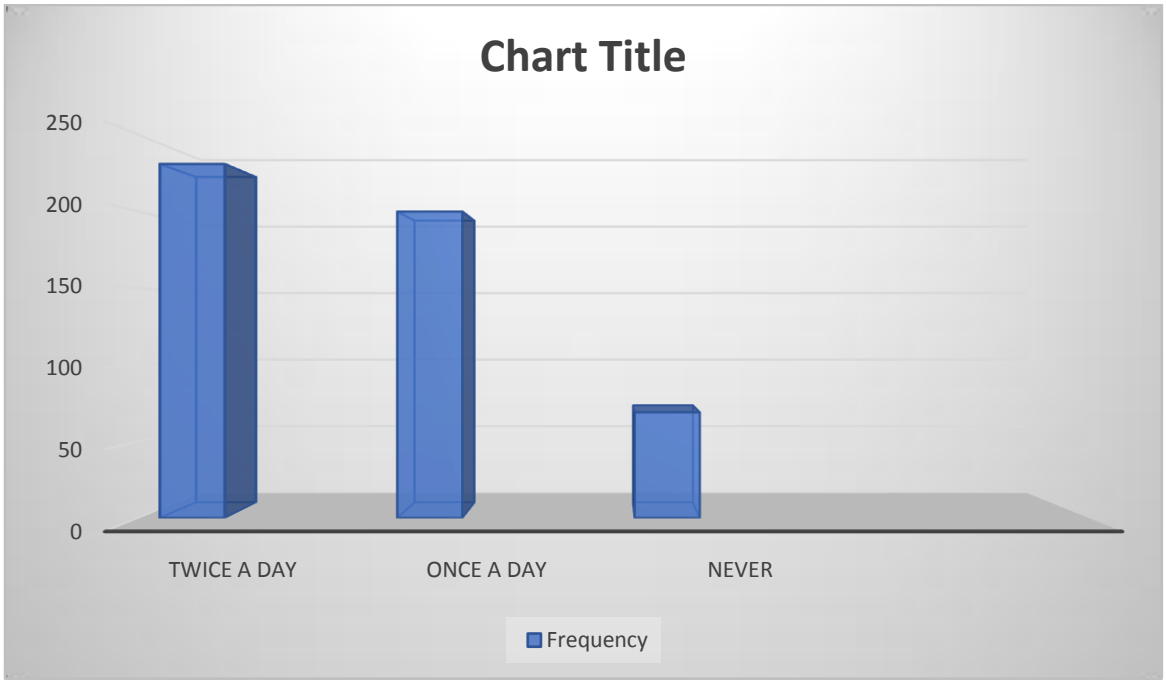
	Frequency	Percentage %
Toothpaste and oothbrush	331	66.2
Finger	10	2
Neem stick	149	29.8
Salt	8	1.6
Charcoal	2	0.4



46.2% brushed twice a day, 40 % were once a day

How often should you clean your teeth each day?

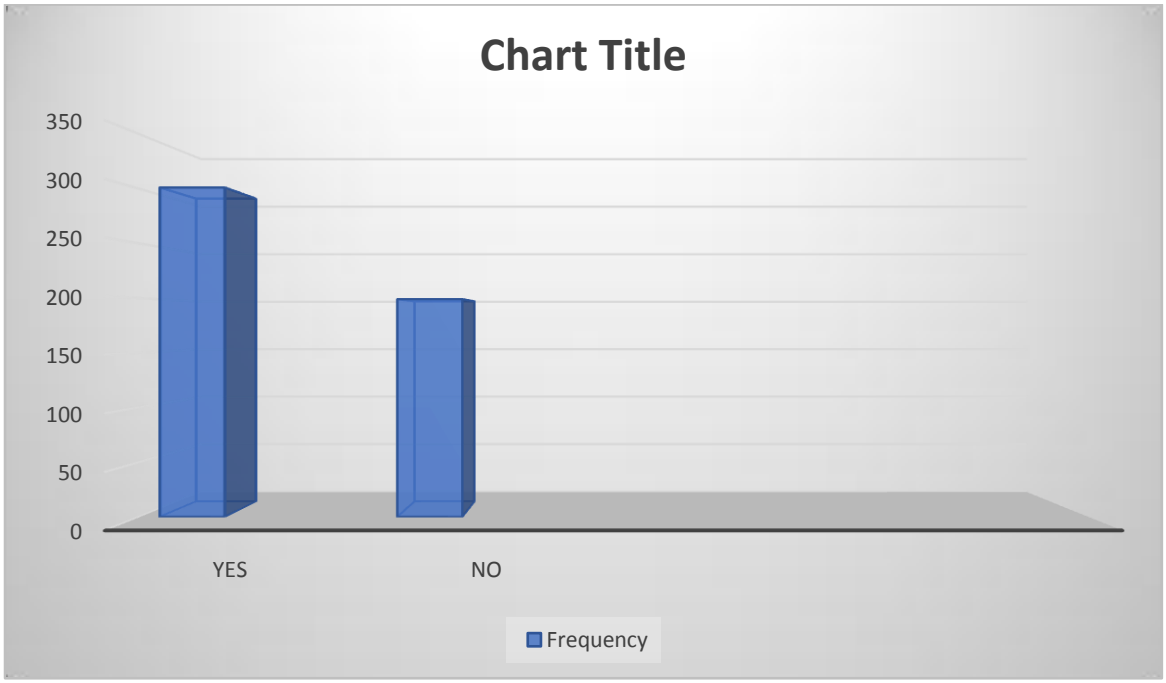
	Frequency	Percentage %
Two times a day	231	46.2
Once a day	200	40
Never	69	13.8



60.2% used fluoridated tooth brush.

