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Awareness on The Harmful Effects of Fried Food Among Dental Students

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Abstract: Fried food is a cooking method in which food is submerged in oil. The more we consume these , the less is the intake of essential nutrients and vitamins in the body. Consumption of junk food can lead to a lot of health problems. Fried food can cause dental distress, headache, acne and a lot more. More oil is unhealthy as it elevates the amount of cholesterol in the body. The type of oil used determines the health risks related with fried foods. The aim of the study is to determine the awareness of the harmful effects of fried food among dental students. Self administered questionnaire was designed based on the effects of fried food. The questionnaire was distributed through an online survey planet link. The study population included dental students. The participants were explained about the purpose of study in detail. The questions were carefully studied and corresponding answers were marked by the participants. The data was collected and statistically analysed. 76% of the participants agree that junk food is unhealthy. 94% of the participants felt that fried food makes them fat. 82% of them consume fried food once in a week, 12% consume everyday and 6% consume fried food once in a month. 62% of the participants were willing to give upon fried food considering their health. The study concluded that awareness on the harmful effects of fried food among dental students was satisfactory.

Keywords: Fried food; Dental distress; Harmful effects; Awareness

INTRODUCTION

Frying was considered one of the oldest and fastest methods of cooking [(Gadiraju *et al.*, 2015)]. Fried food is a cooking method in which food is submerged in vegetable oils until the substance is deep fried. This deep frying involves high temperatures for cooking purpose where denaturation of essential nutrients occurs along with increase in acrylamide content, calories and trans fat, which increases free radicals within the body disrupting the cellular components and leading to several problems like carcinogenicity, neurotoxicity etc [(Pokorn, Pánek and Trojáková, 2003)]. During frying water and nutrients are lost due to high temperature affecting the actual level of nutrient content [(Sun *et al.*, 2019)]. The more we consume these, the less is the intake of essential nutrients, vitamins in the body which can be referred to as junk food that can lead to a lot of health problems. Frequency of consumption of fried foods is directly associated with health risks [(Qi *et al.*, 2014)]. Fried food can cause dental distress, headache, acne and a lot more. Fatigueness can be caused by the excess consumption of fried food [(Palupi, Shih and Chang, 2017)]. Fatigueness is caused due to high levels of refined carbohydrate content in the fried food which affects the insulin level and leads to a drop in the normal level of blood sugar. More oil is unhealthy as it elevates the amount of cholesterol in the body. The consumption of fried food and weight gain is directly proportional and long term consumption of fried food can cause obesity which can be a root for many other systemic diseases [(Sayon-Orea *et al.*, 2013)]. The type of oil used determines the health risks related with fried foods. With continuous use of the same oil,deterioration of oil occurs leading to the alteration in the fatty acid composition [(Cahill *et al.*, 2014)]. It is common for repeated usage of some oils like palmolein oils which have a high fatty acid profile which increase the adversity of harmful effects of fried foods [(Minihane and Harland, 2007)]. Olive oil, sesame oil, coconut oil, canola oil are considered to be some of the healthy replacements for refined oil since they have antioxidants and monounsaturated fats. Any food modifies its composition and nutritional value with different types of cooking procedures and methods but the

consumption of food which is less altered from its raw contents and techniques like air frying helps to achieve intake of healthy nutrients like omega 3 fatty acids without spoiling the actual nutritional value of food [(Ansorena *et al.*, 2010)].

The reason for choosing this topic is that fried food is one of the reasons for dental problems. As future dentists, they should be aware of the harmful effects of fried food themselves.

The aim of the study is to determine the awareness of the harmful effects of fried food among dental students.

Previously our department has published extensive research on various aspects of prosthetic dentistry ('Evaluation of Corrosive Behavior of Four Nickel–chromium Alloys in Artificial Saliva by Cyclic Polarization Test:An in vitro Study', 2017; Ganapathy, Kannan and Venugopalan, 2017; Jain, 2017a, 2017b; Ranganathan, Ganapathy and Jain, 2017; Ariga *et al.*, 2018; Gupta, Ariga and Deogade, 2018; Anbu *et al.*, 2019; Ashok and Ganapathy, 2019; Duraisamy *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019), this vast research experience has inspired us to research about the awareness of the harmful effects of fried food among dental students. Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Ezhilarasan, 2018; Ezhilarasan, Sokal and Najimi, 2018; Gupta, Ariga and Deogade, 2018; Jeevanandan and Govindaraju, 2018; J *et al.*, 2018; Menon *et al.*, 2018; Prabakar *et al.*, 2018; Rajeshkumar *et al.*, 2018, 2019; Vishnu Prasad *et al.*, 2018; Wahab *et al.*, 2018; Dua *et al.*, 2019; Duraisamy *et al.*, 2019; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Gheena and Ezhilarasan, 2019; Malli Sureshbabu *et al.*, 2019; Mehta *et al.*, 2019; Panchal, Jeevanandan and Subramanian, 2019; Rajendran *et al.*, 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Sharma *et al.*, 2019; Varghese, Ramesh and Veeraiyan, 2019; Gomathi *et al.*, 2020; Samuel, Acharya and Rao, 2020)

