

# The Effect of Housewives' Food Safety Awareness on Processed Frozen Food Buying Interest during Covid19 Pandemic in D.I. Yogyakarta Region

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## ABSTRACT

The stipulation of the corona virus as a national pandemic has an effect on changes in food consumption patterns, which were originally from fresh food ingredients that are easily obtained directly in both traditional and modern markets to consumption of ready-to-eat frozen food that can be used as stock food because it can be stored for a long time and easy to prepare. This study aimed to determine the level of awareness about food safety among housewives towards the interest in buying ready-to-eat frozen food in D.I. Yogyakarta. The study was conducted using an online questionnaire method given to housewives aged 20-55 years by Judgment Sampling in November-December 2020. Then the obtained results were statistically analyzed for the effect of product attributes according to food safety standards on housewives' buying interest during the pandemic. COVID 19. The results showed that the food safety awareness did not have a simultaneous effect ( $p>0.05$ ) on the interest in buying frozen food products which indicates the low level of food safety awareness of housewives in D.I. Yogyakarta. However, the food processing had a significant effect ( $p<0.05$ ) partially on the interest in buying ready-to-eat frozen food. The exploratory interest factor is the highest factor (3.19-3.40) that influences the housewives to ask to buy ready-to-eat frozen food in D.I. Yogyakarta.

**Keywords:** Covid19, Food safety, Housewives, Processed frozen food, Pandemic.

## 1. INTRODUCTION

The corona virus outbreak was designated as a national pandemic as stated in Indonesia Presidential Decree No. 12 of 2020 causing a significant impact on almost all sectors of life, including the food sector. Food is a sector that is getting special attention as a consequence of the impact of the increasingly widespread of COVID-19 [1]. Implementation of large-scale social restrictions, or in Bahasa "Pembatasan Sosial Berskala Besar", hereinafter referred to as PSBB, regulated in Government Regulation (PP) Number 21 of 2020 followed by Regulation of the Minister of Health (Permenkes) RI Number 9 of 2020 concerning Guidelines for PSBB in the Context of Accelerating Handling of Corona Virus Disease 2019 (Covid-19) has a direct effect on the availability, accessibility, and stability prices of food in Indonesia, from production to consumption, and also from upstream to downstream. The change towards a new normal era affected the farmers who have to ensure food quality and safety during the COVID-19 pandemic,

especially in areas that have been contaminated. The supply chain had change into modern markets and online-based markets. Meanwhile, from the consumption behaviour, the pattern of transactions had changed, which was indicated by the increasing number of transactions using digital platforms. In addition, changes in food consumption patterns from fresh food ingredients into food products that are easy to obtain and can be stored for a long time. For example, consumption patterns of processed frozen food products during the COVID-19 pandemic was increase.

Processed frozen food is one of the people's choices as food stock because it can be stored for a long time and easy to serve. Low temperatures and reduced free water in food will inhibit microbial growth and enzyme activity, so that it is not easily damage [2]. Changes in the lifestyle of modern society have caused Indonesian people start to adapt with the consumption patterns in developed countries, such as consuming processed frozen food products [3]. The ease of serving is an added value for

processed frozen food, especially for workers who doesn't have enough time to prepare their own food.

The emergence of several processed frozen food industries was motivated by the PSBB phenomenon implemented by the Indonesian government. Many culinary business owners innovated to make products in the form of frozen food in order to withstand their business [4]. This was an opportunity for housewives to make processed frozen food products as a source of income by selling it online through social media or marketplaces. So many new processed frozen food products do not have distribution permits, even though they have included labels on their processed frozen food products. Labels on food products are used as an instrument to ensure the food safety. As stated in BPOM Regulation No. 8/2020, processed food that is circulated online must have a distribution permit and fulfill good production methods in accordance with the provisions of laws and regulations. So that, this study aims to investigate the effect of the level of awareness of housewives regarding food safety on the interest to buy processed frozen food products during the COVID-19 pandemic especially in D. I. Yogyakarta region.

## 2. METHODS

The research was conducted in November to December 2020. Data collection was carried out using an online closed questionnaire (google form) to housewives (respondents) aged 20-55 years in the D.I. Yogyakarta region which was distributed via Whatsapp media. The determination of the sample was carried out by judgment sampling to determine the level of food safety awareness of the interest in buying processed frozen food during the COVID 19 pandemic. This research was carried out in several stages, first the identification of food safety attributes in processed frozen food products that can influence buying interest of housewives (consumers). The food safety attributes include; product labels, product information, packaging, and processing. While the buying interest attributes included transactional interest, preferential level, reference level, and exploratory level.

