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Consumption Of Salt in The Food Among Dental Students - A Questionnaire Based Survey

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ABSTRACT

Background: The aim of the study is to determine the amount of salt used in Saveetha dental college. The relationship between dietary sodium (Na) intake and the prevalence of some diet-related diseases has long been recognised. Thus, reducing dietary sodium intake has become a public health priority in several countries. Consequently, some governments have enacted policies aimed at reducing the salt (NaCl) content of foods, as sodium levels are often increased by salt in food (1 g of NaCl=400 mg of Na). This survey was done to assess the knowledge and awareness on the consumption of salt in the food among dental students. A convenient sample size of 100 consecutive adults, students and staff from various departments of Saveetha dental college participated in this study. A cross sectional observational online based study was conducted. Questionnaire was constructed on a survey planet website with dichotomous responses and multiple choice questions. 44.3% of the respondents are aware that increased salt consumption can lead to hypertension. 40% are aware that increased salt consumption can lead to mental problems and 12.2% are aware that increased salt consumption can lead to various cardiovascular diseases. 48.7% of the respondents are not aware of the effects of preparation of meals with high content of salt, 31.3% of the respondents are aware and 20% of the respondents prefer that meals with high salt content are very good for health. 62.6% of the respondents are not happy with the food. The awareness of harmful effects of excessive salt consumption was moderate among the dental students.

Keywords: Dietary sodium; NaCl; meals; cardiovascular diseases; hypertension.

INTRODUCTION

Salt is a mineral composed mostly of sodium chloride (NaCl), a chemical compound belonging to the bigger elegance of salts, salt in its natural form exists as a crystalline mineral is referred to as rock salt or halite. Salt is present in enormous quantities in seawater, which is its primary mineral constituent (Authority and European Food Safety Authority, 2017) The open ocean has approximately 35 grams (1.2 oz) of solids according to liters of seawater, a salinity of 3.5%. Salt is critical for existence in general, and saltiness is one of the fundamental human tastes. Salt is one of the oldest and most ubiquitous meals seasonings, and salting is an important technique of meals preservation.

Salt is processed from salt mines, and by means of the evaporation of seawater (sea salt) and mineral-rich spring water in shallow pools. Its important industrial products are caustic soda and chlorine salt is used in lots of industrial methods consisting of the manufacture of polyvinyl chloride, plastics, paper pulp and many other products. Of the annual international manufacturing of around hundred million tonnes of salt, about 6% is used for human consumption. (Institute of Medicine *et al.*, 2013) Other uses encompass water conditioning tactics, de-icing highways, and agricultural use. Edible salt is sold in forms consisting of sea salt and table salt which normally carries an anti-caking agent and can be iodised to prevent iodine deficiency. As well as its use in cooking and at the desk, salt is found in many processed ingredients. Salt is found in most foods, but in naturally occurring foodstuffs including meats, greens and fruit, it is found in very small quantities. It is often

added to processed foods such as canned foods and in particular salted foods, pickled foods, and snack ingredients or other convenience meals, wherein it features as both a preservative and a flavoring. Dairy salt is used within the coating of butter and cheese merchandise. As a flavoring, salt compliments the flavor of other ingredients by suppressing the bitterness of these foods making them more palatable and relatively sweeter. (Website, no date a)

Salt is also one of the number one electrolytes inside the human body. Excessive sodium can cause hypernatremia or insufficient sodium can cause hyponatremia which leads to diverse illness presentations. Excessive salt consumption is related to hypertension. (Cook *et al.*, 2007) Research has found that humans with high-everyday blood stress who appreciably reduced nutritional salt consumption can reduce the chance of cardiovascular sickness by means of 25% over the following 10 to fifteen years and the threat of dying from cardiovascular disease is reduced with the aid of 20%. Excessive sodium is also related to left ventricular hypertrophy and kidney diseases. (Hooper *et al.*, 2004) Our team has extensive knowledge and research experience that has translated into high quality publications (Choudhari and Thenmozhi, 2016; Govindaraju, Jeevanandan and Subramanian, 2017; Ravi *et al.*, 2017; Vikram *et al.*, 2017; Gupta, Ariga and Deogade, 2018; Hannah *et al.*, 2018; Kavarthapu and Thamaraiselvan, 2018; Pandian, Krishnan and Kumar, 2018; Ramamurthy and Mg, 2018; Ashok and Ganapathy, 2019a; Ramesh *et al.*, 2019; Sharma *et al.*, 2019; Venu, Raju and Subramani, 2019; Wu *et al.*, 2019; Samuel, Acharya and Rao, 2020)

