

# Sustainability and ultra-processed foods: role of youth

## Sostenibilidad y alimentos ultraprocesados: el papel de la juventud

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### ABSTRACT

The objective of this research is to study and look at the ways how ultra-processed foods affect human and environmental health and to find alternatives to ultra-processed foods. Sustainability refers to the efforts made to meet the needs of the present generation without compromising the ability of future generations to fulfil their requirements. Sustainability aims at environment-friendly progress and development. World Health Organization defines *health* as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Processed food is any food that has been changed in its form and nature by using certain processing techniques such as freezing, canning and dehydrating. The focus of this research is "ultra-processed foods". Ultra-processed foods are the final food product that is processed by using chemicals and unnatural preservatives. As defined by the United Nations, youth refers to the young people who fall in the age group of 15-24 years.

The problem: Ultra-processed foods and their impact on human and environmental wellbeing. The food processing industry is largely driven by profit-making objectives owing to the intense competition in the market. The manufacturers of food processing have to ensure that they do not lose out their customers to their competitors. To maintain their consumer base the manufacturers work to make their processed food desirable and attractive. In the process, they resort to the usage of such products that are unnatural and unhealthy for both

the human body as well as the environment. Some of the examples of such ingredients include chemicals used for preserving, colouring, and adding texture and flavour to the natural food, refined carbohydrates, sweeteners, and processed vegetable oils.

Due to the use of above-mentioned ingredients, the consumption of ultra-processed foods becomes harmful to the human body. It has been found out through research that their consumption does not add any nutritional value to the human body. Moreover, it becomes very difficult for the human body to digest ultra-processed foods. Some people become addicted to such food and it has been studied that some food products are more addictive than drugs. Apart from this, the intake of the ultra-processed foods increases the instances of several diseases such as heart ailments, diabetes, high blood pressure and obesity.

Ultra-processed foods also impact the natural environment. The waste generated after the processing of the food and the handling of the waste affects the air, water and soil. The process of handling and packaging of the product results in the release of harmful chemicals and toxins in the environment. This not only affects the natural environment but also human health.

The solution to this problem is to create awareness about the harmful effects of ultra-processed foods and to promote sustainable alternatives to it. The youth can play a very important role in spreading awareness about the ill-effects as well as the alternatives to the ultra-processed foods. The sample of our study is the young consumers of ultra-processed foods of the University of Delhi. This is because the youth is the largest consumer of the ultra-processed foods and they can work towards promoting more sustainable and healthy food choices and habits amongst people. The research questions are: 1) What are the different kinds of ultra-processed foods that are consumed by people? 2) How does the food processing industry work? 3) How can the youth be made aware about the ill-effects of ultra-processed foods? 4) What are the sustainable alternatives to ultra-processed foods? 5) What role youth can play in promoting sustainable alternatives? The hypotheses are: 1) Ultra-processed foods affect the environment and human well-being negatively. 2) The youth can play a positive role in promoting alternatives to ultra-processed foods.

The research methodology is the theoretical and empirical analysis of the study. The nudge theory would be applied to understand how alternatives can be promoted by the youth. Richard Thaler and Cass Sunstein introduced the concept of nudging and defined a nudge as "any aspect of the choice, architecture that predictably alters people's behaviour without

forbidding any options or significantly changing their economic incentives.” It doesn’t mean restricting the options available to the people but it means regulating their behaviour. The questionnaires and surveys to assess the consuming habits of the people and the use of pictorial and graphical representation of the data collected through the surveys and questionnaires are used. Despite the study focuses on the youth, the surveys were conducted with both youth and adults to make the study more inclusive and comprehensive.

Keywords: Ultra-processed foods, processed foods, youth, health, environment, sustainability, food processing industry, energy consumption, food sector, food handling, waste management

## RESUMEN

El objetivo de esta investigación es estudiar y observar las formas en que los alimentos procesados afectan la salud humana y ambiental y encontrar alternativas a los alimentos procesados. La sostenibilidad se refiere a los esfuerzos realizados para satisfacer las necesidades de la generación actual sin comprometer la capacidad de las generaciones futuras para cumplir con sus requisitos. La sostenibilidad tiene como objetivo el progreso y el desarrollo respetuosos con el medio ambiente. La Organización Mundial de la Salud define la salud como un estado de completo bienestar físico, mental y social y no simplemente la ausencia de enfermedad o dolencia. Los alimentos procesados son los alimentos que han cambiado en su forma y naturaleza mediante el uso de ciertas técnicas de procesamiento, como congelar, enlatar y deshidratar. El foco de esta investigación son los “alimentos ultraprocesados”. Los alimentos ultraprocesados son el producto alimenticio final que se procesa mediante el uso de productos químicos y conservantes no naturales. Según la definición de las Naciones Unidas, la juventud se refiere a los jóvenes que se encuentran en el grupo de edad de 15 a 24 años.