MATERIALS AND METHODS

Self-administered questionnaire was designed based on the effects of fried food.The questionnaire was distributed through an online survey planet link. The study population included 100 dental students. The approval was given by the institutional review board. The participants were explained about the purpose of study in detail. The questions were carefully studied and corresponding answers were marked by the participants. The data was collected and statistically analysed.

RESULTS AND DISCUSSION

Majorly around 41% of participants felt that all of the options mentioned are some of the basic problems with junk food. Only 12% of them felt that the basic problem is that it contains too much salt or sugar (Figure-1). 76% of the participants felt that junk food or fried food are not healthy whereas the remaining 24% felt it is healthy (Figure-2). 76% of the study participants felt fried food is bad for diabetes and 24% felt it is not bad for diabetes (Figure-3). It is inferred that the majority of the participants about 94% felt that fried food makes us fat. Trace percentage of about 6% felt it doesn't make them fat (Figure-4). 41% participants answered that they check the quality of fried food, 35% answered that they sometimes check the fried food quality and 24% answered that they do not check (Figure-5). It was inferred that 82% of the participants eat fried food once a week, 12% everyday and 6% only once in a month (Figure-6). The question in the Figure-7 was asked to know the food preferences of the participants and 47% answered as salads, 23% as meat and 30% as fried food. 65% of the participants answered that fried food is gluten free and remaining 35% felt it is not gluten free (Figure-8). In Figure-9, the question was based on priority of health and to know whether they are ready to give up fried food for a healthy lifestyle. 62% of the participants answered that they would like to give up on fried food considering their health and 38% answered that they are not willing to give up on fried food.

This study was conducted to determine the awareness of harmful effects of fried food among dental students.Excess consumption of fried food can cause dental distress. In the present study, it was inferred that the participants had enough awareness about the ill effects of consumption of fried food.

In the present study, 94% of the participants responded that fried food consumption will make them fat and lead to obesity (Figure-4). In the study by Taraka Vijay Gadiraju et al.,95% of the study participants responded that fried food consumption and weight gain are related to each other [(Gadiraju *et al.*, 2015)]. In the present study, 82% of the study participants answered that they consume fried food once a week (Figure-6) whereas in the study by Leah Cahiel et al., 95% of the population answered that they consume more than once a week [(Cahill *et al.*, 2014)]. In the present study,41% of the participants answered that less nutritional value,more sugar or salt content were some of the basic problems of consuming fried food (Figure-1) whereas in the study by Palupi KC et al.,27.8% of the participants responded that consumption of fried food leads to fatigueness which is contradictory to the present study [(Palupi, Shih and Chang, 2017)]. In the present study,76% of the participants answered that fried food is unhealthy (Figure-2). In the study by Yangbo Sun et al.,the majority of the population responded that fried food is unhealthy and continuous consumption can lead to mortality [(Sun *et al.*, 2019)]. In the present study, 76% of the participants answered that fried food is bad for diabetics and for persons with other systemic disorders and diseases (Figure-3) and in the study by Minihane AM et al., majority of the population responded that the intake of fried food and disease risk is correlated which coincides with the result

of the present study [(Minihane and Harland, 2007)]. In the present study, 65% of the participants answered that fried food contains gluten (Figure-8) .But in the study by Ansorena et al.It was stated that lipid profile is affected in fried food and causes drastic changes in the nutritional value of the food [(Ansorena *et al*., 2010)].
In the study by Jan Pohorn et al., they concluded that there is an effect of food component changes during frying on the nutritive value of fried food [(Pokorn, Pánek and Trojáková, 2003)]. The authors Qibin Qi et al.concluded that there is an association between fried food consumption and adiposity, the genetic influences on adiposity might be altered by consumption of fried food [(Qi *et al*., 2014)]. In the study by C.Sayon Orea et al., they concluded that in the Mediterranean prospective cohort the frequency of consumption of fried foods is directly associated with obesity [(Sayon-Orea *et al.*, 2013)]. The author Sanchez-Muniz in their study reported that Mediterranean people consume more fried foods [21]. Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; Vijayashree Priyadharsini, Smiline Girija and Paramasivam, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai *et al.*, 2019; Sridharan *et al.*, 2019; Vijayashree Priyadharsini, 2019; Chandrasekar *et al.*, 2020; Mathew *et al.*, 2020; R *et al.*, 2020; Samuel, 2021)