this vast research experience has inspired us to research about the awareness on the amount of salt being used in the food at Saveetha Dental College

MATERIAL AND METHODS

A convenient sample size of 100 respondents from Saveetha dental college participated in this study. A cross sectional observational online based study was conducted. Questionnaires were constructed on a survey planet website with dichotomous responses and multiple choice questions. The questionnaire consists of 10 questions. The participants were explained about the purpose of the study in detail. The questions were carefully studied and the corresponding answers were marked by the participants. The type of study is an original research survey. The sampling method is simple random sampling. The statistics used descriptive statistics. The data was collected and statistically analysed.

RESULT AND DISCUSSION

The results were tabulated and analysed. Figure 1 shows 28.7% of the respondents preferred to eat food more than thrice from the canteen, 21.7% preferred eating twice from the canteen, 27% respondents preferred eating thrice and 22.6% preferred eating once from the canteen. Figure 2 shows 49.6% of the respondents preferred biriyani as the food with the highest content of salt in Saveetha canteen, 23.5% preferred with the chicken curry, 22.6% preferred fried rice and 4.3% preferred chilly chicken. Figure 3 shows 63.5% of the respondents were not aware of the fact of iodised salt and 36.5% were aware. Figure 4 shows 49.64% of the respondents were aware of the fact of iodised salt from television, 36.5% were aware by radio and 10.4% were aware by health workers. Figure 5 shows 53.9% of their respondents use iodised salt in their food occasionally 27.8% always use iodised salt in their food, 18.3% do not use it at all. Figure 6 shows 60.9% of the respondents are not aware that iodised salt is not stored in proper reserve areas and 39.1% are aware. Figure 7 shows 44.3% of the respondents are aware that increased salt consumption can lead to hypertension. 40% are aware that increased salt consumption can lead to mental problems and 12.2% are aware that increased salt consumption can lead to various cardiovascular diseases. Figure 8 shows 48.7% of the respondents are not aware of the effects of preparation of meals with high content of salt, 31.3% of the respondents are aware and 20% of the respondents prefer that meals with high salt content are very good for health. Figure 9 shows 62.6% of the respondents are not happy with the food and 37.4% were happy.

Previous study done in 2013 found that for individuals with normal blood pressure, restricting salt intake reduced systolic blood pressure by only 2.42 mmHg and diastolic blood pressure by only 1.00 mmHg (He, Li and Macgregor, 2013) There are several studies on the effect of reducing the salt intake on BP on a community levels. In a study it shows that reducing the dietary salt intake on BP in a community in Portugal, which is notorious for its high consumption of salt. The trial was performed in two communities within the same district, each with 800 inhabitants who had salt intakes of 21 g/day and a 30% incidence of hypertension. In the intervention community, there was a widespread health education effort to reduce the dietary salt intake. The reduction in salt intake in one of the communities to 12 g/day was associated with a highly significant difference in BP. (Miguel, Pereira Miguel and de Pádua, 1980). A study done in 2016 evaluates daily salt intake using 24-h urine collection among the vulnerable population in Indonesia. Since the previous studies demonstrated that coastal area is known as risk factors of hypertension relating to intake of salty foods. (Mills *et al.*, 2016) Reductions in dietary salt to 3 g of salt per day could significantly reduce cardiovascular events and medical cost and yield substantial reductions in morbidity, mortality, and health care costs (Usman *et al.*, 2018). Public health access may have an important role for maintaining salt intake in this study. Public health care, the

leading health sector in the community, has an important role to promote population-level salt reduction by raising consumer awareness regarding salt intake (Muthuri *et al.*, 2016). Several countries have already successfully reduced salt intake in their populations including Japan, Finland, and more recently the United Kingdom. Hence, it is not impossible to reduce salt intake in the vulnerable population. (He and MacGregor, 2009)