Do you use fluoridated toothpaste?

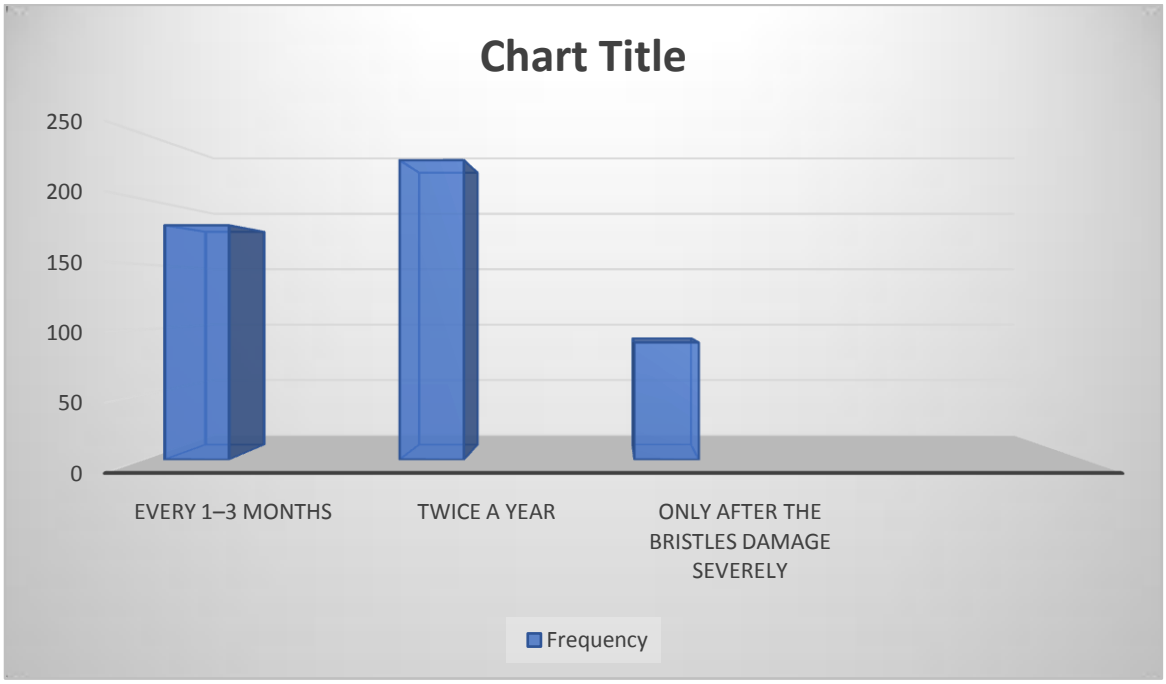
	Frequency	Percentage %
Yes	301	60.2
No	199	39.8



36 % changed brush every 1-3 month, 46% changed twice a year.

How frequently do you replace your brushes?

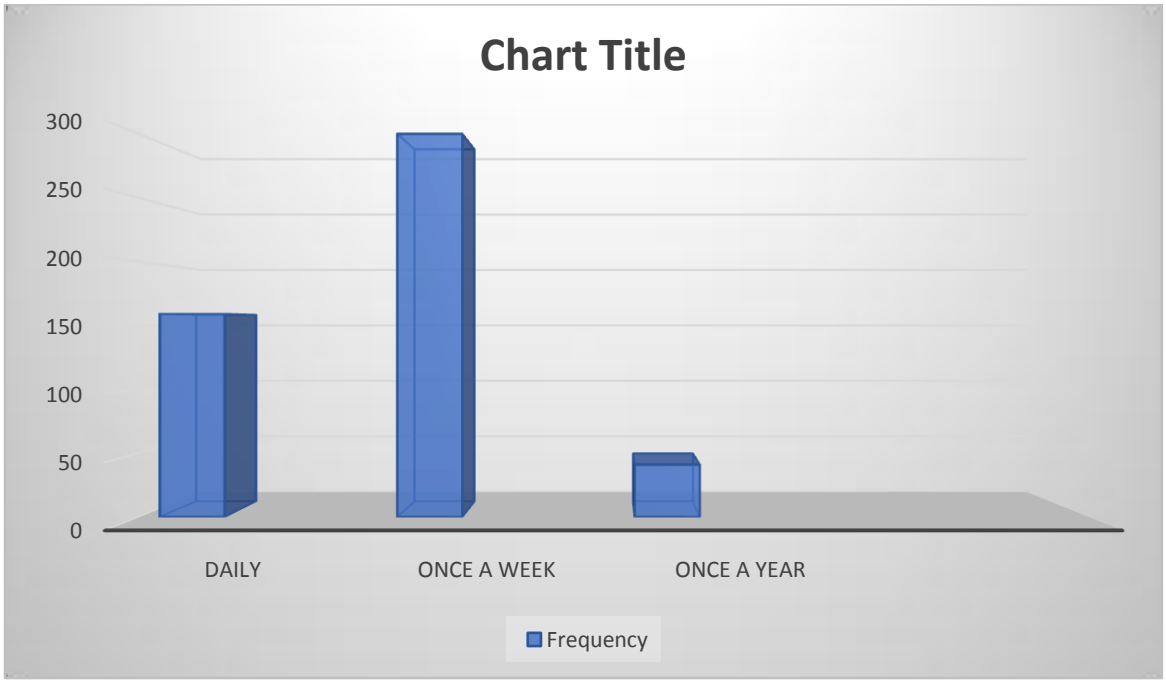
	Frequency	Percentage %
Every 3 months	180	36
Two times a year	230	46
when bristles are damaged severely	90	18



