



## Awareness about Dental Hygiene Practices and Oral Health Among Salt Pan Workers in Tuticorin - A Survey

Shunmugam Kumar Mangal C<sup>1</sup>, Abilasha R<sup>\*1</sup>, Vignesh Ravindran<sup>2</sup>

<sup>1</sup>Department of Oral Pathology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, Tamil Nadu, India

<sup>2</sup>Department of Pedodontics, Saveetha Dental College & Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai, Tamil Nadu, India

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### ABSTRACT

Oral health & general health go hand in hand as one influences the other. The oral cavity can be called as the gateway to the body as it serves as an entry point to all forms of infection. To attain good oral health, one needs to have knowledge of dietary habits and oral hygiene practices. The extreme weather and hard labour conditions in the salt pans cause a lot of morbidities among the salt workers. These morbidities are aggravated if the salt workers do not protect themselves with personal protective measures. From the study, we can infer that the understanding of the mindset of daily wage workers can be key to providing them with dental treatment for their needs. The study aims to measure the knowledge and attitude about oral health maintenance and habits among salt pan workers in Tuticorin district. This survey was carried out among salt pan workers in Tuticorin, Tamil Nadu to assess their awareness about common dental health problems and data was collected using a pre-designed questionnaire and samples were assigned using convenience sampling methods. Data were collected after obtaining informed consent and steps were taken to ensure confidentiality at all stages. A maximum of 10 people was asked to visit the clinic to take the survey. It was conducted over a period of 10 days. Both male & female workers were involved in the study. The data was collected and tabulated in an excel sheet. Then the raw data was later transferred to SPSS Software. Salt pan workers generally have dental problems, dermatological problems and musculoskeletal problems as the most common morbidities among them. This study showed that more than 50% of the salt pan workers in Tuticorin have good awareness towards oral health.



### \*Corresponding Author

Name: Abilasha R  
Phone: +91 9600191071  
Email: [abilasha@saveetha.com](mailto:abilasha@saveetha.com)

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### INTRODUCTION

Health can be regarded as a basic human right (Park, 2017). Maintaining oral health plays an integral part to improve one's quality of life, as good oral hygiene influences the overall health of the body. This is due to the fact that the oral cavity serves as a gateway to the body (Preston, 2000). In general, people living in rural areas are more prone to dental problems than the urban population as they tend to have more awareness and visit the dentist more often (Hassinger *et al.*, 1993).

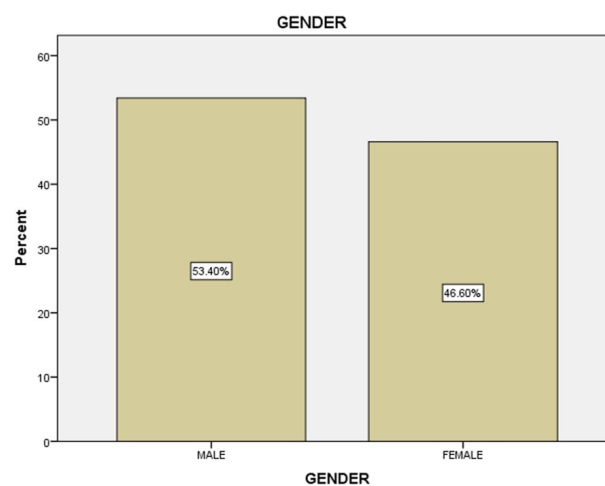
For several years the importance of oral health has been emphasised with the help of media, health campaigns, dental services to schools & general practitioners. Now various types of oral health maintenance methods & information on dental health have been given to the population in various forms using general awareness surveys. However, it will not be sufficient to change an individual's behaviour unless the importance to maintain oral health is practised continuously and consistently monitored. Occupational hazards are a part of several industries like chemical, salt, thermal etc. World Health Organization (WHO) estimates that occupational exposure to risk factors contributed to 2.1 per cent of all deaths and 2.7 per cent of the global burden of disease (WHO, 2009).

The salt industry in India is one of the oldest unorganized labour-intensive industries in the Indian economy. Salt pans are places where water from the ocean or saltwater lakes are directed and stored to produce salt for daily needs. Despite the fact that this industry is a major contributor to the country's economy, the workers involved in salt production continue to work in adverse conditions and live in poverty (Vasudevan, 2019). There are about 2 million salt pan workers in Tamilnadu alone, but they are an unorganised sector. The government tries to improve their lifestyle and teach them about the awareness of health and the various hazards they are prone to while working, like ophthalmic problems, dermatological conditions and various stress-related disorders, oral diseases like oral cancer (Shree et al., 2019), dental caries, gingival problems etc. They are also susceptible to various oral health concerns which they mostly don't pay visits to their dentists, thus leading to complications (Cherian et al., 2019). The salt pan workers mostly have a fixed mindset and are unaware of the importance of oral hygiene and health. Hence the present study was conducted to measure knowledge, attitude about oral hygiene maintenance and oral health practices of salt pan workers in Tuticorin.

