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# A STUDY ON FOOD ADULTERATION AND CONSUMER HEALTH

## WITH SPECIAL REFERENCE TO TAMIL NADU

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### Abstract:

*Food adulteration remains one of the main basic necessities of life. We need to know that the term food adulteration is not found in the Food Safety and Standards Act. Food is a symbol of hospitality and friendship throughout the world. Basically, this study is based on the following main objectives: to evaluate the reasons for food adulteration in Tamil Nadu; to study the causes of food adulteration; to examine the reasons behind the increasing trend in fraudulent practices; to evaluate the views of people regarding consumer awareness; to find whether food adulteration leads to various health related problems; to find out which foods are mostly adulterated; to find whether sellers are intentionally or ignorantly adulterating food; and to investigate strategies for the prevention of food adulteration. The research has followed an empirical method, and the sample size is 311. The researcher observed from the analysis of the study on food adulteration related to FSSAI and whether progressive action has been taken or not.*

**Keywords:** Food, Sustainability, Adulteration, Health.

### Introduction:

Food is an essential source of power. Food is a basic necessity for the sustenance of life. It should be pure, fresh, and healthy for the people. Its main aim is to increase awareness about food

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adulteration through the addition or subtraction of any substance. The main objectives of this study are to evaluate the reasons for food adulteration in Tamil Nadu, to study the causes of food adulteration, to examine the reasons behind the increasing trend in fraudulent practices, to evaluate the views of people regarding consumer awareness, to find whether food adulteration leads to various health-related problems, to find out which foods are mostly adulterated, to find whether sellers are intentionally or ignorantly adulterating food, and to investigate strategies for the prevention of food adulteration. The government initiatives on central legislation were a fact. Thus, the Prevention of Food Adulteration Act, 1954, was enacted by the Union Legislature to tackle the problem of food adulteration, which was rampant in the country. This Act was in operation until it was repealed in 2006 by the Food Safety and Standards Act, 2006. Adulteration is the process of adding unwanted substances to food with similar appearance and colour for making profits. Adulteration is very common today, and milk is the most commonly adulterated food. Uttar Pradesh, Jharkhand, and Tamil Nadu are the worst states when it comes to food adulteration. According to data based on the public laboratory testing report presented by the Ministry of Health and Family Welfare, 51,803 food samples were analysed in Uttar Pradesh for three years. Of these, 45 per cent were contaminated, non-conforming, and misbranded. Uttar Pradesh is the worst among the big states, followed by Jharkhand and Tamil Nadu. During the same period, over one thousand samples were analysed in Jharkhand, of which 40 per cent were contaminated, while it was 37 per cent for Tamil Nadu. The objective is to ensure the availability of safe and wholesome food for human consumption.

**Objectives:**

- To evaluate the reasons for the food adulterations in Tamil Nadu
- To study the causes of food adulteration
- To examine the reasons behind the increasing trend in fraudulent practices
- To evaluate the view of people regarding consumer awareness
- To investigate strategies for the prevention of food adulteration.

**Factors affecting the topic:**

- Profit motive of traders
- Food insecurity: to increase the quantity of food products
- Increased organisation: to make maximum profit

- High population demands: increased food demand
- Lack of effective food laws
- Lack of government initiative

#### **Currents trends related to the topic :**

- Food adulteration were increasing the word wide health problems to avoid attack of insects and diseases
- Basically ,during food adulteration greatly affects children's
- Various health related problems and disease.