Questionnaires were given to 103 respondents which were previously determined based on the Lemeshow formula for an unknown sample population with a confidence level at 95%. The data were tested for the validity and reliability of the questions in the questionnaire. The questionnaire was declared valid if each element of the question in the questionnaire has a high correlation. Correlation of answers to each question was an indicator that is used as a measure of the relevance of each question element in the questionnaire [5]. Questions with a high degree of correlation indicate the question is valid. The reliability test shows the consistency of the questionnaire to the respondents' answers [6]. Furthermore, the analysis of the effect of

food safety attributes on consumer buying interest is carried out by regression testing using the SPSS 27.

## 3. RESULT AND DISCUSSION

Characteristics of respondents can be seen from several points, such as age, gender, type of work, education level, and income level. Respondents are full-time housewives and working housewives. Housewives were chosen as respondents because they have a big role in determining the food menu for their family every day. In addition, women also pay more attention to the product information presented, interest in various colors and appearances has a psychological impact on women, causing a sense of interest. The respondent characteristic is shown in Table 1.

The data obtained were tested for validity and reliability. The test results of 17 questions show that all questions have a Corrected Item-Total Correlation (0.525-0.942) greater than  $r$  table (0.1937). With 103 respondents and a significance level of 5%, so all questions used in the questionnaire are declared valid. Meanwhile, based on the reliability test, it shows that the Cronbach's Alpha value (0.758) greater than  $r$  table (0.7) so that the questionnaire is proven to be reliable. The analysis of the influence of food safety attributes on consumer buying interest was conducted by using a regression test. The normality test was performed before the multiple regression test. Asymp Value. Sig. (2-tailed) Kolmogorov- Smirnov test is 0.051 ( $> 0.05$ ) so that the data is proven to be normally distributed. The results of the linearity test show that the significance value of Deviation from Linearity variable label (0.674), product information (0.315), packaging function (0.373) on buying interest is greater than 0.05 so it is proven that there is a significant linear relationship between buying interest and product labels, product information, and product packaging. While the linearity of processing on buying interest is proven by the significance value of  $\alpha < 0.05$ , which is 0.02, so it is proven that there is a significant linear relationship between processing and buying interest in processed frozen food during the COVID 19 pandemic.

Multicollinearity tolerance test and VIF which shows the tolerance value for all independent variables was greater than 0.1, it was proven that there was no multicollinearity relationship in independent variables: packaging labels (0.167), product information (0.115), packaging functions (0.168), and processing (0.435) on buying interest. Based on the results of the Heteroscedasticity test using the Spearman Rho test on the packaging label (0.826), product information (0.833), packaging function (0.849), and processing (0.820) have a significance of more than 0.05, it could be said that there was no heteroscedasticity symptom in the regression model.

**Table 1.** Respondent characteristics of food safety awareness on the interest to buy processed frozen food products during the COVID-19 pandemic in D. I. Yogyakarta.

No.	Respondent characteristics	Category	Percentage (%)
1	Age	21-30 y.o	14
		31-40 y.o	38
		> 40 y.o	48
2	Occupation	full-time housewives	38
		Enterprenur	28
		Private sector employee	25
		Civil servant	7
		Others	2
4	Food Allowance	< Rp 500.000	7
		Rp 500.001 – Rp 1.000.000	30
		Rp 1.000.001 – Rp 2.000.000	33
		Rp 2.000.001 – Rp 3.000.000	17
		> Rp 3.000.000	11
5	Last Education	Junior High School	2
		Senior High School	23
		Diploma	13
		Graduate (Bachelor/Master/Doctoral)	62
6	Allergic	Yes	18
		No	82

Based on the results of the multiple linear regression test, the food safety awareness factor did not have a simultaneous effect on the interest in buying frozen food products during the COVID 19 pandemic as indicated by the low R square value of 0.078 and a significance value of 0.092. These results show that respondents' is still have low food safety awareness on their interest in buying processed frozen food during the COVID-19 pandemic. This is due to the pandemic conditions that limit the mobility of respondents who were previously not restricted to do activities outside their home, so that respondents choose products that are practical without being focus on food safety. In addition, the factors that influence the level of food safety awareness are socio-economic factors such as gender, education, and income [6].

Product labels and processing processes have a positive influence on interest in buying ready-to-eat frozen food during the COVID-19 pandemic, while product information and packaging functions have a negative influence on interest in buying ready-to-eat frozen food during the COVID-19 pandemic. Processing attributes have a significant effect partially on buying interest based on a significance value of 0.009. This is in line with a study that the pandemic has changed the way respondents pay more attention to hygiene aspects and health factors in food processing [7].

Food safety refers to handling, processing, and how the conditions and practices of food storage from producers to consumers are aimed at ensuring consumer safety from food-borne diseases (FBD) outbreaks caused by unsafe food [8]. Consumer awareness regarding food safety has the main challenge of misuse of prohibited additives for food and use exceeding the maximum limit. The assessment of food safety awareness on housewives' interest in buying processed frozen food during the COVID-19 pandemic was carried out by conducting a descriptive analysis. Table 2 indicates the score of housewives' food safety awareness on processed frozen food in D. I. Yogyakarta region assessment.