60% used beetle nuts once a week as shown in table and graph.

How frequently do you use addictive substances like tobacco and betel nuts?

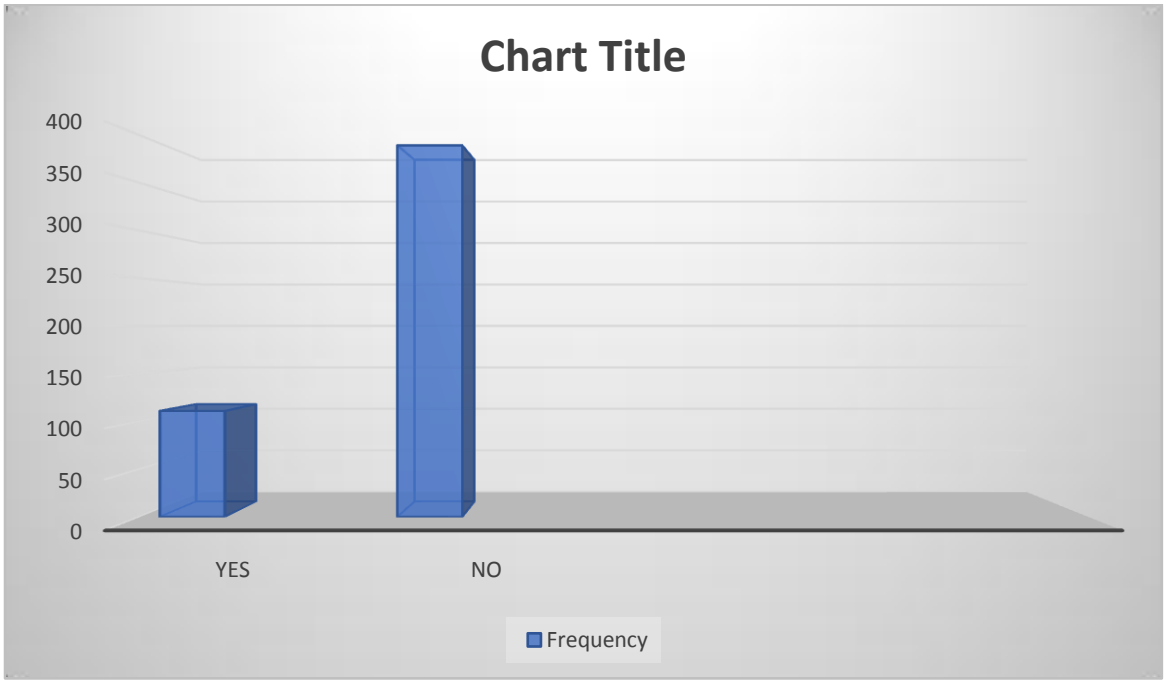
	Frequency	Percentage %
Daily	159	31.8
Once a week	300	60
Once a year	41	8.2



77.8% of the participants responded of not having cavities in teeth while 22.8% felt they had cavities.

Do you have cavities in your teeth?

	Frequency	Percentage %
Yes	111	22.2
No	389	77.8



75.4% of participants complained of having bad breath. As shown in table and graph

Do you have bleeding gums?