#### **Literature review:**

(Siddappa, Nanjegowda, and Viswanath 2012) This article regulations to regulate such problems, various technologies are developed. within the present work, the detection methods of food adulteration are reviewed with attention on detection of common food adulterants. (Mudili et al. 2014). The study was conducted with the aim of understanding brand awareness among consumers and analyzing the attitude of consumers towards selected branded commodity food products. (“Developing Systems to Control Food Adulteration” 2014) (Collins 1993) This Food Adulteration and Food Safety in Britain in the 19th and Early 20th Centuries. Food adulteration may be a curse for mankind. it's been happening since times immemorial and continuing within the recent times. (“Review of the Current Application of Fingerprinting Allowing Detection of Food Adulteration and Fraud in China” 2011) this articles adulteration and fraud in China 2011. Food safety has emerged as an important global issue with international trade and public health implications In developing countries, the concerns about food safety are increasing due to a variety of factors including increase in the age of human populations, unplanned urbanization and migration and mass production of food due to population growth and changed food habits In response to the increasing number of food borne illnesses, Governments all (El-Hajjaji et al. 2020) The issue of adulteration is increasingly threatening an entire range of food products. they vary from ‘butter biscuits’ allegedly made with cheap fat in north Chennai to even ‘natural’ food products. a piece of the green leafy vegetables sold in Chennai is found to contain toxic metals that have the potential to harm various organs of the body. (Das et al. 2019) This article deals with Food is essential for sustenance of life. We all eat food and gain energy for different metabolic activities. All living organisms need food for growth, work, repair, and maintaining life processes.

There are different types of food available today in the market, and on a daily basis, we all depend on various food sources, including vegetables, fruits, cereals, pulses, legumes, etc. **(Raju et al. 2020)** This article deals about the Food is essential for sustenance of life. Adulteration of food cheats the consumer and can pose serious risk to health in some cases. The present study was planned with the main objective of identifying buying practices of homemakers and their extent of awareness related to selected food products. **(Chedid, Rizou, and Kalaitzis 2020)** the article reviews about the main causes due to the food adulteration Because children are relatively vulnerable to food adulterants, studying the health impacts of food adulteration on children is important.

**(Zhang et al. 2020)** This article provides an overview of the child health impacts of food adulterants in two recent food adulteration incidents in the Greater China Region: (1) a plasticizer incident in Taiwan and (2) a 2,4,6-triamino-1,3,5-triazine (melamine)-tainted milk incident in China. **(Bick et al. 2020)** Major food adulteration and contamination events seem to occur with some regularity, such as the widely publicised adulteration of milk products with melamine With globalisation and rapid distribution systems, these can have international impacts with far-reaching and sometimes lethal consequences **(Ashurst and Dennis 2013)** The articles deliberately deals about Food fraud, the intentional misrepresentation of the true identity of a food product or ingredient for economic gain, is a threat to consumer confidence and public health and has received increased attention from both regulators and the food industry. **(Ryan 2013)** The potential adulteration of foodstuffs has led to increasing concern regarding food safety and security, in particular for powdered food products where cheap ground materials or hazardous chemicals can be added to increase the quantity of powder or to obtain the desired aesthetic quality. **(Mitkovska, Dimitrov, and Chassovnikarova 2020)** Due to the resulting potential health threat to consumers, the development of a fast, label-free, and non-invasive technique for the detection of adulteration over a wide range of food products is necessary. **(Arunachalam et al. 2014)** This study was carried out in order to find a reliable method for the fast detection of adulterated herbal food supplements with sexual enhancement claims. As some herbal products are advertised as "all natural", their "efficiency" is often increased by addition of active pharmaceutical ingredients such as PDE-5 inhibitors, which can be a real health threat for the consumer. **(Fakhri and Mousavi Khaneghah 2020)** Food ingredient fraud and economically motivated adulteration are emerging risks, but a

comprehensive compilation of information about known problematic ingredients and detection methods does not currently exist. **(Shrivastava 2018)**

The objectives of this research were to collect such information from, publicly available articles in scholarly journals and general media, organize into a database, and review and analyze the data to identify trends. The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, **(Dudeja, Gupta, and Minhas 2016)**

