



Processed Foods and Their Impact on Body Health

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ABSTRACT

Processed foods have become a dominant part of the consumption patterns of modern society along with the increasing practical lifestyle and urbanization. Products such as fast food, frozen food, and packaged snacks are widely chosen because they are efficient and easily accessible. However, excessive consumption of these types of foods can have serious impacts on body health, especially if not balanced with a healthy diet and sufficient physical activity. Various studies have shown that processed foods generally contain high levels of sugar, salt, and saturated fat, as well as additives such as preservatives and synthetic colors. These contents contribute to increasing cases of obesity, hypertension, type 2 diabetes, and heart disease. In addition, some types of ultra-processed foods are also associated with metabolic disorders and chronic inflammation in the body. However, processed foods do not always have negative impacts. If chosen carefully and consumed within reasonable limits, processed foods can provide benefits such as ease of storage, nutrient fortification, and help with food security. Therefore, it is important for the public to understand the nutritional content of the products they consume and to apply the principles of balanced nutrition in everyday life. Increasing nutritional literacy, stricter food regulation policies, and ongoing public education are needed to reduce the negative impacts of processed food consumption. With the right understanding, people can make healthier decisions in choosing food to maintain quality of life and prevent chronic diseases in the future.

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1. INTRODUCTION

The development of the era has brought significant changes in the consumption patterns of global society. One of the most obvious forms of transformation is the increasing consumption of processed foods. Processed foods refer to products that have undergone processing, both physically and chemically, to extend their shelf life, enhance their taste, and make them easier to serve.

Modern society tends to prioritize practicality in choosing food, especially in densely populated urban environments. This makes processed foods such as instant noodles, fast food, frozen foods, and packaged snacks the main choice. However, behind this practicality, there are hidden major health risks that are often overlooked.

According to Monteiro et al. (2019), ultra-processed foods are one of the most problematic categories in terms of health because they contain many additives such as preservatives, artificial

sweeteners, dyes, and synthetic flavors. Ultra-processed foods also tend to be high in sugar, salt, and saturated fat but low in fiber, vitamins, and minerals.

Data from the World Health Organization (WHO, 2022) shows that the increase in processed food consumption globally is correlated with the increasing prevalence of obesity and other chronic diseases, such as type 2 diabetes and cardiovascular disease. This reinforces the urgency to further examine the relationship between processed foods and body health.

In the context of Indonesia, the trend of processed food consumption has also increased rapidly. Based on the 2018 Basic Health Research (Riskesdas), there was a spike in the consumption of ready-to-eat food and sweet drinks in packaging, especially among teenagers and young adults. This condition shows that people are starting to shift from traditional foods to processed products with high shelf life. Theoretically, high consumption of processed foods can be linked to the Diseases of Civilization Theory, which states that many modern diseases arise from changes in human lifestyle and diet from natural to artificial (Eaton et al., 1988). Processed foods are one of the main triggers in this theory.

In addition, the Balanced Nutrition Theory explains that the body needs a balanced intake of nutrients from natural sources such as fruits, vegetables, lean proteins, and complex carbohydrates. When processed foods replace most of the natural food sources, the body's nutritional balance is disrupted, which ultimately causes health problems (Soekirman, 2000).

One of the main reasons for consuming processed foods is time constraints and an instant lifestyle. However, people's understanding of the nutritional content of processed foods is still relatively low. Nutrition labels are often ignored, while product advertisements tend to emphasize deliciousness and convenience without clearly conveying the health risks.

Another problem is the low awareness of long-term consumption. The effects of processed foods are not always visible in the short term, but the accumulation of additives, trans fats, and added sugars in the body can trigger metabolic disorders in the long term. This is what makes processed foods a 'silent killer' in everyday life.

However, not all processed foods have negative impacts. In certain conditions, processed foods can be a solution to overcome food distribution and food security problems, especially in remote areas. Some foods are also fortified with essential nutrients to overcome micronutrient deficiencies.

Therefore, a comprehensive study is needed on the types of processed foods, their nutritional content, and their effects on body health. This research is not only academically relevant, but also has high practical value in order to increase public awareness and assist policy makers in designing healthy and sustainable food regulations. This article will discuss in depth the definition and classification of processed foods, their nutritional content, negative and positive impacts on body health, and strategies to reduce people's dependence on processed food products. The goal is to provide objective and educational information so that people can make healthier decisions in choosing food.

2. RESEARCH METHODS

This study uses a library research approach with qualitative descriptive analysis. Data were collected from scientific journals, WHO reports, FAO, the Indonesian Ministry of Health, and scientific publications from Google Scholar and PubMed.

Inclusion criteria:

- a. Publications of the last 10 years (2014–2024)
- b. Focus on processed foods and their impact on health
- c. Written in Indonesian or English

Analysis is carried out by reading, taking notes, and compiling relevant information based on the topic and subtopics of the article.

