

**CONSUMER PERCEIVED RISK AND PURCHASING
BEHAVIOR TOWARD FOOD SAFETY ISSUES**

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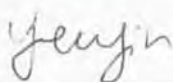
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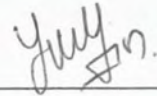
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I hereby declare that the material in this thesis is my own except for quotations, excerpts, equations, summaries and references, which have been duly acknowledged.

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ABSTRACT

Consumer Perceived Risk and Purchasing Behaviour towards Food Safety Issues

Food safety had become an important issues and reach higher concern when the issues were publicized globally. The objective of the study is to evaluate the impact of consumer perceived risk towards the purchasing intention in times of food safety concerns. Previous research on food safety had focused on microbiological hazards which can control with proper cooking thus this study extend to chemical hazards with the focus on instant noodles as there are quite a few recall cases due to banned preservatives and pesticide residues found in instant noodles. An empirical study of 340 respondents was carried out using convenience sampling distribution were done at two major shopping complexes: 1 Borneo and Centre Point. Data analysis performed in this study was factor analysis, reliability test, multiple and hierarchical regression. Result shows that consumers were concerned with health risk that is associated with instant noodles as it poses threat to the health of consumers. It was shown also education significantly moderates the relationship between perceived risk and purchasing intention. This study assists developing a better food safety communication which is useful for different stakeholders such as the industry, academicians or the government.



ABSTRAK

Persepsi Risiko Pengguna dan Perilaku Pembelian Terhadap Isu-isu Keselamatan Makanan

Keselamatan makanan telah menjadi satu isu penting dan mencapai perhatian yang lebih tinggi kerana isu diterbitkan secara global. Objektif kajian ini adalah untuk menilai kesan persepsi risiko oleh pelanggan terhadap niat perilaku pembelian di masa keprihatinan keselamatan makanan. Penyelidikan terdahulu tertumpu kepada isu-isu mikrobiologi yang dapat dikawal dengan pemasakan yang betul, oleh itu, sekarang tumpuan akan dijalankan terhadap isu-isu kimia pada mi segera. Oleh sebab, terdapat beberapa kes "recall" yang melibatkan penggunaan pengawet terlarang dan residu racun perosak yang ditemui dalam mi segera. Satu kajian empirical telah dijalankan pada 340 responden dengan menggunakan persampelan taburan di dua kompleks membeli-belah: 1 Borneo dan Centre Point. Analisis data dilakukan dalam kajian ini adalah analisis faktor, ujian kebolehpercayaan, regresi berganda dan hierarki. Keputusan menunjukkan bahawa pengguna bimbang dengan risiko kesihatan yang dikaitkan dengan mi segera kerana ia menimbulkan ancaman kepada kesihatan pengguna. Ia telah ditunjukkan juga pendidikan menyederhanakan hubungan antara persepsi risiko dan tingkah laku membeli. Penyelidikan ini membantu mengembangkan komunikasi keselamatan makanan yang berguna kepada industri, ahli akademik atau kerajaan.



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CHAPTER 1

INTRODUCTION

1.0 Overview

Food safety is always an important issue and further reach higher profile when there is increasing publicized incidents globally. Consumers have increasingly concern by the health risks posed by food consumption over the last decade (Lobb, Mazzocchi, and Traill, 2007). Further, public consumers had found difficulties in measuring the food safety risk using traditional methods such as smell, taste, or other physical attributes. Consumers have depending on the trust they have towards producers, retailers and regulators to ensure potential health impacts are minimised as the food safety are now commonly recognised as credence attribute. Furthermore, food safety is not only the concerns of consumers but it also a focal point of food industry and regulatory agencies (Brewer and Rojas, 2007).

The field of consumer behaviour has been explored extensively, with a view to understanding how, when and why consumers make purchase decisions. Common research themes have included studies that explored consumers attitudes towards a product and what factors that influence the purchase making behaviour which depends heavily on their perception on the product (Lucas, 2004). Consumer concerns about food quality include bacteriological contamination, chemical residues, food irradiation and the use of antibiotics (Smith and Riethmuller, 1999).