El problema: los alimentos ultraprocesados y su impacto en el bienestar humano y medioambiental. La industria de procesamiento de alimentos está impulsada en gran medida por objetivos de lucro debido a la intensa competencia en el mercado. Los fabricantes de procesamiento de alimentos deben asegurarse de no perder a sus clientes frente a sus competidores. Para mantener su base de consumidores, los fabricantes trabajan para hacer que sus alimentos procesados sean deseables y atractivos. En el proceso, recurren al uso de tales productos que no son naturales ni saludables tanto para el cuerpo humano como para el medio ambiente. Algunos de los ejemplos de tales ingredientes incluyen productos químicos

utilizados para conservar, colorear y añadir textura y sabor a los alimentos naturales, carbohidratos refinados, edulcorantes y aceites vegetales procesados.

Debido al uso de los ingredientes mencionados anteriormente, el consumo de alimentos ultraprocesados se vuelve perjudicial para el cuerpo humano. Se ha descubierto a través de investigaciones que su consumo no agrega ningún valor nutricional al cuerpo humano. Además, al cuerpo humano le resulta muy difícil digerir los alimentos ultraprocesados. Algunas personas se vuelven adictas a dichos alimentos y se ha estudiado que algunos productos alimenticios son más adictivos que las drogas. Aparte de esto, la ingesta de alimentos ultraprocesados aumenta los casos de varias enfermedades como dolencias cardíacas, diabetes, presión arterial alta y obesidad.

Los alimentos procesados también afectan el medio ambiente natural. Los residuos generados tras el procesamiento de los alimentos y el manejo de los residuos afectan el aire, el agua y el suelo. El proceso de manipulación y envasado del producto da como resultado la liberación de sustancias químicas nocivas y toxinas en el medio ambiente. Esto no solo afecta al medio ambiente natural sino también a la salud humana.

La solución a este problema es crear conciencia sobre los efectos nocivos de los alimentos ultraprocesados y promover alternativas sostenibles a los mismos. Los jóvenes pueden jugar un papel muy importante en la sensibilización sobre los efectos nocivos y las alternativas a los alimentos ultraprocesados. La muestra de nuestro estudio son los jóvenes consumidores de alimentos ultraprocesados de la Universidad de Delhi. Esto se debe a que los jóvenes son el mayor consumidor de alimentos ultraprocesados y pueden trabajar para promover opciones y hábitos alimentarios más sostenibles y saludables entre las personas. Las preguntas de investigación son: 1) ¿Cuáles son los diferentes tipos de alimentos ultraprocesados que consumen las personas? 2) ¿Cómo funciona la industria alimentaria? 3) ¿Cómo se puede concienciar a los jóvenes sobre los efectos nocivos de los alimentos ultraprocesados? 4) ¿Cuáles son las alternativas sostenibles a los alimentos ultraprocesados? 5) ¿Qué papel pueden jugar los jóvenes en la promoción de alternativas sostenibles? Las hipótesis son: 1) Los alimentos ultraprocesados afectan negativamente al medio ambiente y al bienestar humano. 2) Los jóvenes pueden jugar un papel positivo en la promoción de alternativas a los alimentos ultraprocesados.

La metodología de la investigación, es el análisis teórico y empírico del estudio. La teoría del empujón se aplicaría para comprender cómo los jóvenes pueden promover alternativas. Richard Thaler y Cass Sunstein introdujeron el concepto de codazo y definieron un codazo como "cualquier aspecto de la elección, arquitectura que altera predeciblemente el

comportamiento de las personas sin prohibir ninguna opción o cambiar significativamente sus incentivos económicos". No significa restringir las opciones disponibles para las personas, sino regular su comportamiento. Se utilizan los cuestionarios y encuestas para evaluar los hábitos de consumo de las personas y el uso de representación pictórica y gráfica de los datos recogidos a través de las encuestas y cuestionarios. A pesar de que el estudio se centra en el papel de los jóvenes, las encuestas se realizaron tanto con jóvenes como con adultos para hacer el estudio más inclusivo y completo.

Palabras clave: alimentos ultraprocesados, alimentos procesados, juventud, salud, medio ambiente, sostenibilidad, industria de procesamiento de alimentos, consumo de energía, sector alimentario, manipulación de alimentos, gestión de residuos.

## INTRODUCTION

After the Second World War, technological advances in food production led to a new era characterized by the overabundance of inexpensive food obtained after less physical activity. The food processing industry capitalized and thrived on the human need for fast and convenient food. Today, the processed foods and the ultra-processed foods, in particular, have become a necessary evil in human life because of the convenience they provide. Processed foods include basic conversion like converting wheat into a dough and then into chapattis. Chapatti is processed but it is not ultra-processed. On the other hand, Ultra-processed foods tend to be mass-produced and packaged goods such as sodas, packaged sweet and savoury snacks, instant noodles, chicken nuggets, and frozen meals.