CONCLUSION

The study concluded that awareness of the harmful effects of fried food among dental students was satisfactory. Although the students are aware of harmful effects of fried foods, they are habituated to have these kinds of food due to palatability and easy availability of fried foods in and around their vicinity.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest in the present study.

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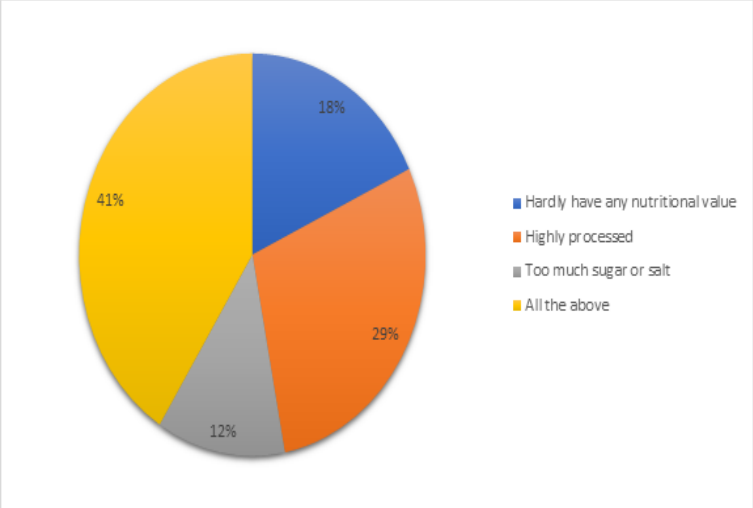

Fig.1: Pie chart showing the responses for basic problems of fried food where blue denotes hardly have any nutritional value, orange denotes highly processed,grey denotes too much sugar or salt and yellow denotes all the above.41% of the participants answered that all the above are basic problems of fried food.

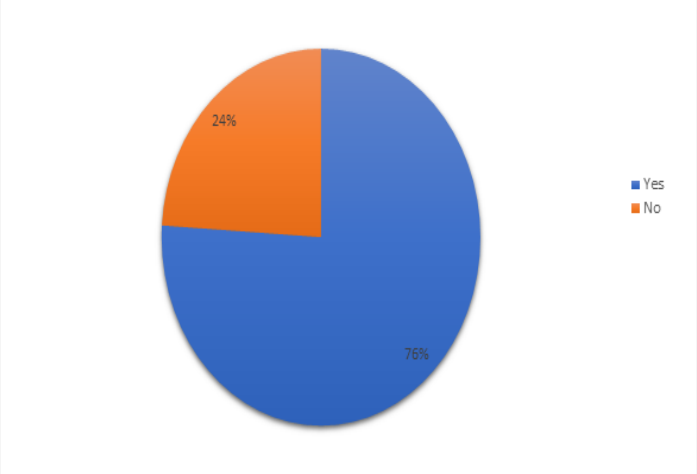

Fig.2: Pie chart showing the responses for awareness about fried food where blue denotes yes and orange denotes no.76% of the participants answered that fried food is unhealthy.

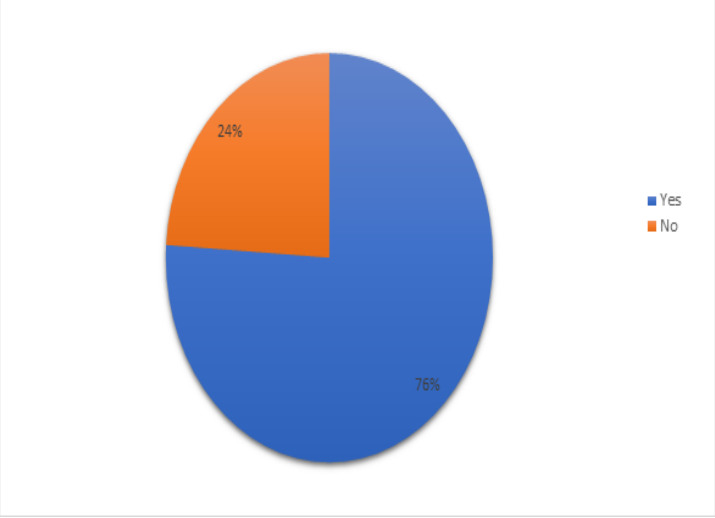

Fig.3: Pie chart showing the responses for the awareness about fried food effect on diabetics where blue denotes yes and orange denotes no.76% of the participants answered that fried food is bad for diabetics.