In recent years, food industries had experience few food safety crises such as microbiological hazard outbreak, Salmonella in eggs and allegedly chemical substance, melamine in infant milk powder and hydroxybenzoate and benzoic acid were found in Indomie instant noodle (Talha, 2010). Microbiological hazard "includes all hazards caused by bacteria which are living micro-organism that can cause food spoilage and possibly food poisoning for the consumer." (Yeung and Morris, 2001a, p.172). In Malaysia, the incidence rate of food poisoning is 62.5 percent from 100,000 populations in year 2008 and Sabah was ranked 7th in terms

of food poisoning cases among the fourteen states in Malaysia (Department of Statistics Malaysia, 2009).

Food safety issues have reduced consumer confidence in the healthiness of food products (Yeung and Morris, 2001). Further the recent food scares had cause significant reductions in the consumption of the affected products (Angulo and Gil, 2007). It had been shown in the collapse of beef market in the UK, France and Germany following the mad cow disease crisis (Hume, 2001). In addition, Lucas (2004) reported that the value of vegetarian foods market has increased by 56% between the years 1995 and 2000. There is a huge loss in export and fall in the value of domestic sales was recorded even though when the UK beefs market has gradually recovered (Palmer, 1996). This is in line with the theory of perceived risk where consumer purchase intention is shaped by the subjective impressions of these highly publicized events (Bauer, 1967).

Few other food safety issues which involves with instant noodles include the incident of Indomie instant noodle in Taiwan was being tainted with chemical hazards, hydroxybenzoate and benzoic acid which are usually used in cosmetics and is a banned preservative in food (Talha, 2010). Chemical hazard are define as "chemical agent or hazard (caused by coloring, food additives, growth hormone and antibiotic, and pesticide chemicals) found in the food which can cause an adverse health effect" (Luning, Devlieghere and Verhe, 2006, p.526). Further, at the same year U.S. Food Safety and Inspection Service recalled 50000 pounds of instant noodles manufactured by the Jin Lai Mang brand for not meet the import standard (Hodges, 2010). In 2004, there was accusation of Indomie noodles causing negative health effects and death in Nigeria where the analysis of the noodles found carbofuran (pesticide residue) above acceptable limits (Akpabio, 2008).

Further, in current year of 2011, popular Korean noodles "Shin Ramen" were recalled in Malaysia market for further testing as it was suspected of having excessive amount of cancer causing plastic additives di(2-ethylhexyl) phthalate (DEHP) and di-isononyl phthalate (DINP) (Ng, 2011). Although it was proven safe

to be consumed but harm has been made as it had created panic on instant noodle products. In addition, the market value of instant noodle in Malaysia was estimated to be between RM800 to RM900 million (Nam News Network, 2011). It is an enormous market in the instant noodle industry; however, subsequent to the safety issues in instant noodles, it had created fear and consumers will perceive risk on the products.

Under the heavy media attention, specific consumer food safety concerns can erupt into widespread alarm. Thus, consumers had become more concerned on food safety and quality, desire more transparency in production and distribution channels and for some products they had lost their trust in the production process as documented in previous research work. The negative influence of consumer perception regarding safety food products leads to significant losses in the food supply chain and inefficiency in marketing channels (Kim, 2008). It includes the cost of managing risks and the cost of restoring consumer confidence when it had been damaged. All these issues trigger the researchers to determine the impact of food safety towards intention to purchase as different consumers will react in different ways depending on the perceived risks associated with products.

Moreover, consumer behaviour is very complex and determined by emotions, motives and attitudes (Lucas, 2004). Attitudes play an important role in the consumer behaviour field as it determines his disposition to respond positively or negatively to an institution, person, event, object or product (Lucas, 2004). Consumption leads to experience with the product, and vice versa this affects attitudes. Steenkamp and Tripj (1989) states that when consumers evaluate a product alternative that may fulfil the same need, desire or want, he integrates the perceptions of the alternatives into an overall judgement, or attitude, about the attractiveness of each product alternative.

The perception of food safety risk has consequences for both consumer and producer welfare, and the overall effectiveness and efficiency of the food supply chain (Yeung and Morris, 2001). The perception of sanitary risk due to the consumption of certain products could drive consumers away from the products.

Perception of food safety risk is psychological interpretation which influences the attitudes and behaviour of consumers with respect to the purchase of food products (Yeung and Morris, 2001). These crisis had shown that science and technology combine with the governmental regulation do not offer guarantees that the risk associated with food have acceptable level (Ventura, 2004).

