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Research report

Public risk perception of food additives and food scares. The case in Suzhou, China ☆

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ABSTRACT

This study examined the factors affecting public risk perception of food additive safety and possible resulting food scares using a survey conducted in Suzhou, Jiangsu Province, China. The model was proposed based on literature relating to the role of risk perception and information perception of public purchase intention under food scares. Structural equation modeling (SEM) was used for data analysis. The results showed that attitude towards behavior, subjective norm and information perception exerted moderate to high effect on food scares, and the effects were also mediated by risk perceptions of additive safety. Significant covariance was observed between attitudes toward behavior, subjective norm and information perception. Establishing an effective mechanism of food safety risk communication, releasing information of government supervision on food safety in a timely manner, curbing misleading media reports on public food safety risk, and enhancing public knowledge of the food additives are key to the development and implementation of food safety risk management policies by the Chinese government.

Introduction

Food safety is a worldwide problem. Food safety risk in China has become more of a direct/indirect result of social behavior than a direct result of natural factors; essentially, it is a social risk associated with human factors (Li, 2011). For various reasons, food safety incidents caused by the abuse of food additives[1] continue to occur in China. It has become the most common type of food safety incident and a major public concern (Li, Liu, Wang, & Dai, 2011; Ouyang, 2011). Hence, it is critical that the Chinese government identify ways to mitigate potential food scares resulting from the abuse of food additives. Previous studies demonstrated that purchase intentions were affected by different levels of risk perception when there was a food scare (Mazzocchi, Lobb, Bruce Traill, & Cavicchi, 2008).

It should be noted that multiple definitions of food scares exist in the literature. In general, food scares can be interpreted as increasing public anxiety over a continuous increase in food safety incidents, and this anxiety is closely related to the intensity of media attention to such incidences (Knowles, Moody, & McEachern, 2007). In essence, food scares are an external manifestation of public mental activities. In recent years, frequent outbreaks of food safety incidents due to the abuse of food additives in China have attracted close attention of the mass media, and have affected the public's risk perception of food additive safety, which may in turn lead to food scares. Hence, it is important to focus on the case of food additives to investigate public risk perception of food additives and intention to purchase food containing additives under food scares. As a result, coping strategies could be developed to preserve social stability.

Research framework and hypotheses development

Attitudes towards behavior and subjective norm

Fishbein's multi-attribute model assumed that a person's attitude towards an object is determined by the sum of beliefs that the person has about the consequences or attributes of the object weighted by how they are evaluated (Fishbein, 1963). This model has been widely applied in consumer research. The following reviewed the factors that affected consumer attributes and behavior towards food or food safety issues.

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[1] Abuse of food additives is the use of food additives beyond the specified amount or range, or use of fake and shoddy or expired food additives.

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Theory of Reasoned Action (Ajzen & Fishbein, 1980) pointed out that consumer attitudes are not only based on the consequences that are perceived by the person him- or herself, but also on a person's belief that significant others think he or she should engage in this behavior. Thus, in empirical research on public's attitude and purchase intention towards food containing additives, subjective norm, which represent perceptions of significant others' preferences about whether one should engage in this behavior should be added in the present study.

Past studies in various areas, such as attitude towards genetically modified foods (Cook, Kerr, & Moore, 2002), and attitude towards vegetable consumption after education intervention (Kothe, Mullan, & Butow, 2012), have shown that attitudes towards behavior affected food choices. Zagata (2012) analyzed the Czech Republic consumer's behavioral intentions towards organic food, and concluded that attitude toward the behavior and subjective norm were both good predictors and had a positive influence on consumer's behavioral intention. In consumer buying behavior after food safety accidents, Mazzocchi et al. (2008) studied the intention to purchase chicken among 2725 consumers in France, Germany, Italy, the Netherlands, and the United Kingdom, and found that attitudes towards behavior, subjective norm and perceived behavior control affected the changes in consumer buying behavior after a food safety accident.