	Frequency	Percentage %
Yes	123	24.6
No	377	75.4

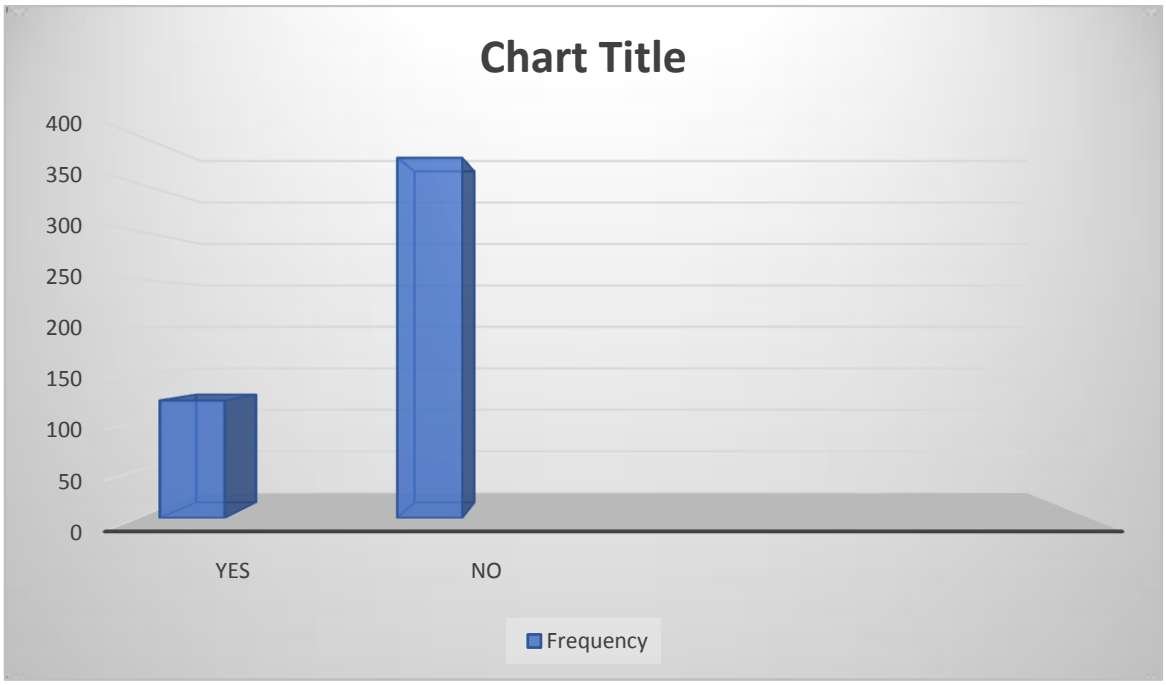
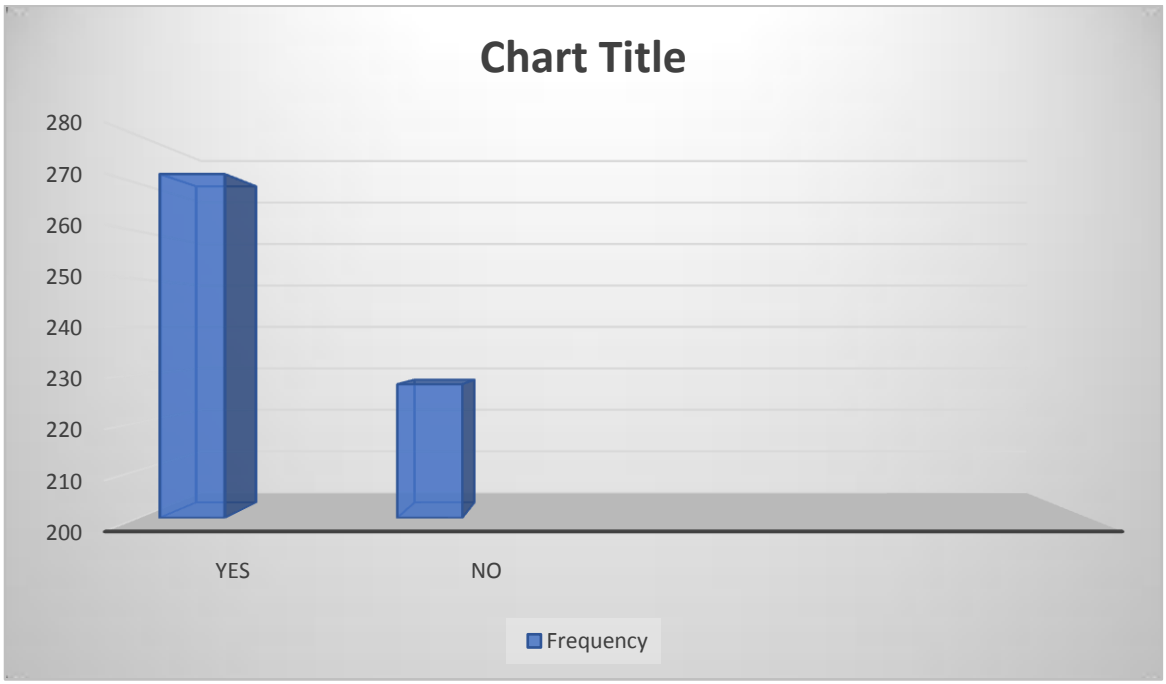


Table shows 54.4% of population having bad breath.

Do you have bad breath?

