

# Research on consumers' understanding and attitudes to food additives —— Taking Shanghai as an example

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**Abstract.** Nowadays, there are a variety of food additives on the market, and the use of food additives is becoming increasingly frequent. However, most consumers are not very familiar with some common food additives, and there is a common misconception about food additives, believing that they will definitely pose a threat to human health. According to previous studies, the legitimate and reasonable use of food additives does not affect health. Therefore, this study uses a questionnaire survey to study consumers' awareness and attitudes towards common food additives, taking Shanghai as an example. It can be concluded that consumers in Shanghai generally have a low level of understanding of food additives, so this paper analyzes the survey data and proposes some relevant suggestions to address this situation. For instance, the government can eliminate public misunderstandings through extensive publicity.

**Keywords:** Food Additives, Consumers, Human Health, Food Safety.

## 1. Introduction

With the continuous improvement of living standards, consumers have become more concerned about the color, aroma, and taste of food, resulting in an increasing number of food additives appearing in food. Food additives are widely used, which has generally attracted consumers' attention to food safety issues. However, surveys have shown that consumers are not able to distinguish between legitimate additives and some prohibited substances in food [1]. Most consumers believe that consuming food containing additives can pose certain risks to their health. In fact, China has clear and strict regulations on the types and dosages of food additives. Legitimate and compliant food additives in food don't have any impact on human health. Except for pure natural wild foods, all foods processed by humans contain food additives to some extent [2].

In today's society, the various problems brought about by food additives are mostly caused by the illegal use of artificial additives and expired additives of inferior quality. Food additives and illegal additives are two different concepts. Chemical synthetic or natural substances added to food to improve its quality, color, aroma, and processing technology are called food additives [3]. As the soul of the modern food industry, food additives are an essential part of food processing. Adding compliant food additives in moderation can effectively improve food quality, enrich food taste, extend food shelf life, and inhibit microbial growth. It can be said that food additives have played a positive role in the development of the food industry [4].

This research will use a questionnaire survey to understand the general opinions and understanding of food additives among consumers in Shanghai. The aim is to increase people's awareness of common food additives, eliminate some misunderstandings about food additives, and guide everyone to have a basic, correct, and objective understanding of common food additives.

## 2. Methodology

This study takes the form of a questionnaire survey, taking Shanghai as an example, to investigate consumers' understanding and attitudes towards some common food additives.

The questionnaire consists of 21 questions, mainly in the form of multiple-choice questions, divided into three parts: Firstly, understand some basic information about consumers, including their gender, age, and occupation. Secondly, examine consumers' attention and understanding of food additives, as well as some subjective issues, to understand their views and attitudes towards food additives. Thirdly, objective multiple-choice questions are used to test whether the respondents are unclear or even have misunderstandings about the concept of food additives.

A total of 200 questionnaires were distributed in this study, of which 196 were valid, with a questionnaire effectiveness rate of 98%.

## 3. Findings

### 3.1. Demographic characteristics of respondents

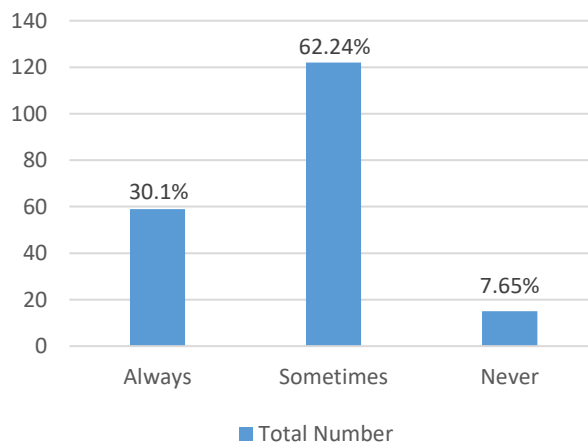
**Table 1.** Basic information of the respondents [5].

Variable	Classification	Sample (person)	Sample proportion (%)
Gender (n=196)	①Male	123	62.76
	②Female	73	37.24
Age (n=196)	①Under 18 years old	10	5.1
	②18-30 years old	29	14.8
	③31-50 years old	121	61.73
	④51-65 years old	29	14.8
	⑤Over 65 years old	7	3.57
Occupation(n=196)	①Students	26	13.27
	②Company staff	115	58.67
	③Other professionals(such as teachers, lawyers, etc.)	12	6.12
	④Medical or foods industry	3	1.53
	⑤Public officials	6	3.06
	⑥Freelancer	19	9.69
	⑦Other	15	7.65
Ways to Understand Food Additives (n=196) Multiple choice questions (1-3 options available)	①TV programs or news reports	147	75
	②Newspapers,magazines, professional books,etc.	91	46.43
	③Online information search	115	58.67
	④Friend mentioned	74	37.76
	⑤Professional courses or special lectures	10	5.1