Risk perception

Risk perception was included in studies analyzing consumers' purchase intention after food scares. For example, Lobb, Mazzocchi, and Traill (2006) analyzed the chicken buying behavior and risk perception of consumers after the outbreak of avian flu by integrating risk perception and trust into the Theory of Planned Behavior (TPB) framework and considering the influence of different individual (or household) characteristics. Risk perception was also included in studies on genetically modified food. Chen and Li (2007) pointed out that risk perception, benefit perception, knowledge, and trust were important factors affecting the attitudes of Taiwanese consumers toward genetically modified foods. In an analysis of Italian consumers' intention to purchase genetically modified food, Prati, Pietrantoni, and Zani (2012) introduced risk perception, benefit perception, and trust in government institutions. Qin and Brown (2008) examined consumer attitudes towards genetically engineered salmon, and the results showed that attitudes towards genetically engineered salmon were influenced by risk perception, trust, knowledge, and outrage factors.

In recent years, due to the repeated outbreaks of various food safety incidents in China, public confidence in domestic food has been declining. As such, food safety is ranked number one among issues attracting the public attention in China in 2012 (E, 2012). The abuse of food additives and illegal use of chemical additives have become the primary sources of food safety incidents in China (Wu, Zhang, Shan, & Chen, 2012). Because of this, the public risk perception of food additives has grown increasingly strong, thus resulting in scares. Therefore, risk perception, an important factor affecting public food scares, should exert an impact on the intention to purchase food containing additives under food scares; and is included in this context.

Information

The present study investigated the public risk perception of food additives and food scares in Suzhou, China. It should be noted that, many non-edible chemicals maybe misconstrued as food additives due to the absence of public education on this topic, lack of general knowledge and misconception of food additives. Shim et al. (2011) studied consumers' knowledge and safety perceptions of food additives in South Korea also found that 76.8% of the participants expressed the view that information on food additives was insufficient, and the participants also claimed that it was difficult to understand the subject of food additives. A similar situation also exists in China. Information that is spread in diversified channels, like a complex crisscrossing network, can easily mislead. Some news media outlets/reporters do not have food safety expertise, and may present misleading information during the dissemination process. Hence, inaccurate or false information is amplified through poor journalism and uncensored social media in China. This misinformation can spread rapidly across the country and easily led to public food safety scares when the public has low scientific literacy and is biased against food additives (Wu & Huang, 2012). Therefore, the public perception of information about food additives has an important influence on public risk perception and purchase intention and should be included in this context.

In summary, we propose buying intention of food with additives would be affected by attitude toward the behavior, subjective norm, information perception, and risk perception.

Hypotheses

Attitudes toward the behavior (ATTI)

Affect and cognition have long been considered to be distinct components of attitude (McGuire, 1969). Ajzen (2000) suggested that attitude comprised two specific subcomponents. These were hypothesized to be composed of affective (e.g. enjoyable/unenjoyable) and instrumental (e.g., beneficial/harmful) evaluations toward a behavior. Meiselman and MacFie (1996) introduced negative affect into the TPB to investigate the intention of 172 mothers of children aged 5–11 years in the United Kingdom to choose nutritious foods and food containing additives. They demonstrated that negative affect had a significant impact on the mothers' choice of nutritious foods and food containing additives. Therefore, it is hypothesized that:

H_1: Attitudes toward the behavior have an impact on the public risk perception of food additive safety.
H_2: Attitudes toward the behavior have an impact on public's purchase intention.

Subjective norm (SN)

Fu and Tong (2003) suggested that family and reference groups could affect the perception and behavior of the respondents through various information dissemination channels. Sharlin (1987) argued that the exaggerated media reports of food safety incidents might incite an extreme emotional response among the public. In contrast to the organizations or individuals providing positive information of food safety, those providing negative information were more acceptable to the public; therefore, mass media had a greater incentive to provide negative information (Verbeke & Ward, 2001). Public confidence in food safety has always been significantly decreased by negative information, even without scientific evidence (Verbeke & Kenhove, 2002). A study by Wang (2010) of 382 consumers in Taiwan confirmed that consumers' intention to purchase popular food online was affected by food brand reputation, and that brand reputation had a positive impact on consumer confidence and reduced consumer risk perception. Therefore, it is hypothesized that:

H_3: SN has an impact on the public risk perception of food additive safety.
H_4: SN has an impact on public's purchase intention.

Information perception (INMF)

The public's perception and evaluation of the safety of additives is related to the information regarding food additives they already