In their busy lifestyles, individuals do not get time to cook and hence they tend to opt for ready to heat and ready to eat foods. They prefer such foods over home-cooked food to keep their work-life stable but very few realize that in this race of busy work-life their food choices affect their health and environment. The processed food industry also gives us what we want but it has a vested interest in selling its products. The processed and ultra-processed foods are high on caloric value as a result of which obesity is a common ailment amongst people. Generally, the frozen foods contain nitrates which can damage blood vessels and can lead to hardening of the arteries. These foods also tend to be high on sodium that can lead to high blood pressure. Therefore, there is a need to move towards real food (that is the plant and animal or the food that is in its natural state or the food that are very lightly processed like flours etc.) from ultra-processed food.

This research study is important because it highlights the harmful effects of ultra-processed foods on both human health as well as the environment. Ultra-processed foods affect our health by creating consequences like heart ailments, cancer, and obesity. According to a French study, an individual faces a 14 per cent higher risk of early death with each 10 per cent increase in the amount of ultra-processed foods one takes (*NDTV, 2019*). The production of ultra-processed foods, including their packaging, leads to harmful *environmental* consequences such as it emits greenhouse gases which are detrimental to environmental health. These packaged, processed and engineered foods affect the environment negatively because they require more energy to produce and package than the whole foods like oats, bananas, and spinach. Each step in the food industry system - food production, processing, transportation, storage, packaging, distribution, and marketing - create wastes of different quality and quantity, which, if not treated, could lead to increasing disposal problems and severe pollution problems. Additionally, they represent a loss of valuable biomass and nutrients if not recovered by appropriate methods and technologies for upgrading, bioconversion or re-utilization (Kroyer, 1995). Food handling is the largest sector of energy consumption in the food production industry of the US (it accounts for nearly half of the energy used in food production – over 5,000 trillion BTUs). This sector includes food packaging, service and sales, and residential energy consumption (Energy Use in Food Production, 2015).

Today, the world is challenged by many environmental concerns and the need to *sustain* the environment. According to the Cambridge dictionary, the word *sustainable* means, 'able to continue over a period of time' and in relation to the environment it means 'causing little or no damage to the environment and therefore able to continue for a long time'. The scholars believe that for a sustainable world, sustainable development is required. This means that the environment has to be sustained while carrying out developmental activities. Research has been carried out to study the impact of economic and political development on the environment. Many ideas have been put forward and initiatives were taken to manage things such as electricity, industries, and urbanization in a green and eco-friendly way to sustain the environment and world.

This research paper primarily aims to study the adverse impact of ultra-processed foods on the sustainability of the environment and health. The objective of this research is to increase the awareness about the ultra-processed foods (the food items that come under this

category and what are the consequences of consuming these foods) and their effects on human as well as environmental health. It also aims to provide alternatives to ultra-processed foods that are healthier options and that emit less emission in the environment, thereby moving towards a sustainable world. The basic idea is to not just have a better environment for future generations to live in but also to have healthier future generations. The food that one eats and the environment in which one lives - are both related to one other.

## MATERIAL AND METHODS

This is a qualitative as well as a quantitative research study. The sampling method was employed to study the harmful effects of ultra-processed foods and the role of youth in sensitizing people about it.

For this study, personal interview and survey were conducted – personal interviews with the sellers of ultra-processed foods and surveys with the consumers of ultra-processed foods. The sample size for the personal interview with sellers of ultra-processed foods was four. The interviews were conducted at four eating joints located in central Delhi and they were - McDonald's, Chili's, Subway, and Burger King. The staff (managers and workers) of these eating joints was questioned about the production, packaging, distribution, handling, segregation, and waste management of ultra-processed foods. For the survey with consumers, the sample size was thirty which included both men and women in the age group of 15-50 years (both adults and teenagers were included to make the sample more inclusive) as this sample size represented the diverse population and helped the researchers in reaching general conclusions and analyzing the differences in food choices among different age groups. The main objective of the survey with the consumers was to understand their food habits and at the same time assess their level of awareness about ultra-processed foods and the alternatives available. This survey was conducted prior to the screening of the documentary. The questionnaire for this survey was developed after a thorough review of the eating patterns in Indian society. The questions were particularly designed to test the knowledge of people about the negative impact of ultra-processed foods on human health and environmental well-being. The feedback of the sellers, as well as the consumers of ultra-processed foods, has been analyzed and the data has been presented graphically in the subsequent pages.