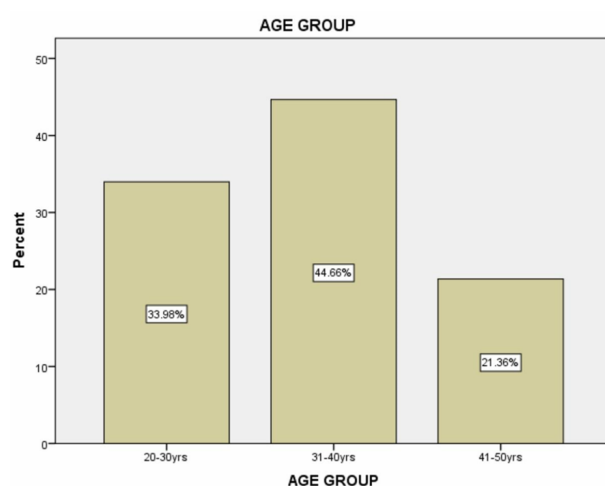
## MATERIALS AND METHODS

This survey was carried out among salt pan workers in Tuticorin, Tamil Nadu to assess their awareness about common dental health problems and data was collected using a pre-designed questionnaire and samples were assigned using convenience sampling methods. Data were collected after obtaining informed consent and steps were taken to ensure confidentiality at all stages. The study was conducted in a clinical setup in Tuticorin. The study was a questionnaire-based survey consisting of 25

questions, around 103 salt pan workers were questioned either directly, through the questionnaire. They were salt pans of K.S.P.S & Vaspal companies in Tuticorin. A maximum of 10 people was asked to visit the clinic to take the survey. It was conducted over a period of 10 days. Both male & female workers were involved in the study. The data was collected and tabulated in an excel sheet. Then the raw data was later transferred to SPSS Software. Data analysis was done and the association between various factors was assessed using the chi-square test ( $p < 0.05$  was considered to be significant)



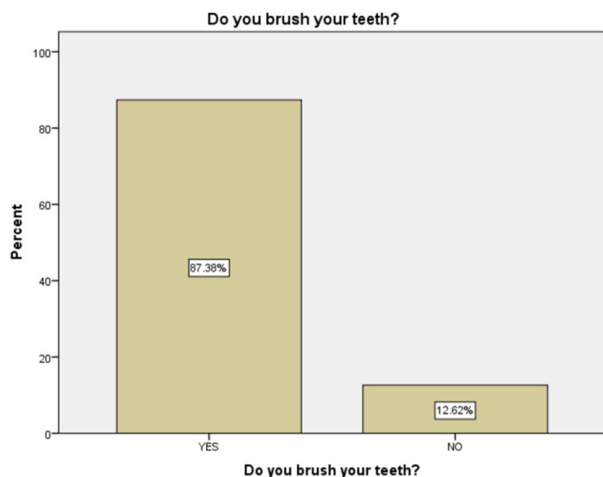
Graph 1: Bar chart showing a frequency distribution of study participants based on gender (X-axis shows gender, Y-axis shows the number of respondents).



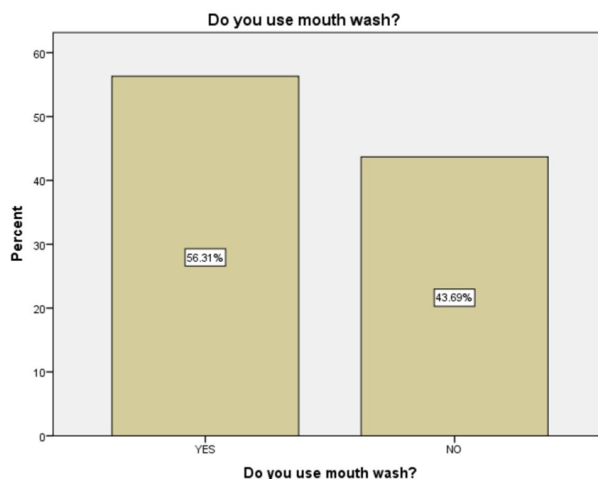
Graph 2: Bar chart showing a frequency distribution of study participants based on age group