3. RESULTS AND DISCUSSION

Processed foods are foods that have undergone a process of change from their natural form through physical, chemical, or biological methods. These processes include canning, freezing, drying, fermentation, or the addition of chemicals such as preservatives, colorings, and artificial sweeteners.

Processed foods are classified into several categories, ranging from minimally processed (such as frozen vegetables), processed foods (cheese, bread), to ultra-processed foods (fast food, packaged snacks). Nowadays, instant food is popular with many people. To maintain its supply and improve its quality, instant food uses additives. These additives can be organic or inorganic, which allow the basic ingredients of food to remain in their original form, but also allow the basic ingredients of food to experience changes due to reactions during the storage process. Food additives are substances that are intentionally used as additions to food, after becoming a component of food, they will affect the nature and quality of food both directly and indirectly (Oser, 1975 cit. Harminasi, 1987). This article is intended to disseminate information and provide knowledge to the public so that they can conduct observations and evaluations of products sold in the market (shops, supermarkets, etc.). With the provision of knowledge and information, they become more careful and selective in consuming and/or using food and cosmetic products including imported soap. Moreover, in an era of openness like today, including a free market, it is very possible for various forms of foreign products to be available and traded freely everywhere. Especially for Muslim consumers, they should be more careful with foreign products (imports). The following describes a number of negative impacts of food additives on human health:

Additives in Ready-to-Eat Food and Their Impact on Human Health

Food ingredients contain body-building elements that are very necessary for growth and development. In addition, food ingredients are also very necessary for body health. However, the opposite can happen, food ingredients become a source of damage or decline in health, depending on the type of food ingredients and the cleanliness and technology of its processing.

Nowadays, everywhere including in school environment, we can easily find various types of ready-made food, both processed industrial technology (canned, packaged), and homemade (young coconut ice, cendol, porridge, lontong, pelicing and so on). It is very concerning for all of us, that many of the food ingredients sold still do not meet health criteria, both in terms of nutritional value, cleanliness and safety for health. Have we ever cared and realized it?

Food additives are defined as substances that are intentionally added to food that can affect the nature or quality of the food, either directly or indirectly (Oser, 1975 in Tandjung, 1987). In line with the development of science and technology, food additives are categorized as environmental pollutants (Holdgate, 1980).

Categorization as a pollutant, because the presence of these additives can occur intentionally or unintentionally. The presence of additives in food is unintentional, humans do not know or realize it at all, both as producers and consumers of all types of food ingredients such as staple foods, side dishes, vegetables and fruits.

Function of Food as a source of energy, Energy Source Food, body building substance, regulator, and supplement. Basically, humans always try to obtain high quality food ingredients with an appearance that suits their taste. For this purpose, humans have long developed the use of food additives. These food additives function as preservatives, colorings, sweeteners, flavorings, aroma enhancers, coagulants or thickeners and so on.

Food ingredients including their nutritional quality are absolutely necessary for growth, development and health. The types and functions of food ingredients vary greatly. With the development of technology, food ingredients consumed by consumers are not 100% pure food substances, but have been seasoned with various types of food additives. Food additives are generally grouped into two types, namely:

- a. direct food additives and
- b. indirect food additives. Both groups of food additives have negative effects on the health, growth and development of consumers.

Chemical Residues in Food and Their Effects on Human Health

Health-hazardous contaminants can be transmitted to consumers due to consuming contaminated products. These contaminants can be heavy metals, chemical residues (eg pesticides), hormone residues and antibiotics. Heavy metal contaminants can increase in concentration because factories,

industries, nuclear power plants, war and nuclear weapons testing. There are also certain types of tubers, leaves, fruits and seeds, whose metal content, especially zinc (Zn) is high, making them very toxic. Potatoes with solanine content are also toxic. Pesticide residues can be a serious health threat related to the low knowledge of farmers in handling agricultural crops using pesticides. Likewise with hormonal and antibiotic residues in farmed livestock. With the intention of triggering rapid weight gain and growth, hormones and antibiotics are used, which in turn, if the animal meat products are consumed, can have a negative effect on consumers.

Cabbage and turnips, with iodine absorption inhibitors (goitrogens) can cause goiter. Cancer (carcinogens) can occur due to consuming foods that are given additives (additional substances) such as: preservatives, colorings, flavorings, artificial sweeteners, and emulsifiers. These food additives are also toxic substances that are very dangerous for the body. Cancer can attack the stomach, colon (large intestine), breasts and ovaries. Gastric cancer occurs because nitrite and nitrate from food turn into carcinogenic nitrosamines. Colon cancer can occur because the food consumed contains low fiber and high fat. At some point fat can turn into a carcinogenic substance. Breast and ovarian cancer occurs due to high fat levels.