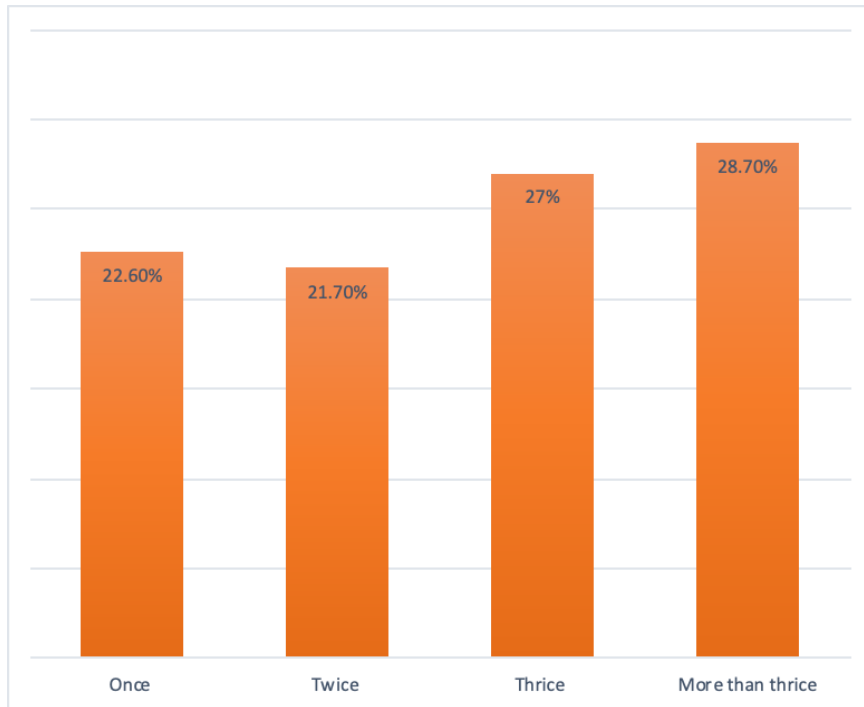


Figure 1: This bar graph represents the percentage distribution of respondents who prefer eating at the Saveetha Canteen. 22.6% of the respondents eat once, 21.7% of the respondents eat twice, 27% eat thrice and 28.7% eat more than thrice.