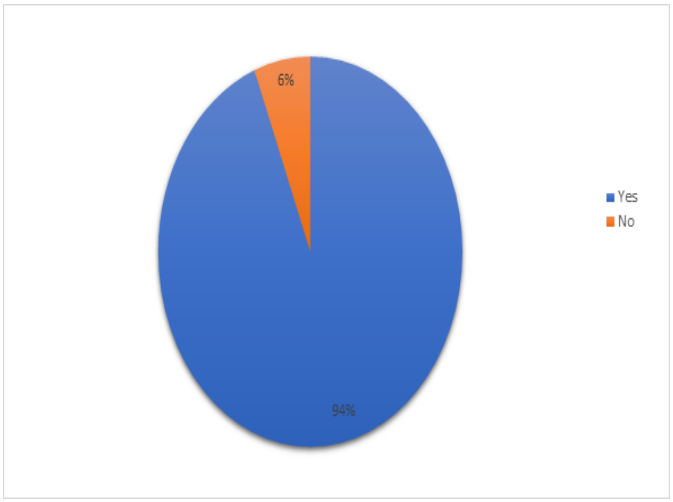

Fig.4: Pie chart showing the responses for the awareness that fried food makes us fat where blue denotes yes and orange denotes no. 94% of the participants answered that fried food make us fat.

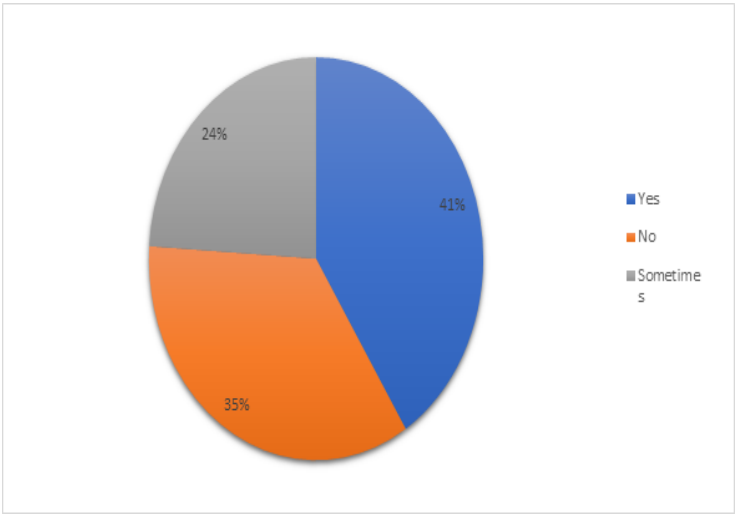

Fig.5: Pie chart showing the responses for the quality check of fried food where blue denotes yes, orange denotes no and grey denotes sometimes. 41% of the participants answered that they check the quality of fried food.

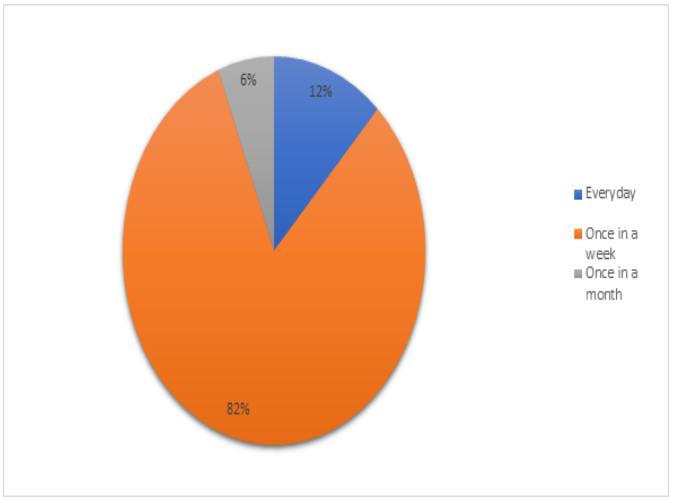

Fig.6: Pie chart showing the responses for the frequency of consumption of fried food where blue denotes everyday, orange denotes once in a week and grey denotes once in a month. 82% of the participants answered that they will eat fried food once a week.