Types of heavy metal contaminants (eg Hg, mercury) can damage the central nervous system (brain). The source of this toxic material is a plastic factory with the main product being vinyl chloride (Rand, 1980 in Tandjung, 1987). It was further reported that the biggest sufferers of mercury poisoning were fishermen who ate fish from waters contaminated with mercury. Tandjung (1987) concluded that between 1953-1960, 53 people died and 150 people suffered severe brain and nerve damage. Methylmercury (CH_3Hg^+) is a highly toxic organic bond of Hg. This compound, in addition to damaging the nervous system, also damages the kidneys, liver and causes birth defects which are thought to be caused by damaged chromosomes (Miller, 1975 in Tandjung, 1987)

Definition and Characteristics of Processed Foods

Processed foods refer to foods that have undergone various stages of processing before being consumed. This processing can include adding additives, salting, smoking, preserving, or heating to improve the taste, texture, appearance, or shelf life of the food. These foods can be minimally processed, such as canned fruit with no added sugar, to highly processed, such as fast food or packaged snacks.

Classification of Processed Foods

According to NOVA, the food classification system of the University of São Paulo, processed foods are divided into four categories:

- a. Fresh or Minimally Processed Foods
Examples: fresh vegetables, fruit, fresh meat, eggs and milk without additives.
- b. Processed Cooking Ingredients
Examples: salt, sugar, vegetable oil, and butter.
- c. Processed Food
Examples: cheese, bread, smoked fish, canned fruit with syrup.
- d. Ultra-Processed Foods
Examples: instant noodles, fast food, sausages, nuggets, and soft drinks.

Common Ingredients in Processed Foods

Most processed foods contain additives that are not always good for your health. Common ingredients include:

- a. Salt (Sodium): used for flavor and preservation.
- b. Added Sugar: adds flavor and shelf life.
- c. Trans Fats and Saturated Fats: improve taste and texture.
- d. Preservatives and Synthetic Colorants: maintain freshness and are visually appealing.
- e. Flavor Enhancer (MSG): enhances the taste of food.

The main factors that make processed foods popular are:

- a. Practical and Fast Food
- b. Affordable prices
- c. Easy to Get in Stores or Supermarkets
- d. Long Shelf Life

However, these reasons often cloud public awareness of the health hazards.

Short Term Health Impacts

Some negative effects that can appear in the short term include:

- a. Blood Sugar Spike: Added sugar can trigger a drastic spike in glucose.
- b. Digestive Disorders: Low fiber and high fat content can cause constipation.
- c. Fatigue and Decreased Concentration: Deficiencies in essential nutrients can affect energy and cognition.
- d. Allergies and Hypersensitivity Reactions: Some additives may trigger allergies.

Long Term Health Impacts

If consumed continuously in excessive amounts, processed foods can cause:

- a. Obesity Saturated fat, sugar, and high calories in processed foods contribute to unhealthy weight gain.
- b. Cardiovascular Disease
Excessive intake of sodium and trans fats is associated with high blood pressure and heart disease.
- c. Type 2 Diabetes
Added sugar causes insulin resistance in the long term.
- d. Cancer
Several studies have shown a link between processed foods—especially processed meats—and colorectal cancer.
- e. Kidney and Liver Damage
Accumulation of sodium and preservative chemicals can interfere with the function of this vital organ.

Case Studies and Epidemiological Data

Several studies have shown that increased consumption of ultra-processed foods is associated with a risk of premature death. A French study (NutriNet-Santé) showed that a 10% increase in ultra-processed food consumption was correlated with a 12% increase in cancer risk.

Processed Foods and Children

Children are particularly vulnerable to the negative effects of processed foods. Products such as sugary cereals, packaged beverages, and snack foods are often consumed by children, contributing to childhood obesity, hyperactivity, and impaired cognitive development.

Processed Foods vs. Natural Foods

The most significant differences between processed foods and natural foods are:

Table 1. Between Processed Foods and Natural Foods		
Aspect	Processed Food	Natural Food
Fiber	Low	Tall
Added Sugar	Tall	Low or zero
Trans Fats	There are often	There isn't any
Preservatives & Additives	General	Seldom
Nutritional Value	Low	Tall

Healthy Eating Pattern Suggestions and Processed Food Reduction Strategies

Some steps to reduce dependence on processed foods include:

- a. Cook Yourself at Home: Allows control over the ingredients used.
- b. Increase Consumption of Fresh Foods: Fruits, vegetables, nuts, and grains.
- c. Reading Nutrition Labels: Avoid products high in sugar, salt, and saturated fat.
- d. Choose Minimally Processed Foods: Such as unsweetened yogurt, whole-wheat bread, and whole milk.
- e. Reduce Fast Food Consumption: Replace it with home-cooked meals or healthy lunches.