The screening of the documentary titled 'Processed Food Documentary - Processed Food vs. Nutritional Needs' (published by Proper Gander in 2016 on YouTube) has been a valuable addition to this research study as it facilitated interaction with the sample population. The documentary highlights the factors that affect food choices and explains how the food production has been highly deliberately diversified by MNCs and other big corporate houses to promote the commercialization of foods and to generate higher profits at the cost of the health of consumers and environment. Moreover, it clarifies that consumers are not provided with all the available options and that they are deliberately made to eat what the corporate houses want them to. Apart from highlighting the impact of the ultra-processing food industry, the documentary offers valuable suggestions to help consumers in choosing their food more wisely. The documentary screening was followed by a discussion between the sample population and the researchers of this study. During the discussion, it was agreed that if provided with easy and accessible alternatives, the sample population was willing to forgo ultra-processed foods. After the documentary screening, the sample population was asked to give its online feedback through Google forms. The online feedback helped the researchers in analyzing the change in the attitude of sample population towards ultra-processed foods, especially after it had been sensitized and made aware about the adverse impact of ultra-processed foods on human and environment health.

This study has also used secondary sources of research such as articles published in academic journals, articles by think tanks, reports published by research and advocacy groups and Internet sources have been consulted.

## RESULTS

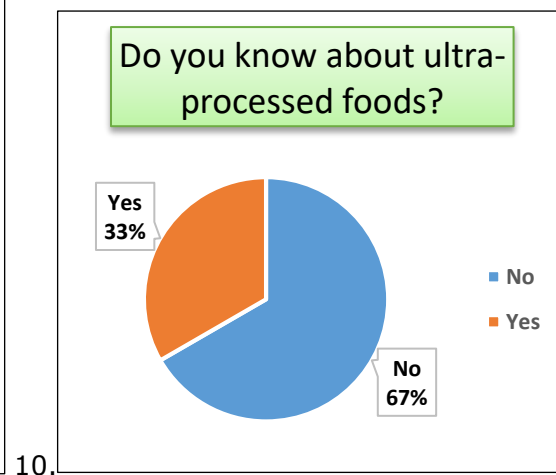
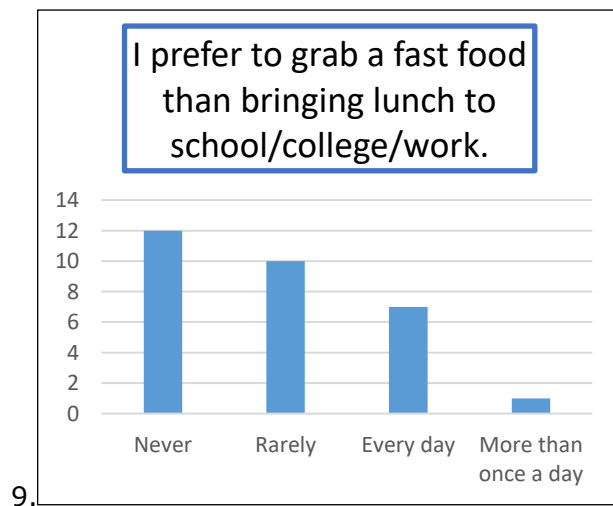
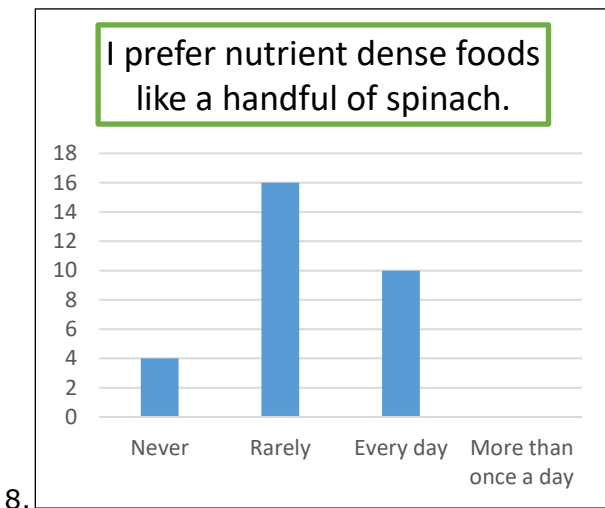
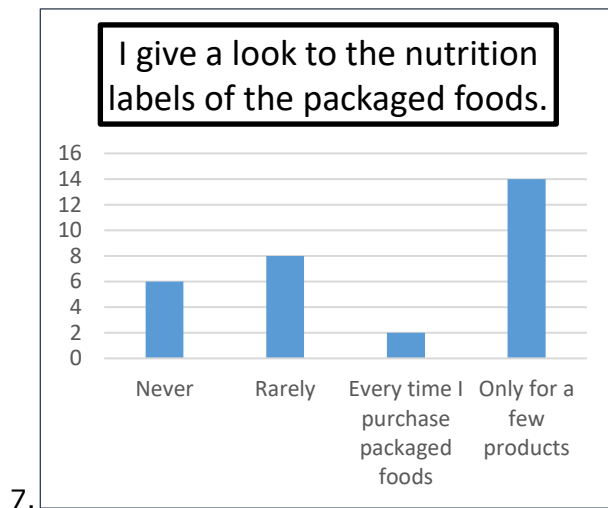
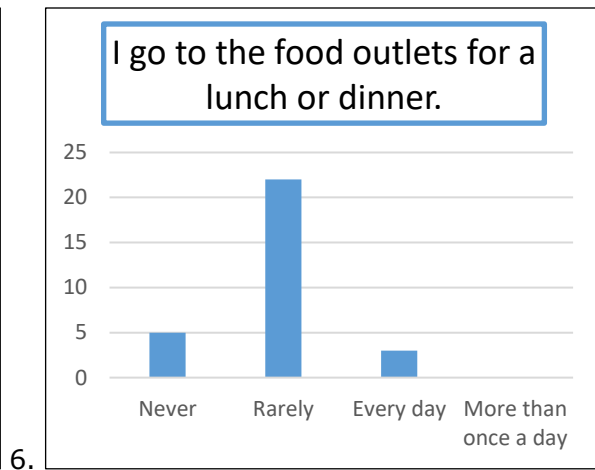
The surveys conducted with both the sellers and consumers of ultra-processed foods have produced interesting findings. The eating joints surveyed for the study offered various types of ultra-processed foods such as pizza, pasta, Doritos, burgers, chicken products, beverages, and sandwiches. According to the staff of these eating joints, the demand for such ultra-processed foods came from the youth falling in the age group of 15-24 years. The staff workers informed the researchers that though the eating outlets followed waste management mechanisms (the waste was weighed, registered and evaluated), the eating joints did not have adequate waste disposal techniques. The staff workers were primarily responsible for evaluating the waste but waste disposal was not their responsibility. Also, they were not