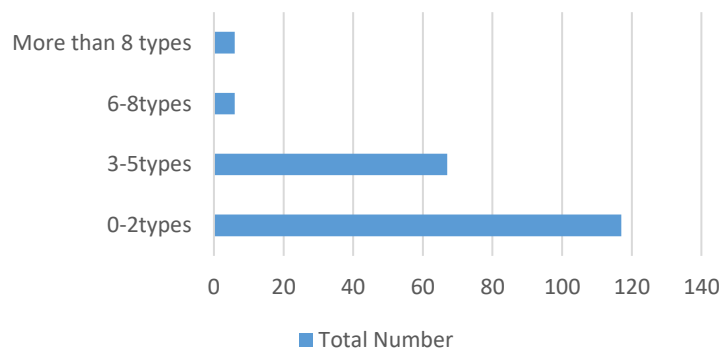
According to Table 1, the majority of the respondents are male (62.76%), and more than half of them are between the ages of 31 and 50. Most people are company staff, while only 1.53% work in the medical and food industries.

There are only 5.1% of consumers have participated in formal courses or specialized lectures on food additives, and more than half of them believe that they are not familiar with food additives, leading to misunderstandings that food additives are harmful to the human body. Even professionals in the medical or food industries do not have a comprehensive understanding of food additives.

### 3.2. Consumers' attention and attitude towards food additives



**Figure 1.** Number of people who pay attention to the ingredient list when purchasing food.

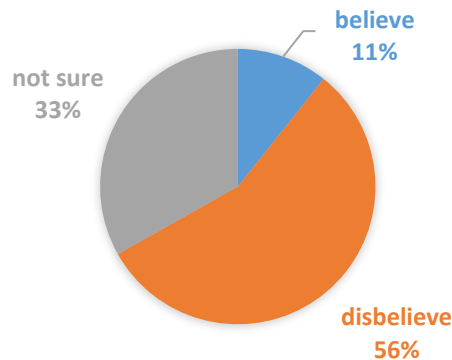


**Figure 2.** The maximum amount of additives in a food that consumers can accept.

According to Figure 1, more than 90% of consumers pay attention to the ingredient list on the packaging bag when purchasing food, but they said that they do not know the specific content of each ingredient and cannot identify the specific function of each food additive. Therefore, it is generally believed that it is necessary to indicate the specific content and function of each food additive used on the packaging.

At the same time, Figure 2 shows that 59.69% of people can accept a maximum number of 0-2 types of additives in a food, while 34.18% of people choose 3-5 types, indicating that the vast majority of consumers believe that the fewer food additives in a particular food variety, the more reassuring they are when eating.

### 3.3. Promotion of zero addition in food advertising

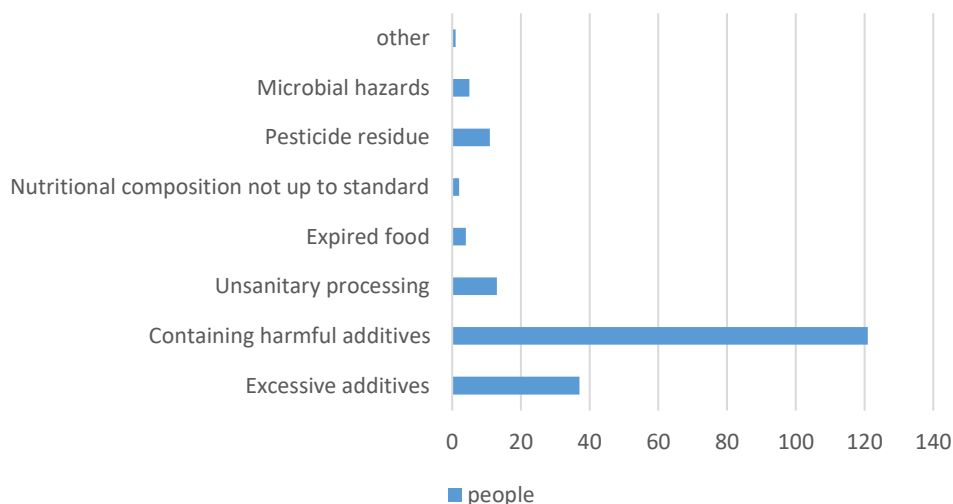


**Figure 3.** Opinions on claims in food advertisements that the product does not contain any additives.

Nowadays, claiming that food contains "zero additives" or "no additives" has become a marketing strategy for many businesses. This question aims to understand the public's views on this phenomenon. According to Figure 3, 11% of people believe the slogan "This product does not contain any additives" in food advertisements, 56% do not believe this statement, and the remaining 33% are uncertain whether this statement is correct. Many businesses demonize food additives, using consumers' lack of knowledge about food additives and the public's emphasis on food safety issues to imply that food additives are harmful to the human body. This will undoubtedly exacerbate consumer panic and disrupt the normal competitive order of the food market.