The Expired Date/Best Before information has the highest value of 3.45 for product labels attribute. The food safety factor of processed frozen food products that are believed to not contain ingredients that are harmful to health and nutritional content information on the packaging have a lowest score (2.91) and (3.09) respectively. This was influenced by the low knowledge of household enterprise about food safety and good manufacturing practices, so they applied poor food handling. In order to ensure food safety of processed frozen food products, packaging is influential in providing product-related information. Food safety is an important factor in the implementation of the food system. In the general provisions of Government Regulation Number 86 of 2019 concerning Food Safety, the implementation of food safety is intended so that the

state can provide protection to the people to consume food that is safe for health and mental safety. Moreover, ensuring that the food available in the community is safe for consumption, it is necessary to implement food safety practice along the food chain, starting from the production stage to the hands of consumers [10]. In Indonesia, food safety regulations are regulated by the Food and Drug Supervisory Agency (BPOM) and local governments. BPOM requires ultra- processed food to

have a distribution permit. Meanwhile, the local government issues a household food industry operating permit. Furthermore, for information that needs to be contained in the packaging is regulated in Law No. 18 of 2012 concerning food, especially labels and packaging information which includes information on expiration, name and address of producer, distribution permit number, date of production, and storage method.

**Table 2.** Assessment of housewives' food safety awareness on processed frozen food in D. I. Yogyakarta region.

No.	Atribute	Score
<b>Product label (x<sub>1</sub>)</b>		
1	Processed frozen food products already have Expired Date/Best Before information on the packaging.	3.45
2	Processed frozen food products already have Halal information or logos on the packaging.	3.24
3	Processed frozen food products already have information on certification or distribution permits on the packaging.	3.16
<b>Product information (x<sub>2</sub>)</b>		
1	Processed frozen food products already contain information about the product composition.	3.32
2	Processed frozen food products already have information about the nutritional content on the packaging.	3.09
<b>Packaging function (x<sub>3</sub>)</b>		
1	Processed frozen food products already have packaging that can protect the product until it reaches consumer.	3.17
2	Processed frozen food products already have producer identity and customer service information.	3.30
<b>Processing (x<sub>4</sub>)</b>		
1	Processed frozen food products are believed to have been processed properly.	3.11
2	Processed frozen food products are believed to not contain ingredients that are harmful to health.	2.91

**Table 3.** Assessment of housewives' buying interest attributes in processed frozen food at D. I. Yogyakarta.

No.	Atribute	Score
<b>Transactional</b>		
1	Processes frozen food products buying interest because of many choices of products.	3.15
2	Repeatly to buy processed frozen food products.	3.12
<b>Referential</b>		
1	Recommend processed frozen food products to others.	3.00
2	Inviting colleagues to buy processed frozen food products.	2.86
<b>Preferential</b>		
1	Buy processed frozen food products after seeing colleague buying it.	2.72
2	Processed frozen food products attract consumer attention.	2.57
<b>Exploratory</b>		
1	Ask for information about processed frozen food products to people who have consumed them.	3.19
2	Interested in buying processed frozen food after knowing the safety of the products.	3.40

The assessment of housewives' buying interest in processed frozen food products during the COVID-19 pandemic in D. I. Yogyakarta is presented in Table 3. Business actors are required to understand the factors that can influence a consumer's buying interest, such as consumer transactional, referential, preferential, and exploratory interest.

The highest factor of consumer preference in buying ready-to-eat frozen food products during the COVID-19 pandemic was exploratory interest. Exploratory interest shows the behavior of a consumer who is interested in trying to get information about the product. The high level of consumer exploratory interest in ready-to-eat frozen food was caused by consumer curiosity to try new and practical products as an alternative to prepare during the COVID-19 pandemic. Meanwhile, the lowest factor that becomes consumer preference was preferential interest. Preference interest shows the behavior of consumers who have more interest in a product. Consumer preferences are the result of evaluating the product after making comparisons to other alternative products. Consumer perceptions of a product dynamically affect consumer preferences.

#### 4. CONCLUSION

Assessment of food safety awareness on interest in buying processed frozen food during the COVID-19 pandemic showed that housewives' awareness of food safety had no simultaneous effect ( $p > 0.05$ ) on interest in buying processed frozen food products. It means that the level of food safety awareness of housewives in D.I. Yogyakarta region is still low. However, the processing had a significant effect ( $p < 0.05$ ) partially on the interest in buying processed frozen food. The exploratory interest factor is the highest factor (3.19-3.40) that affects the interest in buying processed frozen food by housewives in D.I. Yogyakarta.

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