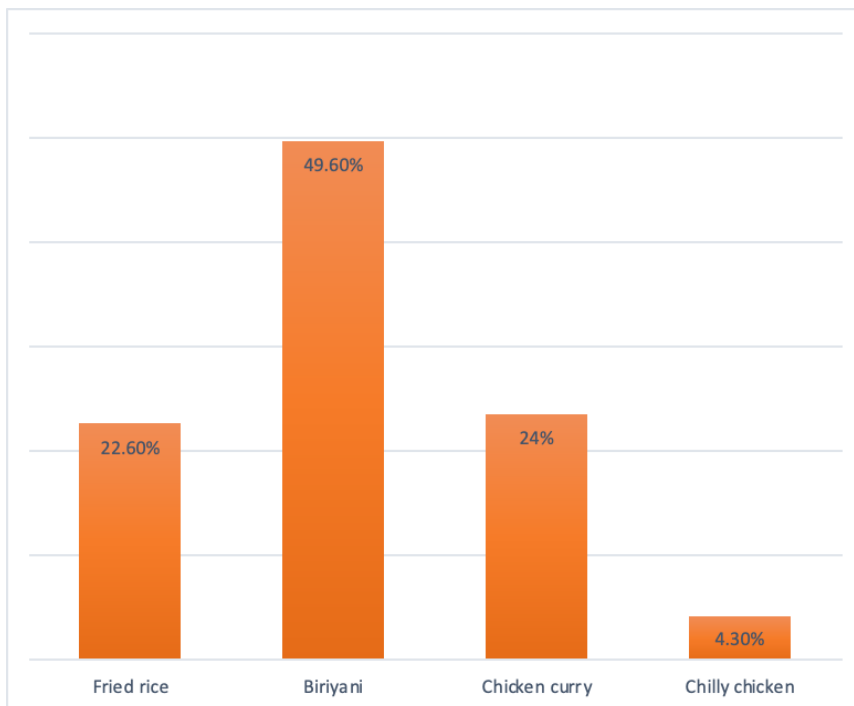


Figure 2: The bar graph represents the percentage distribution of respondents aware of the most salt content food in Saveetha canteen. 22.6% of the respondents prefer fried rice as the most salt content food, 49.6% prefer biriyani, 24% of the respondents prefer chicken curry, 4.3% prefer chilly chicken.

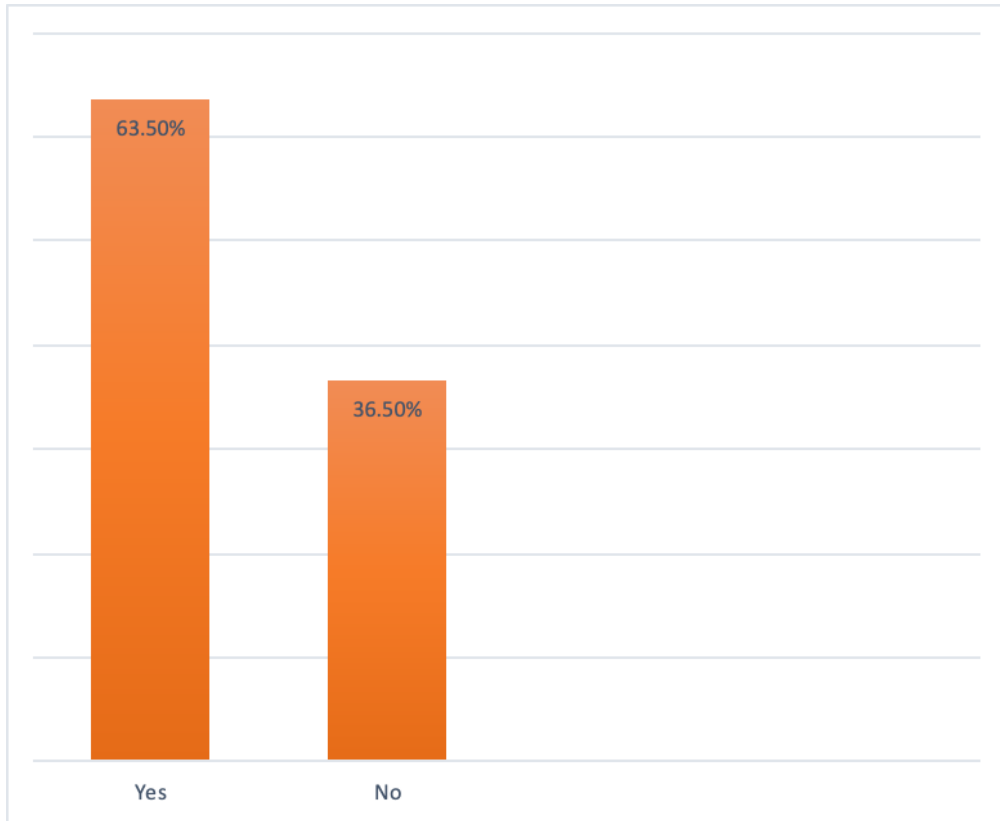


Figure 3: The bar graph represents the percentage of distribution of respondents aware of iodised salt. 63.5% of the respondents were aware and 36.5% were not aware.