In fact, the approval and use of food additives are strictly regulated by relevant national departments throughout the entire process. Food additives that are allowed to be used in the food industry have corresponding prescribed usage levels and have passed strict safety assessments and tests. On the contrary, zero-added foods may have some hidden dangers. For example, some so-called foods without any preservatives may have had more salt and sugar added to extend their shelf life. Eating such foods frequently may lead to obesity, diabetes, and other diseases. Anti-food additives are anti-scientific [6]. So from this perspective, foods with zero additives may not necessarily be healthier.

### 3.4. Food safety issues of public concern — food containing harmful additives



**Figure 4.** Food safety issues that consumers are most concerned about.

In the survey, 62.76% of consumers were most concerned about food safety issues due to the presence of harmful additives in food. For example, in 2008, China experienced a nationwide outbreak of toxic milk powder accidents. The cause of the accident was that many infants who consumed milk powder produced by Sanlu Group were found to have kidney stones, and subsequently, the chemical ingredient melamine was found in their milk powder. Therefore, consumers believe that this is a typical case of food additives causing great harm to the human body. However, melamine is not a food additive allowed by the state to be added, but an illegal additive. It is a chemical substance that can increase the protein content of milk powder and be illegally added to food. Merchants add it to food in order to pass quality testing while reducing costs.

Consumers need to correctly distinguish between illegal additives and food additives. However, many consumers have selected "sodium formaldehyde sulfoxylate", "Melamine", "Sudan Red" and other food additives as the permitted food additives allowed to be used by the state in the investigation. But these are illegal additives that have caused food safety incidents. So it can be seen that the public's understanding of food additives is not optimistic. This paper suggests that it is necessary for relevant national departments to popularize some common food additives and illegal additives with the public. Enable consumers to have a clear and objective understanding of food additives when purchasing goods.

### *3.5. Measures to ensure food safety*

This is a multiple-choice question. Consumers were surveyed to determine which of the following options is currently the most feasible way to ensure food safety and public health. 84.69% of them chose to increase the supervision of government departments. They believe that businesses engaged in illegal production should be severely rectified and penalties should be increased on an existing basis. Secondly, 75% of people also chose that relevant departments should strictly improve food safety standards and conduct regular sampling inspections on products to prevent the occurrence of incidents such as adding melamine to milk powder, which can still be sold on the market. However, only a small group of people have been selected to establish a safety education and training system for food industry personnel, but this is precisely the most important point. Because increasing government scrutiny is passive, while establishing safety awareness among food professionals is proactive. As a member of the food industry, they should always prioritize the health of the people. Only by improving the ideological level of enterprises and practitioners can the illegal addition of harmful chemicals to food be eradicated at the source.

## **4. Conclusion**

This study investigates the opinions and understanding of food additives among consumers in Shanghai through questionnaire surveys and data analysis.

The results show that the vast majority of consumers pay attention to the ingredient list on the packaging when purchasing food, but their understanding of food additives is low. They lack relevant knowledge, and there is a problem of mistaking harmful chemicals for food additives. A considerable number of consumers believe that food additives can pose a threat to health, like dizziness, abdominal pain and some chronic diseases, leading to food safety incidents. Meanwhile, research has shown that the current trend of zero additive products may not necessarily be healthier than foods containing additives, which may lead to other diseases. Many people believe that food safety can be guaranteed through strong government propaganda, increased regulatory efforts, and strict rectification of illegal production businesses.

Due to the inability of the questionnaire to cover all aspects, the research may not be comprehensive, and this disadvantage can be improved by increasing the sample size and supplementing the questions.

Food is the top priority for people, and safety is the top priority for food. Food safety issues cannot be ignored, as they are related to the health and safety of everyone as well as the harmony and stability of society. So, it is necessary for relevant departments to establish a more scientific and strict set of standards, increase regulatory efforts and conduct regular inspections, in order to rectify the bad market atmosphere. As consumers, we must purchase food from manufacturers produced through formal

channels, put down our stereotypes about food additives and view them more rationally. What's more, workers in the food industry need to strictly comply with national standards to ensure the safety and scientificity of production processes. By making the ingredient list public, consumers can have a clear understanding of the additives they contain when making purchases, which can make them feel more at ease when eating.

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