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# **Malaysian Consumers' Reliance on Food Date Label**

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### **Abstract**

This study investigates Malaysian consumers' reliance on food date label. Food regulations in most countries adopt food date labelling as indicator of safety, quality, and fitness. Open date labelling approach is used to supply the information to the consumers in making decision to purchase and when to consume the food. Despite its importance, there is yet a study on Malaysian consumers' reliance on food date label. This study conducted a nationwide survey on 460 Malaysian consumers using convenience sampling technique. The findings of this study help towards the development of food information law and policy in Malaysia.

**Keywords:** Food information, date label; consumers; reliance

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### **1.0 Introduction**

Food date labeling is a regulatory requirement that utilizes "Open Dating" approach to inform consumers of the date up to which they can expect the food to retain its desired quality and flavor (Dow, 2020). In Malaysia, the duty to ensure safety and fitness has been codified in the Consumer Protection Act 1999, Sale of Goods Act 1957, Trade Description Act 2011, Food Act 1983, and Food Regulations 1985. From consumer protection standpoint, food date labeling serves as passive communication tool that enables consumers to make fast yet informed decision-making at the point of purchase. The date label provides crucial information as how long food might last and when to consume the food for best quality (Watson et al, 2014).

In terms of food regulations, date labels play an important role to prevent the consumers from consuming food that passed edible stage for human consumption (Weis et al, 2021). Awareness on the date label could help prevent food poisoning and other illnesses arising from consumption of unfit or stale food (Pugle, 2021). Relying on date labels such as "Use by" or "Consume By" on food packaging could help consumers to estimate the maximum duration to keep the food in the pantry and safely consume the food (Martinelli, 2018). On the downside, consumers over reliance and confusion over the meaning of date labels has led to food waste as edible food has been discarded at point of sales or consumption on the assumption that the food that passed date label is no longer safe for consumption (Wheeler, 2019). This culture of abundance and reliance on date labels may induce consumers to dispose of edible food that has passed the open date label.

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## 2.0 Literature Review

An international study reports that, whilst majority of the consumers use food date labels to make decisions about food, many consumers misinterpreted the labels and continued to misunderstand even after reading educational messaging that explained the labels' meaning (Turvey, 2021). Another international study finds that, non-standardize date labels ranging from "use by," "sell by," "expired by," "display until" and "best before" had caused unnecessary confusion for consumers (Leib et al, 2013). Pugle (2021) observes that unwarranted confidence and the familiarity of date labels may make consumers less attentive to educational messaging that explains the food industry's labeling system. Pugle observation finds support from a study in South Korea which reports reliance to food safety information was generally lower in South Korea compared to the US, indicating distrust to food safety information among Koreans (Lin & Lee, 2016).

Literature acknowledges that people place heavier reliance on expiration dates in determining food safety despite the fact that date labels do not guarantee microbiological food safety (Wilson et al, 2017). Reynolds et al (2020) study finds that reliance on date labels as indicators of edibility varies between the type of food product, the type of label and across regional contexts. Their study also finds that consumers are most likely to rely on date labels when they are not confident in their own ability to determine the fitness and quality of the food (Reynolds et al, 2020). Review of literature reveals that that none of the previous studies on consumers' reliance on food date label include Malaysia as sample of analysis. There is scant research in Malaysia about consumers' treatment and consumption of food that has passed the date labelled. Most study conducted focused on the importance of nutrition label for consumers (Sariman, 2020, Ambak et.al, 2018, Jefrydin, et.al, 2019). The most recent study in Malaysia was reported in year 2022 whereby Mahmood et. al reiterate the importance of food date label for grocery shoppers. Thus, in the absence of international and local study on Malaysian consumers' reliance on food date label, the present study serves to fill in the gap and contribute to current body of knowledge on food information law.

## 3.0 Methodology

The research methodology is designed to answer the research question: To what extent the Malaysian consumers rely on food date labelling for quality and safety assurance at the point of sales and consumption? To answer the research question, this study investigates the Malaysian consumers' reliance on food date label. This study collects primary data in the form of survey using a self-developed questionnaire. A survey questionnaire was prepared in English and Malay versions and contained five statements measured on a five-point Likert-scales ranging from the lowest to the highest. The target population is adult Malaysian consumers who buy food products at least once a month either by online or in-store. Based on the 2017 population data from Department of Statistics Malaysia there are approximately 23 million Malaysians aged 18 years old and above. According to Krejcie and Morgan (1970), the minimum required sample size based on the total population is 385 participants, calculated to have a 5% margin of error and 95% confidence level.