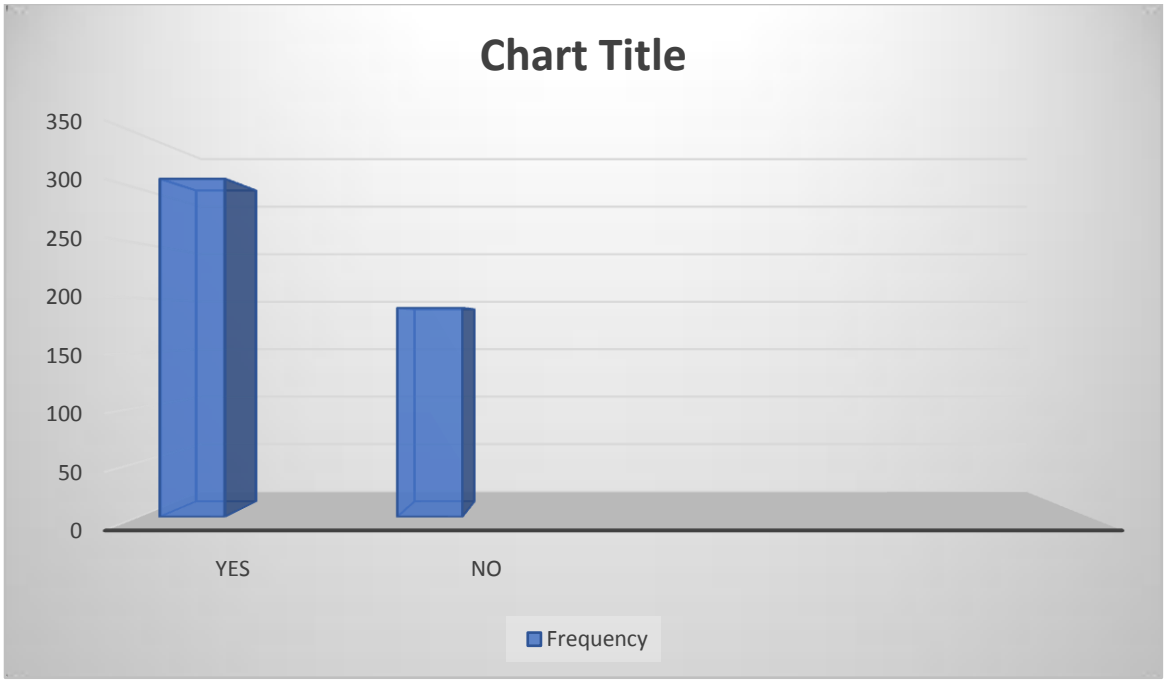
	Frequency	Percentage %
Yes	272	54.4
No	228	45.6



61.8% of participants complained of having tartar deposit as depicted in table and graph

Do you have tartar deposits in your teeth?

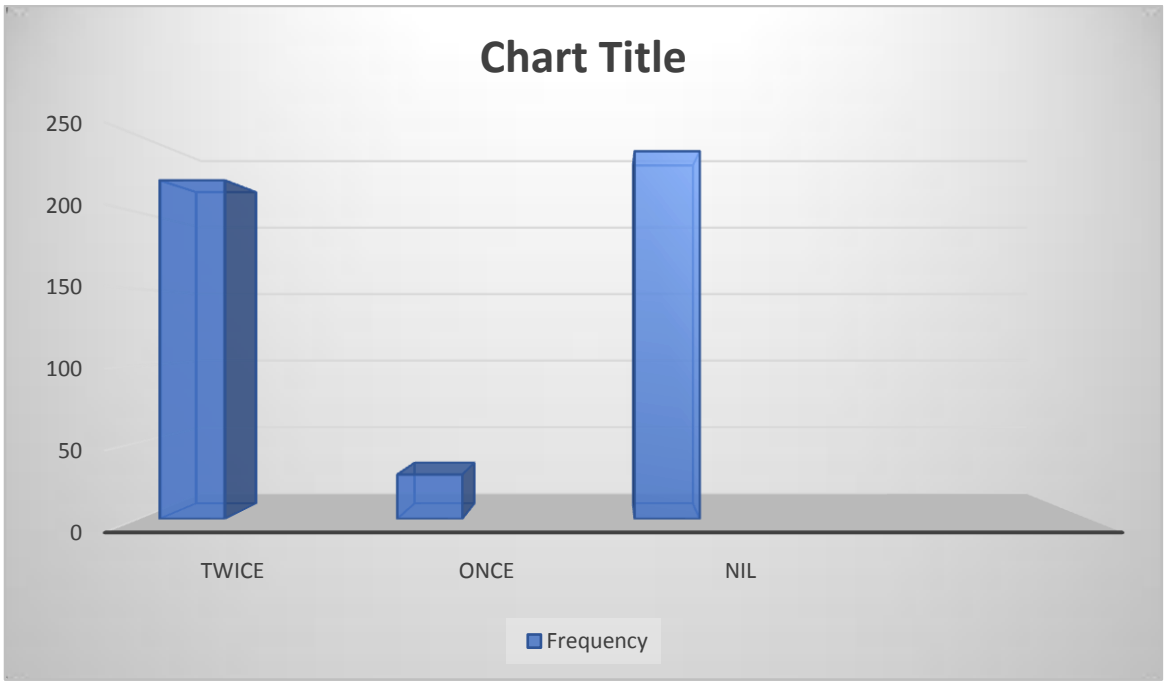
	Frequency	Percentage %
Yes	309	61.8
No	191	38.2



48.2% of respondents did not visit the dentist in past 1 year which was more when to people who visited once and twice.