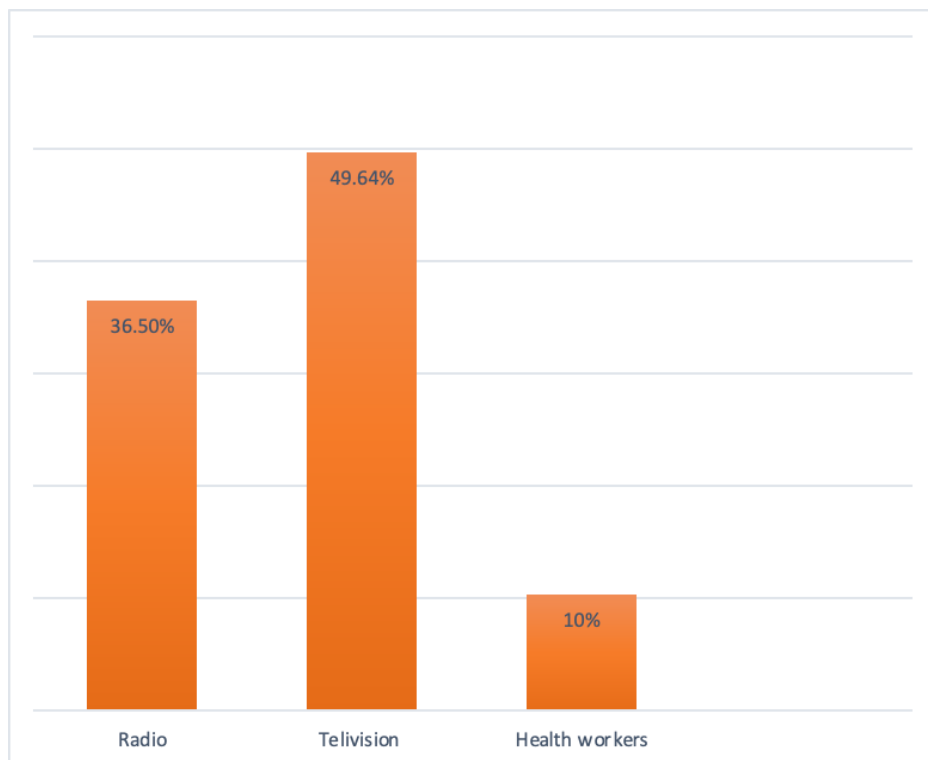


Figure 4: This bar graph represents the percentage of respondents who were aware of iodised salt by different methods. 49.64% of the respondents were aware by television, 36.5% were aware by radio and 10% were aware by health workers.

