



Extending the protection motivation theory model to predict public safe food choice behavioural intentions in Taiwan



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ABSTRACT

This study examined whether the causal relationships of protection motivation theory (PMT) can be applied to explain and predict the public's behavioural intentions for safe food choice through protection motivation of health and well-being promotion in Taiwan. In addition, the public's perceived food risk management quality and perceived product safety liability of food providers involved in food safety scandals were considered in the PMT model. The results of structural equation modelling indicated that, compared with the original PMT model, the extended PMT model demonstrates higher explanatory and predictive power of a person's protection motivation to mitigate food safety problems, but lower explanatory and predictive power of a person's behavioural intentions to make safe food choices. The empirical results drawn from the extended PMT model revealed that in addition to perceived vulnerability regarding the threat of food safety scandals and perceived self-efficacy, a person's perceived product safety liability of food providers involved in food safety scandals is a significant predictor of his or her protection motivation, which subsequently influences his or her behavioural intentions regarding safe food choices.

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1. Introduction

A series of food safety scandals that have occurred in Taiwan over the past few decades have not only received increased local and international media scrutiny but also increased public risk perceptions of food and decreased their trust in food safety (Chen, 2008). 'Risk may be defined as a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself (Beck, 1992, p. 21)'. Industrialism and modernization leads to incalculable and unsolvable new global and universal risks, and results in 'reflexive modernization'. In the context of modern systems of industrial food production, consumers have to place their trust in 'abstract systems' of regulations and in regulatory agencies that who enforce food safety policies (Berg et al., 2005; Green, Draper, & Dowler, 2003; Houghton, van Kleef, Rowe, & Frewer, 2006; Shapiro, 1987). Consumer's perceptions of food-related hazards and new food technologies are often grounded on his or her emotions such as worry, concern, and fear (Barnett &

Breakwell, 2001; Baron, Hershey, & Kunreuther, 2000; Laros & Steenkamp, 2004; Setbon, Raude, Fischler, & Flahault, 2005).

Previous studies have indicated that consumers' perceptions and concerns about food risks and the exposure to risks challenges their trust in the food system leading to greater reflection upon food safety (Green et al., 2003; Houghton et al., 2006; Lupton, 2004; Shaw, 2004). Diminishing confidence in the food supply chain due to food safety scandals have damaged trust in the actors in this system (Berg, 2004; Berg et al., 2005; Bildtgard, 2008; Chen, 2008; Kjarnes, Harvey, & Warde, 2007). Taiwan's food industry encompasses all parts of the food supply chain, extending from the production of raw materials (i.e., agricultural produce and food additives), to processing and distribution, and finally to the end consumers. The entire food supply chain includes food manufacturers, wholesalers and retailers, restaurant services, and trading services (Chen, 2012).

When globalization occurs to food trade, keeping safety and quality along the entire food supply chain becomes a significant challenge (Aung & Chang, 2014). It is critical for the members of public health community to gain an understanding of the potential health consequences of international trade, otherwise public health may fall victim to political disputes or be held hostage to trade

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liberalization (Chen, 2012). Therefore, the laws, policies, and standards regarding food safety and quality management needs to be developed and improved to respond to growing food safety issues (Aung & Chang, 2014). The melamine ($C_3H_6N_6$) food scandal in Mainland China in 2008 caused public fear in Taiwan and other Asian countries. It is a chance to rethink the systemic risk of the food supply chain and the related regulations in Mainland China (Chen, 2009). The melamine food scandal was a driver for organisational change and for broadening the jurisdiction of relevant government agencies in Taiwan. Improved systems for controlling the entire food supply chain must be devised and adopted from farm to fork because of an unprecedented level of public concern over food safety risks (Chen, 2012). Food safety in Taiwan was previously under the jurisdiction of the Department of Health. The Bureau of Food Safety, Bureau of Pharmaceutical Affairs, Bureau of Food and Drug Analysis, and Bureau of Controlled Drugs were consolidated into a new agency, the Taiwan Food and Drug Administration (TFDA), on January 1, 2010 to streamline processes from policy planning to execution and to improve the efficiency of governance with respect to public health.