## RESULTS AND DISCUSSION

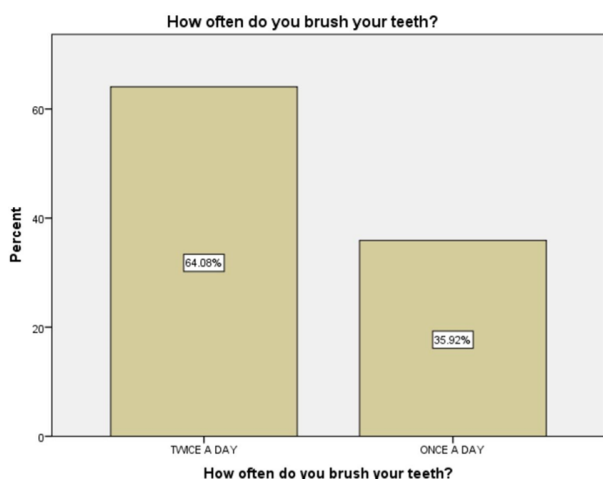
The study involves 103 salt pan workers out of which 55 (53.4%) are male & 48 (46.6%) are females (Graph 1) of the age group 20-30 yrs there



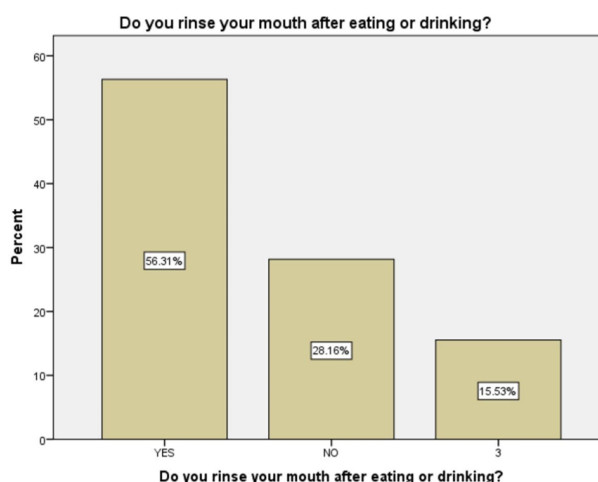
Graph 3: Bar chart showing the frequency of responses for the question - Do you brush your-teeth?



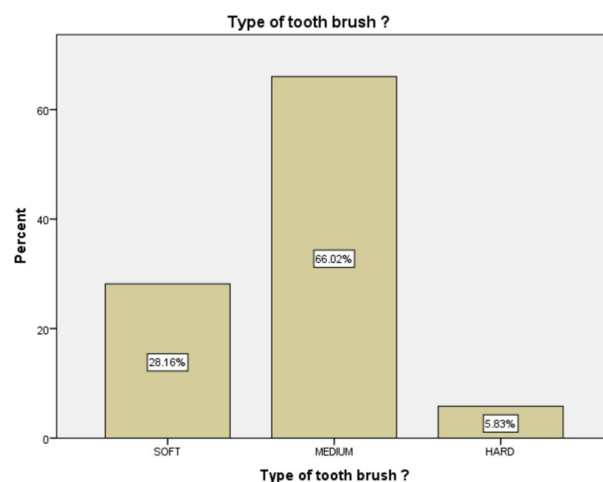
Graph 6: Bar chart showing the frequency of responses for the question - Do you use mouthwash?



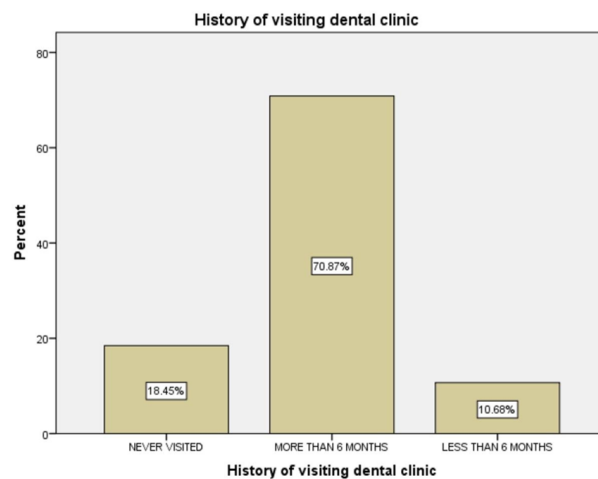
Graph 4: Bar chart showing the frequency of responses for the question - How often do you brush your teeth?