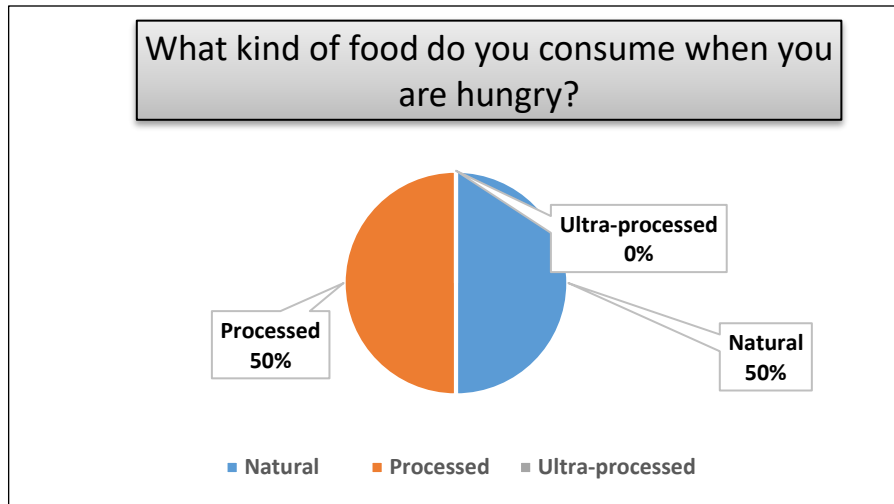


aware of the procedures adopted by the government for waste management and disposal. This showed that the eating joints were more interested in earning profits than having any concern for the environment.

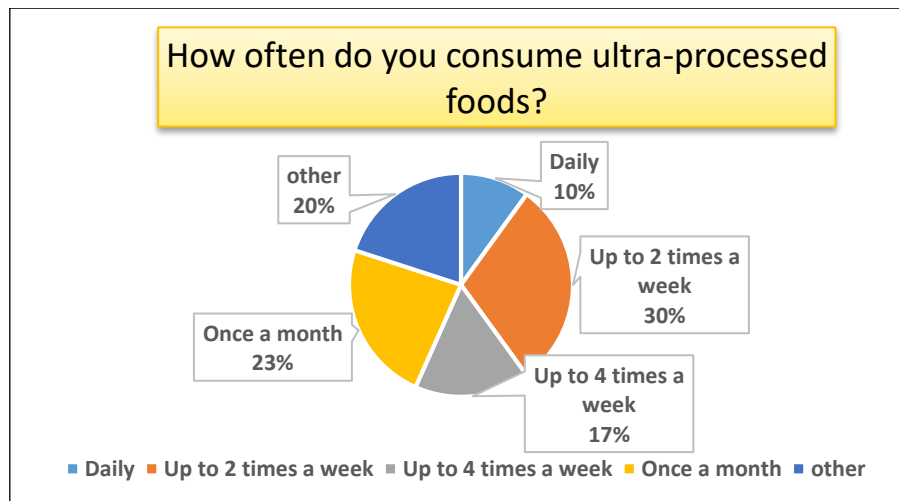
During the analysis of a survey with consumers, it was found that out of the thirty consumers, a little more than half of them admitted to having chosen food according to taste preference and convenience. More than two-thirds of the consumers thought that the advertisements played an important role in influencing their eating habits. It was also observed that about two-thirds of the consumers did not know about the term 'ultra-processed foods' though half of them were aware of the adverse impact of such foods on human health and only four of them were familiar with the harmful effect of ultra-processed foods on the environment. The findings of the survey conducted with the consumers of ultra-processed foods have been represented in the following graphs and pie diagrams.