How many times did you go to the dentist last year?

	Frequency	Percentage %
Two times	221	44.2
One time	29	5.8
Nil	240	48.2



32.2% used tooth brush to clean their where as 27.8% used tongue cleaner.

How you clean your tongue?

	Frequency	Percentage %
Tongue cleaner	139	27.8
Toothbrush	161	32.2
Finger	71	14.2
Do not clean tongue	129	25.8

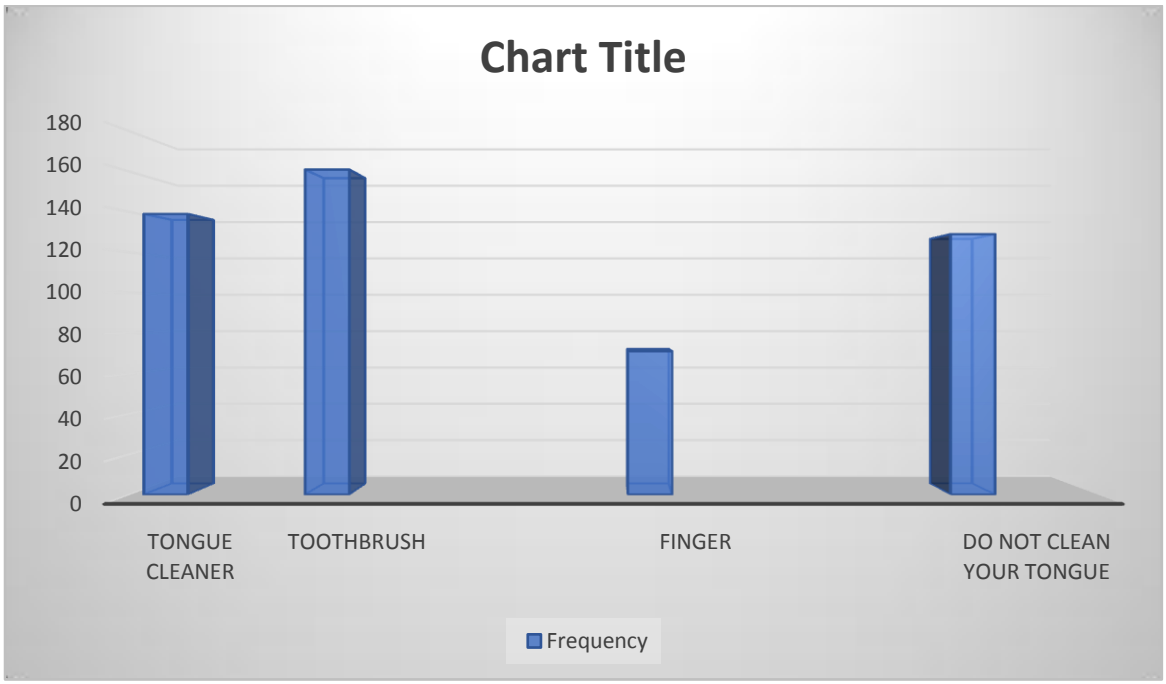


Table Chi square with respect to age, gender and qualification. The p value was kept at $p<0.05$

An association was seen with knowledge and age.

	Age	Gender	Qualification
Knowledge			
What is the optimal method for brushing teeth?	0.03	0.76	0.065
How often should you clean your teeth each day?	0.45	0.32	0.11
When one should you brush teeth?	0.04	0.06	0.001
How frequently one should floss and rinse?	0.56	0.78	0.43
How often should one go for dental checkup	0.65	0.31	0.56
how much do you believe dental issues may have on your overall health?	0.34	0.378	0.004
How frequently should one go to the dentist??	0.031	0.034	0.005

Association with age and qualification was seen with attitude using chi square test

	Age	Gender	Qualification
Attitude			
Why did you last visit a dentist?	0.045	0.34	0.21
What was the reason you could not go for the dental treatment that was needed?	0.031	0.09	0.04
How frequently do you use addictive substances like tobacco and betel nuts?	0.45	0.34	0.78
Have you ever given up any of your addictions?	0.45	0.21	0.67

Practice was associated with age and qualification on chi square test.

	Age	Gender	Qualification
Practice			
How do you brush your teeth?	0.045	0.32	0.56
How many times do you brush your teeth daily?	0.06	0.21	0.78
Do you use fluoridated toothpaste?	0.02	0.1	0.78
How often do you change your brush?	0.09	0.61	0.34
How often do you take substances such as betel nut and tobacco?	0.34	0.21	0.61
Do you have cavities in your teeth?	0.32	0.21	0.31
Do you have bleeding gums?	0.11	0.98	0.65
Do you have bad breath?	0.31	0.43	0.55
Do you have tartar deposits in your	0.33	0.91	

teeth?			
How you clean your tongue?	0.92	0.67	0.21

All correct answers were given a score of 1 while incorrect answers were given score of 0. An independent t test was applied on the same. A significant difference was noted between the response.