Yeung and Morris (2001) states that often major food companies lower the food prices or set up special offers to maintain sales volume during periods of poor consumer confidence in a product. Consumers may be willing to take risks at a discounted price nevertheless less so when their health is at risk. Most likely consumers that are willing to continue buying affected products are those who are willing to pay marginally higher prices in exchange for some kind of quality assurance that may decrease their perceived health risk (Yeung and Morris, 2001b). On the other hand, consumers may take other actions such either purchasing branded products or those with quality assurance mark in order to reduce the perceived risk in affected products. This is the query to be investigated on discovering the main factors affecting consumer decision process.

1.1 Problem Statement

Previous researches conducted on the consumer perceived risk have shown a negative relationship on the purchasing behaviour or intention (Yeung and Morris, 2006). This reflects that the latter will be adversely affected if consumers perceived risk in food. Consumer perceived that likeliness of an adverse short term of long term effect on the future generations and the environment if food hazard continue unchecked. Yeung (2002) reported her research was the pioneer study in adopting the theory of perceived risk with measurement of consequent of perceived loss in food safety context. Previous studies measurement focused on the microbiological hazard on chicken meat (Yeung, 2002; Yeung and Yee, 2002; Yeung and Yee, 2003; Yeung, Yee and Morris, 2010).

Other also focuses on microbiological hazards but on different products. Mahon and Cowan (2004) and Angulo and Gil (2007) conducted research of risk perception on beef and minced beef in terms of microbiological risk. However,

microbiological risk can be controlled with knowledge and proper cooking but it is not sure in the case of instant noodles as instant noodles unlike other products may have the issues of chemical risk. For instance, the recent case of Indomie instant noodle being recall due to allegedly tainted with chemical hazards, hydroxybenzoate and benzoic acid which are chemicals usually used in cosmetics and drugs (Talha, 2010). These chemicals is a banned preservative in instant noodles in Taiwan, Singapore, Canada and Europe while other countries allowed it at the maximum level of not exceeding 1,000 milligram per kilogram in food according to Codex Alimentarius Commission, an international food standards body.

Hence, it is uncertain on how the consumer perceives risk on chemical hazard found in instant noodles and whether the consumers perceived risk on chemical risk is aligned with the perceived risk on microbiological risk. Thus, this study emphasize on risk that is beyond the control by consumers which is the chemical risk and measures how it influence the perceived risk and risk reduction action and the impact on purchasing intention on instant noodles. For instance, Nissin instant noodles sales were dropped by 5.5 percent in year 2009 compared to year 2008 due to the insecticide contamination issues which revolving Nissin Food Products where Nissin had recalled half a million instant cup noodles (Nissin, 2009).

1.2 Research Question

The research question that is used in this study is:

1. What is the relationship between consumers perceived risk on the chemical hazards have on the purchasing intention?
2. What is the effect of risk reduction action towards the purchase intention?
3. Do socio-demographic characteristics moderate the relationship between perceived risk and risk reduction action towards purchase intention?

1.3 Research objectives

The objective of this study is to understand the consumers' purchasing intention during food safety scares.

1. To determine the relationship between consumers perceived risk in the concerns of chemical hazards towards purchasing intention.

2. To determine the effect of risk reduction action on the purchasing intention.
3. To examine the moderating effect of socio-demographic characteristics on consumer perceived risk and risk reduction action towards purchasing intention.

1.4 Research Scope

This scope of this study is limited to consumers of which are targeted at two large shopping complexes in Kota Kinabalu: 1 Borneo and Centre Point. Target respondents will be 21 years old and above as they had higher purchasing power. The data will be gathered using structured questionnaire. The primary data for the study are gathered directly from interview respondents in face to face settings. The survey or the data collection was done in the month of May.

Instant noodles are chosen as the product to be investigated as the product is widely consumed. Further, instant noodles are potentially subject to a number of hazards such as chemical hazards and nutritional hazards where few contamination cases happened globally on instant noodles which had been discussed in introduction overview. Hence, the consumption and purchasing intention of instant noodle should be explored.

Furthermore, the scope in the literature review of this study will concentrate on two key areas which are the consumer perceived risk and risk reducing action focusing towards the purchasing behaviour will be determined. In addition, the moderating effect of socio-demographic characteristics towards the two key areas and purchasing behaviour and their relationship will be showed.

1.5 Significance of Study

The importance of this study is that it adds knowledge of consumers' perceived risk and risk reduction towards purchasing intention in time of food safety concerns. Thus, this helps on developing a better food safety communication which is useful for different stakeholders such as the industry, academician or the government. With the information gathered, food industry will have a better knowledge on how or why consumers perceive food safety risk and further extend the information into

building up marketing strategies that may rebuild consumer confidence after a food safety scares (Yeung and Morris, 2001b).