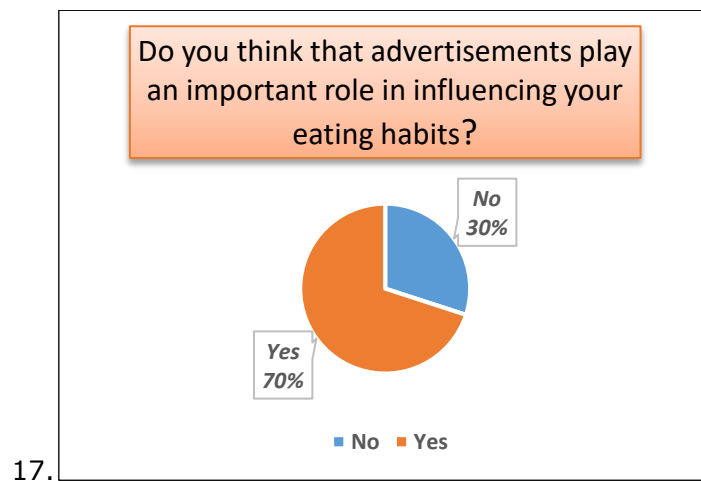
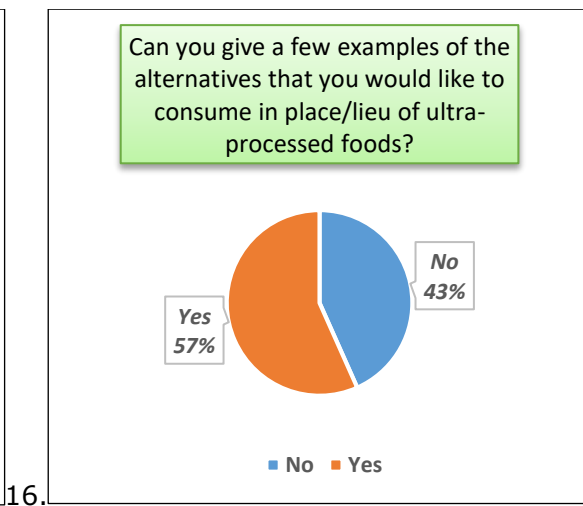
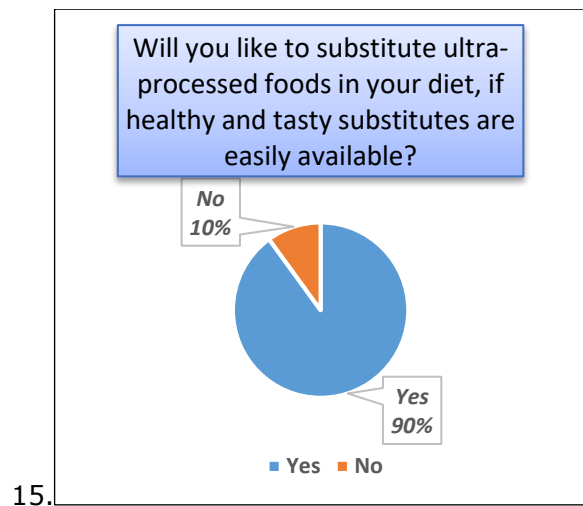
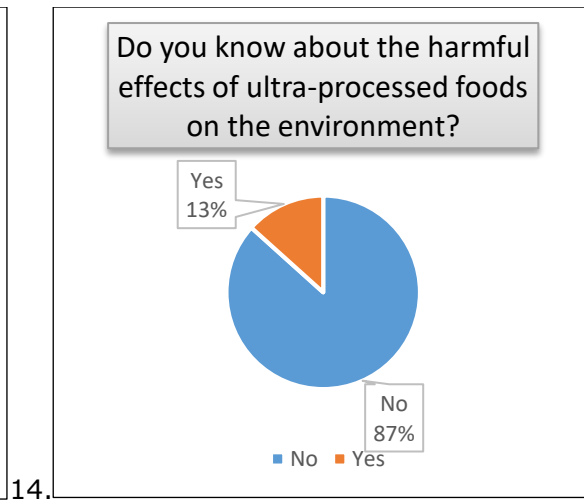
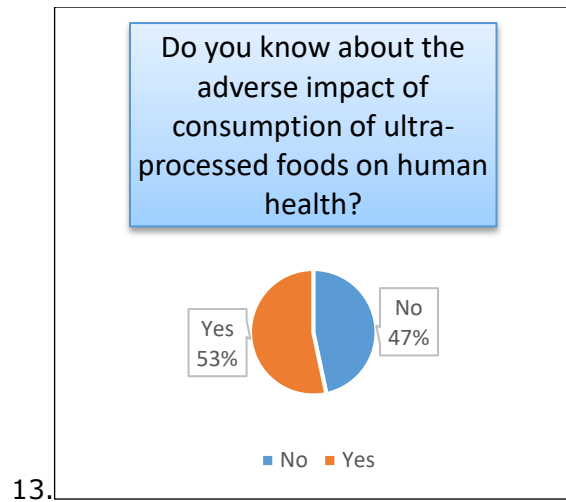