However, the food safety scandals that have occurred in Taiwan since 2010 indicate that the organisational change is unsuccessful for safeguarding food safety and national health. Taiwan's positive reputation for high-quality food is under threat following the slew of food safety scandals in the past few years. The egregious food safety scandals began with a plasticiser found in cold drinks, jams, and pastries in 2011, followed by starch tainted with maleic acid products and counterfeit olive oil with green colouring made from a chemical additive in 2013. The gutter-oil scandal in 2014, which involved several of Taiwan's most reputable firms, culminated in public outcry over food safety. The series of incidents has diminished the public confidence in the safety of Taiwan's food supply system. In particular, street food may be very common and Taiwan's night markets may be popular for cultural reasons; however, despite certain practices being considered acceptable in the past, this is no longer the case for some practices under the regulations of the TFDA. The legacy of this unregulated market has allowed unsafe and unhealthy practices to continue, with many violators remaining unaware that what they were doing was illegal or unethical. The implementation of food safety management system based on HACCP principles is common to all food businesses; however, it is particularly challenging for the small and medium food businesses because of some barriers and limitations (Charalambous, Fryer, Panayides, & Smith, 2015; Mensah & Julien, 2011; Yapp & Fairman, 2006). There will be more barriers and limitations for the street food vendors. Therefore, the challenge for regulatory authorities to adequately manage and supervise food safety for this sector is substantial. From a public perspective, protecting small and medium food businesses and street food vendors from food safety violations is also a challenging task.

Theory-based approaches are effective for promoting purposeful behavioural change and risk reduction (Noar & Mehrotra, 2011; Prochaska et al., 2002). The protection motivation theory (PMT) model first introduced by Rogers (1975) was originally proposed to explain the effects of fear appeals on health-related attitudes and how people cope with them. Fear appeals are persuasive messages designed to scare people into compliance by threatening them with the negative consequences of noncompliance (Witte, 1992). Fear appeals can be regarded as a persuasive tactic for encouraging target audiences to engage in healthy behaviours (Boster & Mongeau, 1984; Witte & Allen, 2000). Rogers (1983) later expanded the theory to a more general theory of persuasive communication. Safety is one of the food product attributes that are considered by consumers when evaluating food choices (Grunert, 2005). The safety of food is commonly recognized as a credence,

which cannot be observed by consumers either before or after buying the goods (Beck, 1992; Caswell, Noeke, & Mojduszka, 2002), and a non-negotiable product attribute in the consumer's daily food purchase decision-making process (Chen, 2011). Food safety information can be considered risk information aimed at reducing the consumer uncertainty when making purchasing decisions (Verbeke, 2005). Public fear and panic in reaction to these food safety scandals could be considered a health threat, which could be a strong driver for protection motivation and for adjusting their food choice behaviour.

The primary objective of this study was to examine the predictive power of the PMT model proposed by Rogers (1983) in the context of the behavioural intentions of Taiwanese people regarding safe food choices in order to promote health and well-being (Fig. 1). Public-perceived food risk management quality (FRMQ) and perceived product liability of food providers involved in the food safety scandals were also considered in the PMT model. This study further examined whether the original PMT model or an extended model attained higher predictive power to explain public behavioural intentions towards safe food choices in Taiwan. To achieve these objectives, structural equation modelling (SEM) analyses were conducted to evaluate the predictive power of the both PMT models, and chi-square difference tests were employed to determine which PMT model achieved a higher explanatory power in predicting the public behavioural intentions towards safe food choices. The findings may provide insightful empirical implications and suggestions conducive to formulating an effective food safety policy in Taiwan.

2. Theoretical background and hypotheses development

2.1. Protection motivation theory

The PMT model (Rogers, 1983) posits that people encountering an environmental threat activate threat appraisal and coping appraisal processes, leading to activation of their protection motivation process. Threat appraisal involves estimating the likelihood of contracting harm (vulnerability) and the severity of such harm (severity) without behavioural change. Coping appraisal consists of response efficacy and self-efficacy; response efficacy is a person's expectancy that adopting a recommended behaviour can remove the threat. Self-efficacy is a person's belief and confidence in his or

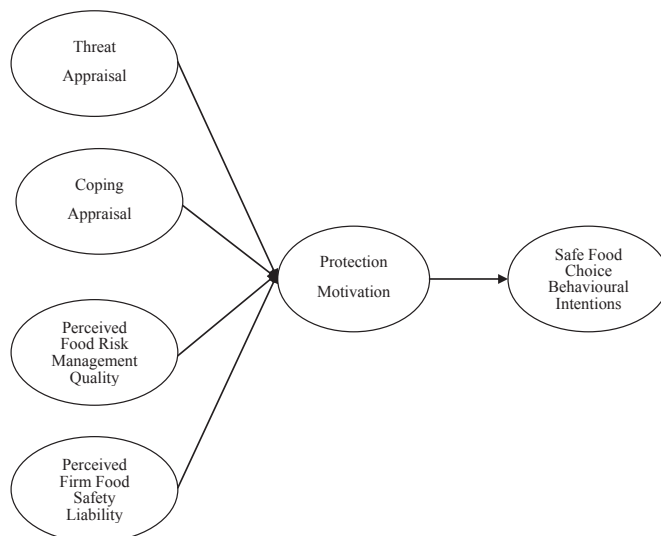


Fig. 1. The research framework of safe food choice behavioural intentions.

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