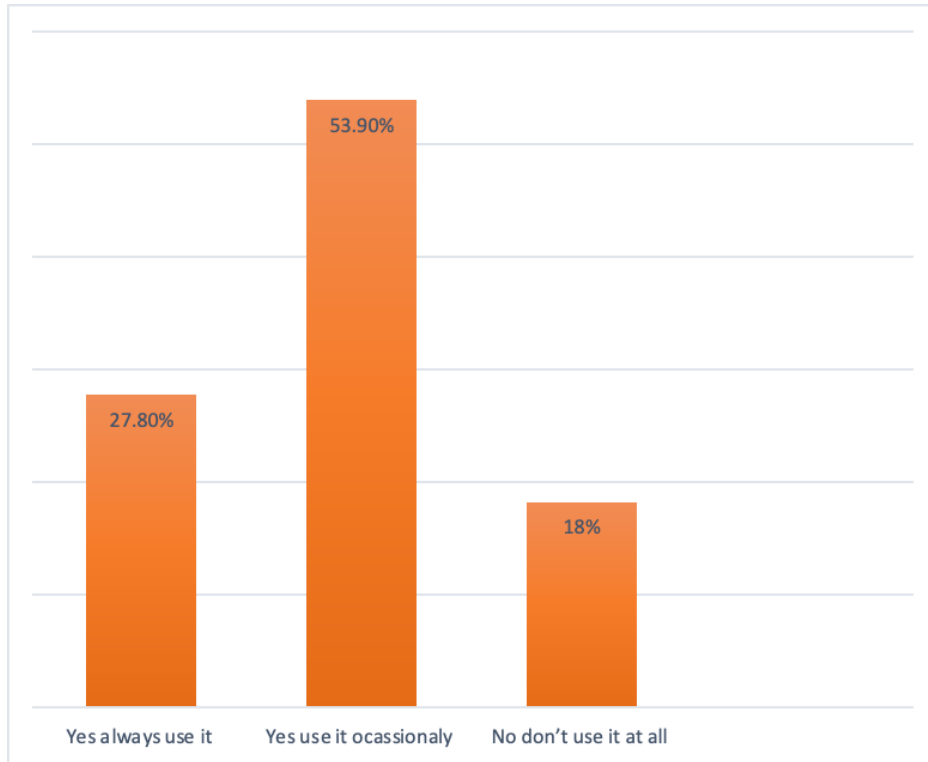


Figure 5: This bar graph represents the percentage of respondents who prefer the use of iodised salt in their food. 53.9% of the respondents prefer using iodised salt occasionally, 27.8% always use it and 18% don't use it at all.

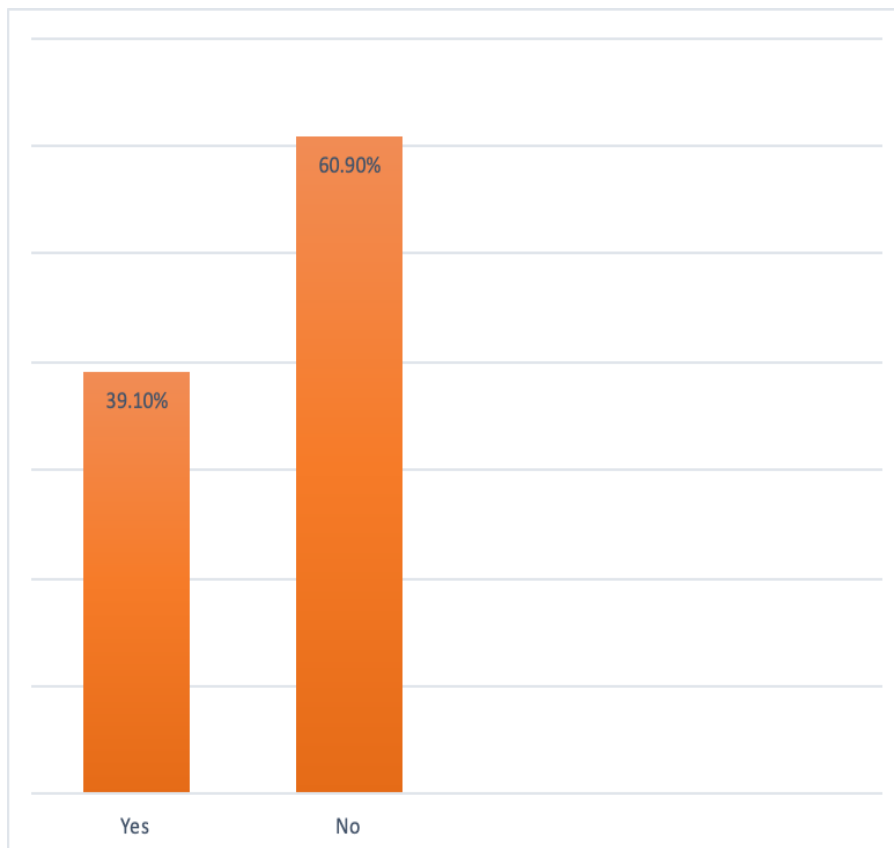


Figure 6: This bar graph shows the percentage distribution of respondents aware iodised salt is stored in proper reserve areas. 60.9% of the respondents were not aware and 39.1% were aware.