	Mean+/- Standard Deviation	Value
Knowledge	1.5+/-0.5	0.001
Attitude	1.3+0.7	0.001
Practice	1.6+/-0.3	0.001

Discussion

This study assessed the Practice, Attitude, and knowledge of sanitation workers working in educational institutions in Lucknow city about oral health. To measure the KAP of the sanitation workers, who typically come from lower socioeconomic society, a specific questionnaire was distributed. A KAP level that deviates from that of the general population is caused by this discrepancy as well as the nature of their line of work. 40.2% of the participants in this study were male & 59.8% were female sanitary workers.

The present study consisted mostly of 30-35 years. A highly significant result was observed in the knowledge score, attitude and practice.

In a 2008 study by Harikiran et al., it was discovered that 5.4% and 3.9% of children from lower socioeconomic strata routinely smoke cigarettes and chew tobacco, ranging from daily to once a week. 46.1% of the participants in the poll reported having a fear of discomfort when visiting the dentist, and 67.8% agreed that visiting the dentist regularly helps prevent dental problems. 9.4% of research participants reported being dissatisfied with the way their teeth looked, and 21.9% said they avoided smiling and laughing because of their teeth. [19]

In a 2016 study done by Kumaresan and Kumar on an urban population, 55.5% of participants used twice daily brushings, 66.5% changed their brushes once a month, and 25.5% used tongue cleaners. [20] However, the current study found 68.2 brush twice a day & tongue cleaners are used by 27.8% of sanitary workers. Certain social and cultural elements influence how people feel about oral health and using dental service. The most prevalent oral hygiene practices among the study done by (vakani F).[21] population were the use of chewsticks (43.1%) and the use of fingers with tooth paste/tooth powder (29.6%). There as in another study by Sakthi et al[22] at Chennai, India, 76.9% of the building construction workers used toothbrushes and tooth paste for cleaning their teeth.

The response in the brushing frequency showed an association with age where as the use of products was non-significant to gender, age and qualification.

Poor attitude to dental service exploitation can be an impact of poor availability, poor accessibility, or prevalence of fear of the dental service, as people of low socioeconomic group are more likely to visit dentist for episodic or emergency dental care.[22] Due to low pay and lengthy hours, the sanitary workers in this study only went to the dentist in an emergency.

Results from the study by Smyth et al., 2007.[23] Support the "critical approach" to health education and show that socioeconomic factors (particularly family educational level and urban or rural environment) need to be considered in public education programmes aiming at improving oral health habits (Tewari A).[24]

Because the workers live in an urban environment, the KAP level in this study was discovered to be higher than 50%. Tewari et al., 1991[25] shown that a community oral hygiene programme increased the frequency of brushing teeth. In this study, sanitation employees from private medical facilities were chosen at random from those who may have been exposed to dental camps and guidance from dentists and dental students. This may be the cause of their oral hygiene practise level, which was 68.05%, which was higher than expected for sanitary employees with their socioeconomic status and degree of Education.

In other studies based on the KAP model as applied in health education, the educational interference suggestively enhanced oral health practice.[26] Only 64.2% of the sanitary workers in this study were aware that Dento-facial problems can severely aggravate systemic diseases. In a study done by Humagain et al. 2011 [27] the participants displayed positive attitude towards dentists (37.8%) and high awareness of the association between oral health and systemic well-being (64.2%) which was found to be similar to other studies done by Al Omiri et al., [28] Farsi et al., [29] and El-Qaderi and Taani. [30]

A majority of the study subjects of the present study was using tobacco and related products, which was contrary to the findings of some other study which was conducted elsewhere in India [31]. According to reports of another studies which had been conducted on health care employees, more number of subjects used to smoke tobacco as compared to that seen in the present study [32,33]

Almost all the subjects in the present study brushed their teeth at least once in a day, which was similar to the results of a study which was conducted in Libyia (Eldarrat A)[34.]

But in the present study, a higher number of smokers used to brush their teeth. Reports of another study conducted on university employees revealed that 75% of the subjects used to brush their teeth more than once daily, which was much higher than that seen in the present study [35].

This study revealed that more than 86.5% of the study subjects used toothbrushes to brush their teeth; this is in agreement with findings of a study which was conducted by Patil et al. [36]

This could be attributed to the superior plaque control of toothbrushes, as the bristles of the toothbrushes could reach inter proximal areas as well as pits and fissures of teeth. A statistically significant difference was found with respect to the no. of missing teeth, which was caused by caries, between those who brushed once and those who brushed twice daily, in the present study. This was contrary to findings of Patil et al.[36]

Another study found that 29% of operational engineers used to smoke cigarettes, which is less than that which was seen in the present study. [37] Also, a much lower DMFT was found among the municipal employees of Mysore city as compared to those seen in participants of the present study. [38]

According to another study which was conducted in Malaysia, a higher prevalence of dental caries and a higher mean DMFT were recorded among the

subjects.[39] 22.2% of subjects who had at least one decayed surface in the present study, was almost similar to that seen in some other study which was conducted in southern Illinois.[40]

The frequency of decayed teeth and average DMFT in the study population were very less as compared to the findings seen among some mill workers. [41] Mean number of teeth which were missing due to caries was higher in the present study, as compared to that seen in another study which was conducted on government employees. [42]

The mean number of teeth which were lost per worker showed a significant increasing trend with age, which was similar to findings of other studies. [36, 43,44] Gordon et al. [45] reported in his study that oral surgical needs increased with age and that the older group required more treatment than the younger age-group, which were in agreement with the findings of this study also.