A pilot study involving 100 participants was conducted to determine the reliability and consistency of the survey questionnaire. The pilot study records >0.6 Cronbach alpha value indicating the reliability and consistency of all the statements contained in the survey questionnaire. Data collection involving the target population was conducted online and face to face using convenience sampling technique. To ensure consistency and reliability, this study excludes consumers who are on a holiday/business trip in Malaysia, and those who are unable to understand Bahasa Malaysia or English. To avoid sampling error, the demographic section of the survey questionnaire collects data on age, country of residence and frequency of grocery shopping. Survey data was coded prior to data entry into IBM SPSS software. Descriptive analysis comprising of mean, median and mode were used to determine the Malaysian consumers' reliance on food date label.

## 4.0 Findings

The survey collected data from 460 which is 20 percent higher than the sample size recommended in the sampling schedule by Krejcie and Morgan (1970). The additional respondents were to cater the non-responses and other constraints to fulfil the assumptions of sample size for statistical analysis. The tables below illustrate the findings of the survey conducted with 460 respondents for the purpose of investigating the Malaysian consumers' reliance on food date label.

The study uses five statements to ascertain the consumers' reliance on the food date labels. The statements must be reliable or consistent for the purpose of measuring the reliance. Consistency in the statements within each dimension depends on the correlation between these statements. If the correlation is high, the statements are consistent (reliable), and vice versa. In the reliability testing technique, this consistency manifested in Cronbach's Alpha value which corresponds to a correlation coefficient. Reliability tests were then carried out on the statements of each dimension, the result of which is summarized in Table 1 below.

Table 1: Cronbach's Alpha by Dimension

Dimension	No of statements	Cronbach's Alpha
Consumer reliance	5	0.744

The Cronbach's alpha value for consumer reliance is high i.e. 0.744, implying that the various statements reliably measure the reliance of the respondents on the five dimensions. Table 2 depicts the descriptive analysis of five statements contained in consumer reliance dimension.

Table 2. Descriptive Analysis

Statements	N	Mean	Std. Deviation
[D1]. I rely on the date label on food packaging before buying	460	4.45	.714
[D2]. I rely on the date label on food packaging to determine the food is still edible	460	4.50	.658
[D3]. I rely on the date label for food safety assurance	460	4.50	.658
[D4]. I rely on date label for food quality assurance	460	4.41	.759
[D5]. I rely on my sensory (sight, smell, taste, touch) to determine food that passed date label is still edible	460	3.63	1.252

Based on descriptive analysis illustrated in Table 2, two statements: *"I rely on the date label on food packaging to determine the food is still edible"* and *"I rely on the date label for food safety assurance"* record the highest mean score (4.50). The lowest mean score (3.63) is recorded for the statement: *"I rely on my sensory (sight, smell, taste, touch) to determine food that passed date label is still edible"*. Two other statements: *"I rely on the date label on food packaging before grocery shopping"* is ranked third with 4.45 mean score, while the statement: *"I rely on date label for food quality assurance"* is ranked fourth with 4.41 mean score. Overall, the respondents on average either agreed or strongly agreed that they rely on food date label.

Based on demographic analysis, there are 301 (65%) female respondents compared to 159 (35%) male respondents. The respondents' age group is fairly distributed across four age groups: 18-24 years old (22.4%); 25-34 years old (24.3%), 35-44 years old (22.2%) and 45-54 years old (22.6%). However, 55 years old and above age group only accounts for 8.5% of respondents. Majority of the respondents (68%) prefer to shop physical store, while 29% prefer to shop both online and physical store. Only 3% of the respondents prefer to shop online only. The next section reports frequency counts of consumers' reliance across five statements based on respondents' gender, age group and preferred mode of shopping.

#### 4.1 Consumers' reliance on the date label on food packaging before buying

Based on frequency counts, 94% of female respondents and 92% of the male respondents agree/strongly agree that they rely on the date label on food packaging before buying. In terms of age group, 100% of the respondents from 55 years old and above age group agree/strongly agreed that they rely on the date label on food packaging before buying. This is followed by the respondents from 25-34 years old age group (97), the respondents from 45-54 years old age group (96%), the respondents from 35-44 years old age group (90%), and the respondents from 18-24 years old age group (89%). Further, 95% of the respondents who prefer to shop both online and in physical store agree/strongly agree that they rely on the date label on food packaging before buying. Quite closely, 94% of respondents who prefer to shop in physical store agree/strongly agree that they rely on the date label on food packaging before buying.