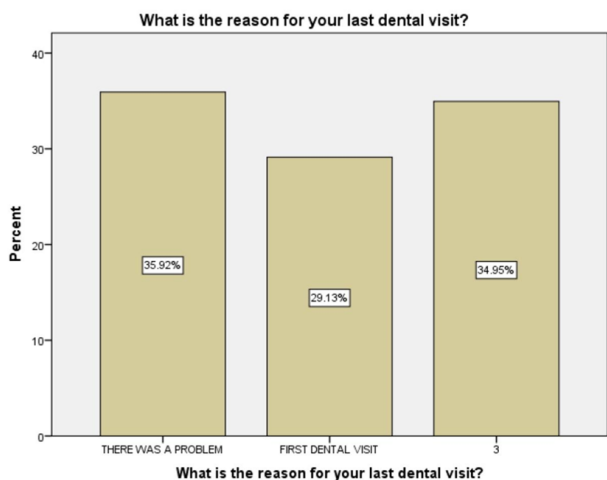
Graph 7: Bar chart showing the frequency of responses for the question - Do you rinse your mouth after eating or drinking?



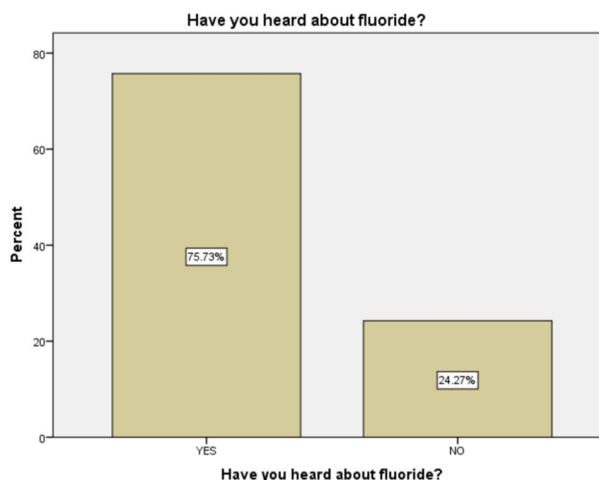
Graph 5: Bar chart showing the frequency of responses for the question - Type of tooth brush.



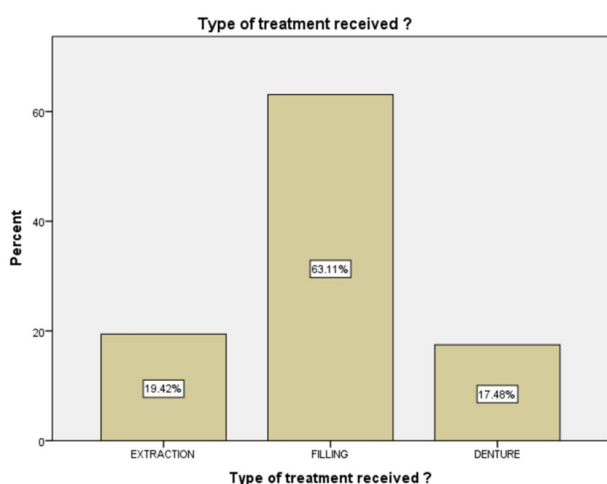
Graph 8: Bar chart showing the frequency of responses for the question - History of visiting dental clinics



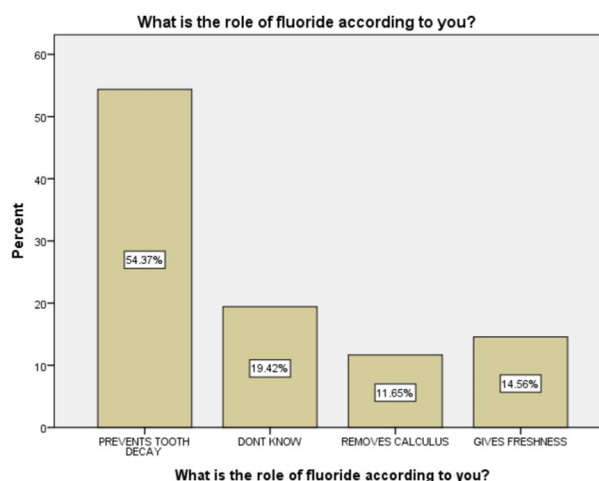
Graph 9: Bar chart showing the frequency of responses for the question - What is the reason for your last dental visit.



Graph 11: Bar chart showing the frequency of responses for the question - Have you heard about fluoride?



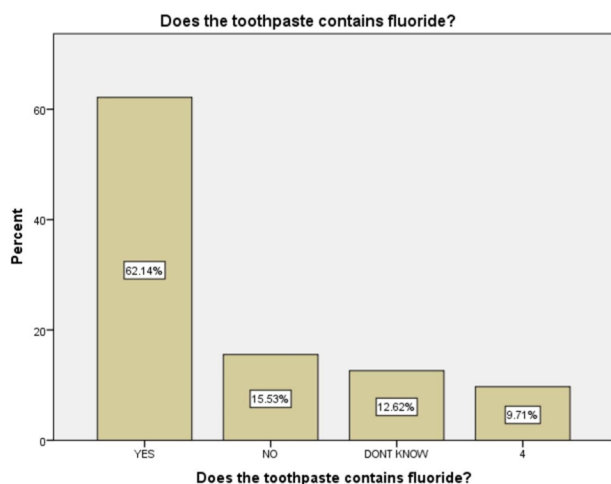
Graph 10: Bar chart showing the frequency of responses for the question - Type of treatment received.