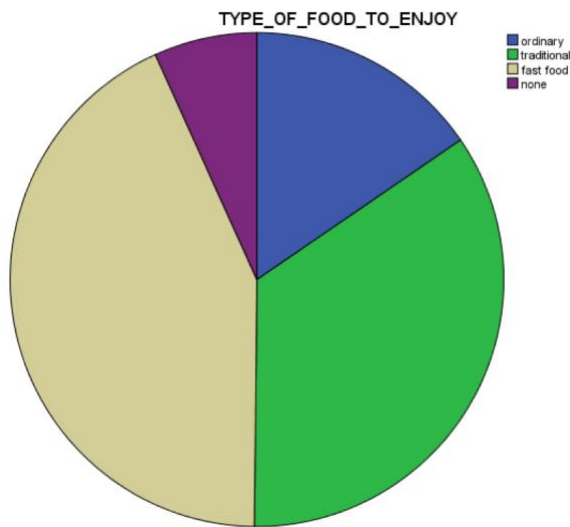
Economically motivated adulteration (EMA) of food, also known as food fraud, is the intentional adulteration of food for financial advantage. A common form of EMA, undeclared substitution with alternative ingredients, is usually a health concern because of allergen labeling requirements. **(Kaphalia et al. 1990)** As demonstrated by the nearly 300,000 illnesses in China from melamine adulteration of infant formula, EMA also has the potential to result in serious public health consequences. Furthermore, EMA incidents reveal gaps in quality assurance testing methodologies that could be exploited for intentional harm. In contrast to foodborne disease outbreaks, **(Pilotos et al. 2020)**. Due to the rising popularity of dietary supplements, especially plant food supplements, and alternative herbal medicines, a whole market developed and these products became freely available through the internet. This research. Deliberate deals about food adulteration. **(Chandan and Kilara 2010)** In recent years, food safety issues caused by contamination of chemical substances or microbial species have raised a major area of concern to mankind. The conventional chromatography-based methods for detection of chemical are based on human-observation and slow for real-time monitoring.

### **Methodology:**

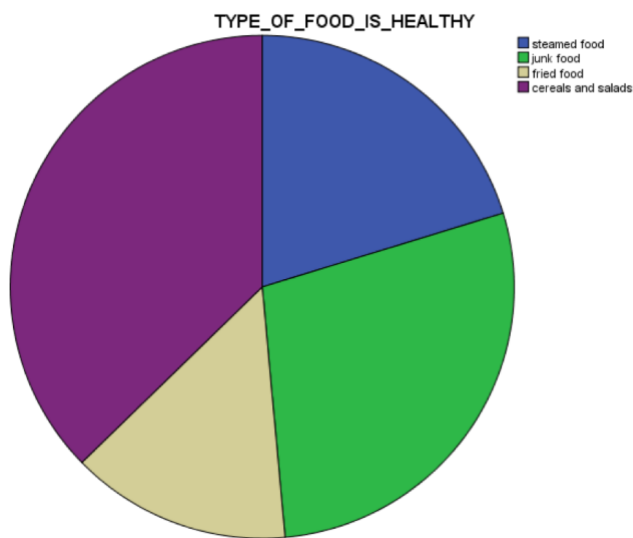
The Research method followed have is Empirical research. A total of Samples have been taken out of which taken through convenient sampling. The sample frame taken by the researchers is public area and fruits shops and vegetables market. The independent variable taken here is age, income, education and locations. The dependent variables are effective way and preference of customer in related shops, people's knowledge about consumption of food which is healthy or not. The statistical tool used by the researcher is correlation analysis and graphical representation. And total sample size is 311.