#### 4.2 Consumers' reliance on the date label on food packaging to determine the food is still edible

Based on frequency counts, 96% of female respondents and 95% male respondents agree/strongly agree that they rely on the date label on food packaging to determine the food is still edible. All respondents from 55 years old and above age group agree/strongly agree that they rely on the date label on food packaging to determine the food is still edible. This is followed by 99% of the respondents from 25-34 years old age group, 97% of the respondents from 45-54 years old age group, 94% respondents from 35-44 years old age group, and 90% respondents from 18-24 years old group agree/strongly agree that they rely on the date label on food packaging to determine the food is still edible. Further, 97% (128) of the respondents who prefer to shop both online and in physical store agree/strongly agree that they rely on the date label on food packaging to determine the food is still edible. As for the respondents who prefer to shop in physical store only, 96% agree/strongly agree that they rely on the date label on food packaging to determine the food is still edible.

#### 4.3 Consumers' reliance on the date label for food safety assurance

Based on frequency counts, 96% of female respondents and 93% of male respondents agree/strongly agree that they rely on the date label for food safety assurance. In terms of age group, 100% of the respondents from 55 years old and above age group agree/strongly agree that they rely on the date label for food safety assurance. This is followed by the respondents from 25-34 years old age group (98%), the respondents from 45-54 years old age group (97%), the respondents from 35-44 years old age group (92%), and the respondents from 18-24 years old age group (91%). Next, 96% of the respondents who prefer to shop both online and in physical store agree/strongly agree that they rely on the date label for food safety assurance. Quite closely, 95% of respondents who prefer to shop in physical store only agree/strongly agree that they rely on the date label for food safety assurance.

#### 4.4 Consumers' reliance on the date label for food quality assurance

Based on frequency counts, 93% of female respondents and 90% of male respondents agree/strongly agree that they rely on the date label for food quality assurance. In addition, the respondents from 55 years old and above age group unanimously agree/strongly agree that they rely on the date label for food quality assurance. This is followed by the respondents from 25-34 years old age group (92%), the respondents from 45-54 years old age group (92%), the respondents from 18-24 years old age group (91%) and the respondents from 35-44 years old age group (90%). Further, 93% of the respondents who prefer to shop both online and in physical store agree/strongly agree that they rely on the date label for food quality assurance. As for the respondents who prefer to shop in physical store only, 92% agree/strongly agree that they rely on the date label for food quality assurance.

#### 4.5 Consumers' reliance on their sensory to determine food that passed date label is still edible

Based on frequency counts, only 65% of female respondents agree/strongly agree that they rely on their sensory (sight, smell, taste, touch) to determine food that passed date label is still edible. Similarly, 65% of the male respondents agree/strongly agree that they rely on their sensory to determine food that passed date label is still edible. In terms of age group, 73% of the respondents from 18-24 years old age group agree/strongly agree that they on their sensory to determine food that passed date label is still edible. This is followed by the respondents from 25-34 years old age group (72%), the respondents from 35-44 years old age group (65%), the respondents from 55 years old and above age group (59%) and the respondents from 45-54 years old age group (53%). Further, 67% of the respondents who prefer to shop both online and in physical store agree/strongly agree that that they rely on their sensory to determine food that passed date label is still edible. In addition, 63% of respondents who prefer to shop in physical store only agree/strongly agree that they rely on their sensory to determine food that passed date label is still edible.

#### 5.0 Discussion

The mean score of 4.45 for the statements contained in D1 (see Table 2) indicates that Malaysian consumers rely heavily on food date label prior to buying the food item. The mean scores between 4.41 to 4.50 for statements contained in D2, D3 and D4 further indicate heavy reliance of Malaysian consumers on food date label for the following purposes: to determine the food is still edible, as food safety assurance and food quality assurance. The mean scores reflect the importance of food date label among Malaysian consumers. The above findings find support from international literature. At the international level, a study by Kavanaugh and Quinlan (2020) also finds that most respondents (81.6%) in the US reported that they use food date labels.