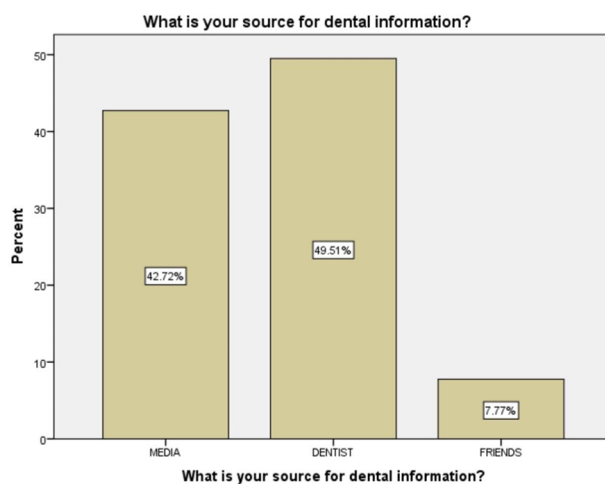
Graph 12: Bar chart showing the frequency of responses for the question - What is the role of fluoride according to you?

are 35 (34%) of age group 31-40 yr there are 46 (44.7%) & age group 41-50 yrs are 22 (21.4%) represented in (Graph 2) of the 103 worker 90 (87.4%) regularly brush their teeth (Graph 3) 66 (64.1%) of the salt pan workers state that they brush their teeth twice a day (Graph 4) 68 Individuals (66%) agree that medium type toothbrush is preferred to maintain good oral hygiene (Graph 5) 58 (56.3%) state that they use mouthwashes (Graph 6) 58 (56.3%) are that one must rinse their mouth after every meal to have better oral health (Graph 7) A majority of 73 individuals (70.9%) have not visited the dentist for more than six month while only a small minority of 16 (18.4%) have never visited the clinic (Graph 8) 37 (35.9%) visited clinic due to miscellaneous concerns while almost 30 (29.1%) had 1st dental visit and 36(35%) due to pain (Graph 9). A

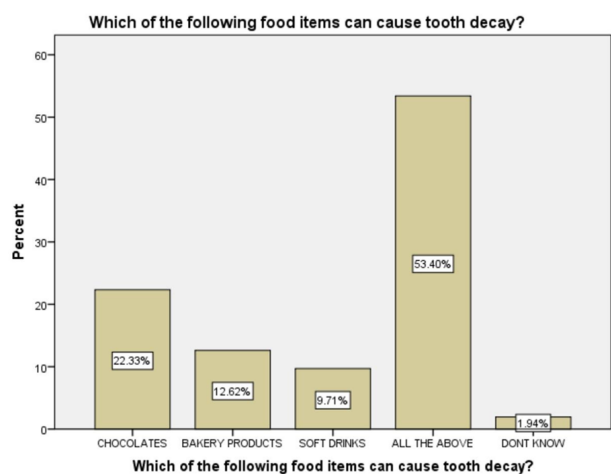
majority of 65 (63.1%) (Graph 10) had undergone filling as a treatment to protect their teeth. A staggering total of 78 (75.7%) know about fluorides (Graph 11), 56 (54%) individuals knew that fluorides could prevent tooth decay (Graph 12) A majority of 64 individuals (62.1%) know that toothpaste contains fluoride (Graph 13). The salt pan workers 55 (53.4%) know the dietary intakes that cause decay (Graph 14). A majority of 82 (78.6%) individuals agree that oral health and general health influence one another (Graph 15) 51 (49.5%) have got information about oral health maintenance from a dentist (Graph 16) 57 (55.3%) agree that visiting a dentist and brushing regularly one can have good dental health (Graph 17) or the statement regarding the presence of pain in teeth 56 (54.4%) have



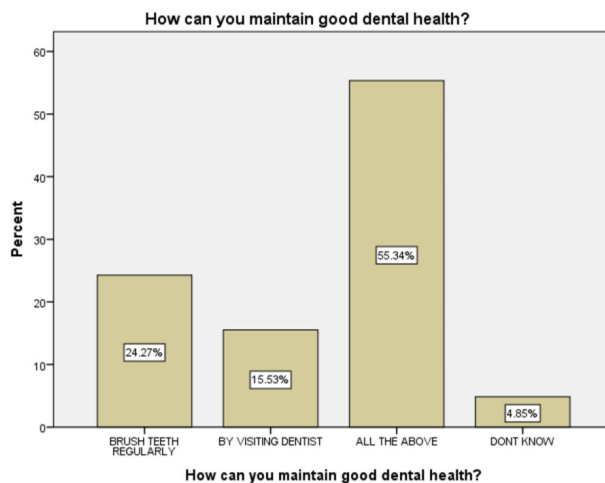
Graph 13: Bar chart showing the frequency of responses for the question - Does the tooth paste contain fluoride?