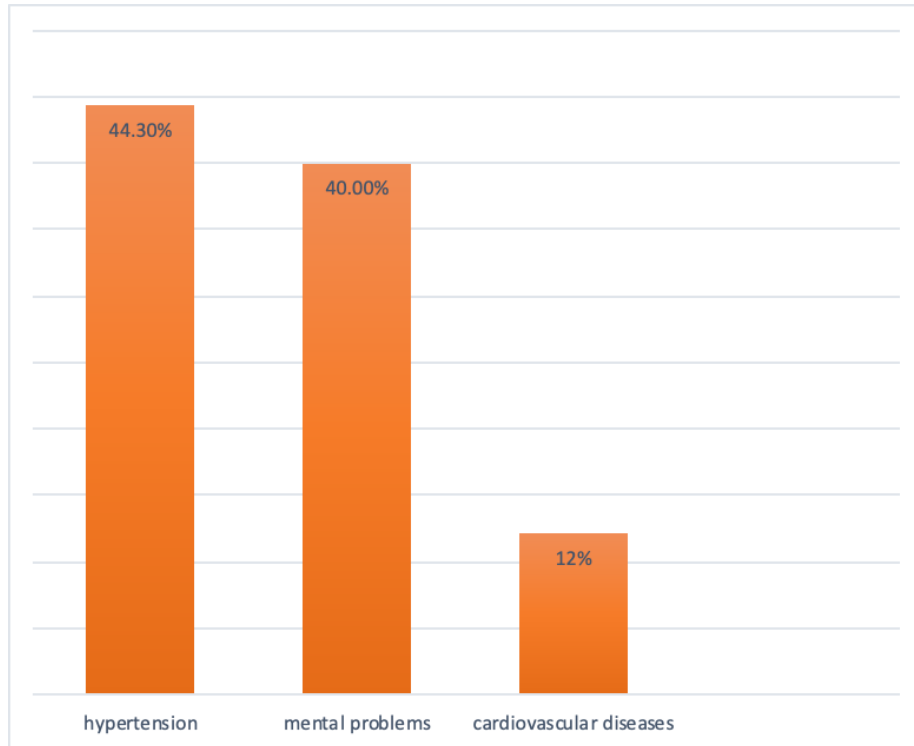


Figure 7: This bar graph represents the percentage representation of respondents aware of the symptoms caused due to overconsumption of iodised salt. 44.3% of the respondents are aware overconsumption of iodised salt can lead to hypertension, 40% of the respondents are aware it can lead to mental problems and 12% respondents are aware it can lead to cardiovascular diseases .