The high frequency counts of the respondents who answered agree/strongly agree for all statements contained in D1 to D4 indicate that the Malaysian consumers across all demographic groups placed a high degree of reliance on food date label. The frequency counts did not produce significance differences within each demographic group as the respondents across all genders, age groups and preferred modes of shopping record an almost similar percentage (between 90% to 100%) of respondents who answered agree/strongly agree for the statements contained in D1 to D4. This finding is consistent with Bryla (2020) study which finds demographic or socioeconomic variables are not significant predictors of reading food labels for a large group of Polish consumers. Within Asia, the findings concur earlier study by Kumar and Kapoor (2017) which finds that young Indian consumers attached considerable importance to the food labels and read it before making a final purchase decision.

The low frequency count (between 65% to 73% for respondents' reliance on their human sensory (sight, smell, taste, touch) to determine food that passed date label is still edible is a strong indication of the Malaysian consumers' reliance on date label. The finding also indicates that the Malaysian consumers trust the information contained in the date label rather than their own sensory. This finding contrasts with a study in South Korea which reports the Korean lack of trust on food safety information. The Malaysian consumers' reluctance to use their sensory is in contrast with an international study that finds human sensory plays an important factor in sensing the quality of food (Sangeetha and Vijayalakshmi, 2020).

#### 6.0 Conclusion and Recommendations

This study has achieved its aim to investigate the Malaysian consumers' reliance on food date label. While the positive association between the consumers' reliance and food date label is laudable, it gives rise to the risks of food waste. International studies reported food date labelling contributes greatly to edible food waste due to reliance and misinterpretation of the consumers of date labelling. (Aschemann-Witzel, et.al, 2015, Kavanaugh & Quinlan, 2020, Patra, 2020).

Educating consumers on the true meaning of the terms used in date labels can help to prevent food waste and to keep date marking true to its purpose of keeping food safe to eat (Wheeler, 2019). Therefore, the Malaysian consumers need to be educated on the differences between food safety and date labels. The consumers also need to be educated that the date label is only reliable if the food is stored according to the instructions on the packaging. (Betts, 2021). Further, the Malaysian consumers need to be informed food that passed date label is still safe for consumption and they can also rely on their sensory to determine food edibility. A study by Chu et al (2020) finds that the EU consumers regard their own sensory assessment as more reliable than to be guided by the date label. On this note, Chu et al strongly recommend the consumers to use their human sensory apart from relying on date label to assess food safety and quality.

There is a need to standardize the format of date labels by using a single food date label to avoid confusion among consumers who rely on food date label. At present consumers now deal with a range of date labels on food products, from "Sell by", "Use by", "Display until", to "Best before", and so on, which leads to consumers' confusion about their real meanings (Andrieu, 2019). Several countries use a 'Best before' date label as indicator of quality, while a 'Use by' date label as indicator of food safety and is applied to foods that, from a microbiological point of view, are highly perishable (Weis, 2021). In this respect, the food manufacturers and producers need to simplify food date labels to reduce consumers' confusion related to "used/sell by" dates, and to prevent food waste. The international level efforts to streamline date labels are now spearheaded by multinationals companies such as Tesco, Kellogg, Walmart, Campbell Soup, Bimbo, Pick n Pay, Nestlé, Carrefour, and Unilever (World Resource Institute, 2017).

This paper also recommends using closed dating approach as an alternative to open dating approach. The Food Regulations 1985 (Malaysia) provides a list of products that do not have to carry a date mark. Foods that are considered safe either due to an inherent ability to resist microbial growth due to certain physical attributes, may be subject to closed dating approach that only requires manufacturing or harvest dates to be displayed on date label.

The findings of this research are limited to the descriptive analysis and investigation on the consumers' reliance was for food in general without specific reference to specific categories of food. In addition, the survey only collected demographic data based on income, gender and age of the Malaysian consumers. It did not identify the residential state of the consumers. Future research should attempt to investigate Malaysian consumers' reliance based on specific categories of food i.e. vegetables; fruits; breads, cereals, rice, pasta, noodles; grains, legumes, nuts and seeds; meat and poultry, fish and seafood; milk, yoghurt, cheese; dairy foods and eggs; and fermented food. Investigating the consumers' reliance on food date label based on categories of food is deemed important as decades of scientific study reports different stage of fitness and merchantable quality among these categories of food (Michaud, 2017).

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