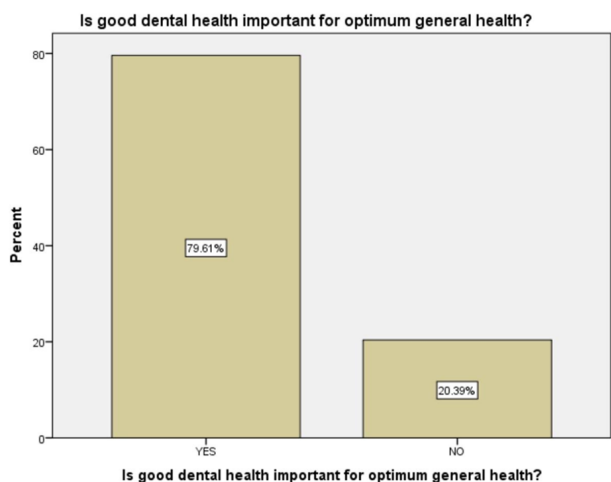
Graph 16: Bar chart showing the frequency of responses for the question - What is your source for dental information?



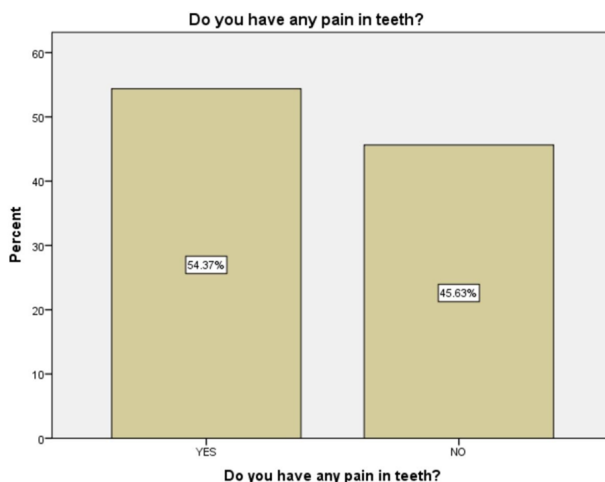
Graph 14: Bar chart showing the frequency of responses for the question - Which of the following food items can cause tooth delay



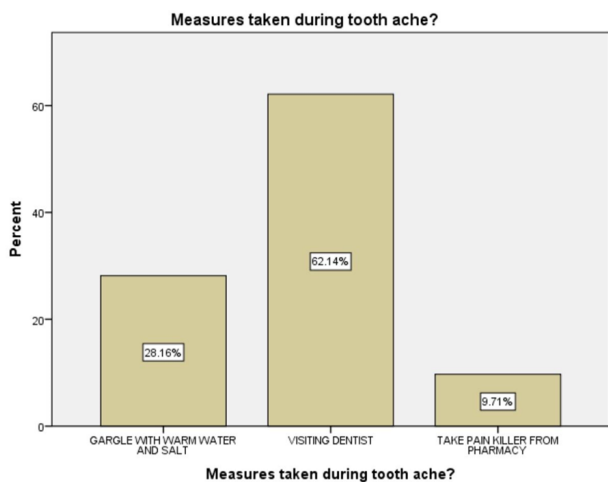
Graph 17: Bar chart showing the frequency of responses for the question - How can you maintain good dental health?



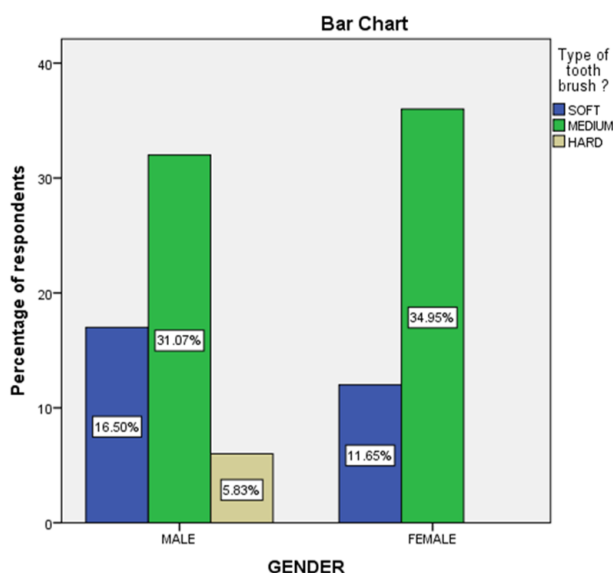
Graph 15: Bar chart showing the frequency of responses for the question - Is good dental health important for optimum general health?