### **Analysis and Discussion:**

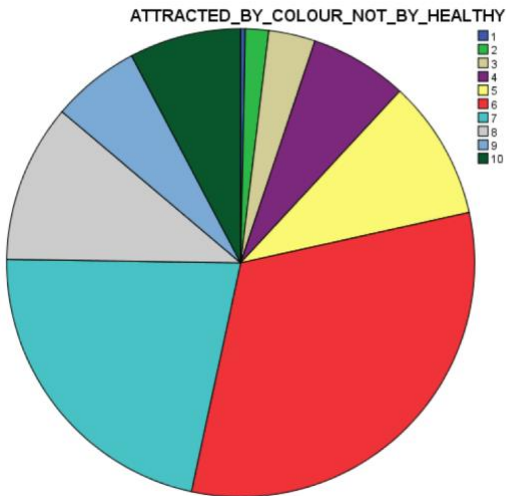
Pie chart:1



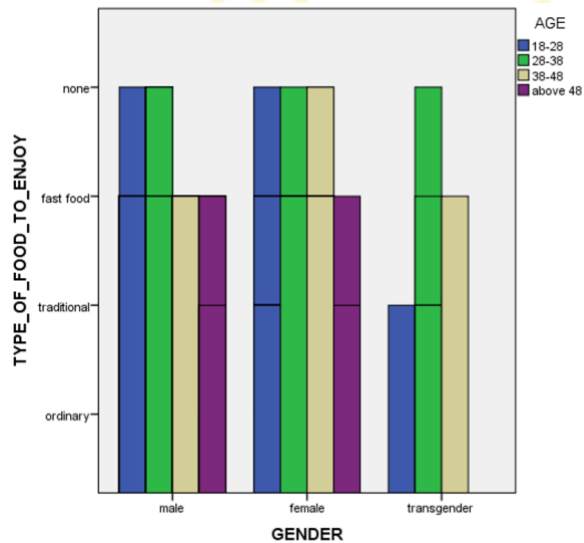
Pie chart:2



Pie chart:3



Bar diagram  
**GRAPH 1**

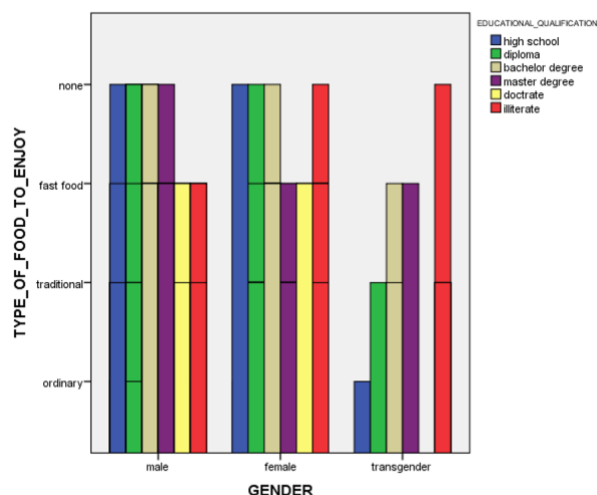


**Legend:1**

From the graph 1 shows and clearly have correlated the independent variable such as **Gender** And **age** with the dependant variable **Types of the food and consumer choices to enjoy**

**GRAPH:2**

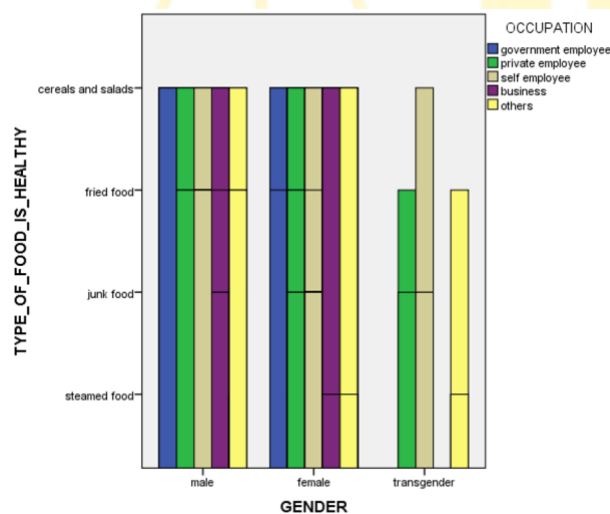




### Legend:2

From the graph 2; shows and clearly have correlated the independent variable such as **Gender** And **Educational Qualification** with the dependant variable **Types of the food and consumer choices to enjoy** .