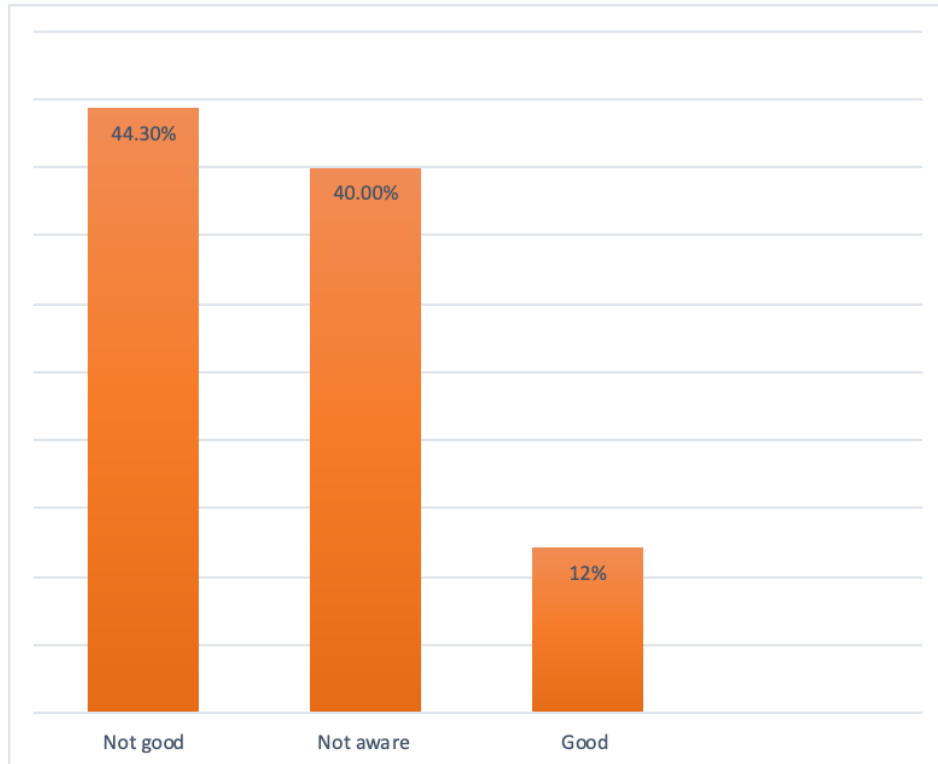


Figure 8: This bar graph represents the percentage distribution of respondents aware on the effects of preparation of meals with high content of salt. 48.7% of the respondents are not aware on the effects of preparation of meals with high content of salt, 31.3% of the respondents are aware and 20% of the respondents prefer that meals with high salt content are very good for health.

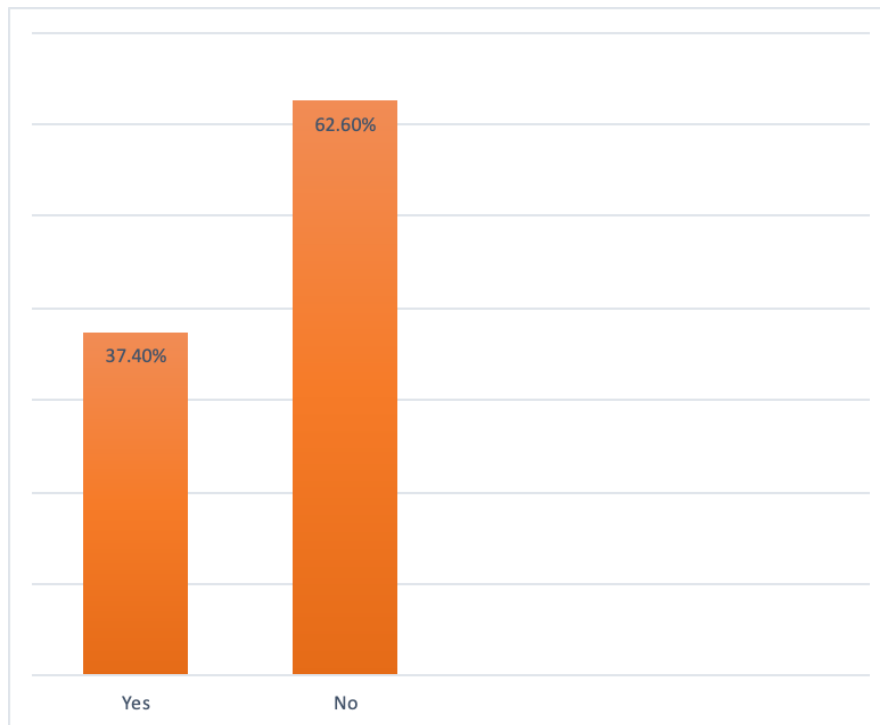


Figure 9: This bar graph represents the percentage distribution of respondents happy with food. 62.6% were not happy with food and 37.4% were happy

CONCLUSION

The awareness of harmful effects of excessive salt consumption was moderate among the dental students. Government policies and strategies should create environments that enable populations to consume adequate quantities of safe and nutritious foods that make up a healthy diet including low salt. Improving dietary habits is a societal as well as an individual responsibility. It demands a population-based, multisectoral, and culturally relevant approach.

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AUTHORS CONTRIBUTION

All the authors contributed equally to the study in conception, design and analysing the results.

CONFLICT OF INTEREST

The authors have none to declare

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