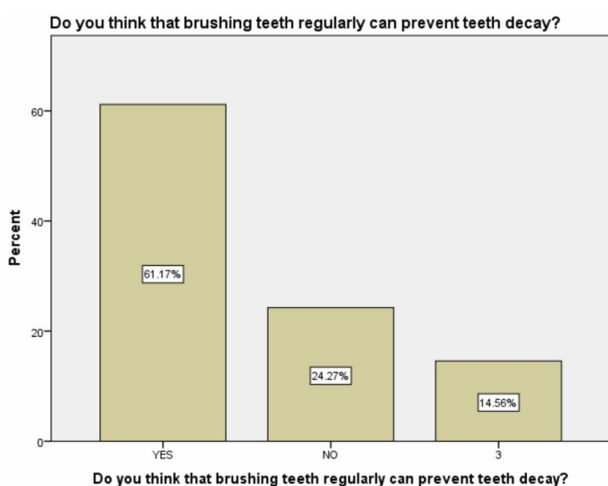
Graph 18: Bar chart showing the frequency of responses for the question - Do you have any pain in teeth?



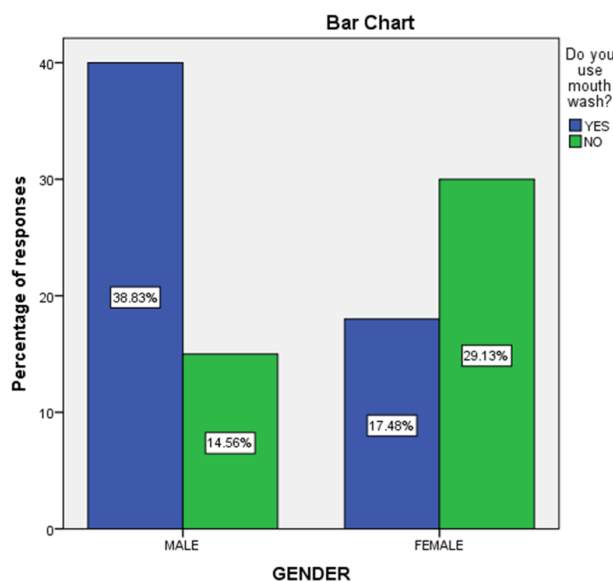
Graph 19: Bar chart showing the frequency of responses for the question - Measures taken during pain?



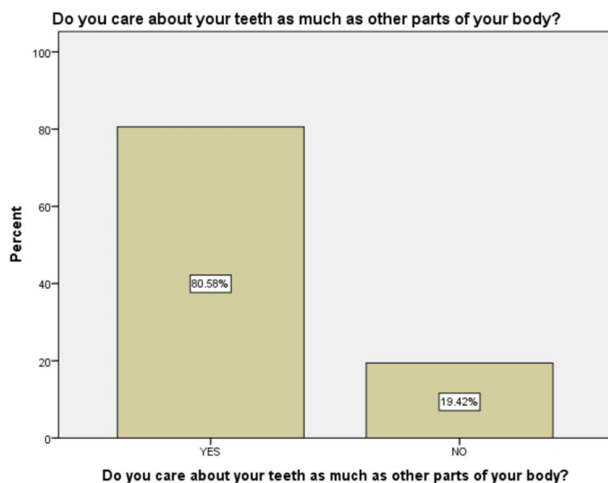
Graph 22: Bar chart showing a comparison of responses based on gender to the question on the usage of the type of toothbrush.



Graph 20: Bar chart showing the frequency of responses for the question - Do you think that brushing teeth regularly can prevent teeth decay?



Graph 23: Bar chart showing a comparison of responses based on gender to the question on the usage of mouthwash.

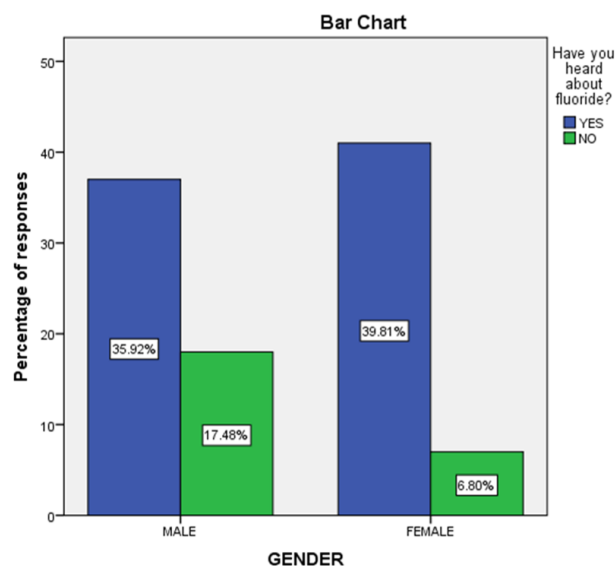


Graph 21: Bar chart showing the frequency of responses for the question - Do you care about your teeth as much as other parts of your body?