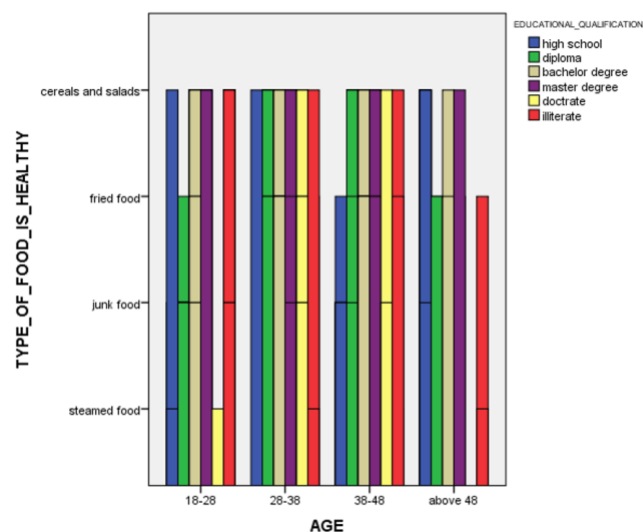
### GRAPH :3



### Legend :3

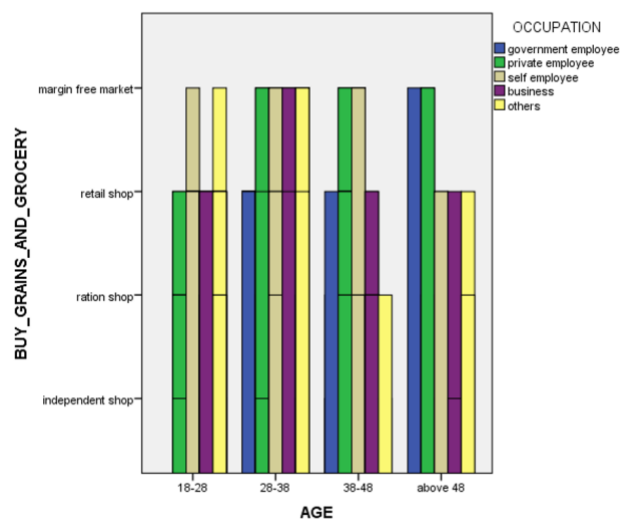
From the graph 3; shows and clearly have correlated the independent variable such as **Gender** And **Occupation** with the dependant variable **Types of food is healthy what consumers prefers the types of food related to taste or for health.**



**GRAPH :4****Legend:4**

From the graph 4;shows and clearly have correlated the independent variable such as **Educational Qualification** And **Age** with the dependant variable .**Types of food is healthy** what consumers prefers the types of food related to taste or for health.

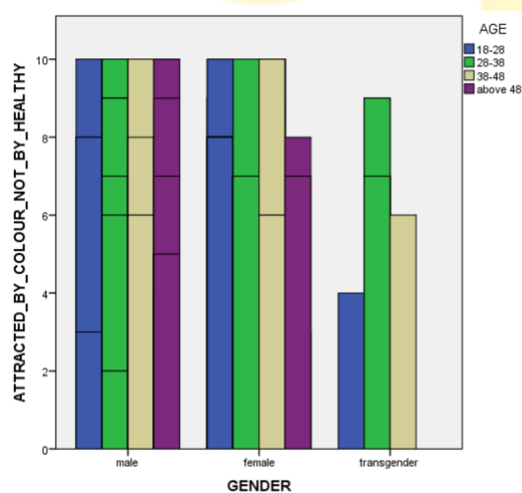
**GRAPH :5**



### Legend:5

From the graph 5;shows and clearly have correlated the independent variable such as **Age** And **Occupation** with the dependant variable .**Types of food is healthy what consumers prefers the types of food related in buying the grains and grocery .**

### GRAPH :6



### Legend:6

From the graph 6;shows and clearly have correlated the independent variable such as **Gender** and **Age** with the dependant variable **Types of food intake by customer which were Attracted by colour and not by healthy.**