Sales were affected when there is food safety issues reported in the media where previous studies found a shift of purchase and consumption in the affected products (Roseman and Kurzynske, 2006; Angulo and Gil, 2007). For instance, according to Chinese Dairy Association, China milk market sales had fallen 30 to 40 percent on comparative basis since the melamine scandal was erupted (Wikipedia, 2008).

It is expected that the demand of the affected products to decrease when consumers' perceived risk on the product such as the potential detrimental outcome results from pesticides residues over acceptable limit (Yeung, 2002). Thus, with the information collected in this study, the food industry may know the types of preventive or corrective action to be implemented to tackle the loss demand.

1.6 Definition of Variables

Purchase intention: Purchase intention is a measure of the likelihood that a person performs the purchasing. Purchase intention in the form of categories of behaviour was divided into few components namely: continue to purchase, delayed purchase after one month, three months or six months weighted to reflect intentions to purchase (Yeung, 2002, p.49).

Perceived risk: Uncertainty relating to possible negative effect of using a product or services which contains "a combination of uncertainty plus seriousness of outcome involved" as consumers could not foresee the consequences of his/ her purchase decision. It also defines as the subjective probability of loss and the perceived severity of the negative impacts (Gewald, Wüllenweber and Weitzel, 2006).

Health loss: It was perceived as fundamental impact which describes as "serious", "dangerous to health", "sick", "end up in hospital" and "can die"

(Yeung and Morris, 2001a, p. 274). It is the possibility that the products are harmful to one's health.

Lifestyle loss: Referred as "house bound", on a "restricted diet" or to "give up" some valued activities because of health problems (Yeung and Morris, 2001a, p. 274).

Time loss: It was referred as "can't afford to be absent from college" or "ill for few days" (Yeung and Morris, 2001a, p. 274) which refers to time loss consequent of being sick.

Risk Reduction Action: Strategies of risk reduction in reducing the risk of food safety in times of food safety scares (Yeung, 2002).

1.7 Summary

In this chapter, it had explored the effect of food safety issues on the confidence of consumers towards food products. It had shown that in times of food safety concerns there are changes of consumption and purchasing intention. In addition, this chapter had also outlined the problem statements, research question, research objectives, scope of study, significant of study and definition of variables. Next chapter will present the conceptual definition of variables and factors to be focus on.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

The previous chapter had determined the objective, significance and scope of study. This chapter will cover the reviews of previous research that had been done. Literature review is the secondary data that is acquired from journals, text books, master degree's thesis, conference proceeding and so on to up hold the derivation of hypothesis. There are three types of variables: dependent variable, independent variable, moderating variable used in this study. Consumer purchase intention is the dependent variable. There are two independent variables which are the consumers' perceived risk (health loss, lifestyle loss, and time with financial loss) and risk reduction action (brand and information). While moderating variable is socio-demographic characteristics (education level, age, race and gender).

2.1 Theory of Perceived Risk

Theory of perceived risk was used in this study to investigate the consumer purchasing intention in times of food safety scares. The concept of perceived risk was first proposed by Bauer and it had since used to measure consumer behavior in perceived risk perspective started in 1960 (Lim, 2003). Purchasing action "will produce consequences which he cannot anticipate with anything approximating certainty, and some of which at least are likely to be unpleasant" as the consumer behavior engage risk (Bauer, 1967, p.47). Bauer (1967) was among the earliest to suggest that subjective loss motivates the consumer behavior instead of objectivity of risk, even when consumers could measure the risk involved correctly.

Bauer (1967) further debated that in a purchase situation as soon as a risk has been perceived then there is reasonable evidence that subsequent consumer behavior is shaped by this risk perception. Lim (2003) discuss that consumer perceived risk as they are confronted with uncertainties or adverse effect

subsequent to the purchasing. The notions of perceived risk are subdivided into various losses which had been explored by numerous researchers. Kaplan, Szybillo, and Jacoby (1974) evaluate the overall perceived risk using five types of components such as physical, psychological, social, financial, performance which associated with purchase of 12 products in which performance consequences are the most predictive among all perceived risk.