agreed to it (Graph 18) 64 (62.1%) state that they visit a dentist during a toothache (Graph 19) 63 Individuals (61.2%) agree that by proper brushing one can reduce the incidence of caries (Graph 20). A high majority of 83 (80.6%) agree that teeth are as important as any part of the body (Graph 21). Few significant associations were noticed on a comparison based on the gender of respondents using the chi-square test. ( $p < 0.05$  was considered statistically significant) (Graphs 22, 23 and 24).

Oral hygiene practices are essential to maintain





Graph 24: Bar chart showing a comparison of responses based on gender to the question of knowledge about fluoride.

good oral health and hence the general health. All the fields in dentistry rely on the aspect of maintaining good oral hygiene among the individuals in order to live a healthy life. Oral pathology deals with the study of abnormal changes in the regular oral mucosa commonly brought about by external factors or by genetic mutations. Many studies in the field of oral pathology commonly involve oral cancer and potentially malignant disorders like leukoplakia and Oral submucous fibrosis (Ramasubramanian et al., 2013; Sridharan, 2019) which may have implications in not maintaining good oral health due to harmful habits or poor oral hygiene. Presence of developmental disorders like ankyloglossia can also lead to poor oral hygiene due to lack of movement of the tongue (Jangid et al., 2015). The oral cavity is often assessed for the presence of dental anomalies using dental photographs and also can be used to assess the prognosis of a case after treatment (Hannah et al., 2018). Findings of opportunistic infection like tuberculosis and candidiasis in immunocompromised individuals and those with a systemic illness like diabetes are due to poor oral hygiene maintenance. All of which are features found in patients who visit the dentist very late after a simple condition is complicated due to their lack of awareness of their condition. Hence studies should be conducted among participants to know what they expect from dental treatment and what actually happens so that they can be helped before complications arise. Daily wage workers are the ones who are commonly susceptible to oral health problems due to the common presence of frequent usage of tobacco and alcohol,

poor oral hygiene and no previous dental check-up history.

Study shows that the salt pan workers have regular dental visits every six months or every year even though the previous awareness studies conducted in other locations have shown that the knowledge about various diseases and PPE among the salt pan workers is not up to the mark (Cherian et al., 2019). The data reveals that 37 (35.9%) visited clinics due to miscellaneous concerns such as decay and scaling while almost 30 (29.1%) had 1st dental visits and 36(35%) due to pain. This is a very positive finding that shows people know the importance of dentists in maintaining their teeth. The treatment that the workers underwent were mostly fillings in their dental treatment with only a few extractions. Natural teeth are always better than artificial teeth and show that the workers consider them as part of their body (Sivaramakrishnan and Ramani, 2015). 75 % of individuals knew about the importance of fluorides in toothpaste. Fluoride can prevent decay (Il Paik et al., 1994). It was known by 62.1% of the workers. These questions reveal that the salt pan workers are aware of fluoride and their application in oral hygiene. Previous studies state that dental hygiene has an effect on systemic and general health (Swathy et al., 2015) which is similar to the results of our study.

From this, we can say that the general awareness of the salt pan workers is fairly good. The age groups of 20-40 yrs show better regard to dental health compared to those who are 50 yrs and above. A recent study on health hazard of the salt industry in three districts namely Thootukudi, Ramanathapuram and Nagapattinam, showed that salt workers suffered from occupational health problems due to inadequate modern equipment, unfavourable working conditions, and lack of awareness among salt workers regarding workplace's different hazards and safe working, and low medical surveillance (Durairaj et al., 2016). In contrast, in our study, 50% of the salt pan workers belonging to Tuticorin exhibited a good knowledge about dental health problems and maintained good oral hygiene. The major limitations of the study is a very small sample size. A larger number could have been more useful to get more accurate results.

## CONCLUSION

Salt pan workers had many health-related issues mainly due to harsh working conditions, financial insecurity, other work-related problems and lack of benefits like provision of a housing facility and financial assistance during offseason by the govern-

ment. They had good awareness regarding dental health and had dental visits as recommended. Despite the poverty and low economic status, their knowledge regarding oral health was surprisingly good with more than 50% of the workers being aware and practice good oral hygiene practices.

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The authors declare that they have no funding support for this study.

### Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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