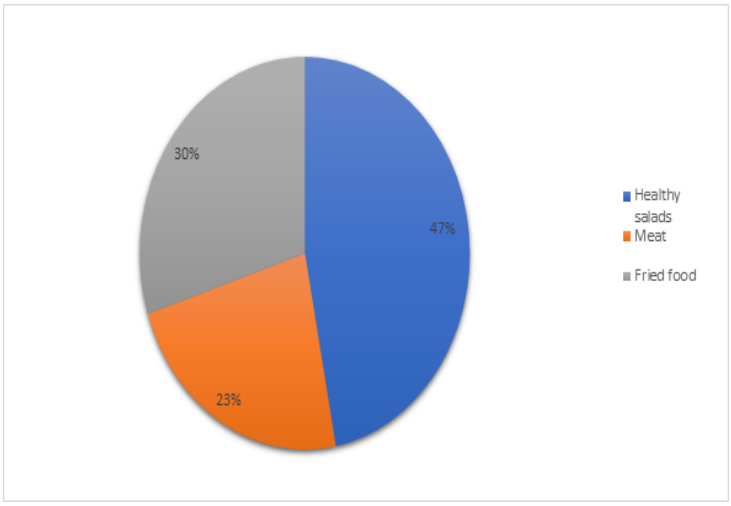

Fig.7: Pie chart showing the responses for the food preference of participants where blue denotes healthy salads, orange denotes meat and grey denotes fried food.47% of the participants answered that they will eat healthy salads followed by 30% of the participants answered that they will eat fried food.

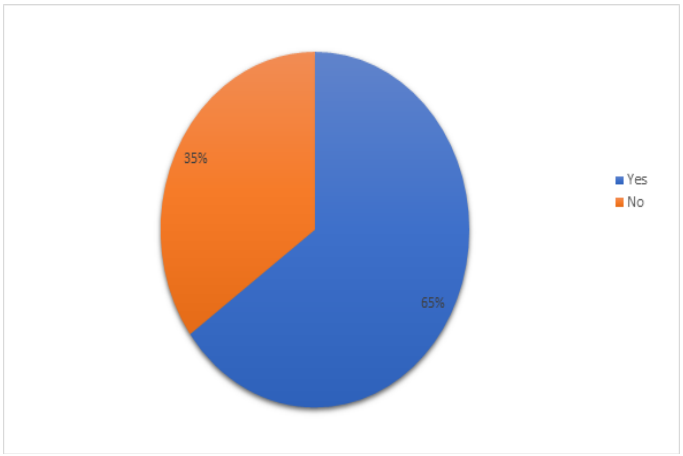

Fig.8: Pie chart showing the responses for the awareness about gluten content in fried food where blue denotes yes and orange denotes no.65% of the participants answered that fried food contains gluten.

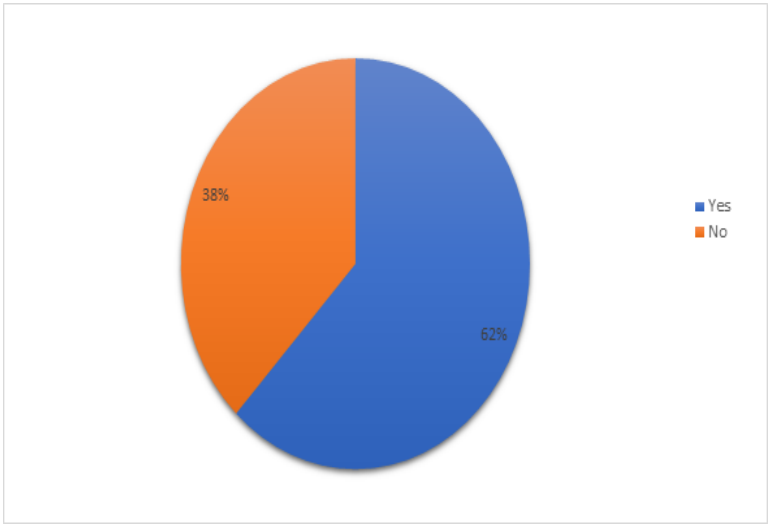

Fig.9: Pie chart showing the responses for the question whether participants are willing to give up fried food considering their health where blue denotes yes and orange denotes no.62% of the participants answered that they are willing to give up fried food considering their health.