Brooker (1984) further expanded the study done by Kaplan *et al.* (1974) by addition of time loss risk component which are suggested by Roselius (1971). Mitchell (1998) identified five components of perceived risk namely: physical, financial, time, performance, social and psychosocial. Bourlakis and Weightman (2004) research on seven types of risk or losses that associate with purchase and usage of the product which comprise of physical, performance, social, psychological, financial, time and opportunity. Thus, it shows that there is link between consumer risk perception and their future purchasing where consumers will purchase less when they perceive that the product is in high risk.

When consumers perceived risk during purchasing then they may find alternatives to reduce the risk. This risk reducing behavior may perform as the channel to reduce the perceived loss and further encourage purchasing (Yeung *et al.*, 2010). Four generic strategies had been identifies to decrease perceived risk are the following (Roselius, 1971):

1. If the product does fail, then, reduce the real and imagined loss suffers or lessen the perceived insecurity about the product
2. Move from one type of perceived loss dimension to another which is more acceptable
3. Suspend the purchase
4. Purchase the product and take in the risk

Yeung and Morris (2001) in their qualitative study states that consumer risk management influences risk management strategies that are implemented by food industry. The communication strategies (risk reducing strategies) that aids in lessen consumer perceptions of risk includes quality assurance, brand building, trading

standards promotion and so on (Yeung *et al.*, 2010). Thus, in this study, the risk reduction action included brand and information seeking. Mitchell (1998) further testify in the perceived risk theory, retailers will have significant competitive advantage if they are able to offer lowest risk products. The marketing practitioners could implement these risk-reducing strategies in new product development or alteration, segmentation tools and enhance individual sales (Mitchell, 1999).

2.2 Consumer Purchase Intention

Brown, Pope and Voges (2001) define purchase intention as the buying likelihood for products within a defined time periods. It may be affected by the customer involvement and it diverse across brand or product lines from a product perspective. Yeung (2002) states that consumer purchase likelihood is negatively influence by the food scares incident. For example, after the mad cow disease was emerging, the beef market had shown to be collapse at UK, France and Germany. The subjective impression of these highly publicized events had shape the consumer purchase intention (Bauer, 1967). For instance, Lucas (2004) reported that during food scandal, communication source such as television influence consumer purchase habits and attitudes.

In the study done by Angulo and Gil (2007) which research on consumer perceived risk and their willingness to pay (WTP) premium for certified beef in Spain had shown that the increased food scared had increase the food safety concern. The result also shown only one out of four respondents that are willing to pay premium for certified beef with income, quantity of beef consumption, the standard price consumers pay for certified beef with the beef safety perception as the determinants. In an almost similar study on consumer willingness to pay for food product with "no MSG labeling" shows that consumers perceived food product with "no MSG labeling" are healthier and safer to consume (Radam *et al.*, 2010). Income, household with children, female respondents, tertiary education are shown to have positive relationship with WTP. Results also show that respondents are less likely to purchase the food when the price of the food product is higher.

Kim and Chung (2011) study on the consumer purchase intention for organic personal products using attitude, past experiences and subjective norm as the independent variables. It was found that all these variables had a positive relationship with purchase intention. Further, past experience also found significantly affect the purchase intention. To sum all, it was indicated that generating positive attitudes towards organic products may significantly increase purchase intention for the products.

Brewer and Rojas (2004) studied on consumer attitudes towards issues in food safety found that microbiological issues had the most concern level. Consumers are revealed that 18 to 28 percent are unwilling to purchase and reduce the intake of variety of food that are suspected to genetic modified, irradiated or derived from animal treated with hormones and antibiotic. However, 70 to 80 percent shows that they trust the food to be safe when FDA verify that irradiated food, those containing GMOs and product derived from animals treated with antibiotic and hormones are safe.

In a study of purchasing intention on food products, which focus on genetic modified (GM) food found that most of the respondents amounted to sixty percent possess a strong intention not to purchase GM food (Cook, Kerr and Moore, 2002). There is negative purchase intention when consumers perceived risk on the products. In another example concerning on food safety context, Yeung and Morris (2006), in their study on perceived risk and purchase likelihood it was discover that perceived risk had negatively relationship with purchase likelihood of chicken meat products.

In this study, the consumer perceived risk and risk reduction action determined purchase intention. The purchase intention which is used as the determinant would be ask to the respondents to give their information on the purchasing behavior made during food safety issues. As it is obvious that consumers usually modify their purchasing behavior in order to relieved risk either by reducing, shifting or postponing the purchase of the faulty product when it is possible (Yeung, 2002). This study will determine purchasing intention either

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