The Role of Government and Public Education

The government plays an important role in regulating food advertising, nutritional labeling, and educating the public about the risks of processed foods. Campaigns such as the Healthy Living Community Movement (Germas) and the "Nutri-Score" label can help consumers make healthier choices.

4. CONCLUSION

Processed foods have become an integral part of modern lifestyles due to their convenience in serving and distributing. However, excessive consumption of processed foods, especially those that go through ultra-processing, poses various serious health risks. The high content of sugar, salt, saturated fat, and various additives makes this type of food contribute to the increasing cases of chronic diseases such as obesity, diabetes, hypertension, and heart disease. In addition to physical impacts, processed foods are also associated with decreased mental health, including the risk of depression and anxiety disorders. The low fiber, vitamin, and mineral content of ultra-processed foods makes them unable to meet the body's balanced nutritional needs. In addition, a diet high in processed foods tends to replace the consumption of fresh and natural ingredients that are much more nutritious. Social and economic factors also influence the high consumption of processed foods, especially among low-income communities with limited access to healthy foods. Therefore, solutions to this problem must be comprehensive, involving nutrition education, food product reformulation, and public policies that support access to healthy foods. The role of government, producers, and society is very important in overcoming the negative impacts of processed foods. Early education, clear nutritional labeling, control of unhealthy food advertising, and the provision of easily accessible healthy food alternatives can encourage positive changes in people's eating patterns. By raising awareness and a collective commitment to reduce the consumption of unhealthy processed foods, society can move towards a more balanced diet. This will not only improve individual health, but also improve collective quality of life and prevent the burden of long-term disease in the future.

REFERENCE

- Eaton, S. B., Konner, M., & Shostak, M. (1988). *The Paleolithic Prescription: A Program of Diet & Exercise and a Design for Living*. Harper & Row.
- Monteiro, C.A., Cannon, G., Levy, R.B., Moubarac, J.C., Jaime, P., Martins, A.P., ... & Louzada, M.L. (2019). Ultra-processed foods: what they are and how to identify them. *Public Health Nutrition*, 22(5), 936-941.
- Riskesdas. (2018). *National Basic Health Research Report*. Health Research and Development Agency, Ministry of Health of the Republic of Indonesia.
- Soekirman. (2000). *Nutritional Science and Its Applications for Students and Professionals*. Jakarta: Dian Rakyat.
- World Health Organization (WHO). (2022). *Obesity and Overweight Factsheet*.
- oldgate, MW, 1980, *A Prospective of Environmental Pollution*, Cambridge University Press, Cambridge.<https://halosehat.com/farmasi/aditif/zat-aditif-pada-makanan-contoh-bahayanya>. Saturday 03rd, February 2018<http://sinma68.blogspot.co.id/2010/12/zat-aditif-pada-makanan-dan-bahayanya.html>. Saturday 03rd, February 2018
- Kusnadi, KA, 1993, *Basic Anatomy and Physiology of the Human Body*, Department of Biology Education FPMIPA, IKIP Bandung, Bandung. Martin, L. NIH US National Library of Medicine MedlinePlus (2016). *Fast food tips*.

- Mayo Clinic (2016). Fast food: Tips for choosing healthier options. Pietrangelo, A., Carey, E., & Holland, K. Healthline (2018).
- The Effects of Fast Food on the Body. Tandjung, HSJ, 1987, The Threat of Poisoning by the Presence of Additional Ingredients in Food, Paper, Universitas Gadjah Mada, Yogyakarta.
- Monteiro, C.A., Cannon, G., Moubarac, J.-C., Levy, R.B., Louzada, M.L.C., & Jaime, P.C. (2018). Ultra-processed foods: what they are and how to identify them. *Public Health Nutrition*, 21(1), 1-6.
- World Health Organization (WHO). (2020). Healthy diet. <https://www.who.int/news-room/fact-sheets/detail/healthy-diet>
- Harvard TH Chan School of Public Health. (2022). The Nutrition Source: Processed Foods. <https://www.hsph.harvard.edu/nutritionsource/processed-foods/>
- Mozaffarian, D., et al. (2011). Changes in diet and lifestyle and long-term weight gain in women and men. *New England Journal of Medicine*, 364(25), 2392-2404.
- Fiolet, T., Srour, B., Sellem, L., et al. (2018). Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort. *BMJ*, 360, k322.
- Popkin, B. M. (2017). Relationship between shifts in food system dynamics and acceleration of the global nutrition transition. *Nutrition Reviews*, 75(2), 73–82.
- Malik, VS, et al. (2010). Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes. *Diabetes Care*, 33(11), 2477–2483.