## **Results :**

First it given the pie chart for the number of responses related to dependent variable second The Correlation and Graphical representation was statistically explained here .From the **Graph :1**, this is the outcome of the response collected in The graph is the outcome of the responses collected in the public places,Here the dependent variable is Types of the food and consumer choices to enjoy and the environment we live in most of the people said that “people now a days not much care about the which food they mostly prefer its denoted between the age of 18 to 20 prefers fast food and fried food and between 28 to 38 they prefers equally they intake traditional , fast food,fried food and above50 they intake traditional not others food like fast food,fried food .From the **Graph:2** The graph is the outcome of the responses collected in the public places,Here the dependent variable Types of the food and consumer choices to enjoy related with gender and educational Qualifications here it’s results mostly even educated also prefers the taste than healthy in many cases.From the **Graph :3** The graph is the outcome of the responses collected in the public places,Here the dependent variableTypes of food is healthy what consumers prefer the types of food related to taste or for health and Its results most of respondents in taking foods is equal.they equally intake variety of foods steamed , cereals ,fried food etc,but transgender mostly didn’t prefer fried food.From the **Graph :4** The graph is the outcome of the responses collected in the public places,Here the dependent variableTypes of food is healthy what consumers prefer the types of food related to taste or for health with education Qualifications as dependent variable in this we can clearly see intake of food equal but variety like fried and steamed food are mostly preferred here.**Graph :5** this is the outcome of the response collected in The graph is the outcome of the responses collected in the public places,Here the dependent variable is types of food is healthy what consumers prefers the types of food related in buying the grains and grocery .results even the Government employers doesn’t prefer the ration shop they quality and standards with good taste most of respondents prefers grocery and marginal restailshops.**Graph :6**this is the outcome of the response collected in The graph is the outcome of the responses collected in the public

places, Here the dependent variable Types of food intake by customer which were Attracted by colour and not by healthy in scale of 1 to 10 most of respondents responded that 10.that they are Attracted not only by colour and also through the advertisement.

### **Discussion :**

From the **Graph :1to 6**, this is the outcome of the response collected in The graph is the outcome of the responses collected in the public places,Here people now a days not much care about the which food they mostly prefer its denoted between the age of 18 to 20 prefers fast food and fried food and between 28 to 38 they prefers equally they intake traditional , fast food,fried food and above50 they intake traditional not others food like fast food,fried foodIts results most of respondents in taking foods is equal.they equally intake variety of foods steamed , cereals ,fried food etc,but transgender mostly didn't prefer fried food.Attracted by colour and not by healthy in scale of 1 to 10 most of respondents responded that 10.that they are Attracted not only by colour and also through the advertisement.types of food related in buying the grains and grocery .results even the Government employers doesn't prefer the ration shop they quality and standards with good taste most of respondents prefers grocery and marginal restailshops.In India According to fssai **45.3%** foods products in tamilnadu idid not meet the safety standard **28.5%** national average of food products that failed the FSSAI compliance test.In **5730** food products tested in the state in which **728** were found to be adulterated **12.7%** of total samples adulterated In related to law **306** criminal cases filed and **1485** where penalties were levied and they mostly trouble with milk and milk products, meat ,fish, turmeric,mineral water,spices and condiments jam , jelly, dates,edible fat oil.etc.

### **Limitations:**

The major limitation of my study is sample frame .The sample frame in koyambedu vegetable market and koyambedu fruits market and bus stand it not much have educated samples .The various government measures were taken like Food prevention Act and later now a days fssai is play major role in food security and analysis in food safety.

### **Conclusions:**

Majority of people prefer taste rather than healthy food, and that is one of the major drawbacks. Government measures related to this Act are good, but there is a need for various amendments in the appointment of officers to check. According to FSSAI, 45.3% of food products in Tamil Nadu did not meet the safety standards, compared to the 28.5% national average of food products that failed the FSSAI compliance test. Out of 5,730 food products tested in the state, 728 were found to be adulterated, i.e., 12.7% of the total samples were adulterated. In relation to law, 306 criminal cases were filed and penalties were levied in 1,485 cases. The products mostly involved were milk and milk products, meat, fish, turmeric, mineral water, spices and condiments, jam, jelly, dates, edible fats and oils, etc. As per the findings obtained from the study, adulteration of food is a serious issue in the state of Tamil Nadu, and this is largely due to consumer preference for advertisements, taste, and appearance as opposed to health. There is a change in the dietary preference among consumers of different age groups, as young consumers prefer fast and fried foods, while older generation consumers are more interested in consuming healthy meals. The findings establish that as consumers are largely influenced by taste and convenience, education and jobs do not always ensure proper health food choices. As far as the quality and safety standards of significant numbers of food products in the state of Tamil Nadu are involved, they fail to comply with the safety standards laid down by the FSSAI, thus establishing the severity of the situation as far as adulteration is involved.

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