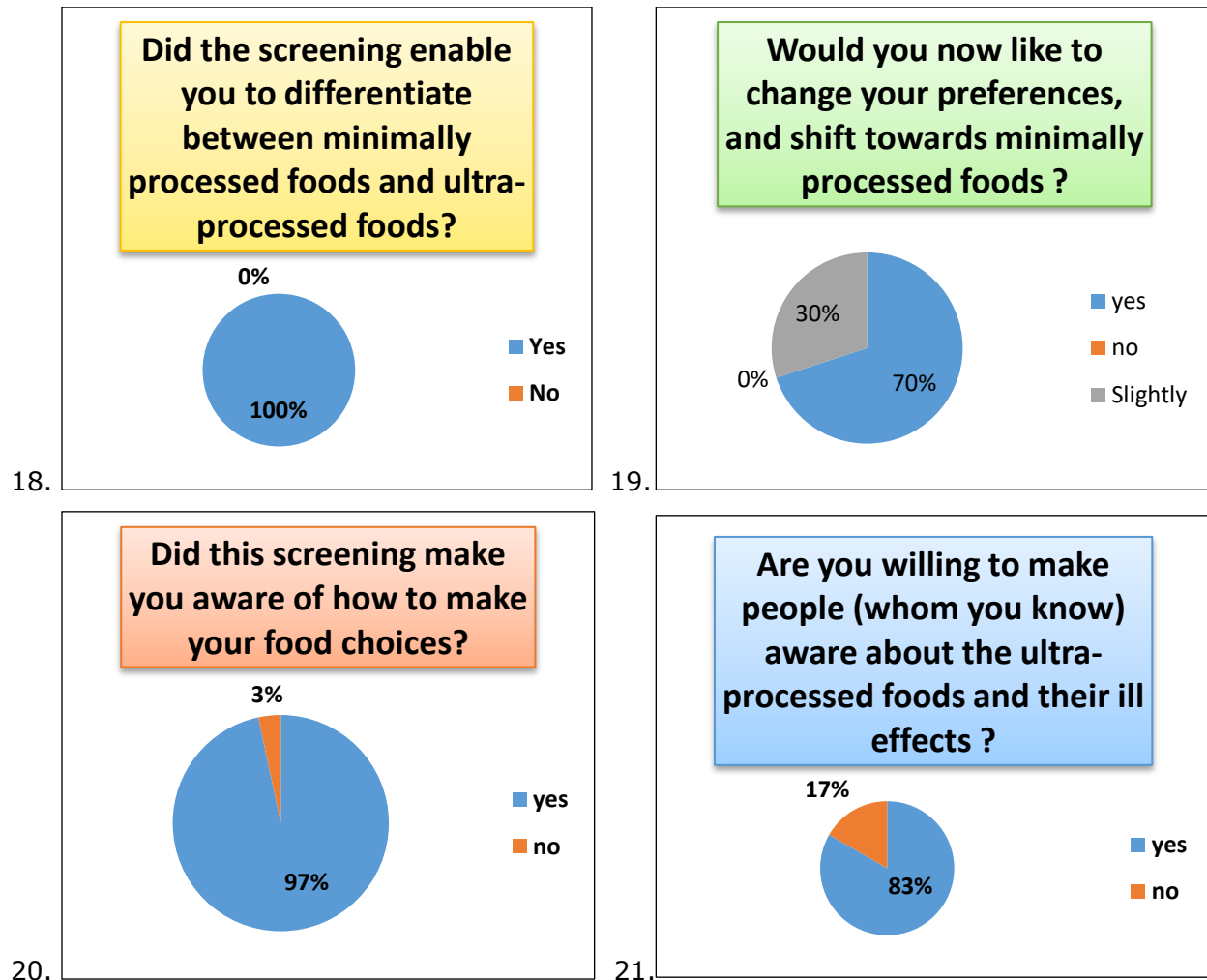
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The documentary screening and the subsequent online feedback highlighted the fact that the availability of information on the adverse impact of ultra-processed foods did influence the food choices of consumers as can be understood from the following pie charts. In the online feedback, all the participants accepted unanimously that the documentary screening had helped them to differentiate between minimally and ultra-processed foods. Also, almost the three-fourth of the participants agreed to change their food preferences and shift to minimally processed foods. Many of the respondents also promised to contribute their small bit to the environment by generating awareness about ultra-processed foods and encouraging people (such as their family, friends and colleagues) to opt for healthy food habits. Thus, it would not be wrong to say that the participants responded positively after documentary screening and that the documentary screening was a 'youth initiative' undertaken by the researchers to sensitize consumers about ultra-processed foods and environment.