Occupation has a relationship on health and well-being and there are diverse aspects on the effect of occupation on health.[46] Also studies have provided its positive impact towards oral health i.e. dental caries and its association with occupation. [46]

Occupation can affect health through direct impacts, such as physical job conditions, psychosocial job characteristics and stress, and social support. Occupation may also affect health through indirect mechanisms via income, health insurance, prestige, and authority that are related to occupation. Occupational factors like workplace environment, rules and regulations affecting health habits and influence of co-workers might also have significant impact on general as well as oral health. [47]

This is important to mention that emphasis on the link between oral health and well-being of the rest of the body might help promote oral health care and oral self-care practice among sanitary workers. Hence, there is an urgency for comprehensive educational programs to improve the oral health practice,

knowledge, Attitudes and practice of sanitary workers working in educational institutions in Lucknow city.

The current findings of this study indicate the link between the oral hygiene status of sanitary workers and their educational qualification and inability to afford dental consultations due to their highly demanding job scenarios. Oral health education should be offered with the aim of increasing public knowledge of the risk factors for dental diseases.

Limitations

The study has certain limitation as it is a cross sectional study it only tells about the existing association and knowledge score but fails to tell about the cause for the existence of the same.

Social desirability bias and response bias can occur among the participants which is a common limitation of the study design.

Conclusion

Based on the result of this study, it can be concluded that Sanitation worker's oral health, educational background, and difficulty to pay for dental appointments because of their extremely stressful work environments. To raise public awareness of the risk factors for dental diseases, oral health education should be made available.

However, their impact will be minimal if they do not directly affect attitudes and take into account factors related to the environment, education, social status, and economic situation of the targeted population. The oral hygiene of sanitary workers can therefore be greatly improved through free dental camps centred on these principles and the distribution of oral hygiene products

Reducing gaps in oral health between various socioeconomic groups in developing countries has been one of the key goals for oral health. Although they are aware of their lack of knowledge in the technical and scientific aspects of health care, people from low socioeconomic statuses and those who live below the poverty line (BPL) still want real control over things like priority, care delivery, and possibly even personnel selection.

Planning any dental awareness programme or campaign should prioritise people with higher prevalences of dental issues and unmet treatment needs. It is effective to combine local, national, and worldwide activities to advance oral tradition in these areas. Given that the campaign's cost is typically the primary consideration and limiting element when a campaign is being designed, the participation of numerous stakeholders in cost sharing would be useful.

The incidence of caries was higher among employees who brushed their teeth less frequently, maintained poor oral hygiene, and drank beer and chewed on pans. Compared to high and middle class groups, those in low socioeconomic groups experienced much more dental problems. Workers on the production line and in administration had similar levels of caries experience.

Pregnant migrant workers had worse oral health habits and more dental caries and periodontal disease than pregnant native women. They also had less access to dental clinics and services. Their dental health during pregnancy and after could be significantly improved by thorough oral health screening and treatment during antenatal visits, as well as proper, systematic health education.

One of the contributing causes for the poor oral health status observed among factory workers is a lack of awareness of the significance of oral health and carelessness in its maintenance. Low socioeconomic class individuals are aware of their lack of knowledge in the technical and scientific facets of healthcare, but they seek true control over issues pertaining to priorities, care delivery, and potentially even personnel selection.

To promote the general health and development of such a population and to have a healthy, productive labour force for the development of any nation, professional research and development must be ongoing. Making primary oral health services like dental screening and oral health education mandatory will help to avoid the manufacturing workers' healthcare needs from building up over time.

Dental professionals have a responsibility to help non-teaching staff members in both the practical and theoretical aspects of their work so that they can do their jobs more effectively. The impact of this programme can then be determined by additional research.

In the study population, a complete oral health promotion programme that addresses the need for raising awareness of initiatives relating to maintaining oral hygiene in particular would be extremely desirable. The clinical care of periodontal disease and community-based primary prevention programmes should both include smoking cessation counselling.

By offering employed group benefits for dental care to this working population, the financial obstacles to using dental care services can be reduced.

It is necessary to establish evidence-based methodologies that can evaluate occupational health hazards, create interventions to enhance the quality of protective equipment, and also allow health professionals to offer their employees with information that is of the highest calibre.

Recommendation

Similar studies should be conducted on sanitary workers to assess the knowledge scores of the population. Oral hygiene education should be provided to them. Special Oral Health programs to be conducted based on the need, schedule and economic status of the population. Similar studies with clinical examination should be conducted which will help in reducing social desirability and response bias.

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