This research study has attempted to answer a number of research questions related to the different kinds of ultra-processed foods consumed by people, creating awareness amongst the youth about the ill-effects of ultra-processed foods, sustainable alternatives to ultra-processed foods and the role of youth in promoting sustainable alternatives.

Based on the findings of the present study, the first hypothesis, i.e. 'The low level of awareness about the harmful effects of ultra-processed foods results in their high production and consumption' has been substantiated. The 67 per cent of the sample population did not know about the ultra-processed foods and consequently, they had no knowledge about the harmful effects of ultra-processed foods on their health and environment. Therefore, they preferred eating junk foods and not healthy foods. Also, after the documentary screening, during the talk session, it was agreed by the participants that since they were aware of the

negative implications of ultra-processed foods, they were willing to forgo these foods. The second hypothesis is 'The youth can play an important role in creating awareness about the fallouts of ultra-processed foods and sensitizing people about their alternatives'. This hypothesis has been verified. The researchers, as the youth, initiated this research and they took measures to make the people aware of the consequences of consuming ultra-processed foods. The research generated positive results as the sample population was ready to change their food habits to better and healthier ones. Thus, the youth can provide a platform for creating awareness and start initiatives to improve environmental health. These initiatives can be innovative ideas also as the researchers tried collaborating with NGOs to provide alternatives of ultra-processed foods. The third hypothesis is 'The youth can sensitize the government to take steps for encouraging healthy habits amongst people'. The present research focuses on the youth as the harbingers of human progress and change. The youth can play an important role in bringing about a change in the mindset of the people and sensitize the government through such research, a small initiative but which can be built into a big project with better support so that healthy eating habits amongst people can be encouraged. The fourth hypothesis 'The youth can play an important role in creating awareness about the ill effects of the ultra-food processing industries on the environment' has been validated. By conducting the seminar and organizing a talk session, the researchers created awareness about the ill effects of the ultra-food processing industries on the environment among the sample population.

## DISCUSSION

People are not aware of what the ultra-processed foods mean and what food items actually come under the category of ultra-processed. This research study is in complete agreement with the idea that by decreasing the intake of ultra-processed foods, one can decrease his/her carbon footprint as well as his/her waistline (Another Reason to Avoid Processed Foods, 2019). This study believes that once people are made aware of their consequences, the former would reduce the consumption of ultra-processed foods. It is sometimes seen that people want to contribute to the conservation of the environment but due to lack of awareness about the appropriate means, they are not able to make the right choices. The government and civil society in general and youth, in particular, can play a very important role in creating awareness about the ill-effects of the food processing industry and sensitizing the people to

adopt a cleaner alternative and giving consideration for a cleaner and greener environment. The suggested alternatives of ultra-processed foods include home-cooked foods such as *poha*, *multigrain atta cookies*, *oats*, *vegetable sandwiches*, *idli*, *dosa*, *chutney* and *traditional sweet dishes (rasgulla and kheer)*. In fact, the findings of the study encouraged the researchers to start an initiative like the 'Dastarkhwan' canteen in Jamia Millia Islamia with the help of an NGO that could provide the students of Gargi College with healthier food at reasonable prices. But this project could not see the light of the day due to the failure of collaboration between any such NGO and the researchers.

Based on the above study and its major findings, a number of recommendations can be made. For one, there is a need to encourage startups and initiatives with the help of the government or an NGO that can provide a platform where the youth can get food which is tasty, healthy, pocket-friendly and is cooked in a hygienic environment. Also, the children have to be taught about healthy food habits and environment, and the family, family friends, relatives, and school education can play a very important role here. It is also important for elders to regulate and monitor the TV/online content that children view as the latter imitate whatever they learn from TV/online. Further, it is advisable that one makes a shopping list before going to the supermarket and one should stick to it. This is because, given the intense marketization, people are tempted to buy such foods (dense caloric food and ultra-processed food) which they do not really require. Besides, consumers should be smart in buying foods; they should read the labels carefully. The number of ingredients listed in the food item defines to what extent the food has been processed: if there are more items, then the food is highly processed and if the items are less and known to the common man then the food is less processed and healthier. The nutrition label facts are certainly not always correct and are always confusing for the common man. Therefore the proper understanding of the nutrition fact labels is necessary for the consumers.

To conclude, the objective of this study is to reduce the demand for ultra-processed foods so that their supply automatically decreases. The decline in the supply of ultra-processed foods would not only secure human health but also preserve the natural environment in the long run and hence contribute to a sustainable world.

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